Town Of Erie
Planning Commission Regular Meeting
Wednesday, October 7, 2015
6:30 P.M.
Board Room, Erie Town Hall, 645 Holbrook, Erie, CO 80516

I. **CALL TO ORDER & PLEDGE OF ALLEGIANCE TO THE FLAG**

II. **ROLL CALL**

III. **APPROVAL OF THE AGENDA**

IV. **APPROVAL OF MINUTES**

Approval of the September 16, 2015, Planning Commission Regular Meeting Minutes
Approval of the September 30, 2015, Planning Commission Special Study Session Minutes.

V. **PUBLIC COMMENTS** (This agenda item provides the public an opportunity to discuss items other than items that are on the agenda. The Planning Commission is not prepared to decide on matters brought up at this time, but it warranted, will place them on a future agenda.)

VI. **RESOLUTIONS** (This agenda item is for all matters that should be decided by resolutions.)

1. **Public Hearing - Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat**

Purpose: Consideration of the Preliminary Plat
Request: Consideration of Resolution P15-30, A Resolution Regarding The Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat, Adopting Certain Findings Of Fact And Conclusions Favorable To The Preliminary Plat.
Location: West of King Soopers, North of Hwy 7, South of Ridge View Dr., East of Mountain View
Applicants: Montex Development /Charter Homes of Colorado
(Staff Planner: Todd Bjerkaas)

2. **Public Hearing - Vista Ridge Filing No. 12, 1st Amendment Site Plan**

Purpose: Consideration of the Site Plan
Request: Consideration of Resolution P15-31, A Resolution Making Certain Findings Of Fact And Conclusions Favorable To The Site Plan For Vista Ridge Filing No. 12, 1st Amendment, Town Of Erie, County Of Weld, State Of Colorado.
Location: West of King Soopers, North of Hwy 7, South of Ridge View Dr., East of Mountain View
Applicants: Montex Development /Charter Homes of Colorado
(Staff Planner: Todd Bjerkaas)

3. **Public Hearing – Sierra Vista Preliminary Plat**

Purpose: Consideration of the Preliminary Plat
Request: Consideration of Resolution P15-32, A Resolution Regarding The Sierra Vista Preliminary Plat, Adopting Certain Findings Of Fact And Conclusions Favorable To The Preliminary Plat.
Location: West of Bonanza Dr., North of Hwy 7, South of Erie Air Park, East of the runways
Applicants: Highway 7 and Bonanza, LLC
(Staff Planner: Todd Bjerkaas)

VII. GENERAL BUSINESS (This agenda item is reserved for matters that are ready for Commission action, and do not fit into other categories, i.e. resolutions)

None

VIII. STAFF REPORTS (This agenda items is reserved for specific items from Staff requiring Commission direction or just relaying important information.)

IX. COMMISSIONER REPORTS AND DISCUSSION ITEMS (This agenda item is for all Planning Commission reports and items of information as well as Commission discussion items, not listed on the agenda.)

X. ADJOURNMENT TO STUDY SESSION

XI. STUDY SESSION

Comprehensive Plan Update

Purpose: Review Community Vision Chapters 6-8 Redlines

FOR MORE INFORMATION ON THE AGENDA ITEMS LISTED, PLEASE CONTACT THE COMMUNITY DEVELOPMENT OFFICE AT 645 HOLBROOK STREET, 303-926-2770

Town of Erie
Planning Commission Regular Meeting
Wednesday, September 16, 2015
6:30 p.m.
Board Room, Erie Town Hall, 645 Holbrook, Erie, Co 80516

I. CALL MEETING TO ORDER & PLEDGE OF ALLEGIANCE

Chairman Bottenhorn called the Regular Meeting of the Erie Planning Commission to order at 6:32 p.m.

II. ROLL CALL

Commissioner Bottenhorn - Present
Commissioner Burgard - Present
Commissioner Campbell - Present
Commissioner Kemp - Present
Commissioner Fraser - Excused
Commissioner Gippe - Present
Commissioner Harrison - Excused

Staff Present: R. Martin Ostholthoff, Community Development Director;
Deborah Bachelder, Senior Planner;and
Hallie Sawyer, Secretary to the Commission

III. APPROVAL OF THE AGENDA

Commissioner Campbell moved to amend the September 16, 2015, Regular Meeting Agenda by moving item VII. General Business to item VI. Resolutions, and moving Resolutions Down, and to approve the agenda as amended. The motion, seconded by Commissioner Gippe, carried with all voting in favor thereof.

IV. APPROVAL OF MINUTES

a. Minutes from the September 2, 2015, Regular Meeting.

Commissioner Gippe moved to approve the September 2, 2015, Minutes as submitted. The motion, seconded by Commissioner Campbell, carried with all voting in favor thereof.

V. PUBLIC COMMENTS (This agenda item provides the public an opportunity to discuss items other than items that are on the agenda. The Planning Commission is not prepared to decide on matters brought up at this time, but it warranted, will place them on a future agenda.)

None.

VI. GENERAL BUSINESS (This agenda item is reserved for matters that are ready for Commission action, and do not fit into other categories, i.e. resolutions)

1. ERIE HIGHLANDS PA 5, 6 & 14 SKETCH PLAN

Purpose: Consideration & comments for proposed sketch plan.
Location: South of Erie Parkway between Bonanza Drive and WCR 5
Applicants: Oakwood Homes
(Staff Planner: Deborah Bachelder)

Deborah Bachelder introduced the Erie Highlands Planning Areas 5, 6 & 14 application for Sketch Plan, briefly outlining the proposed plans for the surrounding areas.

Layla Rosales, Terracina Designs, and Bruce Real, Vice President of Oakwood Homes, represented the applicant. Ms. Rosales described the changes they were proposing regarding access to the open space areas and the proposed realignment of some lots in Planning Areas 5, 6 & 14.

Commissioner questions and comments covered the timeline for the park and school; dark areas in the open space areas; confirmation that there will be elementary schools in both Erie Highlands and Colliers

Hill and both schools will be needed; does the coloring on the map represent the three different products they are building; and separation and landscaping against the salvage yard.

At 6:49 p.m., Chairman Bottenhorn called for a recess while we waited for Anne Ricker's arrival. The meeting was called back to order at 7:08 p.m.

VII. RESOLUTIONS (This agenda item is for all matters that should be decided by resolutions.)

1. HIGHWAY 287 URA

Purpose: Consideration of a URA District for Highway 287
Request: Consideration of Resolution P15-28, A Resolution Of The Planning Commissioners Of The Town Of Erie Finding That The Urban Renewal Plan For The Highway 287 Area Is In Conformance With The Town Of Erie Comprehensive Plan
Location: Highway 287
Applicants: Erie Urban Renewal Authority
(Staff Planner: Marty Ostholthoff)

Anne Ricker and Carolynne White, Esq., consultants to the Town of Erie Urban Renewal Authority, presented background of the Authority, the request and steps taken to develop a plan for the highway 287 area, including consideration of compliance with the 2005 Comprehensive Plan, with the Commission determining if compliance with the plan had been met.

Commissioner questions and comments covered blight findings clarification; tiff subsidies and financing; who & why determines blight; would the 287 site be developed without being in an Urban Renewal District; and appreciation for all the effort put into this project.

Commissioner Burgard moved approval of Resolution P15-28, A Resolution Of The Planning Commissioners Of The Town Of Erie Finding That The Urban Renewal Plan For The Highway 287 Area Is In Conformance With The Town Of Erie Comprehensive Plan. The motion, seconded by Commissioner Gippe, carried with all voting in favor thereof.

2. 4 CORNERS URA

Purpose: Consideration of a URA District for 4 Corners
Request: Consideration of Resolution P15-29, A Resolution Of The Planning Commissioners Of The Town Of Erie Finding That The Urban Renewal Plan For The Four Corners Area Is In Conformance With The Town Of Erie Comprehensive Plan
Location: The SW Corner of Erie Parkway and County Line Road
Applicants: Erie Urban Renewal Authority
(Staff Planner: Marty Ostholthoff)

Anne Ricker and Carolynne White, Esq., consultants to the Town of Erie Urban Renewal Authority, presented background of the Authority, the request and steps taken to develop a plan for the 4 Corners area, including consideration of compliance with the 2005 Comprehensive Plan, with the Commission determining if compliance with the plan had been met.

Commissioner Questions and comments covered what will the builder get from the Town; and will this be designated as a district.

Commissioner Gippe moved approval of Resolution P15-29, A Resolution Of The Planning Commissioners Of The Town Of Erie Finding That The Urban Renewal Plan For The Four Corners Area Is In Conformance With The Town Of Erie Comprehensive Plan. The motion, seconded by Commissioner Campbell, carried with all voting in favor thereof.

VIII. STAFF REPORTS (This agenda items is reserved for specific items from Staff requiring Commission direction or just relaying important information.)

Mr. Ostholthoff reminded everyone of the Open House and tours at the new Police Department and Municipal Courts building starting at 4:00 p.m. Friday, September 18th.

Mrs. Sawyer reminded everyone that Biscuit Day is Saturday, September 19th from 8 am until 1 p.m.

IX. COMMISSIONER REPORTS AND DISCUSSION ITEMS

(This agenda item is for all Planning Commission reports and items of information as well as Commission discussion items, not listed on the agenda)

None.

X. ADJOURNMENT

There being no further business to come before the Commission, Chairman Bottenhorn adjourned the September 16, 2015, Regular Meeting of the Planning Commission at 8:05 p.m. .

Respectfully Submitted,

Town of Erie Planning Commission

By: _____
Hallie S. Sawyer, Secretary

By: _____
J. Eric Bottenhorn, Chair

The scheduled Study Session to address Chapters 4, 5 and the Land Use Plan Map portions of the 2005 Comprehensive Plan was rescheduled to September 30th since Commissioners Fraser and Harrison were not in attendance.

Town of Erie
Planning Commission Special Study Session
Wednesday, September 30, 2015
6:30 p.m.
Board Room, Erie Town Hall, 645 Holbrook, Erie, Co 80516

I. CALL MEETING TO ORDER & PLEDGE OF ALLEGIANCE

Chairman Bottenhorn called the Special Study Session of the Erie Planning Commission to order at 6:34 p.m.

II. ROLL CALL

Commissioner Bottenhorn - Present
Commissioner Burgard – Present
Commissioner Campbell - Present
Commissioner Fraser - Present
Commissioner Gippe - Present
Commissioner Harrison - Present
Commissioner Kemp - Present

Staff Present: R. Martin Ostholthoff, Community Development Director; and Hallie Sawyer, Secretary to the Commission

III. STUDY SESSION

Comprehensive Plan Update

Purpose: Review Community Vision Chapters 4 & 5 Redlines & Comprehensive Plan Map.
Mr. Ostholthoff and the commission reviewed the proposed updates to the Comprehensive Plan.

IV. STAFF REPORTS

None.

V. COMMISSION REPORTS AND DISCUSSION ITEMS

None.

VI. ADJOURNMENT

There being no further business to come before the Commission, Chairman Bottenhorn adjourned the September 30, 2015, Special Study Session of the Planning Commission at 8:41 p.m.

Respectfully Submitted,

By: _____
Hallie S. Sawyer, Secretary

Town of Erie Planning Commission

By: _____
J. Eric Bottenhorn, Chair

TOWN OF ERIE
PLANNING COMMISSION MEETING
October 7, 2015

SUBJECT: **PUBLIC HEARING:**

Consideration of Resolution P15-30: A Resolution Regarding The Preliminary Plat Of Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat, Adopting Certain Findings Of Fact And Conclusions Favorable To The Preliminary Plat.

PURPOSE: Consideration of a Preliminary Plat that includes 3 lots for multi-family residential buildings, 3 tracts for roads, utilities and park use, and 1 future development tract.

PROJECT FILE NO: PP-000055-2014

ZONING: PD – Vista Ridge Planned Development

CODE: Erie Municipal Code, Title 10

DEPARTMENT: Community Development
Todd Bjerkaas PLA, Senior Planner

STAFF RECOMMENDATION

Staff finds the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat in compliance with the Preliminary Plat Approval Criteria and recommends the Planning Commission adopt Resolution P15-30 recommending approval to the Board of Trustees with the following conditions:

1. A separate Vacation application shall be processed concurrent with any Vista Ridge Filing No. 12, 1st Amendment Final Plat to vacate the existing 10-foot utility easement created by the Vista Ridge Filing No. 12 plat.
2. Technical corrections to the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat shall be made to the Town's satisfaction.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:

Applicant: Chartered Development Corporation
Ward Ritter
3160 Vista Village Drive, Suite 104
Erie, Colorado, 80516

Owner: Montex (Vista Ridge, LLC)
Andy Chaikovsky
4915 Gaylord Street
Englewood, Colorado 80113

Location:
The property is located on the southeast corner of Ridge View Drive and Mountain View Boulevard.

Existing Conditions:

Zoning: Vista Ridge PD – Planned Development
Project Size: 18.065 Acres
Existing Use: Vacant Land

Adjacent Land-Use/Zoning:

	ZONING	LAND USE
NORTH	PD – Planned Development (Vista Ridge)	Private School and Single Family Residential
EAST	PD – Planned Development (Vista Ridge)	Vacant Land (future commercial)
SOUTH	PUD – Planned Development (Broomfield)	Single Family Residential
WEST	PD – Planned Development (Vista Ridge)	Commercial and Single Family Residential

Compliance with Town of Erie Comprehensive Plan:
The application is in Compliance with the Land Use designations on the Comprehensive Plan, Land Use Plan Map. This property allows for High Density Residential, Medium Density Residential and Regional Commercial land uses.

Compliance with the Vista Ridge PD Development Plan:
The residential uses and density proposed are in compliance with the Vista Ridge PD Development Plan for Planning Area 7-3.

SITE SPECIFIC DEVELOPMENT INFORMATION:

The applicant's site plan proposal includes 144 units distributed among 36 4-unit Manor Homes in Vista Ridge Filing No. 12, 1st Amendment. The buildings are proposed on 3 lots as shown in this preliminary plat with sizes of 1.641, 2.928, and 3.465 acres. A Site Plan application is being processed concurrent with this preliminary plat.

Development Data:

- Preliminary Plat Size: 18.065 acres
- Number of Residential Lots Proposed: 3 lots
- Number of Tracts: 4 tracts
- Gross Residential Density Proposed: 14.1 dwelling units per acre

Roadways:
The private roads and drives serving the proposed subdivision are in compliance with the standards permitted by the Vista Ridge Planned Development - Development Plan. All private roads and drives proposed will be owned and maintained by the owner. The internal drive, Ridge View Circle, connects to Ridge View Drive at two places, and access points are aligned with Primrose Academy and Montex North entrances.

Utilities:
The property will be served by the Town of Erie for water and sanitary sewer service.

An existing detention pond located west of the subject property was sized to accommodate the storm water from the proposed development of this site.

Utility service providers for the property are United Power for electric, Xcel Energy for natural gas, Century Link Communications for telephone services and Comcast for cable television. Utility easements for these providers are shown here and will be established at the time of final plat.

Natural Areas Inventory:
The Town of Erie Natural Areas Inventory does not identify any natural areas within or immediately adjacent to the subject property.

Threatened and Endangered Species and Significant Habitats
A site specific General Ecological Resources Survey, completed by Western Environmental and Ecology, Inc., was submitted to assess threatened and endangered species and significant habitats.

The report concludes that no threatened or endangered species or obvious habitats were seen on the subject property.

Landscaping, Parks, Trails and Open Space:
Sidewalks will be added in addition to landscaping within the right of way of Ridge View Drive and Tract B for Ridge View Circle. The applicant will also extend the Ridge View Drive sidewalk to its intersection with Mountain View Boulevard and extend five sidewalk stubs to the future commercial areas to the east and south.

Park and open space dedications have been previously satisfied for Vista Ridge; however, the new development provides a pocket park in Tract C to meet the Town's pocket park spacing requirements.

Schools:
The proposed subdivision is located in the St. Vrain Valley School District.

Police Services:
The Erie Police Department will provide service to the property.

Fire Protection:
The Mountain View Fire Protection District will provide fire and emergency medical services.

Oil/Gas Facilities:
No above ground oil and gas facilities are located within 350-feet of the proposed subdivision.

Soils and Geology:
The Geotechnical Investigation report provided by the applicant addresses subsidence risks and soil conditions for the property. The report states that the site is not undermined, and that expansive soils exist. The expansive soil issue will be mitigated in that prior to the issuance of a building permit; site specific soil tests are required for each lot that will be the basis for foundations design that mitigates expansive soil issues.

APPROVAL CRITERIA - STAFF ANALYSIS:

The proposed Preliminary Plat for the multi-family dwelling units within Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat was reviewed for conformance with Municipal Code, Title 10, UDC Section 10.7.7.C.10. Approval Criteria. Staff finds the Preliminary Plat in compliance with the Preliminary Plat Approval Criteria as listed below.

a. The subdivision is generally consistent with the Town's Comprehensive Master Plan.

   Staff: The proposed subdivision is generally consistent with the 2005 Comprehensive Plan Land Use Plan Map land use designation of HDR-High Density Residential.

b. The subdivision is generally consistent with and implements the intent of the specific zoning district in which it is located.

   Staff: The proposed subdivision is in compliance with the Vista Ridge Planned Development zoning.

c. The general layout of lots, streets, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed to meet the Town's standards related to health and safety and in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees/vegetation and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this UDC.

   Staff: The proposed subdivision meets the applicable Town's standards.

d. The subdivision complies with all applicable use, development, and design standards set forth in Chapters 3, 5 and 6 of this UDC that have not otherwise been modified or waived pursuant to this Chapter or this UDC. Applicants shall refer to the Development

Standards in Chapter 5 of this UDC and shall consider them in the layout of the subdivision in order to avoid creating lots or patterns of lots in the subdivision that will make compliance with such development and design standards difficult or infeasible.

Staff: The proposed subdivision meets the Town's UDC standards.

e. The subdivision complies with all applicable regulations, standards, requirements, or plans of the Federal or State governments and other relevant jurisdictions, including but not limited to wetlands, water quality, erosion control, and wastewater regulations.

Staff: The proposed subdivision will meet applicable Federal and State standards.

f. The subdivision will not result in significant adverse impacts on the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated.

Staff: No significant adverse impacts are anticipated with the proposed subdivision.

g. The subdivision shall be integrated and connected, where appropriate, with adjacent development through street connections, sidewalks, trails, and similar features.

Staff: The proposed subdivision will be integrated into the existing road and pedestrian network.

h. The subdivision will not result in significant adverse impacts on adjacent properties, or such impacts will be substantially mitigated.

Staff: No significant adverse impacts are anticipated with the proposed subdivision.

i. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools are available to serve the subject property, while maintaining sufficient levels of service to existing development.

Staff: Adequate facilities are available to serve the proposed subdivision.

j. As applicable, the proposed phasing plan for development of the subdivision is rational in terms of available infrastructure capacity.

Staff: Adequate infrastructure is available to serve the proposed subdivision.

STAFF RECOMMENDATION:

Staff finds the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat in compliance with the Preliminary Plat Approval Criteria and recommends the Planning Commission adopt Resolution No. P15-30 recommending approval to the Board of Trustees with the following conditions of approval:

1. A separate Vacation application shall be processed concurrent with any Vista Ridge Filing No. 12, 1st Amendment Final Plat to vacate the existing 10-foot utility easement created by the Vista Ridge Filing No. 12 plat.
2. Technical corrections to the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat shall be made to the Town's satisfaction.

NEIGHBORHOOD MEETING:

As required by the Municipal Code a Neighborhood Meeting was held on April 22, 2015 at 6:15 p.m. at the Vista Ridge Community Center. The required notice for the Neighborhood Meeting was provided.

PUBLIC NOTICE:

Notice of this Public Hearing has been provided as follows:

Published in the Colorado Hometown Weekly:	September 16, 2015
Property Posted as required:	September 17, 2015
Letters to Adjacent Property Owners:	September 18, 2015

Approved by:

R. Martin Ostholthoff
Community Development Director

Attachments:

A. Resolution P15-30
B. Application Materials
C. Referral Comments/Responses

ATTACHMENT A

RESOLUTION NO. P15-30

A RESOLUTION REGARDING THE VISTA RIDGE FILING NO. 12, 1ST AMENDMENT PRELIMINARY PLAT, ADOPTING CERTAIN FINDINGS OF FACT AND CONCLUSIONS FAVORABLE TO THE PRELIMINARY PLAT.

WHEREAS, the Planning Commission of the Town of Erie, Colorado, considered the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat on Wednesday, October 7, 2015 on the application of Montex (Vista Ridge, LLC), 4915 Gaylord Street, Englewood, CO 80113, such Preliminary Plat being a plat of the following real property; to wit:

Tract A, Vista Ridge Filing No. 12; and Tract B, Vista Ridge Filing No. 14.

WHEREAS, the Preliminary Plat is detailed on the attached "Exhibit A" Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat; and

WHEREAS, said Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat is incorporated herein and made part hereof by this reference.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE TOWN OF ERIE, COLORADO, as follows:

Section 1. Findings of Fact.

1. The applicant's application and supporting documents are in substantial compliance with Section 7.7.C of Title 10, Town of Erie Municipal Code.
2. The Town of Erie Municipal Code shall be followed in the development of the property.
3. A development agreement will be required at such time as the property is approved for the final plat.
4. The Preliminary Plat as proposed, subject to the following conditions, will preserve the health, safety, welfare and interest of the citizens of the Town of Erie, Colorado.
    a. A separate Vacation application shall be processed concurrent with any Vista Ridge Filing No. 12, 1st Amendment Final Plat to vacate the existing 10-foot utility easement created by the Vista Ridge Filing No. 12 plat.
    b. Technical corrections to the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat shall be made to the Town's satisfaction.

Section 2. Conclusions and Order Recommending Approval of the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat to the Board of Trustees.

1. Based on the above Findings of Fact, the Planning Commission hereby forwards the Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat application to the Board of Trustees with the Planning Commission's recommendation for approval with the conditions of approval listed above.

INTRODUCED, READ, SIGNED AND APPROVED this 7th day of October 2015.

TOWN OF ERIE, PLANNING COMMISSION

_____

J. Eric Bottenhorn, Chairman

ATTEST:

_____

Hallie S. Sawyer, Secretary

EXHIBIT A

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT PRELIMINARY PLAT

A RESUBDIVISION OF: TRACT A, VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION AND TRACT B, VISTA RIDGE FILING NO. 14, MINOR SUBDIVISION PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.
18.019 ACRES–3 LOTS/4 TRACTS
PP–000055–2014
SHEET 1 OF 3

LEGAL DESCRIPTION

TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" AND TRACT B OF "VISTA RIDGE FILING NO. 14 MINOR SUBDIVISION PLAT", LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

CONTAINING 784,894 SQUARE FEET OR 18.019 ACRES, MORE OR LESS.

GENERAL NOTES

1. THE PLAT CONSISTS OF FURTHER SUBDIVIDING A PORTION OF TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" AND TRACT B OF "VISTA RIDGE FILING NO. 14 MINOR SUBDIVISION PLAT", TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO. THIS PLAT WILL CONTAIN 3 LOTS AND 4 TRACTS. LOTS 1, 2 AND 3 WILL BE USED FOR ONE LEASING OFFICE AND 144 SINGLE-FAMILY ATTACHED UNITS.

2. TRACT B IS FOR UTILITY, DRAINAGE, PRIVATE ACCESS DRIVES AND EMERGENCY ACCESS PURPOSES AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSOR OR ASSIGNS.

3. TRACT C IS FOR A PARK AREA AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSOR OR ASSIGNS.

4. TRACT A1 IS FOR THE DETENTION POND AREA AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, DRAINAGE AND LANDSCAPING AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSOR OR ASSIGNS.

5. TRACT A2 IS FOR FUTURE DEVELOPMENT AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSORS OR ASSIGNS.

6. UTILITY AND DRAINAGE EASEMENTS, LABELED HEREON, SHALL BE GRANTED FOR THE INSTALLATION AND MAINTENANCE OF SANITARY SEWER LINES, WATER LINES, STORM DRAINAGE FACILITIES, SURFACE DRAINAGE AND FOR THE BENEFIT OF THE APPLICABLE UTILITY PROVIDERS FOR THE INSTALLATION, MAINTENANCE, AND REPLACEMENT OF ELECTRIC, GAS, TELEVISION, CABLE, AND TELECOMMUNICATIONS FACILITIES (DRY UTILITIES) AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, TOGETHER WITH A PERPETUAL RIGHT OF INGRESS AND EGRESS FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF SUCH LINES AND APPURTENANCES. SAID EASEMENTS AND RIGHTS ARE TO BE UTILIZED IN A RESPONSIBLE AND PRUDENT MANNER.

7. DRAINAGE EASEMENTS, LABELED HEREON, SHALL BE GRANTED FOR THE INSTALLATION AND MAINTENANCE OF DRAINAGE LINES AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, AS WELL AS SURFACE DRAINAGE. TOGETHER WITH A PERPETUAL RIGHT OF INGRESS AND EGRESS FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF SUCH LINES AND APPURTENANCES. SAID EASEMENTS AND RIGHTS ARE TO BE UTILIZED IN A RESPONSIBLE AND PRUDENT MANNER.

8. A BLANKET DRAINAGE EASEMENT SHALL BE GRANTED OVER AND ACROSS LOTS 1, 2 AND 3 AND TRACTS B, C AND A–1 FOR THE INSTALLATION AND MAINTENANCE OF DRAINAGE LINES AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, AS WELL AS SURFACE DRAINAGE, TOGETHER WITH A PERPETUAL RIGHT OF INGRESS AND EGRESS FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF SUCH LINES AND APPURTENANCES. SAID EASEMENTS AND RIGHTS ARE TO BE UTILIZED IN A RESPONSIBLE AND PRUDENT MANNER. THIS BLANKET EASEMENT IS RESTRICTED TO THOSE AREAS OUTSIDE OF THE BUILDING FOOTPRINTS.

9. A PERPETUAL EASEMENT OVER AND ACROSS LOTS 1–3 AND TRACTS B AND C FOR THE PUBLIC ACCESS; PROVIDED THAT THE AFORESAID EASEMENT SHALL BE RESTRICTED TO THE LOCATION OF SIDEWALKS, PEDESTRIAN PATHS, STREETS, PARKING LOTS, PARKS, COMMON AREAS AND LANDSCAPED AREAS AS REFLECTED ON AND CONSTRUCTED ACCORDING TO A SITE IMPROVEMENT PLAN ACCEPTED AND APPROVED BY THE TOWN OF ERIE.

10. A PERPETUAL EASEMENT OVER AND ACROSS LOTS 1–3 AND TRACTS B AND C FOR EMERGENCY PUBLIC ACCESS; SAID EASEMENT BEING SUBJECT TO RESTRICTIONS AND REQUIREMENTS OF THE TOWN OF ERIE MUNICIPAL CODE.

11. 8' WIDE EASEMENTS ADJACENT TO BOTH SIDES OF TRACT B ARE HEREBY GRANTED TO PUBLIC SERVICE COMPANY OF COLORADO FOR THE EXCLUSIVE USE AND INSTALLATION OF GAS MAINS. EASEMENTS OVER AND ACROSS ALL PRIVATE DRIVES ARE HEREBY GRANTED TO PUBLIC SERVICE COMPANY OF COLORADO FOR THE USE AND INSTALLATION OF GAS MAINS IN ORDER TO PROVIDE SERVICE TO INTERNAL BUILDINGS (NO.S 3, 6, 7, 25, 28, 29, 30, 31) THAT ARE OTHERWISE INACCESSIBLE.

12. BASIS OF BEARINGS: THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 33, WHICH BEARS NORTH 00°12'01" WEST ACCORDING TO THE VISTA RIDGE MASTER FINAL PLAT AND IS MONUMENTED AS SHOWN HEREON.

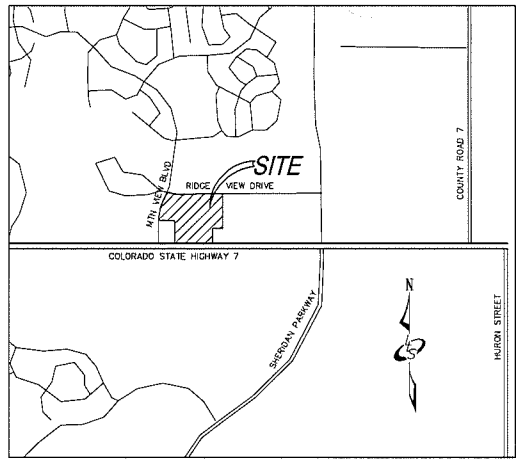
13. ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

14. BASED UPON THE INSURANCE RATE MAP COMMUNITY PANEL NO. 08013C 044J, THIS PANEL IS NOT PRINTED AND THERE IS NO SPECIAL FLOOD INFORMATION.

15. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18–4–508, OF THE COLORADO REVISED STATUTE.

16. MAINTENANCE DEFINITION: MAINTENANCE IS THE PROCESS OF PRESERVING CAPITAL IMPROVEMENTS, STRUCTURES, DEVELOPMENT, OR SYSTEMS TO MEET ITS FUNCTION OR ORIGINAL INTENT OF THE FACILITY. THIS THE PRESERVATION, CONSERVATION, KEEPING IN GOOD CONDITIONS, OPERATING SAFELY, OPERATING EFFICIENTLY, TESTING, INSPECTION, SERVICING, REPAIRING, GRADING, CLEANING, PICKING UP TRASH AND DEBRIS, PEST CONTROL, PAINTING, MOWING, PRUNING AND PROLONGING OF THESE FACILITIES. MAINTENANCE ALSO INCLUDES THE PROVISION OF FINANCIAL SUPPORT TO MAINTAIN THE FACILITIES. FACILITIES INCLUDE BUT ARE NOT LIMITED TO: LANDSCAPING, OPEN AREAS, GRASS, SHRUBS, TREES, PLAYGROUNDS, SITE FURNITURE AND FIXTURES, RETAINING WALLS, SIGNS, SIDEWALKS, DRAINAGE STRUCTURES SUCH AS PONDS, SWALES, DRAIN PANS, INLETS AND OUTLET STRUCTURES.

17. DISTANCES ON THIS PLAT ARE EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DESCRIBED AS EXACTLY 1200/3937 METERS.



VICINTY MAP
1"=1000'

LAND SUMMARY CHART		
TYPE	AREA	% OF TOTAL AREA
RESIDENTIAL LOTS (3)	347,969 S.F.	44%
TRACTS (4)	436,925 S.F.	56%
PUBLIC ROW	0 S.F.	0%
TOTAL	784,894 S.F.	100%

TRACT SUMMARY CHART				
TRACT	AREA	USE	OWNERSHIP	MAINTENANCE
TRACT B	85,186 S.F. 1.956 AC.	PRIVATE ACCESS DRIVE EMERGENCY ACCESS UTILITY EASEMENT	OWNER	OWNER
TRACT C	11,109 S.F. 0.255 AC.	PARK AREA	OWNER	OWNER
TRACT A1	77,844 S.F. 1.787 AC.	OPEN SPACE DRAINAGE/UTILITY DETENTION POND	OWNER	OWNER
TRACT A2	262,786 S.F. 6.033 AC.	FUTURE DEVELOPMENT	OWNER	OWNER

APPLICANT

CHARTERCO DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
CONTACT: WARD RITTER
(303) 545-2554

ENGINEER

ENERTIA CONSULTING GROUP, LLC
1520 MARKET STREET, SUITE 200
DENVER, COLORADO 80202
CONTACT: BONNER GILMORE
PHONE: (303) 873-7131

SURVEYOR

LANGE LAND SURVEYS, LLC
6475 WADSWORTH BLVD., SUITE 102
ARVADA, COLORADO 80003
CONTACT: JON LANGE, PLS
PHONE: (720) 242-9732

Lange Land Surveys
6475 WADSWORTH BLVD., SUITE 102
ARVADA, CO 80003
P:(720) 242-9732 F:(720) 242-9654

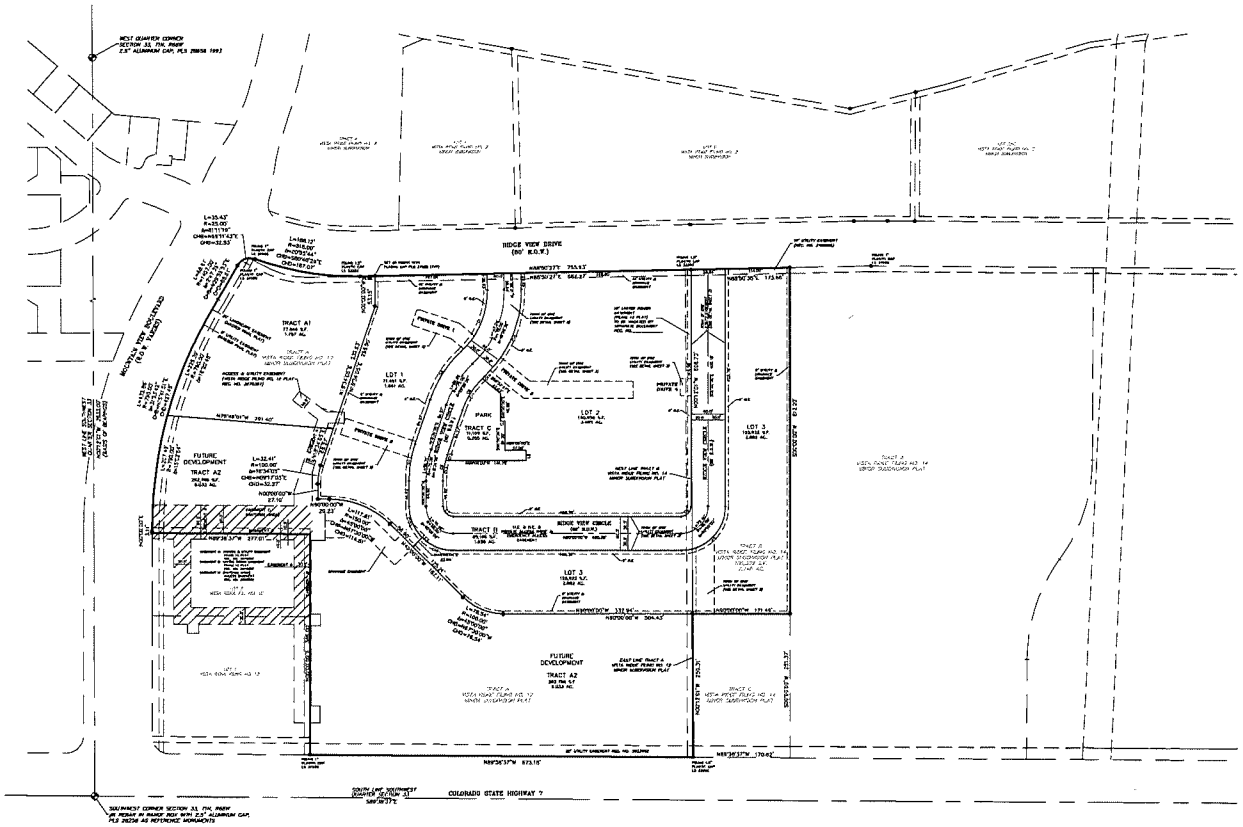
DRAWN BY: LC
CHECKED BY: JRL
SCALE: N/A
DATE: 11/17/14
FILE NO.: PRELIM PLAT

#	REVISIONS:	DATE:	
1	TOWN OF ERIC COMMENTS	12-09-14	LC
2	TOWN OF ERIC COMMENTS	12-10-14	LC
3	DESIGN CHANGES	06-18-15	LC
4	TOWN OF ERIC COMMENTS	06-24-15	LC
5	TOWN OF ERIC COMMENTS	09-16-15	LC
6	BOUNDARY CHANGE	09-22-15	LC
7			
8			

JOB NUMBER: 947-625 SHEET: 1 OF 3

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT PRELIMINARY PLAT

A RESUBDIVISION OF: TRACT A, VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION AND TRACT B, VISTA RIDGE FILING NO. 14, MINOR SUBDIVISION PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.
18.019 ACRES–3 LOTS/4 TRACTS
PP–000055–2014
SHEET 2 OF 3



SYMBOL LEGEND	
⊕	SECTION CORNER
◉	MONUMENTED PROPERTY CORNER
●	SET PROPERTY CORNER #5 REBAR W/PLASTIC CAP PLS 37908
1	LOT NUMBER
R.O.W.	RIGHT–OF–WAY
S.F.	SQUARE FEET
AC.	ACRES
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
G.E.	GAS MAIN EASEMENT

LINE TABLE

LINE	BEARING	DISTANCE
L1	N40°00'00"E	8.00'
L2	N00°00'00"W	17.14'

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	145.00'	121.83'	118.28'	S22°55'55"W	48°08'32"
C2	205.00'	101.74'	100.70'	N32°47'08"E	28°26'08"
C3	205.00'	66.44'	66.14'	S09°17'03"W	18°34'05"
C4	78.00'	122.52'	110.31'	N45°00'00"W	90°00'00"
C5	78.00'	122.52'	110.31'	S45°00'00"W	90°00'00"
C6	18.00'	28.27'	25.46'	N45°00'00"E	90°00'00"
C7	18.00'	28.27'	25.46'	S45°00'00"E	90°00'00"
C8	145.00'	46.99'	46.78'	N09°17'03"E	18°34'05"
C9	145.00'	71.55'	71.23'	S32°47'08"W	28°26'08"
C10	205.00'	172.25'	167.23'	S22°55'55"W	48°08'32"
C11	145.00'	66.36'	65.78'	S31°40'43"W	26°13'16"
C12	145.00'	10.41'	10.41'	N16°30'39"E	4°06'51"
C13	145.00'	36.56'	36.46'	N07°13'37"E	14°27'14"
C14	145.00'	5.90'	5.90'	N45°53'46"E	2°12'58"
C15	78.00'	61.26'	59.70'	N22°30'00"W	45°00'00"
C16	78.00'	61.26'	59.70'	N67°30'00"W	45°00'00"

SCALE: 1" = 100'

Lange Land Surveys
6475 WADSWORTH BLVD., SUITE 102
ARVADA, CO 80003
P:(720) 242-9732 F:(720) 242-9654

DRAWN BY: LC
CHECKED BY: JRL
SCALE: 1"=100'
DATE: 11/17/14
FILE NO. PRELIM PLAT

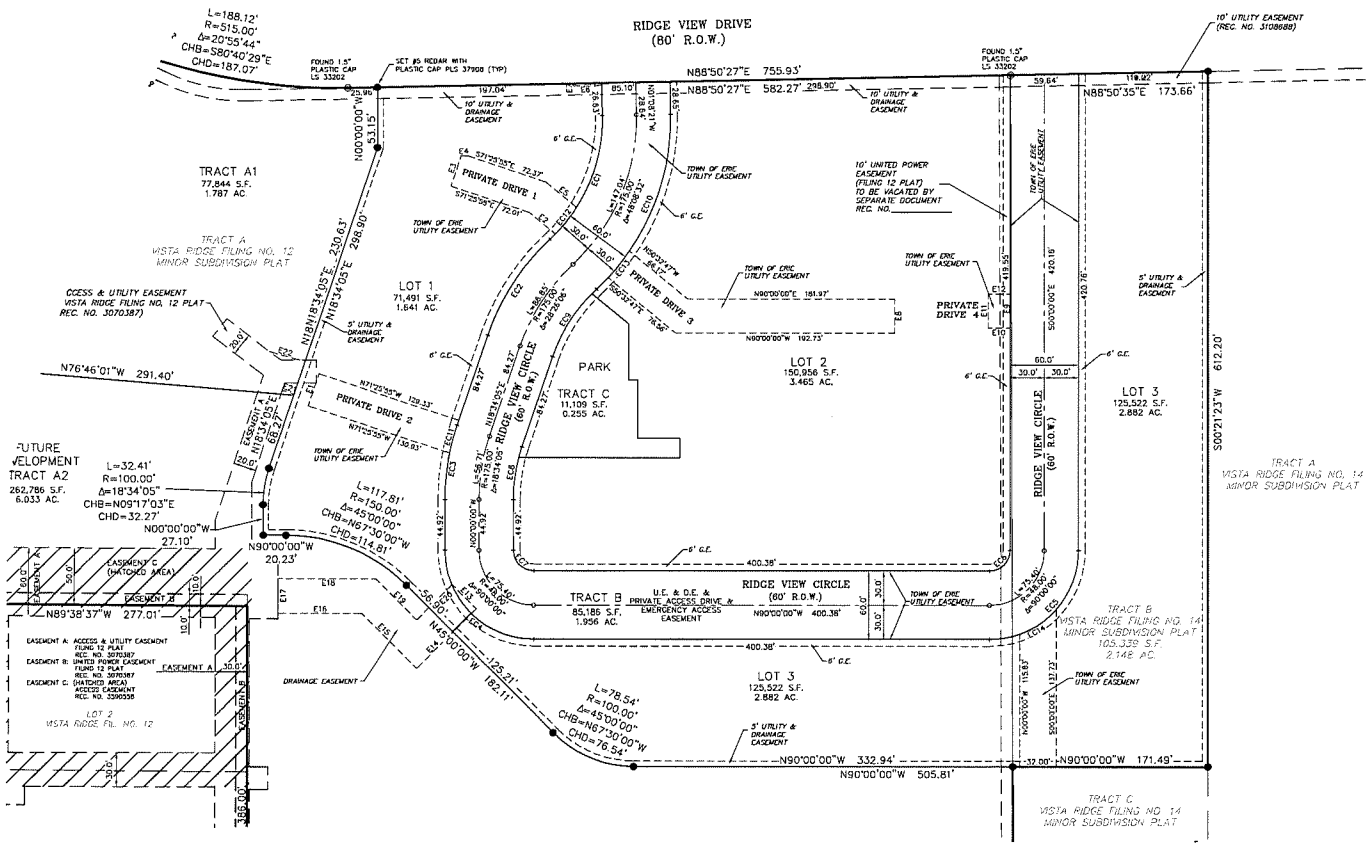
#	REVISIONS:	DATE:	BY:
1	TOWN OF ERIE COMMENTS	12–09–14	LC
2	TOWN OF ERIE COMMENTS	12–10–14	LC
3	DESIGN CHANGES	06–18–15	LC
4	TOWN OF ERIE COMMENTS	08–24–15	LC
5	TOWN OF ERIE COMMENTS	09–18–15	LC
6	BOUNDARY CHANGE	09–22–15	LC
7			
8			

JOB NUMBER: 947–625 SHEET: 2 OF 3

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT PRELIMINARY PLAT

A RESUBDIVISION OF: TRACT A, VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION AND TRACT B, VISTA RIDGE FILING NO. 14, MINOR SUBDIVISION PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.
18.019 ACRES–3 LOTS/4 TRACTS
PP–000055–2014
SHEET 3 OF 3

EASEMENT DETAIL



EASEMENT LINE TABLE

LINE	BEARING	DISTANCE
L1	S8°34'05"W	30.00'
L2	S50°32'47"E	30.18'
L3	S8°34'05"W	24.35'
L4	S86°51'20"W	5.50'
L5	N50°32'47"W	35.19'
L6	S86°51'20"W	22.10'
L7	N01°08'21"W	2.00'
L8	N00°00'00"W	30.00'
L9	S00°00'00"E	30.00'
L10	N90°00'00"W	19.17'
L11	S00°00'00"E	30.00'
L12	N90°00'00"W	19.17'
L13	S45°00'00"E	30.00'
L14	S45°00'00"W	73.82'
L15	S45°00'00"E	68.43'
L16	N90°00'00"E	73.55'
L17	S00°00'00"E	30.00'
L18	N90°00'00"W	86.91'
L19	N45°00'00"W	50.86'
L20	S45°00'00"W	43.95'
L21	N74°03'48"W	10.85'
L22	S74°03'48"E	27.41'
L23	S81°28'04"E	68.11'
L24	S07°31'56"W	30.00'
L25	N81°28'04"W	73.12'
L26	N00°00'00"W	4.86'
L27	N18°34'05"E	26.16'

EASEMENT CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	145.00'	121.63'	118.26	S22°55'55"W	48°08'32"
C2	205.00'	101.74'	100.70	N32°47'05"E	28°26'08"
C3	205.00'	44.44'	44.14	S04°17'03"W	12°34'05"
C4	78.00'	122.52'	110.31	N45°00'00"W	90°00'00"
C5	78.00'	122.52'	110.31	S45°00'00"W	90°00'00"
C6	18.00'	28.27'	25.46'	N45°00'00"E	90°00'00"
C7	18.00'	28.27'	25.46'	S45°00'00"E	90°00'00"
C8	145.00'	46.99'	46.79'	N09°17'03"E	18°34'05"
C9	145.00'	71.95'	71.22'	S32°47'08"W	28°26'08"
C10	205.00'	172.25'	167.23'	S22°55'55"W	48°08'32"
C11	205.00'	25.60'	25.58'	S14°59'24"W	7°00'23"
C12	145.00'	30.00'	30.00'	N39°07'37"E	11°52'38"
C13	205.00'	39.03'	38.97'	N38°45'11"E	8°23'34"
C14	78.00'	34.19'	34.78'	S59°56'55"W	25°47'05"
C15	78.00'	81.26'	59.70'	N22°30'00"W	45°00'00"
C16	78.00'	61.26'	59.70'	N67°30'00"W	45°00'00"

SYMBOL LEGEND

✚	SECTION CORNER
◉	MONUMENTED PROPERTY CORNER
●	SET PROPERTY CORNER #5 REBAR W/PLASTIC CAP PLS 37908
1	LOT NUMBER
R.O.W.	RIGHT–OF–WAY
S.F.	SQUARE FEET
AC.	ACRES
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
G.E.	GAS MAIN EASEMENT

N

0 25 50 100

SCALE: 1" = 50'

Lange Land Surveys
6475 WADSWORTH BLVD., SUITE 102
ARVADA, CO 80003
P:(720) 242-9732 F:(720) 242-9654

DRAWN BY: LC
CHECKED BY: JRL
SCALE: 1"=50'
DATE: 11/17/14
FILE NO. PRELIM PLAT

#	REVISIONS:	DATE:	BY:
1	TOWN OF ERIC COMMENTS	12-09-14	LC
2	TOWN OF ERIC COMMENTS	12-10-14	LC
3	DESIGN CHANGES	06-18-15	LC
4	TOWN OF ERIC COMMENTS	08-24-15	LC
5	TOWN OF ERIC COMMENTS	09-16-15	LC
6	BOUNDARY CHANGE	09-22-15	LC
7			
8			

JOB NUMBER: 947-875 SHEET: 3 OF 3

ATTACHMENT B

TOWN OF ERIE
Community Development Department – Planning Division
645 Holbrook Street – PO Box 750 – Erie, CO 80516
Tel: 303.926.2770 – Fax: 303.926.2706 – Web: www.erieco.gov

LAND USE APPLICATION

Please fill in this form completely. Incomplete applications will not be processed.

STAFF USE ONLY

FILE NAME: Montex at Vista Ridge South.
FILE NO: PP-14-00018 DATE SUBMITTED: 11/18/14 FEES PAID: 3480

PROJECT/BUSINESS NAME: Montex South at Vista Ridge

PROJECT ADDRESS: Vista Ridge South Side of Ridgeview Drive

PROJECT DESCRIPTION: Residential development, providing 144 multi-family units and 1 rental office.

LEGAL DESCRIPTION *(attach legal description if Metes & Bounds)*

Subdivision Name: 1467 3334 9003

Filing #: 12 Lot #: NA Block #: NA Section: 33 Township: 1 North Range: 68 West

OWNER *(attach separate sheets if multiple)*

Name/Company: Montex (Vista Ridge, LLC)
Contact Person: Andy Chaikovsky
Address: 4915 Gaylord St
City/State/Zip: Englewood, CO 80113
Phone: 303.783.8425 Fax:
E-mail: achaikovsky@comcast.net

AUTHORIZED REPRESENTATIVE

Company/Firm: Chartered Development Corporation
Contact Person: Ward Ritter
Address: 3160 Village Vista Drive, #104
City/State/Zip: Erie, CO 80516
Phone: 303.545.2554 Fax:
E-mail: ward@charteredhomes.com

MINERAL RIGHTS OWNER *(attach separate sheets if multiple)*

Name/Company: N/A
Address:
City/State/Zip:

MINERAL LEASE HOLDER *(attach separate sheets if multiple)*

Name/Company: N/A
Address:
City/State/Zip:

LAND-USE & SUMMARY INFORMATION

Present Zoning: PD
Proposed Zoning: PD
Gross Acreage: 10.196
Gross Site Density (du/ac): 14.2/ac
Lots/Units Proposed: 37/145
Gross Floor Area:

SERVICE PROVIDERS

Electric: United Power
Metro District: Vista Ridge Metro District
Water *(if other than Town)*:
Gas: Xcel Energy
Fire District: Mountain View Fire Protection District
Sewer *(if other than Town)*:

PAGE TWO MUST BE SIGNED AND NOTARIZED

DEVELOPMENT REVIEW FEES			
ANNEXATION		**SUBDIVISION**	
☐ Major (10+ acres)	$ 4000.00	☐ Sketch Plan	$ 1000.00 + 10.00 per lot
☐ Minor (less than 10 acres)	$ 2000.00	☑ Preliminary Plat	$ 2000.00 + 40.00 per lot
☐ Deannexation	$ 1000.00	☐ Final Plat	$ 2000.00 + 20.00 per lot
COMPREHENSIVE PLAN AMENDMENT		☐ Minor Subdivision Plat	$ 2000.00
☐ Major	$ 3000.00	☐ Minor Amendment Plat	$ 1000.00 + 10.00 per lot
☐ Minor	$ 1200.00	☐ Road Vacation (constructed)	$ 1000.00
ZONING/REZONING		☐ Road Vacation (paper)	$ 100.00
☐ Rezoning	$ 1700.00 + 10.00 per acre	**SITE PLAN**	
☐ PUD Rezoning	$ 1700.00 + 10.00 per acre	☐ Residential	$ 1400.00 + 10.00 per unit
☐ PUD Amendment	$ 1700.00 + 10.00 per acre	☐ Non-Resi. (>10,000 sq. ft.)	$ 2200.00
☐ Major PD Amendment	$ 3700.00 + 10.00 per acre	☐ Non-Resi. (>2,000 sq. ft.)	$ 1000.00
☐ Minor PD Amendment	$ 500.00	☐ Non-Resi. (<2,000 sq. ft.)	$ 200.00
SPECIAL REVIEW USE		☐ Amendment (major)	$ 1100.00
☐ Major	$ 1000.00	☐ Amendment (minor)	$ 350.00
☐ Minor	$ 400.00	**VARIANCE**	$ 600.00
☐ Oil & Gas	$ 1200.00	**SERVICE PLAN**	$ 10,000.00

*All fees **include** both Town of Erie Planning & Engineering review. These fees **do not include** referral agency review fees, outside consultant review fees, or review fees incurred by consultants acting on behalf of staff. See Town of Erie Municipal Code, Title 2-10-5 for all COMMUNITY DEVELOPMENT FEES.*

The undersigned is fully aware of the request/proposal being made and the actions being initiated on the referenced property. The undersigned understand that the application must be found to be complete by the Town of Erie before the request can officially be accepted and the development review process initiated. The undersigned is aware that the applicant is fully responsible for all reasonable costs associated with the review of the application/request being made to the Town of Erie. Pursuant to Chapter 7 (Section 7.2.B.5) of the Unified Development Code (UDC) of the Town of Erie, applicants shall pay all costs billed by the Town for legal, engineering and planning costs incurred by staff, including consultants acting on behalf of staff, necessary for project review. By this acknowledgement, the undersigned hereby certify that the above information is true and correct.

Owner: Date:

Owner: Date:

President

Applicant: Chartered Development Corporation Date: 11/14/14

BRANDON CHANDLER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20144004192
MY COMMISSION EXPIRES JANUARY 29, 2018

STATE OF COLORADO)
) ss.
County of Weld)

The foregoing instrument was acknowledged before me this 17th day of November, 2014, by Ward Ritter, President.

My commission expires: 1/29/18.

Witness my hand and official seal.

Notary Public

1437 Larimer St.
Denver, CO 80202
303•875•7131
bonner.gilmore@enertiacg.com

Mr. Marty Ostholthoff, Director of Community Development
Town of Erie
645 Holbrook Street
Erie, CO 80516

November 17, 2014

RE: Montex South – Preliminary Plat Section 3 Written Narrative (South Parcel)

Dear Mr. Ostholthoff:

General project concept and purpose of the request:

Montex South at Vista Ridge is within Vista Ridge's Planning area 7-3 and is proposing 36 manor homes (4-plex units) and one single family detached unit. The proposed multi-family residential project adds to the diversity of housing types within Vista Ridge and Erie with a unique multi-family product that is designed as a Manor Home (appears as a large single family home). Four units are provided within each Manor Home building, all with attached direct access garages. Floor plans in the Manor Home will include a three bedroom unit, two bedroom plus loft townhome unit, two bedroom flat unit and a one bedroom flat unit. Each building will sited on its own lot to facilitate phasing and financing.

The project site is made up of 10.20 acres and is bound by Ridge View Drive to the north, and existing detention facility to the west and future commercial to the south and east. Ridge View Drive also will provide access and egress to the site.

Vista Ridge Development Plan Amendment #6 permits up to 200 residential units within Planning Area 7-3. Article V, Section F (Medium/High Density Planning Area) Subsections 5.d, 5.e and 5.f of the Vista Ridge Development Plan have been amended to accommodate various encroachments into the setbacks.

Compliance with Vista Ridge Development Plan Amendment #6, Vista Ridge Development Guide and Uniform Development Code compliance:

- The land use, density, setbacks, building heights, encroachments, patio/terraces and additional provisions comply with Vista Ridge Development Plan Amendment #6 for a high density planning area.
- The local street complies with Vista Ridge Development Guide Article VII-G Private Street section. The street section with attached walks on both sides is currently used in Filings 5 and 9.
- Two points of access point are provided to Ridge View Road.
- Two residents are anticipated per unit = 288 residents. Required park area = 2.45 acres. A pocket park is proposed within Tract D, equating to 0.36 acres and will contain amenities may include include seating, barbeque grills, lawn and enhanced landscape areas. The pocket park will serve this site as well as Montex North. Required open space = 4.90 acres. Open space obligation was met previously by Vista Ridge Development Corporation.

- Off-street and on-private street parking spaces meet the resident and guest parking requirement. Each Manor Home includes six garage attached, direct access parking spaces. 7.5 resident parking spaces plus 1.33 guest parking spaces are required per building totaling 318 parking spaces. 216 attached direct access garage spaces are provided (36 buildings @ 6 spaces each). 102 parking spaces are provided on or off the private street/Ridge View Circle serving the Manor Homes, satisfying the total parking spaces required.
- Per the UDC, parking spaces required shall be located within 200 feet of the primary building entrance. This requirement is met through the provided parking.
- One housing type is required for sites less than 40 acres.
- Buildings are oriented towards the internal street, public street, open space or interior courtyards.
- Additional multi-family architectural standards are met.

Site Data:

Total land area to be divided: 10.20 acres

Total number of lots, and if residential, the proposed density: 36 Manor Home lots (each Manor Home lot includes 4 units) and one single family detached unit = 145 residential dwelling units. Proposed density = 14.2 du/ac.

If non-residential, the total square footage of floor area proposed: N/A

Total land area to be preserved as open space: 0.00 acres (0%)

Brief description regarding the phasing of the proposed subdivision: The single family portion of the project will be constructed as a single phase and homes will be constructed as sales allow. Each manor home will be constructed on its own lot and it is anticipated that approximately three buildings will be built at one time. The manor homes will be built as leasing lender requirements are met.

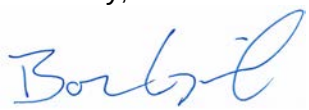
Brief description regarding the availability and adequacy of existing infrastructure and other necessary services including schools, fire protection, water/sewer service and utility providers: Montex is part of the constructed masterplan of Vista Ridge and fits within the design criteria set by the approved PUD. Existing infrastructure includes water, sewer, storm sewer power, gas and telephone all at the property boundary; The applicant has met with Mountain View Fire District and the District has preliminarily approved the site plan due to the AutoTURN analysis that was provided to them; The Vista Ridge PUD, including the addition of Montex will fall under the approved residential maximum that was also approved by the St. Vrain Valley School District.

Brief description regarding the location, function and ownership/maintenance of public and private open space, parks, trails, common areas, common buildings: A passive pocket park is provided near the approximate center of the development along Ridge View Circle (Tract D). Amenities may include seating, barbeque grills, lawn and enhanced landscape areas. The pocket park will be privately owned and maintained. Open space is provided through a Paseo that will run north/south in the center of the development from Ridge View Drive. The open space will be privately owned and maintained. Detention will occur off-site in the existing facility adjacent to the northwest of the site. Sidewalks are provided throughout and to connect to the perimeter future walks, though trails are not proposed. Common areas are to be landscaped

and privately owned and maintained. A leasing, management, maintenance building is being proposed and is shown as lot 27 (it is anticipated that this building will be adapted from one of the ranch patio home designs used at filing 5 and shown on the north parcel).

Brief description regarding the substance of any existing or proposed covenants, special conditions, grants of easements, or other restrictions applying to the proposed subdivision: The proposed covenants will be consistent with PUD's in this marketplace and will govern private streets, architectural control, landscape maintenance, snow removal and common areas.

Sincerely,



Bonner Gilmore
Managing Partner

Land Title
GUARANTEE COMPANY
WWW.LTGC.COM

Customer Distribution

Our Order Number: ABB25121037-4

Date: 10-30-2014

Property Address: VISTA RIDGE ERIE

For Closing Assistance
Tom Blake
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6237 (phone)
303-393-4959 (fax)
tblake@ltgc.com

Closer's Assistant
Marshall Ray
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6218 (phone)
303-393-4704 (fax)
mray@ltgc.com

For Title Assistance
Bruce Rosellen
5975 GREENWOOD PLAZA BLVD
GREENWOOD VILLAGE, CO 80111
303-850-4130 (phone)
303-393-4842 (fax)
brosellen@ltgc.com

Buyer/Borrower
CHARTERED DEVELOPMENT CORP.
Attention: WARD RITTER
2705 DUNDEE PLACE
ERIE, CO 80516
805-284-6152 (home)
303-545-2554 (work)
ward@charteredhomes.com
Delivered via: Electronic Mail

LAND TITLE GUARANTEE COMPANY
Attention: PETER TOBIN
3033 E 1ST AVE #600
DENVER, CO 80206
303-321-1880 (work)
303-322-7603 (work fax)
ptobin@ltgc.com
Delivered via: Electronic Mail

Seller/Owner
MONTEX (VISTA RIDGE), LLC
Attention: ANDY CHAIKOVSKY
4915 SOUTH GAYLORD STREET
ENGLEWOOD, CO 80113
303-783-9425 (work)
303-783-9427 (work fax)
achaikovsky@comcast.net
Delivered via: Electronic Mail

BONNER GILMORE, SURVEYOR
Attention: BONNER GILMORE, SURVEYOR
720-502-6573 (work)
Delivered via: Electronic Mail

Agent for Seller
VISTA RIDGE DEVELOPMENT CORP
Attention: JAMES SPEHALSKI
4950 S YOSEMITE ST #F2-503
GREENWOOD VILLAGE, CO 80112
303-920-9400 (work)
303-920-9440 (work fax)
jaspehalski@marathonlc.com
Delivered via: Linked Commitment Delivery

BROWNSTEIN HYATT FARBER & SCHRECK PC
Attention: KATHY OSTER
410 17TH ST 22ND FL
DENVER, CO 80202
303-223-1323 (work)
303-223-0323 (work fax)
koster@bhfs.com
Delivered via: Linked Commitment Delivery

Attorney for Seller
BROWNSTEIN HYATT FARBER & SCHRECK PC
Attention: GREGORY VALLIN
410 17TH ST 22ND FL
DENVER, CO 80202
303-223-1100 (work)
303-223-1111 (work fax)
gvallin@bhfs.com
Delivered via: Electronic Mail

BROWNSTEIN HYATT FARBER SCHRECK, LLP
Attention: KATHY OSTER
410 SEVENTEENTH STREET, #2200
DENVER, CO 80202
303-223-1343 (work)
koster@bhfs.com
Delivered via: Electronic Mail

Attorney for Buyer
SHARI BAKER LLC
Attention: SHARI BAKER
1630A 30TH STREET
BOULDER, CO 80301
303-442-3751 (work)
303-957-2643 (work fax)
shari@sbakerlaw.com
Delivered via: Electronic Mail

Land Title Guarantee Company

Estimate of Title Fees

Order Number: ABB25121037-4 Date: 10-30-2014

Property Address: VISTA RIDGE ERIE

Buyer/Borrower: CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION

Seller: MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY

Wire Instructions	
Bank:	FIRSTBANK OF COLORADO
Address:	10403 W COLFAX AVENUE LAKEWOOD, CO 80215
Phone:	303-237-5000
Credit:	LAND TITLE GUARANTEE COMPANY
ABA No:	107005047
Account:	2160521825
Attention:	Tom Blake
Please note: We do not accept ACH electronic transfers.	

Visit Land Title's website at www.ltgc.com for directions to any of our offices.

Estimate of Title Insurance Fees	
ALTA Owners Policy 06-17-06 (Builder Rate)	$2,730.00
Deletion of Exceptions 1-3	$60.00
Deletion of General Exception 4	$25.00
Endorsement 100.31-06 (MODIFIED LIMITED TO HARD MINERALS NOT OIL AND GAS RIGHTS)	$521.00
Tax Certificate (will be ordered prior to closing)	$75.00
Additional Parcel	$150.00
If Land Title Guarantee Company will be closing this transaction, the fees listed above will be collected at closing.	
Total	$3,561.00
THANK YOU FOR YOUR ORDER!	

ALTA COMMITMENT
First American Title Insurance Company
Schedule A

Order Number: ABB25121037-4

Customer Ref-Loan No.:

Property Address:

VISTA RIDGE ERIE

1. Effective Date:

10-23-2014 at 05:00PM

2. Policy to be Issued and Proposed Insured:

"ALTA" Owner's Policy 06-17-06 $2,700,000.00
Proposed Insured:
CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION

3. The estate or interest in the land described or referred to in this Commitment and covered herein is:

A FEE SIMPLE

4. Title to the estate or interest covered herein is at the effective date hereof vested in:

MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY

5. The Land referred to in this Commitment is described as follows:

PARCEL A:

A PORTION OF TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEASTERLY CORNER OF SAID TRACT A: THENCE S 00° 12' 01" E, 608.49 FEET ALONG THE EASTERLY LINE OF SAID TRACT A (BASIS OF BEARINGS);
THENCE S 90° 00' 00" W, 332.94 FEET;
THENCE 78.54 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 45° 00' 00", AND A CHORD BEARING OF N 67° 30' 00" W, 76.54 FEET;
THENCE N 45° 00' 00" W, 182.11 FEET;
THENCE 117.81 FEET ALONG THE ARC OF A TANGENT CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 150.00 FEET, A CENTRAL ANGLE OF 45° 00' 00", AND A CHORD BEARING N 67° 30' 00" W, 114.81 FEET;
THENCE N 90° 00' 00" W, 19.93 FEET;
THENCE N00°00'00"W, 16.05 FEET;
THENCE 56.06 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 173.00 FEET, A CENTRAL ANGLE OF 18°34' 05", AND A CHORD BEARING N09°17'02"E, 55.82 FEET;
THENCE N18°34'05"E, 342.47 FEET TO THE NORTHERLY LINE OF SAID TRACT A;
THENCE N88° 51' 39"E, 538.34 FEET ALONG THE SAID NORTHERLY LINE OF TRACT A TO THE POINT OF BEGINNING.

PARCEL B:

ALTA COMMITMENT
First American Title Insurance Company
Schedule A

Order Number: ABB25121037-4

Customer Ref-Loan No.:

A PORTION OF PARCEL 33 OF "VISTA RIDGE MASTER FINAL PLAT" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M. TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWESTERLY CORNER OF SAID PARCEL 33;
THENCE N 88° 48' 22" E, 173.66 FEET ALONG THE NORTHERLY LINE OF SAID PARCEL 33 (BASIS OF BEARINGS);
THENCE S00°00'00"E 612.10 FEET;
THENCE N90°00'00"W, 171.49 FEET TO THE WESTERLY LINE OF SAID PARCEL 33;
THENCE N00°12'01"W, 608.49 FEET ALONG SAID WESTERLY LINE OF PARCEL 33 TO THE POINT OF BEGINNING.

PARCEL C:

LOT 2 OF "VISTA RIDGE FILING NO 2 - MINOR SUBDIVISION" (PLAT RECORDED 11/15/2007 AT RECEPTION NO. 3517715), TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

Copyright 2006-2014 American Land Title Association. All Rights Reserved

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.

ALTA COMMITMENT
First American Title Insurance Company
Schedule B Section 1

(Requirements)

Order Number: ABB25121037-4

The following are the requirements to be complied with:

Payment to or for the account of the grantors or mortgagors of the full consideration for the estate or interest to be insured.

Proper instrument(s) creating the estate or interest to be insured must be executed and duly filed for record, to-wit:

1. RECORD RELEASE OR PROOF OF PAYMENT OF NOTICES RECORDED MARCH 16, 2012 AT RECEPTION NO. 3832301 AND MAY 21, 2013 AT RECEPTION NO. 3933756.

2. A FULL COPY OF THE FULLY EXECUTED OPERATING AGREEMENT AND ANY AND ALL AMENDMENTS THERETO FOR MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY MUST BE FURNISHED TO LAND TITLE GUARANTEE COMPANY. SAID AGREEMENT MUST DISCLOSE WHO MAY CONVEY, ACQUIRE, ENCUMBER, LEASE OR OTHERWISE DEAL WITH INTERESTS IN REAL PROPERTY FOR SAID ENTITY.

   NOTE: ADDITIONAL REQUIREMENTS MAY BE NECESSARY UPON REVIEW OF THIS DOCUMENTATION.

3. DULY EXECUTED AND ACKNOWLEDGED STATEMENT OF AUTHORITY SETTING FORTH THE NAME OF MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY AS A LLC. THE STATEMENT OF AUTHORITY MUST STATE UNDER WHICH LAWS THE ENTITY WAS CREATED, THE MAILING ADDRESS OF THE ENTITY, AND THE NAME AND POSITION OF THE PERSON(S) AUTHORIZED TO EXECUTE INSTRUMENTS CONVEYING, ENCUMBERING, OR OTHERWISE AFFECTING TITLE TO REAL PROPERTY ON BEHALF OF THE ENTITY AND OTHERWISE COMPLYING WITH THE PROVISIONS OF SECTION 38-30-172, CRS.

   NOTE: THE STATEMENT OF AUTHORITY MUST BE RECORDED WITH THE CLERK AND RECORDER.

4. WARRANTY DEED FROM MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY TO CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION CONVEYING SUBJECT PROPERTY.

5. PROVIDE LAND TITLE GUARANTEE COMPANY WITH A CURRENT SURVEY OF SUBJECT PROPERTY. UPON REVIEW, ADDITIONAL REQUIREMENTS AND/OR EXCEPTIONS MAY BE NECESSARY.

   LAND TITLE IS NOT RESPONSIBLE FOR ORDERING SAID SURVEY.

   SAID SURVEY MUST BE CERTIFIED TO LAND TITLE GUARANTEE COMPANY AND OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY.

   NOTE: ITEMS 1-3 OF THE STANDARD EXCEPTIONS WILL BE DELETED UPON RECEIPT OF AN APPROVED SURVEY. MATTERS DISCLOSED BY SAID SURVEY MAY BE ADDED TO SCHEDULE B-2 HEREOF.

   UPON THE APPROVAL OF THE COMPANY AND THE RECEIPT OF A NOTARIZED FINAL LIEN AFFIDAVIT, ITEM NO. 4 OF THE STANDARD EXCEPTIONS ON THE OWNER'S POLICY, WILL BE AMENDED AS FOLLOWS:

   ITEM NO. 4 OF THE STANDARD EXCEPTIONS IS DELETED AS TO ANY LIENS OR FUTURE LIENS

ALTA COMMITMENT
First American Title Insurance Company
Schedule B Section 1

(Requirements)

Order Number: ABB25121037-4

The following are the requirements to be complied with:

RESULTING FROM WORK OR MATERIAL FURNISHED AT THE REQUEST OF MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY.
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY SHALL HAVE NO LIABILITY FOR ANY LIENS ARISING FROM WORK OR MATERIAL FURNISHED AT THE REQUEST OF CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION.

NOTE: ITEM 5 OF THE STANDARD EXCEPTIONS WILL BE DELETED IF LAND TITLE GUARANTEE COMPANY CONDUCTS THE CLOSING OF THE CONTEMPLATED TRANSACTION(S) AND RECORDS THE DOCUMENTS IN CONNECTION THEREWITH.

NOTE: UPON PROOF OF PAYMENT OF 2013 TAXES, ITEM 6 WILL BE AMENDED TO READ:

TAXES AND ASSESSMENTS FOR THE YEAR 2014 AND SUBSEQUENT YEARS.

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

1. **Any facts, rights, interests, or claims thereof, not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.**

2. **Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.**

3. **Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.**

4. **Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.**

5. **Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date of the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.**

6. **(a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.**

7. **(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water.**

8. RESERVATIONS BY THE UNION PACIFIC RAILROAD COMPANY COMPANY OF:
(1) ALL OIL, COAL AND OTHER MINERALS UNDERLYING SUBJECT PROPERTY,
(2) THE EXCLUSIVE RIGHT TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, AND
(3) THE RIGHT OF INGRESS AND EGRESS AND REGRESS TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, ALL AS CONTAINED IN DEED RECORDED JUNE 04, 1902, IN BOOK 201 AT PAGE 16.

   MINERAL DEED RECORDED NOVEMBER 3, 1972 AT RECEPTION NO. 1602712 IN BOOK 681
   AND
   RELINQUISHMENT AND QUIT CLAIM RECORDED AUGUST 21, 2000 AT RECEPTION NO. 2788395 .

9. OIL AND GAS LEASE RECORDED NOVEMBER 30, 1972 UNDER RECEPTION NO. 1602713 IN BOOK 681 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.

   NOTE: EXTENSION OF THE ABOVE LEASE AS CLAIMED BY AFFIDAVIT OF PRODUCTION WAS RECORDED DECEMBER 07, 2000 UNDER RECEPTION NO. 2811882.AND
   SURFACE USE AGREEMENT RECORDED AUGUST 21, 2000 AT RECEPTION NO. 2788394 AND AMENDED NOVEMBER 15, 2004 AT RECEPTION NO. 3235488
   AND
   REQUEST FOR NOTIFICATION RECORDED MAY 28, 2002 AT RECEPTION NO. 2954455

10. TERMS, CONDITIONS AND PROVISIONS OF CERTIFICATE OF ORGANIZATION FOR THE NORTHWEST PARKWAY PUBLIC HIGHWAY AUTHORITY RECORDED JUNE 30, 1999 AT RECEPTION

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

NO. 2703636 AND RE-RECORDED NOVEMBER 19, 1999 AT RECEPTION NO. 2733705.

11. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 30, 2000 AT RECEPTION NO. 2790549.

12. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 30, 2000 AT RECEPTION NO. 2790550.

13. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION AGREEMENT RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793930 AND RE-RECORDED DECEMBER 8, 2000 AT RECEPTION NO. 2812291.

14. TERMS, CONDITIONS AND PROVISIONS OF ORDER AND DECREE RECORDED JANUARY 08, 2001 AT RECEPTION NO. 2817763 AND NOTICE RECORDED JUNE 14, 2006 AT RECEPTION NO. 3396125.

15. RIGHT OF WAY EASEMENT AS GRANTED TO FARMERS RESERVOIR AND IRRIGATION COMPANY IN INSTRUMENT RECORDED OCTOBER 22, 2001, UNDER RECEPTION NO. 2893921.

16. TERMS, CONDITIONS AND PROVISIONS OF MASTER DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS RECORDED DECEMBER 14, 2001 AT RECEPTION NO. 2909244 AND AMENDED JANUARY 28, 2003 AT RECEPTION NO. 3027600.

17. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED DECEMBER 04, 2001 AT RECEPTION NO. 2905896.

    NOTICE RECORDED JUNE 14, 2006 AT RECEPTION NO. 3396125

18. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE RECORDED PLAT OF VISTA RIDGE MASTER FINAL PLAT RECORDED SEPTEMBER 6, 2001 AT RECEPTION NO. 2903870.

19. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793940 AND AMENDMENT RECORDED FEBRUARY 27, 2002 AT RECEPTION NO. 2928673.

20. TERMS, CONDITIONS AND PROVISIONS OF DECLARATION OF GOLF PLAY COVENANTS RECORDED JULY 07, 2003 AT RECEPTION NO. 3080606.

21. RIGHT OF WAY EASEMENT AS GRANTED TO UNITED POWER INC IN INSTRUMENT RECORDED APRIL 17, 2002, UNDER RECEPTION NO. 2943714.

22. TERMS, CONDITIONS AND PROVISIONS OF AGREEMENT RECORDED JULY 22, 2003 AT RECEPTION NO. 3086574.

23. RIGHT OF WAY EASEMENT AS GRANTED TO UNITED POWER INC IN INSTRUMENT RECORDED SEPTEMBER 22, 2003, UNDER RECEPTION NO. 3108688.

24. RESTRICTIVE COVENANTS, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP,

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS CONTAINED IN INSTRUMENT RECORDED NOVEMBER 19, 2008, UNDER RECEPTION NO. 3590556.

25. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION MAPS RECORDED AUGUST 25, 2000 AT RECEPTION NO. 2789487 AND RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793937 AND 2793938 AND 2793939

26. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF VISTA RIDGE FILING NO 2 RECORDED NOVEMBER 15, 2007 AT RECEPTION NO. 3517715.

27. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED JUNE 06, 2003 AT RECEPTION NO. 3070386.

28. TERMS, CONDITIONS AND PROVISIONS OF STORM PIPE AGREEMENT RECORDED JANUARY 07, 2008 AT RECEPTION NO. 3527519.

29. TERMS, CONDITIONS AND PROVISIONS OF ORDER RECORDED DECEMBER 14, 2001 AT RECEPTION NO. 2908969 AND 2908970 AND 2908971 AND 2908972.

30. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF VISTA RIDGE FILING NO 12 RECORDED NOVEMBER 19, 2008 AT RECEPTION NO. 3590554.

31. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED NOVEMBER 19, 2008 AT RECEPTION NO. 3590555.

32. RESTRICTIVE COVENANTS, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS CONTAINED IN INSTRUMENT RECORDED NOVEMBER 19, 2008, UNDER RECEPTION NO. 3590557.

33. (ITEM INTENTIONALLY DELETED)

34. TERMS, CONDITIONS AND PROVISIONS OF DEED OF EASEMENT RECORDED NOVEMBER 28, 2001 AT RECEPTION NO. 2903864.

35. RIGHT OF WAY EASEMENT AS GRANTED TO TOWN OF ERIE IN INSTRUMENT RECORDED JANUARY 28, 2004, UNDER RECEPTION NO. 3148806.

36. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN RECORDED MARCH 03, 2011 AT RECEPTION NO. 3753956.

37. TERMS, CONDITIONS AND PROVISIONS OF TITLE COMPANIES AND OTHER INTERESTED PARTIES: PLEASE BE ON NOTICE THAT: RECORDED MARCH 16, 2012 AT RECEPTION NO. 3832301.

38. TERMS, CONDITIONS AND PROVISIONS OF NOTICE TO TITLE COMPANIES AND OTHER

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

INTERESTED PARTIES RECORDED MAY 21, 2013 AT RECEPTION NO. 3933756 AND RERECORDED AUGUST 20, 2014 UNDER RECEPTION NO. 4039682.

39. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN AMENDMENT NO 6 RECORDED NOVEMBER 25, 2013 AT RECEPTION NO. 3980214.

40. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED NOVEMBER 25, 2013 AT RECEPTION NO. 3980215.

41. TERMS, CONDITIONS AND PROVISIONS OF NOTICE TO TITLE COMPANIES AND OTHER INTERESTED PARTIES RECORDED MARCH 18, 2014 AT RECEPTION NO. 4002991.

JOINT NOTICE OF PRIVACY POLICY OF

LAND TITLE GUARANTEE COMPANY,
LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION,
LAND TITLE INSURANCE CORPORATION AND
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

This Statement is provided to you as a customer of Land Title Guarantee Company and Meridian Land Title, LLC, as agents for Land Title Insurance Corporation and Old Republic National Title Insurance Company.

We want you to know that we recognize and respect your privacy expectations and the requirements of federal and state privacy laws. Information security is one of our highest priorities. We recognize that maintaining your trust and confidence is the bedrock of our business. We maintain and regularly review internal and external safeguards against unauthorized access to non-public personal information ("Personal Information").

In the course of our business, we may collect Personal Information about you from:

- applications or other forms we receive from you, including communications sent through TMX, our web-based transaction management system;
- your transactions with, or from the services being performed by, us, our affiliates, or others;
- a consumer reporting agency, if such information is provided to us in connection with your transaction;

  and
- the public records maintained by governmental entities that we either obtain directly from those entities, or from our affiliates and non-affiliates.

Our policies regarding the protection of the confidentiality and security of your Personal Information are as follows:

- We restrict access to all Personal Information about you to those employees who need to know that information in order to provide products and services to you.
- We maintain physical, electronic and procedural safeguards that comply with federal standards to protect your Personal Information from unauthorized access or intrusion.
- Employees who violate our strict policies and procedures regarding privacy are subject to disciplinary action.
- We regularly access security standards and procedures to protect against unauthorized access to Personal Information.

WE DO NOT DISCLOSE ANY PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT PERMITTED BY LAW.

Consistent with applicable privacy laws, there are some situations in which Personal Information may be disclosed. We may disclose your Personal Information when you direct or give us permission; when we are required by law to do so, for example, if we are served a subpoena; or when we suspect fraudulent or criminal activities. We also may disclose your Personal Information when otherwise permitted by applicable privacy laws such as, for example, when disclosure is needed to enforce our rights arising out of any agreement, transaction or relationship with you.

Our policy regarding dispute resolution is as follows. Any controversy or claim arising out of or relating to our privacy policy, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

LAND TITLE GUARANTEE COMPANY

LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION

DISCLOSURE STATEMENTS

Note: Pursuant to CRS 10-11-122, notice is hereby given that:

A) The Subject real property may be located in a special taxing district.
B) A Certificate of Taxes Due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent.
C) The information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor.

Note: Effective September 1, 1997, CRS 30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The clerk and recorder may refuse to record or file any document that does not conform, except that, the requirement for the top margin shall not apply to documents using forms on which space is provided for recording or filing information at the top margin of the document.

Note: Colorado Division of Insurance Regulations 3-5-1, Paragraph C of Article VII requires that "Every title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed". Provided that Land Title Guarantee Company conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception number 5 will not appear on the Owner's Title Policy and the Lenders Policy when issued.

Note: Affirmative mechanic's lien protection for the Owner may be available (typically by deletion of Exception no. 4 of Schedule B, Section 2 of the Commitment from the Owner's Policy to be issued) upon compliance with the following conditions:

A) The land described in Schedule A of this commitment must be a single family residence which includes a condominium or townhouse unit.
B) No labor or materials have been furnished by mechanics or material-men for purposes of construction on the land described in Schedule A of this Commitment within the past 6 months.
C) The Company must receive an appropriate affidavit indemnifying the Company against un-filed mechanic's and material-men's liens.
D) The Company must receive payment of the appropriate premium.
E) If there has been construction, improvements or major repairs undertaken on the property to be purchased within six months prior to the Date of the Commitment, the requirements to obtain coverage for unrecorded liens will include: disclosure of certain construction information; financial information as to the seller, the builder and or the contractor; payment of the appropriate premium fully executed Indemnity Agreements satisfactory to the company, and, any additional requirements as may be necessary after an examination of the aforesaid information by the Company.

No coverage will be given under any circumstances for labor or material for which the insured has contracted for or agreed to pay.

Note: Pursuant to CRS 10-11-123, notice is hereby given:

This notice applies to owner's policy commitments containing a mineral severance instrument exception, or exceptions, in Schedule B, Section 2.

A) That there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and
B) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Pursuant to CRS 10-1-128(6)(a), It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

Nothing herein contained will be deemed to obligate the company to provide any of the coverages referred to herein unless the above conditions are fully satisfied.

Commitment to Insure

ALTA Commitment - 2006 Rev.

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, a Minnesota corporation, (Company) for a valuable consideration, commits to issue its policy or policies of title insurance, as identified in Schedule A, in favor of the Proposed Insured named in Schedule A, as owner or mortgagee of the estate or interest in the land described or referred to in Schedule A, upon payment of the premiums and charges and compliance with the requirements; all subject to the provisions of Schedule A and B and to the Conditions of this Commitment.

This Commitment shall be effective only when the identity of the Proposed Insured and the amount of the policy or policies committed for have been inserted in Schedule A by the Company. All liability and obligation under this commitment shall cease and terminate six months after the Effective Date or when the policy or policies committed for shall issue, whichever first occurs, provided that the failure to issue such policy or policies is not the fault of the Company.

CONDITIONS AND STIPULATIONS

1. The term "mortgage", when used herein, shall include deed of trust, trust deed, or other security instrument.
2. If the proposed Insured has or acquires actual knowledge of any defect, lien, encumbrance, adverse claim or other matter affecting the estate or interest or mortgage thereon covered by this Commitment other than those shown in Schedule B hereof, and shall fail to disclose such knowledge to Company in writing, the Company shall be relieved from liability for any loss or damage resulting from any act of reliance hereon to the extent the Company is prejudiced by failure to so disclose such knowledge. If the proposed Insured shall disclose such knowledge to the Company, or if the Company otherwise acquires actual knowledge of any such defect, lien, encumbrance, adverse claim or other matter, the Company at its option may amend Schedule B of this Commitment accordingly, but such amendment shall not relieve the Company from liability previously incurred pursuant to paragraph 3 of these Conditions and Stipulations.
3. Liability of the Company under this Commitment shall be only to the named proposed Insured and such parties included under the definition of Insured in the form of policy or policies committed for and only for actual loss incurred in reliance hereon in undertaking in good faith (a) to comply with the requirements hereof or (b) to eliminate exceptions shown in Schedule B, or (c) to acquire or create the estate or interest or mortgage thereon covered by this Commitment. In no event shall such liability exceed the amount stated in Schedule A for the policy or policies committed for and such liability is subject to the insuring provisions and the Conditions and Stipulations and the Exclusions from Coverage of the form of policy or policies committed for in favor of the proposed Insured which are hereby incorporated by reference and are made a part of this Commitment except as expressly modified herein.
4. This commitment is a contract to issue one or more title insurance policies and is not an abstract of title or a report of the condition of title. Any action or actions or rights of action that the proposed Insured may have or may bring against the Company arising out of the status of the title to the estate or interest or the status of the mortgage thereon covered by this Commitment must be based on and are subject to the provisions of this Commitment.
5. The policy to be issued contains an arbitration clause. All arbitrable matters when the Amount of Insurance is $2,000,000 or less shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. You may review a copy of the arbitration rules at www.alta.org.

STANDARD EXCEPTIONS

In addition to the matters contained in the Conditions and Stipulations and Exclusions from Coverage above referred to, this Commitment is also subject to the following:

1. Rights or claims of parties in possession not shown by the Public Records.
2. Easements, or claims of easements, not shown by the Public Records.
3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts which a correct survey or inspection of the Land would disclose and which are not shown by the Public Records.
4. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the Public Records.
5. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the Public Records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.

IN WITNESS WHEREOF, Old Republic National Title Insurance Company has caused its corporate name and seal to be affixed by its duly authorized officers on the date shown in Schedule A to be valid when countersigned by a validating officer or other authorized signatory.

Issued by:
Land Title Guarantee Company
3033 East First Avenue
Suite 600
Denver, Colorado 80206
303-850-4165

John E. Freyer
President

Authorized Officer or Agent

Old Republic National Title Insurance Company
a Stock Company
400 Second Avenue South
Minneapolis, Minnesota 55401
(612)371-1111

Mark Bilbrey
President

Rande Yeager
Secretary

AMERICAN LAND TITLE ASSOCIATION

Land Title
GUARANTEE COMPANY
WWW.LTGC.COM

Customer Distribution

Our Order Number: ABB25121037-4

Date: 10-30-2014

Property Address: VISTA RIDGE ERIE

For Closing Assistance
Tom Blake
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6237 (phone)
303-393-4959 (fax)
tblake@ltgc.com

Closer's Assistant
Marshall Ray
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6218 (phone)
303-393-4704 (fax)
mray@ltgc.com

For Title Assistance
Bruce Rosellen
5975 GREENWOOD PLAZA BLVD
GREENWOOD VILLAGE, CO 80111
303-850-4130 (phone)
303-393-4842 (fax)
brosellen@ltgc.com

Buyer/Borrower
CHARTERED DEVELOPMENT CORP.
Attention: WARD RITTER
2705 DUNDEE PLACE
ERIE, CO 80516
805-284-6152 (home)
303-545-2554 (work)
ward@charteredhomes.com
Delivered via: Electronic Mail

LAND TITLE GUARANTEE COMPANY
Attention: PETER TOBIN
3033 E 1ST AVE #600
DENVER, CO 80206
303-321-1880 (work)
303-322-7603 (work fax)
ptobin@ltgc.com
Delivered via: Electronic Mail

Seller/Owner
MONTEX (VISTA RIDGE), LLC
Attention: ANDY CHAIKOVSKY
4915 SOUTH GAYLORD STREET
ENGLEWOOD, CO 80113
303-783-9425 (work)
303-783-9427 (work fax)
achaikovsky@comcast.net
Delivered via: Electronic Mail

BONNER GILMORE, SURVEYOR
Attention: BONNER GILMORE, SURVEYOR
720-502-6573 (work)
Delivered via: Electronic Mail

Agent for Seller
VISTA RIDGE DEVELOPMENT CORP
Attention: JAMES SPEHALSKI
4950 S YOSEMITE ST #F2-503
GREENWOOD VILLAGE, CO 80112
303-920-9400 (work)
303-920-9440 (work fax)
jaspehalski@marathonlc.com
Delivered via: Linked Commitment Delivery

BROWNSTEIN HYATT FARBER & SCHRECK PC
Attention: KATHY OSTER
410 17TH ST 22ND FL
DENVER, CO 80202
303-223-1323 (work)
303-223-0323 (work fax)
koster@bhfs.com
Delivered via: Linked Commitment Delivery

Attorney for Seller
BROWNSTEIN HYATT FARBER & SCHRECK PC
Attention: GREGORY VALLIN
410 17TH ST 22ND FL
DENVER, CO 80202
303-223-1100 (work)
303-223-1111 (work fax)
gvallin@bhfs.com
Delivered via: Electronic Mail

BROWNSTEIN HYATT FARBER SCHRECK, LLP
Attention: KATHY OSTER
410 SEVENTEENTH STREET, #2200
DENVER, CO 80202
303-223-1343 (work)
koster@bhfs.com
Delivered via: Electronic Mail

Attorney for Buyer
SHARI BAKER LLC
Attention: SHARI BAKER
1630A 30TH STREET
BOULDER, CO 80301
303-442-3751 (work)
303-957-2643 (work fax)
shari@sbakerlaw.com
Delivered via: Electronic Mail

Land Title Guarantee Company

Estimate of Title Fees

Order Number: ABB25121037-4 Date: 10-30-2014

Property Address: VISTA RIDGE ERIE

Buyer/Borrower: CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION

Seller: MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY

Wire Instructions	
Bank:	FIRSTBANK OF COLORADO
Address:	10403 W COLFAX AVENUE LAKEWOOD, CO 80215
Phone:	303-237-5000
Credit:	LAND TITLE GUARANTEE COMPANY
ABA No:	107005047
Account:	2160521825
Attention:	Tom Blake
Please note: We do not accept ACH electronic transfers.	

Visit Land Title's website at www.ltgc.com for directions to any of our offices.

Estimate of Title Insurance Fees	
ALTA Owners Policy 06-17-06 (Builder Rate)	$2,730.00
Deletion of Exceptions 1-3	$60.00
Deletion of General Exception 4	$25.00
Endorsement 100.31-06 (MODIFIED LIMITED TO HARD MINERALS NOT OIL AND GAS RIGHTS)	$521.00
Tax Certificate (will be ordered prior to closing)	$75.00
Additional Parcel	$150.00
If Land Title Guarantee Company will be closing this transaction, the fees listed above will be collected at closing.	
Total	$3,561.00
THANK YOU FOR YOUR ORDER!	

ALTA COMMITMENT
First American Title Insurance Company
Schedule A

Order Number: ABB25121037-4

Customer Ref-Loan No.:

Property Address:

VISTA RIDGE ERIE

1. Effective Date:

10-23-2014 at 05:00PM

2. Policy to be Issued and Proposed Insured:

"ALTA" Owner's Policy 06-17-06 $2,700,000.00
Proposed Insured:
CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION

3. The estate or interest in the land described or referred to in this Commitment and covered herein is:

A FEE SIMPLE

4. Title to the estate or interest covered herein is at the effective date hereof vested in:

MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY

5. The Land referred to in this Commitment is described as follows:

PARCEL A:

A PORTION OF TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEASTERLY CORNER OF SAID TRACT A: THENCE S 00° 12' 01" E, 608.49 FEET ALONG THE EASTERLY LINE OF SAID TRACT A (BASIS OF BEARINGS);
THENCE S 90° 00' 00" W, 332.94 FEET;
THENCE 78.54 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 45° 00' 00", AND A CHORD BEARING OF N 67° 30' 00" W, 76.54 FEET;
THENCE N 45° 00' 00" W, 182.11 FEET;
THENCE 117.81 FEET ALONG THE ARC OF A TANGENT CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 150.00 FEET, A CENTRAL ANGLE OF 45° 00' 00", AND A CHORD BEARING N 67° 30' 00" W, 114.81 FEET;
THENCE N 90° 00' 00" W, 19.93 FEET;
THENCE N00°00'00"W, 16.05 FEET;
THENCE 56.06 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 173.00 FEET, A CENTRAL ANGLE OF 18°34' 05", AND A CHORD BEARING N09°17'02"E, 55.82 FEET;
THENCE N18°34'05"E, 342.47 FEET TO THE NORTHERLY LINE OF SAID TRACT A;
THENCE N88° 51' 39"E, 538.34 FEET ALONG THE SAID NORTHERLY LINE OF TRACT A TO THE POINT OF BEGINNING.

PARCEL B:

ALTA COMMITMENT
First American Title Insurance Company
Schedule A

Order Number: ABB25121037-4

Customer Ref-Loan No.:

A PORTION OF PARCEL 33 OF "VISTA RIDGE MASTER FINAL PLAT" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M. TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWESTERLY CORNER OF SAID PARCEL 33;
THENCE N 88° 48' 22" E, 173.66 FEET ALONG THE NORTHERLY LINE OF SAID PARCEL 33 (BASIS OF BEARINGS);
THENCE S00°00'00"E 612.10 FEET;
THENCE N90°00'00"W, 171.49 FEET TO THE WESTERLY LINE OF SAID PARCEL 33;
THENCE N00°12'01"W, 608.49 FEET ALONG SAID WESTERLY LINE OF PARCEL 33 TO THE POINT OF BEGINNING.

PARCEL C:

LOT 2 OF "VISTA RIDGE FILING NO 2 - MINOR SUBDIVISION" (PLAT RECORDED 11/15/2007 AT RECEPTION NO. 3517715), TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

Copyright 2006-2014 American Land Title Association. All Rights Reserved

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.

ALTA COMMITMENT
First American Title Insurance Company
Schedule B Section 1

(Requirements)

Order Number: ABB25121037-4

The following are the requirements to be complied with:

Payment to or for the account of the grantors or mortgagors of the full consideration for the estate or interest to be insured.

Proper instrument(s) creating the estate or interest to be insured must be executed and duly filed for record, to-wit:

1. RECORD RELEASE OR PROOF OF PAYMENT OF NOTICES RECORDED MARCH 16, 2012 AT RECEPTION NO. 3832301 AND MAY 21, 2013 AT RECEPTION NO. 3933756.

2. A FULL COPY OF THE FULLY EXECUTED OPERATING AGREEMENT AND ANY AND ALL AMENDMENTS THERETO FOR MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY MUST BE FURNISHED TO LAND TITLE GUARANTEE COMPANY. SAID AGREEMENT MUST DISCLOSE WHO MAY CONVEY, ACQUIRE, ENCUMBER, LEASE OR OTHERWISE DEAL WITH INTERESTS IN REAL PROPERTY FOR SAID ENTITY.

   NOTE: ADDITIONAL REQUIREMENTS MAY BE NECESSARY UPON REVIEW OF THIS DOCUMENTATION.

3. DULY EXECUTED AND ACKNOWLEDGED STATEMENT OF AUTHORITY SETTING FORTH THE NAME OF MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY AS A LLC. THE STATEMENT OF AUTHORITY MUST STATE UNDER WHICH LAWS THE ENTITY WAS CREATED, THE MAILING ADDRESS OF THE ENTITY, AND THE NAME AND POSITION OF THE PERSON(S) AUTHORIZED TO EXECUTE INSTRUMENTS CONVEYING, ENCUMBERING, OR OTHERWISE AFFECTING TITLE TO REAL PROPERTY ON BEHALF OF THE ENTITY AND OTHERWISE COMPLYING WITH THE PROVISIONS OF SECTION 38-30-172, CRS.

   NOTE: THE STATEMENT OF AUTHORITY MUST BE RECORDED WITH THE CLERK AND RECORDER.

4. WARRANTY DEED FROM MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY TO CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION CONVEYING SUBJECT PROPERTY.

5. PROVIDE LAND TITLE GUARANTEE COMPANY WITH A CURRENT SURVEY OF SUBJECT PROPERTY. UPON REVIEW, ADDITIONAL REQUIREMENTS AND/OR EXCEPTIONS MAY BE NECESSARY.

   LAND TITLE IS NOT RESPONSIBLE FOR ORDERING SAID SURVEY.

   SAID SURVEY MUST BE CERTIFIED TO LAND TITLE GUARANTEE COMPANY AND OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY.

   NOTE: ITEMS 1-3 OF THE STANDARD EXCEPTIONS WILL BE DELETED UPON RECEIPT OF AN APPROVED SURVEY. MATTERS DISCLOSED BY SAID SURVEY MAY BE ADDED TO SCHEDULE B-2 HEREOF.

   UPON THE APPROVAL OF THE COMPANY AND THE RECEIPT OF A NOTARIZED FINAL LIEN AFFIDAVIT, ITEM NO. 4 OF THE STANDARD EXCEPTIONS ON THE OWNER'S POLICY, WILL BE AMENDED AS FOLLOWS:

   ITEM NO. 4 OF THE STANDARD EXCEPTIONS IS DELETED AS TO ANY LIENS OR FUTURE LIENS

ALTA COMMITMENT
First American Title Insurance Company
Schedule B Section 1

(Requirements)

Order Number: ABB25121037-4

The following are the requirements to be complied with:

RESULTING FROM WORK OR MATERIAL FURNISHED AT THE REQUEST OF MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY.
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY SHALL HAVE NO LIABILITY FOR ANY LIENS ARISING FROM WORK OR MATERIAL FURNISHED AT THE REQUEST OF CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION.

NOTE: ITEM 5 OF THE STANDARD EXCEPTIONS WILL BE DELETED IF LAND TITLE GUARANTEE COMPANY CONDUCTS THE CLOSING OF THE CONTEMPLATED TRANSACTION(S) AND RECORDS THE DOCUMENTS IN CONNECTION THEREWITH.

NOTE: UPON PROOF OF PAYMENT OF 2013 TAXES, ITEM 6 WILL BE AMENDED TO READ:

TAXES AND ASSESSMENTS FOR THE YEAR 2014 AND SUBSEQUENT YEARS.

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

1. **Any facts, rights, interests, or claims thereof, not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.**

2. **Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.**

3. **Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.**

4. **Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.**

5. **Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date of the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.**

6. **(a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.**

7. **(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water.**

8. RESERVATIONS BY THE UNION PACIFIC RAILROAD COMPANY COMPANY OF:
(1) ALL OIL, COAL AND OTHER MINERALS UNDERLYING SUBJECT PROPERTY,
(2) THE EXCLUSIVE RIGHT TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, AND
(3) THE RIGHT OF INGRESS AND EGRESS AND REGRESS TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, ALL AS CONTAINED IN DEED RECORDED JUNE 04, 1902, IN BOOK 201 AT PAGE 16.

   MINERAL DEED RECORDED NOVEMBER 3, 1972 AT RECEPTION NO. 1602712 IN BOOK 681
   AND
   RELINQUISHMENT AND QUIT CLAIM RECORDED AUGUST 21, 2000 AT RECEPTION NO. 2788395 .

9. OIL AND GAS LEASE RECORDED NOVEMBER 30, 1972 UNDER RECEPTION NO. 1602713 IN BOOK 681 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.

   NOTE: EXTENSION OF THE ABOVE LEASE AS CLAIMED BY AFFIDAVIT OF PRODUCTION WAS RECORDED DECEMBER 07, 2000 UNDER RECEPTION NO. 2811882.AND
   SURFACE USE AGREEMENT RECORDED AUGUST 21, 2000 AT RECEPTION NO. 2788394 AND AMENDED NOVEMBER 15, 2004 AT RECEPTION NO. 3235488
   AND
   REQUEST FOR NOTIFICATION RECORDED MAY 28, 2002 AT RECEPTION NO. 2954455

10. TERMS, CONDITIONS AND PROVISIONS OF CERTIFICATE OF ORGANIZATION FOR THE NORTHWEST PARKWAY PUBLIC HIGHWAY AUTHORITY RECORDED JUNE 30, 1999 AT RECEPTION

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

NO. 2703636 AND RE-RECORDED NOVEMBER 19, 1999 AT RECEPTION NO. 2733705.

11. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 30, 2000 AT RECEPTION NO. 2790549.

12. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 30, 2000 AT RECEPTION NO. 2790550.

13. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION AGREEMENT RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793930 AND RE-RECORDED DECEMBER 8, 2000 AT RECEPTION NO. 2812291.

14. TERMS, CONDITIONS AND PROVISIONS OF ORDER AND DECREE RECORDED JANUARY 08, 2001 AT RECEPTION NO. 2817763 AND NOTICE RECORDED JUNE 14, 2006 AT RECEPTION NO. 3396125.

15. RIGHT OF WAY EASEMENT AS GRANTED TO FARMERS RESERVOIR AND IRRIGATION COMPANY IN INSTRUMENT RECORDED OCTOBER 22, 2001, UNDER RECEPTION NO. 2893921.

16. TERMS, CONDITIONS AND PROVISIONS OF MASTER DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS RECORDED DECEMBER 14, 2001 AT RECEPTION NO. 2909244 AND AMENDED JANUARY 28, 2003 AT RECEPTION NO. 3027600.

17. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED DECEMBER 04, 2001 AT RECEPTION NO. 2905896.

    NOTICE RECORDED JUNE 14, 2006 AT RECEPTION NO. 3396125

18. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE RECORDED PLAT OF VISTA RIDGE MASTER FINAL PLAT RECORDED SEPTEMBER 6, 2001 AT RECEPTION NO. 2903870.

19. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793940 AND AMENDMENT RECORDED FEBRUARY 27, 2002 AT RECEPTION NO. 2928673.

20. TERMS, CONDITIONS AND PROVISIONS OF DECLARATION OF GOLF PLAY COVENANTS RECORDED JULY 07, 2003 AT RECEPTION NO. 3080606.

21. RIGHT OF WAY EASEMENT AS GRANTED TO UNITED POWER INC IN INSTRUMENT RECORDED APRIL 17, 2002, UNDER RECEPTION NO. 2943714.

22. TERMS, CONDITIONS AND PROVISIONS OF AGREEMENT RECORDED JULY 22, 2003 AT RECEPTION NO. 3086574.

23. RIGHT OF WAY EASEMENT AS GRANTED TO UNITED POWER INC IN INSTRUMENT RECORDED SEPTEMBER 22, 2003, UNDER RECEPTION NO. 3108688.

24. RESTRICTIVE COVENANTS, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP,

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS CONTAINED IN INSTRUMENT RECORDED NOVEMBER 19, 2008, UNDER RECEPTION NO. 3590556.

25. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION MAPS RECORDED AUGUST 25, 2000 AT RECEPTION NO. 2789487 AND RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793937 AND 2793938 AND 2793939

26. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF VISTA RIDGE FILING NO 2 RECORDED NOVEMBER 15, 2007 AT RECEPTION NO. 3517715.

27. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED JUNE 06, 2003 AT RECEPTION NO. 3070386.

28. TERMS, CONDITIONS AND PROVISIONS OF STORM PIPE AGREEMENT RECORDED JANUARY 07, 2008 AT RECEPTION NO. 3527519.

29. TERMS, CONDITIONS AND PROVISIONS OF ORDER RECORDED DECEMBER 14, 2001 AT RECEPTION NO. 2908969 AND 2908970 AND 2908971 AND 2908972.

30. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF VISTA RIDGE FILING NO 12 RECORDED NOVEMBER 19, 2008 AT RECEPTION NO. 3590554.

31. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED NOVEMBER 19, 2008 AT RECEPTION NO. 3590555.

32. RESTRICTIVE COVENANTS, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS CONTAINED IN INSTRUMENT RECORDED NOVEMBER 19, 2008, UNDER RECEPTION NO. 3590557.

33. (ITEM INTENTIONALLY DELETED)

34. TERMS, CONDITIONS AND PROVISIONS OF DEED OF EASEMENT RECORDED NOVEMBER 28, 2001 AT RECEPTION NO. 2903864.

35. RIGHT OF WAY EASEMENT AS GRANTED TO TOWN OF ERIE IN INSTRUMENT RECORDED JANUARY 28, 2004, UNDER RECEPTION NO. 3148806.

36. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN RECORDED MARCH 03, 2011 AT RECEPTION NO. 3753956.

37. TERMS, CONDITIONS AND PROVISIONS OF TITLE COMPANIES AND OTHER INTERESTED PARTIES: PLEASE BE ON NOTICE THAT: RECORDED MARCH 16, 2012 AT RECEPTION NO. 3832301.

38. TERMS, CONDITIONS AND PROVISIONS OF NOTICE TO TITLE COMPANIES AND OTHER

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

INTERESTED PARTIES RECORDED MAY 21, 2013 AT RECEPTION NO. 3933756 AND RERECORDED AUGUST 20, 2014 UNDER RECEPTION NO. 4039682.

39. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN AMENDMENT NO 6 RECORDED NOVEMBER 25, 2013 AT RECEPTION NO. 3980214.

40. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED NOVEMBER 25, 2013 AT RECEPTION NO. 3980215.

41. TERMS, CONDITIONS AND PROVISIONS OF NOTICE TO TITLE COMPANIES AND OTHER INTERESTED PARTIES RECORDED MARCH 18, 2014 AT RECEPTION NO. 4002991.

JOINT NOTICE OF PRIVACY POLICY OF

LAND TITLE GUARANTEE COMPANY,
LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION,
LAND TITLE INSURANCE CORPORATION AND
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

This Statement is provided to you as a customer of Land Title Guarantee Company and Meridian Land Title, LLC, as agents for Land Title Insurance Corporation and Old Republic National Title Insurance Company.

We want you to know that we recognize and respect your privacy expectations and the requirements of federal and state privacy laws. Information security is one of our highest priorities. We recognize that maintaining your trust and confidence is the bedrock of our business. We maintain and regularly review internal and external safeguards against unauthorized access to non-public personal information ("Personal Information").

In the course of our business, we may collect Personal Information about you from:

- applications or other forms we receive from you, including communications sent through TMX, our web-based transaction management system;
- your transactions with, or from the services being performed by, us, our affiliates, or others;
- a consumer reporting agency, if such information is provided to us in connection with your transaction;

  and
- the public records maintained by governmental entities that we either obtain directly from those entities, or from our affiliates and non-affiliates.

Our policies regarding the protection of the confidentiality and security of your Personal Information are as follows:

- We restrict access to all Personal Information about you to those employees who need to know that information in order to provide products and services to you.
- We maintain physical, electronic and procedural safeguards that comply with federal standards to protect your Personal Information from unauthorized access or intrusion.
- Employees who violate our strict policies and procedures regarding privacy are subject to disciplinary action.
- We regularly access security standards and procedures to protect against unauthorized access to Personal Information.

WE DO NOT DISCLOSE ANY PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT PERMITTED BY LAW.

Consistent with applicable privacy laws, there are some situations in which Personal Information may be disclosed. We may disclose your Personal Information when you direct or give us permission; when we are required by law to do so, for example, if we are served a subpoena; or when we suspect fraudulent or criminal activities. We also may disclose your Personal Information when otherwise permitted by applicable privacy laws such as, for example, when disclosure is needed to enforce our rights arising out of any agreement, transaction or relationship with you.

Our policy regarding dispute resolution is as follows. Any controversy or claim arising out of or relating to our privacy policy, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

LAND TITLE GUARANTEE COMPANY

LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION

DISCLOSURE STATEMENTS

Note: Pursuant to CRS 10-11-122, notice is hereby given that:

A) The Subject real property may be located in a special taxing district.
B) A Certificate of Taxes Due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent.
C) The information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor.

Note: Effective September 1, 1997, CRS 30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The clerk and recorder may refuse to record or file any document that does not conform, except that, the requirement for the top margin shall not apply to documents using forms on which space is provided for recording or filing information at the top margin of the document.

Note: Colorado Division of Insurance Regulations 3-5-1, Paragraph C of Article VII requires that "Every title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed". Provided that Land Title Guarantee Company conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception number 5 will not appear on the Owner's Title Policy and the Lenders Policy when issued.

Note: Affirmative mechanic's lien protection for the Owner may be available (typically by deletion of Exception no. 4 of Schedule B, Section 2 of the Commitment from the Owner's Policy to be issued) upon compliance with the following conditions:

A) The land described in Schedule A of this commitment must be a single family residence which includes a condominium or townhouse unit.
B) No labor or materials have been furnished by mechanics or material-men for purposes of construction on the land described in Schedule A of this Commitment within the past 6 months.
C) The Company must receive an appropriate affidavit indemnifying the Company against un-filed mechanic's and material-men's liens.
D) The Company must receive payment of the appropriate premium.
E) If there has been construction, improvements or major repairs undertaken on the property to be purchased within six months prior to the Date of the Commitment, the requirements to obtain coverage for unrecorded liens will include: disclosure of certain construction information; financial information as to the seller, the builder and or the contractor; payment of the appropriate premium fully executed Indemnity Agreements satisfactory to the company, and, any additional requirements as may be necessary after an examination of the aforesaid information by the Company.

No coverage will be given under any circumstances for labor or material for which the insured has contracted for or agreed to pay.

Note: Pursuant to CRS 10-11-123, notice is hereby given:

This notice applies to owner's policy commitments containing a mineral severance instrument exception, or exceptions, in Schedule B, Section 2.

A) That there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and
B) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Pursuant to CRS 10-1-128(6)(a), It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

Nothing herein contained will be deemed to obligate the company to provide any of the coverages referred to herein unless the above conditions are fully satisfied.

Commitment to Insure

ALTA Commitment - 2006 Rev.

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, a Minnesota corporation, (Company) for a valuable consideration, commits to issue its policy or policies of title insurance, as identified in Schedule A, in favor of the Proposed Insured named in Schedule A, as owner or mortgagee of the estate or interest in the land described or referred to in Schedule A, upon payment of the premiums and charges and compliance with the requirements; all subject to the provisions of Schedule A and B and to the Conditions of this Commitment.

This Commitment shall be effective only when the identity of the Proposed Insured and the amount of the policy or policies committed for have been inserted in Schedule A by the Company. All liability and obligation under this commitment shall cease and terminate six months after the Effective Date or when the policy or policies committed for shall issue, whichever first occurs, provided that the failure to issue such policy or policies is not the fault of the Company.

CONDITIONS AND STIPULATIONS

1. The term "mortgage", when used herein, shall include deed of trust, trust deed, or other security instrument.
2. If the proposed Insured has or acquires actual knowledge of any defect, lien, encumbrance, adverse claim or other matter affecting the estate or interest or mortgage thereon covered by this Commitment other than those shown in Schedule B hereof, and shall fail to disclose such knowledge to Company in writing, the Company shall be relieved from liability for any loss or damage resulting from any act of reliance hereon to the extent the Company is prejudiced by failure to so disclose such knowledge. If the proposed Insured shall disclose such knowledge to the Company, or if the Company otherwise acquires actual knowledge of any such defect, lien, encumbrance, adverse claim or other matter, the Company at its option may amend Schedule B of this Commitment accordingly, but such amendment shall not relieve the Company from liability previously incurred pursuant to paragraph 3 of these Conditions and Stipulations.
3. Liability of the Company under this Commitment shall be only to the named proposed Insured and such parties included under the definition of Insured in the form of policy or policies committed for and only for actual loss incurred in reliance hereon in undertaking in good faith (a) to comply with the requirements hereof or (b) to eliminate exceptions shown in Schedule B, or (c) to acquire or create the estate or interest or mortgage thereon covered by this Commitment. In no event shall such liability exceed the amount stated in Schedule A for the policy or policies committed for and such liability is subject to the insuring provisions and the Conditions and Stipulations and the Exclusions from Coverage of the form of policy or policies committed for in favor of the proposed Insured which are hereby incorporated by reference and are made a part of this Commitment except as expressly modified herein.
4. This commitment is a contract to issue one or more title insurance policies and is not an abstract of title or a report of the condition of title. Any action or actions or rights of action that the proposed Insured may have or may bring against the Company arising out of the status of the title to the estate or interest or the status of the mortgage thereon covered by this Commitment must be based on and are subject to the provisions of this Commitment.
5. The policy to be issued contains an arbitration clause. All arbitrable matters when the Amount of Insurance is $2,000,000 or less shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. You may review a copy of the arbitration rules at www.alta.org.

STANDARD EXCEPTIONS

In addition to the matters contained in the Conditions and Stipulations and Exclusions from Coverage above referred to, this Commitment is also subject to the following:

1. Rights or claims of parties in possession not shown by the Public Records.
2. Easements, or claims of easements, not shown by the Public Records.
3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts which a correct survey or inspection of the Land would disclose and which are not shown by the Public Records.
4. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the Public Records.
5. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the Public Records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.

IN WITNESS WHEREOF, Old Republic National Title Insurance Company has caused its corporate name and seal to be affixed by its duly authorized officers on the date shown in Schedule A to be valid when countersigned by a validating officer or other authorized signatory.

Issued by:
Land Title Guarantee Company
3033 East First Avenue
Suite 600
Denver, Colorado 80206
303-850-4165

John E. Freyer
President

Authorized Officer or Agent

Old Republic National Title Insurance Company
a Stock Company
400 Second Avenue South
Minneapolis, Minnesota 55401
(612)371-1111

Mark Bilbrey
President

Rande Yeager
Secretary

AMERICAN LAND TITLE ASSOCIATION

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT PRELIMINARY PLAT

A RESUBDIVISION OF: TRACT A, VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION AND TRACT B, VISTA RIDGE FILING NO. 14, MINOR SUBDIVISION PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.
18.019 ACRES–3 LOTS/4 TRACTS
PP–000055–2014
SHEET 1 OF 3

LEGAL DESCRIPTION

TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" AND TRACT B OF "VISTA RIDGE FILING NO. 14 MINOR SUBDIVISION PLAT", LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

CONTAINING 784,894 SQUARE FEET OR 18.019 ACRES, MORE OR LESS.

GENERAL NOTES

1. THE PLAT CONSISTS OF FURTHER SUBDIVIDING A PORTION OF TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" AND TRACT B OF "VISTA RIDGE FILING NO. 14 MINOR SUBDIVISION PLAT", TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO. THIS PLAT WILL CONTAIN 3 LOTS AND 4 TRACTS. LOTS 1, 2 AND 3 WILL BE USED FOR ONE LEASING OFFICE AND 144 SINGLE–FAMILY ATTACHED UNITS.

2. TRACT B IS FOR UTILITY, DRAINAGE, PRIVATE ACCESS DRIVES AND EMERGENCY ACCESS PURPOSES AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSOR OR ASSIGNS.

3. TRACT C IS FOR A PARK AREA AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSOR OR ASSIGNS.

4. TRACT A1 IS FOR THE DETENTION POND AREA AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, DRAINAGE AND LANDSCAPING AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSOR OR ASSIGNS.

5. TRACT A2 IS FOR FUTURE DEVELOPMENT AND SHALL BE MAINTAINED BY THE SUBDIVIDER, ITS SUCCESSORS OR ASSIGNS.

6. UTILITY AND DRAINAGE EASEMENTS, LABELED HEREON, SHALL BE GRANTED FOR THE INSTALLATION AND MAINTENANCE OF SANITARY SEWER LINES, WATER LINES, STORM DRAINAGE FACILITIES, SURFACE DRAINAGE AND FOR THE BENEFIT OF THE APPLICABLE UTILITY PROVIDERS FOR THE INSTALLATION, MAINTENANCE, AND REPLACEMENT OF ELECTRIC, GAS, TELEVISION, CABLE, AND TELECOMMUNICATIONS FACILITIES (DRY UTILITIES) AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, TOGETHER WITH A PERPETUAL RIGHT OF INGRESS AND EGRESS FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF SUCH LINES AND APPURTENANCES. SAID EASEMENTS AND RIGHTS ARE TO BE UTILIZED IN A RESPONSIBLE AND PRUDENT MANNER.

7. DRAINAGE EASEMENTS, LABELED HEREON, SHALL BE GRANTED FOR THE INSTALLATION AND MAINTENANCE OF DRAINAGE LINES AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, AS WELL AS SURFACE DRAINAGE, TOGETHER WITH A PERPETUAL RIGHT OF INGRESS AND EGRESS FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF SUCH LINES AND APPURTENANCES. SAID EASEMENTS AND RIGHTS ARE TO BE UTILIZED IN A RESPONSIBLE AND PRUDENT MANNER.

8. A BLANKET DRAINAGE EASEMENT SHALL BE GRANTED OVER AND ACROSS LOTS 1, 2 AND 3 AND TRACTS B, C AND A–1 FOR THE INSTALLATION AND MAINTENANCE OF DRAINAGE LINES AND ALL NECESSARY AND CONVENIENT APPURTENANCES THERETO, AS WELL AS SURFACE DRAINAGE, TOGETHER WITH A PERPETUAL RIGHT OF INGRESS AND EGRESS FOR INSTALLATION, MAINTENANCE, AND REPLACEMENT OF SUCH LINES AND APPURTENANCES. SAID EASEMENTS AND RIGHTS ARE TO BE UTILIZED IN A RESPONSIBLE AND PRUDENT MANNER. THIS BLANKET EASEMENT IS RESTRICTED TO THOSE AREAS OUTSIDE OF THE BUILDING FOOTPRINTS.

9. A PERPETUAL EASEMENT OVER AND ACROSS LOTS 1–3 AND TRACTS B AND C FOR THE PUBLIC ACCESS; PROVIDED THAT THE AFORESAID EASEMENT SHALL BE RESTRICTED TO THE LOCATION OF SIDEWALKS, PEDESTRIAN PATHS, STREETS, PARKING LOTS, PARKS, COMMON AREAS AND LANDSCAPED AREAS AS REFLECTED ON AND CONSTRUCTED ACCORDING TO A SITE IMPROVEMENT PLAN ACCEPTED AND APPROVED BY THE TOWN OF ERIE.

10. A PERPETUAL EASEMENT OVER AND ACROSS LOTS 1–3 AND TRACTS B AND C FOR EMERGENCY PUBLIC ACCESS; SAID EASEMENT BEING SUBJECT TO RESTRICTIONS AND REQUIREMENTS OF THE TOWN OF ERIE MUNICIPAL CODE.

11. 6' WIDE EASEMENTS ADJACENT TO BOTH SIDES OF TRACT B ARE HEREBY GRANTED TO PUBLIC SERVICE COMPANY OF COLORADO FOR THE EXCLUSIVE USE AND INSTALLATION OF GAS MAINS. EASEMENTS OVER AND ACROSS ALL PRIVATE DRIVES ARE HEREBY GRANTED TO PUBLIC SERVICE COMPANY OF COLORADO FOR THE USE AND INSTALLATION OF GAS MAINS IN ORDER TO PROVIDE SERVICE TO INTERNAL BUILDINGS (NO.S 3, 6, 7, 25, 26, 29, 30, 31) THAT ARE OTHERWISE INACCESSIBLE.

12. BASIS OF BEARINGS: THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 33, WHICH BEARS NORTH 00°12'01" WEST ACCORDING TO THE VISTA RIDGE MASTER FINAL PLAT AND IS MONUMENTED AS SHOWN HEREON.

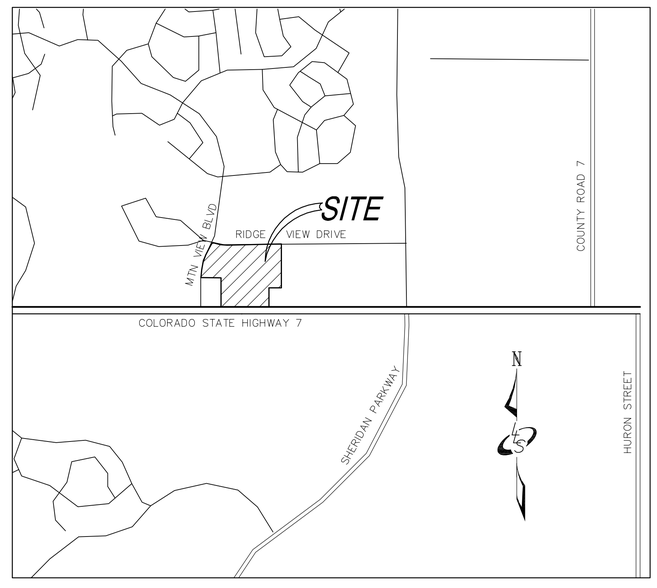
13. ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

14. BASED UPON THE INSURANCE RATE MAP COMMUNITY PANEL NO. 08013C 044J, THIS PANEL IS NOT PRINTED AND THERE IS NO SPECIAL FLOOD INFORMATION.

15. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18–4–508, OF THE COLORADO REVISED STATUTE.

16. MAINTENANCE DEFINITION: MAINTENANCE IS THE PROCESS OF PRESERVING CAPITAL IMPROVEMENTS, STRUCTURES, DEVELOPMENT, OR SYSTEMS TO MEET ITS FUNCTION OR ORIGINAL INTENT OF THE FACILITY. THIS THE PRESERVATION, CONSERVATION, KEEPING IN GOOD CONDITIONS, OPERATING SAFELY, OPERATING EFFICIENTLY, TESTING, INSPECTION, SERVICING, REPAIRING, GRADING, CLEANING, PICKING UP TRASH AND DEBRIS, PEST CONTROL, PAINTING, MOWING, PRUNING AND PROLONGING OF THESE FACILITIES. MAINTENANCE ALSO INCLUDES THE PROVISION OF FINANCIAL SUPPORT TO MAINTAIN THE FACILITIES. FACILITIES INCLUDE BUT ARE NOT LIMITED TO: LANDSCAPING, OPEN AREAS, GRASS, SHRUBS, TREES, PLAYGROUNDS, SITE FURNITURE AND FIXTURES, RETAINING WALLS, SIGNS, SIDEWALKS, DRAINAGE STRUCTURES SUCH AS PONDS, SWALES, DRAIN PANS, INLETS AND OUTLET STRUCTURES.

17. DISTANCES ON THIS PLAT ARE EXPRESSED IN U.S. SURVEY FEET AND DECIMALS THEREOF. A U.S. SURVEY FOOT IS DESCRIBED AS EXACTLY 1200/3937 METERS.



VICINTY MAP
1"=1000'

LAND SUMMARY CHART		
TYPE	AREA	% OF TOTAL AREA
RESIDENTIAL LOTS (3)	347,969 S.F.	44%
TRACTS (4)	436,925 S.F.	56%
PUBLIC ROW	0 S.F.	0%
TOTAL	784,894 S.F.	100%

TRACT SUMMARY CHART				
TRACT	AREA	USE	OWNERSHIP	MAINTENANCE
TRACT B	85,186 S.F. 1.956 AC.	PRIVATE ACCESS DRIVE EMERGENCY ACCESS UTILITY EASEMENT	OWNER	OWNER
TRACT C	11,109 S.F. 0.255 AC.	PARK AREA	OWNER	OWNER
TRACT A1	77,844 S.F. 1.787 AC.	OPEN SPACE DRAINAGE/UTILITY DETENTION POND	OWNER	OWNER
TRACT A2	262,786 S.F. 6.033 AC.	FUTURE DEVELOPMENT	OWNER	OWNER

APPLICANT

CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
CONTACT: WARD RITTER
(303) 545–2554

ENGINEER

ENERTIA CONSULTING GROUP, LLC
1529 MARKET STREET, SUITE 200
DENVER, COLORADO 80202
CONTACT: BONNER GILMORE
PHONE: (303) 875–7131

SURVEYOR

LANGE LAND SURVEYS, LLC
6475 WADSWORTH BLVD., SUITE 102
ARVADA, COLORADO 80003
CONTACT: JON LANGE, PLS
PHONE: (720) 242–9732

Lange Land Surveys
6475 WADSWORTH BLVD., SUITE 102
ARVADA, CO 80003
P:(720) 242–9732 F:(720) 242–9654

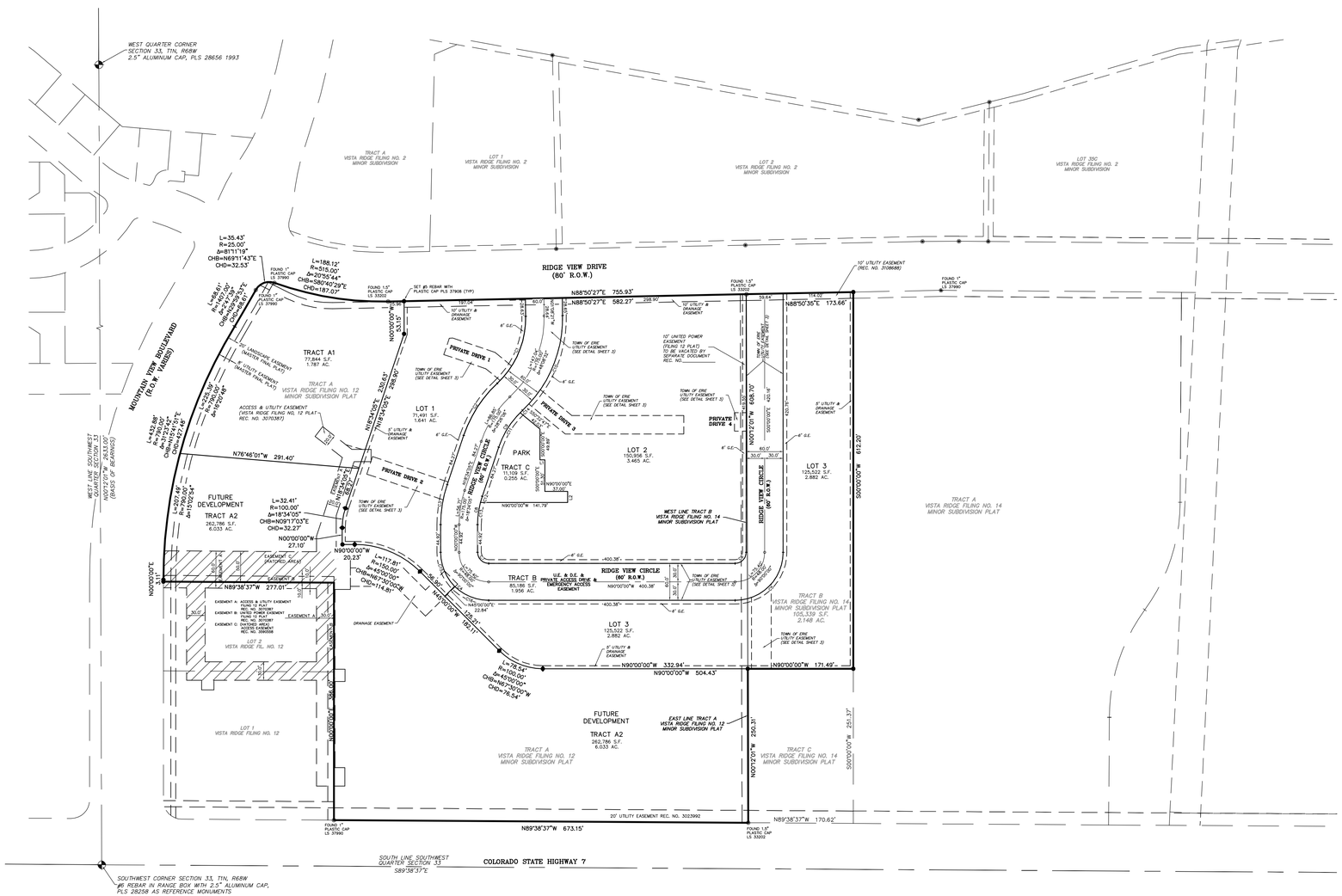
DRAWN BY: LC
CHECKED BY: JRL
SCALE: N/A
DATE: 11/17/14
FILE NO. PRELIM PLAT

#	REVISIONS:	DATE:	
1	TOWN OF ERIE COMMENTS	12–09–14	LC
2	TOWN OF ERIE COMMENTS	12–10–14	LC
3	DESIGN CHANGES	06–18–15	LC
4	TOWN OF ERIE COMMENTS	06–24–15	LC
5	TOWN OF ERIE COMMENTS	09–16–15	LC
6	BOUNDARY CHANGE	09–22–15	LC
7			
8			

JOB NUMBER: 947–625 SHEET: 1 OF 3

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT PRELIMINARY PLAT

A RESUBDIVISION OF: TRACT A, VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION AND TRACT B, VISTA RIDGE FILING NO. 14, MINOR SUBDIVISION PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.
18.019 ACRES–3 LOTS/4 TRACTS
PP–000055–2014
SHEET 2 OF 3



SYMBOL LEGEND

	SECTION CORNER
	MONUMENTED PROPERTY CORNER
	SET PROPERTY CORNER #5 REBAR W/PLASTIC CAP PLS 37908
1	LOT NUMBER
R.O.W.	RIGHT–OF–WAY
S.F.	SQUARE FEET
AC.	ACRES
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
G.E.	GAS MAIN EASEMENT

LINE TABLE

LINE	BEARING	DISTANCE
L1	N90°00'00"E	8.00'
L2	N00°00'00"W	17.94'

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	145.00'	121.83'	118.28'	S22°55'55"W	48°08'32"
C2	205.00'	101.74'	100.70'	N32°47'08"E	28°26'06"
C3	205.00'	66.44'	66.14'	S09°17'03"W	18°34'05"
C4	78.00'	122.52'	110.31'	N45°00'00"W	90°00'00"
C5	78.00'	122.52'	110.31'	S45°00'00"W	90°00'00"
C6	18.00'	28.27'	25.46'	N45°00'00"E	90°00'00"
C7	18.00'	28.27'	25.46'	S45°00'00"E	90°00'00"
C8	145.00'	46.99'	46.79'	N09°17'03"E	18°34'05"
C9	145.00'	71.96'	71.22'	S32°47'08"W	28°26'06"
C10	205.00'	172.25'	167.23'	S22°55'55"W	48°08'32"
C11	145.00'	66.36'	65.78'	S31°40'43"W	26°13'16"
C12	145.00'	10.41'	10.41'	N16°30'39"E	4°06'51"
C13	145.00'	36.58'	36.48'	N07°13'37"E	14°27'14"
C14	145.00'	5.60'	5.60'	N45°53'46"E	2°12'50"
C15	78.00'	61.26'	59.70'	N22°30'00"W	45°00'00"
C16	78.00'	61.26'	59.70'	N67°30'00"W	45°00'00"

N

0 50 100 200

SCALE: 1" = 100'

Lange Land Surveys
6475 WADSWORTH BLVD., SUITE 102
ARVADA, CO 80003
P:(720) 242–9732 F:(720) 242–9654

DRAWN BY: LC
CHECKED BY: JRL
SCALE: 1"=100'
DATE: 11/17/14
FILE NO. PRELIM PLAT

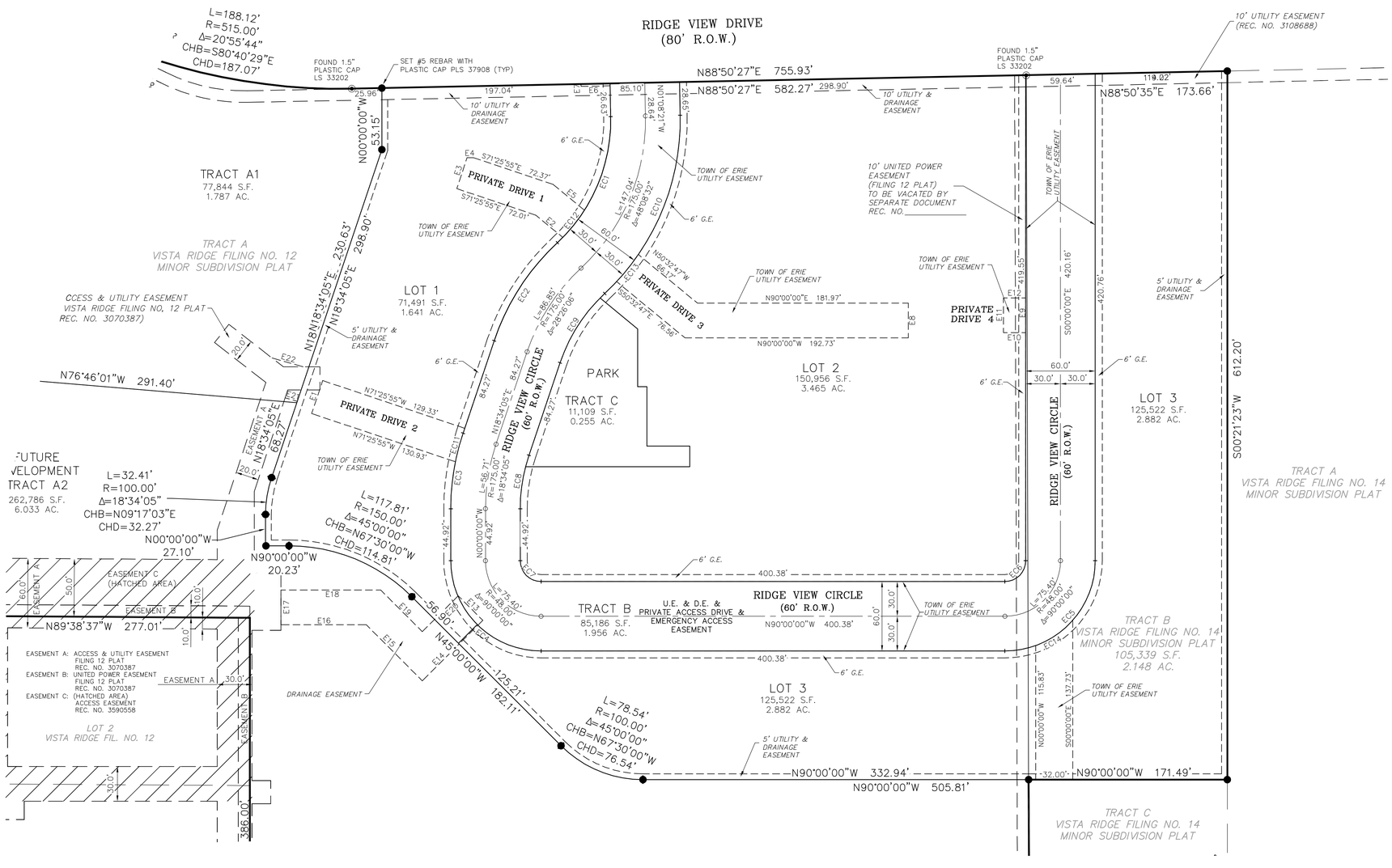
#	REVISIONS:	DATE:	BY:
1	TOWN OF ERIE COMMENTS	12–09–14	LC
2	TOWN OF ERIE COMMENTS	12–10–14	LC
3	DESIGN CHANGES	06–18–15	LC
4	TOWN OF ERIE COMMENTS	06–24–15	LC
5	TOWN OF ERIE COMMENTS	09–16–15	LC
6	BOUNDARY CHANGE	09–22–15	LC
7			
8			

JOB NUMBER: 947–625 SHEET: 2 OF 3

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT PRELIMINARY PLAT

A RESUBDIVISION OF: TRACT A, VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION AND TRACT B, VISTA RIDGE FILING NO. 14, MINOR SUBDIVISION PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.
18.019 ACRES–3 LOTS/4 TRACTS
PP–000055–2014
SHEET 3 OF 3

EASEMENT DETAIL



EASEMENT LINE TABLE

LINE	BEARING	DISTANCE
E1	S18°34'05"W	30.00'
E2	S50°32'47"E	30.18'
E3	S18°34'05"W	28.15'
E4	S88°51'39"W	5.50'
E5	N50°32'47"W	35.19'
E6	S88°50'27"W	25.10'
E7	N01°08'21"W	2.00'
E8	N00°00'00"W	30.00'
E9	S00°00'00"E	30.00'
E10	N90°00'00"W	19.17'
E11	S00°00'00"E	30.00'
E12	N90°00'00"W	19.17'
E13	S45°00'00"E	30.00'
E14	S45°00'00"W	73.82'
E15	S45°00'00"E	68.45'
E16	N90°00'00"E	73.59'
E17	S00°00'00"E	30.00'
E18	N90°00'00"W	86.01'
E19	N45°00'00"W	50.88'
E20	S45°00'00"W	43.82'
E21	N74°07'48"W	10.85'
E22	S74°07'48"E	27.81'
E23	S87°28'04"E	66.11'
E24	S02°31'56"W	30.00'
E25	N87°28'04"W	73.12'
E26	N00°00'00"W	4.86'
E27	N18°34'05"E	26.16'

EASEMENT CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
EC1	145.00'	121.83'	118.28'	S22°55'55"W	48°08'32"
EC2	205.00'	101.74'	100.70'	N32°47'08"E	28°26'06"
EC3	205.00'	66.44'	66.14'	S09°17'03"W	18°34'05"
EC4	78.00'	122.52'	110.31'	N45°00'00"W	90°00'00"
EC5	78.00'	122.52'	110.31'	S45°00'00"W	90°00'00"
EC6	78.00'	122.52'	110.31'	N45°00'00"E	90°00'00"
EC7	18.00'	28.27'	25.46'	N45°00'00"E	90°00'00"
EC8	18.00'	28.27'	25.46'	S45°00'00"E	90°00'00"
EC9	145.00'	46.99'	46.79'	N09°17'03"E	18°34'05"
EC10	205.00'	71.96'	71.22'	S32°47'08"W	28°26'06"
EC11	205.00'	172.26'	167.23'	S22°55'55"W	48°08'32"
EC12	205.00'	25.60'	25.59'	S14°59'24"W	7°09'23"
EC13	145.00'	30.06'	30.00'	N38°27'37"E	11°52'38"
EC14	205.00'	30.03'	30.00'	N38°45'11"E	8°23'34"
EC15	78.00'	39.19'	38.78'	S55°36'55"W	28°47'05"
C15	78.00'	61.26'	59.70'	N22°30'00"W	45°00'00"
C16	78.00'	61.26'	59.70'	N67°30'00"W	45°00'00"

SYMBOL LEGEND

	SECTION CORNER
	MONUMENTED PROPERTY CORNER
	SET PROPERTY CORNER #5 REBAR W/PLASTIC CAP PLS 37908
1	LOT NUMBER
R.O.W.	RIGHT–OF–WAY
S.F.	SQUARE FEET
AC.	ACRES
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
G.E.	GAS MAIN EASEMENT

N

0 25 50 100

SCALE: 1" = 50'

Lange Land Surveys
6475 WADSWORTH BLVD., SUITE 102
ARVADA, CO 80003
P:(720) 242–9732 F:(720) 242–9654

DRAWN BY: LC
CHECKED BY: JRL
SCALE: 1"=50'
DATE: 11/17/14
FILE NO. PRELIM PLAT

#	REVISIONS:	DATE:	BY:
1	TOWN OF ERIE COMMENTS	12–09–14	LC
2	TOWN OF ERIE COMMENTS	12–10–14	LC
3	DESIGN CHANGES	06–18–15	LC
4	TOWN OF ERIE COMMENTS	06–24–15	LC
5	TOWN OF ERIE COMMENTS	09–16–15	LC
6	BOUNDARY CHANGE	09–22–15	LC
7			
8			

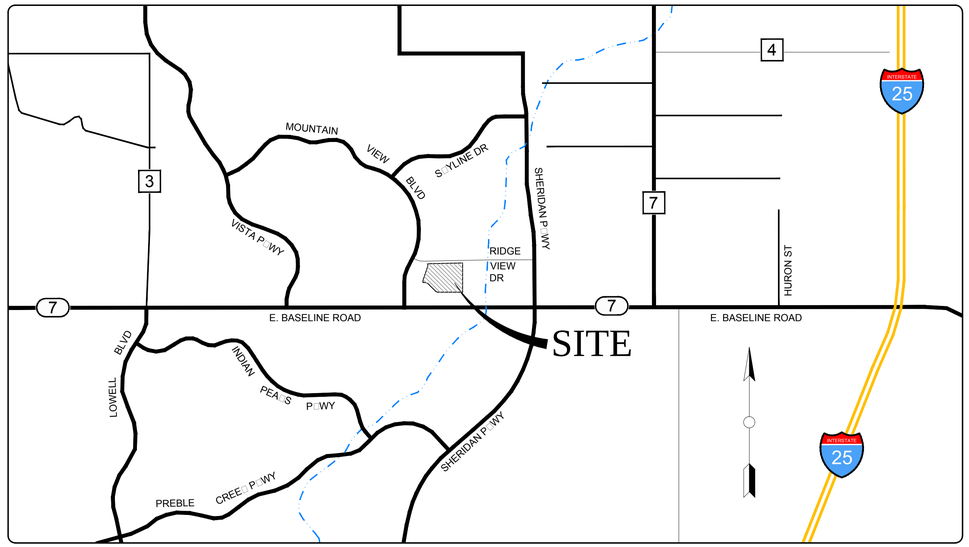
JOB NUMBER: 947–625 SHEET: 3 OF 3

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT
MONTEX - SOUTH
CIVIL CONSTRUCTION DOCUMENTS

LOCATED IN THE SOUTHWEST □UARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST
WEST OF THE □TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

SHEET INDEX

SHT #	SHT TITLE	DESCRIPTION	SUBMITTAL 1 NOVEMBER 17, 2014	SUBMITTAL 2 JUNE 29, 2015	SUBMITTAL 2 SEPTEMBER 17, 2015	REV
1	CVR-1.0	COVER SHEET	●	●	●	
2	GEN-2.0	GENERAL NOTES	●	●	●	
3	SIT-3.0	SITE PLAN	●	●	●	
4	OGP-4.0	OVERALL GRADING PLAN	●	●	●	
5	DGP-4.1	DETAIL GRADING PLAN 1	●	●	●	
6	DGP-4.2	DETAIL GRADING PLAN 2	●	●	●	
7	DGP-4.3	DETAIL GRADING PLAN 3	●	●	●	
8	DGP-4.4	DETAIL GRADING PLAN 4	●	●	●	
9	OUP-5.0	OVERALL UTILITY PLAN	●	●	●	
10	RDW-6.1	RIDGE VIEW CR STA: 0+00 TO 5+00	●	●	●	
11	RDW-6.2	RIDGE VIEW CR STA: 5+00 TO 10+50	●	●	●	
12	RDW-6.3	RIDGE VIEW CR STA: 10+50 TO 16+00	●	●	●	
13	STM-7.1	STM-1.0	●	●	●	
14	STM-7.2	STM-1.2 & LATERALS		●	●	
15	STM-7.3	STM-2.0, 2.1 & 3.0	●	●	●	
16	STM-7.4	STM - 1.4		●	●	
17	STM 7.5	AREA DRAIN PLAN		●	●	
18	SAN-8.1	SAN - 1.0 STA: -0+50 TO 9+50	●	●	●	
19	SAN-8.2	SAN - 2.0 STA: -0+50 TO 6+00	●	●	●	
20	SAN-8.3	SAN - 1.1, SAN - 1.2 & SAN - 1.3		●	●	
21	WAT-9.0	WATER PLAN	●	●	●	
22	WAT-9.1	WATER LOWERING PROFILES	●	●	●	
23	DTL-10.0	GENERAL DETAILS			●	
24	DTL-10.1	GENERAL DETAILS			●	
25	DTL-10.2	GENERAL DETAILS			●	
26	DTL-10.3	GENERAL DETAILS			●	
27	DTL-10.4	GENERAL DETAILS			●	
28	DTL-10.5	GENERAL DETAILS			●	
29	DTL-10.6	GENERAL DETAILS			●	
30	DTL-10.7	GENERAL DETAILS			●	
31	DTL-10.8	GENERAL DETAILS			●	
32	DTL-10.9	GENERAL DETAILS			●	



PROJECT TEAM

OWNER
CHARTERED DEVELOPMENT CORPORATION
3160 VILLAGE VISTA DR, STE. 104
ERIE, CO 80516
CONTACT: WARD RITTER
(303) 545-2554

ENGINEER
ENERTIA CONSULTING GROUP, LLC
1529 MARKET STREET, STE. 200
DENVER, COLORADO 80202
CONTACT: SHAWN MERZ, PE
(303) 564-3435

ARCHITECT
WOODLEY ARCHITECTURAL GROUP
731 SOUTH PARK DR, STE. B
LITTLETON, COLORADO 80120

PLANNER
HURST & ASSOCIATES
2500 BROADWAY STREET, STE. 110
BOULDER, COLORADO 80304
(303) 449-9105

SURVEYOR
LANGE LAND SURVEYS
9572 W. 58TH AVE.
ARVADA, CO 80002
(720) 242-9732

ELECTRICAL ENGINEER
RG ENGINEERING CONSULTANTS INC.
2555 WALNUT ST, SUITE B.,
DENVER, CO 80205

LEGEND

PROPERTY LINE
CURB & GUTTER
ROW
CENTERLINE
PROPOSED 5' CONTOUR
PROPOSED 1' CONTOUR
EXISTING 5' CONTOUR
EXISTING 1' CONTOUR
STORM INLET
STORM DRAIN

FIRE HYDRANT
MANHOLE
SIGN
CONCRETE SIDEWALK
EXISTING TREE
EASEMENT
WALL
RIP RAP
5500.00 PROPOSED ELEVATION
5500.00 EXISTING ELEVATION

LIST OF ABBREVIATIONS

R.O.W.	=	RIGHT OF WAY	SW	=	SWALE	FL	=	FLOW LINE
S/W	=	SIDEWAL□	TC	=	TOP OF CURB	PI	=	POINT OF INFLECTION
FL	=	FLOWLINE	NTS	=	NOT TO SCALE	LT	=	LEFT
CB	=	CATCH BASIN	HP	=	HIGH POINT	RT	=	RIGHT
FF	=	FINISHED FLOOR	LP	=	LOW POINT	MH	=	MANHOLE
TF	=	TOP OF FOOTING ELEVATION	INV	=	INVERT	PC	=	POINT OF CURVATURE
FG	=	FINISH GRADE ELEVATION	LF	=	LINEAR FEET	PT	=	POINT OF TANGENCY
EOC	=	EDGE OF CONCRETE	STA	=	STATION	PVC	=	POLYVINYL CHLORINE PIPE
EL	=	ELEVATION	TOP	=	TOP OF PIPE	RCP	=	REINFORCED CONCRETE PIPE
FH	=	FIRE HYDRANT	BOP	=	BOTTOM OF PIPE	SF	=	SILT FENCE
HP	=	HIGH POINT	SD	=	STORM DRAIN	BW	=	BAC□ OF WAL□
LP	=	LOW POINT	SS	=	SANITARY SEWER	EX	=	EXISTING
GB	=	GRADE BREA□	WL	=	WATER LINE	PROP	=	PROPOSED
BW	=	BAC□ OF WAL□	CL	=	CENTERLINE	CY	=	CUBIC YARDS

ALL WORK SHALL BE CONSTRUCTED TO THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS. THIS DRAWING HAS BEEN REVIEWED AND FOUND TO BE IN GENERAL COMPLIANCE WITH THESE STANDARDS AND OTHER TOWN REQUIREMENTS. THE ENGINEERING DESIGN AND CONCEPTS REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.

ACCEPTED BY: _____
DIRECTOR OF PUBLIC WORKS

I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS FOR MONTEX - NORTH AT VISTA RIDGE WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

ENGINEER: _____
SHAWN C. MERZ, PE COLORADO LICENSE # 41241

FOR AND ON BEHALF OF
ENERTIA CONSULTING GROUP, LLC.

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH□	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MARKET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051□

MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

COVER SHEET

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	1 CVR-1.0.DWG
DWG	CVR-1.0
SHEET	1 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP

GENERAL NOTES – CONSTRUCTION

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST "STANDARDS AND SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS" BY THE TOWN OF ERIE. COPIES OF THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS MAY BE OBTAINED FROM THE TOWN OF ERIE WEB SITE. CONTRACTOR SHALL HAVE A SET ON SITE AT ALL TIMES.

2. THE OWNER SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE TOWN OF ERIE ENGINEERING STAFF AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. THOSE IN ATTENDANCE SHALL INCLUDE THE OWNER, HIS ENGINEER, THE TOWN OF ERIE ENGINEERING STAFF, REPRESENTATIVES OF THE CONTRACTORS AND OTHER AFFECTED AGENCIES. PLANS SIGNED AND ACCEPTED BY THE TOWN OF ERIE WILL BE DISTRIBUTED AT THE PRE-CONSTRUCTION MEETING. CONTRACTOR SHALL HAVE (1) COPY OF THE SIGNED PLANS ON SITE AT ALL TIMES.

3. THE TOWN OF ERIE, THROUGH ACCEPTANCE OF THIS DOCUMENT, ASSUMES
NO RESPONSIBILITY FOR THE COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. THE OWNER AND DESIGN ENGINEER UNDERSTAND THAT THE RESPONSIBILITY FOR THE ENGINEERING ADEQUACY OF THE FACILITIES DEPICTED IN THIS DOCUMENT LIES SOLELY WITH THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT. REPORT ALL DISCREPANCIES TO THE DESIGN ENGINEER IMMEDIATELY.

4. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY/ALL WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK SITE FROM ADJACENT PRIVATE PROPERTY OWNERS. A COPY OF ALL AGREEMENTS SHALL BE PROVIDED TO THE TOWN. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

5. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE TOWN OF ERIE ENGINEERING STAFF. THE TOWN RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO TOWN STANDARDS AND SPECIFICATIONS. INSPECTIONS AND ONSITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE BY THE TOWN ENGINEERING STAFF OF THE CONTRACTORS'' CONTRACTUAL COMMITMENT. REQUESTS FOR INSPECTION BY THE TOWN OF ERIE SHALL BE MADE BY THE CONTRACTOR A MINIMUM OF TWENTYFOUR (24) HOURS IN ADVANCE.

6. CONSTRUCTION WATER IS AVAILABLE TO THE CONTRACTOR AS ESTABLISHED IN THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE TOWN OF ERIE REGARDING CURRENT REGULATIONS, FEES AND REQUIRED AGREEMENTS RELATED TO THE PROVISION OF CONSTRUCTION WATER.

7. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE AFFECTED UTILITY COMPANIES AND SHALL NOTIFY THE UTILITY NOTIFICATION CENTER, PHONE NUMBER 811, FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.

8. UTILITIES IN THE AREA OF CONSTRUCTION ARE APPROXIMATE ONLY. THEY HAVE BEEN LOCATED FROM FIELD INVESTIGATION AND THE BEST AVAILABLE UTILITY RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION AND REPAIR OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL CONTACT ALL RESPECTIVE UTILITIES AND HAVE ALL UTILITIES FIELD-LOCATED PRIOR TO CONSTRUCTION. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, IT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE TOWN OF ERIE ENGINEERING STAFF AND DESIGN ENGINEER PRIOR TO PROCEEDING.

9. THE CONTRACTOR SHALL NOTIFY TOWN OF ERIE ENGINEERING STAFF OF ANY PROBLEM IMPACTING WATER AND WASTE WATER FACILITIES THAT WOULD POTENTIALLY REQUIRE A VARIANCE FROM THE APPROVED PLANS AND SPECIFICATIONS. ANY VARIANCE FROM THE APPROVED DOCUMENTS SHALL BE AT THE SOLE DISCRETION OF THE TOWN OF ERIE ENGINEERING STAFF.

10. CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE SPECIFICATIONS AND PERMITS NECESSARY TO PERFORM THE PROPOSED WORK.

11. AS-BUILT DRAWINGS AND A CD INCLUDING AUTOCAD AND PDF FILES, AS REQUIRED IN THE SPECIFICATIONS, ARE TO BE SUBMITTED BY THE OWNER/DEVELOPER PRIOR TO SUBSTANTIAL COMPLETION/CONSTRUCTION ACCEPTANCE OF THE CONSTRUCTION.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ANY EXISTING SIGNS, STRUCTURES, FENCES, ETC., ENCOUNTERED ON THE JOB AND RESTORING THEM TO THEIR ORIGINAL CONDITION.

13. THE CONTRACTOR IS RESPONSIBLE FOR:
A. NOTIFYING THE TOWN OF ERIE UTILITY CUSTOMERS OF POTENTIAL SERVICE OUTAGES, AND COORDINATE WITH THE TOWN OF ERIE FOR DETERMINATION OF MINIMUM TIME REQUIREMENT.

B. NOTIFYING THE TOWN OF ERIE ENGINEERING STAFF IF WORK IS SUSPENDED FOR ANY PERIOD OF TIME AFTER INITIAL START-UP. THE CONTRACTOR SHALL NOTIFY THE TOWN OF ERIE FORTY-EIGHT (48) HOURS PRIOR TO RESTART.

C. IN THE EVENT OF AN AFTER HOURS EMERGENCY, CALL 303-441-4444.

D. NOTIFYING THE MOUNTAIN VIEW FIRE PROTECTION DISTRICT OF ALL STREET CLOSURES AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.

14. PRIOR TO INSTALLATION OF UTILITY MAINS, ROAD CONSTRUCTION MUST HAVE PROGRESSED TO AT LEAST THE "SUB-GRADE" STAGE.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. A CONSTRUCTION DEWATERING PERMIT MUST BE OBTAINED FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE). GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS OR EROSION OF ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. THE USE OF ANY SANITARY SEWER TO DISPOSE OF TRENCH WATER WILL NOT BE PERMITTED. NO CONCRETE SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, THE TOWN OF ERIE, AND THE DESIGN ENGINEER AT THE TIME OF THE OCCURRENCE

16. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO RESOLVE CONSTRUCTION PROBLEMS WITH THE TOWN OF ERIE DUE TO CHANGED CONDITIONS ENCOUNTERED BY THE CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK. IF, IN THE OPINION OF THE TOWN OF ERIE, PROPOSED ALTERATIONS TO THE SIGNED CONSTRUCTION PLANS INVOLVES SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO THE FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO THE TOWN OF ERIE FOR REVIEW, PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.

17. DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS. THE TOWN OF ERIE OR THE DESIGN ENGINEER EXERCISE NO CONTROLS OVER THE SAFETY OR ADEQUACY OF ANY EQUIPMENT, BUILDING COMPONENTS, SCAFFOLDING, FORMS OR OTHER WORK AIDS USED IN OR ABOUT THE PROJECT, OR IN THE SUPERINTENDING OF THE SAME. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER. THE DESIGN ENGINEER OR THE TOWN. THE TOWN OF ERIE ENGINEERING STAFF, OR ANY CONTRACTED ENGINEER, ARE NOT RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY OF ANY REGULATIONS RELATING THERETO.

18. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.

19. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING A STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FOR ANY PROJECT DISTURBING OVER ONE ACRE FROM BOTH THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND THE TOWN OF ERIE.

20. EACH TYPE OF CONSTRUCTION SHALL BE COMPLETED BY A CONTRACTOR THAT HAS DEMONSTRATED ACCEPTABLE QUALIFICATIONS TO THE TOWN AND IS A LICENSED CONTRACTOR IN THE TOWN OF ERIE.

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION. ALL TRAFFIC CONTROLS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITION. A PLAN SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND APPROVAL PRIOR TO THE PRE-CONSTRUCTION MEETING.

22. ALL BACKFILL SHALL CONFORM TO THE TRENCH DETAIL LOCATED IN THE TOWN OF ERIE STANDARDS & SPECIFICATIONS.

23. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY CONSTRUCTION DEBRIS OR MUD TRACKED ONTO EXISTING ROADWAYS.

24. THE CONTRACTOR SHALL REPAIR ANY EXCAVATION OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.

25. THE CONTRACTOR SHALL RENEW OR REPLACE ANY EXISTING TRAFFIC STRIPING AND/OR PAVEMENT MARKINGS, WHICH HAVE BEEN EITHER REMOVED OR THE EFFECTIVENESS OF WHICH HAS BEEN REDUCED DURING HIS OPERATION. RENEWAL OF PAVEMENT STRIPING AND MARKING SHALL BE DONE IN CONFORMANCE WITH THE TOWN OF ERIE STANDARD SPECIFICATIONS.

26. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TAKE EVERY MEASURE NECESSARY TO COMPLY WITH ANY STATE, COUNTY OR TOWN DUST CONTROL ORDINANCE.

27. CONSTRUCTION VEHICLES SHALL USE TRUCK ROUTES DESIGNATED BY THE
TOWN.

28. THE OWNER/DEVELOPER WILL BE HELD RESPONSIBLE FOR THE PROPER FUNCTIONING OF THE IMPROVEMENTS FOR A MINIMUM OF TWO (2) YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION/ CONSTRUCTION ACCEPTANCE OF THE IMPROVEMENTS BY THE TOWN OF ERIE. ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY THE OWNER/CONTRACTOR TO THE SATISFACTION OF THE TOWN OF ERIE AT NO EXPENSE TO THE TOWN.

29. THE DESIGN ENGINEER SHALL PERFORM SUFFICIENT INSPECTIONS AND SURVEYS DURING GRADING AND CONSTRUCTION SO THAT AN OPINION CAN BE RENDERED AND VERIFIED IN WRITING AS TO COMPLIANCE WITH THE PLANS AND CODES WITHIN THE DESIGN ENGINEER'S PURVIEW.

30. THE SOILS ENGINEER SHALL PERFORM SUFFICIENT INSPECTIONS DURING GRADING AND CONSTRUCTION SO THAT AN OPINION CAN BE RENDERED AND VERIFIED IN WRITING AS TO COMPLIANCE WITH THE PLANS AND CODES WITHIN THE SOILS ENGINEER'S PURVIEW.

GENERAL NOTES – GRADING

1. ALL CONSTRUCTION ACTIVITIES THAT DISTURBS ONE OR MORE ACRES OF LAND, AS WELL AS ACTIVITIES THAT DISTURB LESS THAN ONE ACRE OF LAND, BUT IS PART OF A LARGER COMMON PLAN OF DEVELOPMENT, MUST COMPLY WITH BOTH LOCAL AND STATE REGULATIONS REGARDING STORMWATER DRAINAGE ON CONSTRUCTION SITES. OWNERS OR CONTRACTORS MUST OBTAIN A COLORADO STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) AND EITHER A PUBLIC IMPROVEMENT PERMIT OR A GRADING AND STORMWATER QUALITY PERMIT FROM THE TOWN OF ERIE. CONTRACTOR SHALL:

A. MAINTAIN A COPY OF THE STORM WATER MANAGEMENT PLAN (SWMP) ONSITE AT ALL TIMES. THE SWMP MUST BE MAINTAINED AND MADE AVAILABLE TO TOWN OF ERIE INSPECTORS UPON REQUEST.

B. INSTALL AND MAINTAIN EROSION, SEDIMENT, AND MATERIALS MANAGEMENT CONTROL BMPS AS SPECIFIED IN THE SWMP.

C. INSPECT ALL BEST MANAGEMENT PRACTICES (BMPS) AT LEAST EVERY FOURTEEN (14) DAYS AND WITHIN TWENTY FOUR (24) HOURS AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT CAUSES SURFACE RUNOFF.

D. MAINTAIN INSPECTION AND MAINTENANCE RECORDS OF BMPS ONSITE WITH THE SWMP. COPIES OF THESE REPORTS SHALL BE PROVIDED TO THE TOWN OF ERIE ENGINEERING STAFF.

E. BASED ON INSPECTIONS PERFORMED BY THE PERMIT HOLDER OR BY TOWN PERSONNEL, MODIFICATIONS TO THE SWMP WILL BE NECESSARY IF AT ANY TIME THE SPECIFIED BMPS DO NOT MEET THE OBJECTIVES OF THE PERMIT. ALL MODIFICATIONS SHALL BE COMPLETED AS SOON AS PRACTICABLE AFTER THE REFERENCED INSPECTION, AND SHALL BE RECORDED ON THE OWNER'S COPY OF THE SWMP.

F. THE OPERATOR SHALL AMEND THE SWMP WHENEVER THERE IS A SIGNIFICANT CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON THE POTENTIAL FOR DISCHARGE OF POLLUTANTS TO THE RECEIVING WATERS, OR IF THE SWMP PROVES TO BE INEFFECTIVE IN ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS IN STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

G. INSTALLATION AND MAINTENANCE OF BMPS SHALL BE SUPERVISED BY PERSONNEL CERTIFIED IN EROSION AND SEDIMENT CONTROL.

2. ALL SITE GRADING (EXCAVATION, EMBANKMENT, AND COMPACTION) SHALL CONFORM TO THE RECOMMENDATIONS OF THE LATEST SOILS INVESTIGATION FOR THIS PROPERTY AND SHALL FURTHER BE IN CONFORMANCE WITH THE TOWN OF ERIE "STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS", LATEST EDITION.

3. ALL GRADING AND FILLING OPERATIONS SHALL BE OBSERVED, INSPECTED AND TESTED BY A LICENSED SOILS ENGINEER. ALL TEST RESULTS SHALL BE SUBMITTED TO THE TOWN OF ERIE ENGINEERING STAFF.

4. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATION AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID ANY DAMAGE TO EXISTING FOLIAGE THAT LIES IN THE PROJECT AREA UNLESS DESIGNATED FOR REMOVAL AND SHALL BE LIABLE FOR SUCH DAMAGE AT HIS/HER EXPENSE.

5. TOPSOIL SHALL BE STOCKPILED TO THE EXTENT PRACTICABLE ON THE SITE FOR USE ON AREAS TO BE RE-VEGETATED. ANY AND ALL STOCKPILES SHALL BE LOCATED AND PROTECTED FROM EROSIVE ELEMENTS.

6. TEMPORARY VEGETATION SHALL BE INSTALLED ON ALL DISTURBED AREAS WHERE PERMANENT SURFACE IMPROVEMENTS ARE NOT SCHEDULED FOR IMMEDIATE INSTALLATION. SEEDING WILL BE DONE ACROSS THE SLOPE FOLLOWING THE CONTOURS. VEGETATION SHALL CONFORM TO THE TOWN OF ERIE STANDARDS AND SPECIFICATIONS. PROJECT SCHEDULING SHOULD TAKE ADVANTAGE OF SPRING OR FALL PLANTING SEASONS FOR NATURAL GERMINATION. SEEDED AREAS SHALL BE IRRIGATED IN ACCORDANCE WITH THE TOWN OF ERIE'S STANDARDS AND SPECIFICATIONS.

7. AT ALL TIMES, A WATER TRUCK SHALL BE ON-SITE AND THE PROPERTY SHALL BE MAINTAINED AND/OR WATERED TO PREVENT WIND-CAUSED EROSION. EARTHWORK OPERATIONS SHALL BE DISCONTINUED WHEN FUGITIVE DUST SIGNIFICANTLY IMPACTS ADJACENT PROPERTY. IF EARTHWORK IS COMPLETE OR DISCONTINUED AND DUST FROM THE SITE CONTINUES TO CREATE PROBLEMS, THE OWNER/DEVELOPER SHALL IMMEDIATELY INSTITUTE MITIGATIVE MEASURES AND SHALL CORRECT DAMAGE TO ADJACENT PROPERTY.

8. FILL SLOPES SHALL BE COMPACTED BY MEANS OF SHEEPSFOOT COMPACTOR OR OTHER SUITABLE EQUIPMENT. COMPACTING SHALL CONTINUE UNTIL SLOPES ARE STABLE AND THERE IS NOT AN APPRECIABLE AMOUNT OF LOOSE SOIL ON THE SLOPES.

9. TEMPORARY CUT/FILL SLOPES SHALL ABIDE BY THE SOILS REPORT. PERMANENT SLOPES SHALL BE AS SHOWN ON PLANS.

10. DEPTH OF MOISTURE-DENSITY CONTROL SHALL BE FULL DEPTH ON ALL EMBANKMENT AND SIX (6) INCHES ON THE BASE OF CUTS AND FILLS.

11. OUTLET SIDES OF ALL STORM PIPES SHALL BE GRADED TO DRAIN AND SHALL HAVE SUFFICIENT EROSION PROTECTION.

12. THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE SITE GEOTECHNICAL ENGINEER WHEN THE GRADING OPERATION IS READY FOR EACH OF THE FOLLOWING INSPECTIONS:

A. INITIAL INSPECTION WHEN THE PERMITTEE IS READY TO BEGIN WORK, BUT NOT LESS THAN TWO (2) DAYS BEFORE ANY GRADING
OR GRUBBING IS STARTED.

B. AFTER THE NATURAL GROUND OR BEDROCK IS EXPOSED AND PREPARED TO RECEIVE FILL, BUT BEFORE FILL IS PLACED.

C. EXCAVATION INSPECTION AFTER THE EXCAVATION IS STARTED BUT BEFORE THE VERTICAL DEPTH OF THE EXCAVATION EXCEEDS TEN (10) FEET.

D. FILL INSPECTION AFTER THE FILL PLACEMENT IS STARTED, BUT BEFORE THE FILL EXCEEDS TEN (10) FEET.

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION				
			DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

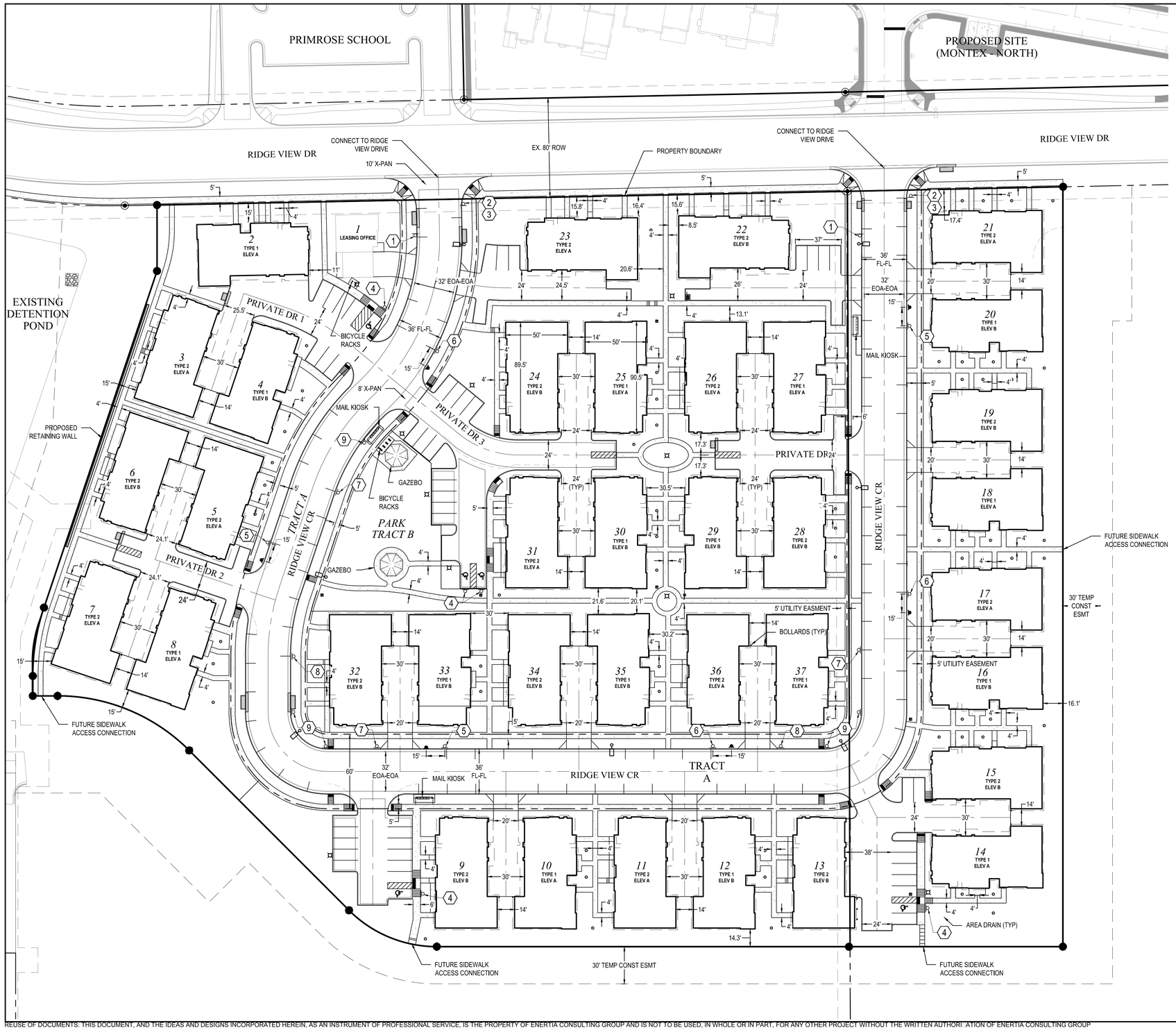
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

GENERAL NOTES

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	2 GEN-2.0.DWG
DWG	GEN-2.0
SHEET	2 OF 32

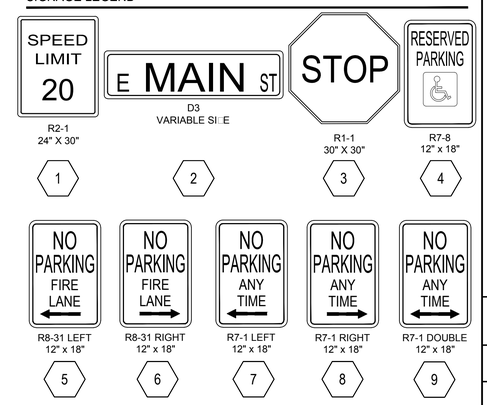
REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



LEGEND

PROPERTY LINE	FIRE HYDRANT
CURB & GUTTER	MANHOLE
ROW	SIGN
CENTERLINE	CONCRETE SIDEWALK
PROPOSED 5' CONTOUR	UNDERDRAIN
PROPOSED 1' CONTOUR	EASEMENT
EXISTING 5' CONTOUR	WALL
EXISTING 1' CONTOUR	RIP RAP
STORM INLET	5500.00 PROPOSED ELEVATION
STORM DRAIN	5500.00 EXISTING ELEVATION
LIGHT	CONCRETE PAVING

SIGNAGE LEGEND



SIGNAGE NOTES:

1. STREET NAME SIGNS AND POSTS AND BASES SHALL BE PER TOWN OF ERIE STANDARDS.
2. STOP SIGNS SHOULD BE PLACED BETWEEN PC AND 6' FROM PC FOLLOWING M.U.T.C.D. STANDARDS.

GENERAL NOTES

1. SEE PHOTOMETRIC PLAN FOR LOCATION, SIZE AND HEIGHT OF PROPOSED LIGHT FIXTURES.
2. INTERIOR ROADWAYS ARE PRIVATE AND SHALL BE MAINTAINED BY THE OWNER.
3. FENCE LOCATIONS ARE SHOWN ON THE LANDSCAPE PLAN.
4. ALL ON-SITE STORM DRAINS ARE PRIVATE AND SHALL BE MAINTAINED BY THE OWNER.

SCALE: 1"=40'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CHK	APVD
DSGN	SM	DR BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR..ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

SITE PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	3 SIT-3.0.DWG
DWG	SIT-3.0
SHEET	3 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI: ATION OF ENERTIA CONSULTING GROUP

LEGEND

PROPERTY LINE	FIRE HYDRANT
CURB & GUTTER	MANHOLE
ROW	SIGN
CENTERLINE	CONCRETE SIDEWALK
PROPOSED 5' CONTOUR	UNDERDRAIN
PROPOSED 1' CONTOUR	EASEMENT
EXISTING 5' CONTOUR	WALL
EXISTING 1' CONTOUR	RIP RAP
STORM INLET	PROPOSED ELEVATION
STORM DRAIN	EXISTING ELEVATION
LIGHT	CONCRETE PAVING

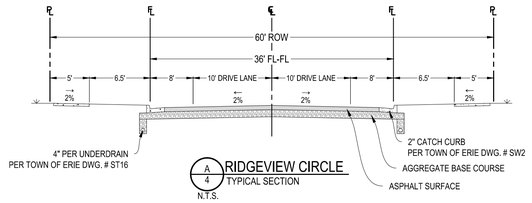
GENERAL NOTES

1. SEE GEOTECHNICAL REPORT (BY PHC) FOR ROADWAY CROSS SECTION DETAILS

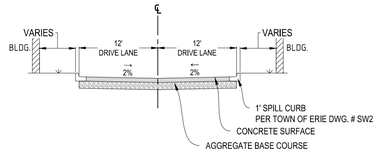
N

0' 25 50 100

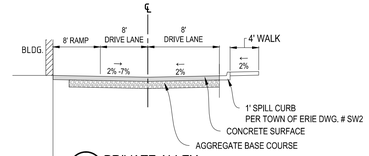
SCALE: 1"=50'



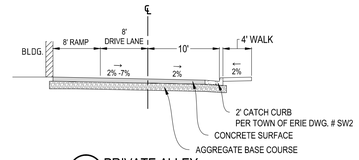
A/4 RIDGEVIEW CIRCLE TYPICAL SECTION N.T.S.



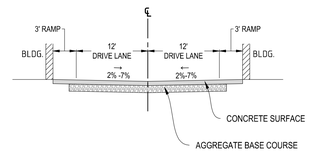
B/4 PRIVATE DRIVE 2 & 4 TYPICAL SECTION N.T.S.



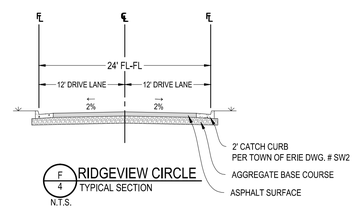
C/4 PRIVATE ALLEY TYPICAL SECTION N.T.S.



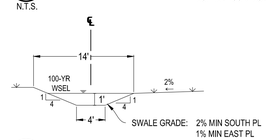
D/4 PRIVATE ALLEY TYPICAL SECTION N.T.S.



E/4 PRIVATE ALLEY TYPICAL SECTION N.T.S.



F/4 RIDGEVIEW CIRCLE TYPICAL SECTION N.T.S.



G/4 DIVERSION SWALE TYPICAL SECTION N.T.S.

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

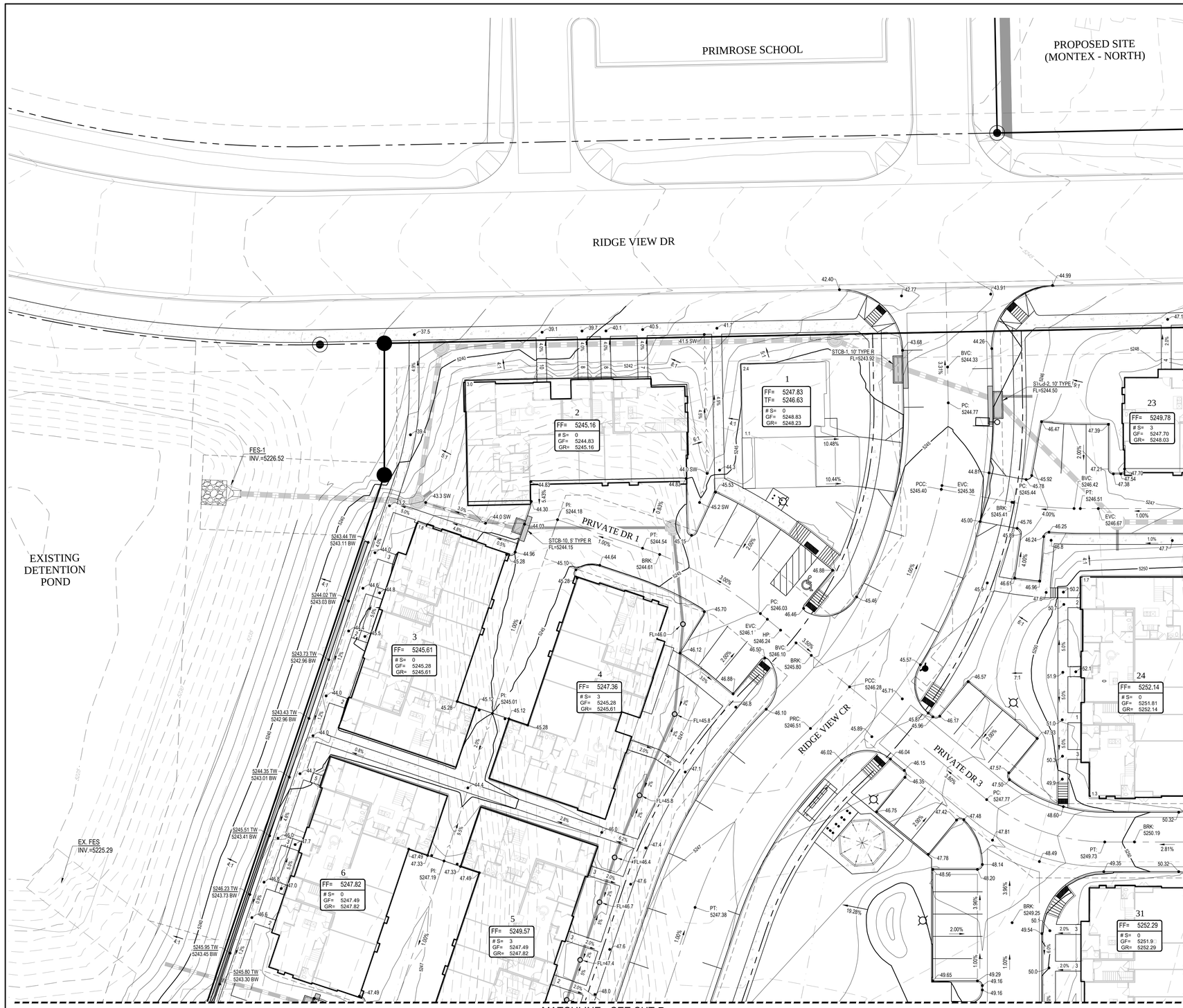
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

OVERALL GRADING PLAN

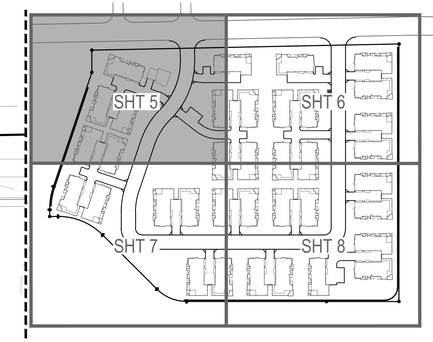
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	4 OGP-4.0.DWG
DWG	OGP-4.0
SHEET	4 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



KEY MAP



LEGEND

PROPERTY LINE		FIRE HYDRANT	
CURB & GUTTER		MANHOLE	
ROW		SIGN	
CENTERLINE		CONCRETE SIDEWALK	
PROPOSED 5' CONTOUR	UD	UNDERDRAIN	
PROPOSED 1' CONTOUR		EASEMENT	
EXISTING 5' CONTOUR		WALL	
EXISTING 1' CONTOUR		RIP RAP	
STORM INLET		5500.00	PROPOSED ELEVATION
STORM DRAIN		5500.00	EXISTING ELEVATION
LIGHT			CONCRETE PAVING

N

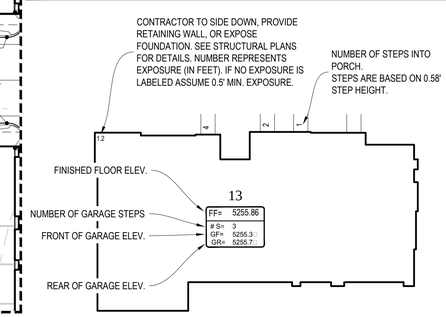
0' 10 20 40

SCALE: 1"=20'

GENERAL NOTES

1. ALL SPOT ELEVATIONS ARE FLOWLINE UNLESS OTHERWISE NOTED.

TYPICAL LOT LEGEND



PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 80516

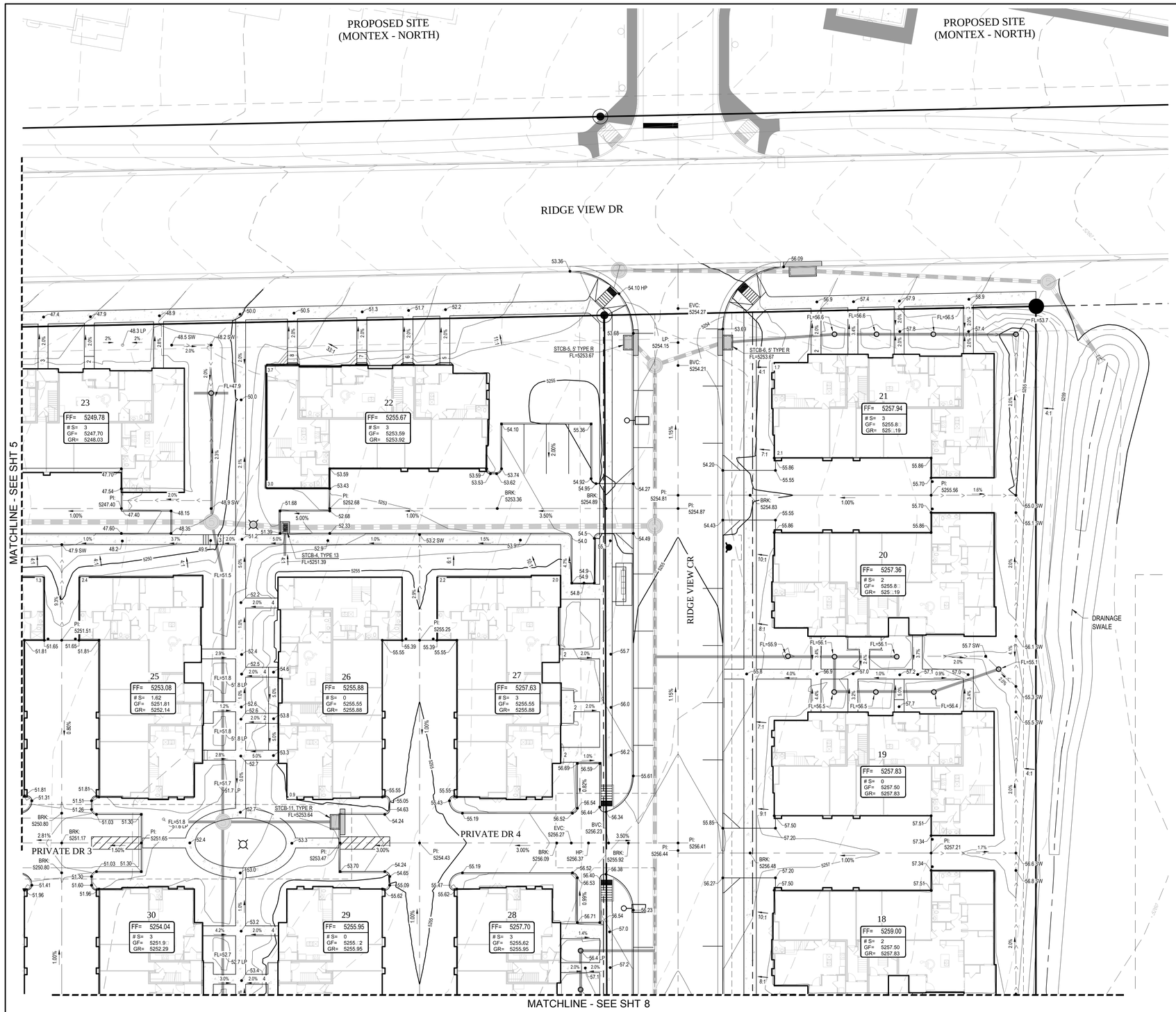
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

DETAIL GRADING PLAN 1

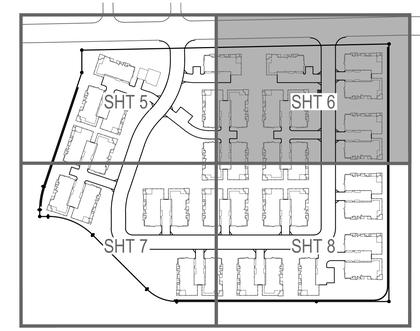
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	8 DGP-4.4.DWG
DWG	DGP-4.1
SHEET	5 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



KEY MAP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

N

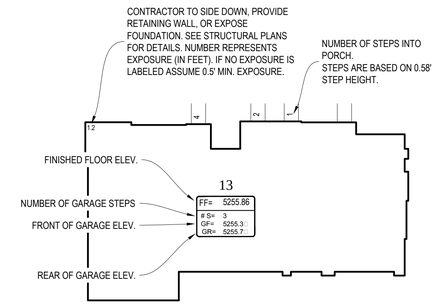
0' 10 20 40

SCALE: 1"=20'

GENERAL NOTES

1. ALL SPOT ELEVATIONS ARE FLOWLINE UNLESS OTHERWISE NOTED.

TYPICAL LOT LEGEND



PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION			
DSGN	SM	DR	BC	CH	BG	APVD	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

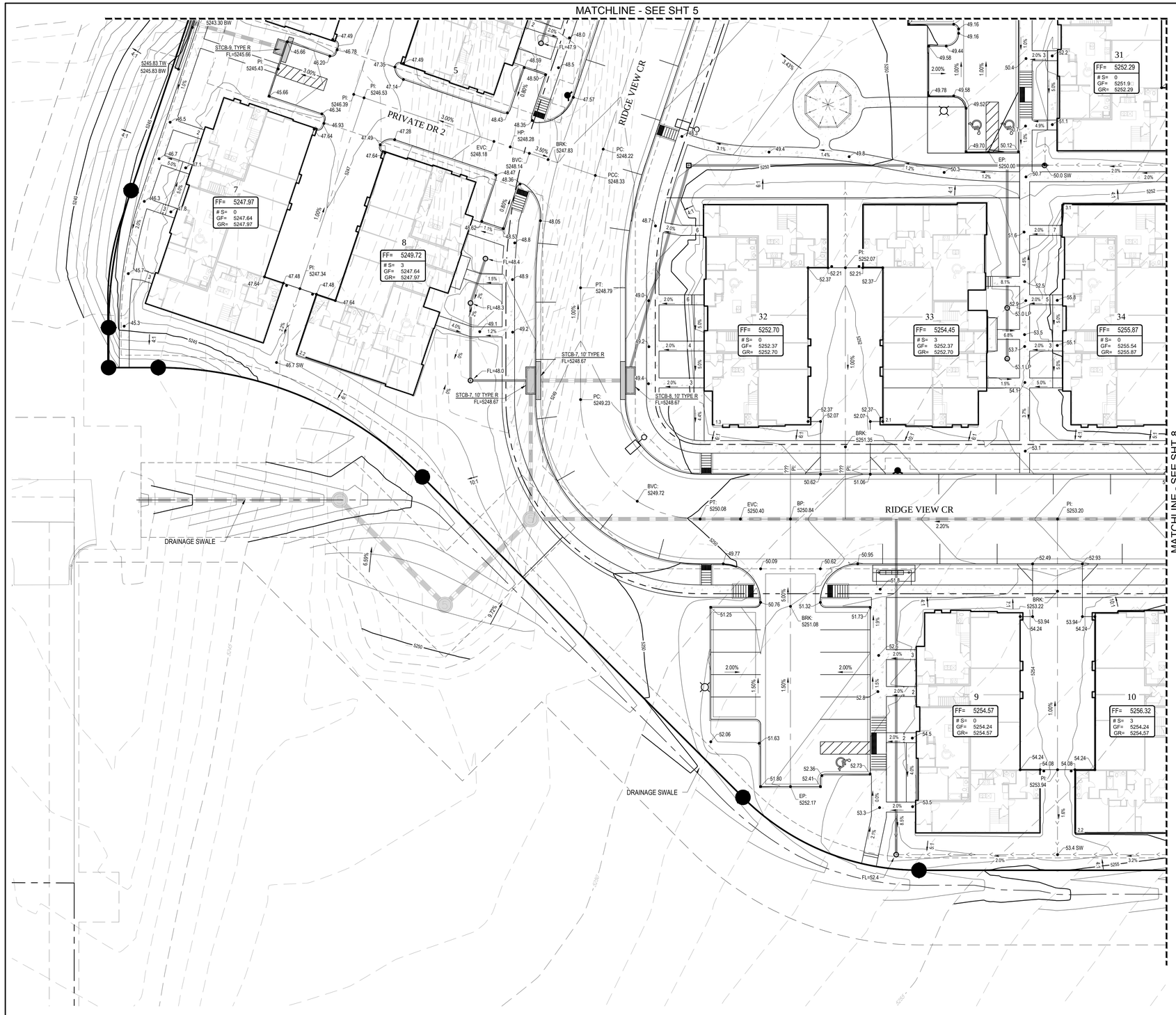
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

DETAIL GRADING PLAN 2

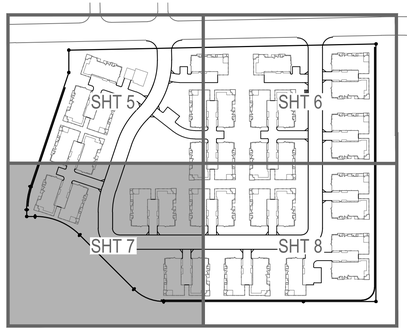
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	8 DGP-4.4.DWG
DWG	DGP-4.2
SHEET	OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



KEY MAP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR	UD	UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

N

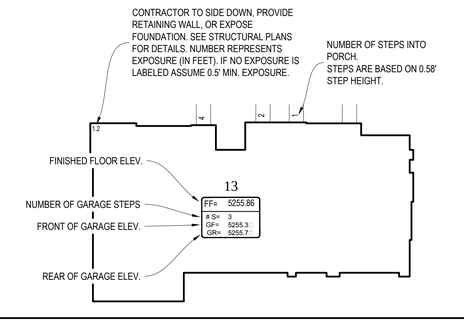
0' 10 20 40

SCALE: 1"=20'

GENERAL NOTES

1. ALL SPOT ELEVATIONS ARE FLOWLINE UNLESS OTHERWISE NOTED.

TYPICAL LOT LEGEND



PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION			
DSGN	SM	DR	BC	CH	BG	APVD	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

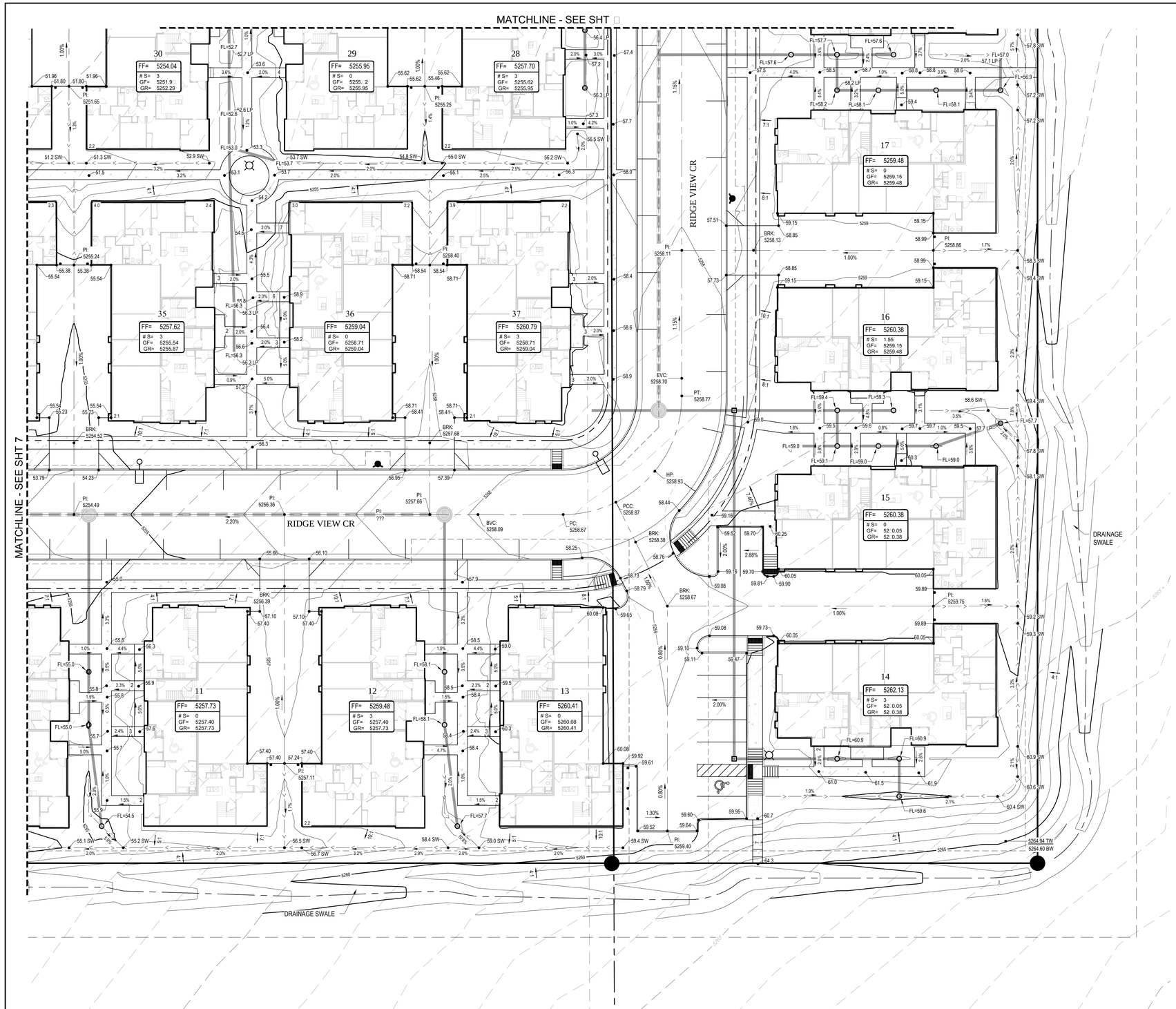
MONTEX - SOUTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

DETAIL GRADING PLAN 3

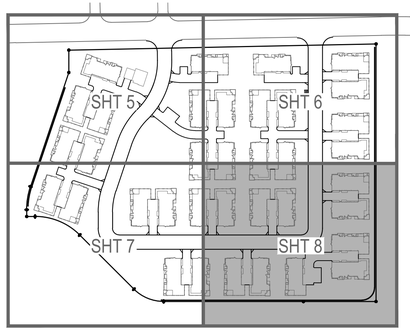
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	8 DGP-4.4.DWG
DWG	DGP-4.3
SHEET	7 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



KEY MAP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR	UD	UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

N

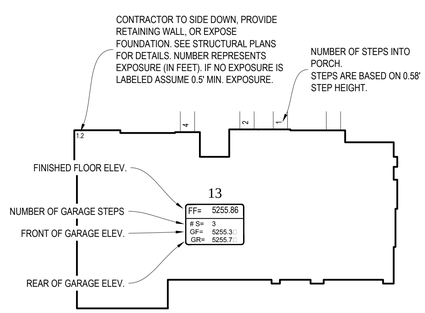
0' 20 20 40

SCALE: 1"=20'

GENERAL NOTES

1. ALL SPOT ELEVATIONS ARE FLOWLINE UNLESS OTHERWISE NOTED.

TYPICAL LOT LEGEND



PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION			
DSGN	SM	DR	BC	CHK	BG	APVD	SM

ENERTIA CONSULTING GROUP
1529 MAR..ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

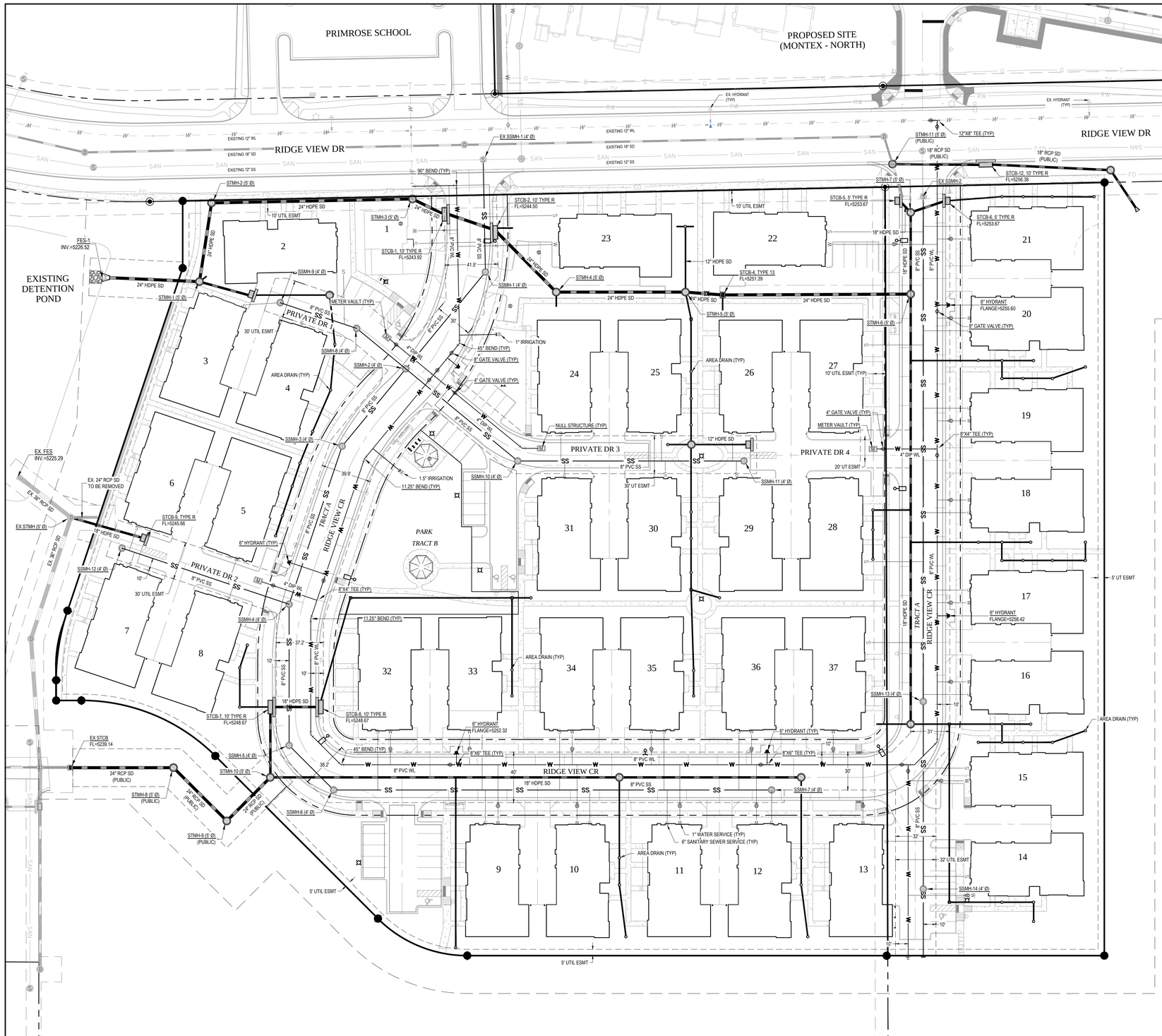
MONTEX - SOUTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

DETAIL GRADING PLAN 4

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	8 DGP-4.4.DWG
DWG	DGP-4.4
SHEET	8 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI: ATION OF ENERTIA CONSULTING GROUP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

1. ALL STORM SEWER PIPE SHALL BE HDPE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED STORM DRAINAGE FACILITIES ARE PRIVATE UNLESS OTHERWISE NOTED.

N

0' 20 40 80

SCALE: 1"=40'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION			
DSGN	SM	DR	BC	CHK	BG	APVD	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 80051

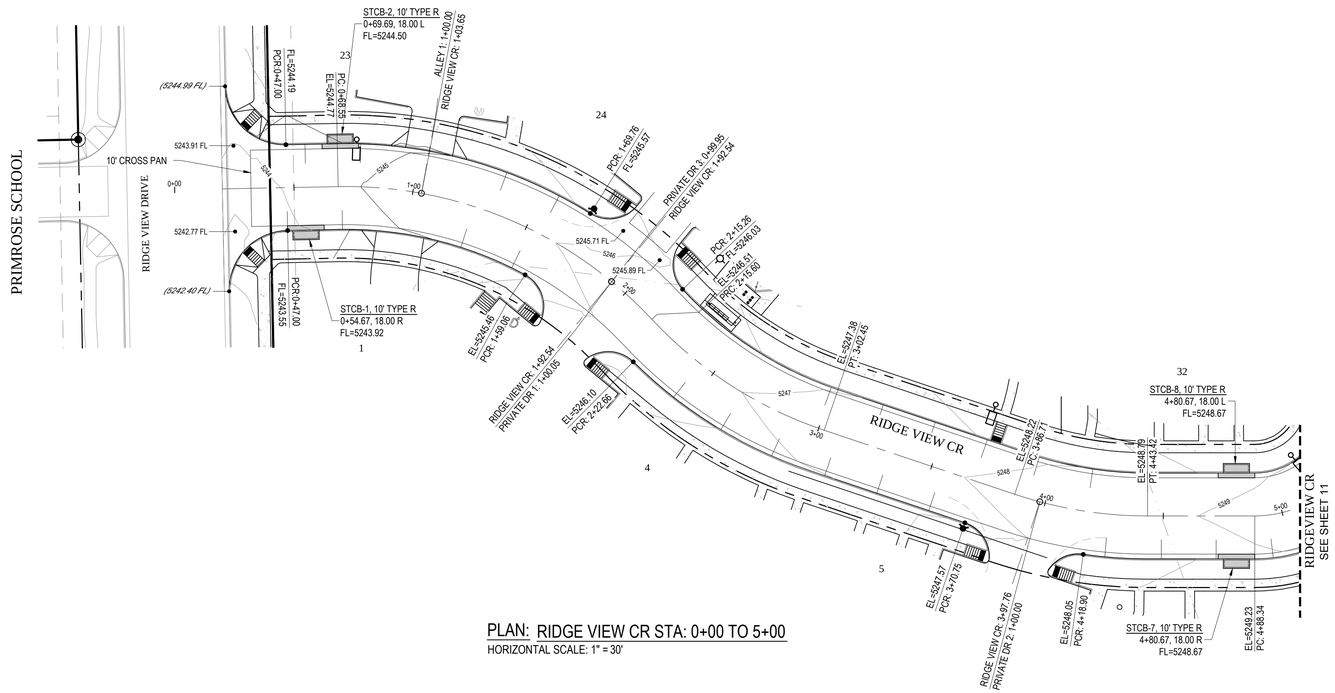
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

OVERALL UTILITY PLAN

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

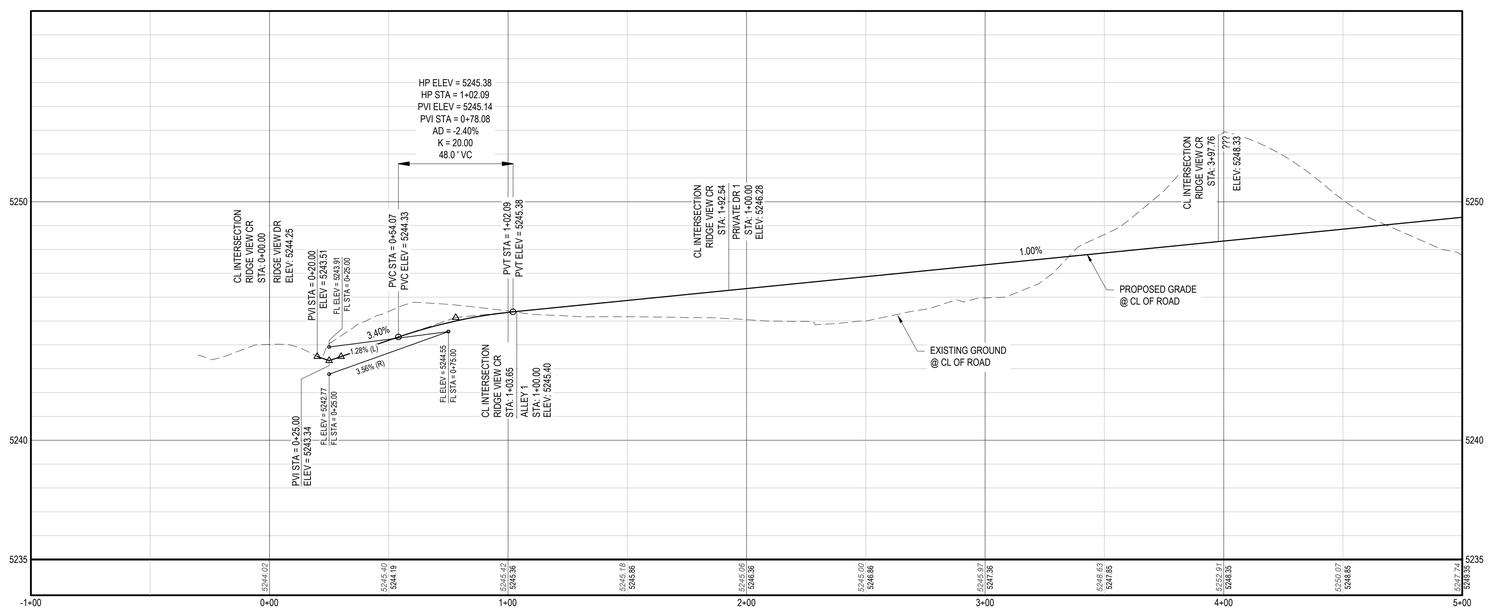
DATE	SEPTEMBER, 17 2015
FILE	9 OUP-5.0.DWG
DWG	OUP-5.0
SHEET	9 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



PLAN: RIDGE VIEW CR STA: 0+00 TO 5+00

HORIZONTAL SCALE: 1" = 30'

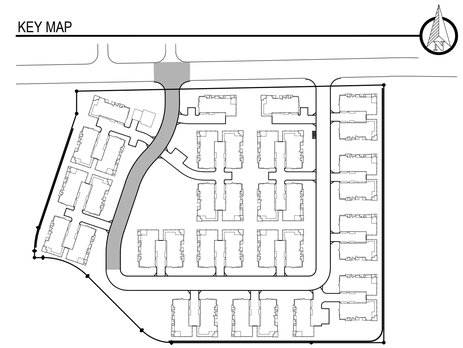


PROFILE: RIDGE VIEW CR STA: -1+00 TO 5+00

HORIZONTAL SCALE: 1" = 30'

VERTICAL SCALE: 1" = 3

KEY MAP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

1. SEE FINAL GEOTECHNICAL REPORT (BY PHC) FOR ROADWAY PAVEMENT DESIGN.
2. SEE SHEET 4 FOR ROADWAY CROSS SECTIONS.

N

0' 15 30 60

SCALE: 1"=30'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

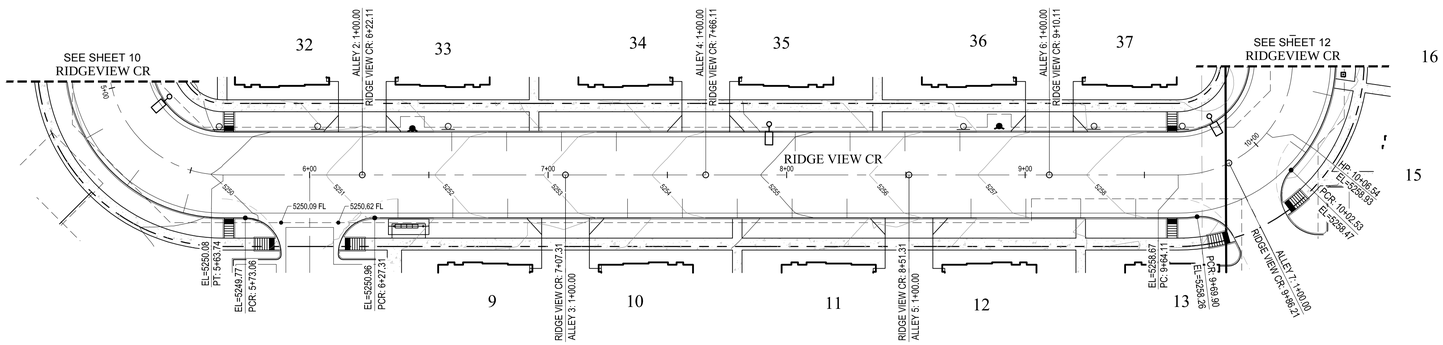
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

RIDGE VIEW CR STA: 0 .00 TO 5 .00
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

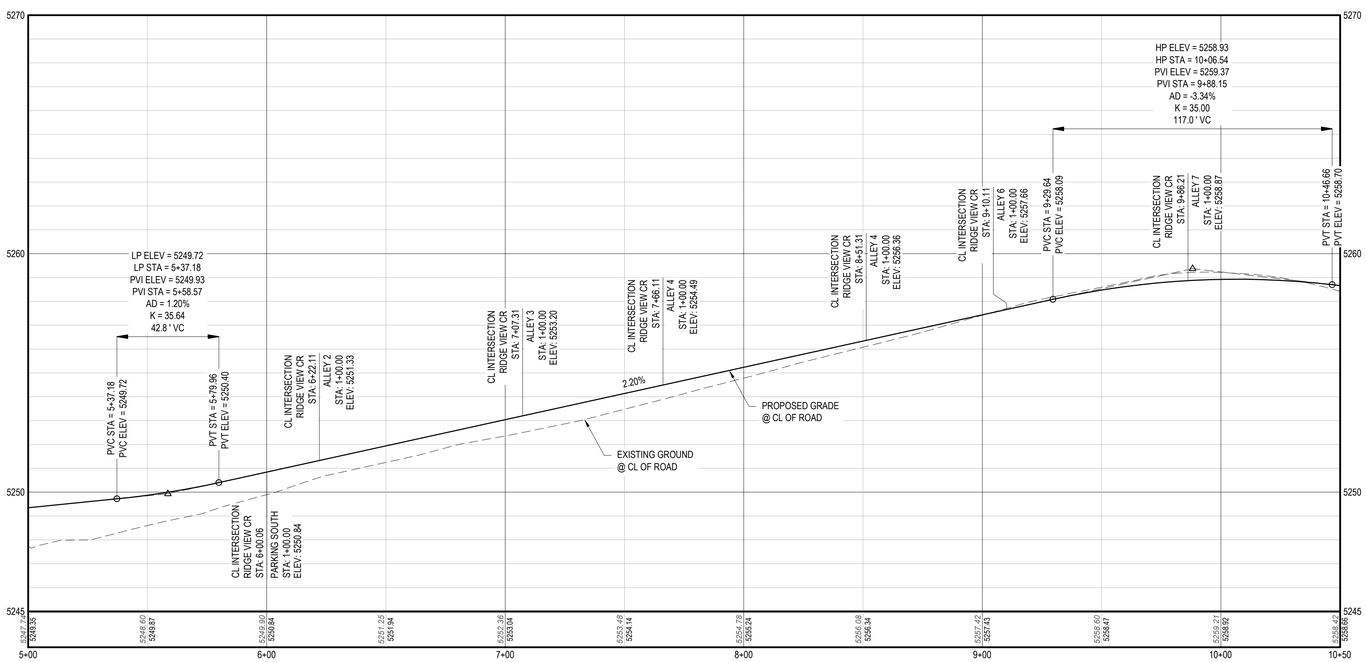
DATE	SEPTEMBER, 17 2015
FILE	10 RDW- 1.DWG
DWG	RDW- 1
SHEET	10 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



PLAN: RIDGE VIEW CR STA: 5+00 TO 10+50

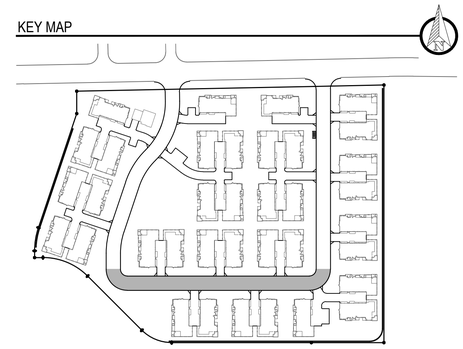
HORIZONTAL SCALE: 1" = 30'



PROFILE: RIDGE VIEW CR STA: 5+00 TO 10+50

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3

KEY MAP

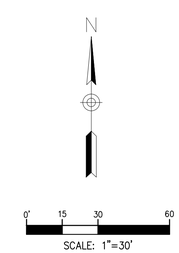


LEGEND

PROPERTY LINE		FIRE HYDRANT	
CURB & GUTTER		MANHOLE	
ROW		SIGN	
CENTERLINE		CONCRETE SIDEWALK	
PROPOSED 5' CONTOUR		UNDERDRAIN	
PROPOSED 1' CONTOUR		EASEMENT	
EXISTING 5' CONTOUR		WALL	
EXISTING 1' CONTOUR		RIP RAP	
STORM INLET	5500.00	PROPOSED ELEVATION	
STORM DRAIN	5500.00	EXISTING ELEVATION	
LIGHT		CONCRETE PAVING	

GENERAL NOTES

1. SEE FINAL GEOTECHNICAL REPORT (BY PHC) FOR ROADWAY PAVEMENT DESIGN.
2. SEE SHEET 4 FOR ROADWAY CROSS SECTIONS.



PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CH	APVD

DSGN	DR	CH	APVD
SM	BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

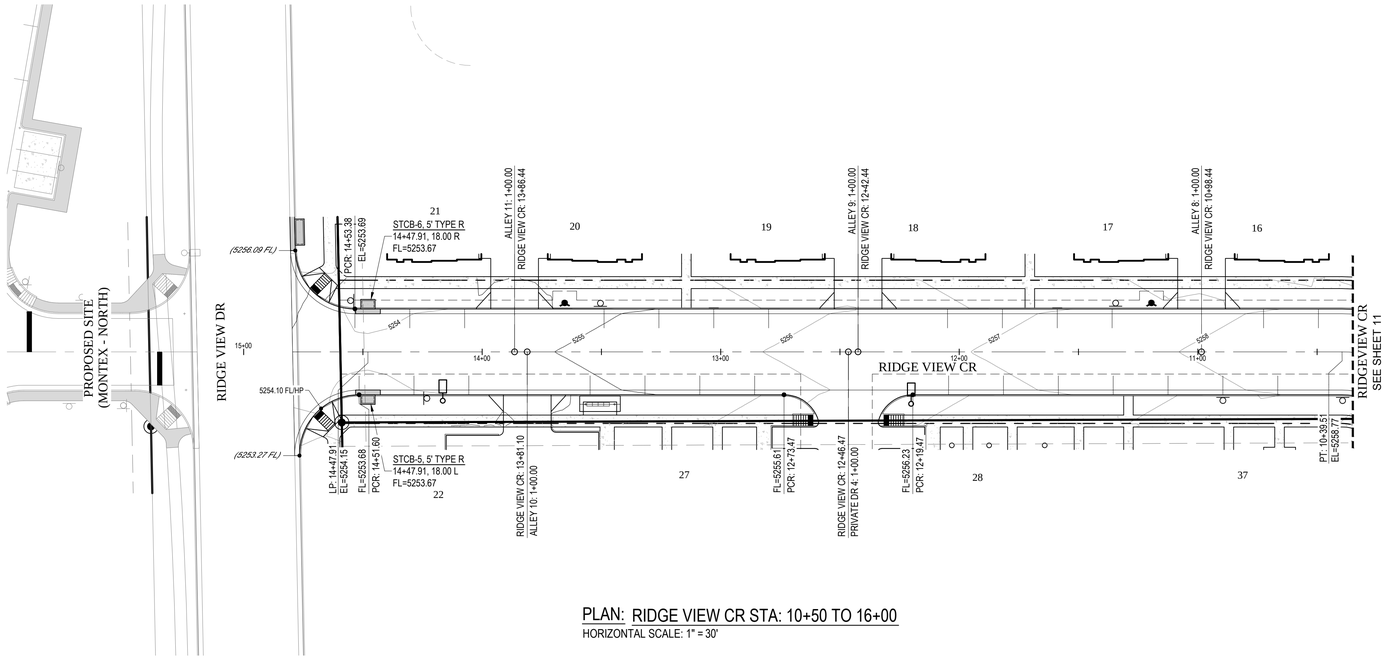
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

RIDGE VIEW CR STA: 5 00 TO 10 50
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

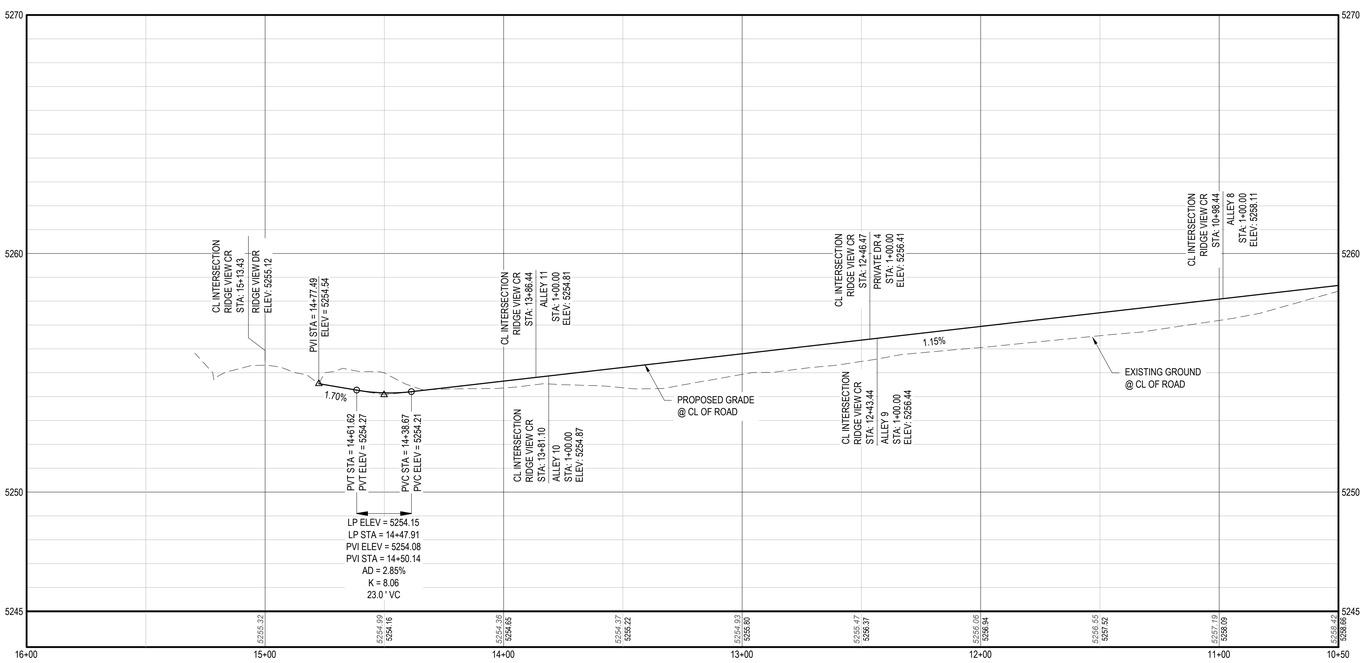
DATE	SEPTEMBER, 17 2015
FILE	11 RDW- 2.DWG
DWG	RDW- 2
SHEET	11 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



PLAN: RIDGE VIEW CR STA: 10+50 TO 16+00

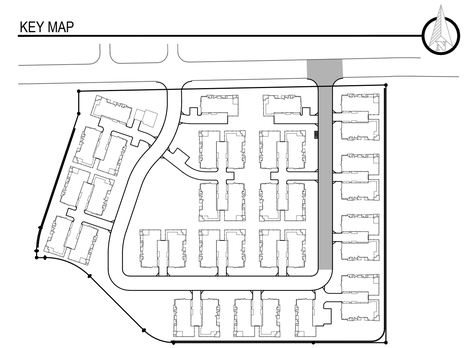
HORIZONTAL SCALE: 1" = 30'



PROFILE: RIDGE VIEW CR STA: 10+50 TO 16+00

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3

KEY MAP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

1. SEE FINAL GEOTECHNICAL REPORT (BY PHC) FOR ROADWAY PAVEMENT DESIGN.
2. SEE SHEET 4 FOR ROADWAY CROSS SECTIONS.

N

0' 15 30 60

SCALE: 1"=30'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

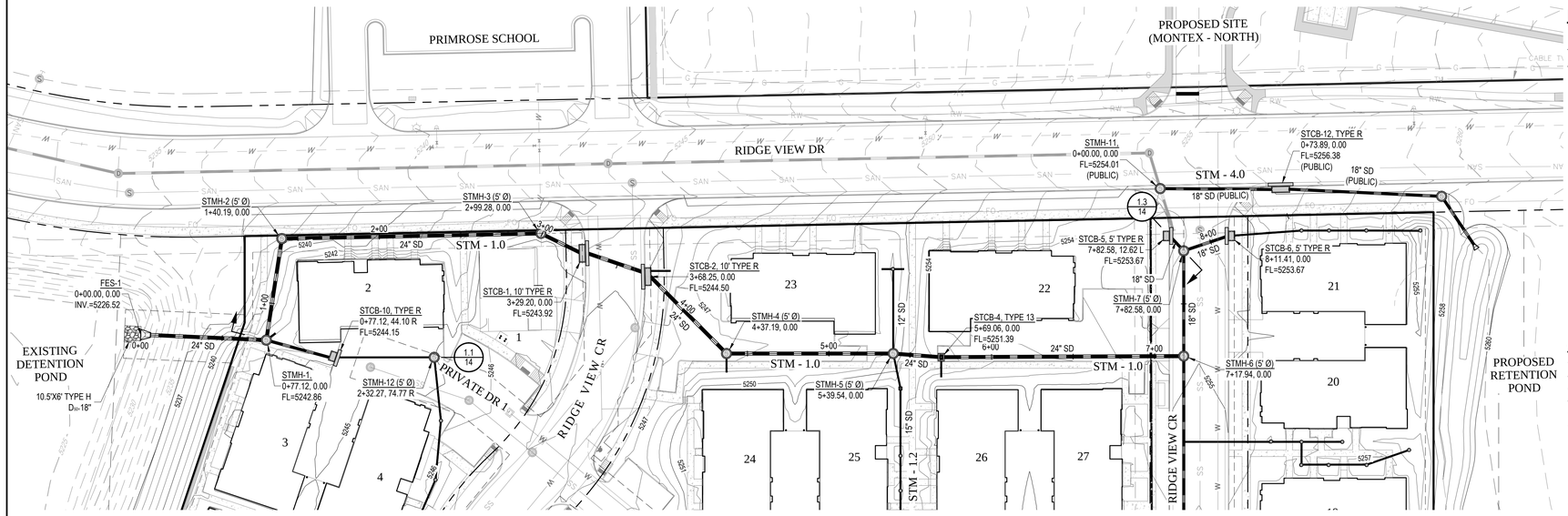
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

RIDGE VIEW CR STA: 10 50 TO 1 00
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

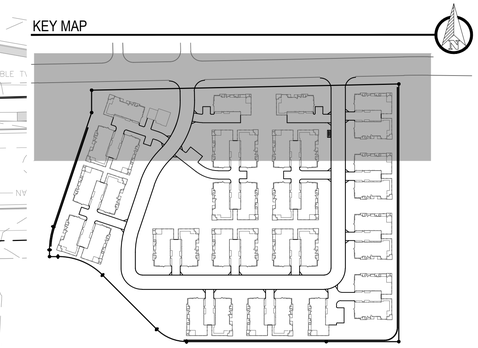
DATE	SEPTEMBER, 17 2015
FILE	12 RDW- .3.DWG
DWG	RDW- .3
SHEET	12 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



PLAN: STM-1.0

HORIZONTAL SCALE: 1" = 40'

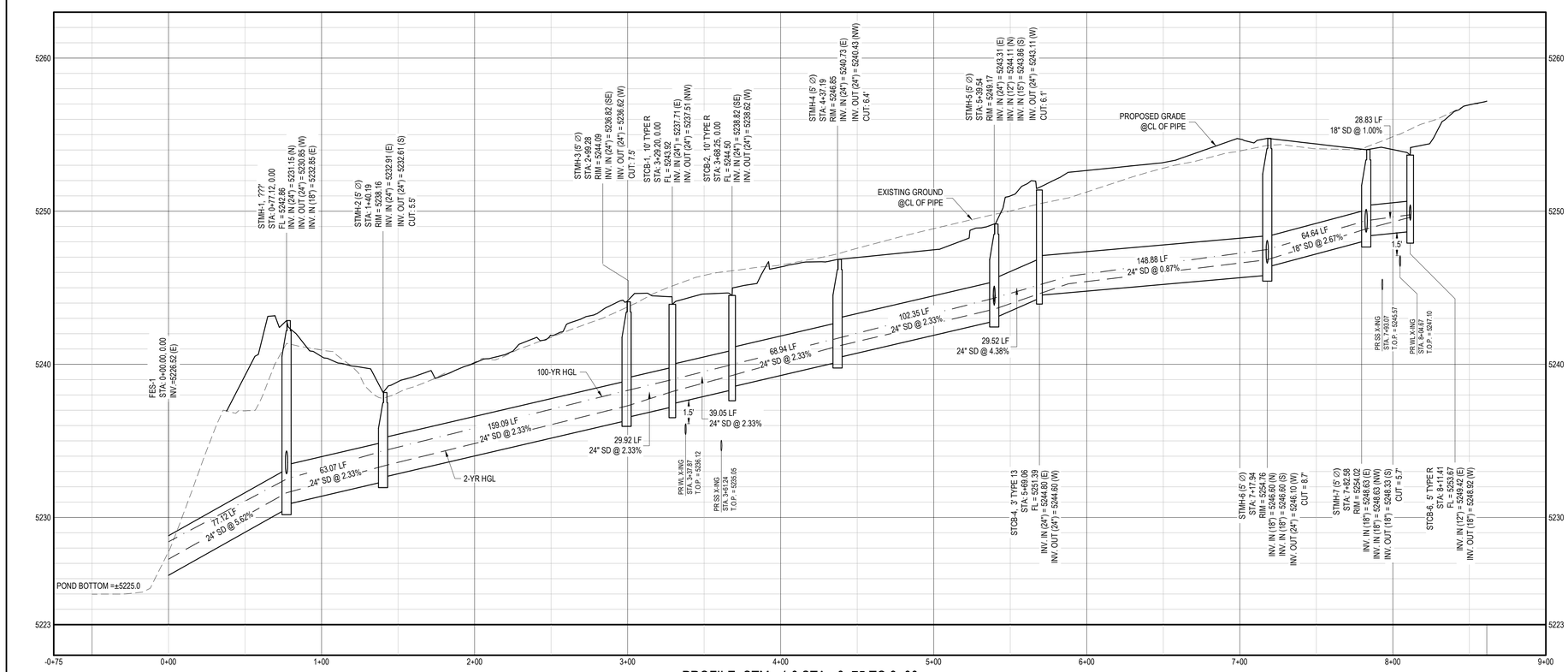


LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

1. ALL STORM SEWER PIPE SHALL BE HDPE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED STORM DRAINAGE FACILITIES ARE PRIVATE UNLESS OTHERWISE NOTED.



PROFILE: STM - 1.0 STA: -0+75 TO 9+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4

SCALE: 1"=40'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31.0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 80516

MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

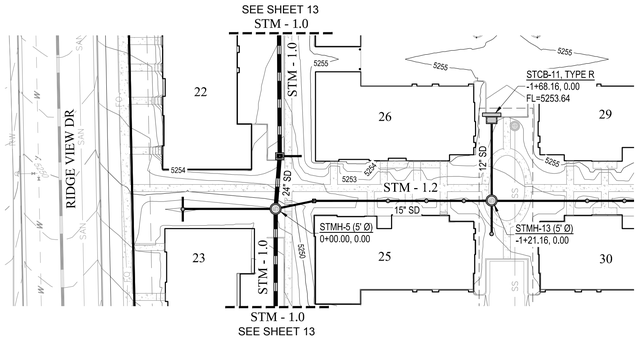
STM-1.0
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

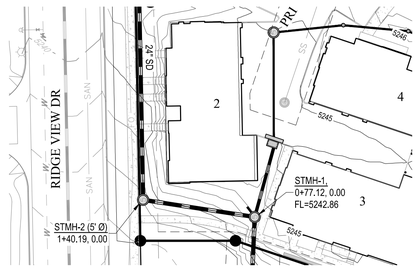
DATE	SEPTEMBER, 17 2015
FILE	15 STM-7.3.DWG
DWG	STM-7.1
SHEET	13 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF ENERTIA CONSULTING GROUP

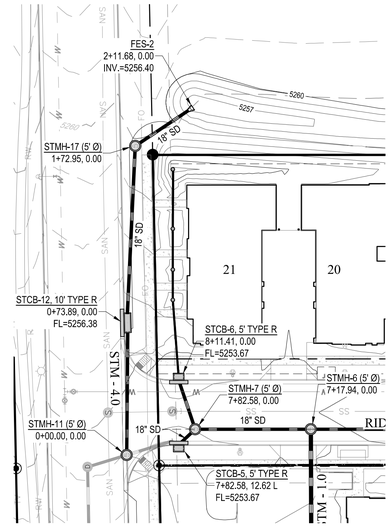
SCALE: 1"=40'



PLAN: STM-1.2
HORIZONTAL SCALE: 1" = 40'

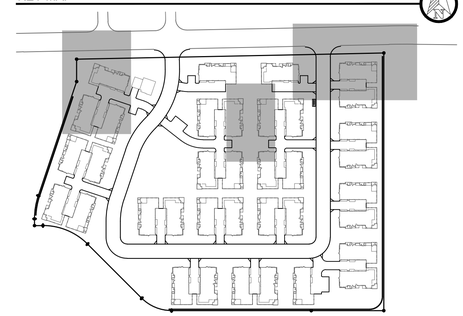


PLAN: STM LATERAL 1.1
HORIZONTAL SCALE: 1" = 40'



PLAN: STM LATERAL 1.2 - STM 4.0
HORIZONTAL SCALE: 1" = 40'

KEY MAP

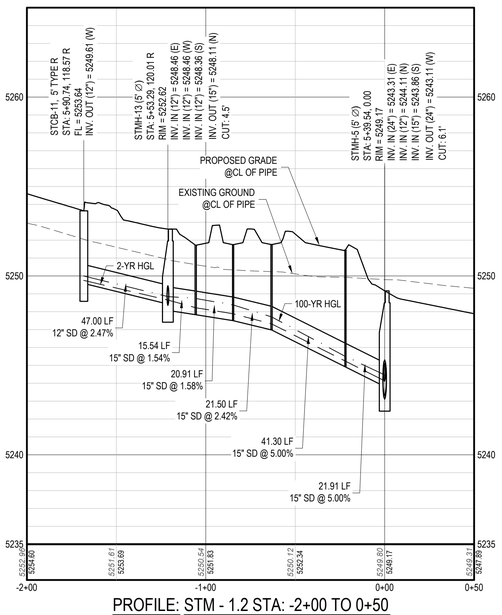


LEGEND

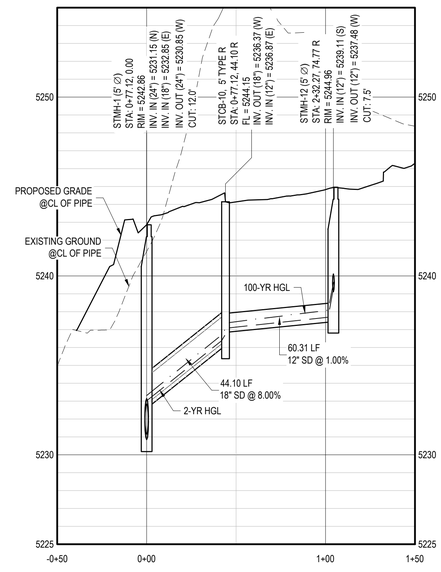
	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

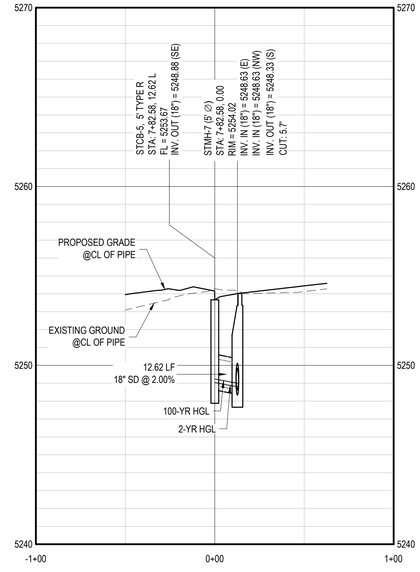
1. ALL STORM SEWER PIPE SHALL BE HDPE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED STORM DRAINAGE FACILITIES ARE PRIVATE.



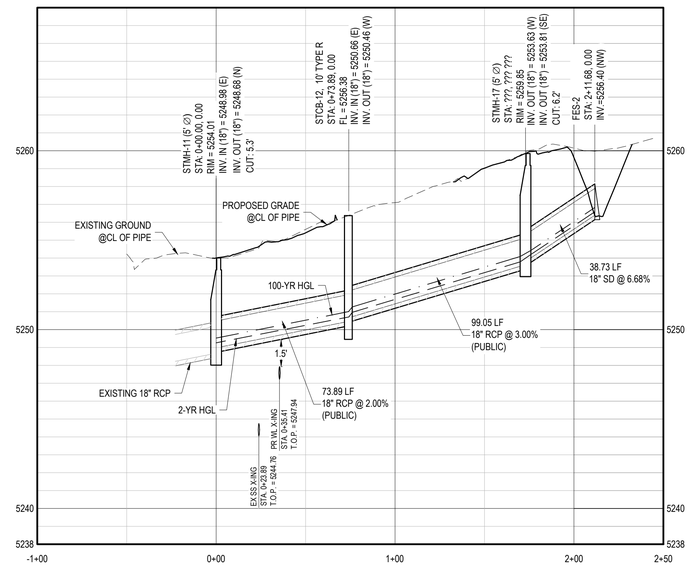
PROFILE: STM - 1.2 STA: -2+00 TO 0+50
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4



1.1 STM LATERAL 1.1
PROFILE
H: 1"=40'
V: 1"=4'



1.2 STM LATERAL 1.2
PROFILE
H: 1"=40'
V: 1"=4'



4.0 STM 4.0
PROFILE
H: 1"=40'
V: 1"=4'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 80516

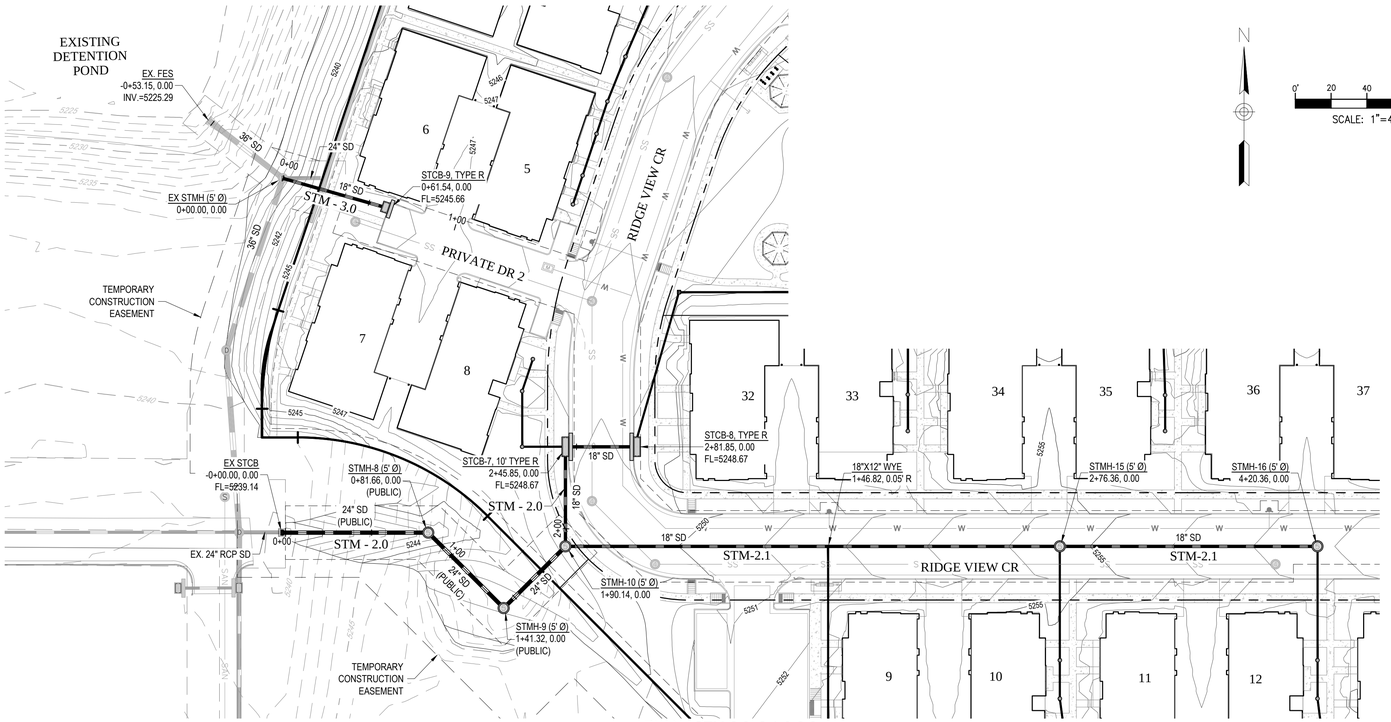
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

STM-1.2 LATERALS
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

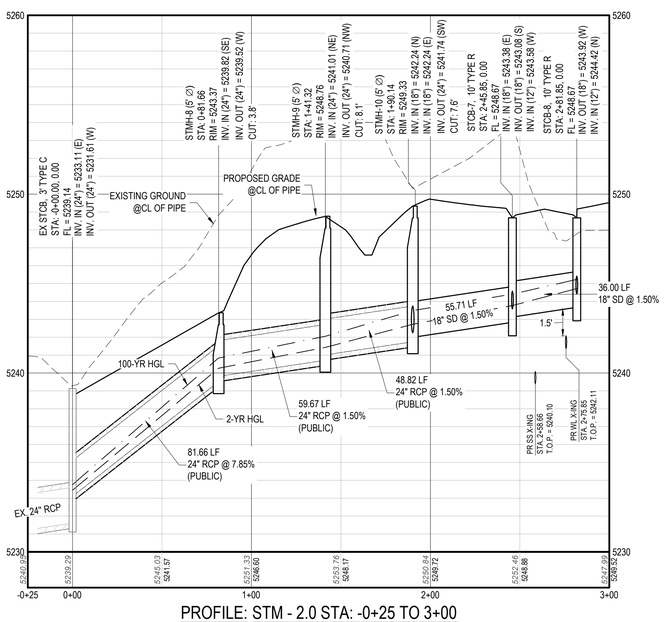
DATE	SEPTEMBER, 17 2015
FILE	14 STM-7.2.DWG
DWG	STM-7.2
SHEET	14 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



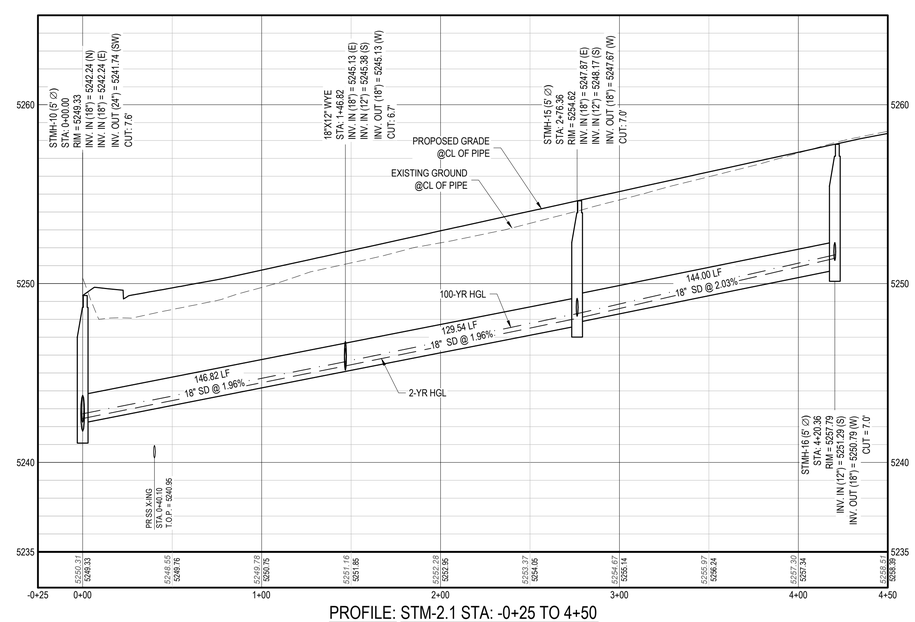
PLAN: STM-2.0, 2.1 & 3.0

HORIZONTAL SCALE: 1" = 40'



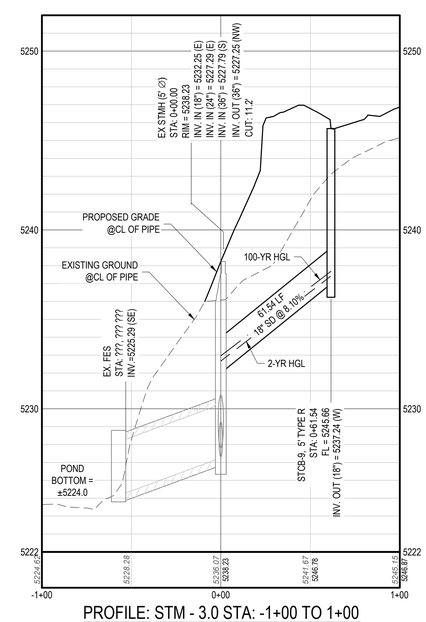
PROFILE: STM - 2.0 STA: -0+25 TO 3+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4



PROFILE: STM-2.1 STA: -0+25 TO 4+50

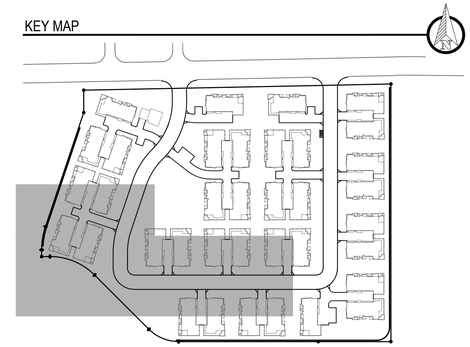
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4



PROFILE: STM - 3.0 STA: -1+00 TO 1+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4

KEY MAP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

1. ALL STORM SEWER PIPE SHALL BE HDPE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED STORM DRAINAGE FACILITIES ARE PRIVATE UNLESS OTHERWISE NOTED.

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CH	APVD
DSGN	SM		BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

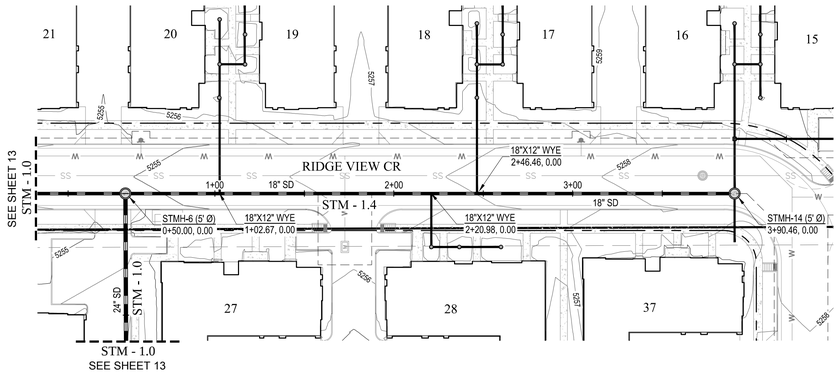
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

STM-2.0, 2.1 3.0
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

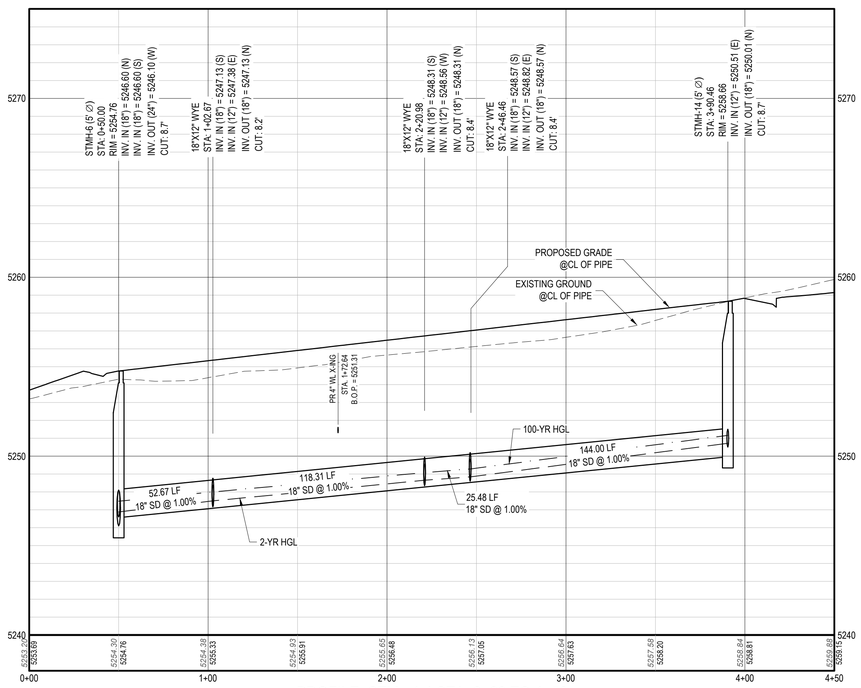
DATE	SEPTEMBER, 17 2015
FILE	15 STM-7.3.DWG
DWG	STM-7.3
SHEET	15 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



PLAN: STM - 1.4

HORIZONTAL SCALE: 1" = 40'

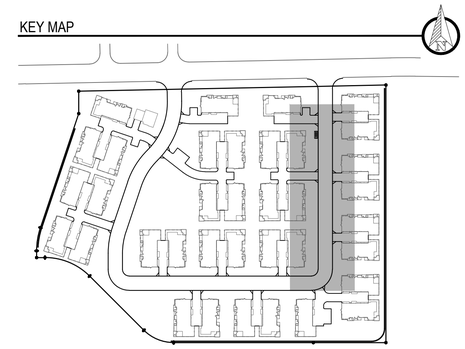


PROFILE: STM - 1.4 STA: 0+00 TO 4+50

HORIZONTAL SCALE: 1" = 40'

VERTICAL SCALE: 1" = 4

KEY MAP

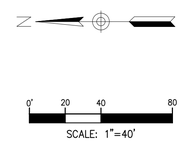


LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

1. ALL STORM SEWER PIPE SHALL BE HDPE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED STORM DRAINAGE FACILITIES ARE PRIVATE.



PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

STM - 1.4
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	1 STM-7.4.DWG
DWG	STM-7.4
SHEET	1 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP

LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR	5540.00	RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

GENERAL NOTES

1. ALL STORM SEWER PIPE SHALL BE HDPE UNLESS OTHERWISE NOTED.
2. ALL PROPOSED STORM DRAINAGE FACILITIES ARE PRIVATE.

N

0' 20 40 80

SCALE: 1"=40'

PRELIMINARY
NOT FOR
CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

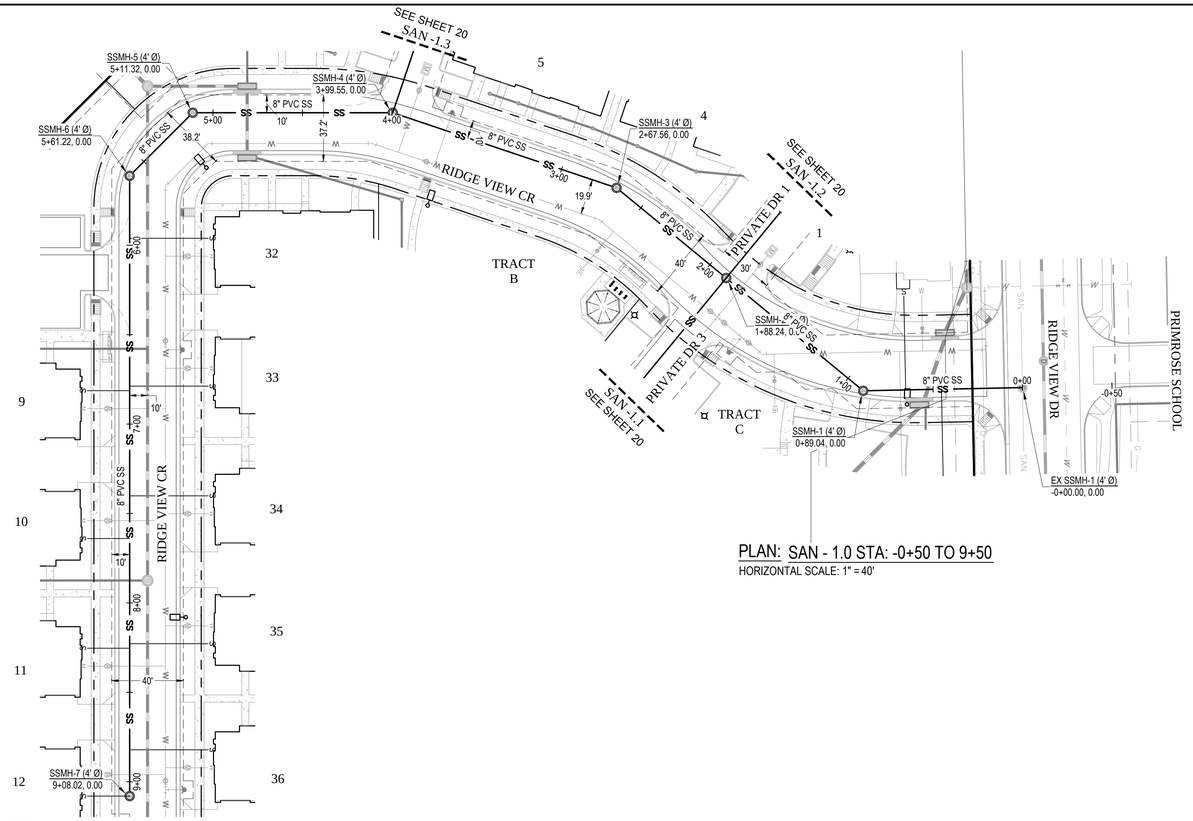
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

AREA DRAIN PLAN

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

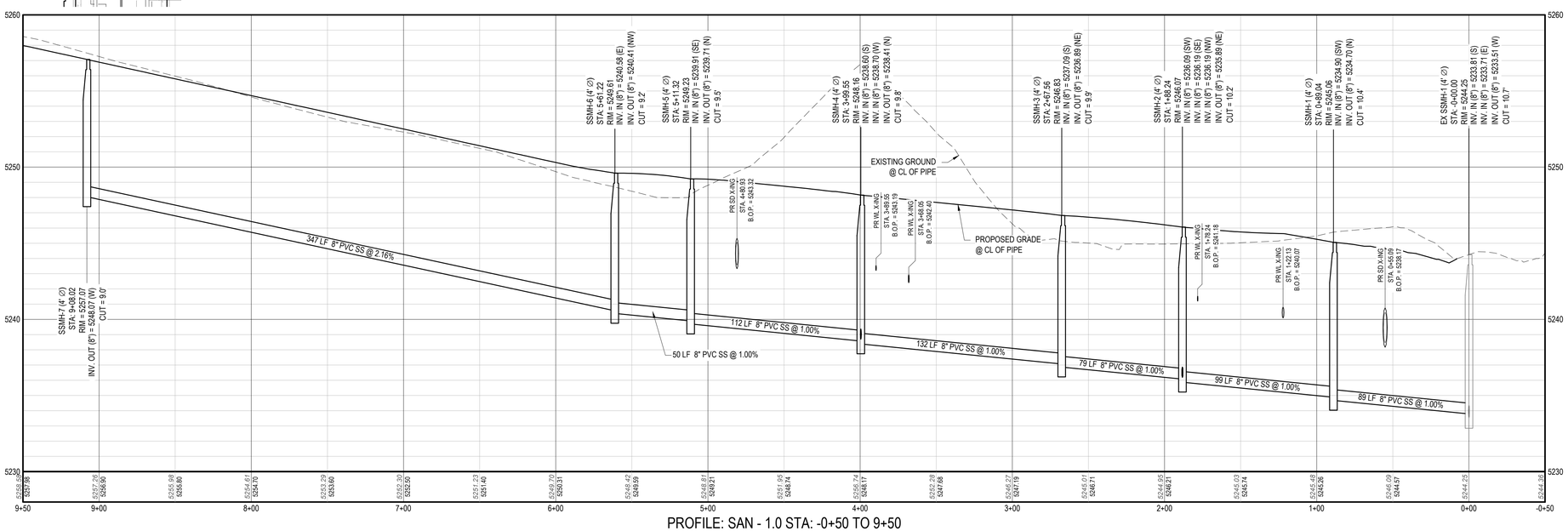
DATE	SEPTEMBER, 17 2015
FILE	17 STM 7.5.DWG
DWG	STM 7.5
SHEET	17 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



PLAN: SAN - 1.0 STA: -0+50 TO 9+50

HORIZONTAL SCALE: 1" = 40'

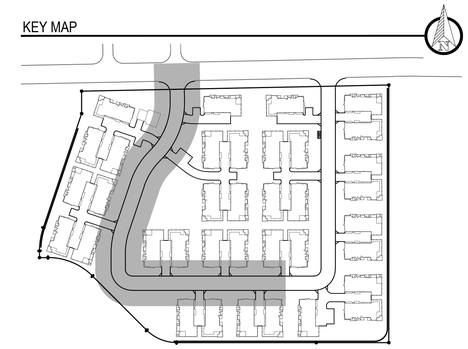


PROFILE: SAN - 1.0 STA: -0+50 TO 9+50

HORIZONTAL SCALE: 1" = 40'

VERTICAL SCALE: 1" = 4

KEY MAP



SCALE: 1"=40'

LEGEND

PROPERTY LINE		FIRE HYDRANT	
CURB & GUTTER		MANHOLE	
ROW		SIGN	
CENTERLINE		CONCRETE SIDEWALK	
PROPOSED 5' CONTOUR		UNDERDRAIN	
PROPOSED 1' CONTOUR		EASEMENT	
EXISTING 5' CONTOUR		WALL	
EXISTING 1' CONTOUR		RIP RAP	
STORM INLET	5500.00	PROPOSED ELEVATION	
STORM DRAIN	5500.00	EXISTING ELEVATION	
LIGHT		CONCRETE PAVING	

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CH	APVD

DSGN	DR	CH	APVD
SM	BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

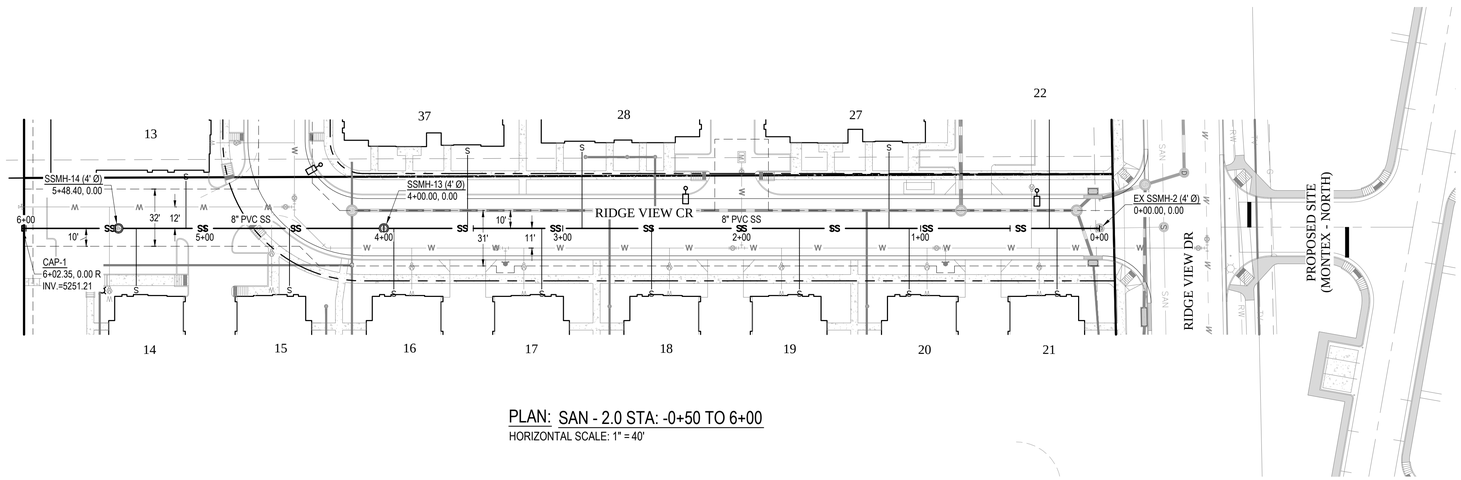
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

SAN - 1.0 STA: -0/50 TO 9/50
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

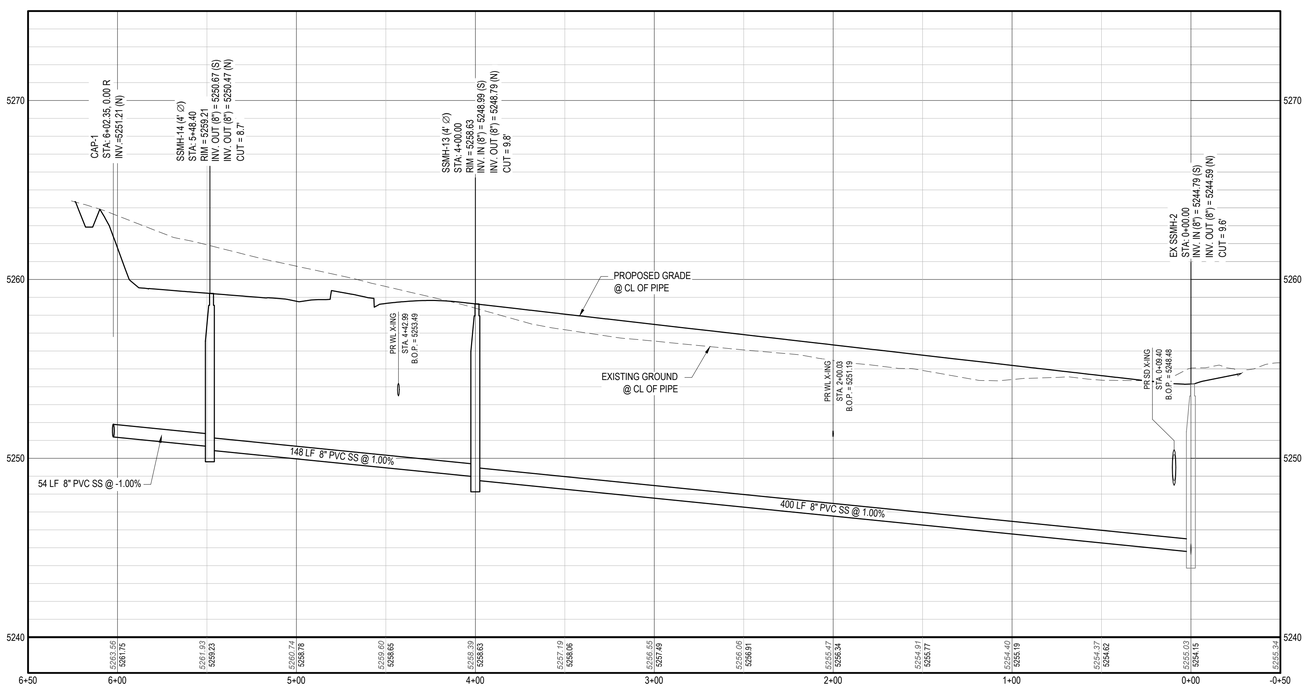
DATE	SEPTEMBER, 17 2015
FILE	18 SAN-8.1
DWG	SAN-8.1
SHEET	18 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



PLAN: SAN - 2.0 STA: -0+50 TO 6+50

HORIZONTAL SCALE: 1" = 40'

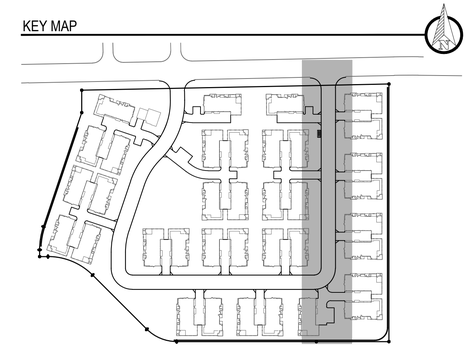


PROFILE: SAN - 2.0 STA: -0+50 TO 6+50

HORIZONTAL SCALE: 1" = 40'

VERTICAL SCALE: 1" = 4

KEY MAP



LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

N

0' 20 40 80

SCALE: 1"=40'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CH	APVD
DSGN	SM		BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31.0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

SAN - 2.0 STA: -0.50 TO 6.00
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	19 SAN-8.2
DWG	SAN-8.2
SHEET	19 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF ENERTIA CONSULTING GROUP

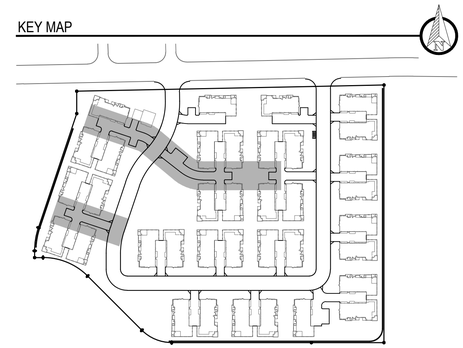
LEGEND

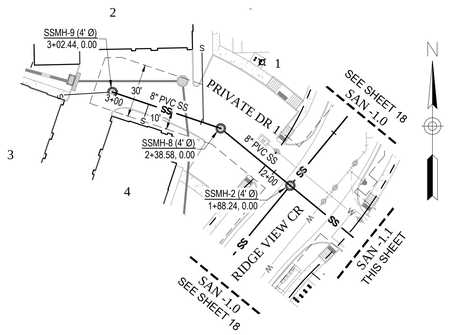
	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

0' 20 40 80

SCALE: 1"=40'

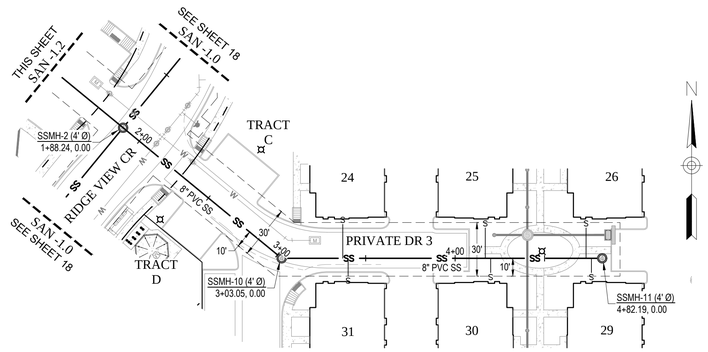
KEY MAP





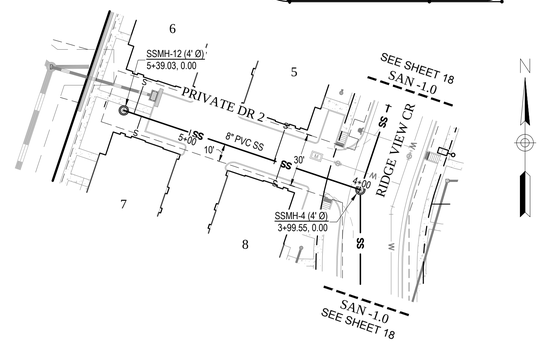
PLAN: SAN - 1.2 STA: 1+50 TO 3+50

HORIZONTAL SCALE: 1" = 40'



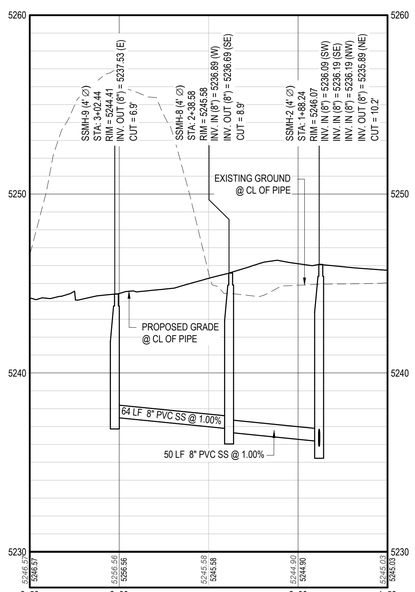
PLAN: SAN - 1.1 STA: 1+50 TO 5+25

HORIZONTAL SCALE: 1" = 40'



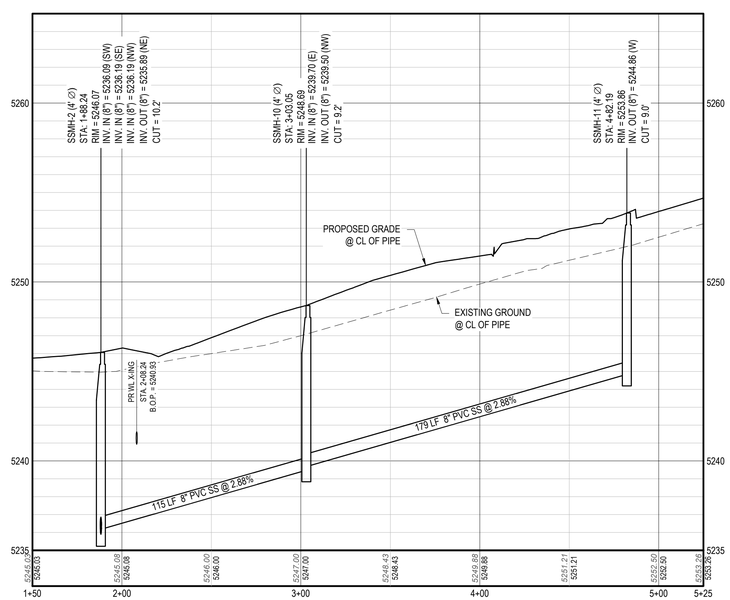
PLAN: SAN - 1.3 STA: 3+50 TO 6+00

HORIZONTAL SCALE: 1" = 40'



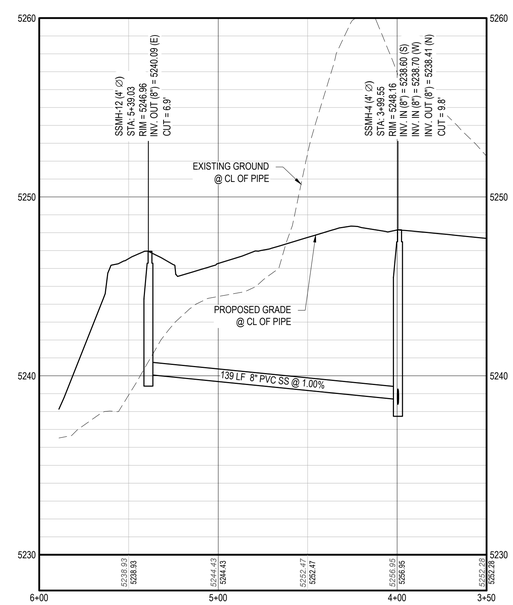
PROFILE: SAN - 1.2 STA: 1+50 TO 3+50

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4



PROFILE: SAN - 1.1 STA: 1+50 TO 5+25

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4



PROFILE: SAN - 1.3 STA: 3+50 TO 6+00

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	
DSGN	SM	DR	BC
		CHK	BG
		APVD	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 80516

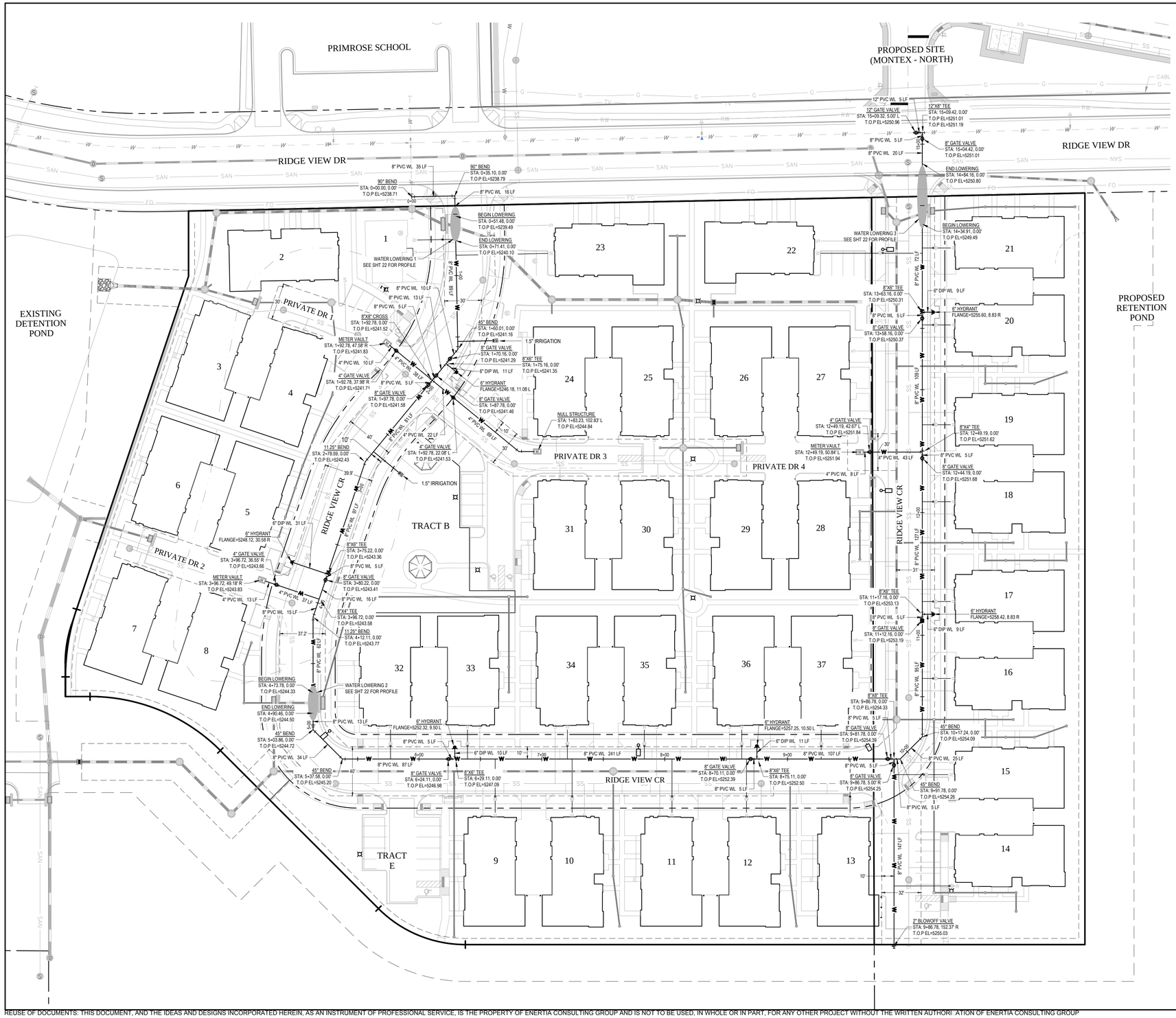
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

SAN - 1.1, SAN - 1.2 SAN - 1.3
PLAN PROFILE

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"

DATE	SEPTEMBER, 17 2015
FILE	20 SAN-8.3
DWG	SAN-8.3
SHEET	20 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



LEGEND

PROPERTY LINE		FIRE HYDRANT	
CURB & GUTTER		MANHOLE	
ROW		SIGN	
CENTERLINE		CONCRETE SIDEWALK	
PROPOSED 5' CONTOUR		UNDERDRAIN	
PROPOSED 1' CONTOUR		EASEMENT	
EXISTING 5' CONTOUR		WALL	
EXISTING 1' CONTOUR		RIP RAP	
STORM INLET		5500.00	PROPOSED ELEVATION
STORM DRAIN		5500.00	EXISTING ELEVATION
LIGHT			CONCRETE PAVING

GENERAL NOTES

1. SEE GEOTECHNICAL REPORT (BY PHC) FOR ROADWAY CROSS SECTION DETAILS

N

0' 20 40 80

SCALE: 1"=40'

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	CH	APVD
DSGN	SM		BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

WATER PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	21 WAT-9.0
DWG	WAT-9.0
SHEET	21 OF 32

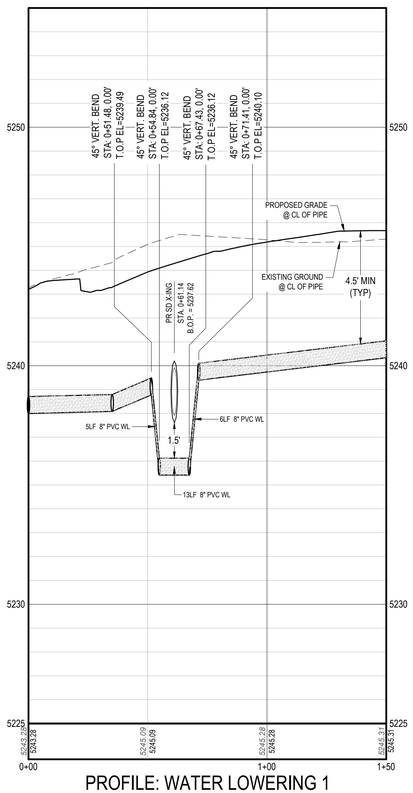
REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP

LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING

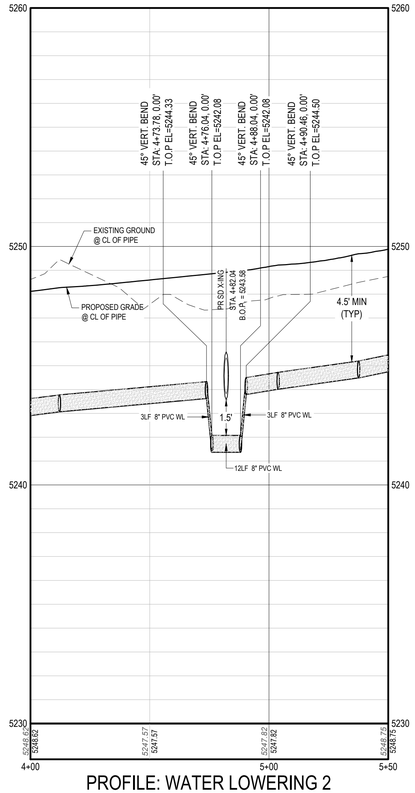
GENERAL NOTES

1. SEE GEOTECHNICAL REPORT (BY PHC) FOR ROADWAY CROSS SECTION DETAILS



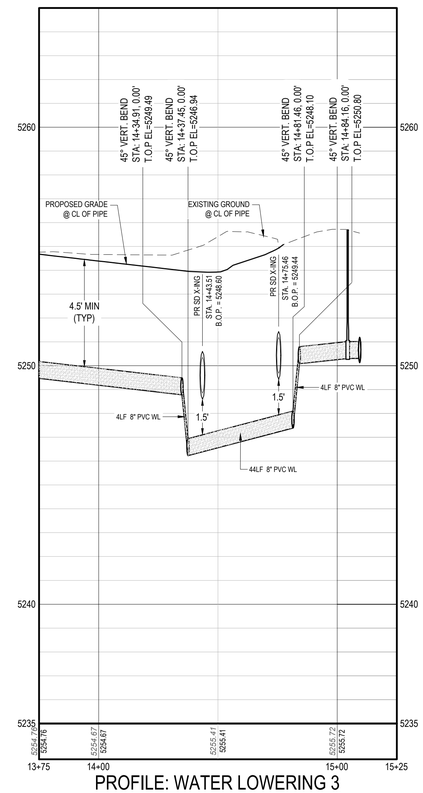
PROFILE: WATER LOWERING 1

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3



PROFILE: WATER LOWERING 2

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3



PROFILE: WATER LOWERING 3

HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR. ET STREET, STE. 200
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 80511

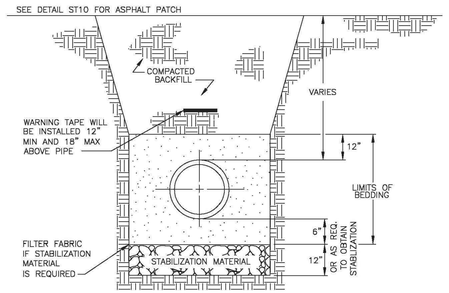
MONTEX - SOUTH
AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

WATER LOWERING PROFILES

VERIFY SCALE
BAR IS ONE INCH ON
ORIGINAL DRAWING.
0 1"

DATE	SEPTEMBER, 17 2015
FILE	22 WAT-9.1
DWG	WAT-9.1
SHEET	22 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP

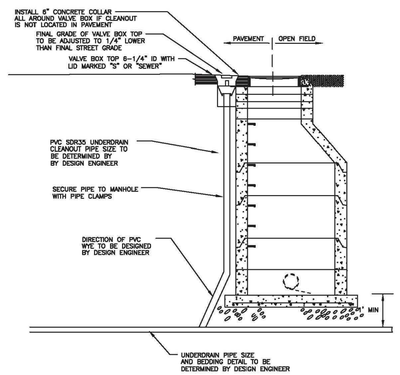


NOTES:

1. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 6" UNDER AND 12" OVER PIPE WILL REQUIRE 90% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.
2. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
3. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
4. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
5. TRENCH WIDTH SHALL NOT BE MORE THAN 24" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.
6. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500 P.S.I. CONCRETE FROM TRENCH BOTTOM TO PIPE SPRINGLINE.

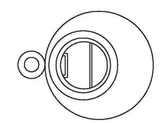
The Town of ERIE COLORADO

DRAWING TITLE: SANITARY SEWER TRENCH DETAIL
DRAWING NUMBER: SS8
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2012



NOTES:

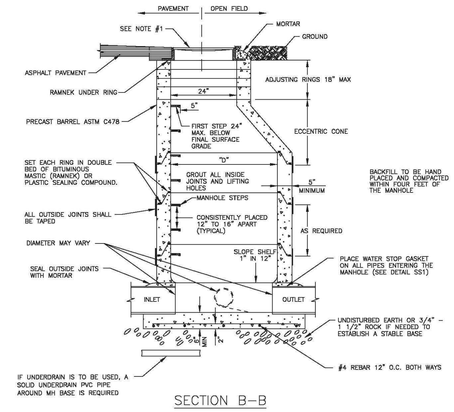
1. ALL UNDERDRAIN SYSTEMS SHALL BE PRIVATE AND NOT MAINTAINED BY THE TOWN OF ERIE
2. PLACE UNDERDRAIN COLLECTOR PIPE AROUND CONCRETE MANHOLE BASE
3. CLEANOUT TO BE PLACED UPSTREAM/DOWNSTREAM OF SANITARY MANHOLE AS DETERMINED BY DESIGN ENGINEER
4. SEE "TRENCH DETAIL WITH PRIVATE UNDERDRAIN" DETAIL FOR VERTICAL LOCATION OF UNDERDRAIN



PLAN VIEW

The Town of ERIE COLORADO

DRAWING TITLE: MANHOLE W/ PRIVATE UNDERDRAIN
DRAWING NUMBER: SS4
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2006



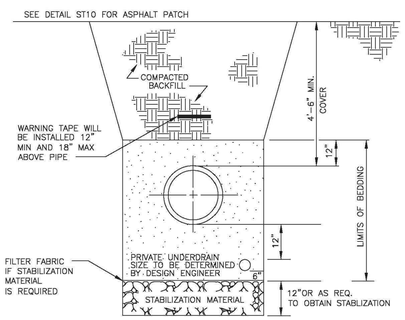
SECTION B-B

NOTES:

1. FINAL GRADE OF MANHOLE COVERS SHALL BE 1/4" LOWER THAN FINAL STREET.
2. ALL CHANNELS FLOWING INTO THE MAIN STREAM OF THE SEWER SHALL BE HAND FORMED INTO THE FLOW.
3. STEPS SHOULD BE PLACED OVER THE SHELF, NOT OVER THE FLOW. NO STEPS ALLOWED IN THE ADJUSTING RING AREA.
4. PRECAST CONCRETE SECTIONS SHALL CONFORM TO ASTM C-478.
5. BLOCK-OUTS, WHEN APPROVED, SHALL EXTEND A MAX. OF 6" PAST MANHOLE O.D. AND BE SATISFACTORILY PLUGGED AND SEALED.
6. BENCH MUST HAVE A BRUSHED, NON-SKID SURFACE.
7. BENCH IS TO BE EVEN WITH TOP OF PIPES
8. A MINIMUM OF 0.2' AND MAXIMUM OF 2' FALL REQUIRED FROM INLET TO OUTLET
9. MANHOLES NOT IN ASPHALT OR CONCRETE SHALL BE RAISED 6" ABOVE FINAL GRADE AND A CONCRETE COLLAR INSTALLED WITH A GREEN CARSONITE POST

The Town of ERIE COLORADO

DRAWING TITLE: STANDARD MANHOLE
DRAWING NUMBER: SS3A (1 OF 2)
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2010

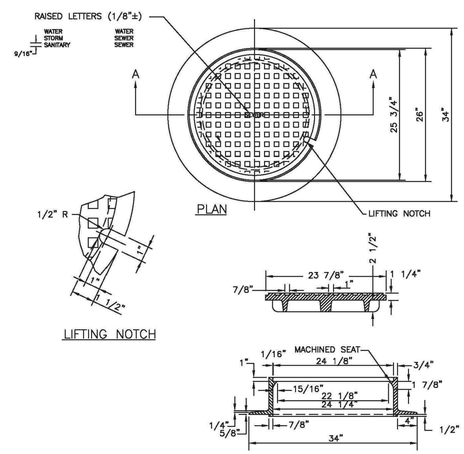


NOTES:

1. BACKFILL TO BE COMPACTED TO 95% ASTM D-698, OR 70% OF ASTM D-4253 AND 4254 RELATIVE DENSITY, IN ALL AREAS UNLESS OTHERWISE NOTED.
2. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
3. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
4. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
5. TRENCH WIDTH SHALL NOT BE MORE THAN 16" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.
6. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 6" UNDER AND 12" OVER PIPE WILL REQUIRE 90% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.
7. ALL UNDERDRAIN SYSTEMS SHALL BE PRIVATE AND WILL NOT BE MAINTAINED BY THE TOWN OF ERIE.

The Town of ERIE COLORADO

DRAWING TITLE: TRENCH W/PRIVATE UNDERDRAIN
DRAWING NUMBER: SS9
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2011



SECTION A-A

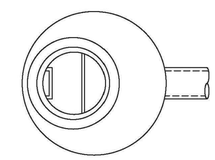
1. CASTING SPECIFICATIONS: ASTM A-48 WITH A MINIMUM TENSILE STRENGTH OF 25 KSI (CLASS 25)
2. ALL CASTINGS TO BE DIPPED IN ASPHALT BASE PAINT (OR APPROVED EQUAL)
3. CASTINGS SHALL BE AS SPECIFIED BELOW OR APPROVED EQUAL:

MANUFACTURERS	CAT. #
NEENAH	R-1706
CASTINGS, INC.	MH-400-24 C.I.
HUTCHINSON FDRY. & STL. INC.	MH-400

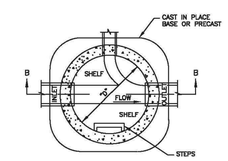
4. ALL NEW MANHOLES MUST INCLUDE A PLASTIC OR VINYL TAG ATTACHED TO THE TOP STEP STATING THE FOLLOWING "CAUTION CONFINED SPACE; ENTRY PERMIT REQUIRED.

The Town of ERIE COLORADO

DRAWING TITLE: 24" MANHOLE RING AND COVER
DRAWING NUMBER: SS6
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 1/2015



ECCENTRIC CONE PLAN VIEW



BASE PLAN VIEW

PIPE I.D.	MANHOLE I.D.	RING & COVER
18" & SMALLER	4'-0"▲	24"
21" TO 48"	5'-0"	30"
54"	6'-0"	30", 36" W/ 24"
60" & LARGER	SPECIAL DESIGN	INNER COVER

▲ WHENEVER MORE THAN A TWO WAY MANHOLE OF MAX. PIPE I.D. IS REQUIRED, THE MANHOLE SHOULD BE INCREASED TO LARGER DIA., EG. 18"x18"x18", REQUIRES 5'-0" I.D.

The Town of ERIE COLORADO

DRAWING TITLE: STANDARD MANHOLE
DRAWING NUMBER: SS3B (2 OF 2)
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CH'D	APVD
DSGN	SM	DR	BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

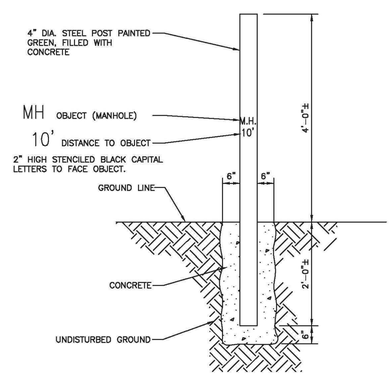
GENERAL DETAILS

NOT FOR CONSTRUCTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

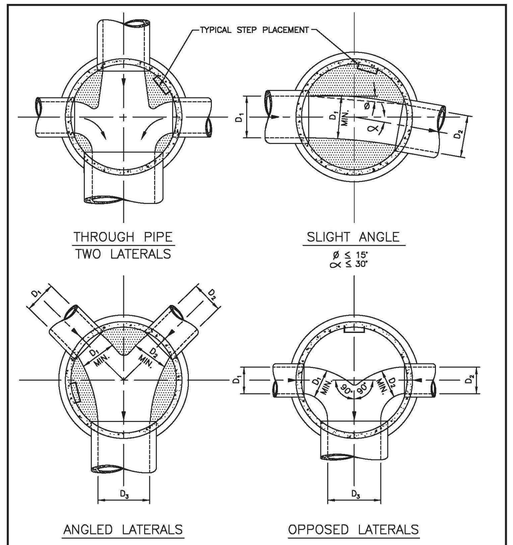
DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.0
SHEET	23 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI: ATION OF ENERTIA CONSULTING GROUP



The Town of ERIE COLORADO

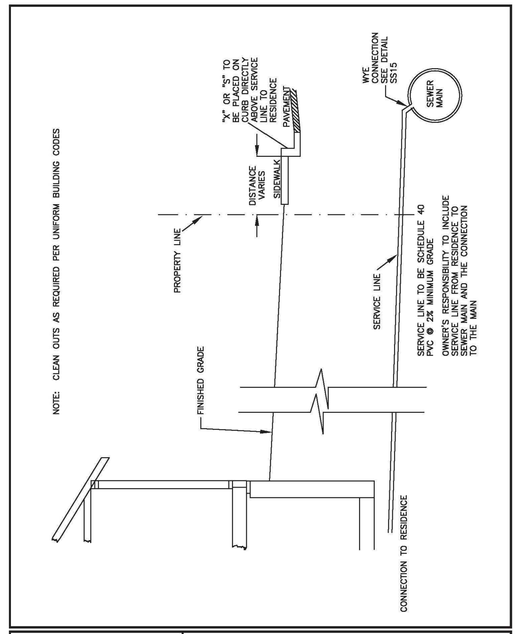
DRAWING TITLE: STEEL MARKER POST
DRAWING NUMBER: SS14
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



NOTES:
1. DETAILS SHOWN ARE TYPICAL ONLY FOR INSTALLATIONS WITH ALL INVERTS AT SAME RELATIVE ELEVATION.
2. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, ETC. SPECIAL BASE/CHANNEL DETAILS SHALL BE SHOWN ON PLANS.
3. CHANNELIZATION DETAILS & STEP PLACEMENT TYPICAL FOR BOTH STORM AND SANITARY SEWER MH'S.
4. THE MINUMUM VERTICAL DROP THRU MANHOLE BASE SHALL BE 0.20 FOOT.
5. FOR VERTICAL DROPS IN EXCESS OF 1.5 FEET AN OUTSIDE DROP MANHOLE IS REQUIRED.

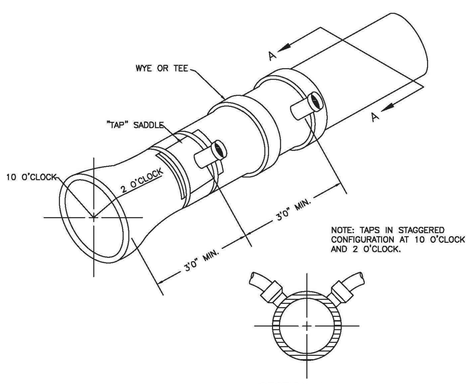
The Town of ERIE COLORADO

DRAWING TITLE: TYPICAL MH BASE CHANNELIZATION (2 OF 2)
DRAWING NUMBER: SS11B
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



The Town of ERIE COLORADO

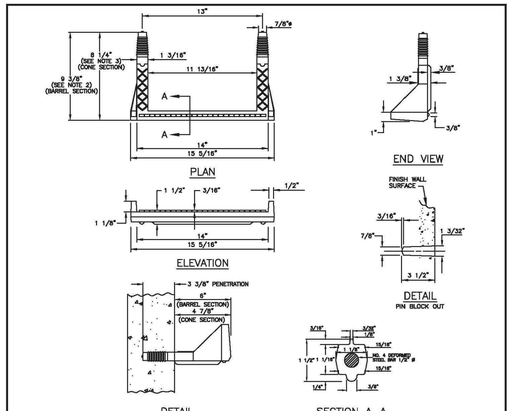
DRAWING TITLE: SERVICE MAINTENANCE LINE
DRAWING NUMBER: SS10
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



NOTES:
1. SEWER SERVICE CONNECTIONS SHALL BE POSITIONED AT EITHER THE 2 O'CLOCK OR THE 10 O'CLOCK POSITION ON THE CIRCUMFERENCE OF THE SEWER MAIN.
2. ON NEW INSTALLATIONS, EITHER WYE OR TEE FITTINGS SHALL BE USED. WHEN TAPPING INTO AN EXISTING SEWER MAIN, A SADDLE CONNECTION AND APPROVED CORING METHOD SHALL BE USED.
3. THE MINIMUM DISTANCE BETWEEN SERVICE CONNECTIONS MADE ALONG THE PIPE SHALL BE 3–FEET. THE MINIMUM DISTANCE FROM EITHER THE BELL OR SPIGOT END OF A PIPE SHALL BE 3–FEET. THE MINIMUM DISTANCE FROM THE CENTER OF A MANHOLE TO A SERVICE CONNECTION SHALL BE EITHER 5–FEET OR THE TRANSITION POINT FROM THE MANHOLE TRENCH, WHICHEVER IS GREATER.
4. A MAXIMUM OF 4 SEWER SERVICE CONNECTIONS SHALL BE ALLOWED PER 20–FEET LENGTH OF PIPE. A SPECIFIC SOILS INVESTIGATIONS SHOULD BE CONDUCTED TO ASSURE THAT THE EXTERNAL LOADING WILL BE WITHIN ALLOWABLE LIMITS REGARDLESS OF THE NUMBER OF TAPS INVOLVED.

The Town of ERIE COLORADO

DRAWING TITLE: DOMESTIC SEWER TAPPING
DRAWING NUMBER: SS15
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004

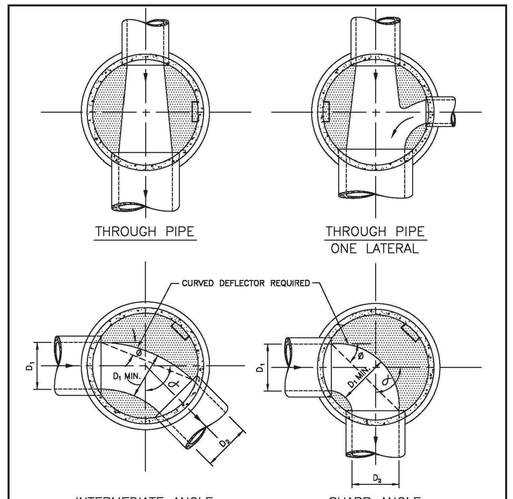


POLYPROPYLENE REINFORCED PLASTIC STEP

NOTES:
1. ASTM SPECIFICATIONS:
   A. ASTM C–478
   B. ASTM A–615 GRADE 60 (STEEL REBAR).
   C. ASTM 2146–89, TYPE III, GRADE 16906 (POLYPROPYLENE).
2. STEPS INSTALLED IN MANHOLE BARREL SECTIONS OR VERTICAL WALLS OF STRUCTURES SHALL HAVE A 9 3/8 INCH LEG AND SHALL PROJECT FROM THE WALL 6 INCHES.
3. STEPS INSTALLED IN MANHOLE CONE SECTIONS SHALL HAVE AN 8 1/4 INCH LEG AND SHALL PROJECT FROM THE WALL 4 7/8 INCHES.
4. ALL STEPS SHALL HAVE A PENETRATION DEPTH INTO THE WALL OF 3 3/8 INCHES.
5. STEPS SHALL BE INSTALLED BY THE "PRESS–FIT" METHOD UTILIZING A SPECIALLY TAPERED PIN TO FORM THE INSERT HOLE AS SHOWN, FOLLOWING MANUFACTURER'S RECOMMENDED PROCEDURE AND SHALL NOT BE GROUTED IN PLACE.
6. INSTALLED STEPS SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 2500 LB. PER LEG FOR A MINIMUM PERIOD OF TWO MINUTES.
7. PINS MUST BE SMOOTH AND CONTINUOUSLY TAPERED. DIMENSIONS OF THE PIN AND THE INSERTED PORTION OF THE MANHOLE STEP ARE TYPICAL ONLY. W.M.D. INSTALLATIONS REQUIRE A MATCHED COMBINATION OF A TAPERED INSERT PIN AND MANHOLE STEP, AS RECOMMENDED OR REQUIRED BY SPECIFIC MANUFACTURER OF THE STEP TO BE USED.
8. THIS STEP CAN ALSO BE USED IN TOE POCKET INSTALLATIONS PROVIDED 5" TOE CLEARANCE IS ALLOWED.

The Town of ERIE COLORADO

DRAWING TITLE: MANHOLE STEPS
DRAWING NUMBER: SS12
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



NOTES:
1. DETAILS SHOWN ARE TYPICAL ONLY FOR INSTALLATIONS WITH ALL INVERTS AT SAME RELATIVE ELEVATION.
2. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, ETC. SPECIAL BASE/CHANNEL DETAILS SHALL BE SHOWN ON PLANS.
3. CHANNELIZATION DETAILS & STEP PLACEMENT TYPICAL FOR BOTH STORM AND SANITARY SEWER MH'S.
4. THE MINUMUM VERTICAL DROP THRU MANHOLE BASE SHALL BE 0.20 FOOT.
5. FOR VERTICAL DROPS IN EXCESS OF 1.5 FEET AN OUTSIDE DROP MANHOLE IS REQUIRED.

The Town of ERIE COLORADO

DRAWING TITLE: TYPICAL MH BASE CHANNELIZATION (1 OF 2)
DRAWING NUMBER: SS11A
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	APVD

DSGN SM | DR BC | CH BG | APVD SM

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

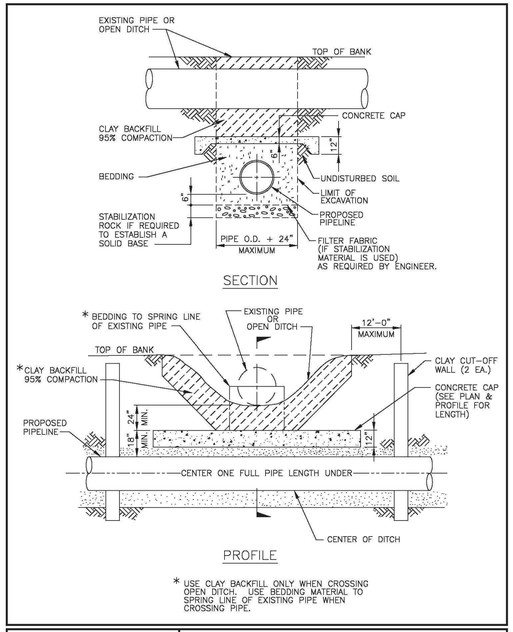
GENERAL DETAILS

NOT FOR CONSTRUCTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

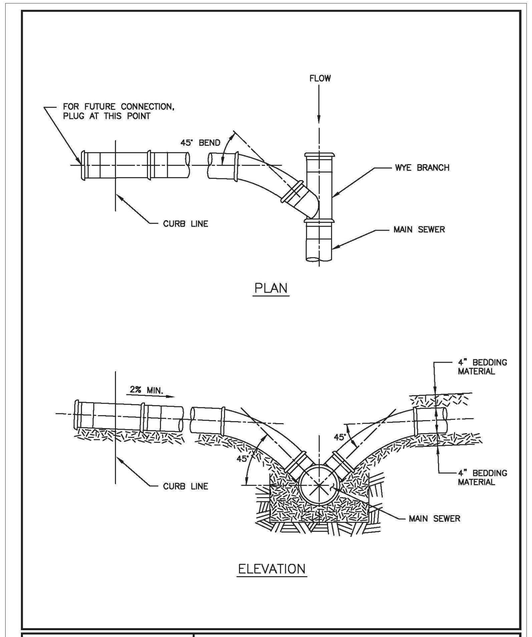
DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.1
SHEET	24 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI: ATION OF ENERTIA CONSULTING GROUP



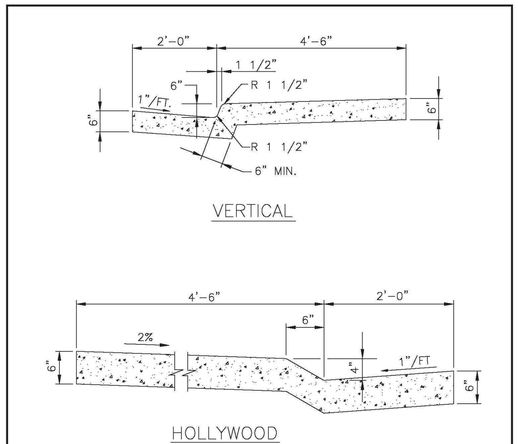
The Town of ERIE COLORADO

DRAWING TITLE: DITCH OR PIPE CROSSING
DRAWING NUMBER: SS21
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



The Town of ERIE COLORADO

DRAWING TITLE: SEWER SERVICE CONNECTION
DRAWING NUMBER: SS18
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



NOTES:

1. EXPANSION JOINT MATERIAL SHALL BE NON-EXTRUDING AND RESILIENT TYPE TO MEET AASHO SPEC. M-213.
2. ANY OVER-EXCAVATION SHALL BE REPLACED BY GRANULAR BACKFILL COMPACTED TO 95% MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698.
3. SEE DETAILS ON DRAWING SW1 FOR EXPANSION AND CONTRACTION JOINT DETAILS.
4. FOR USE IN RESIDENTIAL AREAS OF LOCAL COLLECTORS ONLY.

The Town of ERIE COLORADO

DRAWING TITLE: MONOLITHIC INTEGRAL CURBWALK
DRAWING NUMBER: SW2
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2010

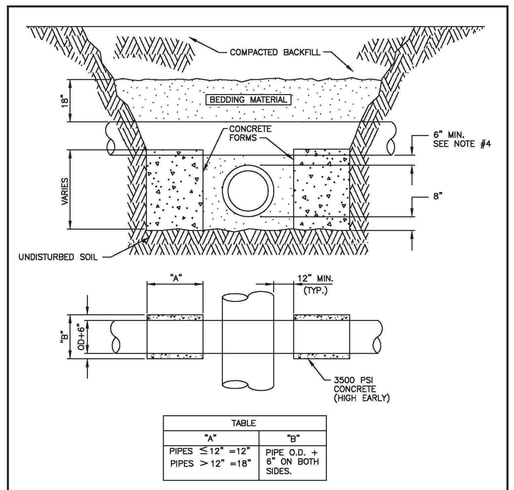


TABLE	
"A"	"B"
PIPES ≤ 12" =12" PIPES > 12" =18"	PIPE O.D. + 6" ON BOTH SIDES.

NOTES:

1. PIPE SECTIONS SHALL BE CENTERED OVER THE PIPE BEING CROSSED.
2. SIZES ABOVE 24" WILL BE DETERMINED BY THE ENGINEER.
3. A BOND BREAKER SHOULD BE PLACED BETWEEN THE CONCRETE AND THE PIPE BEING SUPPORTED.
4. IF THE CROSSING INVOLVES A WATER LINE AND THERE IS 6" OF CLEARANCE, OR THERE IS LESS THAN 4' OF COVER OVER THE UPPER PIPE, A FIBER BOARD INSULATION (DOW 2" EXTRUDED POLYSTYRENE IN ACCORDANCE WITH ASTM-C578 OR APPROVED EQUAL) MUST BE INSTALLED BETWEEN THE PIPES. THE BOARD SHOULD EXTEND 2' BEYOND THE OUTSIDE EDGES OF BOTH PIPES.

The Town of ERIE COLORADO

DRAWING TITLE: PIPE CROSSING SUPPORT PAD
DRAWING NUMBER: SS19
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CH	APVD
DSGN	SM	DR BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

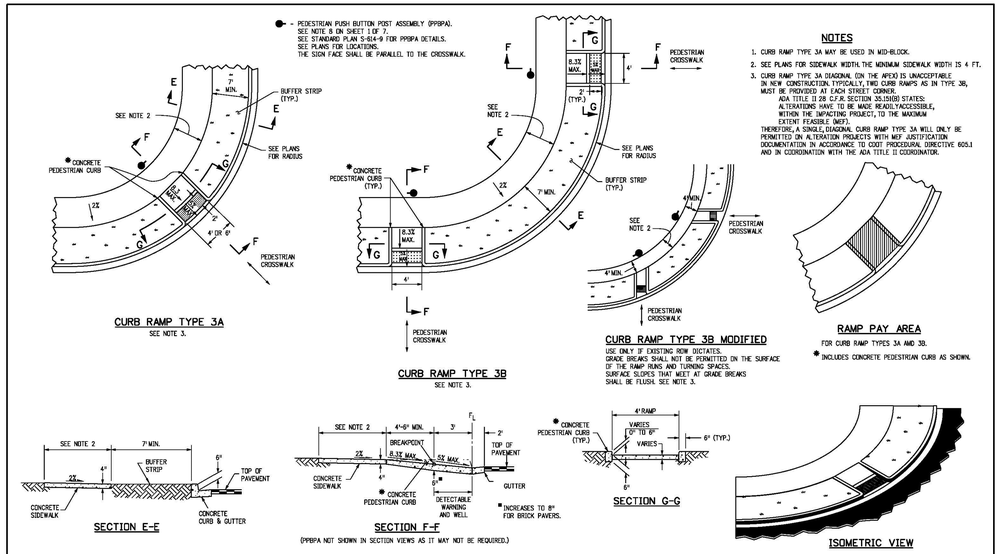
GENERAL DETAILS

NOT FOR CONSTRUCTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.2
SHEET	25 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



NOTES

1. CURB RAMP TYPE 3A MAY BE USED IN MID-BLOCK.
2. SEE PLANS FOR SIDEWALK WIDTH. THE MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 3A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 3B, MUST BE PROVIDED AT EACH STREET CORNER.
   ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
   ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).
   THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 3A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO CDOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.

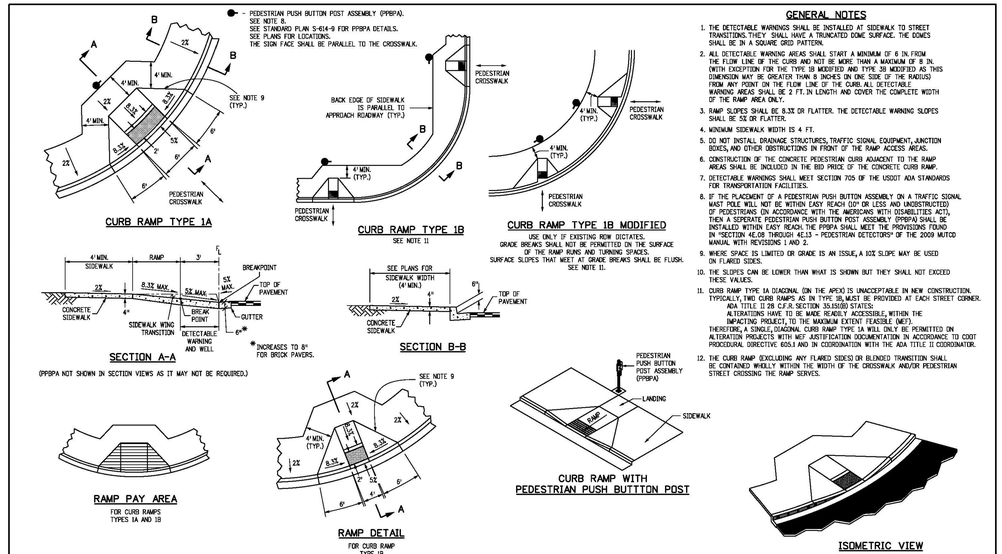
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date	Comments
Last Modification Date: 04/28/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 608010307.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 3 of 7



GENERAL NOTES

1. THE DETECTABLE WARNINGS SHALL BE INSTALLED AT SIDEWALK TO STREET TRANSITIONS. THEY SHALL HAVE A TRUNCATED DOME SURFACE. THE DOMES SHALL BE IN A SQUARE GRID PATTERN.
2. ALL DETECTABLE WARNING AREAS SHALL START A MINIMUM OF 6 IN. FROM THE FLOW LINE OF THE CURB AND NOT BE MORE THAN A MAXIMUM OF 8 IN. (WITH EXCEPTION FOR THE TYPE 1B MODIFIED AND TYPE 3B MODIFIED AS THIS DIMENSION MAY BE GREATER THAN 8 INCHES ON ONE SIDE OF THE RADIUS) FROM ANY POINT ON THE FLOW LINE OF THE CURB. ALL DETECTABLE WARNING AREAS SHALL BE 2 FT. IN LENGTH AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
3. RAMP SLOPES SHALL BE 8.3% OR FLATTER. THE DETECTABLE WARNING SLOPES SHALL BE 5% OR FLATTER.
4. MINIMUM SIDEWALK WIDTH IS 4 FT.
5. DO NOT INSTALL DRAINAGE STRUCTURES, TRAFFIC SIGNAL EQUIPMENT, JUNCTION BOXES, AND OTHER OBSTRUCTIONS IN FRONT OF THE RAMP ACCESS AREAS.
6. CONSTRUCTION OF THE CONCRETE PEDESTRIAN CURB ADJACENT TO THE RAMP AREAS SHALL BE INCLUDED IN THE BID PRICE OF THE CONCRETE CURB RAMP.
7. DETECTABLE WARNINGS SHALL MEET SECTION 705 OF THE USDOT ADA STANDARDS FOR TRANSPORTATION FACILITIES.
8. IF THE PLACEMENT OF A PEDESTRIAN PUSH BUTTON ASSEMBLY ON A TRAFFIC SIGNAL MAST POLE WILL NOT BE WITHIN EASY REACH (30" OR LESS AND UNOBSTRUCTED) OF PEDESTRIANS ON ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT), THEN A SEPERATE PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA) SHALL BE INSTALLED WITHIN EASY REACH. THE PPBPA SHALL MEET THE PROVISIONS FOUND IN "SECTION 4L.08 THROUGH 4L.13 - PEDESTRIAN DETECTORS" OF THE 2009 MUTCD MANUAL WITH REVISIONS 1 AND 2.
9. WHERE SPACE IS LIMITED OR GRADE IS AN ISSUE, A 10% SLOPE MAY BE USED ON FLARED SIDES.
10. THE SLOPES CAN BE LOWER THAN WHAT IS SHOWN BUT THEY SHALL NOT EXCEED THESE VALUES.
11. CURB RAMP TYPE 1A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 1B, MUST BE PROVIDED AT EACH STREET CORNER.
    ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
    ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).
    THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 1A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO CDOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.
12. THE CURB RAMP (EXCLUDING ANY FLARED SIDES) OR BLENDED TRANSITION SHALL BE CONTAINED WHOLLY WITHIN THE WIDTH OF THE CROSSWALK AND/OR PEDESTRIAN STREET CROSSING THE RAMP SERVES.

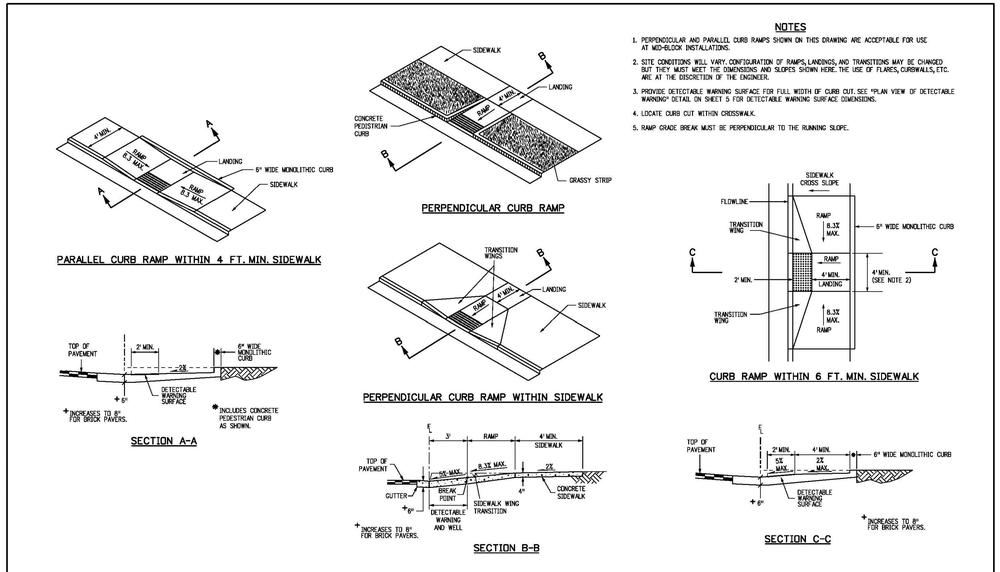
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date	Comments
Last Modification Date: 05/06/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 608010107.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 1 of 7



NOTES

1. PERPENDICULAR AND PARALLEL CURB RAMPS SHOWN ON THIS DRAWING ARE ACCEPTABLE FOR USE AT MID-BLOCK INSTALLATIONS.
2. SITE CONDITIONS WILL VARY. CONFIGURATION OF RAMPS, LANDINGS, AND TRANSITIONS MAY BE CHANGED BUT THEY MUST MEET THE DIMENSIONS AND SLOPES SHOWN HERE. THE USE OF FLARES, CURBWALLS, ETC. ARE AT THE DISCRETION OF THE ENGINEER.
3. PROVIDE DETECTABLE WARNING SURFACE FOR FULL WIDTH OF CURB CUT. SEE "PLAN VIEW OF DETECTABLE WARNING" DETAIL ON SHEET 5 FOR DETECTABLE WARNING SURFACE DIMENSIONS.
4. LOCATE CURB CUT WITHIN CROSSWALK.
5. RAMP GRADE BREAK MUST BE PERPENDICULAR TO THE RUNNING SLOPE.

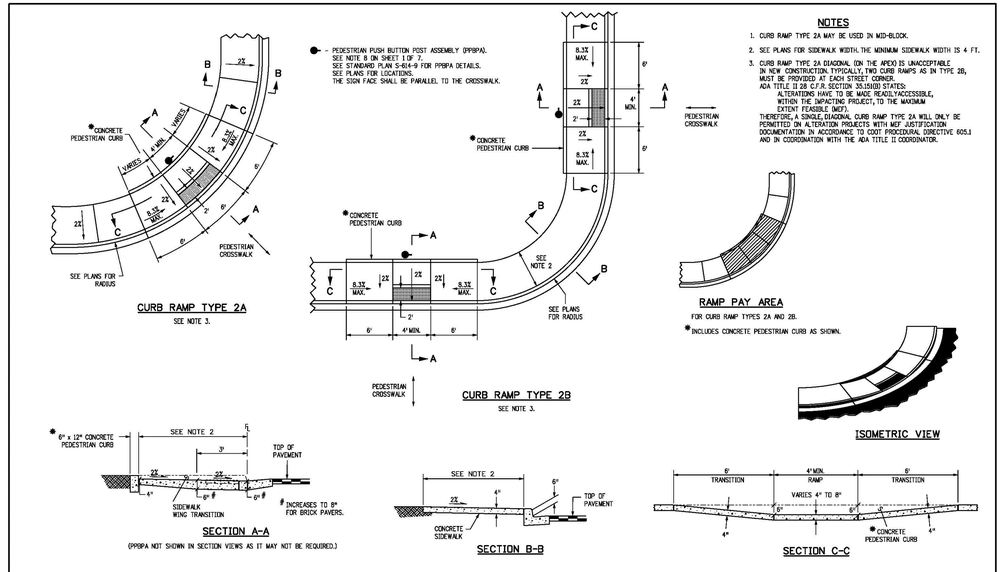
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date	Comments
Last Modification Date: 04/28/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 608010307.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 4 of 7



NOTES

1. CURB RAMP TYPE 2A MAY BE USED IN MID-BLOCK.
2. SEE PLANS FOR SIDEWALK WIDTH. THE MINIMUM SIDEWALK WIDTH IS 4 FT.
3. CURB RAMP TYPE 2A DIAGONAL (ON THE APEX) IS UNACCEPTABLE IN NEW CONSTRUCTION. TYPICALLY, TWO CURB RAMPS AS IN TYPE 2B, MUST BE PROVIDED AT EACH STREET CORNER.
   ADA TITLE II 28 C.F.R. SECTION 35.151(B) STATES:
   ALTERATIONS HAVE TO BE MADE READILY ACCESSIBLE, WITHIN THE IMPACTING PROJECT, TO THE MAXIMUM EXTENT FEASIBLE (MEF).
   THEREFORE, A SINGLE, DIAGONAL CURB RAMP TYPE 2A WILL ONLY BE PERMITTED ON ALTERATION PROJECTS WITH MEF JUSTIFICATION DOCUMENTATION IN ACCORDANCE TO CDOT PROCEDURAL DIRECTIVE 605.1 AND IN COORDINATION WITH THE ADA TITLE II COORDINATOR.

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date	Comments
Last Modification Date: 04/28/14 Initials: LTA	(R-X)	04/22/14	Made ramps perpendicular in 2B. Added note 3.
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 608010207.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 2 of 7

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	DR	BC	CH	BG	APVD	SM
DSGN	SM	REVISION					

ENERTIA CONSULTING GROUP
1529 MAR..ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

GENERAL DETAILS

NOT FOR CONSTRUCTION

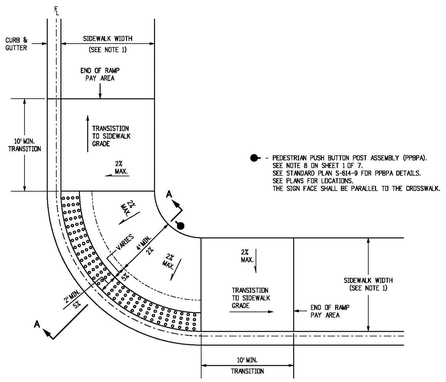
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.3
SHEET	2 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP

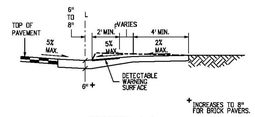
NOTES

1. IF THE EXISTING SIDEWALK WIDTHS ARE DIFFERENT, MATCH THE SMALLEST WIDTH TO 4 FT. MIN.
2. SLOPES SHOWN AS TYPICAL IN SECTION A-A MAY BE ADJUSTED IF NECESSARY TO FIT EXISTING CONDITIONS, BUT MAY NOT EXCEED 5% SLOPE UNDER ANY CONDITIONS.
3. ALL TRUNCATED DOME PANELS OR PAVERS PLACED AT THE SAME CORNER SHALL BE MADE UP OF THE SAME UNIFORM MATERIAL TYPE.



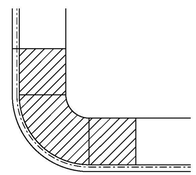
● - PEDESTRIAN PUSH BUTTON POST ASSEMBLY (PPBPA). SEE NOTE 8 ON SHEET 1 OF 7. SEE STANDARD PLAN S-614-9 FOR PPBPA DETAILS. SEE PLANS FOR LOCATIONS. THE SIGN FACE SHALL BE PARALLEL TO THE CROSSWALK.

CORNER BLENDED TRANSITION CURB RAMP



SECTION A-A

(PPBPA NOT SHOWN IN SECTION VIEWS AS IT MAY NOT BE REQUIRED.)



RAMP PAY AREA

FOR CORNER BLENDED TRANSITION CURB RAMP

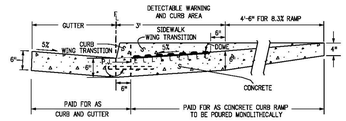
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 04/24/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 608010707.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

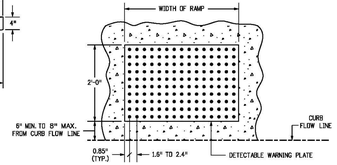
STANDARD PLAN NO.
M-608-1
Sheet No. 7 of 7



DETAIL FOR TYPES 1 AND 3 CURB RAMPS

P.J. = PERMISSIBLE JOINT WITH EPOXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

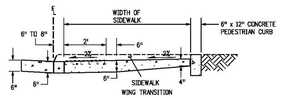
SIDE CROSS SECTION VIEW OF DETECTABLE WARNING, CURB, AND GUTTER



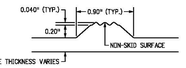
PLAN VIEW OF DETECTABLE WARNING

NOTES

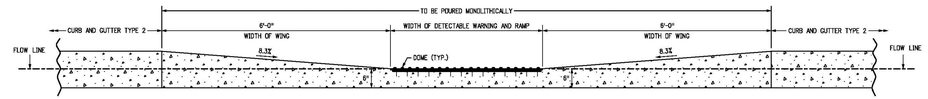
1. THE TRUNCATED DOME PLATE SHALL BE EMBEDDED IN THE CONCRETE CURB RAMP WHILE CONCRETE IS PLASTIC.
2. THE TRUNCATED DOME PLATE TO BE USED SHALL BE ON THE CDOT APPROVED PRODUCT LIST.
3. WHEN THE DETECTABLE WARNING SURFACE IS CUT, GRIND OFF REMAINING PORTION OF ANY CUT DOMES. SEAL ALL CUT PANEL EDGES TO PREVENT WATER DAMAGE.
4. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DECTECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.



DETAIL FOR TYPE 2 CURB RAMP



ELEVATION VIEW OF DETECTABLE WARNING PLATE



FRONT SECTION VIEW OF DETECTABLE WARNING, CURB, AND GUTTER

CURB RAMP WITH A TRUNCATED DOME SURFACE PLATE

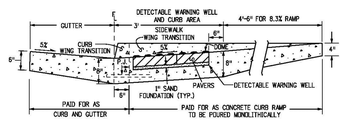
Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 4/28/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 608010507.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

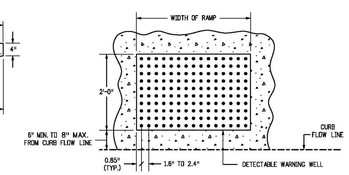
STANDARD PLAN NO.
M-608-1
Sheet No. 5 of 7



DETAIL FOR TYPES 1 AND 3 CURB RAMPS

P.J. = PERMISSIBLE JOINT WITH EPOXY-COATED DEFORMED NO. 4 BY 18 IN. BARS CONFORMING TO AASHTO M 284 AT 18 IN. SPACING.

SIDE CROSS SECTION VIEW OF DETECTABLE WARNING, WELL, CURB, AND GUTTER

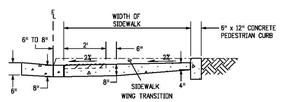


PLAN VIEW OF DETECTABLE WARNING AND WELL

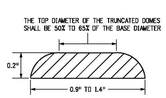
(PAVERS NOT DRAWN TO SCALE)

NOTES

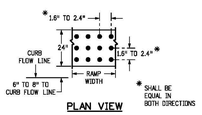
1. THE DETECTABLE WARNINGS SHALL BE BE MADE OF PAVERS WITH A TRUNCATED DOME SURFACE.
2. THE TOP OF THE DRAINAGE WEEP HOLE SHALL BE LOCATED AT THE LOWEST POINT OF THE DETECTABLE WARNING WELL.
3. RAMP SLOPES SHALL BE 12:1 OR FLATTER. THE DETECTABLE WARNING AND WELL AREA SLOPES SHALL BE 20:1 OR FLATTER.
4. THE DETECTABLE WARNING SURFACE SHALL SPAN THE ENTIRE WIDTH OF THE RAMP. IF CONDITIONS DO NOT ALLOW THE ENTIRE SPAN, THE DECTECTABLE WARNING SURFACE SPAN SHALL NOT BE MORE THAN 2 INCHES AWAY FROM EACH SIDE OF RAMP.



DETAIL FOR TYPE 2 CURB RAMP

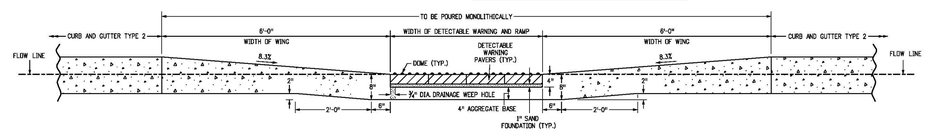


ELEVATION VIEW OF SINGLE DOME



PLAN VIEW

DOME AND DETECTABLE WARNING DETAILS



FRONT SECTION VIEW OF DETECTABLE WARNING, WELL, CURB, AND GUTTER

CURB RAMP WITH DOME PAVER OPTION

Computer File Information		Sheet Revisions	
Creation Date: 07/04/12 Initials: DLM		Date:	Comments
Last Modification Date: 4/28/14 Initials: LTA	(R-X)		
Full Path: www.coloradodot.info/business/designsupport	(R-X)		
Drawing File Name: 608010607.dgn	(R-X)		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)		

Colorado Department of Transportation
4201 East Arkansas Avenue
CDOT HQ, 4th Floor
Denver, CO 80222
Phone: 303-757-9021 FAX: 303-757-9868
Division of Project Support DLM/LTA

CURB RAMPS

Issued By: Project Development Branch on July 4, 2012

STANDARD PLAN NO.
M-608-1
Sheet No. 6 of 7

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CHK	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
TOWN OF ERIE, COLORADO
CIVIL CONSTRUCTION DOCUMENTS

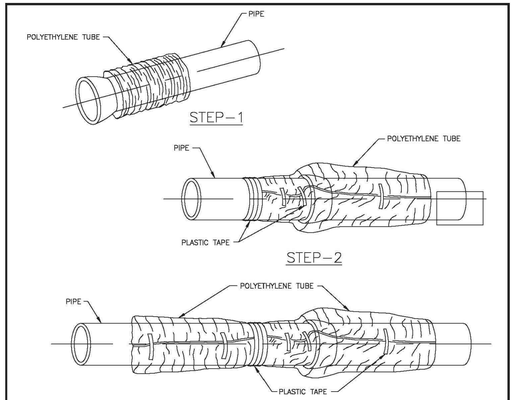
GENERAL DETAILS

NOT FOR CONSTRUCTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.4
SHEET	27 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI: ATION OF ENERTIA CONSULTING GROUP



FIELD INSTALLATION–POLYETHYLENE WRAP

STEP–1 PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE INTO TRENCH.

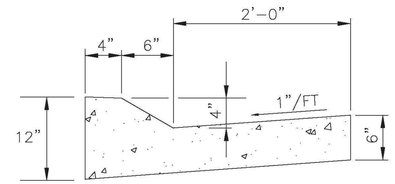
STEP–2 PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH THREE CIRCUMFERENTIAL TURNS OF TWO–INCH WIDE PLASTIC TAPE TO HOLD PLASTIC TUBE AROUND SPIGOT END.

STEP–3 ADJACENT TUBE OVERLAPS FIRST TUBE AND IS SECURED WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE WILL BE LOOSE. EXCESS MATERIAL AND SHOULD BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED INTO AN OVERLAP ON TOP OF THE PIPE AND HELD IN PLACE BY MEANS OF PIECES OF THE PLASTIC TAPE AT APPROXIMATELY THREE TO FIVE FOOT INTERVALS.

NOTE: ALL RODDING TO BE ENCASED IN POLYETHYLENE SEPARATED FROM THE PIPE

The Town of ERIE COLORADO

DRAWING TITLE: POLYETHYLENE WRAP
DRAWING NUMBER: W9
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



HOLLYWOOD

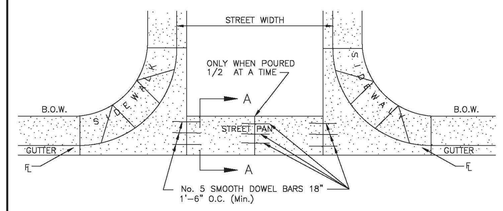
MOUNTABLE CURB & GUTTER CATCH

NOTES:

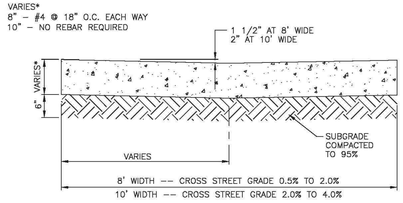
1. SUBGRADE TO BE COMPACTED TO 95% MODIFIED PROCTOR.

The Town of ERIE COLORADO

DRAWING TITLE: MOUNTABLE CURB SECTION
DRAWING NUMBER: SW11
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2010



PLAN



SECTION A–A

CONCRETE CROSS PAN

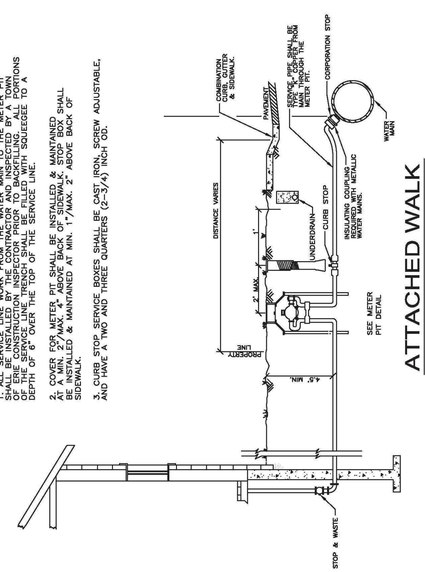
NOT TO SCALE

The Town of ERIE COLORADO

DRAWING TITLE: CONCRETE CROSS PAN
DRAWING NUMBER: SW3
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2010

NOTE:

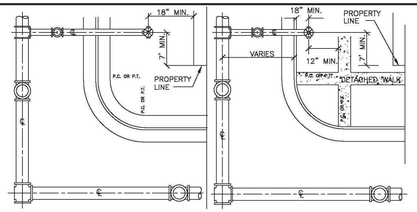
1. ALL SERVICE LINE WORK FROM THE WATER MAIN TO THE METER PIT SHALL BE PERFORMED BY CONTRACTORS LICENSED BY THE TOWN OF ERIE. CONSTRUCTION INSPECTOR PRIOR TO BACKFILLING. ALL PORTIONS OF THE SERVICE LINE TRENCH SHALL BE FILLED WITH SQUEEGEE TO A DEPTH OF 6" OVER THE TOP OF THE SERVICE LINE.
2. COVER FOR METER PIT SHALL BE INSTALLED & MAINTAINED AT A MIN. 4" BELOW SIDEWALK. THE STEP BOX SHALL BE INSTALLED & MAINTAINED AT MIN. 1" / MAX. 2" ABOVE BACK OF SIDEWALK.
3. CURB STOP, SERVICE BOXES SHALL BE CAST IRON, SCREW ADJUSTABLE, AND HAVE A TWO AND THREE QUARTERS (2-3/4) INCH OD.

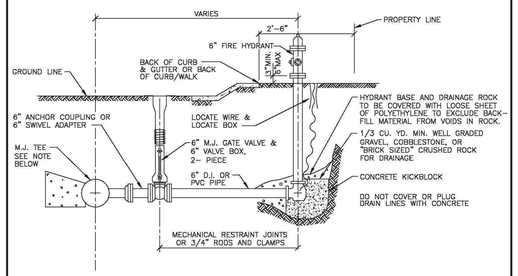


ATTACHED WALK

The Town of ERIE COLORADO

DRAWING TITLE: POTABLE SERVICE LINE ATTACHED WALK
DRAWING NUMBER: W11A (1 OF 2)
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015



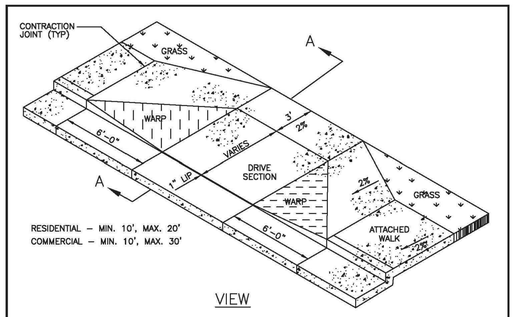


NOTES:

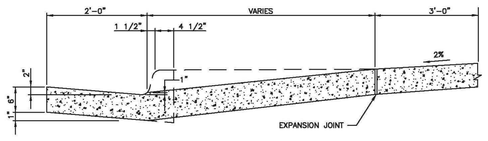
1. ALTERNATE TO THE ABOVE: FASTEN M.J. VALVE DIRECTLY TO A M.J. ANCHOR TEE (ALSO CALLED SWIVEL TEE)
2. NO HORIZONTAL OR VERTICAL BENDS ARE ALLOWED IN FIRE HYDRANT BRANCH OR SPRINKLER LINES
3. MAXIMUM OF ONE FIRE HYDRANT EXTENSION
4. CONTRACTOR TO TAKE CARE NOT TO BLOCK WEEP HOLES
5. ALL DUCTILE IRON PIPE TO BE POLYETHYLENE WRAPPED

The Town of ERIE COLORADO

DRAWING TITLE: FIRE HYDRANTS, MAINS & VALVES
DRAWING NUMBER: W7
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2010



VIEW



SECTION A–A

NOTES:

1. CONTRACTION JOINTS ARE REQUIRED AT EACH SIDE OF WARPED SECTION AND EVERY 10' ALONG THE DRIVE SECTION. SEE DETAILS ON DRAWING SW1 FOR CONSTRUCTION JOINT DETAILS.
2. CHAMFER FRONT EDGE OF CURB AND DRIVE SECTION AS SHOWN IN SECTION A–A.
3. SIDEWALK THICKNESS SHALL BE 6" AT DRIVEWAY.

The Town of ERIE COLORADO

DRAWING TITLE: DRIVE CUT–ATTACHED WALK
DRAWING NUMBER: SW4B
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2006

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CH	APVD
DSGN	SM	DR BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

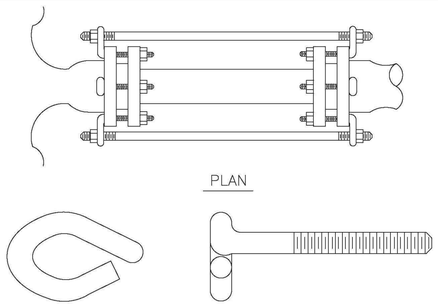
GENERAL DETAILS

NOT FOR CONSTRUCTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.5
SHEET	28 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



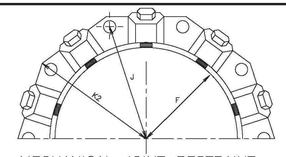
DIMENSIONS

ALLOWABLE PIPE DIAMETER INCHES	BOLT SIZE	NO . OF BOLTS REQUIRED
4	3/4"	2
6	3/4"	2
8	3/4"	2
10	3/4"	4
12	3/4"	6

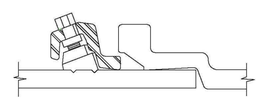
NOTES:
1. THE BOLT SHALL BE MANUFACTURED OF "COR-TEN" OR APPROVED EQUAL.
2. THE BOLT MAY BE HEAT TREATED.

The Town of ERIE COLORADO

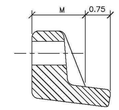
DRAWING TITLE: JOINT RESTRAINT DETAIL
DRAWING NUMBER: W19
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2009



MECHANICAL JOINT RESTRAINT



WEDGE DETAIL



BOLT HOLE DETAIL

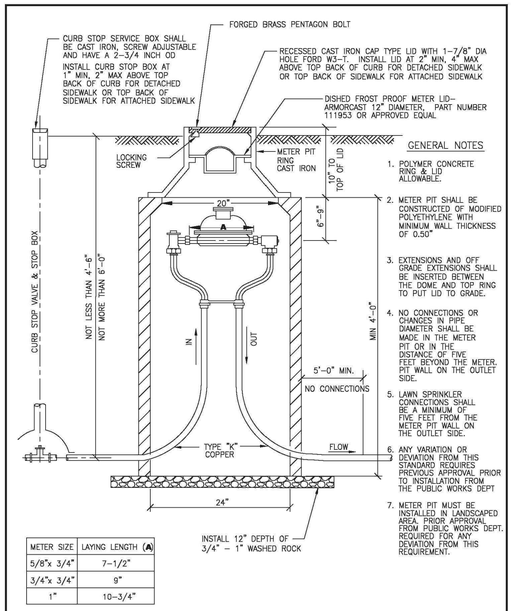
DIMENSIONS

	NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES	
PVC	4"	2	2					PVC
	6"	6	3	11.12	9.50	7.00	0.88	
	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	
DI	4"	4	2					DI
	6"	6	3	11.12	9.50	7.00	0.88	
	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	

NOTES:
1. DIMENSIONS FOR 16" AND 20" D.I. PIPE NOT SHOWN.
2. OTHER MECHANICAL JOINT RESTRAINT DEVICES MUST BE APPROVED BEFORE INSTALLATION.

The Town of ERIE COLORADO

DRAWING TITLE: MECHANICAL JOINT RESTRAINT DETAIL
DRAWING NUMBER: W17
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2009



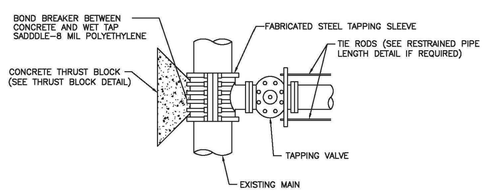
METER SIZE	LAYING LENGTH (A)
5/8"x 3/4"	7-1/2"
3/4"x 3/4"	9"
1"	10-3/4"

GENERAL NOTES

1. POLYMER CONCRETE RING & LID ALLOWABLE.
2. METER PIT SHALL BE CONSTRUCTED OF MODIFIED POLYETHYLENE WITH MINIMUM WALL THICKNESS OF 0.50"
3. EXTENSIONS AND OFF GRADE EXTENSIONS SHALL BE INSERTED BETWEEN THE DOME AND TOP RING TO PUT LID TO GRADE.
4. NO CONNECTIONS OR CHANGES IN PIPE DIAMETER SHALL BE MADE IN THE METER PIT OR IN THE DISTANCE OF FIVE FEET BEYOND THE METER. PIT WALL ON THE OUTLET SIDE.
5. LAWN SPRINKLER CONNECTIONS SHALL BE A MINIMUM OF FIVE FEET FROM THE METER PIT WALL ON THE OUTLET SIDE.
6. ANY VARIATION OR DEVIATION FROM THIS STANDARD REQUIRES PREVIOUS APPROVAL PRIOR TO INSTALLATION FROM THE PUBLIC WORKS DEPT
7. METER PIT MUST BE INSTALLED IN LANDSCAPED AREA. PRIOR APPROVAL FROM PUBLIC WORKS DEPT. REQUIRED FOR ANY DEVIATION FROM THIS REQUIREMENT.

The Town of ERIE COLORADO

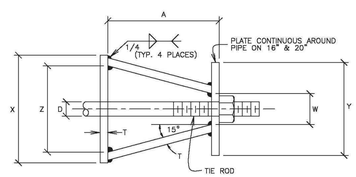
DRAWING TITLE: POTABLE WATER METER PIT 5/8" x 3/4", 3/4" & 1" METER
DRAWING NUMBER: W12A
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2013



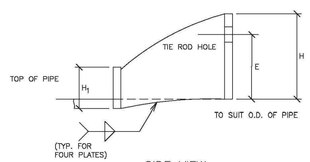
NOTES:
1. FABRICATED STEEL TAPPING SLEEVE SHALL BE:
   ROMAC FTS419 OR APPROVED EQUAL TO BE USED FOR PVC UP TO 75% OF EXISTING MAIN
   ROMAC FTS420 OR APPROVED EQUAL TO BE USED FOR DIP UP TO 75% OF EXISTING MAIN
   ROMAC FTS425 OR APPROVED EQUAL TO BE USED ON ALL AC PIPE AND ANYTIME BRANCH LINE IS GREATER THAN 75% OF EXISTING MAIN

The Town of ERIE COLORADO

DRAWING TITLE: TAPPING TEE AND VALVE
DRAWING NUMBER: W21
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015



TOP VIEW



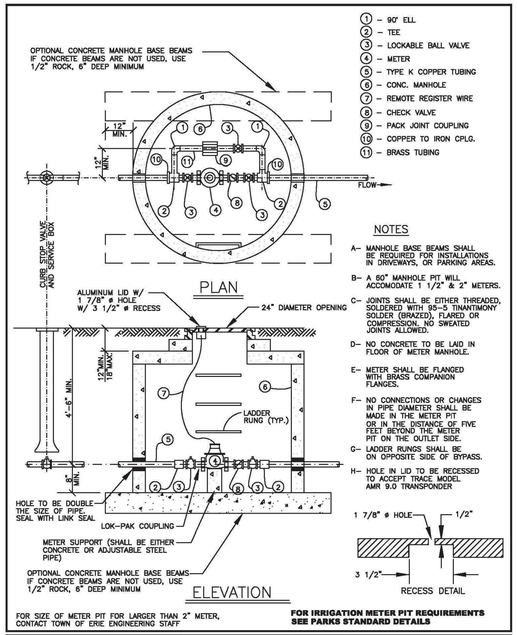
SIDE VIEW

	CARRIER PIPE NOMINAL DIA.	STUD DIA. D	A	W	Z	T	H	E	H_1	Y	X
W/O FLANGED LUGS	4" TO 12"	3/4"	5"	1-1/2"	3-3/4"	3/8"	4-1/8"	3-1/8"	2"	4-1/2"	5"
	16"	1"	5-3/4"	1-3/4"	4-1/2"	1/2"	4-1/2"	3-1/4"	2"	RING	6"
	20"	1-1/4"	7-1/2"	2"	5-3/4"	5/8"	5"	3-3/4"	2-1/2"	RING	7-1/2"

NOTES:
1. USE TWO HIGH STRENGTH STEEL TIE RODS AT END OF CASING.
2. TIE ROD HOLE DIAMETER 1/8" LARGER THAN STUD DIAMETER.
3. BOTTOM EDGE OF ALL PLATES SHAPED TO FIT O.D. OF PIPE.
4. HARNESS LUGS AS PER AWWA MANUAL M-II.

The Town of ERIE COLORADO

DRAWING TITLE: COMBINATION FLANGED HARNESS LUG DETAIL
DRAWING NUMBER: W18
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2009



1 - 90° ELL
2 - TEE
3 - LOCKABLE BALL VALVE
4 - METER
5 - TYPE K COPPER TUBING
6 - CONC. MANHOLE
7 - REMOTE REGISTER WIRE
8 - CHECK VALVE
9 - PACK JOINT COUPLING
10 - COPPER TO IRON CPLG.
11 - BRASS TUBING

NOTES

A- MANHOLE BASE BEAMS SHALL BE REQUIRED FOR INSTALLATIONS IN DRIVEWAYS, OR PARKING AREAS.

B- A 60" MANHOLE PIT WILL ACCOMODATE 1 1/2" & 2" METERS.

C- JOINTS SHALL BE EITHER THREADED, SOLDERED WITH 95-5 TINANTIMONY SOLDER (BRAZED), FLARED OR COMPRESSION, NO SWEATED JOINTS ALLOWED.

D- NO CONCRETE TO BE LAID IN FLOOR OF METER MANHOLE.

E- METER SHALL BE FLANGED WITH BRASS COMPANION FLANGES.

F- NO CONNECTIONS OR CHANGES IN PIPE DIAMETER SHALL BE MADE IN THE METER PIT OR IN THE DISTANCE OF FIVE FEET BEYOND THE METER PIT ON THE OUTLET SIDE.

G- LADDER RUNGS SHALL BE ON OPPOSITE SIDE OF BYPASS.

H- HOLE IN LID TO BE RECESSED TO ACCEPT TRACE MODEL AMR 9.0 TRANSPONDER

FOR SIZE OF METER PIT FOR LARGER THAN 2" METER, CONTACT TOWN OF ERIE ENGINEERING STAFF

FOR IRRIGATION METER PIT REQUIREMENTS SEE PARKS STANDARD DETAILS

The Town of ERIE COLORADO

DRAWING TITLE: 1-1/2" & 2" METER MANHOLE METER PIT
DRAWING NUMBER: W13
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CH	APVD
DSGN	SM	DR BC	BG	SM

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

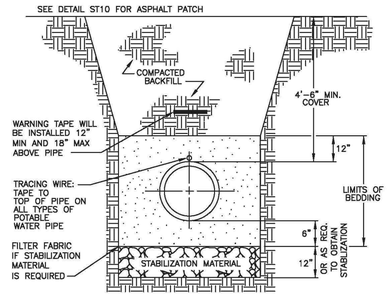
GENERAL DETAILS

NOT FOR CONSTRUCTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.
SHEET	29 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP

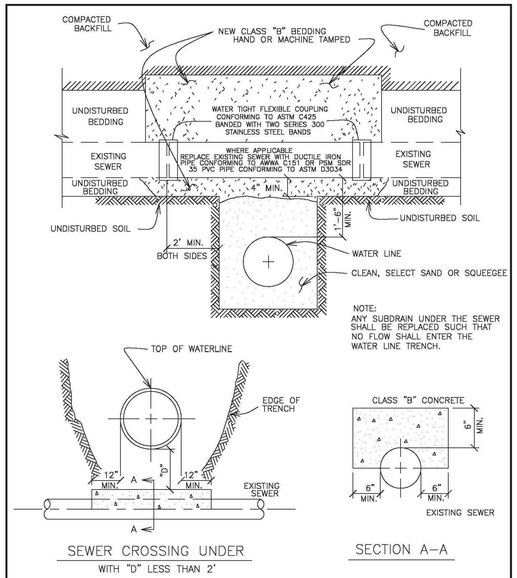


NOTES:

1. COMPACTION SHALL BE AS FOLLOWS: PIPE ZONE BEDDING 6" UNDER AND 12" OVER PIPE WILL REQUIRE 90% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, FULL TRENCH SECTION IN ROADWAY OR STREET R.O.W. LIMITS WILL REQUIRE 95% S.P.D. TRENCH ZONE ABOVE BEDDING MATERIALS, OUTSIDE OF STREET R.O.W. WILL REQUIRE 90% S.P.D.
2. 14 AWG. STRANDED COPPER WIRE SHALL BE INSTALLED AS TRACING WIRE ABOVE ALL POTABLE WATER PIPES. THE WIRE SHALL BE CONNECTED AND COME TO THE SURFACE BEHIND THE FIRE HYDRANTS IN A TEST BOX.
3. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
4. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
5. PIPE SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.
6. TRENCH WIDTH SHALL NOT BE MORE THAN 24" NOR LESS THAN 12" WIDER THAN THE LARGEST OUTSIDE DIAMETER OF THE PIPE.

The Town of ERIE COLORADO

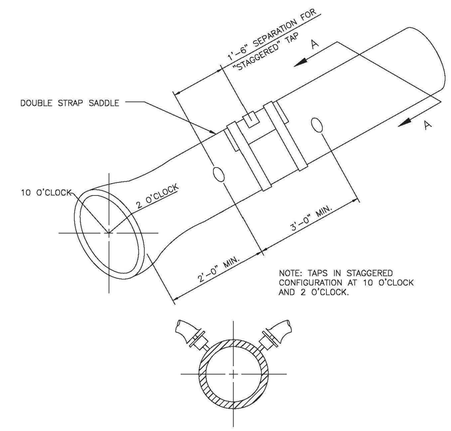
DRAWING TITLE: WATER TRENCH DETAIL
DRAWING NUMBER: W35
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015



NOTE:
ALL EXISTING SEWER DAMAGED DURING INSTALLATION MUST BE REPLACED WITH PVC PIPE.

The Town of ERIE COLORADO

DRAWING TITLE: CROSSING STORM AND SANITARY SEWERS
DRAWING NUMBER: W25
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2009

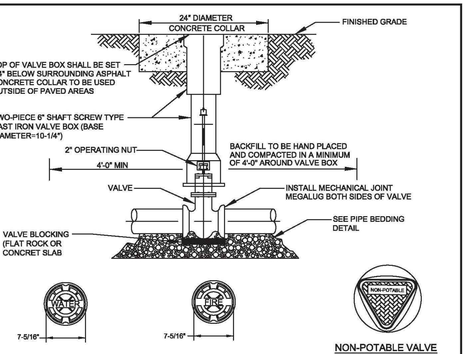


NOTE: TAPS IN STAGGERED CONFIGURATION AT 10 O'CLOCK AND 2 O'CLOCK.

NOTE:
SERVICE TAPS – WATER SERVICE TAPS SHALL BE MADE AT EITHER THE 2 O'CLOCK OR THE 10 O'CLOCK POSITION ON THE CIRCUMFERENCE OF A WATER MAIN. THE MINIMUM DISTANCE BETWEEN A TAP MADE AT THE 2 O'CLOCK POSITION AND THE ONE MADE AT THE 10 O'CLOCK POSITION SHALL BE 18–INCHES MEASURED ALONG THE PIPE. THE MINIMUM DISTANCE BETWEEN SUCCESSIVE TAPS MADE EITHER AT THE 2 O'CLOCK OR THE 10 O'CLOCK POSITION SHALL BE 3–FEET. THE MINIMUM DISTANCE FROM EITHER THE BELL OR THE SPIGOT END OF A PIPE TO A TAP SHALL BE 2–FEET. A MAXIMUM OF 4 WATER SERVICE TAPS SHALL BE ALLOWED PER LENGTH OF PIPE. DOUBLE STRAP SADDLE (ROMAC 202B OR APPROVED EQUAL) SHALL BE USED FOR ALL SERVICE TAPS.

The Town of ERIE COLORADO

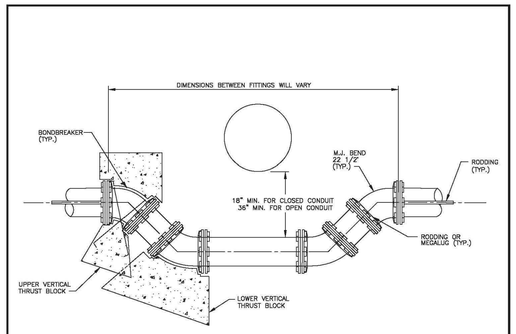
DRAWING TITLE: DOMESTIC WATER TAPPING DETAIL
DRAWING NUMBER: W22
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2010



NOTES:
1. POTABLE & FIRE VALVE BOX LID RESTS INSIDE THE UPPER VALVE BOX SECTION.
2. NON-POTABLE VALVE BOX LID SLIDES OVER THE TOP OF THE UPPER VALVE BOX SECTION.
3. NON-POTABLE, WATER OR FIRE CAST IN TOP OF APPROPRIATE VALVE BOX COVER.
4. VALVE BOX SHALL NOT BE SUPPORTED BY WATER LINE.
5. VALVE BOX TO BE PLUMB AND CENTERED OVER NUT.
6. UTILIZING A VALVE BOX ALIGNMENT DEVICE IS OPTIONAL.
7. IF 2" OPERATING NUT IS MORE THAN 6' BELOW FINISHED GRADE, A VAULT NUT EXTENDER SHALL BE INSTALLED TO PUT THE VALVE NUT AT AN ELEVATION OF 4' BELOW FINISHED GRADE.

The Town of ERIE COLORADO

DRAWING TITLE: STANDARD VALVE AND BOX
DRAWING NUMBER: W38
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 1/2015



NOTES:

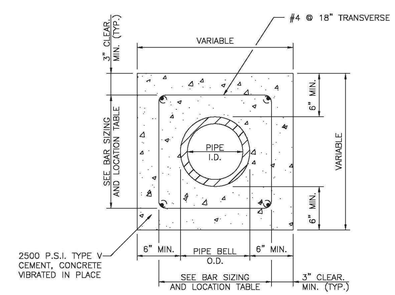
1. LOWERING OF THIS TYPE WILL BE RESTRAINED BY MEANS OF THRUST BLOCKING AND MEGALUGS OR RODDING.
2. FOR SIGNING INFORMATION OF THRUST BLOCKS REFER TO THRUST BLOCK DETAILS.
3. WHEN RESTRAINING PIPE BY MEANS OF RODDING JOINTS, 3/4 " TIE RODS, NUTS, AND WASHERS WILL BE USED AND ARE TO BE MADE OF "COR–TEN" STEEL AS PER A.S.T.M. A242.
4. FOR FURTHER INFORMATION ON RODDING OF JOINTS REFER TO TABLE 1.
5. ALL METALLIC PIPE, FITTINGS, AND APPURTENANCES WILL BE WRAPPED IN POLYETHYLENE.
6. REQUIREMENTS FOR LARGER THAN 12" DIAMETER PIPE WILL BE DETERMINED ON A CASE BY CASE BASIS.
7. LENGTH OF EXTENSION OF PIPE AND RESTRAINED JOINTS SHALL BE IN ACCORDANCE WITH THE ENGINEERING STANDARDS.
8. CATHODIC PROTECTION SHALL BE AS REQUIRED IN ACCORDANCE WITH THE ENGINEERING STANDARDS.
9. A BORED CROSSING MAY BE REQUIRED BY THE ENGINEER.

TABLE 1

Pipe Size	Test Pressure	Minimum number of Tie Rods
10" and less	150	2
	200	2
12"	150	2
	200	4

The Town of ERIE COLORADO

DRAWING TITLE: 12" OR SMALLER WATERLINE, LOWERING DTL. FOR UTILITY CROSSINGS
DRAWING NUMBER: W27
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2011



REINFORCEMENT STEEL

PIPE I.D.	LONGITUDINAL BARS – LOCATION		
6 IN.	4–NO. 4 BARS	1 EACH	CORNER
8 IN.	4–NO. 4 BARS	1 EACH	CORNER
10 IN.	8–NO. 4 BARS	3 EACH	SIDE
12 IN.	8–NO. 4 BARS	3 EACH	SIDE
15 IN.	8–NO. 4 BARS	3 EACH	SIDE
18 IN.	8–NO. 4 BARS	3 EACH	SIDE
21 IN.	12–NO. 4 BARS	4 EACH	SIDE
24 IN.	12–NO. 4 BARS	4 EACH	SIDE
27 IN.	12–NO. 4 BARS	4 EACH	SIDE
30 IN.	12–NO. 4 BARS	4 EACH	SIDE
33 IN.	12–NO. 4 BARS	4 EACH	SIDE
36 IN.	16–NO. 4 BARS	5 EACH	SIDE

NOTE:
THE DISTRICT SHALL REVIEW THIS DETAIL FOR USE ON A CASE BY CASE BASIS. SPECIAL ENCASEMENTS MAY BE REQUIRED AT CREEK CROSSINGS AND CONDUIT CROSSINGS.

The Town of ERIE COLORADO

DRAWING TITLE: CONCRETE ENCASEMENT DETAIL
DRAWING NUMBER: W23
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2009

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	CH	APVD

DSGN SM | DR BC | CH BG | APVD SM

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

GENERAL DETAILS

NOT FOR CONSTRUCTION

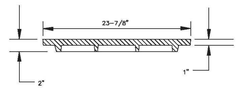
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.7
SHEET	30 OF 32

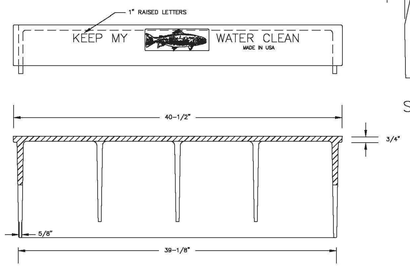
REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI: ATION OF ENERTIA CONSULTING GROUP

TYPE R INLET COVER

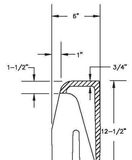
NOTE:
MATERIAL TO BE CAST GRAY IRON
ASTM A-48 CLASS 35B, NO PAINT



TYPE 13 INLET



SECTION

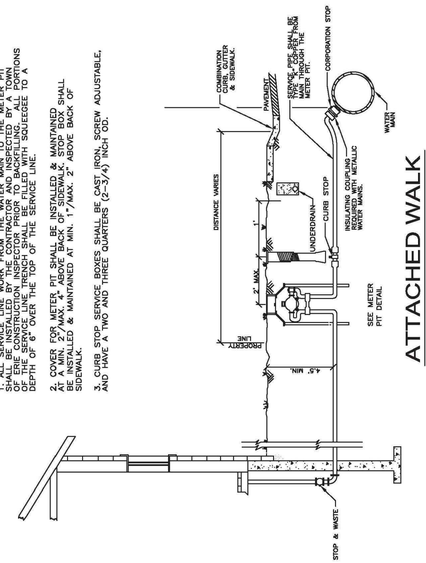


SECTION

The Town of ERIE COLORADO

DRAWING TITLE: INLET & INLET COVER
DRAWING NUMBER: STM10
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2012

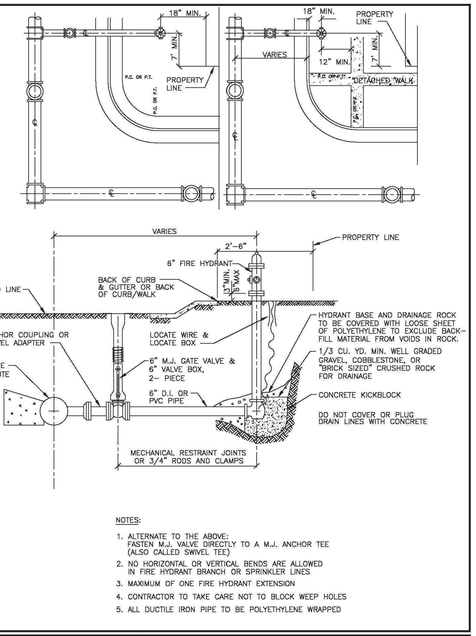
NOTE:
1. ALL SERVICE LINE WORK FROM THE WATER MAIN TO THE METER PIT SHALL BE INSTALLED BY THE CONTRACTOR AND INSPECTED BY A TOWN OF ERIE REPRESENTATIVE. BACKFILL OF TRENCH PORTIONS OF THE SERVICE LINE TRENCH SHALL BE FILLED WITH SNOWPLOW DEPTH OF 6" OVER THE TOP OF THE SERVICE LINE.
2. COVER FOR METER PIT SHALL BE INSTALLED & MAINTAINED AT A MIN. 2" MAX. 4" ABOVE BACK OF SIDEWALK. STOP BOX SHALL BE INSTALLED & MAINTAINED AT MIN. 1" / MAX. 2" ABOVE BACK OF SIDEWALK.
3. CURB STOP, SERVICE BOXES SHALL BE CAST IRON, SCREW ADJUSTABLE, AND HAVE A TWO AND THREE QUARTERS (2-3/4) INCH OD.



ATTACHED WALK

The Town of ERIE COLORADO

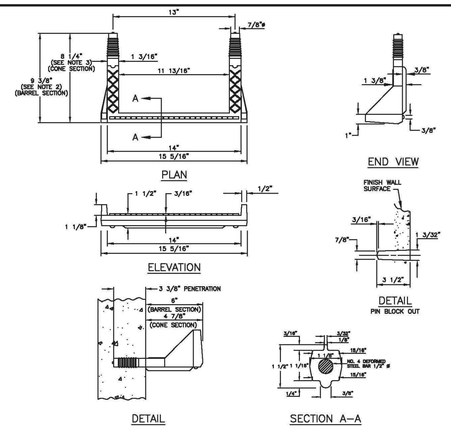
DRAWING TITLE: POTABLE SERVICE LINE ATTACHED WALK
DRAWING NUMBER: W11A (1 OF 2)
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN REV. DATE: 01/2015



NOTES:
1. ALTERNATE TO THE ABOVE: FASTEN M.J. VALVE DIRECTLY TO A M.J. ANCHOR TEE (ALSO CALLED SWIVEL TEE)
2. NO HORIZONTAL OR VERTICAL BENDS ARE ALLOWED IN FIRE HYDRANT BRANCH OR SPRINKLER LINES
3. MAXIMUM OF ONE FIRE HYDRANT EXTENSION
4. CONTRACTOR TO TAKE CARE NOT TO BLOCK WEEP HOLES
5. ALL DUCTILE IRON PIPE TO BE POLYETHYLENE WRAPPED

The Town of ERIE COLORADO

DRAWING TITLE: FIRE HYDRANTS, MAINS & VALVES
DRAWING NUMBER: W7
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2010

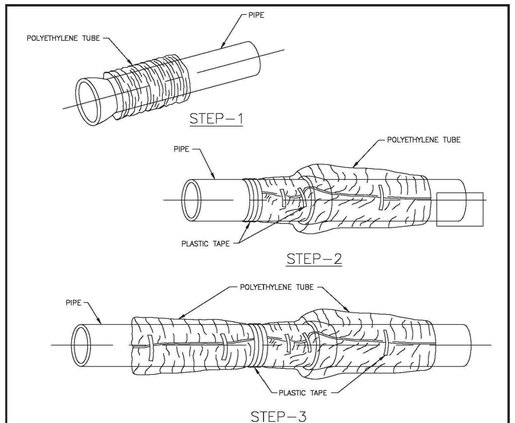


POLYPROPYLENE REINFORCED PLASTIC STEP

NOTES:
1. ASTM SPECIFICATIONS:
   A. ASTM C-478
   B. ASTM A-615 GRADE 60 (STEEL REBAR).
   C. ASTM 3146-89, TYPE III, GRADE 16900 (POLYPROPYLENE).
2. STEPS INSTALLED IN MANHOLE BARREL SECTIONS OR VERTICAL WALLS OF STRUCTURES SHALL HAVE A 9 3/8 INCH LEG AND SHALL PROJECT FROM THE WALL 8 INCHES.
3. STEPS INSTALLED IN MANHOLE CONE SECTIONS SHALL HAVE AN 8 1/4 INCH LEG AND SHALL PROJECT FROM THE WALL 4 7/8 INCHES.
4. ALL STEPS SHALL HAVE A PENETRATION DEPTH INTO THE WALL OF 3 3/8 INCHES.
5. STEPS SHALL BE INSTALLED BY THE "PRESS-FIT" METHOD UTILIZING A SPECIALLY TAPERED PIN TO FORM THE INSERT HOLE AS SHOWN, FOLLOWING MANUFACTURER'S RECOMMENDED PROCEDURE AND SHALL NOT BE GROUTED IN PLACE.
6. INSTALLED STEPS SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 2500 LB. PER LEG FOR A MINIMUM PERIOD OF TWO MINUTES.
7. PINS MUST BE SMOOTH AND CONTINUOUSLY TAPERED. DIMENSIONS OF THE PIN AND THE INSERTED PORTION OF THE MANHOLE STEP ARE TYPICAL ONLY. M.H.D. INSTALLATIONS REQUIRE A MATCHED COMBINATION OF A TAPERED INSERT PIN AND MANHOLE STEP, AS RECOMMENDED OR REQUIRED BY SPECIFIC MANUFACTURER OF THE STEP TO BE USED.
8. THIS STEP CAN ALSO BE USED IN TOE POCKET INSTALLATIONS PROVIDED 5" TOE CLEARANCE IS ALLOWED.

The Town of ERIE COLORADO

DRAWING TITLE: MANHOLE STEPS
DRAWING NUMBER: STM9
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004



FIELD INSTALLATION-POLYETHYLENE WRAP

STEP-1 PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE INTO TRENCH.

STEP-2 PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH THREE CIRCUMFERENTIAL TURNS OF TWO-INCH WIDE PLASTIC TAPE TO HOLD PLASTIC TUBE AROUND SPIGOT END.

STEP-3 ADJACENT TUBE OVERLAPS FIRST TUBE AND IS SECURED WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE WILL BE LOOSE. EXCESS MATERIAL AND SHOULD BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED INTO AN OVERLAP ON TOP OF THE PIPE AND HELD IN PLACE BY MEANS OF PIECES OF THE PLASTIC TAPE AT APPROXIMATELY THREE TO FIVE FOOT INTERVALS.

NOTE: ALL RODDING TO BE ENCASED IN POLYETHYLENE SEPARATED FROM THE PIPE

The Town of ERIE COLORADO

DRAWING TITLE: POLYETHYLENE WRAP
DRAWING NUMBER: W9
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 06/2004

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CHK	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR, STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

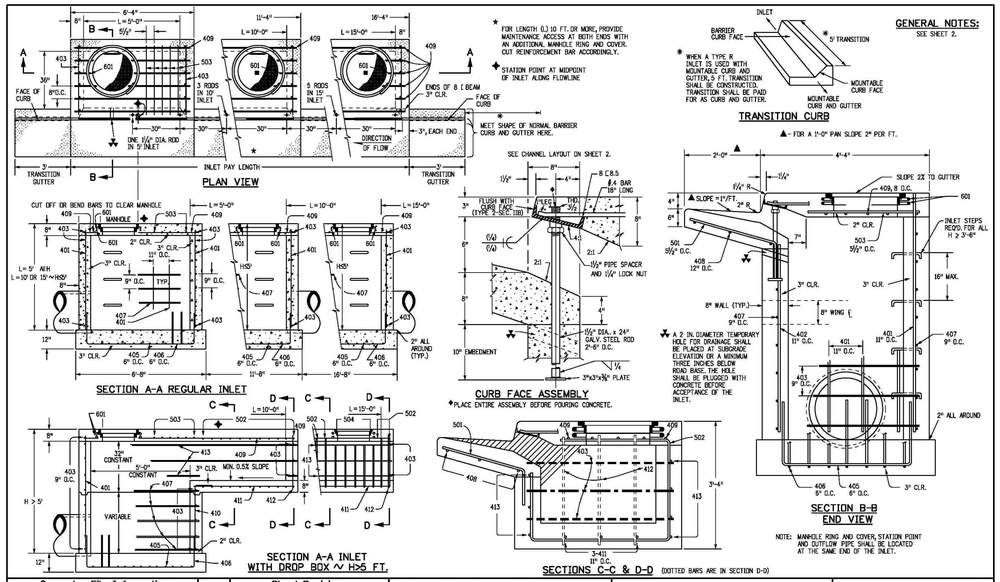
GENERAL DETAILS

NOT FOR CONSTRUCTION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.8
SHEET	31 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI ATION OF ENERTIA CONSULTING GROUP



Computer File Information	
Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/04/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 604D120102.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

CURB INLET TYPE R

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-604-12
Sheet No. 1 of 2

MARK	BAR # OR SIZE	O.C. SPACING	TYPE	ALL INLETS L = 5 FT. NO. REQ'D.	ALL INLETS L = 5 FT. LENGTH	INLETS: H ≤ 5 FT. L = 10 FT. NO. REQ'D.	INLETS: H ≤ 5 FT. L = 10 FT. LENGTH	INLETS: H ≤ 5 FT. L = 15 FT. NO. REQ'D.	INLETS: H ≤ 5 FT. L = 15 FT. LENGTH	INLETS: H > 5 FT. L = 10 FT. NO. REQ'D.	INLETS: H > 5 FT. L = 10 FT. LENGTH	INLETS: H > 5 FT. L = 15 FT. NO. REQ'D.	INLETS: H > 5 FT. L = 15 FT. LENGTH
401	4	11"	II	15	*	21	*	26	*	11	*	11	*
402	4	11"	II	7	*	13	*	18	*	7	*	7	*
403	4	9"	II	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"
405	4	6"	VI	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
406	4	6"	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407	4	9"	II	*	5'-10"	*	10'-10"	*	15'-10"	*	5'-10"	*	5'-10"
408	4	12"	II	3	6'-10"	3	11'-10"	3	16'-0"	3	11'-10"	3	16'-0"
409	4	8"	II	6	5'-10"	6	10'-10"	6	15'-10"	6	10'-10"	6	15'-10"
410	4	11"	VII							3		3	*
411	4	11"	II							3	5'-2"	3	10'-2"
412	4	11"	II							3	2'-9"	3	2'-9"
413	4	9"	II							7	10'-10"	7	15'-10"
501	5	5½"	IV	11	3'-4"	22	3'-4"	33	3'-4"	22	3'-4"	33	3'-4"
502	5	5½"	III							11	11'-5"	17	11'-5"
503	5	5½"	II	5	3'-8"	16	3'-8"	27	3'-8"	6	3'-8"	6	3'-8"
504	5	5½"	IX									5	8'-4"
601	6	2½"	V	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"	4	8'-10"
■ B18.5				1	5'-10"		10'-10"	1	15'-10"	1	10'-10"	1	15'-10"
				2 BARS, 1 RODS	——	4 BARS, 3 RODS	——	8 BARS, 5 RODS	——	4 BARS, 3 RODS	——	8 BARS, 5 RODS	——

* VARIABLE REFER TO TABLE TWO.
■ INCLUDE #4, 18 IN. BARS (SEE CHANNEL LAYOUT).

REGULAR INLETS — DROP BOX INLETS

TABLE ONE ~ BAR LIST FOR CURB INLETS, TYPE "R"

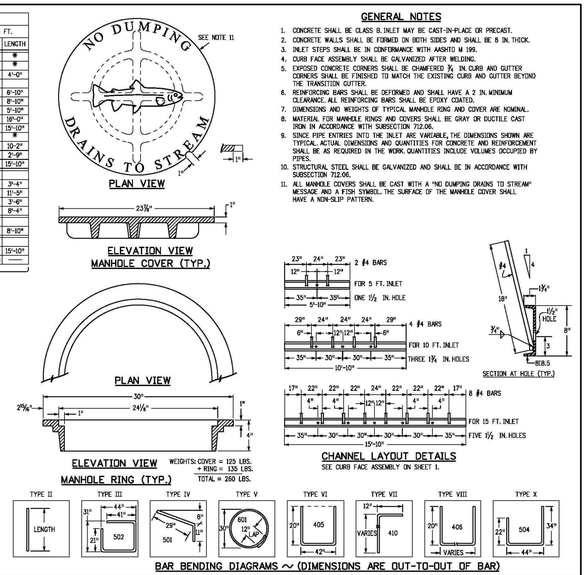
"H"	LENGTH 401	LENGTH 402	LENGTH 410	NO. REQ'D. REGULAR 403	NO. REQ'D. REGULAR 407	NO. REQ'D. DROP BOX 403	NO. REQ'D. DROP BOX 407	L = 5 FT. CONC. CU. YDS.	L = 5 FT. STEEL LBS.	L = 10 FT. CONC. CU. YDS.	L = 10 FT. STEEL LBS.	L = 15 FT. CONC. CU. YDS.	L = 15 FT. STEEL LBS.
3'-0"	2'-8"	1'-8"		10	7			3.2	285	5.3	497	7.4	708
3'-6"	3'-2"	2'-2"		10	7			3.4	305	5.7	528	7.9	747
4'-0"	3'-8"	2'-8"		12	9			3.7	326	6.0	559	8.4	786
4'-6"	4'-2"	3'-2"		12	9			3.9	334	6.4	571	8.8	803
5'-0"	4'-8"	3'-8"		14	11			4.1	354	6.7	602	9.3	844
5'-6"	5'-2"	4'-2"	3'-5"	16	13	15	6	4.4	375	6.9	607	7.4	850
6'-0"	5'-8"	4'-8"	3'-11"	16	13	16	6	4.6	382	6.2	618	7.6	860
6'-6"	6'-2"	5'-2"	4'-5"	18	15	18	8	4.8	402	6.4	637	7.8	880
7'-0"	6'-8"	5'-8"	4'-11"	20	17	19	10	5.0	423	6.6	654	8.0	897
7'-6"	7'-2"	6'-2"	5'-5"	20	17	20	10	5.3	430	6.9	664	8.3	907
8'-0"	7'-8"	6'-8"	5'-11"	22	19	22	12	5.5	451	7.1	684	8.5	927
8'-6"	8'-2"	7'-2"	6'-5"	24	21	23	14	5.7	471	7.3	702	8.7	944
9'-0"	8'-8"	7'-8"	6'-11"	24	21	24	14	6.0	479	7.6	711	9.0	954
9'-6"	9'-2"	8'-2"	7'-5"	26	23	26	16	6.2	499	7.8	732	9.2	974
10'-0"	9'-8"	8'-8"	7'-11"	28	25	27	18	6.4	520	8.0	749	9.4	992
10'-6"	10'-2"	9'-2"	8'-5"	28	25	28	18	6.7	527	8.3	759	9.7	1001
11'-0"	10'-8"	9'-8"	8'-11"	30	27	30	20	6.9	547	8.5	779	9.9	1022

NOTES: FOR L = 5 FT., L = 10 FT., AND L = 15 FT.
REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE THE HEAVY BLACK LINE.
DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE THE HEAVY BLACK LINE.
STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL CHANNEL.

TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
2. CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8 IN. THICK.
3. INLET STEPS SHALL BE IN CONFORMANCE WITH AASHTO M 199.
4. CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
5. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾ IN. CURB AND GUTTER CORNERS SHALL BE FINISHED TO MATCH THE EXISTING CURB AND GUTTER BEYOND THE TRANSITION GUTTER.
6. REINFORCING BARS SHALL BE DEFORMED AND SHALL HAVE A 2 IN. WINDMUM CLEARANCE. ALL REINFORCING BARS SHALL BE EPOXY COATED.
7. DIMENSIONS AND WEIGHTS OF TYPICAL MANHOLE RING AND COVER ARE NOMINAL.
8. MATERIAL FOR MANHOLE RINGS AND COVERS SHALL BE GRAY OR DUCTILE CAST IRON IN ACCORDANCE WITH SUBSECTION 712.06.
9. SINCE PIPE ENTRIES INTO THE INLET ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL. ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK. QUANTITIES INCLUDE VOLUMES OCCUPIED BY PIPES.
10. STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
11. ALL MANHOLE COVERS SHALL BE CAST WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE AND A FISH SYMBOL. THE SURFACE OF THE MANHOLE COVER SHALL HAVE A NON-SLIP PATTERN.



Computer File Information	
Creation Date: 07/04/12	Initials: DD
Last Modification Date: 07/04/12	Initials: LTA
Full Path: www.coloradodot.info/business/designsupport	
Drawing File Name: 604D120202.dgn	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions	
Date:	Comments

Colorado Department of Transportation
4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9083
Fax: (303) 757-9820
Project Development Branch DD/LTA

CURB INLET TYPE R

Issued By: Project Development Branch July 4, 2012

STANDARD PLAN NO.
M-604-12
Sheet No. 2 of 2

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISION	DR	BC	CH	BG	APVD	SM
DSGN	SM							

ENERTIA CONSULTING GROUP
1529 MAR ET STREET
DENVER, COLORADO 80202

CHARTERED HOMES OF COLORADO
31 0 VILLAGE VISTA DR. STE 104
ERIE, COLORADO 8051

MONTEX - NORTH AT VISTA RIDGE
CIVIL CONSTRUCTION DOCUMENTS
TOWN OF ERIE, COLORADO

GENERAL DETAILS

NOT FOR CONSTRUCTION
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 17, 2014
FILE	23 DTL-10.0.DWG
DWG	DTL-10.9
SHEET	32 OF 32

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF ENERTIA CONSULTING GROUP AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORI: ATION OF ENERTIA CONSULTING GROUP

prepared by
Enertia Consulting Group, LLC
1437 Larimer Street
Denver, CO 80202

Phase III Drainage Report

Montex South at Vista Ridge, Erie, Colorado

prepared for

Chartered Development Corp
3160 Village Vista Drive
Erie, CO 80516

LAND • ENERGY • INFRASTRUCTURE

I R C RTIFICATIO

"I hereby certify that this Phase III Drainage Report for the design of Montex South at Vista Ridge was prepared by me (or under my direct supervision) in accordance with the provisions of the *Town of Erie Standards and Specifications for Design and Construction* for the owners thereof. I understand that the Town of Erie does not and will not assume liability for drainage facilities designed by others, including the designs presented in this report."

_____

Shawn C. Merz, PE
State of Colorado Registration No. 41241
For and on Behalf of Enertia Consulting Group

TO ACC PTA C

This report has been reviewed and found to be in general compliance with the *Town of Erie Standards and Specifications for Design and Construction* and other Town requirements. **TH ACC RAC A D A IDIT OF TH I RI D I , D TAI , DI IO , A TITI , A D CO C PT I THI R PORT R AI TH O R PO I I IT OF TH PROF IO A I R HO TA P A D I AT R APP AR H R O**

Accepted by: _____ Date: _____
Deputy Public Works Director

TA OF CO T T

1. GENERAL LOCATION AND DESCRIPTION 1
   A. Site Location 1
   B. Description of Property 1
2. DRAINAGE BASINS 2
   A. Major Basin Description 2
   B. Sub-Basin Description 2
3. DRAINAGE DESIGN CRITERIA 4
   A. Development Criteria Reference and Constraints 4
   B. Hydrological Criteria 5
   C. Hydraulic Criteria 5
   D. Adaptations from Criteria 5
4. DRAINAGE FACILITY DESIGN 5
   A. General Concept 5
   B. Specific Details 6
5. SUMMARY 7
6. REFERENCES 7

APPENDIX A – DRAINAGE MAP

APPENDIX B – HYDROLOGIC/HYDRAULIC COMPUTATIONS

- Master Study Allowable Runoff
- Imperviousness Calculations
- SF-2 Form
- 2-Year SF-3 Form
- 100-Year SF-3 Form
- Street/Inlet Capacity Calcs
- Pipe Sizing/HGL's
- Drainage Swale Capacity Calcs
- Pond Outfall Rip-Rap Calcs

APPENDIX C – REFERENCE DOCUMENTS

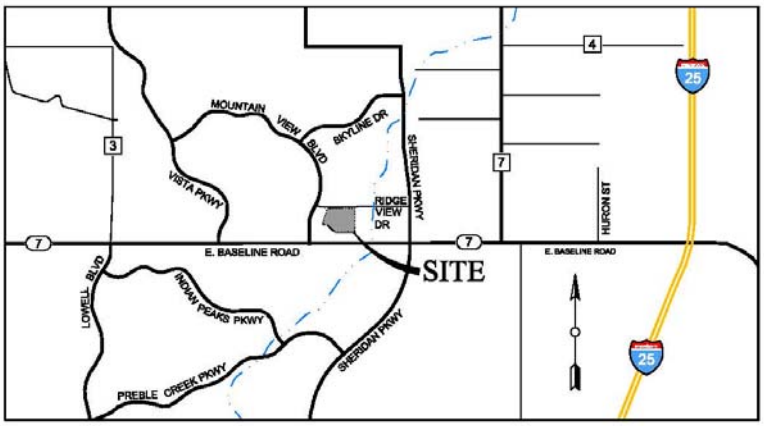
- Erie Criteria Sheets
- FIRM Map
- ALTA SURVEY

1 RA OCATIO A D D CRIPTIO

A ite ocation

The project site is the 1st Amendment of Vista Ridge Filing No. 12 and is located in the Southwest Quarter of Section 33, Township 1 North, Range 68 West of the 6th Principle Meridian. The project is bounded to the north by Ridge View Drive, future commercial development to the east and south, and Detention Pond A1the west. The adjacent major roadways are Mountain View Boulevard to the west, Sheridan Parkway to the east and East Baseline Road to the south.

onte at ista Ridge icinity ap



Description of Property

The proposed site consists of 10.2 acres. The site is gently sloping from east to west with an existing slope of roughly 3.2%. Existing ground cover consists of natural grasses. There are no wetlands on the proposed site. The developed parcel will consist of 36 four dwelling manor homes and a single-family home which will be used as a rental office. A total of 144 units results in a density of 14.2 dwelling units/acre. There is an existing 10' utility easement along the north property line as well as a 10' United Power Easement running north south through the middle of the property which will be vacated. There is also a pocket utility easement along the west property line provided for the drainage stub to the site. The ALTA Survey for the site has been included in Appendix C.

2 DRAI A A I

A a or asin Description

The project is located within the FEMA Floodplain Panel 08013C0444J. This panel was not printed by FEMA. The FIRM Index notes this panel as having "*NO SPECIAL FLOOD HAZARD AREAS IDENTIFIED". Therefore the project is clear of any floodplain hazards. The project will discharge to a regional detention pond (Pond A1) west of the site and east of Mountain View Boulevard. This detention pond has a 100-year water surface elevation of 5228.94. The lowest elevation of the site is 5237.3 on the west side of the property. The pond is owned and maintained by the Vista Ridge Metro District. The existing site is not irrigated. Currently the proposed site is vacant. This project will develop the infrastructure for 144 multi-family residential homes and a rental office. Water quality for this project is provided in Pond A1.

ub asin Descriptions

<u>Basin A1-A9</u>

Basins A1-A9 are located along the southern portion of the property and currently is comprised of native grasses. In the developed condition, these basins will consist of multi-family roof drainage, landscaped open space areas sidewalks, and roadways. Open space drainage will be captured in area drains and roadways will be captured in inlets. 10' on-grade Type R inlets have been provided at the southwest corner of Ridge View Circle. A 5' Type R sump inlet has also been provided at the low point between Buildings 6 and 7. Additional 12" Nyloplast area drains will be provided in open space areas. The water will be conveyed in a storm drainage system (identified on Drainage Maps as Storm System 1) which will tie to a storm sewer stub south of Building 7. Basin A9 cannot be captured in the proposed onsite storm drainage system and will drain south to a drainage swale. All of basins A1-A9 will end up in Detention Pond A1. The area, imperviousness, minor event runoff and major event runoff are listed below:

asin	Area acres	I per iousness	2	100
A1	0.41	74	0.73	2.60
A2	0.09	100	0.27	0.78
A3	0.58	74	1.00	3.53
A4	0.13	71	0.22	0.82
A5	0.95	78	1.85	6.31
A6	0.26	76	0.48	1.67
A7	0.29	67	0.46	1.75
A8	0.17	57	0.22	0.95
A9	0.18	0	0.02	0.82

Basin B1-B23

The B1-B-23 basins are located along the northern and eastern portion of the property and currently are comprised of native grasses. In the developed condition, these basins will consist of multi-family roof drainage, landscaped open space areas sidewalks, and roadways. The building drainage will be collected in roof drains. Open space drainage will be captured in area drains and roadways will be captured in inlets. Type R inlets have been provided at the intersections of Ridge View Circle and Ridge View Drive. 5' Type R sump inlets are provided at low points between Buildings 2-3 and 26-29. A Type 13 inlet is provided at the low point between Buildings 22-26. Additional 12" Nyloplast area drains will be provided in open space areas. The water will be conveyed in a storm drainage system (identified on Drainage Maps as Storm System 2) which will discharge into the northeast corner of Detention Pond A1. Basins 22 and 23 cannot be captured in the proposed onsite storm drainage system and will drain north to the Ridge View Drive. The water will be conveyed in the gutter pan to the existing inlets in Ridge View Drive and to Pond A1. The area, imperviousness, minor event runoff and major event runoff are listed below:

asin	Area acres	I per iousness	2	100
B1	0.21	46	0.31	0.59
B2	0.31	63	0.43	0.65
B3	0.12	76	0.55	0.71
B4	0.31	64	0.44	0.65
B5	0.12	83	0.63	0.77
B6	0.31	63	0.43	0.65
B7	0.19	52	0.35	0.61
B8	0.55	74	0.53	0.70
B9	0.33	77	0.56	0.72
B10	0.13	72	0.51	0.69
B11	0.18	100	0.89	0.96
B12	0.26	72	0.51	0.69
B13	0.56	72	0.51	0.69
B14	0.19	87	0.68	0.80
B15	0.17	43	0.29	0.59
B16	0.14	100	0.89	0.96
B17	1.23	56	0.37	0.62
B18	0.27	80	0.59	0.74
B19	0.11	82	0.62	0.76
B20	0.13	71	0.50	0.68
B21	0.38	84	0.78	0.88
B22	0.09	17	0.15	0.55
B23	0.18	58	0.40	0.63

Basin C1-C2

Basin C1 consists of 0.43 acres and currently is comprised of native grasses. In the developed condition, this basin will consist of multi-family roof drainage landscaped open space. The imperviousness is anticipated to be 92% which results in Q_2=1.13 cfs and Q_{100}=3.40 cfs. The

building drainage will be collected in roof drains. Runoff from the private drive and alley will be captured by a 5' Type R sump inlet located between Buildings 6 and 7. The captured water is conveyed in a proposed storm sewer system (identified on Drainage Maps as Storm System 3) with will be connected to the existing storm sewer system which discharges to the southeast corner of Pond A1.

Basin C2 consists of 0.26 acres and currently is comprised of native grasses. In the developed condition, this basin will consist of landscaped open space. The imperviousness is anticipated to be 30% which results in Q_2=0.20 cfs and Q_{100}=1.34 cfs. This water cannot be capture in the proposed onsite storm drainage system and will drain west directly into Pond A1.

Basin OS1

Basin OS1 consists of 10.46 acres and currently is comprised of native grasses. This basin will ultimately be developed commercial area. In the interim, the imperviousness is anticipated to be 5% which results in Q_2=1.83 cfs and Q_{100}=32.94 cfs. This water will be captured in a swale and conveyed to ridge view drive.

Basin OS2

Basin OS2 consists of 8.48 acres and currently is comprised of native grasses. This basin will ultimately be developed commercial area. In the interim, the imperviousness is anticipated to be 5% which results in Q_2=1.42 cfs and Q_{100}=25.56 cfs. This water will be captured in a swale and conveyed to an existing Type 13 inlet and conveyed to Pond A1.

Basin OS3

Basin OS3 consists of 0.67 acres and is comprised of Ridge View Drive right-of-way. A 10' on-grade Type R inlet has been added to prevent offsite flow from entering the proposed drainage system. The imperviousness is 56% which results in Q_2=0.78 cfs and Q_{100}=3.4 cfs.

DRAI A D I CRIT RIA

A De e op ent Criteria Reference and Constraints

The site parcel is identified as Parcel 32 and 33 in the Vista Ridge Master Drainage Report. Since the master drainage report was completed, the property boundaries have been reconfigured to accommodate the Montex South Multi-Family Residential Development. To determine the anticipated allotted runoff from the proposed development, the Montex South boundary was overlaid onto the Parcel 32-33 Master Drainage Plan map. 98.6 percent of Basin A1H is located on the Montex South Site. The remaining 1.4 percent of the basin is located within the detention pond. The calculated runoff from basin A1H is 48.86 cfs. Therefore, 98.6 percent of 48.86 results in 48.17 cfs of anticipated runoff available for the Montex South Development.

Basin A1F is 3.27 acres. 67.6 percent of Basin A1F is within the Montex South Boundary. Using the same methodology as above results in 18.46 cfs of runoff available from Basin A1F for the Montex South Development.

Basin A1B has been reduced in size. 2.43 acres of Basin A1B will now be discharged to Pond A1. Therefore, the size of Pond A1A can be reduced in size. Pond A1A will be designed by the the master developer and is not part of this report.

The resulting anticipated discharge from Basin A1H and A1F for the Montex South Development is 66.63 cfs.

An existing storm sewer stub has been provided to the site near the proposed eastern site entrance at Ridge View Drive and Ridge View Circle. This stub was intended to be used for the future Pond A1A outlet structure and has not been sized to accommodate developed flow. This stub is currently under the proposed site improvements and will be extended east to avoid disruption to the Montex South Development when Pond A1A is constructed in the future.

Hydro ogica Criteria

Basin Runoff has been calculated using criteria from the Town of Erie *"STANDARDS AND SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS, 2014 Edition"* and Urban Drainage and Flood Control District (UDFCD). The design storm return periods for residential land use are 2-year for the initial storm and 100-year for the major storm. Imperviousness values were selected using Table 800-3. One-hour rainfall depths of 1.01 for the 2-year design storm and 2.70 for the 100-year design storm were used to calculate the intensities using Urban Drainage equation RA-3. Using the rational method, runoffs for each basin were determined. Time of concentrations were calculated using the UDFCD SF2 form. The hydrologic calculations are located in Appendix B.

C Hydrau ic Criteria

Detention and water quality for the site is provided in Pond A1. The maximum allowable runoff from the project may not exceed 66.6 cfs as outlined in section 3A above. During the 2-year event, the depth of flow for local roads may not overtop the curb and may extend to the crown of the road. Residential buildings are required to be no less than 12-inches above the 100-year water surface elevation and the water depth may not exceed 18-inches at the gutter flowline. The storm drainage system will be designed to convey the 100-year storm event.

D Adaptations fro Criteria

No adaptions are requested at this time.

4 DRAI A FACI IT D I

A enera Concept

The site has been graded with a high point at the southeast corner of the site. The roadway has been graded to allow water to be conveyed to Ridge View Drive should any inlets become plugged.

The proposed drainage system is made up of 3 separate storm sewer systems. The first system captures the 100-year runoff from the A designated basins along the southern end of the site. This system will tie to an existing Type 13 inlet which discharges to Pond A1. The existing

storm sewer system was sized to allow for 27.32 cfs from Basin A1F in the master drainage report of which 18.46 cfs can be contributed from Montex South.

The second storm sewer system runs along the north portion of the site and captures basins which are designated with a B. This system will capture and convey the 100-year storm event and discharge to the northeast corner of Pond A1.

The third storm sewer system picks up a Type R sump inlet between Building 6 and 7. This system will connect to the stub location provided for the site in the master drainage report near the southwest corner of Pond A1 and can accommodate the 100-year storm event.

The discharge from storm sewer system 1 (A Basins) cannot exceed 18.46 cfs allotted from the basin A1F in the master drainage study. The combined discharge from storm sewer system 2 (B Basins) and storm sewer system 3 (C Basins) will not exceed 48.17 cfs which was allotted from basin A1H in the master drainage study.

All downspouts will be captured in a pipe and swales have been provided between the buildings to convey open space drainage to 12” Nyloplast area inlets located throughout the site. The buildings have been grading with a minimum grade of 10% away from the building for 10’ (5’ where 10’ could not be achieved). The swales have been graded with a minimum slope of 2%. Should the area drain inlets become plugged, emergency overflow paths have been provided to ensure the buildings are not flooded.

Offsite swales will be provided to divert drainage from Basin OS1 and OS2 around the Montex South Site. A 4 foot bottom, 4:1 side slopes and a depth of 1.0’ will accommodate flow from Basin OS1 at a slope of 1% (Ridge View Circle eastern roadway slope). A 4 foot bottom, 4:1 side slopes and a depth of 1.0’ will accommodate flow from Basin OS2 at a slope of 2% (Ridge View Circle southern roadway slope). Calculations are provided in Appendix B.

pecific Detai s

The inlet and street capacities were sized using Urban Drainage and Flood Control District Street Capacity and Inlet Sizing spreadsheet. Types R on-grade and sump inlets are provided to capture runoff and maintain street capacities during the initial and major storm. The inlets have been spaced to meet the Town of Erie Design Criteria. Due to the roadway cross section, the water depth has been limited to 9-inches during a major event. 10’ on-grade Type R inlets have been provided at the west intersection of Ridge View Drive and Ridge View Circle. 5’ sump Type R inlets have been provided at the east intersection of Ridge View Drive and Ridge View Circle. Additional 10’ on-grade Type R inlets have been provided at the southwest corner of the site near Building 32. 12” area drain sump inlets with a minimum sump depth of 0.5’ have been provided throughout the site to capture additional runoff. According to the Nyloplast 12" Standard Grate Inlet Capacity Chart, the 12” area drain inlet in a sump with a ponding depth of 0.5’ has a capacity of 1.4 cfs. Several of these area drains are provided in each open space drainage basin which can easily accommodate the major storm basin flow. The UDFCD street capacity and inlet sizing spreadsheet results for the Type R inlets have been provided in Appendix B. A capacity chart for the 12” Nyloplast area drain inlets has also been provided.

The storm sewer system has been sized for the 100-year storm event using the AutoCAD Civil 3D Hydraflow Storm Sewer Extension which uses the Rational Method and intensity duration frequency curves to calculate flow and design the appropriate pipe sizes and calculate the hydraulic grade lines.

The peak runoff from Storm Sewer System 1 (Basin A) is 14.70 cfs at design point 6. Combining this flow with the runoff from Basin A9 (0.82 cfs), which is not captured in the storm sewer system, results in a peak Basin A runoff of 15.52 cfs. This is less than the 18.46 cfs allowed for Montex South contributing area of master drainage basin A1F.

Storm Sewer System 2 (Basin B) peak discharge at design point 23 is 29.76 cfs. Storm Sewer System 3 (Basin C) peak discharge at design point 24 is 3.47 cfs. Basin B22 (2.64 cfs), Basin B23 (1.03 cfs) and Basin C2 (1.34 cfs) are not captured in the storm sewer system. Adding the design points 23, 24, Basin B22, B23, and C2 results in a total discharge of 38.24 cfs. This discharge is less than the 48.17 cfs which is allowed for the Montex South contributing area master drainage basin A1H. Therefore, the site discharge is in line with the runoff allowed for the Pond A1 design in the master drainage report.

The storm sewer pipes have been sized for the 100-year event using manning's equation assuming a coefficient of 0.13 for RCP pipe. Flow and HGEL calculation sheets are provided in Appendix B.

Blanket drainage easements have been provided on the site.

AR

The proposed Montex South Multi-Family Residential Development will fall within the drainage guidelines outlined in the Town of Erie Standards and Specification as well as the previous drainage studies. The proposed development will construct a storm sewer system to convey the 100-year runoff to the existing Pond A1 detention facility. No adverse impacts are anticipated to the existing detention facilities.

R F R C

TA DARD A D P CIFICATIO FOR D I A D CO TR CTIO OF P IC I PRO T, Town of Erie, Colorado, 2014 Edition.

R A TOR DRAI A CRIT RIA A A , O 1, 2, UDFCD, Denver, Colorado, Revised April 2008.

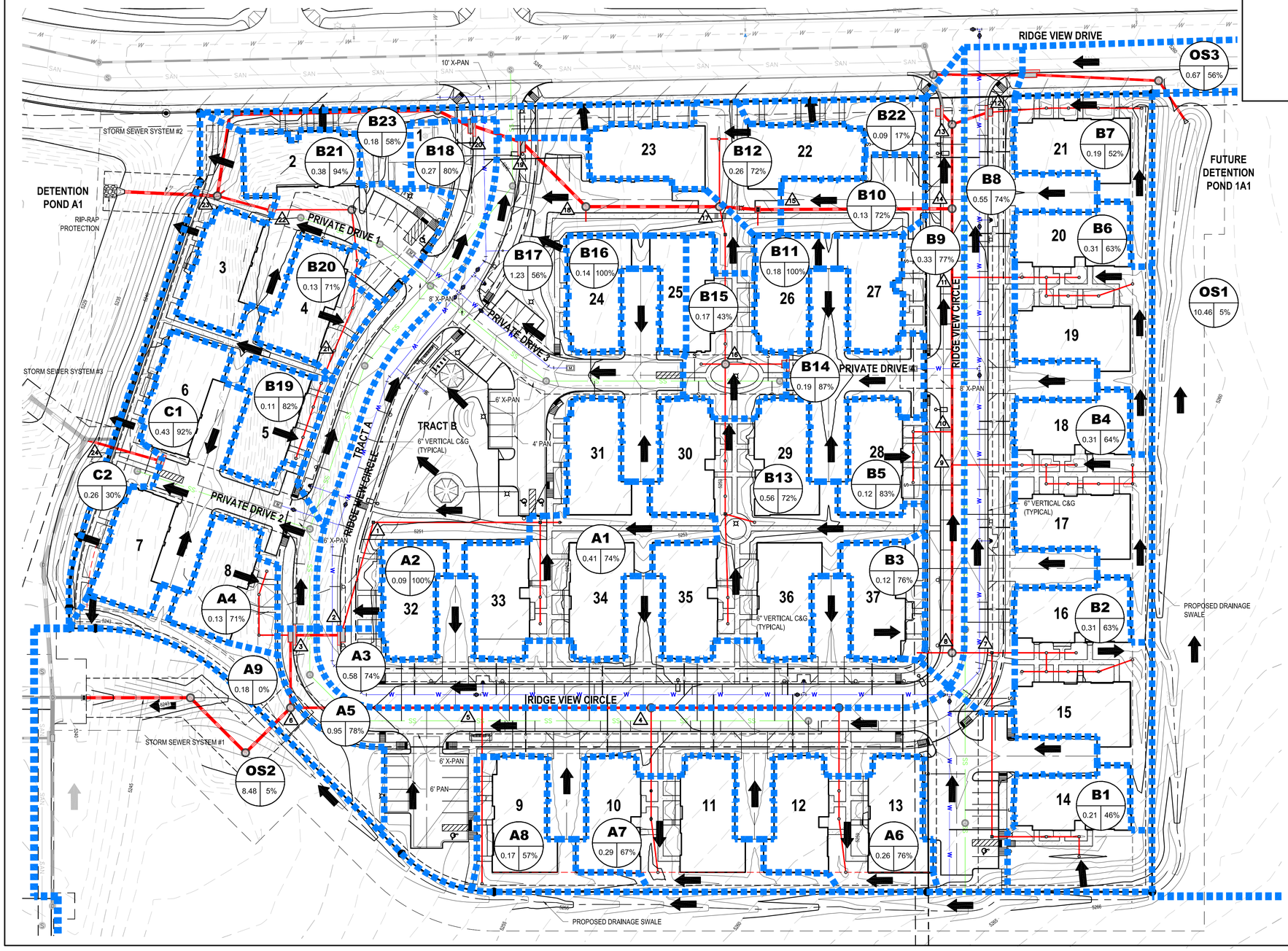
DRAI A R PORT, I TA RID PARC 2, Hurst and Associates, Inc, Revised September 23, 2008.

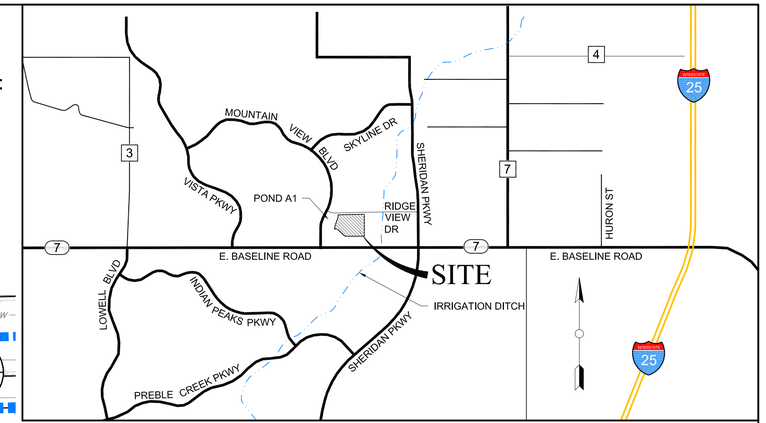
APP DI A

Drainage Map

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.196 ACRES - 37 LOTS / 5 TRACTS
SP-14-00048





GENERAL LOCATION MAP

SCALE 1"=2000'

LEGEND

- PROPOSED CONDITION DRAINAGE BOUNDARY
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING STORM DRAIN SYSTEM
- PROPOSED STORM DRAIN SYSTEM
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- XX — BASIN IDENTIFICATION; XX.X — IMPERVIOUSNESS; XX% — AREA (ACRES)

DESIGN POINT SUMMARY TABLE

DESIGN POINT	Q_5 (CFS)	Q_{100} (CFS)
1	0.84	3.33
2	1.63	6.82
3	3.19	13.56
4	0.58	2.97
5	0.64	3.62
6	2.61	14.70
7	0.40	2.69
8	0.53	3.38
9	0.70	4.78
10	0.82	5.46
11	1.00	6.85
12	0.89	4.16
13	1.32	6.07
14	1.86	12.33
15	2.13	14.02
16	1.38	5.77
17	3.02	19.89
18	3.15	20.66
19	3.78	25.45
20	4.00	26.77
21	0.36	1.50
22	0.96	4.12
23	4.47	29.76
24	1.11	3.47

BASIN RUNOFF SUMMARY TABLE

BASIN	AREA (AC)	Q_5 (CFS)	Q_{100} (CFS)
A1	0.41	0.73	2.60
A2	0.09	0.27	0.78
A3	0.58	1.00	3.53
A4	0.13	0.22	0.82
A5	0.95	1.85	6.31
A6	0.26	0.48	1.67
A7	0.29	0.46	1.75
A8	0.17	0.22	0.95
A9	0.18	0.02	0.82
B1	0.21	0.23	1.15
B2	0.31	0.45	1.81
B3	0.12	0.23	0.80
B4	0.31	0.46	1.82
B5	0.12	0.25	0.81
B6	0.31	0.45	1.81
B7	0.19	0.22	1.03
B8	0.55	0.88	3.12
B9	0.33	0.59	2.03
B10	0.13	0.22	0.81

BASIN RUNOFF SUMMARY TABLE (CONT.)

BASIN	AREA (AC)	Q_5 (CFS)	Q_{100} (CFS)
B11	0.18	0.56	1.61
B12	0.26	0.46	1.65
B13	0.56	0.98	3.53
B14	0.19	0.44	1.37
B15	0.17	0.17	0.89
B16	0.14	0.43	1.24
B17	1.23	1.19	5.26
B18	0.27	0.55	1.83
B19	0.11	0.24	0.79
B20	0.13	0.22	0.82
B21	0.38	1.03	3.08
B22	0.09	0.05	0.47
B23	0.18	0.24	1.03
C1	0.43	1.13	3.40
C2	0.26	0.20	1.34
OS1	10.46	1.83	32.94
OS2	8.48	1.42	25.56
OS3	0.67	0.78	3.40

MONTEX SOUTH AT VISTA RIDGE PHASE 2 DRAINAGE MAP

APPLICANT:
CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
303-545-2554

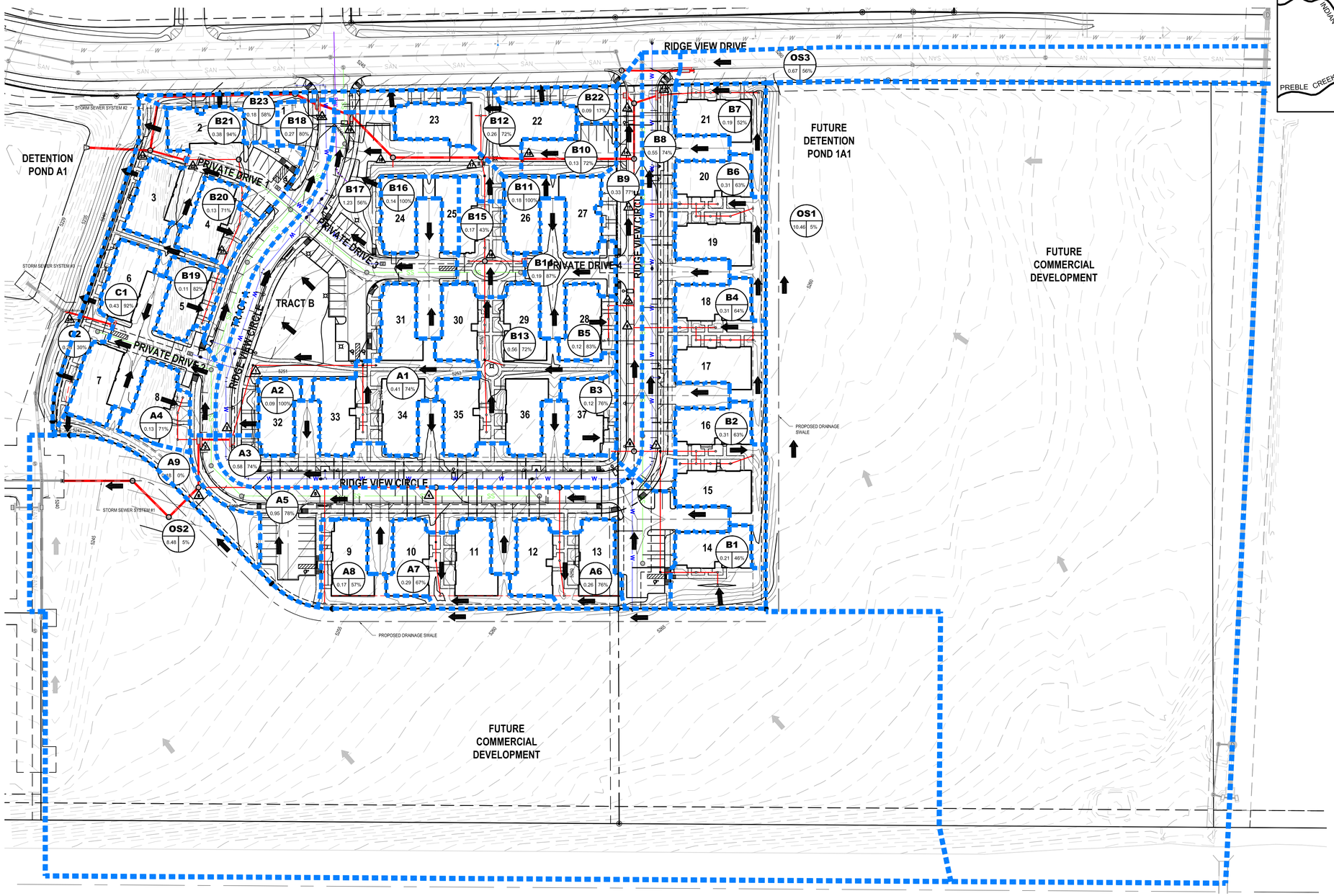
ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

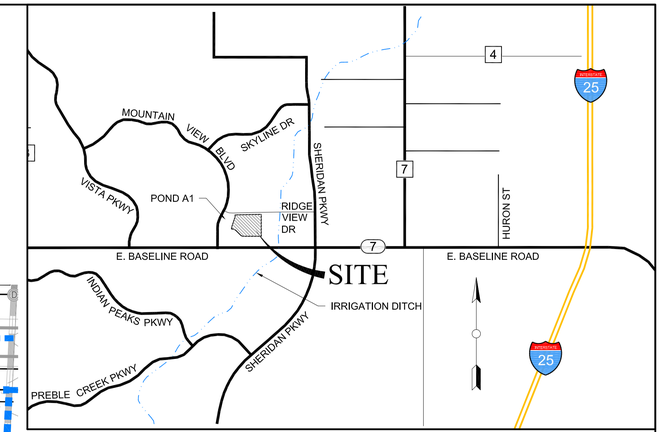
SCALE: 1"=40'

DRAWN BY: SM
APRVD BY: SM
DATE: 12/5/2014
REVISED: 6/23/2015

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.196 ACRES - 37 LOTS / 5 TRACTS
SP-14-00048





GENERAL LOCATION MAP

SCALE 1"=2000'

LEGEND

- PROPOSED CONDITION DRAINAGE BOUNDARY
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING STORM DRAIN SYSTEM
- PROPOSED STORM DRAIN SYSTEM
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- XX — BASIN IDENTIFICATION; XX.X — IMPERVIOUSNESS; XX% — AREA (ACRES)

MONTEX SOUTH AT VISTA RIDGE
PHASE 2 OVERALL DRAINAGE MAP

N

0' 30' 60' 120'
SCALE: 1"=60'

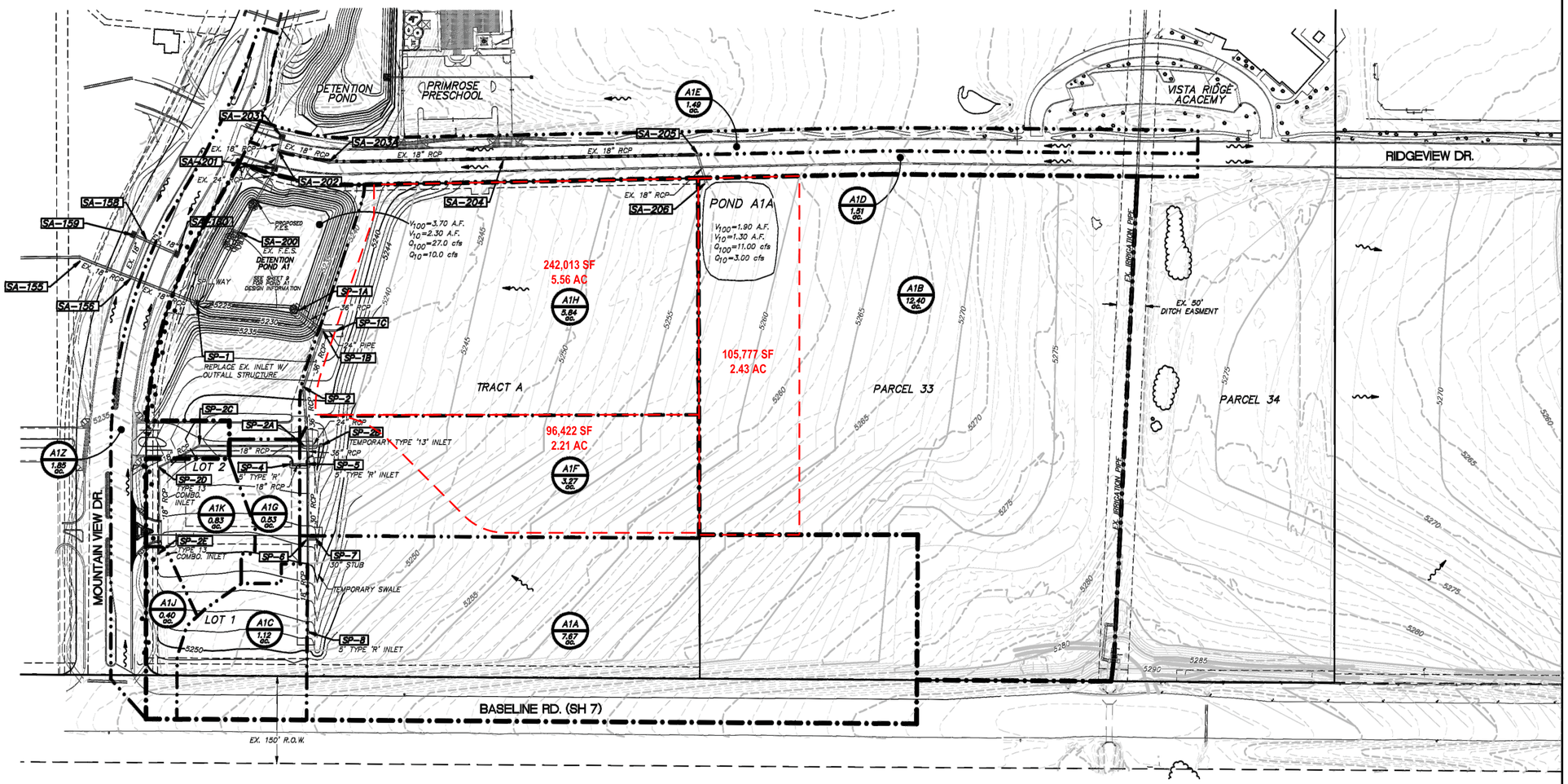
APPLICANT:
CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
303-545-2554

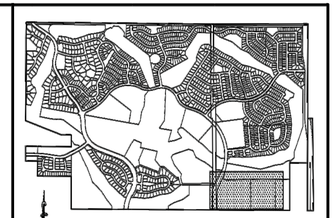
ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

DRAWN BY:	SM
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	6/23/2015

Basin	Total Area (acres)	Design Flow Q_5 (cfs)	Q_{10} (cfs)	Q_{100} (cfs)
A1A	7.67	33.36	40.49	63.81
A1B	12.40	45.37	56.13	90.21
A1C	1.12	4.87	5.92	9.37
A1D	1.51	3.59	4.67	8.19
A1E	1.49	3.58	4.65	8.11
A1F	3.27	14.21	17.24	27.32
A1G	0.53	2.32	2.82	4.46
A1H	5.84	25.41	30.84	48.86
A1J	0.40	1.73	2.10	3.33
A1K	0.83	3.60	4.37	6.93
A1Z	1.85	5.20	6.72	11.43

Design Point	5-Yr. Design Flow (cfs)
SP-1A	79.51
SP-2A	57.69
SP-2C	5.33
SP-5	39.47
SP-6	38.23





VICINITY MAP
SCALE: 1"=2000'

LEGEND

- Manhole
- Existing Manhole
- 5' Type 'R' Inlet
- 10' Type 'R' Inlet
- 15' Type 'R' Inlet
- Flared End Section
- Storm Pipe
- Existing Storm Pipe
- Existing Contours
- Proposed Contours
- Future Contours
- Master Basin Boundary
- Basin Boundary
- Flow Arrow
- S-28 Structure Number
- A1C 8.61 ac. Basin Designation

NOTE: ALL INLETS ARE 5' TYPE 'R' UNLESS OTHERWISE NOTED.

Note: All proposed storm sewer is privately owned and maintained.

GRAPHIC SCALE
100 0 50 100
(IN FEET)
1 inch = 100 ft.

72 HOURS BEFORE YOU DIG
CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (U.N.C.C.)
811
GAS, ELECTRIC, TELEPHONE, CATV AND PANHANDLE EASTERN PIPELINE LOCATIONS

LAST REVISED: 01/26/2009

VISTA RIDGE

MASTER DRAINAGE PLAN
PARCEL 32 – 33

SCALE HOR. 1"=100' VERT. N/A
DESIGN/APPR. TA
DRAWN BY DH
DATE 9/17/08

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
4099 Pearl East Circle, Suite 106
Boulder, Colorado 80301 (303) 449-8085

FILE G:\21423\PARCEL 32\CONST P32\4-P32-MD SHEET 4 of 17

APP DI

Calculations

Master Study Allowable Runoff					
Basin	**Basin Area (acres)**	**Montex South Contribution Area (acres)**	**% of Basin**	**Master Study Q_{100} (cfs)**	**Montex Allowable Runoff Q_{100} to Ponds* (cfs)**
A1B	12.40	2.43	19.6%	90.21	**17.68**
A1F	3.27	2.21	67.6%	27.32	**18.46**
A1H	5.64	5.56	98.6%	48.86	**48.17**

* Basin A1F & A1H discharge to Pond A1. A total of 66.63 cfs is allowed to discharge to Pond A1 from the Montex South Site. The entire Montex South Site drains to Pond A1, therefore, runoff to A1A from Basin A1B has been reduced by approximately 17.68 cfs.

CALCULATED BY: SCM
DATE: 18-Jun-15

onte out at ista Ridge
Proposed Conditions I per iousness Ca cu ations

Basin ID	Total Basin Area (sf)	Pervious Area (sf)	Imp. Area (sf)	Imperviousness (%)
A1	17,671	4,636	13,035	**74%**
A2	3,856	0	3,856	**100%**
A3	25,096	6,510	18,586	**74%**
A4	5,729	1,679	4,050	**71%**
A5	41,340	9,204	32,136	**78%**
A6	11,186	2,729	8,457	**76%**
A7	12,540	4,082	8,458	**67%**
A8	7,296	3,133	4,163	**57%**
A9	7,814	7,814	0	**0%**
B1	9,181	4,951	4,230	**46%**
B2	13,323	4,911	8,412	**63%**
B3	5,361	1,312	4,049	**76%**
B4	13,323	4,810	8,513	**64%**
B5	5,019	857	4,162	**83%**
B6	13,323	4,911	8,412	**63%**
B7	8,096	3,880	4,216	**52%**
B8	23,890	6,200	17,690	**74%**
B9	14,470	3,379	11,091	**77%**
B10	5,550	1,540	4,010	**72%**
B11	8,027	0	8,027	**100%**
B12	11,369	3,175	8,194	**72%**
B13	24,294	6,711	17,583	**72%**
B14	8,148	1,075	7,073	**87%**
B15	7,236	4,151	3,085	**43%**
B16	6,184	0	6,184	**100%**
B17	53,675	23,843	29,832	**56%**
B18	11,745	2,366	9,379	**80%**
B19	4,942	904	4,038	**82%**
B20	5,742	1,688	4,054	**71%**
B21	16,754	1,056	15,698	**94%**
B22	4,129	3,445	684	**17%**
B23	7,820	3,249	4,571	**58%**
C1	18,808	1,424	17,384	**92%**

CALCULATED BY: SCM
DATE: 18-Jun-15

onte out at ista Ridge
Proposed Conditions I per iousness Ca cu ations

Basin ID	**Total Basin Area (sf)**	**Pervious Area (sf)**	**Imp. Area (sf)**	**Imperviousness (%)**
C2	11,220	7,846	3,374	**30%**
OS1	455,444			**5%**
OS2	369,348			**5%**
OS3	29,330	12,786	16,544	**56%**

Total Onsite Imperviousness (%) = ***69%***

TA DARD FOR F 2
TI OF CO C TRATIO

CA C AT D : C
DAT : 1 un 1
CH C D :

PRO CT: onte out at ista Ridge
O R:

SUB-BASIN DATA					INITIAL/OVERLAND TIME (T_i)			TRAVEL TIME (T_t)					Tc CHECK (URBANIZED BASINS)			FINAL T_c	REMARKS							
DESIGN: (1)	AREA SF	AREA IMP. SF	AREA Ac (2)	C_5 (3)	LENGTH Ft (4)	SLOPE % (5)	T_i (6)	LENGTH Ft (7)	SLOPE % (8)	C_V (9)	VEL. FPS (10)	T_t (11)	COMP. T_c (12)	TOTAL LENGTH (13)	T_c=(L/180)+10 MIN (14)	MIN (15)		C_2	C_5	C_{100}	K_2	K_5	K_{100}	Imperv. %
A1	17,671	13,035	0.41	0.56									5.0	0	10.0	5.0		0.53	0.56	0.70	0.00	0.04	0.17	74%
A2	3,856	3,856	0.09	0.90									5.0	0	10.0	5.0		0.89	0.90	0.96	0.00	0.01	0.07	100%
A3	25,096	18,586	0.58	0.57	18	2.0%	3.3	453	2.0%	20.0	2.8	2.7	6.0	471	12.6	6.0		0.53	0.57	0.70	0.00	0.04	0.17	74%
A4	5,729	4,050	0.13	0.54									5.0	0	10.0	5.0		0.50	0.54	0.68	0.00	0.04	0.18	71%
A5	41,340	32,136	0.95	0.60									5.0	0	10.0	5.0		0.57	0.60	0.73	0.00	0.03	0.16	78%
A6	11,186	8,457	0.26	0.58	14	25.0%	1.2	654	2.0%	20.0	2.8	3.9	5.1	668	13.7	5.1		0.55	0.58	0.71	0.00	0.03	0.17	76%
A7	12,540	8,458	0.29	0.51									5.0	0	10.0	5.0		0.47	0.51	0.66	0.00	0.04	0.20	67%
A8	7,296	4,163	0.17	0.44									5.0	0	10.0	5.0		0.39	0.44	0.62	0.00	0.05	0.24	57%
A9	7,814	0	0.18	0.15									5.0	0	10.0	5.0		0.04	0.15	0.50	0.00	0.11	0.46	0%
B1	9,181	4,230	0.21	0.38									5.0	0	10.0	5.0		0.31	0.38	0.59	0.00	0.06	0.28	46%
B2	13,323	8,412	0.31	0.48									5.0	0	10.0	5.0		0.43	0.48	0.65	0.00	0.05	0.21	63%
B3	5,361	4,049	0.12	0.58									5.0	0	10.0	5.0		0.55	0.58	0.71	0.00	0.03	0.17	76%
B4	13,323	8,513	0.31	0.48									5.0	0	10.0	5.0		0.44	0.48	0.65	0.00	0.05	0.21	64%
B5	5,019	4,162	0.12	0.66									5.0	0	10.0	5.0		0.63	0.66	0.77	0.00	0.03	0.14	83%
B6	13,323	8,412	0.31	0.48									5.0	0	10.0	5.0		0.43	0.48	0.65	0.00	0.05	0.21	63%
B7	8,096	4,216	0.19	0.41									5.0	0	10.0	5.0		0.35	0.41	0.61	0.00	0.06	0.26	52%
B8	23,890	17,690	0.55	0.57	33	3.2%	3.8	442	1.0%	20.0	2.0	3.7	7.5	475	12.6	7.5		0.53	0.57	0.70	0.00	0.04	0.17	74%
B9	14,470	11,091	0.33	0.59	31	4.5%	3.1	400	1.0%	20.0	2.0	3.3	6.5	431	12.4	6.5		0.56	0.59	0.72	0.00	0.03	0.16	77%
B10	5,550	4,010	0.13	0.55									5.0	0	10.0	5.0		0.51	0.55	0.69	0.00	0.04	0.18	72%
B11	8,027	8,027	0.18	0.90									5.0	0	10.0	5.0		0.89	0.90	0.96	0.00	0.01	0.07	100%
B12	11,369	8,194	0.26	0.55									5.0	0	10.0	5.0		0.51	0.55	0.69	0.00	0.04	0.18	72%
B13	24,294	17,583	0.56	0.55									5.0	0	10.0	5.0		0.51	0.55	0.69	0.00	0.04	0.18	72%
B14	8,148	7,073	0.19	0.70									5.0	0	10.0	5.0		0.68	0.70	0.80	0.00	0.02	0.12	87%
B15	7,236	3,085	0.17	0.36									5.0	0	10.0	5.0		0.29	0.36	0.59	0.00	0.07	0.29	43%
B16	6,184	6,184	0.14	0.90									5.0	0	10.0	5.0		0.89	0.90	0.96	0.00	0.01	0.07	100%
B17	53,675	29,832	1.23	0.43	106	2.5%	9.3	260	1.0%	20.0	2.0	2.2	11.5	366	12.0	11.5		0.37	0.43	0.62	0.00	0.05	0.24	56%
B18	11,745	9,379	0.27	0.62	11	2.0%	2.3	315	1.0%	20.0	2.0	2.6	5.0	326	11.8	5.0		0.59	0.62	0.74	0.00	0.03	0.15	80%
B19	4,942	4,038	0.11	0.64									5.0	0	10.0	5.0		0.62	0.64	0.76	0.00	0.03	0.14	82%
B20	5,742	4,054	0.13	0.54									5.0	0	10.0	5.0		0.50	0.54	0.68	0.00	0.04	0.18	71%
B21	16,754	15,698	0.38	0.80									5.0	0	10.0	5.0		0.78	0.80	0.88	0.00	0.02	0.09	94%
B22	4,129	684	0.09	0.24									5.0	0	10.0	5.0		0.15	0.24	0.55	0.00	0.09	0.40	17%
B23	7,820	4,571	0.18	0.45									5.0	0	10.0	5.0		0.40	0.45	0.63	0.00	0.05	0.23	58%
C1	18,808	17,384	0.43	0.78									5.0	0	10.0	5.0		0.76	0.78	0.86	0.00	0.02	0.10	92%
C2	11,220	3,374	0.26	0.30									5.0	0	10.0	5.0		0.23	0.30	0.57	0.00	0.08	0.34	30%
OS1	455,444	0	10.46	0.18	300	2.9%	20.4	638	2.9%	5.0	0.9	12.5	32.9	938	15.2	15.2		0.08	0.18	0.52	0.00	0.11	0.44	5%
OS2	369,348	0	8.48	0.18	300	4.0%	18.3	900	4.0%	5.0	1.0	15.0	33.3	1200	16.7	16.7		0.08	0.18	0.52	0.00	0.11	0.44	5%
OS3	29,330	16,544	0.67	0.43	18	2.0%	4.1	707	3.1%	20.0	3.5	3.3	7.5	725	14.0	7.5		0.38	0.43	0.62	0.00	0.05	0.24	56%

TA DARD FOR F
TOR DRAI A T D I
RATIO A THOD PROC D R

CALCULATED BY: SCM
DATE: 18-Jun-15
CHECKED BY: JMM

P_1 1 01

PROJECT: onte out at ista Ridge
JOB NUMBER:
DESIGN STORM: 2-Year

STREET	DIRECT RUNOFF								TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
	DESIGN POINT	AREA DESIG.	AREA (Ac)	RUNOFF COEFF.	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Flow (cfs)	Flow (cfs)	Slope (%)	Size (in)	Length (ft)	Velocity (fps)	tt (min)	
		A1	0.41	0.53	5.0	0.21	3.43	0.73													
		A2	0.09	0.89	5.0	0.08	3.43	0.27													
		A3	0.58	0.53	6.0	0.31	3.26	1.00													
		A4	0.13	0.50	5.0	0.07	3.43	0.22													
		A5	0.95	0.57	5.0	0.54	3.43	1.85													
		A6	0.26	0.55	5.1	0.14	3.41	0.48													
		A7	0.29	0.47	5.0	0.13	3.43	0.46													
		A8	0.17	0.39	5.0	0.06	3.43	0.22													
		A9	0.18	0.04	5.0	0.01	3.43	0.02													
		B1	0.21	0.31	5.0	0.07	3.43	0.23													
		B2	0.31	0.43	5.0	0.13	3.43	0.45													
		B3	0.12	0.55	5.0	0.07	3.43	0.23													
		B4	0.31	0.44	5.0	0.13	3.43	0.46													
		B5	0.12	0.63	5.0	0.07	3.43	0.25													
		B6	0.31	0.43	5.0	0.13	3.43	0.45													
		B7	0.19	0.35	5.0	0.07	3.43	0.22													
		B8	0.55	0.53	7.5	0.29	3.04	0.88													
		B9	0.33	0.56	6.5	0.19	3.18	0.59													
		B10	0.13	0.51	5.0	0.07	3.43	0.22													
		B11	0.18	0.89	5.0	0.16	3.43	0.56													
		B12	0.26	0.51	5.0	0.13	3.43	0.46													
		B13	0.56	0.51	5.0	0.29	3.43	0.98													
		B14	0.19	0.68	5.0	0.13	3.43	0.44													
		B15	0.17	0.29	5.0	0.05	3.43	0.17													
		B16	0.14	0.89	5.0	0.13	3.43	0.43													
		B17	1.23	0.37	11.5	0.46	2.58	1.19													
		B18	0.27	0.59	5.0	0.16	3.43	0.55													
		B19	0.11	0.62	5.0	0.07	3.43	0.24													

TA DARD FOR F
TOR DRAI A T D I
RATIO A THOD PROC D R

CALCULATED BY: SCM
DATE: 18-Jun-15
CHECKED BY: JMM

P_1 1 01

PROJECT: onte out at ista Ridge
JOB NUMBER:
DESIGN STORM: 2-Year

STREET	DIRECT RUNOFF								TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
	DESIGN POINT	AREA DESIG.	AREA (Ac)	RUNOFF COEFF.	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Flow (cfs)	Flow (cfs)	Slope (%)	Size (in)	Length (ft)	Velocity (fps)	tt (min)	
		B20	0.13	0.50	5.0	0.07	3.43	0.22													
		B21	0.38	0.78	5.0	0.30	3.43	1.03													
		B22	0.09	0.15	5.0	0.01	3.43	0.05													
		B23	0.18	0.40	5.0	0.07	3.43	0.24													
		C1	0.43	0.76	5.0	0.33	3.43	1.13													
		C2	0.26	0.23	5.0	0.06	3.43	0.20													
		OS1	10.46	0.08	15.2	0.80	2.28	1.83													
		OS2	8.48	0.08	16.7	0.65	2.18	1.42													
		OS3	0.67	0.38	7.5	0.26	3.04	0.78													

TA DARD FOR F
TOR DRAI A T D I
RATIO A THOD PROC D R

CALCULATED BY: SCM
DATE: 18-Jun-15
CHECKED BY: JMM

P_1 2 0

PROJECT: onte out at ista Ridge
JOB NUMBER:
DESIGN STORM: 100-Year

STREET	DIRECT RUNOFF								TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
	DESIGN POINT	AREA DESIG.	AREA (Ac)	RUNOFF COEFF.	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Flow (cfs)	Flow (cfs)	Slope (%)	Size (in)	Length (ft)	Velocity (fps)	tt (min)	
		A1	0.41	0.70	5.0	0.28	9.16	2.60													
		A2	0.09	0.96	5.0	0.08	9.16	0.78													
		A3	0.58	0.70	6.0	0.40	8.72	3.53													
		A4	0.13	0.68	5.0	0.09	9.16	0.82													
		A5	0.95	0.73	5.0	0.69	9.16	6.31													
		A6	0.26	0.71	5.1	0.18	9.12	1.67													
		A7	0.29	0.66	5.0	0.19	9.16	1.75													
		A8	0.17	0.62	5.0	0.10	9.16	0.95													
		A9	0.18	0.50	5.0	0.09	9.16	0.82													
		B1	0.21	0.59	5.0	0.13	9.16	1.15													
		B2	0.31	0.65	5.0	0.20	9.16	1.81													
		B3	0.12	0.71	5.0	0.09	9.16	0.80													
		B4	0.31	0.65	5.0	0.20	9.16	1.82													
		B5	0.12	0.77	5.0	0.09	9.16	0.81													
		B6	0.31	0.65	5.0	0.20	9.16	1.81													
		B7	0.19	0.61	5.0	0.11	9.16	1.03													
		B8	0.55	0.70	7.5	0.38	8.12	3.12													
		B9	0.33	0.72	6.5	0.24	8.51	2.03													
		B10	0.13	0.69	5.0	0.09	9.16	0.81													
		B11	0.18	0.96	5.0	0.18	9.16	1.61													
		B12	0.26	0.69	5.0	0.18	9.16	1.65													
		B13	0.56	0.69	5.0	0.39	9.16	3.53													
		B14	0.19	0.80	5.0	0.15	9.16	1.37													
		B15	0.17	0.59	5.0	0.10	9.16	0.89													
		B16	0.14	0.96	5.0	0.14	9.16	1.24													
		B17	1.23	0.62	11.5	0.76	6.90	5.26													
		B18	0.27	0.74	5.0	0.20	9.16	1.83													
		B19	0.11	0.76	5.0	0.09	9.16	0.79													

TA DARD FOR F
TOR DRAI A T D I
RATIO A THOD PROC D R

CALCULATED BY: SCM
DATE: 18-Jun-15
CHECKED BY: JMM

P_1 2 0

PROJECT: onte out at ista Ridge
JOB NUMBER:
DESIGN STORM: 100-Year

STREET	DIRECT RUNOFF								TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
	DESIGN POINT	AREA DESIG.	AREA (Ac)	RUNOFF COEFF.	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	tc (min)	CA (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Flow (cfs)	Flow (cfs)	Slope (%)	Size (in)	Length (ft)	Velocity (fps)	tt (min)	
		B20	0.13	0.68	5.0	0.09	9.16	0.82													
		B21	0.38	0.88	5.0	0.34	9.16	3.08													
		B22	0.09	0.55	5.0	0.05	9.16	0.47													
		B23	0.18	0.63	5.0	0.11	9.16	1.03													
		C1	0.43	0.86	5.0	0.37	9.16	3.40													
		C2	0.26	0.57	5.0	0.15	9.16	1.34													
		OS1	10.46	0.52	15.2	5.41	6.09	32.94													
		OS2	8.48	0.52	16.7	4.39	5.83	25.56													
		OS3	0.67	0.62	7.5	0.42	8.13	3.40													

Inlet Capcity Check

Basin A3

Q_2 =	1.0	cfs
Q_{100} =	3.5	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.0	cfs
Q_2 (Total)=	1.0	cfs
Q_{100} (Total)=	3.5	cfs
Carryover from other Basins:	N/A	
Inlet Type:	10' Type R	
Sump Depth:	On grade (1.0%)	
Capacity Per UDFCD Inlet Spreadsheet:	3.5	cfs
Carryover (2-yr):	0.0	cfs
Carryover (100-yr):	0.0	cfs

Basin A5

Q_2 =	1.9	cfs	
Q_{100} =	6.3	cfs	
Q_2 (Carryover)=	0.0	cfs	
Q_{100} (Carryover)=	0.0	cfs	
Q_2 (Total)=	1.9	cfs	
Q_{100} (Total)=	6.3	cfs	
Carryover from other Basins:	N/A		
Inlet Type:	10' Type R		
Sump Depth:	On grade (1.0%)		
Capacity Per UDFCD Inlet Spreadsheet:	5.5	cfs	
Carryover (2-yr):	0.0	cfs	
Carryover (100-yr):	**0.8**	**cfs**	**to Basin C1**

Basin B8

Q_2 =	0.9	cfs
Q_{100} =	3.1	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.0	cfs
Q_2 (Total)=	0.9	cfs
Q_{100} (Total)=	3.1	cfs
Carryover from other Basins:	N/A	
Inlet Type:	5' Type R	
Sump Depth:	5"	
Capacity Per UDFCD Inlet Spreadsheet:	3.3	cfs
Carryover (2-yr):	0.0	cfs
Carryover (100-yr):	0.0	cfs

Basin B9

Q_2 =	0.6	cfs
Q_{100} =	2.0	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.0	cfs
Q_2 (Total)=	0.6	cfs
Q_{100} (Total)=	2.0	cfs
Carryover from other Basins:	N/A	
Inlet Type:	5' Type R	
Sump Depth:	5"	
Capacity Per UDFCD Inlet Spreadsheet:	3.3	cfs
Carryover (2-yr):	0.0	cfs
Carryover (100-yr):	0.0	cfs

Basin B10

Q_2 =	0.2	cfs
Q_{100} =	0.8	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.0	cfs
Q_2 (Total)=	0.2	cfs
Q_{100} (Total)=	0.8	cfs
Carryover from other Basins:	N/A	
Inlet Type:	Type 13 Combination	
Sump Depth:	6"	
Capacity Per UDFCD Inlet Spreadsheet:	3.5	cfs
Carryover (2-yr):	0.0	cfs
Carryover (100-yr):	0.0	cfs

Basin B17

Q_2 =	1.2	cfs	
Q_{100} =	5.3	cfs	
Q_2 (Carryover)=	0.0	cfs	
Q_{100} (Carryover)=	0.0	cfs	
Q_2 (Total)=	1.2	cfs	
Q_{100} (Total)=	5.3	cfs	
Carryover from other Basins:	N/A		
Inlet Type:	10' Type R		
Sump Depth:	On grade (1.3%)		
Capacity Per UDFCD Inlet Spreadsheet:	4.9	cfs	
Carryover (2-yr):	0.0		
Carryover (100-yr):	**0.4**	**cfs**	**To Ridge View Drive**

Basin B18

Q_2 =	0.6	cfs
Q_{100} =	1.8	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.0	cfs
Q_2 (Total)=	0.6	cfs
Q_{100} (Total)=	1.8	cfs
Carryover from other Basins:	N/A	
Inlet Type:	10' Type R	
Sump Depth:	On grade (3.6%)	
Capacity Per UDFCD Inlet Spreadsheet:	1.8	cfs
Carryover (2-yr):	0.0	
Carryover (100-yr):	0.0	

Basin B21

Q_2 =	1.0	cfs
Q_{100} =	3.1	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.0	cfs
Q_2 (Total)=	1.0	cfs
Q_{100} (Total)=	3.1	cfs
Carryover from other Basins:	N/A	
Inlet Type:	5' Type R	
Sump Depth:	6"	
Capacity Per UDFCD Inlet Spreadsheet:	5.1	cfs
Carryover (2-yr):	0.0	
Carryover (100-yr):	0.0	

Basin C1

Q_2 =	1.1	cfs
Q_{100} =	3.4	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.8	cfs
Q_2 (Total)=	1.1	cfs
Q_{100} (Total)=	4.2	cfs
Carryover from other Basins:	from Basin A5	
Inlet Type:	5' Type R	
Sump Depth:	6"	
Capacity Per UDFCD Inlet Spreadsheet:	5.1	cfs
Carryover (2-yr):	0.0	
Carryover (100-yr):	0.0	

Basin OS3

Q_2 =	0.8	cfs
Q_{100} =	3.4	cfs
Q_2 (Carryover)=	0.0	cfs
Q_{100} (Carryover)=	0.0	cfs
Q_2 (Total)=	0.8	cfs
Q_{100} (Total)=	3.4	cfs
Carryover from other Basins:	N/A	
Inlet Type:	10' Type R	
Sump Depth:	On grade (3.1%)	
Capacity Per UDFCD Inlet Spreadsheet:	3.4	cfs
Carryover (2-yr):	0.0	
Carryover (100-yr):	0.0	

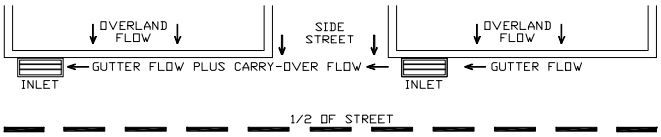
Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: **onte out at ista Ridge**

In et ID: **asin A**

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	1 0		cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<--- FILL IN THIS SECTION OR... FILL IN THE SECTIONS BELOW. <---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

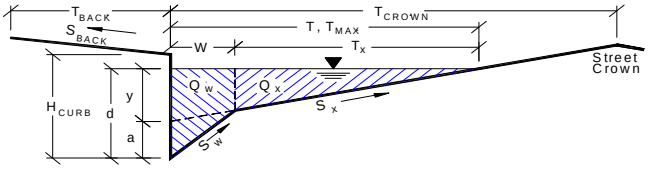
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	1 0		cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **onte out at ista Ridge**

In et ID: **asin A**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	12.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**12**	**12**	**cfs**

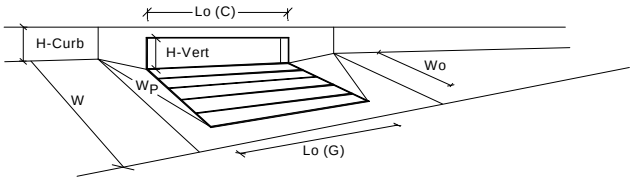
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **onte out at ista Ridge**

In et ID: **asin A**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		1.0	3.5	cfs
Tota In et Carry O er F ow f ow bypassing in et	b	0.0	0.0	cfs
Capture Percentage a/ o	**C**	100	100	

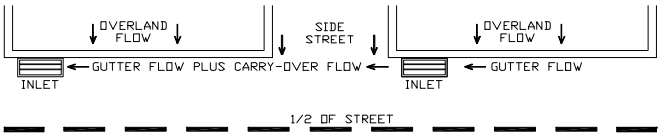
Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: **onte out at ista Ridge**

In et ID: **asin A**

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	1		cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- ● Site is Urban
- ○ Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

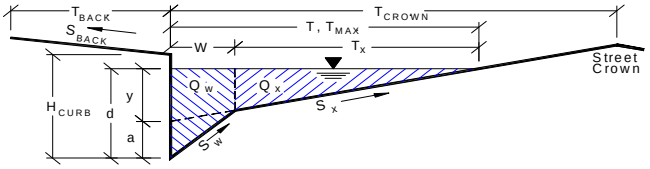
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	1		cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **onte out at ista Ridge**

In et ID: **asin A**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	12.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**12**	**12**	**cfs**

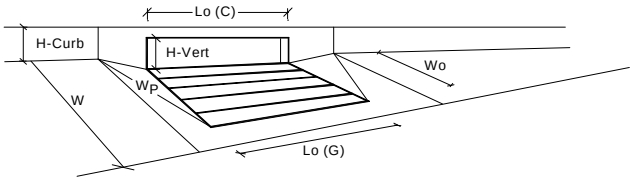
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **onte out at ista Ridge**

In et ID: **asin A**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

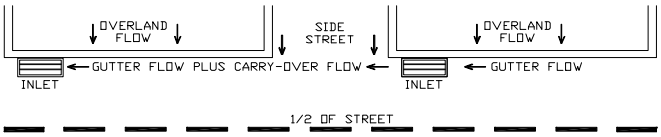
treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		1.9	5.5	cfs
Tota In et Carry O er F ow f ow bypassing in et	b	0.0	0.8	cfs
Capture Percentage a/ o	**C**	100	87	

Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: onte out at ista Ridge
In et ID: asin

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	0	1	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

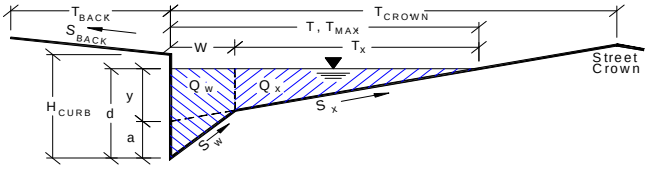
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	0	1	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **onte out at ista Ridge**

In et ID: **asin**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	12.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**12**	**12**	**cfs**

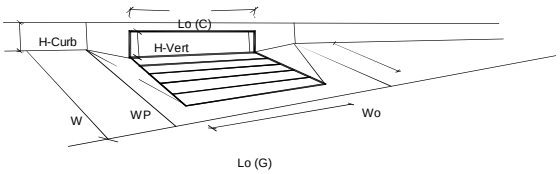
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TI A P OR A OCATIO

Pro ect **onte out at ista Ridge**

In et ID **asin**



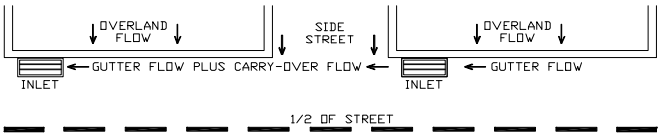
Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Flow Depth outside of Local Depression at Inlet	Flow Depth =	6.0	9.0	inches
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.6)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	a	**1**	**10**	**cfs**
In et Capacity I OOD for inor and a or tor s P A	$Q_{PEAK\ REQUIRED}$ =	**0**	**1**	cfs

Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: onte out at ista Ridge
In et ID: asin

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	0	2 0	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
● Site is Urban
○ Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

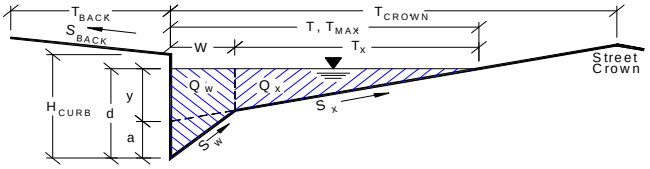
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	0	2 0	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **onte out at ista Ridge**

In et ID: **asin**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	12.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**12**	**12**	**cfs**

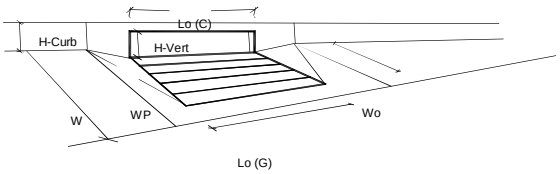
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TI A P OR A OCATIO

Pro ect **onte out at ista Ridge**

In et ID **asin**



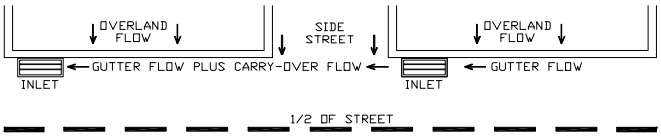
Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Flow Depth outside of Local Depression at Inlet	Flow Depth =	5.0	5.0	inches
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.6)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	a			**cfs**
#	$Q_{PEAK\ REQUIRED}$ =	**0**	**2 0**	cfs

Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: onte out at ista Ridge
In et ID: asin 10

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	0 2	0	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

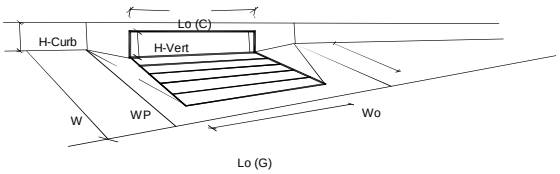
Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	0 2	0	cfs

I TI A P OR A OCATIO

Pro ect **onte out at ista Ridge**

In et ID **asin 10**



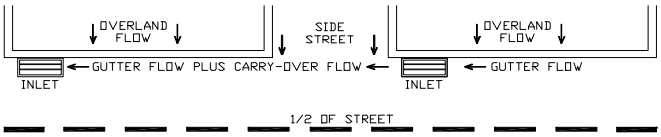
Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT/Denver 13 Combination		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	2.00	2.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Flow Depth outside of Local Depression at Inlet	Flow Depth =	6.0	6.0	inches
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	3.00	3.00	feet
Width of a Unit Grate	W_o =	1.73	1.73	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	0.43	0.43	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	0.50	0.50	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	3.30	3.30	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	0.60	0.60	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	3.00	3.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.50	6.50	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	5.25	5.25	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	0.00	0.00	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.6)	C_w (C) =	3.70	3.70	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.66	0.66	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	a			**cfs**
In et Capacity I OOD for inor and a or tor s P A	$Q_{PEAK\ REQUIRED}$ =	**0 2**	**0**	cfs

Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: onte out at ista Ridge
In et ID: asin 1

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	1 2		cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<--- FILL IN THIS SECTION OR... FILL IN THE SECTIONS BELOW. <---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

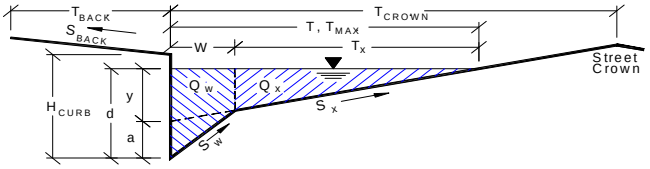
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	1 2		cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: onte out at ista Ridge

In et ID: asin 1



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	12.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.013	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**14**	**14**	**cfs**

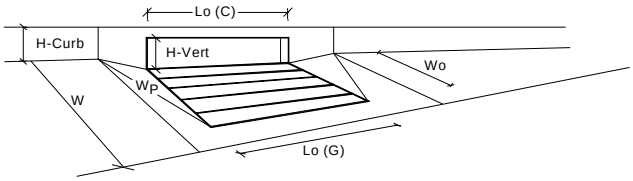
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **onte out at ista Ridge**

In et ID: **asin 1**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

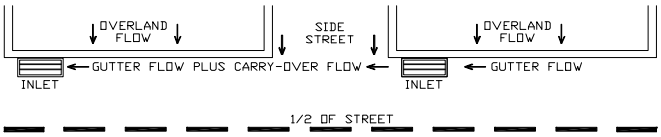
treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		1.2	4.9	cfs
Tota In et Carry O er F ow f ow bypassing in et	b	0.0	0.4	cfs
Capture Percentage a/ o	**C**	100	93	

Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: onte out at ista Ridge
In et ID: asin 1

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	0	1	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<--- FILL IN THIS SECTION OR... FILL IN THE SECTIONS BELOW. <---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

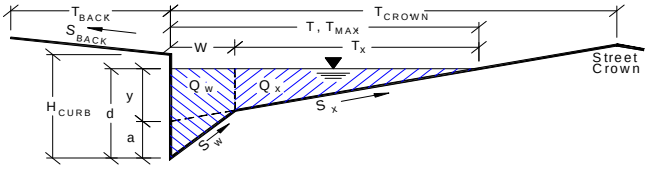
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	0	1	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: onte out at ista Ridge

In et ID: asin 1



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	12.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.036	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**1**	**2**	**cfs**

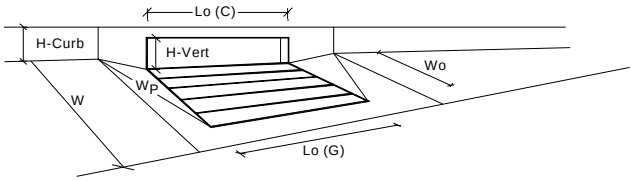
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **onte out at ista Ridge**

In et ID: **asin 1**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		0.5	1.8	cfs
Tota In et Carry O er F ow f ow bypassing in et	b	0.0	0.0	cfs
Capture Percentage a/ o	**C**	100	100	

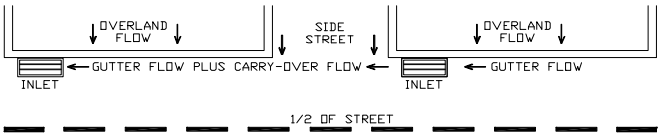
Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: **onte out at ista Ridge**

In et ID: **asin 21**

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	1 0	1	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

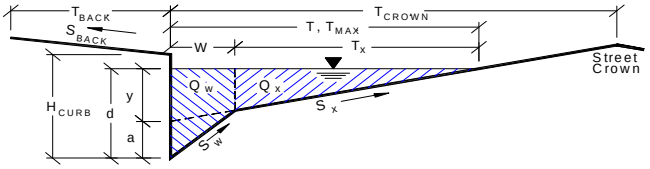
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	1 0	1	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: onte out at ista Ridge

In et ID: asin 1



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	12.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	18.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.036	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**1**	**2**	**cfs**

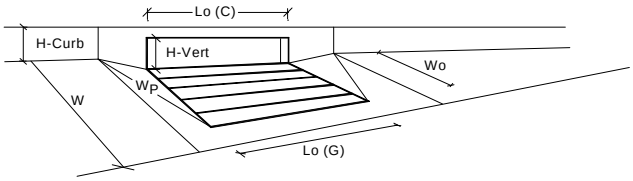
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **onte out at ista Ridge**

In et ID: **asin 1**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		0.5	1.8	cfs
Tota In et Carry O er F ow f ow bypassing in et	b	0.0	0.0	cfs
Capture Percentage a/ o	**C**	100	100	

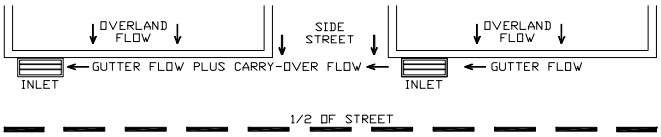
Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: **onte out at ista Ridge**

In et ID: **asin 21**

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	1 0	1	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

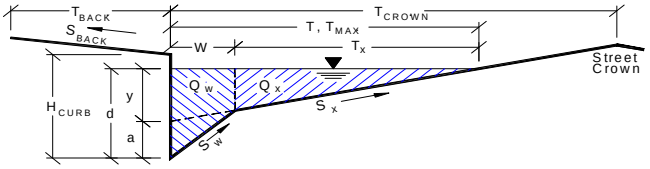
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	1 0	1	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **onte out at ista Ridge**

In et ID: **asin 21**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.010	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**11 0**	**4 1**	**cfs**

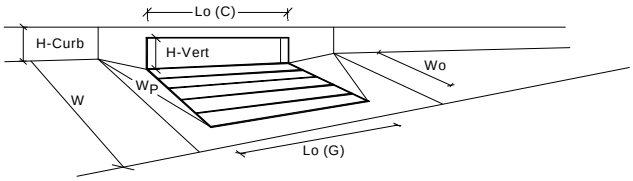
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO A CO TI O RAD

Pro ect: **onte out at ista Ridge**

In et ID: **asin 21**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

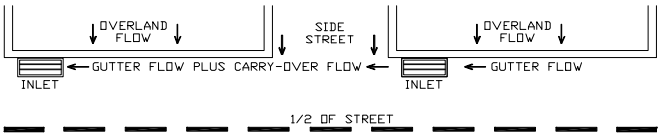
treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		1.0	3.1	cfs
Tota In et Carry O er F ow f ow bypassing in et	b	0.0	0.0	cfs
Capture Percentage a/ o	**C**	100	100	

Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: onte out at ista Ridge
In et ID: asin C1

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	1 1	4 4	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

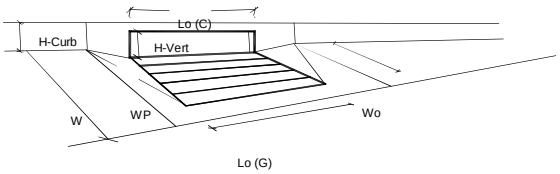
Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	1 1	4 4	cfs

I TI A P OR A OCATIO

Pro ect **onte out at ista Ridge**

In et ID **asin C1**



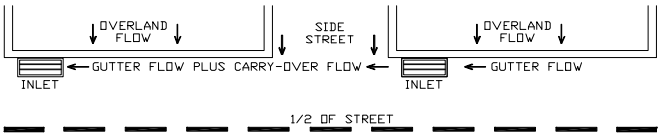
Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Flow Depth outside of Local Depression at Inlet	Flow Depth =	6.0	6.0	inches
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.6)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	a	**1**	**1**	**cfs**
In et Capacity I OOD for inor and a or tor s P A	$Q_{PEAK\ REQUIRED}$ =	**1 1**	**4 4**	cfs

Worksheet Protected

D I P A F O FOR O HA F OF TR T TH RATIO A THOD

Pro ect: onte out at ista Ridge
In et ID: asin O

Design F ow utter F ow Carry o er F ow



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street, plus flow bypassing upstream subcatchments):

	Minor Storm	Major Storm	
	0	4	cfs

If you entered a a ue ere, s ip t e rest of t is s eet and proceed to s eet A ow

<---
FILL IN THIS SECTION
OR...
FILL IN THE
SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Gutter Flow =		

Rainfa infor ation: Intensity I (inch/hr) = C_1 P_1 / (C_2 + T_c) ^{C_3}

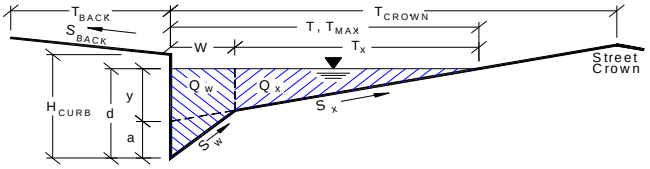
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			cfs
Tota Design Pea F ow,	0	4	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **onte out at ista Ridge**

In et ID: **asin O**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	18.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft. vert. / ft. horiz
Manning's Roughness Behind Curb	n_{BACK} =	0.020	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	21.0	ft
Gutter Depression	a =	1.64	inches
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft. vert. / ft. horiz
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.031	ft. vert. / ft. horiz
Manning's Roughness for Street Section	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Water Spread for Minor & Major Storm	T_{MAX} =	18.0	18.0	ft
Max. Allowable Depth at Gutter Flow Line for Minor & Major Storm	d_{MAX} =	6.0	9.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☐	check = yes

		Minor Storm	Major Storm	
a A owab e utter Capacity ased on ini u of T or d	**a ow**	**1**	**22 2**	**cfs**

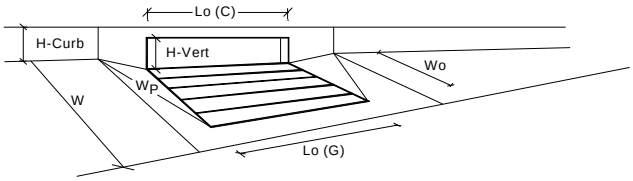
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **onte out at ista Ridge**

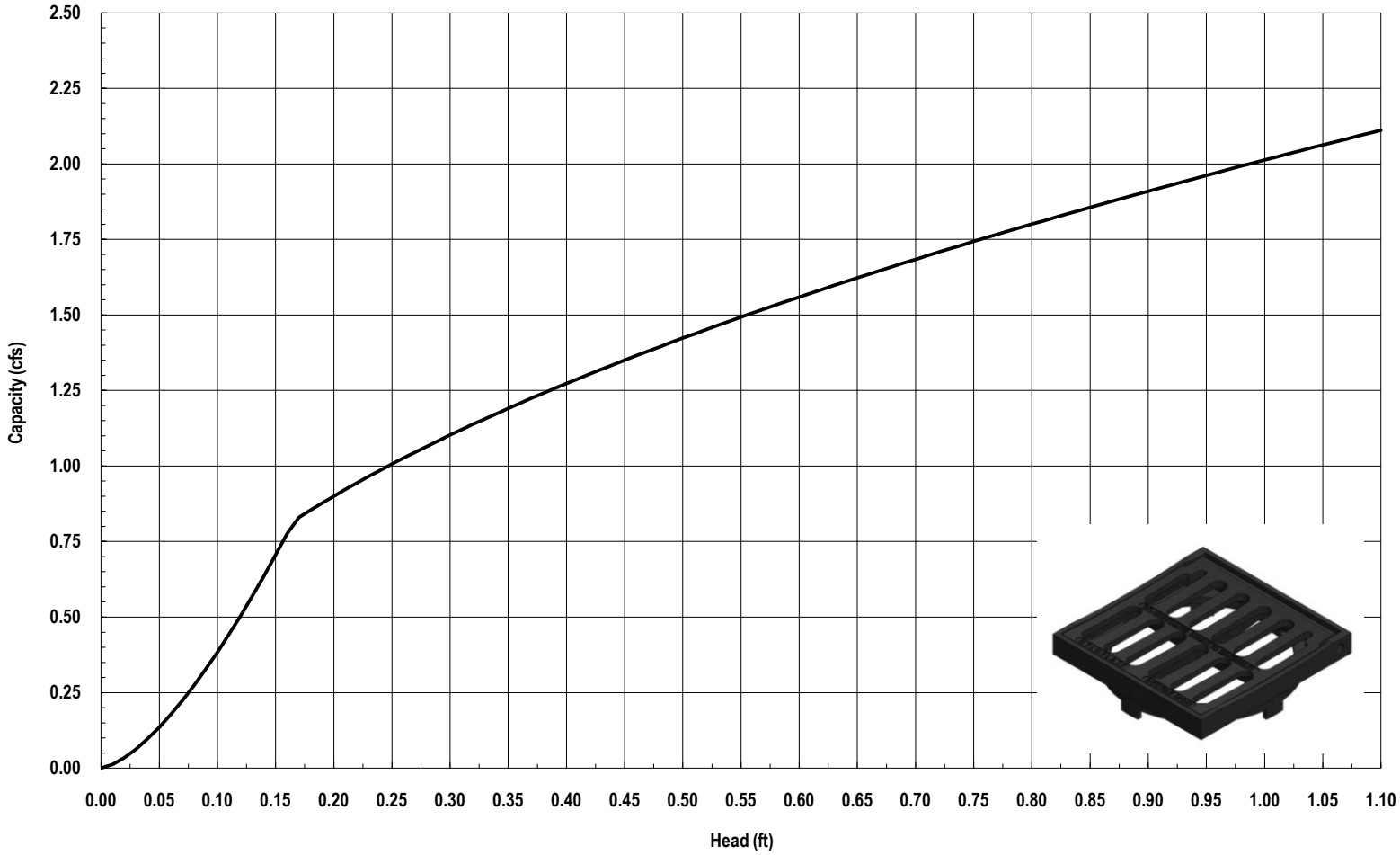
In et ID: **asin O**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		0.8	3.4	cfs
Tota In et Carry O er F ow f ow bypassing in et	b	0.0	0.0	cfs
Capture Percentage a/ o	**C**	100	100	

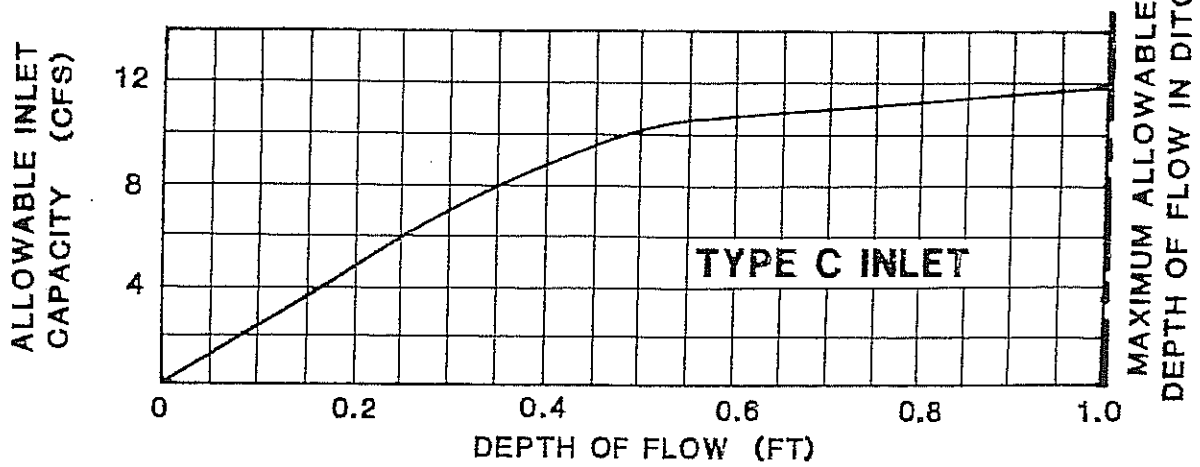
Nyloplast 12" Standard Grate Inlet Capacity Chart

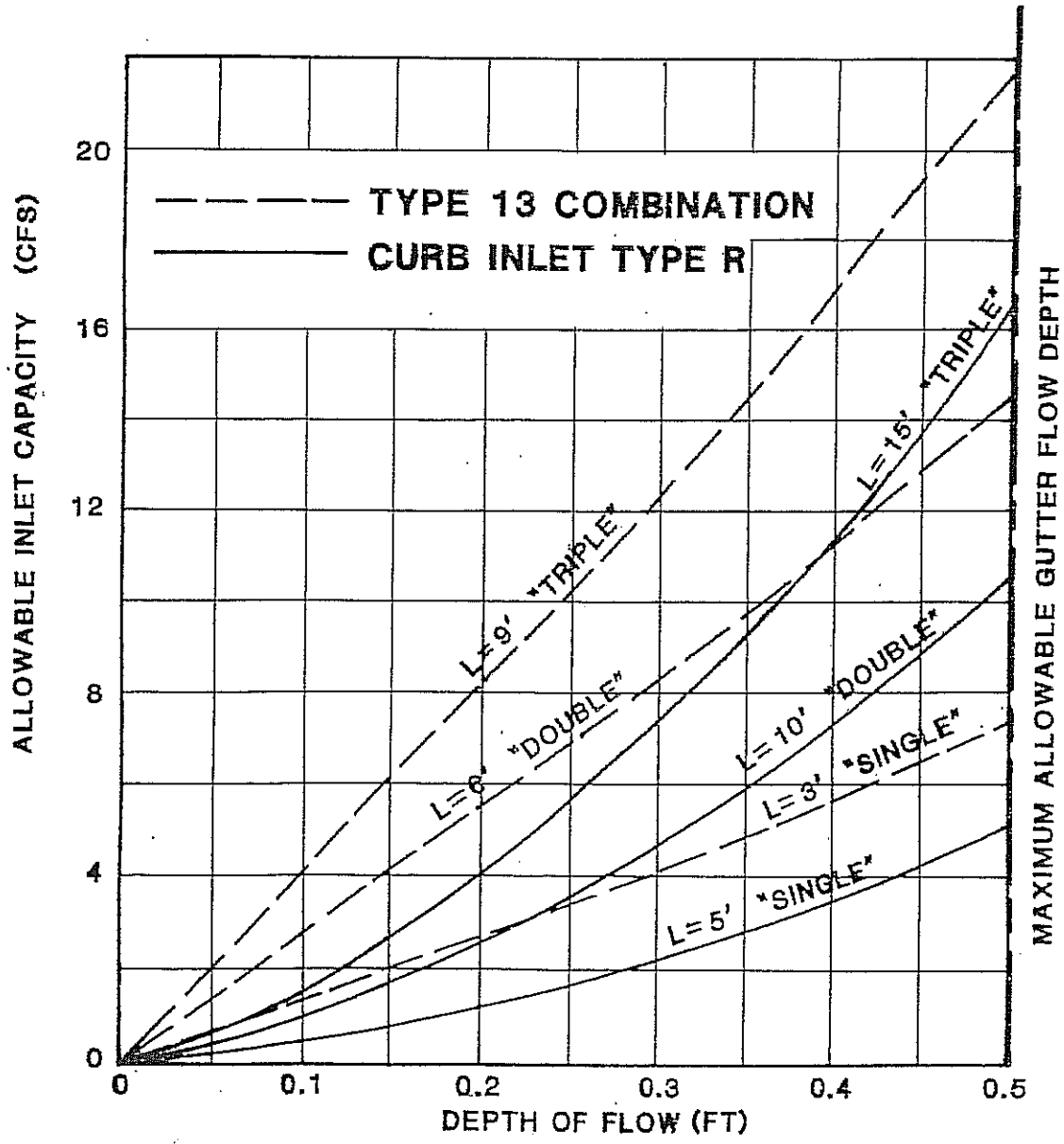


Nyloplast®
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490
© Nyloplast Inlet Capacity Charts June 2012

ALLOWABLE INLET CAPACITY

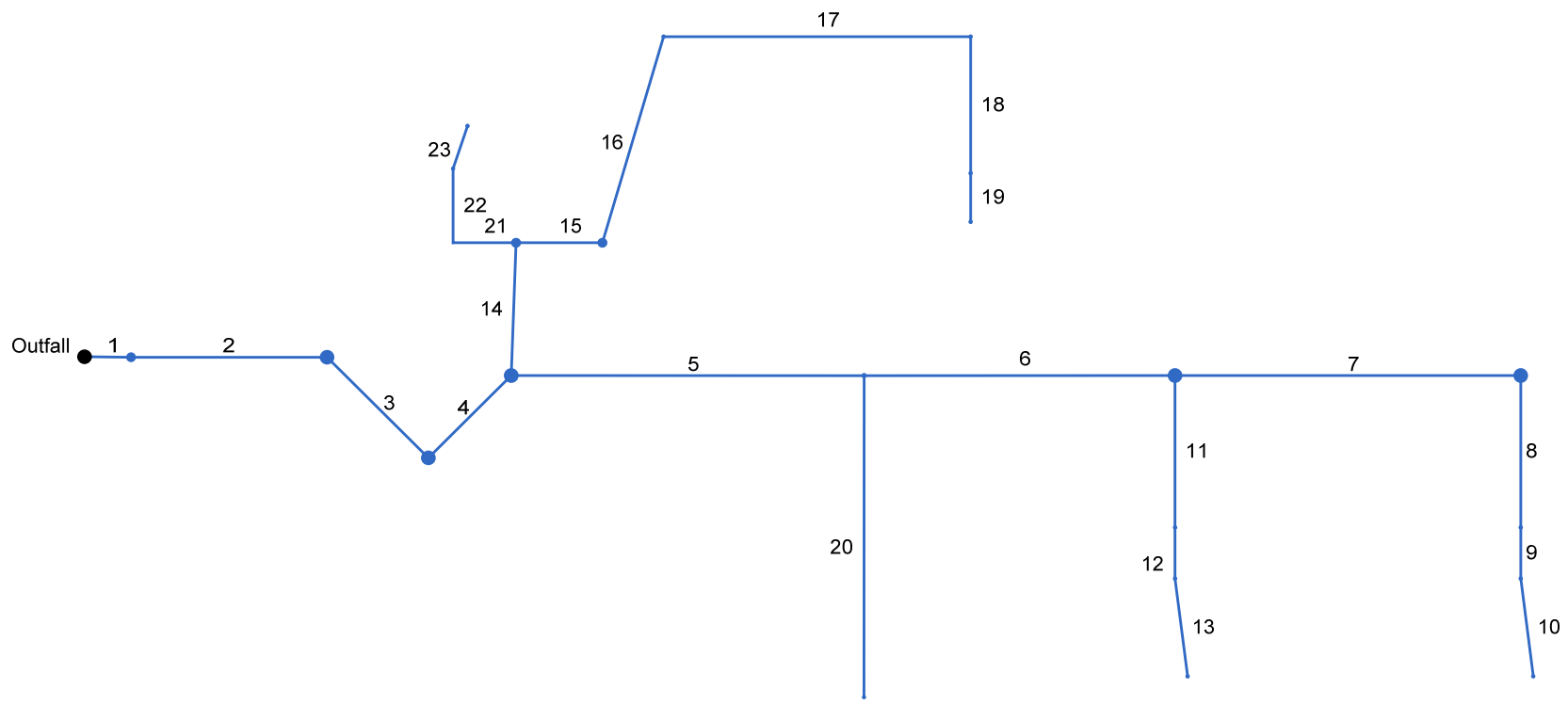
SUMP CONDITIONS - ALL INLETS





REFERENCE: WRC ENGINEERING, INC., TM-2 FEB 1984

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan



Project File: System-A-2-year.stm	Number of lines: 23	Date: 6/22/2015

Storm Sewers v10.00

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (82)	2.49	24	Cir	19.378	5231.31	5231.61	1.547	5231.87	5232.01	n/a	5232.01	End	Manhole
2	Pipe - (53) (1)	2.54	24	Cir	81.658	5233.11	5239.52	7.850	5233.38	5239.79	n/a	5239.79	1	Manhole
3	Pipe - (53) (2)	2.58	24	Cir	59.667	5239.82	5240.71	1.492	5240.23	5241.12	n/a	5241.12	2	Manhole
4	Pipe - (53)	2.61	24	Cir	48.816	5241.01	5241.74	1.496	5241.43	5242.16	n/a	5242.16	3	Manhole
5	Pipe - (110) (1)	0.64	18	Cir	147.000	5242.24	5245.13	1.966	5242.45	5245.34	n/a	5245.34	4	Manhole
6	Pipe - (110)	0.58	18	Cir	129.541	5245.13	5247.67	1.961	5245.34	5247.87	n/a	5247.87	5	Manhole
7	Pipe - (109)	0.41	18	Cir	144.000	5247.87	5250.79	2.028	5248.04	5250.96	n/a	5250.96	6	Manhole
8	Pipe - (155)	0.44	12	Cir	63.682	5251.29	5254.08	4.386	5251.45	5254.25	n/a	5254.25	7	Manhole
9	Pipe - (154)	0.46	12	Cir	21.449	5254.08	5254.29	0.979	5254.32	5254.53	n/a	5254.53	8	Manhole
10	Pipe - (153)	0.48	12	Cir	41.327	5254.29	5254.70	0.992	5254.54	5254.95	n/a	5254.95	9	Manhole
11	Pipe - (158)	0.42	12	Cir	63.684	5248.17	5250.88	4.260	5248.33	5251.04	n/a	5251.04	6	Manhole
12	Pipe - (157)	0.44	12	Cir	21.448	5250.88	5251.10	1.027	5251.12	5251.34	n/a	5251.34	11	Manhole
13	Pipe - (156)	0.46	12	Cir	41.348	5251.10	5251.51	0.991	5251.34	5251.75	n/a	5251.75	12	Manhole
14	Pipe - (52)	3.19	18	Cir	55.706	5242.24	5243.08	1.508	5242.75	5243.59	n/a	5243.59	4	Manhole
15	Pipe - (51)	1.63	18	Cir	36.000	5243.38	5243.92	1.500	5243.74	5244.28	n/a	5244.28	14	Manhole
16	Pipe - (173)	0.84	12	Cir	90.111	5244.42	5245.42	1.110	5244.74	5245.74	n/a	5245.74	15	Manhole
17	Pipe - (172)	0.69	12	Cir	127.915	5245.42	5246.85	1.118	5245.74	5247.14	n/a	5247.14	16	Manhole
18	Pipe - (171)	0.72	12	Cir	57.273	5246.85	5249.71	4.993	5247.14	5249.91	n/a	5249.91	17	Manhole
19	Pipe - (170)	0.74	12	Cir	20.396	5249.71	5250.10	1.913	5249.97	5250.36	n/a	5250.36	18	Manhole
20	Pipe - (160)	0.23	12	Cir	134.832	5245.38	5249.36	2.952	5245.51	5249.49	n/a	5249.49	5	Manhole
21	Pipe - (164)	0.19	12	Cir	26.201	5243.58	5244.86	4.884	5243.69	5244.97	n/a	5244.97	14	Manhole
22	Pipe - (162)	0.21	12	Cir	31.114	5244.86	5245.17	0.997	5245.02	5245.33	n/a	5245.33	21	Manhole
23	Pipe - (161)	0.22	12	Cir	18.852	5245.17	5245.36	1.008	5245.34	5245.53	n/a	5245.53	22	Manhole

Project File: System-A-2-year.stm | Number of lines: 23 | Run Date: 6/22/2015

NOTES: Return period = 2 Yrs.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	24	2.49	5231.31	5231.87	0.56	0.45	0.79	0.47	5232.34	0.012	19.378	5231.61	5232.01	0.40	0.45	5.52	0.47	5232.49	0.011	0.012	0.002	0.15	n/a
2	24	2.54	5233.11	5233.38	0.27*	0.26	0.00	1.50	5234.88	0.000	81.658	5239.52	5239.79	0.27	0.26	9.82	1.50	5241.29	0.000	0.000	0.000	0.75	n/a
3	24	2.58	5239.82	5240.23	0.41*	0.47	0.00	0.47	5240.71	0.000	59.667	5240.71	5241.12	0.41	0.47	5.51	0.47	5241.60	0.000	0.000	0.000	1.00	n/a
4	24	2.61	5241.01	5241.43	0.42*	0.47	0.00	0.48	5241.90	0.000	48.816	5241.74	5242.16	0.42	0.47	5.53	0.48	5242.63	0.000	0.000	0.000	0.75	n/a
5	18	0.64	5242.24	5242.45	0.21*	0.15	0.00	0.27	5242.72	0.000	147.000	5245.13	5245.34	0.21	0.15	4.15	0.27	5245.61	0.000	0.000	0.000	1.00	n/a
6	18	0.58	5245.13	5245.34	0.21	0.14	0.00	0.25	5245.60	0.000	129.541	5247.67	5247.87	0.20	0.14	4.03	0.25	5248.13	0.000	0.000	0.000	1.00	n/a
7	18	0.41	5247.87	5248.04	0.17*	0.11	0.00	0.21	5248.25	0.000	144.000	5250.79	5250.96	0.17	0.11	3.68	0.21	5251.17	0.000	0.000	0.000	1.00	n/a
8	12	0.44	5251.29	5251.45	0.17*	0.09	0.00	0.42	5251.87	0.000	63.682	5254.08	5254.25	0.17	0.09	5.21	0.42	5254.67	0.000	0.000	0.000	0.15	n/a
9	12	0.46	5254.08	5254.32	0.24*	0.15	0.00	0.15	5254.47	0.000	21.449	5254.29	5254.53	0.24	0.15	3.09	0.15	5254.68	0.000	0.000	0.000	0.15	n/a
10	12	0.48	5254.29	5254.54	0.25*	0.15	0.00	0.15	5254.69	0.000	41.327	5254.70	5254.95	0.25	0.15	3.16	0.15	5255.10	0.000	0.000	0.000	1.00	n/a
11	12	0.42	5248.17	5248.33	0.16*	0.08	0.00	0.40	5248.73	0.000	63.684	5250.88	5251.04	0.16	0.08	5.08	0.40	5251.44	0.000	0.000	0.000	0.15	n/a
12	12	0.44	5250.88	5251.12	0.23*	0.14	0.00	0.15	5251.26	0.000	21.448	5251.10	5251.34	0.23	0.14	3.10	0.15	5251.48	0.000	0.000	0.000	0.15	n/a
13	12	0.46	5251.10	5251.34	0.24*	0.15	0.00	0.15	5251.50	0.000	41.348	5251.51	5251.75	0.24	0.15	3.12	0.15	5251.91	0.000	0.000	0.000	1.00	n/a
14	18	3.19	5242.24	5242.75	0.51*	0.53	0.00	0.57	5243.32	0.000	55.706	5243.08	5243.59	0.51	0.53	6.05	0.57	5244.16	0.000	0.000	0.000	1.00	n/a
15	18	1.63	5243.38	5243.74	0.36*	0.33	0.00	0.39	5244.13	0.000	36.000	5243.92	5244.28	0.36	0.33	4.98	0.39	5244.67	0.000	0.000	0.000	0.97	n/a
16	12	0.84	5244.42	5244.74	0.32*	0.22	0.00	0.23	5244.97	0.000	90.111	5245.42	5245.74	0.32	0.22	3.86	0.23	5245.97	0.000	0.000	0.000	0.97	n/a
17	12	0.69	5245.42	5245.74	0.32	0.19	0.00	0.21	5245.95	0.000	127.915	5246.85	5247.14	0.29	0.19	3.65	0.21	5247.35	0.000	0.000	0.000	1.00	n/a
18	12	0.72	5246.85	5247.14	0.29	0.11	0.00	0.62	5247.76	0.000	57.273	5249.71	5249.91	0.20	0.11	6.30	0.62	5250.53	0.000	0.000	0.000	0.15	n/a
19	12	0.74	5249.71	5249.97	0.26*	0.16	0.00	0.32	5250.29	0.000	20.396	5250.10	5250.36	0.26	0.16	4.50	0.32	5250.68	0.000	0.000	0.000	1.00	n/a
20	12	0.23	5245.38	5245.51	0.13*	0.06	0.00	0.21	5245.72	0.000	134.832	5249.36	5249.49	0.13	0.06	3.70	0.21	5249.70	0.000	0.000	0.000	1.00	n/a
21	12	0.19	5243.58	5243.69	0.11*	0.05	0.00	0.27	5243.96	0.000	26.201	5244.86	5244.97	0.11	0.05	4.20	0.27	5245.24	0.000	0.000	0.000	1.00	n/a
22	12	0.21	5244.86	5245.02	0.16*	0.08	0.00	0.09	5245.12	0.000	31.114	5245.17	5245.33	0.16	0.08	2.47	0.09	5245.43	0.000	0.000	0.000	0.37	n/a

Project File: System-A-2-year.stm | Number of lines: 23 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

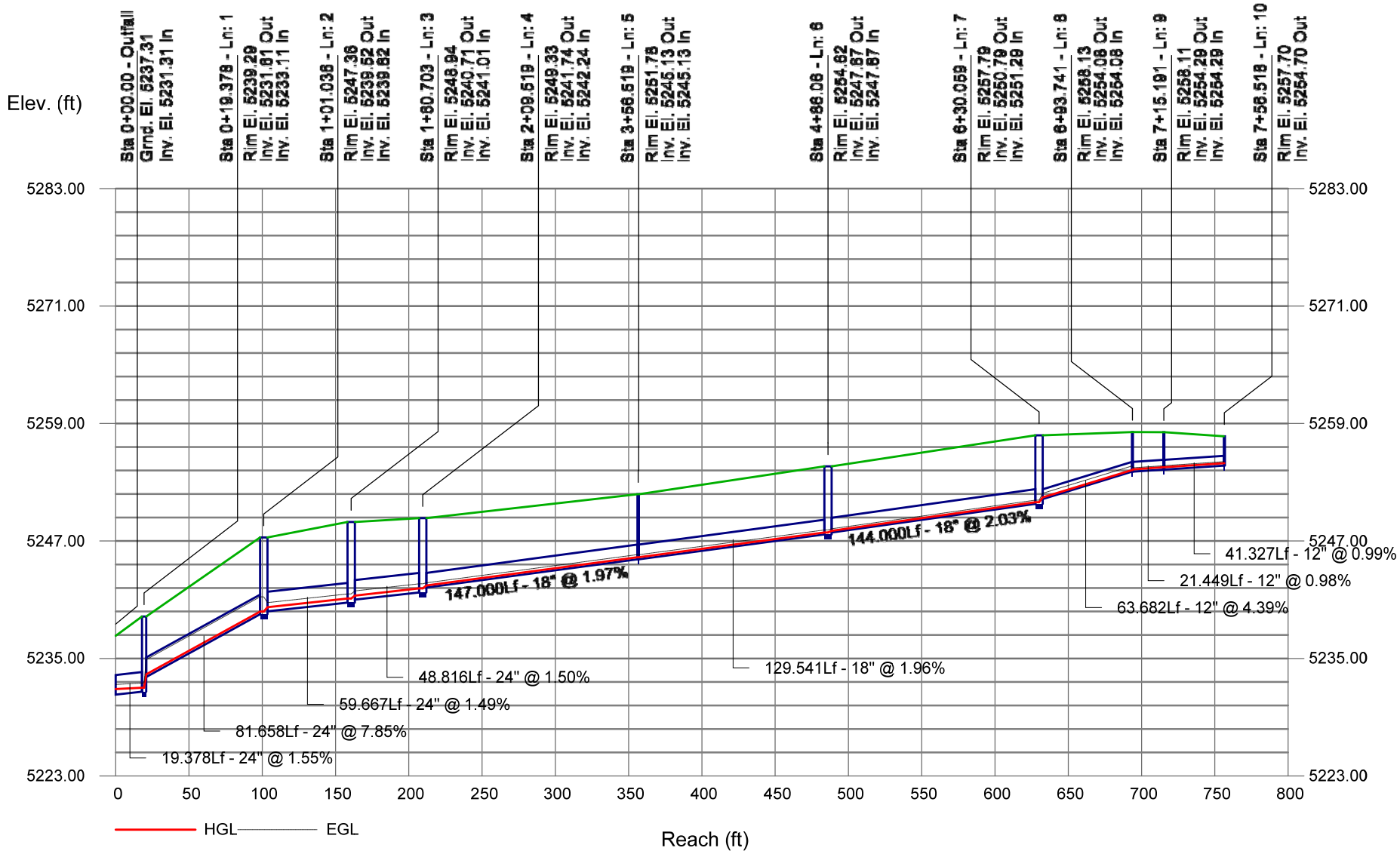
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
23	12	0.22	5245.17	5245.34	0.17*	0.09	0.00	0.10	5245.44	0.000	18.852	5245.36	5245.53	0.17	0.09	2.52	0.10	5245.63	0.000	0.000	0.000	1.00	n/a

Project File: System-A-2-year.stm | Number of lines: 23 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

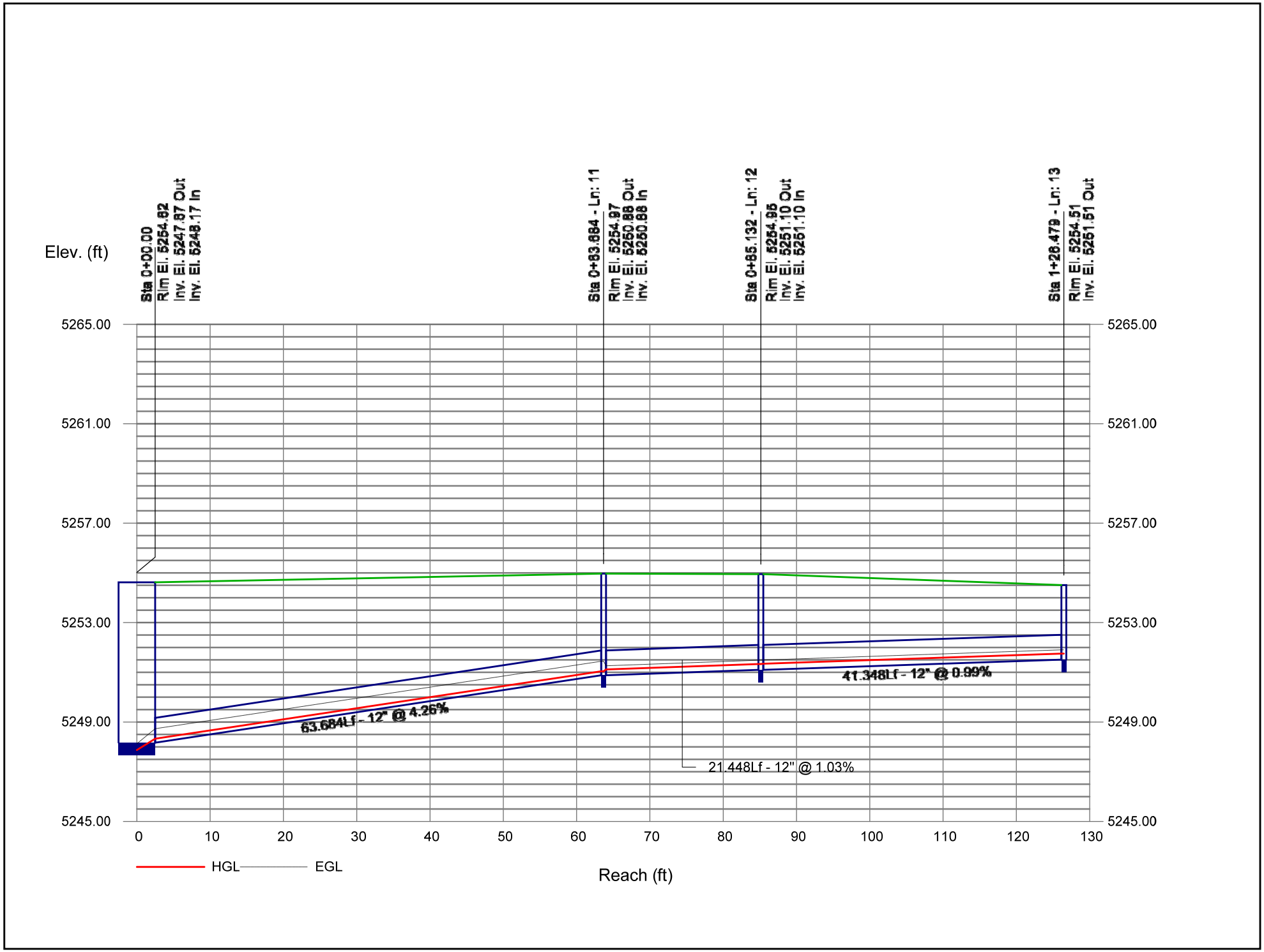
Storm Sewer Profile

Proj. file: System-A-2-year.stm



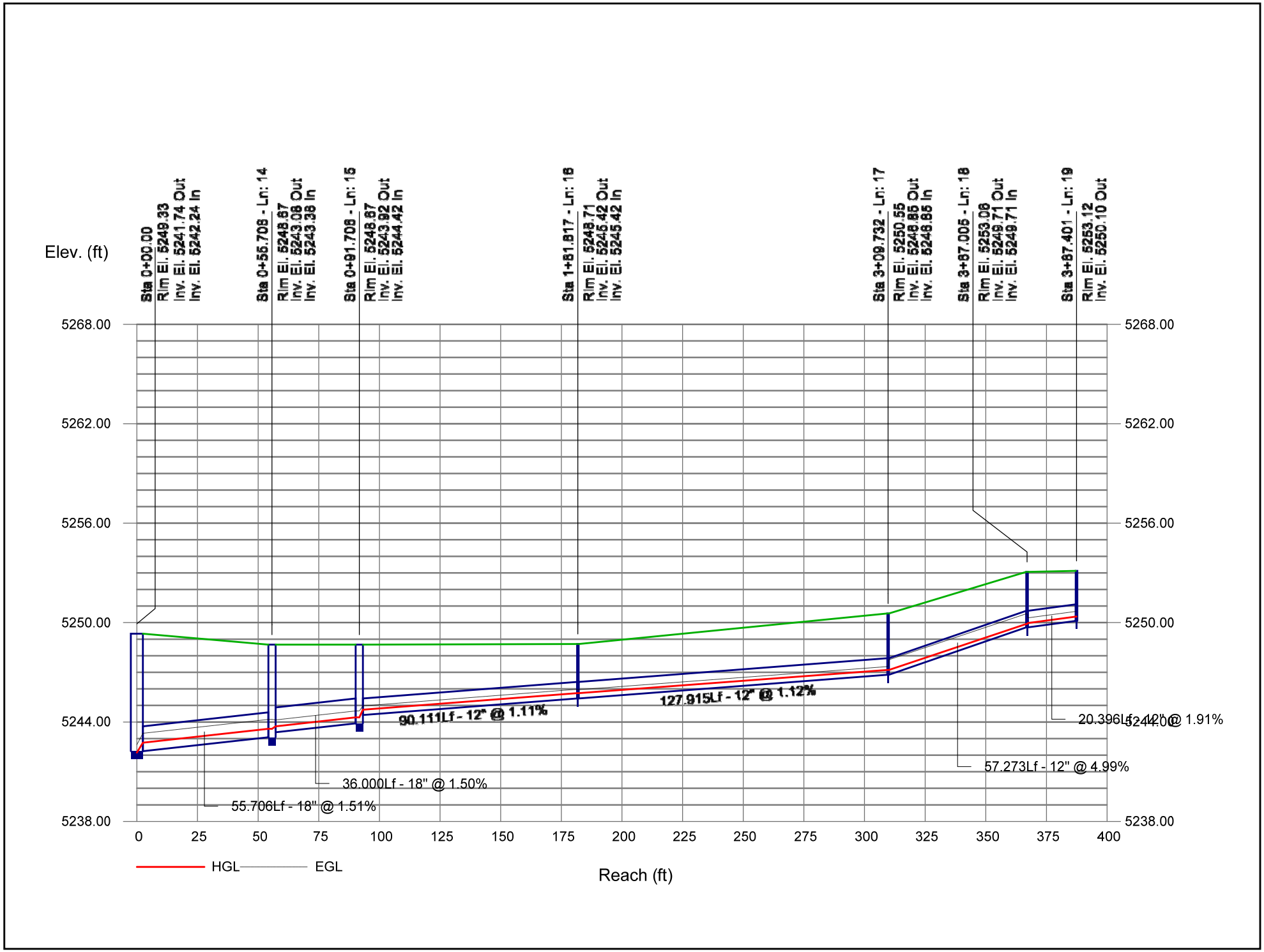
Storm Sewer Profile

Proj. file: System-A-2-year.stm



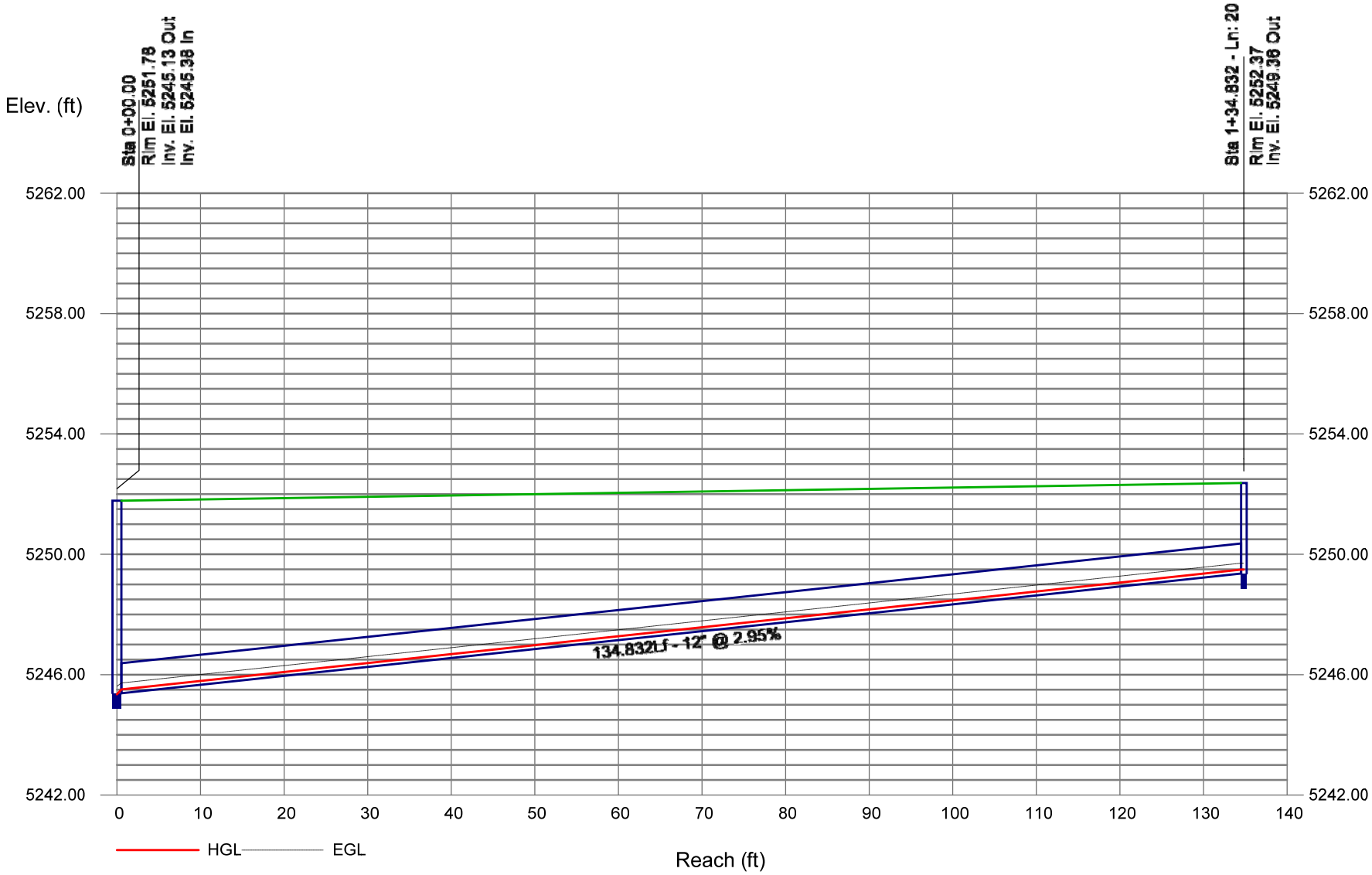
Storm Sewer Profile

Proj. file: System-A-2-year.stm



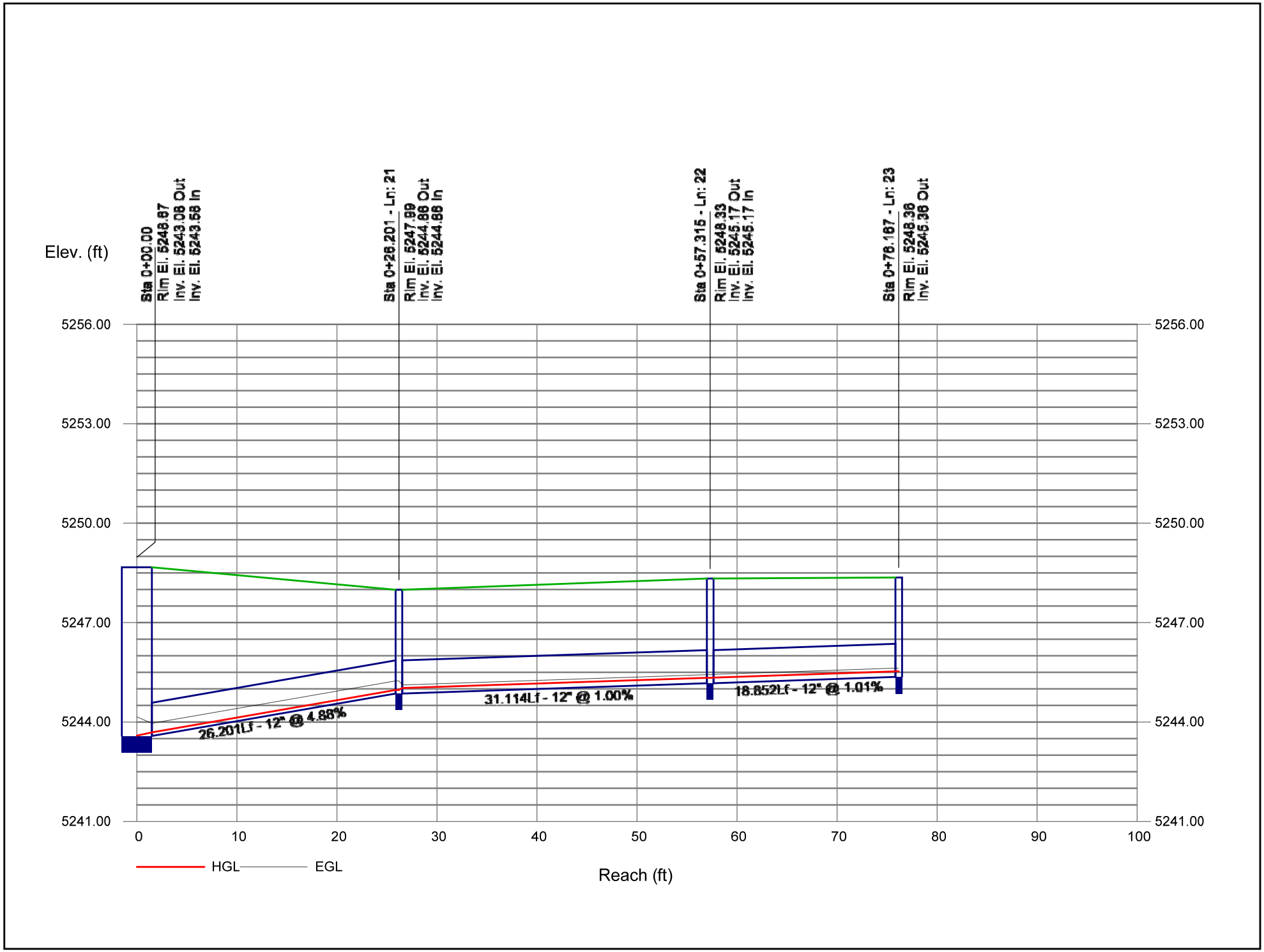
Storm Sewer Profile

Proj. file: System-A-2-year.stm

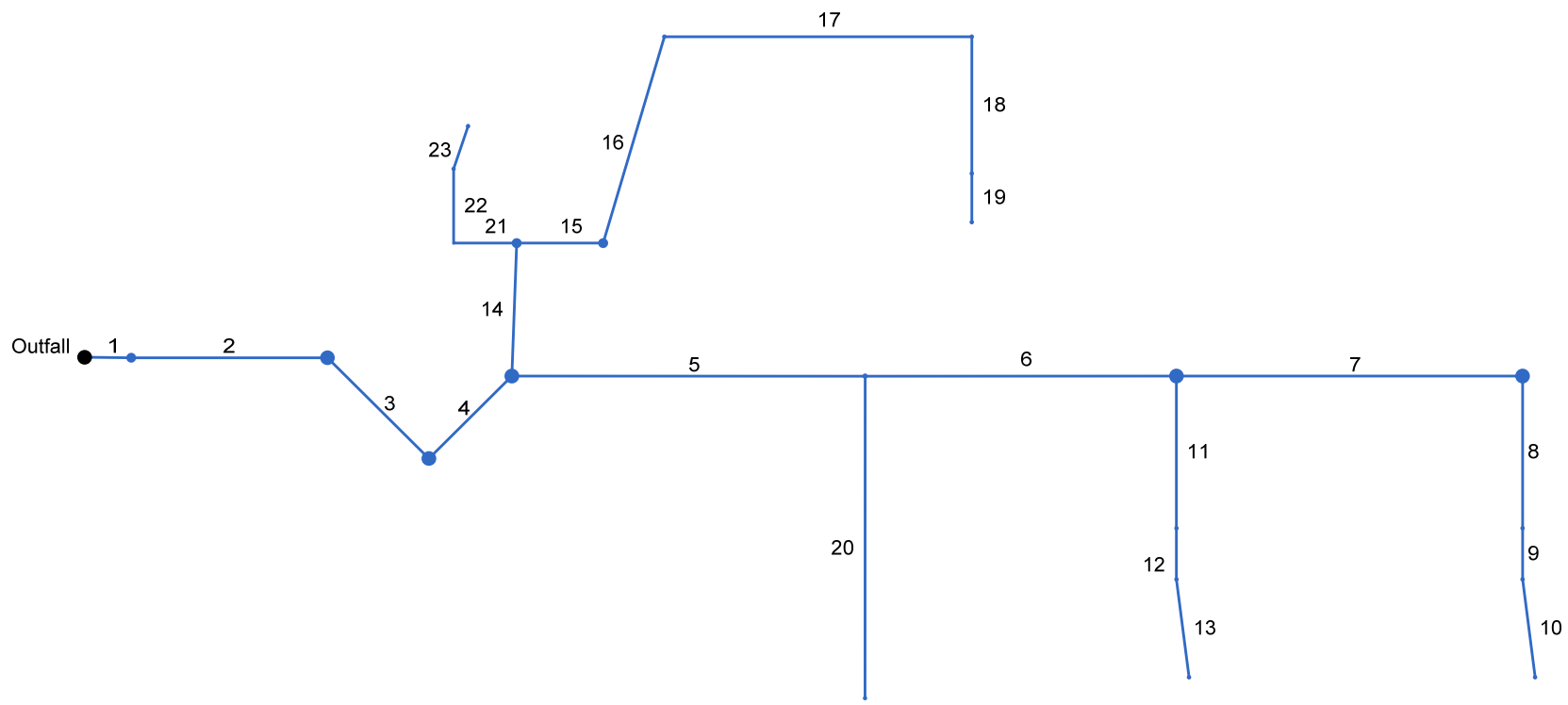


Storm Sewer Profile

Proj. file: System-A-2-year.stm



Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan



Project File: System-A-100-year.stm	Number of lines: 23	Date: 6/22/2015

Storm Sewers v10.00

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (82)	14.36	24	Cir	19.378	5231.31	5231.61	1.547	5232.65	5232.62	n/a	5232.62	End	Manhole
2	Pipe - (53) (1)	14.50	24	Cir	81.658	5233.11	5239.52	7.850	5233.76	5240.17	n/a	5240.17	1	Manhole
3	Pipe - (53) (2)	14.61	24	Cir	59.667	5239.82	5240.71	1.492	5240.85	5241.74	n/a	5241.74	2	Manhole
4	Pipe - (53)	14.70	24	Cir	48.816	5241.01	5241.74	1.496	5242.05	5242.78	n/a	5242.78	3	Manhole
5	Pipe - (110) (1)	3.62	18	Cir	147.000	5242.24	5245.13	1.966	5242.78	5245.64	n/a	5245.64	4	Manhole
6	Pipe - (110)	2.97	18	Cir	129.541	5245.13	5247.67	1.961	5245.64	5248.13	n/a	5248.13	5	Manhole
7	Pipe - (109)	1.64	18	Cir	144.000	5247.87	5250.79	2.028	5248.21	5251.13	n/a	5251.13	6	Manhole
8	Pipe - (155)	1.68	12	Cir	63.682	5251.29	5254.08	4.386	5251.61	5254.40	n/a	5254.40	7	Manhole
9	Pipe - (154)	1.70	12	Cir	21.449	5254.08	5254.29	0.979	5254.57	5254.78	n/a	5254.78	8	Manhole
10	Pipe - (153)	1.73	12	Cir	41.327	5254.29	5254.70	0.992	5254.78	5255.19	n/a	5255.19	9	Manhole
11	Pipe - (158)	1.76	12	Cir	63.684	5248.17	5250.88	4.260	5248.50	5251.21	n/a	5251.21	6	Manhole
12	Pipe - (157)	1.77	12	Cir	21.448	5250.88	5251.10	1.027	5251.38	5251.60	n/a	5251.60	11	Manhole
13	Pipe - (156)	1.80	12	Cir	41.348	5251.10	5251.51	0.991	5251.60	5252.01	n/a	5252.01	12	Manhole
14	Pipe - (52)	13.56	18	Cir	55.706	5242.24	5243.08	1.508	5243.56	5244.40	n/a	5244.40	4	Manhole
15	Pipe - (51)	6.82	18	Cir	36.000	5243.38	5243.92	1.500	5244.40	5244.70	n/a	5244.70	14	Manhole
16	Pipe - (173)	3.33	12	Cir	90.111	5244.42	5245.42	1.110	5245.15	5246.15	n/a	5246.15	15	Manhole
17	Pipe - (172)	2.64	12	Cir	127.915	5245.42	5246.85	1.118	5246.15	5247.47	n/a	5247.47	16	Manhole
18	Pipe - (171)	2.68	12	Cir	57.273	5246.85	5249.71	4.993	5247.47	5250.11	n/a	5250.11	17	Manhole
19	Pipe - (170)	2.70	12	Cir	20.396	5249.71	5250.10	1.913	5250.24	5250.63	n/a	5250.63	18	Manhole
20	Pipe - (160)	0.99	12	Cir	134.832	5245.38	5249.36	2.955	5245.65	5249.63	n/a	5249.63	5	Manhole
21	Pipe - (164)	0.80	12	Cir	26.201	5243.58	5244.86	4.884	5244.40	5245.08	n/a	5245.08	14	Manhole
22	Pipe - (162)	0.82	12	Cir	31.114	5244.86	5245.17	0.997	5245.19	5245.50	n/a	5245.50	21	Manhole
23	Pipe - (161)	0.83	12	Cir	18.852	5245.17	5245.36	1.008	5245.50	5245.69	n/a	5245.69	22	Manhole

Project File: System-A-100-year.stm | Number of lines: 23 | Run Date: 6/22/2015

NOTES: Return period = 100 Yrs.

Hydraulic Grade Line Computations

Line	Size (in)	Q (cfs)	Downstream Invert elev (ft)	Downstream HGL elev (ft)	Downstream Depth (ft)	Downstream Area (sqft)	Downstream Vel (ft/s)	Downstream Vel head (ft)	Downstream EGL elev (ft)	Downstream Sf (%)	Len (ft)	Upstream Invert elev (ft)	Upstream HGL elev (ft)	Upstream Depth (ft)	Upstream Area (sqft)	Upstream Vel (ft/s)	Upstream Vel head (ft)	Upstream EGL elev (ft)	Upstream Sf (%)	Check Ave Sf (%)	Check Enrgy loss (ft)	JL coeff (K)	Minor loss (ft)
1	24	14.36	5231.31	5232.65	1.34	1.60	4.57	1.26	5233.91	0.000	19.378	5231.61	5232.62	1.01	1.60	9.00	1.26	5233.88	0.000	0.000	0.000	0.15	n/a
2	24	14.50	5233.11	5233.76	0.65*	0.89	0.00	4.16	5237.92	0.000	81.658	5239.52	5240.17	0.65	0.89	16.36	4.16	5244.33	0.000	0.000	0.000	0.75	n/a
3	24	14.61	5239.82	5240.85	1.03*	1.64	0.00	1.24	5242.09	0.000	59.667	5240.71	5241.74	1.03	1.64	8.91	1.24	5242.98	0.000	0.000	0.000	1.00	n/a
4	24	14.70	5241.01	5242.05	1.04*	1.65	0.00	1.24	5243.29	0.000	48.816	5241.74	5242.78	1.04	1.65	8.94	1.24	5244.02	0.000	0.000	0.000	0.75	n/a
5	18	3.62	5242.24	5242.78	0.54	0.52	0.00	0.74	5243.52	0.000	147.000	5245.13	5245.64	0.51	0.52	6.89	0.74	5246.38	0.000	0.000	0.000	1.00	n/a
6	18	2.97	5245.13	5245.64	0.51	0.46	0.00	0.66	5246.30	0.000	129.541	5247.67	5248.13	0.46	0.46	6.51	0.66	5248.79	0.000	0.000	0.000	1.00	n/a
7	18	1.64	5247.87	5248.21	0.34*	0.30	0.00	0.48	5248.69	0.000	144.000	5250.79	5251.13	0.34	0.30	5.55	0.48	5251.61	0.000	0.000	0.000	1.00	n/a
8	12	1.68	5251.29	5251.61	0.32*	0.22	0.00	0.91	5252.52	0.000	63.682	5254.08	5254.40	0.32	0.22	7.66	0.91	5255.32	0.000	0.000	0.000	0.15	n/a
9	12	1.70	5254.08	5254.57	0.49*	0.38	0.00	0.31	5254.88	0.000	21.449	5254.29	5254.78	0.49	0.38	4.44	0.31	5255.09	0.000	0.000	0.000	0.15	n/a
10	12	1.73	5254.29	5254.78	0.49*	0.38	0.00	0.31	5255.10	0.000	41.327	5254.70	5255.19	0.49	0.38	4.48	0.31	5255.51	0.000	0.000	0.000	1.00	n/a
11	12	1.76	5248.17	5248.50	0.33*	0.23	0.00	0.92	5249.42	0.000	63.684	5250.88	5251.21	0.33	0.23	7.67	0.92	5252.13	0.000	0.000	0.000	0.15	n/a
12	12	1.77	5250.88	5251.38	0.49*	0.39	0.00	0.32	5251.70	0.000	21.448	5251.10	5251.60	0.49	0.39	4.57	0.32	5251.92	0.000	0.000	0.000	0.15	n/a
13	12	1.80	5251.10	5251.60	0.50*	0.40	0.00	0.32	5251.92	0.000	41.348	5251.51	5252.01	0.50	0.40	4.53	0.32	5252.33	0.000	0.000	0.000	1.00	n/a
14	18	13.56	5242.24	5243.56	1.32*	1.64	0.00	1.06	5244.62	0.000	55.706	5243.08	5244.40	1.32	1.64	8.26	1.06	5245.46	0.000	0.000	0.000	1.00	n/a
15	18	6.82	5243.38	5244.40	1.02	0.92	0.00	0.85	5245.24	0.000	36.000	5243.92	5244.70	0.78	0.92	7.38	0.85	5245.55	0.000	0.000	0.000	0.97	n/a
16	12	3.33	5244.42	5245.15	0.73*	0.62	0.00	0.45	5245.61	0.000	90.111	5245.42	5246.15	0.73	0.62	5.39	0.45	5246.61	0.000	0.000	0.000	0.97	n/a
17	12	2.64	5245.42	5246.15	0.73	0.51	0.00	0.42	5246.57	0.000	127.915	5246.85	5247.47	0.62	0.51	5.19	0.42	5247.89	0.000	0.000	0.000	1.00	n/a
18	12	2.68	5246.85	5247.47	0.62	0.29	0.00	1.30	5248.77	0.000	57.273	5249.71	5250.11	0.40	0.29	9.13	1.30	5251.41	0.000	0.000	0.000	0.15	n/a
19	12	2.70	5249.71	5250.24	0.53*	0.42	0.00	0.64	5250.88	0.000	20.396	5250.10	5250.63	0.53	0.42	6.41	0.64	5251.27	0.000	0.000	0.000	1.00	n/a
20	12	0.99	5245.38	5245.65	0.27*	0.17	0.00	0.51	5246.16	0.000	134.832	5249.36	5249.63	0.27	0.17	5.73	0.51	5250.14	0.000	0.000	0.000	1.00	n/a
21	12	0.80	5243.58	5244.40	0.82	0.12	0.00	0.64	5245.04	0.000	26.201	5244.86	5245.08	0.22	0.12	6.42	0.64	5245.72	0.000	0.000	0.000	1.00	n/a
22	12	0.82	5244.86	5245.19	0.33*	0.22	0.00	0.21	5245.40	0.000	31.114	5245.17	5245.50	0.33	0.22	3.67	0.21	5245.71	0.000	0.000	0.000	0.37	n/a

Project File: System-A-100-year.stm | Number of lines: 23 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

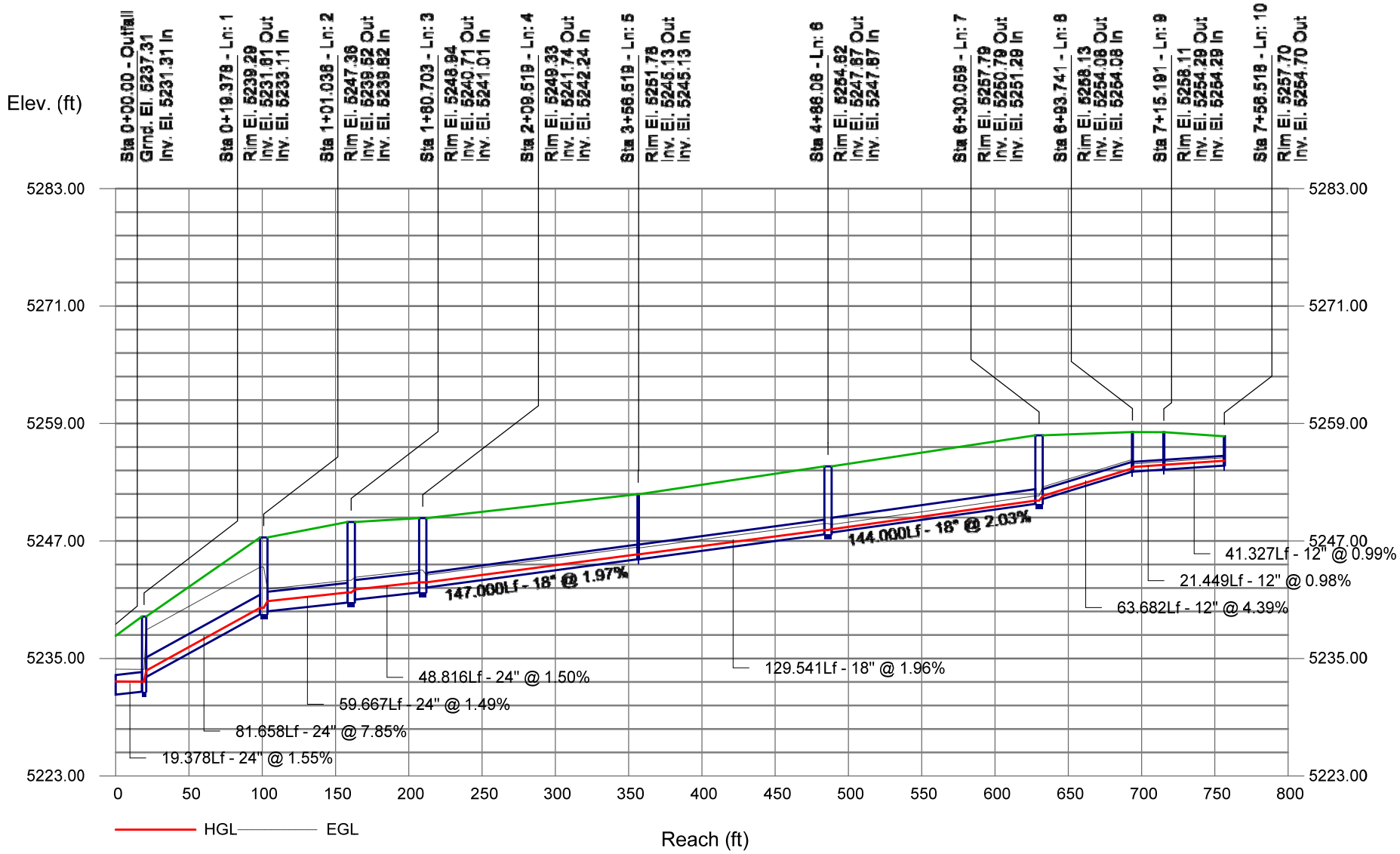
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
23	12	0.83	5245.17	5245.50	0.33*	0.22	0.00	0.21	5245.71	0.000	18.852	5245.36	5245.69	0.33	0.22	3.71	0.21	5245.90	0.000	0.000	0.000	1.00	n/a

Project File: System-A-100-year.stm | Number of lines: 23 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

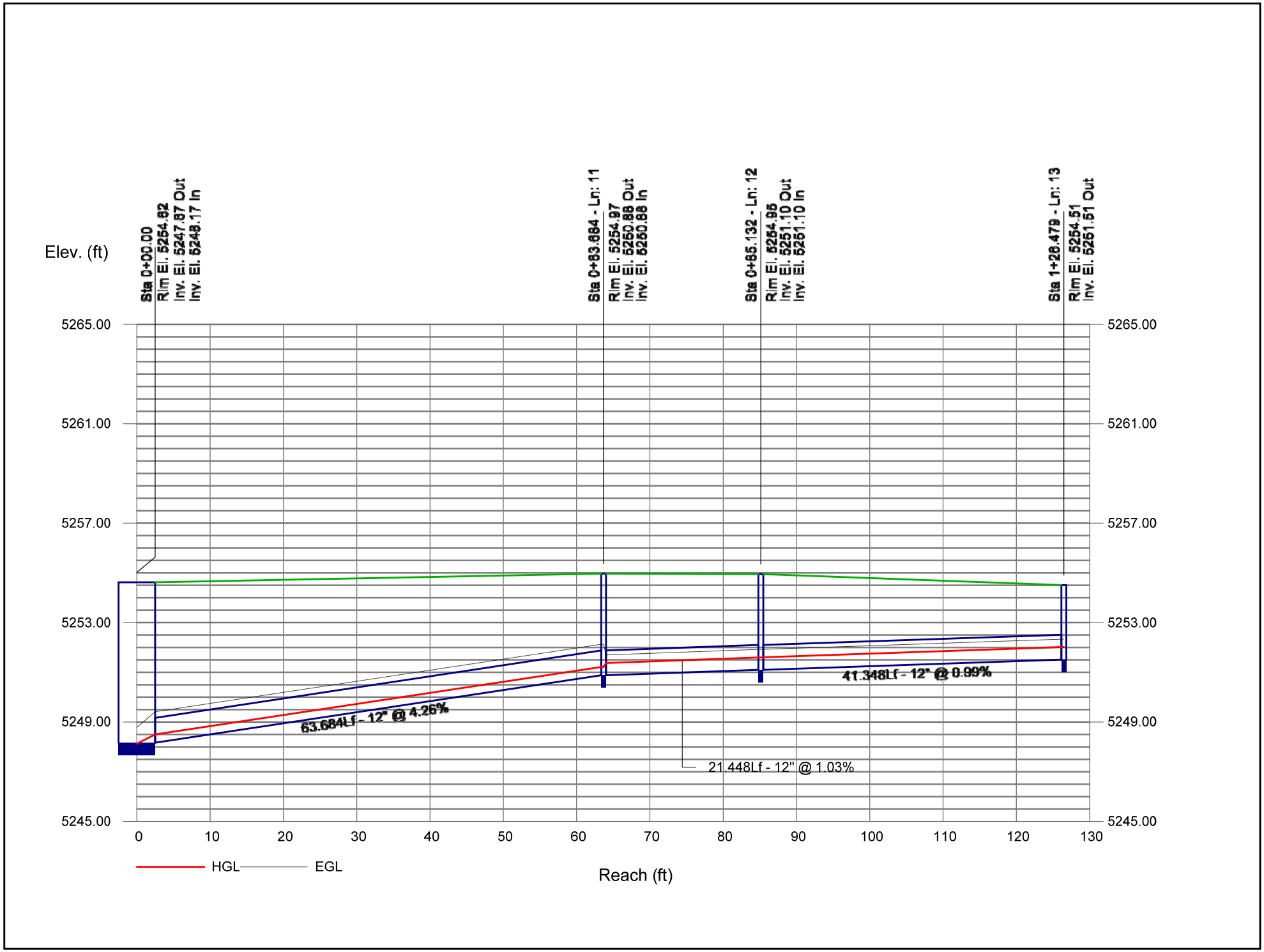
Storm Sewer Profile

Proj. file: System-A-100-year.stm



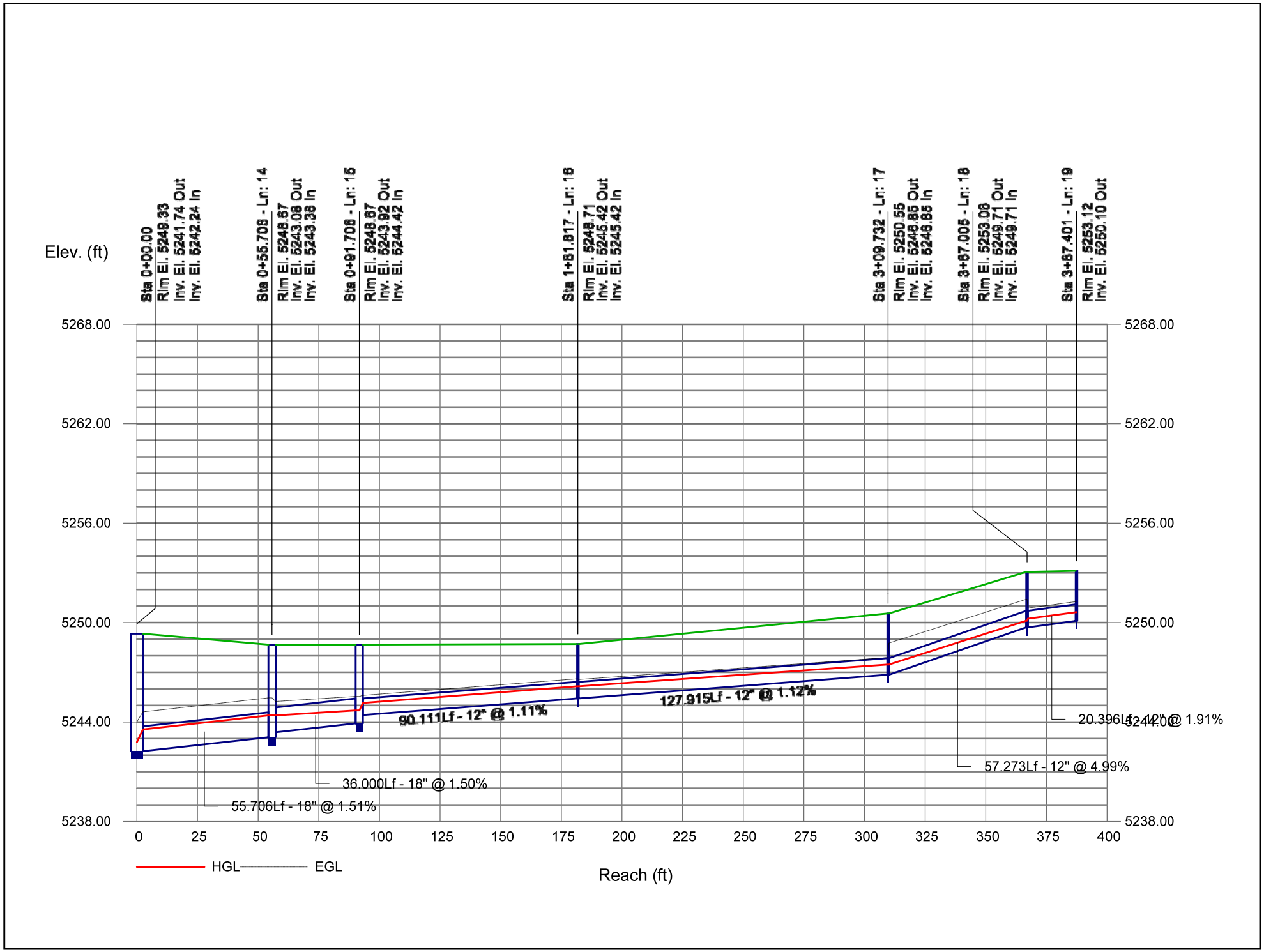
Storm Sewer Profile

Proj. file: System-A-100-year.stm



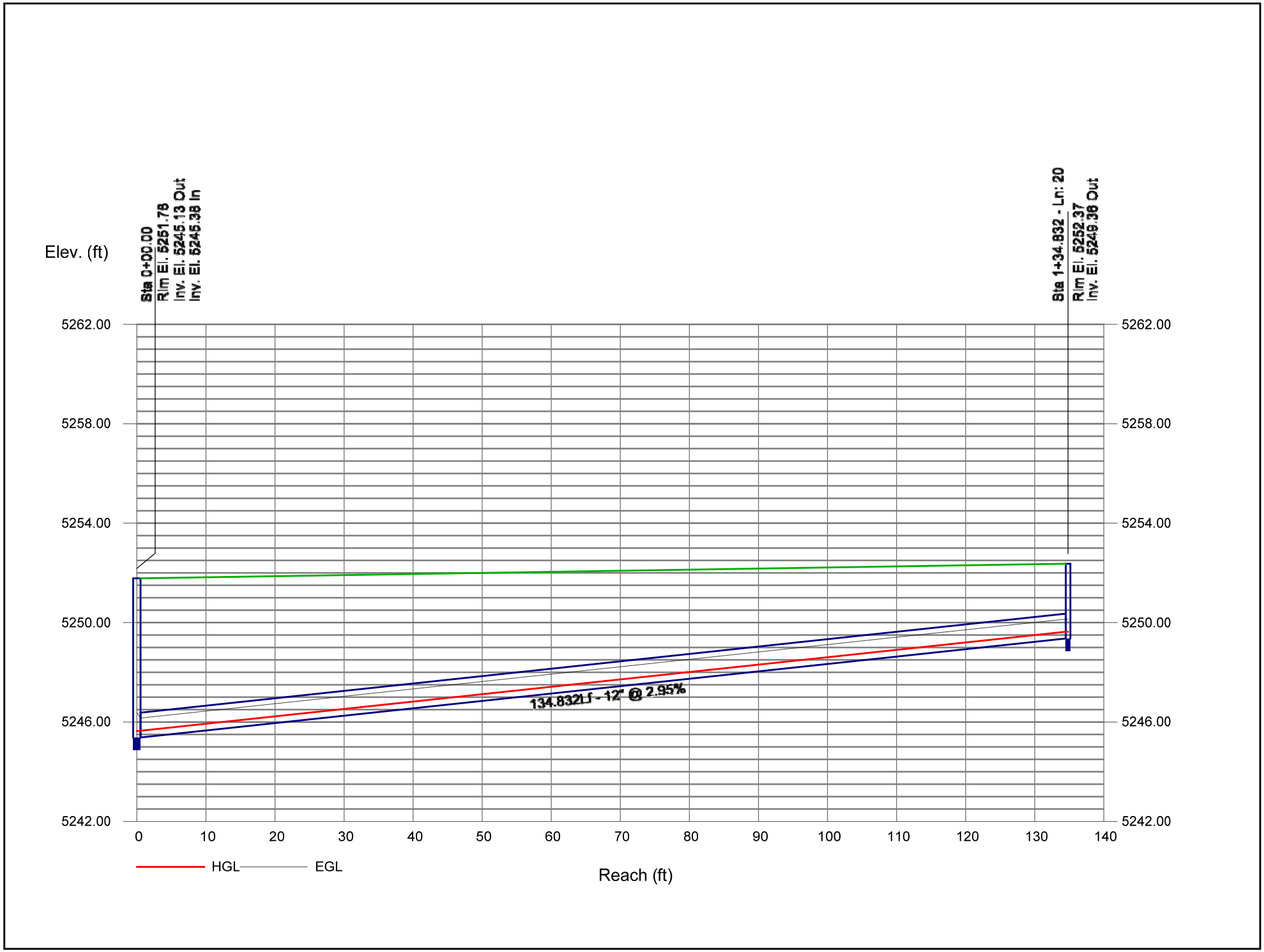
Storm Sewer Profile

Proj. file: System-A-100-year.stm



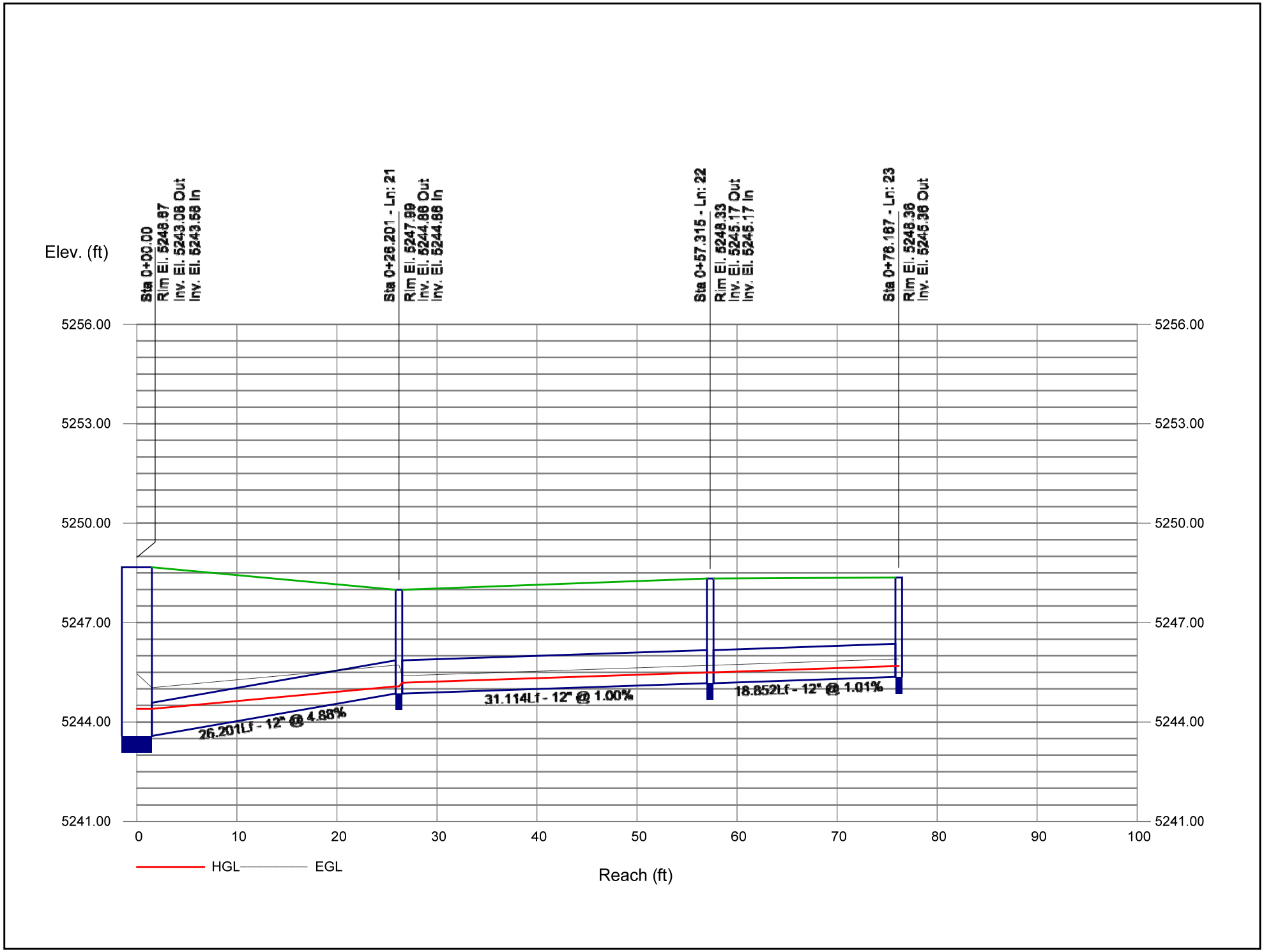
Storm Sewer Profile

Proj. file: System-A-100-year.stm

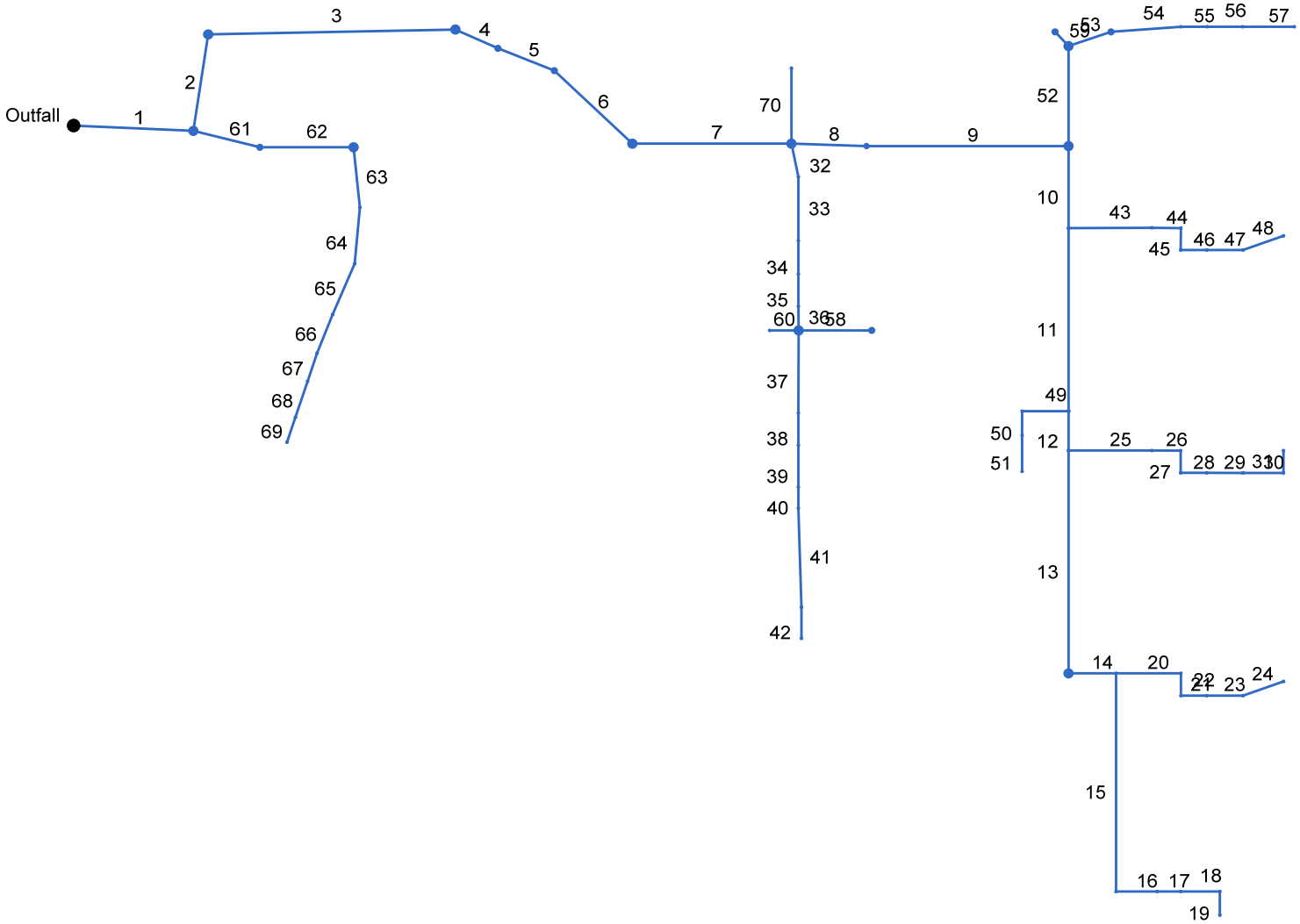


Storm Sewer Profile

Proj. file: System-A-100-year.stm



Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan



Project File: System-B-2-year.stm	Number of lines: 70	Date: 6/22/2015

Storm Sewers v10.00

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (35)	4.47	24	Cir	77.119	5226.52	5230.85	5.615	5227.27	5231.24	n/a	5231.24	End	Manhole
2	Pipe - (34)	3.89	24	Cir	63.071	5231.15	5232.61	2.315	5231.60	5233.06	n/a	5233.06	1	Manhole
3	Pipe - (33)	3.98	24	Cir	159.089	5232.91	5236.62	2.332	5233.37	5237.08	n/a	5237.08	2	Manhole
4	Pipe - (32)	4.00	24	Cir	29.916	5236.82	5237.51	2.306	5237.28	5237.97	n/a	5237.97	3	Manhole
5	Pipe - (31)	3.78	24	Cir	39.051	5237.71	5238.62	2.331	5238.16	5239.07	n/a	5239.07	4	Manhole
6	Pipe - (30)	3.15	24	Cir	68.943	5238.82	5240.43	2.336	5239.23	5240.84	n/a	5240.84	5	Manhole
7	Pipe - (29)	3.02	24	Cir	102.354	5240.73	5243.11	2.325	5241.13	5243.51	n/a	5243.51	6	Manhole
8	Pipe - (26)	2.13	24	Cir	48.300	5243.31	5244.60	2.671	5243.64	5244.93	n/a	5244.93	7	Manhole
9	Pipe - (25)	1.86	24	Cir	130.038	5244.80	5246.10	1.000	5245.19	5246.49	n/a	5246.49	8	Manhole
10	Pipe - (127)	1.00	18	Cir	53.000	5246.60	5247.13	1.000	5246.91	5247.44	n/a	5247.44	9	Manhole
11	Pipe - (126)	0.82	18	Cir	118.313	5247.13	5248.31	0.998	5247.44	5248.59	n/a	5248.59	10	Manhole
12	Pipe - (125)	0.70	18	Cir	25.480	5248.31	5248.57	1.019	5248.59	5248.83	n/a	5248.83	11	Manhole
13	Pipe - (124)	0.53	18	Cir	144.000	5248.57	5250.01	1.000	5248.83	5250.24	n/a	5250.24	12	Manhole
14	Pipe - (123)	0.40	12	Cir	30.554	5250.51	5250.82	1.013	5250.74	5251.05	n/a	5251.05	13	Manhole
15	Pipe - (122)	0.18	12	Cir	141.000	5251.53	5255.74	2.986	5251.65	5255.86	n/a	5255.86	14	Manhole
16	Pipe - (121)	0.19	12	Cir	26.475	5255.74	5256.00	0.981	5255.90	5256.16	n/a	5256.16	15	Manhole
17	Pipe - (120)	0.20	12	Cir	15.194	5256.00	5256.15	0.987	5256.16	5256.31	n/a	5256.31	16	Manhole
18	Pipe - (119)	0.21	12	Cir	25.125	5256.15	5256.40	0.995	5256.32	5256.57	n/a	5256.57	17	Manhole
19	Pipe - (187)	0.22	12	Cir	15.207	5256.40	5256.56	1.053	5256.57	5256.73	n/a	5256.73	18	Manhole
20	Pipe - (150)	0.40	12	Cir	41.722	5251.53	5253.62	5.010	5251.68	5253.77	n/a	5253.77	14	Manhole
21	Pipe - (149)	0.41	12	Cir	14.419	5253.62	5253.98	2.496	5253.80	5254.16	n/a	5254.16	20	Manhole
22	Pipe - (148)	0.42	12	Cir	16.641	5253.98	5254.14	0.962	5254.21	5254.37	n/a	5254.37	21	Manhole
23	Pipe - (147)	0.43	12	Cir	23.361	5254.14	5254.38	1.026	5254.38	5254.61	n/a	5254.61	22	Manhole
24	Pipe - (146)	0.45	12	Cir	27.634	5254.38	5254.65	0.977	5254.62	5254.89	n/a	5254.89	23	Manhole

Project File: System-B-2-year.stm | Number of lines: 70 | Run Date: 6/22/2015

NOTES: Return period = 2 Yrs.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
25	Pipe - (143)	0.40	12	Cir	53.568	5248.77	5249.94	2.184	5248.96	5250.13	n/a	5250.13	12	Manhole
26	Pipe - (142)	0.40	12	Cir	18.600	5249.94	5250.87	5.001	5250.13	5251.02	n/a	5251.02	25	Manhole
27	Pipe - (141)	0.41	12	Cir	14.415	5250.87	5251.60	5.064	5251.02	5251.75	n/a	5251.75	26	Manhole
28	Pipe - (140)	0.42	12	Cir	16.749	5251.60	5252.43	4.956	5251.76	5252.59	n/a	5252.59	27	Manhole
29	Pipe - (139)	0.44	12	Cir	23.361	5252.43	5253.60	5.008	5252.59	5253.76	n/a	5253.76	28	Manhole
30	Pipe - (138) (1)	0.45	12	Cir	26.054	5253.60	5253.87	1.036	5253.84	5254.11	n/a	5254.11	29	Manhole
31	Pipe - (138)	0.46	12	Cir	14.408	5253.87	5254.01	0.969	5254.12	5254.26	n/a	5254.26	30	Manhole
32	Pipe - (100)	1.29	15	Cir	21.905	5243.86	5244.95	4.978	5244.11	5245.20	n/a	5245.20	7	Manhole
33	Pipe - (101)	1.33	15	Cir	41.302	5244.95	5247.02	5.011	5245.21	5247.28	n/a	5247.28	32	Manhole
34	Pipe - (102)	1.34	15	Cir	21.495	5247.02	5247.54	2.419	5247.33	5247.85	n/a	5247.85	33	Manhole
35	Pipe - (103)	1.36	15	Cir	20.912	5247.54	5247.87	1.564	5247.89	5248.21	n/a	5248.21	34	Manhole
36	Pipe - (104)	1.38	15	Cir	15.541	5247.87	5248.11	1.530	5248.22	5248.46	n/a	5248.46	35	Manhole
37	Pipe - (107)	0.88	12	Cir	53.405	5248.36	5249.13	1.442	5248.67	5249.44	n/a	5249.44	36	Manhole
38	Pipe - (179)	0.89	12	Cir	20.769	5249.13	5249.34	1.011	5249.47	5249.68	n/a	5249.68	37	Manhole
39	Pipe - (178) (1)	0.91	12	Cir	27.126	5249.34	5249.61	0.995	5249.68	5249.95	n/a	5249.95	38	Manhole
40	Pipe - (178)	0.91	12	Cir	13.620	5249.61	5249.95	2.499	5249.95	5250.22	n/a	5250.22	39	Manhole
41	Pipe - (177)	0.96	12	Cir	64.018	5249.95	5253.08	4.889	5250.22	5253.32	n/a	5253.32	40	Manhole
42	Pipe - (175)	0.97	12	Cir	20.108	5253.08	5253.28	0.993	5253.44	5253.64	n/a	5253.64	41	Manhole
43	Pipe - (133)	0.39	12	Cir	53.568	5247.33	5247.97	1.195	5247.54	5248.19	n/a	5248.19	10	Manhole
44	Pipe - (132)	0.40	12	Cir	18.709	5247.97	5248.90	4.969	5248.19	5249.05	n/a	5249.05	43	Manhole
45	Pipe - (131)	0.41	12	Cir	14.209	5248.90	5249.61	4.997	5249.05	5249.76	n/a	5249.76	44	Manhole
46	Pipe - (130)	0.42	12	Cir	16.749	5249.61	5250.45	5.017	5249.77	5250.61	n/a	5250.61	45	Manhole
47	Pipe - (129)	0.43	12	Cir	23.361	5250.45	5251.62	5.008	5250.61	5251.78	n/a	5251.78	46	Manhole
48	Pipe - (128)	0.45	12	Cir	27.634	5251.62	5252.10	1.737	5251.83	5252.31	n/a	5252.31	47	Manhole

Project File: System-B-2-year.stm | Number of lines: 70 | Run Date: 6/22/2015

NOTES: Return period = 2 Yrs.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
49	Pipe - (137)	0.23	12	Cir	29.874	5248.51	5250.01	5.021	5248.63	5250.13	n/a	5250.13	11	Manhole
50	Pipe - (136)	0.24	12	Cir	15.636	5250.01	5250.79	4.990	5250.13	5250.91	n/a	5250.91	49	Manhole
51	Pipe - (135)	0.26	12	Cir	23.302	5250.79	5251.95	4.979	5250.91	5252.07	n/a	5252.07	50	Manhole
52	Pipe - (24)	1.32	18	Cir	64.639	5246.60	5248.33	2.676	5246.88	5248.61	n/a	5248.61	9	Manhole
53	Pipe - (23)	0.89	18	Cir	28.829	5248.63	5248.92	1.006	5248.93	5249.22	n/a	5249.22	52	Manhole
54	Pipe - (185)	0.18	12	Cir	45.066	5249.42	5249.97	1.221	5249.57	5250.12	n/a	5250.12	53	Manhole
55	Pipe - (183)	0.19	12	Cir	16.921	5249.97	5250.14	1.004	5250.13	5250.30	n/a	5250.30	54	Manhole
56	Pipe - (182)	0.20	12	Cir	22.870	5250.14	5250.37	1.006	5250.30	5250.53	n/a	5250.53	55	Manhole
57	Pipe - (181)	0.23	12	Cir	33.209	5250.37	5250.70	0.994	5250.54	5250.87	n/a	5250.87	56	Manhole
58	Pipe - (105)	0.44	12	Cir	47.000	5248.46	5249.62	2.468	5248.65	5249.81	n/a	5249.81	36	Manhole
59	Pipe - (36)	0.58	18	Cir	12.617	5248.63	5248.88	1.982	5248.83	5249.08	n/a	5249.08	52	Manhole
60	Pipe - (106)	0.17	12	Cir	18.667	5248.46	5248.83	1.983	5248.59	5248.96	n/a	5248.96	36	Manhole
61	Pipe - (99)	0.96	18	Cir	44.097	5232.85	5236.38	8.005	5233.04	5236.57	n/a	5236.57	1	Manhole
62	Pipe - (169)	0.32	12	Cir	60.313	5236.88	5237.48	0.995	5237.08	5237.68	n/a	5237.68	61	Manhole
63	Pipe - (168)	0.33	12	Cir	39.126	5239.11	5239.51	1.022	5239.31	5239.71	n/a	5239.71	62	Manhole
64	Pipe - (167)	0.34	12	Cir	36.480	5239.51	5241.33	4.990	5239.71	5241.47	n/a	5241.47	63	Manhole
65	Pipe - (166)	0.36	12	Cir	35.759	5241.33	5242.82	4.166	5241.48	5242.97	n/a	5242.97	64	Manhole
66	Pipe - (165) (1) (1) (1)	0.20	12	Cir	26.984	5242.82	5243.40	2.150	5242.97	5243.53	n/a	5243.53	65	Manhole
67	Pipe - (165) (1) (1)	0.21	12	Cir	19.105	5243.40	5243.67	1.413	5243.55	5243.82	n/a	5243.82	66	Manhole
68	Pipe - (165) (1)	0.22	12	Cir	24.557	5243.67	5244.42	3.054	5243.82	5244.55	n/a	5244.55	67	Manhole
69	Pipe - (165)	0.23	12	Cir	17.019	5244.42	5244.94	3.055	5244.55	5245.07	n/a	5245.07	68	Manhole
70	Pipe - (37)	0.45	12	Cir	48.777	5244.11	5244.60	1.005	5244.35	5244.84	n/a	5244.84	7	Manhole

Project File: System-B-2-year.stm | Number of lines: 70 | Run Date: 6/22/2015

NOTES: Return period = 2 Yrs.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	24	4.47	5226.52	5227.27	0.75	0.43	0.97	1.66	5228.93	0.000	77.119	5230.85	5231.24	0.39	0.43	10.34	1.66	5232.90	0.000	0.000	0.000	1.00	n/a
2	24	3.89	5231.15	5231.60	0.45*	0.54	0.00	0.82	5232.42	0.000	63.071	5232.61	5233.06	0.45	0.54	7.25	0.82	5233.88	0.000	0.000	0.000	0.99	n/a
3	24	3.98	5232.91	5233.37	0.46*	0.54	0.00	0.83	5234.20	0.000	159.089	5236.62	5237.08	0.46	0.54	7.32	0.83	5237.91	0.000	0.000	0.000	0.48	n/a
4	24	4.00	5236.82	5237.28	0.46*	0.55	0.00	0.83	5238.11	0.000	29.916	5237.51	5237.97	0.46	0.55	7.30	0.83	5238.80	0.000	0.000	0.000	0.15	n/a
5	24	3.78	5237.71	5238.16	0.45*	0.52	0.00	0.81	5238.97	0.000	39.051	5238.62	5239.07	0.45	0.52	7.22	0.81	5239.88	0.000	0.000	0.000	0.42	n/a
6	24	3.15	5238.82	5239.23	0.41*	0.46	0.00	0.73	5239.95	0.000	68.943	5240.43	5240.84	0.41	0.46	6.83	0.73	5241.56	0.000	0.000	0.000	0.73	n/a
7	24	3.02	5240.73	5241.13	0.40*	0.45	0.00	0.71	5241.84	0.000	102.354	5243.11	5243.51	0.40	0.45	6.74	0.71	5244.22	0.000	0.000	0.000	1.00	n/a
8	24	2.13	5243.31	5243.64	0.33*	0.33	0.00	0.64	5244.27	0.000	48.300	5244.60	5244.93	0.33	0.33	6.39	0.64	5245.56	0.000	0.000	0.000	0.15	n/a
9	24	1.86	5244.80	5245.19	0.39*	0.43	6.98	0.29	5245.48	0.000	130.038	5246.10	5246.49	0.39	0.43	4.34	0.29	5246.78	0.000	0.000	0.000	1.00	n/a
10	18	1.00	5246.60	5246.91	0.31*	0.27	3.88	0.22	5247.13	0.000	53.000	5247.13	5247.44	0.31	0.27	3.74	0.22	5247.66	0.000	0.000	0.000	1.00	n/a
11	18	0.82	5247.13	5247.44	0.31	0.23	3.19	0.19	5247.64	0.000	118.313	5248.31	5248.59	0.28	0.23	3.53	0.19	5248.79	0.000	0.000	0.000	1.00	n/a
12	18	0.70	5248.31	5248.59	0.28	0.21	2.89	0.18	5248.77	0.000	25.480	5248.57	5248.83	0.26	0.21	3.40	0.18	5249.01	0.000	0.000	0.000	1.00	n/a
13	18	0.53	5248.57	5248.83	0.26	0.17	2.75	0.15	5248.98	0.000	144.000	5250.01	5250.24	0.23	0.17	3.10	0.15	5250.39	0.000	0.000	0.000	1.00	n/a
14	12	0.40	5250.51	5250.74	0.23*	0.13	6.10	0.14	5250.88	0.000	30.554	5250.82	5251.05	0.23	0.13	3.02	0.14	5251.19	0.000	0.000	0.000	1.00	n/a
15	12	0.18	5251.53	5251.65	0.12*	0.05	1.41	0.18	5251.83	0.000	141.000	5255.74	5255.86	0.12	0.05	3.45	0.18	5256.04	0.000	0.000	0.000	1.00	n/a
16	12	0.19	5255.74	5255.90	0.16*	0.08	1.43	0.09	5255.99	0.000	26.475	5256.00	5256.16	0.16	0.08	2.38	0.09	5256.25	0.000	0.000	0.000	0.15	n/a
17	12	0.20	5256.00	5256.16	0.16*	0.08	1.45	0.09	5256.25	0.000	15.194	5256.15	5256.31	0.16	0.08	2.42	0.09	5256.40	0.000	0.000	0.000	0.15	n/a
18	12	0.21	5256.15	5256.32	0.17*	0.09	1.47	0.10	5256.41	0.000	25.125	5256.40	5256.57	0.17	0.09	2.48	0.10	5256.66	0.000	0.000	0.000	1.00	n/a
19	12	0.22	5256.40	5256.57	0.17*	0.09	1.48	0.10	5256.67	0.000	15.207	5256.56	5256.73	0.17	0.09	2.56	0.10	5256.83	0.000	0.000	0.000	1.00	n/a
20	12	0.40	5251.53	5251.68	0.15*	0.08	2.34	0.44	5252.12	0.000	41.722	5253.62	5253.77	0.15	0.08	5.29	0.44	5254.21	0.000	0.000	0.000	1.00	n/a
21	12	0.41	5253.62	5253.80	0.18*	0.10	2.35	0.27	5254.07	0.000	14.419	5253.98	5254.16	0.18	0.10	4.17	0.27	5254.43	0.000	0.000	0.000	1.00	n/a
22	12	0.42	5253.98	5254.21	0.23*	0.14	2.37	0.14	5254.35	0.000	16.641	5254.14	5254.37	0.23	0.14	3.00	0.14	5254.51	0.000	0.000	0.000	0.15	n/a

Project File: System-B-2-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
23	12	0.43	5254.14	5254.38	0.23*	0.14	2.39	0.15	5254.52	0.000	23.361	5254.38	5254.61	0.23	0.14	3.10	0.15	5254.76	0.000	0.000	0.000	0.39	n/a
24	12	0.45	5254.38	5254.62	0.24*	0.15	2.41	0.15	5254.77	0.000	27.634	5254.65	5254.89	0.24	0.15	3.08	0.15	5255.04	0.000	0.000	0.000	1.00	n/a
25	12	0.40	5248.77	5248.96	0.19*	0.10	2.31	0.24	5249.20	0.000	53.568	5249.94	5250.13	0.19	0.10	3.94	0.24	5250.37	0.000	0.000	0.000	0.15	n/a
26	12	0.40	5249.94	5250.13	0.19	0.08	2.33	0.44	5250.56	0.000	18.600	5250.87	5251.02	0.15	0.08	5.30	0.44	5251.46	0.000	0.000	0.000	1.00	n/a
27	12	0.41	5250.87	5251.02	0.15*	0.08	2.34	0.45	5251.47	0.000	14.415	5251.60	5251.75	0.15	0.08	5.36	0.45	5252.20	0.000	0.000	0.000	1.00	n/a
28	12	0.42	5251.60	5251.76	0.16*	0.08	2.35	0.45	5252.20	0.000	16.749	5252.43	5252.59	0.16	0.08	5.36	0.45	5253.03	0.000	0.000	0.000	0.15	n/a
29	12	0.44	5252.43	5252.59	0.16*	0.08	2.38	0.46	5253.05	0.000	23.361	5253.60	5253.76	0.16	0.08	5.43	0.46	5254.22	0.000	0.000	0.000	0.15	n/a
30	12	0.45	5253.60	5253.84	0.24*	0.14	2.40	0.15	5253.99	0.000	26.054	5253.87	5254.11	0.24	0.14	3.15	0.15	5254.26	0.000	0.000	0.000	1.00	n/a
31	12	0.46	5253.87	5254.12	0.25*	0.15	2.41	0.15	5254.27	0.000	14.408	5254.01	5254.26	0.25	0.15	3.10	0.15	5254.40	0.000	0.000	0.000	1.00	n/a
32	15	1.29	5243.86	5244.11	0.25*	0.18	0.00	0.82	5244.94	0.000	21.905	5244.95	5245.20	0.25	0.18	7.27	0.82	5246.03	0.000	0.000	0.000	0.24	n/a
33	15	1.33	5244.95	5245.21	0.26*	0.18	0.00	0.84	5246.04	0.000	41.302	5247.02	5247.28	0.26	0.18	7.34	0.84	5248.11	0.000	0.000	0.000	0.15	n/a
34	15	1.34	5247.02	5247.33	0.31*	0.24	0.00	0.50	5247.83	0.000	21.495	5247.54	5247.85	0.31	0.24	5.69	0.50	5248.35	0.000	0.000	0.000	0.15	n/a
35	15	1.36	5247.54	5247.89	0.35*	0.28	7.34	0.37	5248.26	0.000	20.912	5247.87	5248.21	0.35	0.28	4.89	0.37	5248.59	0.000	0.000	0.000	0.15	n/a
36	15	1.38	5247.87	5248.22	0.35*	0.28	7.35	0.37	5248.59	0.000	15.541	5248.11	5248.46	0.35	0.28	4.87	0.37	5248.83	0.000	0.000	0.000	1.00	n/a
37	12	0.88	5248.36	5248.67	0.31*	0.20	4.49	0.28	5248.95	0.000	53.405	5249.13	5249.44	0.31	0.20	4.28	0.28	5249.72	0.000	0.000	0.000	0.15	n/a
38	12	0.89	5249.13	5249.47	0.34*	0.24	5.20	0.22	5249.69	0.000	20.769	5249.34	5249.68	0.34	0.24	3.78	0.22	5249.90	0.000	0.000	0.000	0.15	n/a
39	12	0.91	5249.34	5249.68	0.34*	0.24	4.90	0.22	5249.91	0.000	27.126	5249.61	5249.95	0.34	0.24	3.78	0.22	5250.18	0.000	0.000	0.000	0.15	n/a
40	12	0.91	5249.61	5249.95	0.34	0.17	4.55	0.43	5250.39	0.000	13.620	5249.95	5250.22	0.27	0.17	5.27	0.43	5250.65	0.000	0.000	0.000	0.15	n/a
41	12	0.96	5249.95	5250.22	0.27	0.14	4.61	0.71	5250.94	0.000	64.018	5253.08	5253.32	0.24	0.14	6.78	0.71	5254.03	0.000	0.000	0.000	0.15	n/a
42	12	0.97	5253.08	5253.44	0.36*	0.25	5.15	0.23	5253.67	0.000	20.108	5253.28	5253.64	0.36	0.25	3.85	0.23	5253.87	0.000	0.000	0.000	1.00	n/a
43	12	0.39	5247.33	5247.54	0.21*	0.12	2.32	0.16	5247.70	0.000	53.568	5247.97	5248.19	0.21	0.12	3.17	0.16	5248.34	0.000	0.000	0.000	0.15	n/a
44	12	0.40	5247.97	5248.19	0.21	0.08	2.34	0.43	5248.62	0.000	18.709	5248.90	5249.05	0.15	0.08	5.28	0.43	5249.49	0.000	0.000	0.000	1.00	n/a

Project File: System-B-2-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
45	12	0.41	5248.90	5249.05	0.15*	0.08	2.35	0.44	5249.49	0.000	14.209	5249.61	5249.76	0.15	0.08	5.32	0.44	5250.20	0.000	0.000	0.000	1.00	n/a
46	12	0.42	5249.61	5249.77	0.16*	0.08	2.37	0.45	5250.21	0.000	16.749	5250.45	5250.61	0.16	0.08	5.37	0.45	5251.05	0.000	0.000	0.000	0.15	n/a
47	12	0.43	5250.45	5250.61	0.16*	0.08	2.39	0.46	5251.07	0.000	23.361	5251.62	5251.78	0.16	0.08	5.42	0.46	5252.24	0.000	0.000	0.000	0.39	n/a
48	12	0.45	5251.62	5251.83	0.21*	0.12	0.00	0.22	5252.05	0.000	27.634	5252.10	5252.31	0.21	0.12	3.78	0.22	5252.53	0.000	0.000	0.000	1.00	n/a
49	12	0.23	5248.51	5248.63	0.12*	0.05	1.07	0.31	5248.94	0.000	29.874	5250.01	5250.13	0.12	0.05	4.50	0.31	5250.44	0.000	0.000	0.000	1.00	n/a
50	12	0.24	5250.01	5250.13	0.12*	0.05	1.09	0.32	5250.45	0.000	15.636	5250.79	5250.91	0.12	0.05	4.54	0.32	5251.23	0.000	0.000	0.000	0.15	n/a
51	12	0.26	5250.79	5250.91	0.12*	0.06	1.11	0.33	5251.25	0.000	23.302	5251.95	5252.07	0.12	0.06	4.63	0.33	5252.41	0.000	0.000	0.000	1.00	n/a
52	18	1.32	5246.60	5246.88	0.28*	0.23	0.00	0.51	5247.40	0.000	64.639	5248.33	5248.61	0.28	0.23	5.75	0.51	5249.13	0.000	0.000	0.000	0.96	n/a
53	18	0.89	5248.63	5248.93	0.30*	0.25	0.00	0.20	5249.13	0.000	28.829	5248.92	5249.22	0.30	0.25	3.63	0.20	5249.42	0.000	0.000	0.000	0.29	n/a
54	12	0.18	5249.42	5249.57	0.15*	0.07	0.00	0.10	5249.67	0.000	45.066	5249.97	5250.12	0.15	0.07	2.56	0.10	5250.22	0.000	0.000	0.000	0.15	n/a
55	12	0.19	5249.97	5250.13	0.16*	0.08	0.00	0.09	5250.22	0.000	16.921	5250.14	5250.30	0.16	0.08	2.42	0.09	5250.39	0.000	0.000	0.000	0.15	n/a
56	12	0.20	5250.14	5250.30	0.16*	0.08	0.00	0.09	5250.40	0.000	22.870	5250.37	5250.53	0.16	0.08	2.47	0.09	5250.63	0.000	0.000	0.000	0.15	n/a
57	12	0.23	5250.37	5250.54	0.17*	0.09	0.00	0.10	5250.64	0.000	33.209	5250.70	5250.87	0.17	0.09	2.53	0.10	5250.97	0.000	0.000	0.000	1.00	n/a
58	12	0.44	5248.46	5248.65	0.19*	0.10	0.00	0.28	5248.93	0.000	47.000	5249.62	5249.81	0.19	0.10	4.24	0.28	5250.09	0.000	0.000	0.000	1.00	n/a
59	18	0.58	5248.63	5248.83	0.20*	0.14	0.00	0.26	5249.09	0.000	12.617	5248.88	5249.08	0.20	0.14	4.05	0.26	5249.34	0.000	0.000	0.000	1.00	n/a
60	12	0.17	5248.46	5248.59	0.13*	0.06	0.00	0.14	5248.72	0.000	18.667	5248.83	5248.96	0.13	0.06	2.95	0.14	5249.09	0.000	0.000	0.000	1.00	n/a
61	18	0.96	5232.85	5233.04	0.19*	0.12	0.00	0.92	5233.95	0.000	44.097	5236.38	5236.57	0.19	0.12	7.69	0.92	5237.48	0.000	0.000	0.000	0.29	n/a
62	12	0.32	5236.88	5237.08	0.20*	0.11	0.00	0.12	5237.20	0.000	60.313	5237.48	5237.68	0.20	0.11	2.79	0.12	5237.80	0.000	0.000	0.000	1.00	n/a
63	12	0.33	5239.11	5239.31	0.20*	0.12	0.00	0.13	5239.44	0.000	39.126	5239.51	5239.71	0.20	0.12	2.85	0.13	5239.84	0.000	0.000	0.000	0.23	n/a
64	12	0.34	5239.51	5239.71	0.20	0.07	0.00	0.40	5240.11	0.000	36.480	5241.33	5241.47	0.14	0.07	5.05	0.40	5241.87	0.000	0.000	0.000	0.36	n/a
65	12	0.36	5241.33	5241.48	0.15*	0.07	0.00	0.36	5241.84	0.000	35.759	5242.82	5242.97	0.15	0.07	4.80	0.36	5243.33	0.000	0.000	0.000	0.15	n/a
66	12	0.20	5242.82	5242.97	0.15	0.06	0.00	0.16	5243.13	0.000	26.984	5243.40	5243.53	0.13	0.06	3.18	0.16	5243.69	0.000	0.000	0.000	0.15	n/a

Project File: System-B-2-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

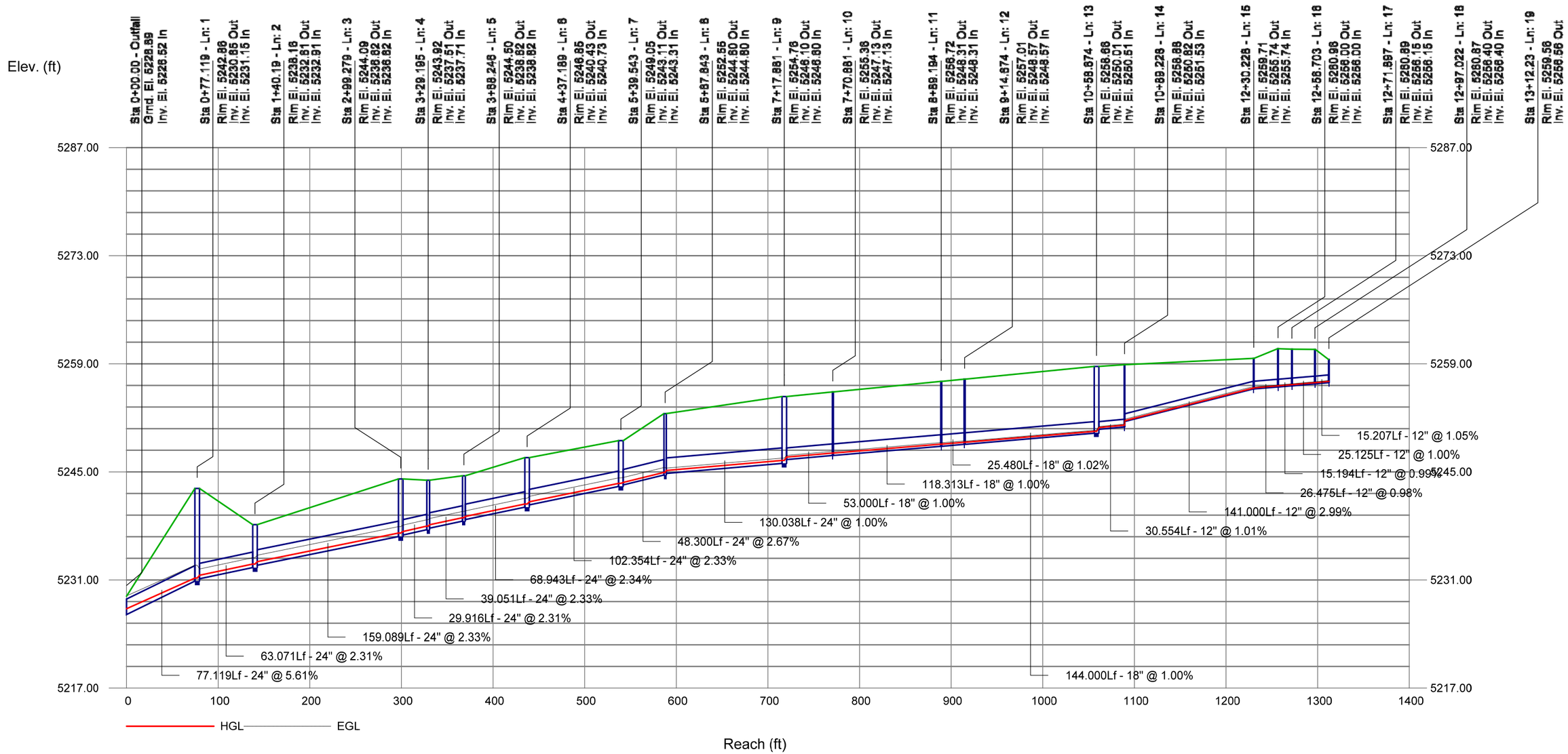
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
67	12	0.21	5243.40	5243.55	0.15*	0.07	0.00	0.12	5243.67	0.000	19.105	5243.67	5243.82	0.15	0.07	2.78	0.12	5243.94	0.000	0.000	0.000	0.15	n/a
68	12	0.22	5243.67	5243.82	0.15	0.06	0.00	0.22	5244.04	0.000	24.557	5244.42	5244.55	0.13	0.06	3.72	0.22	5244.76	0.000	0.000	0.000	0.15	n/a
69	12	0.23	5244.42	5244.55	0.13*	0.06	0.00	0.22	5244.77	0.000	17.019	5244.94	5245.07	0.13	0.06	3.78	0.22	5245.29	0.000	0.000	0.000	1.00	n/a
70	12	0.45	5244.11	5244.35	0.24*	0.14	0.00	0.15	5244.50	0.000	48.777	5244.60	5244.84	0.24	0.14	3.11	0.15	5244.99	0.000	0.000	0.000	1.00	n/a

Project File: System-B-2-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

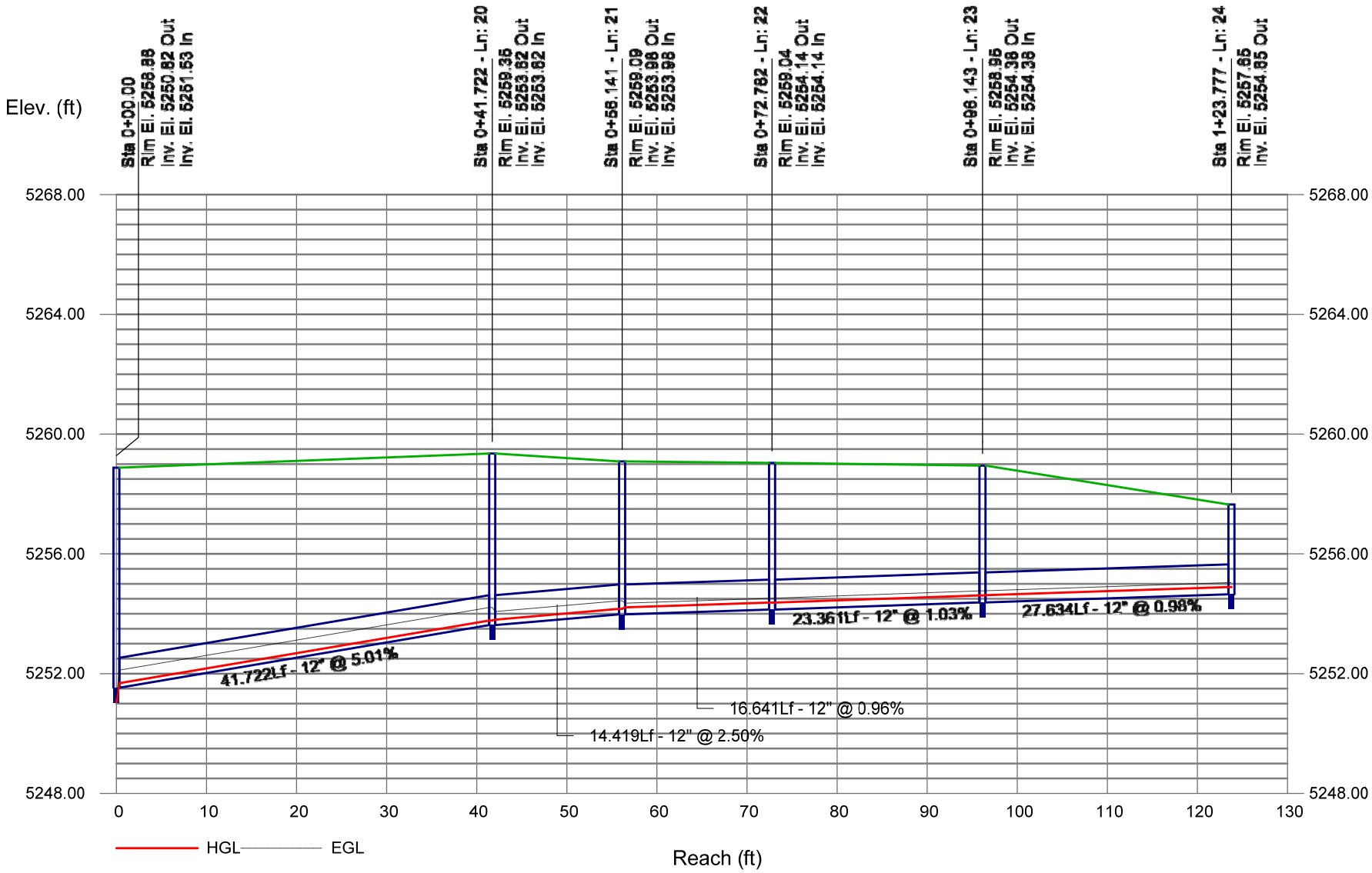
Storm Sewer Profile

Proj. file: System-B-2-year.stm



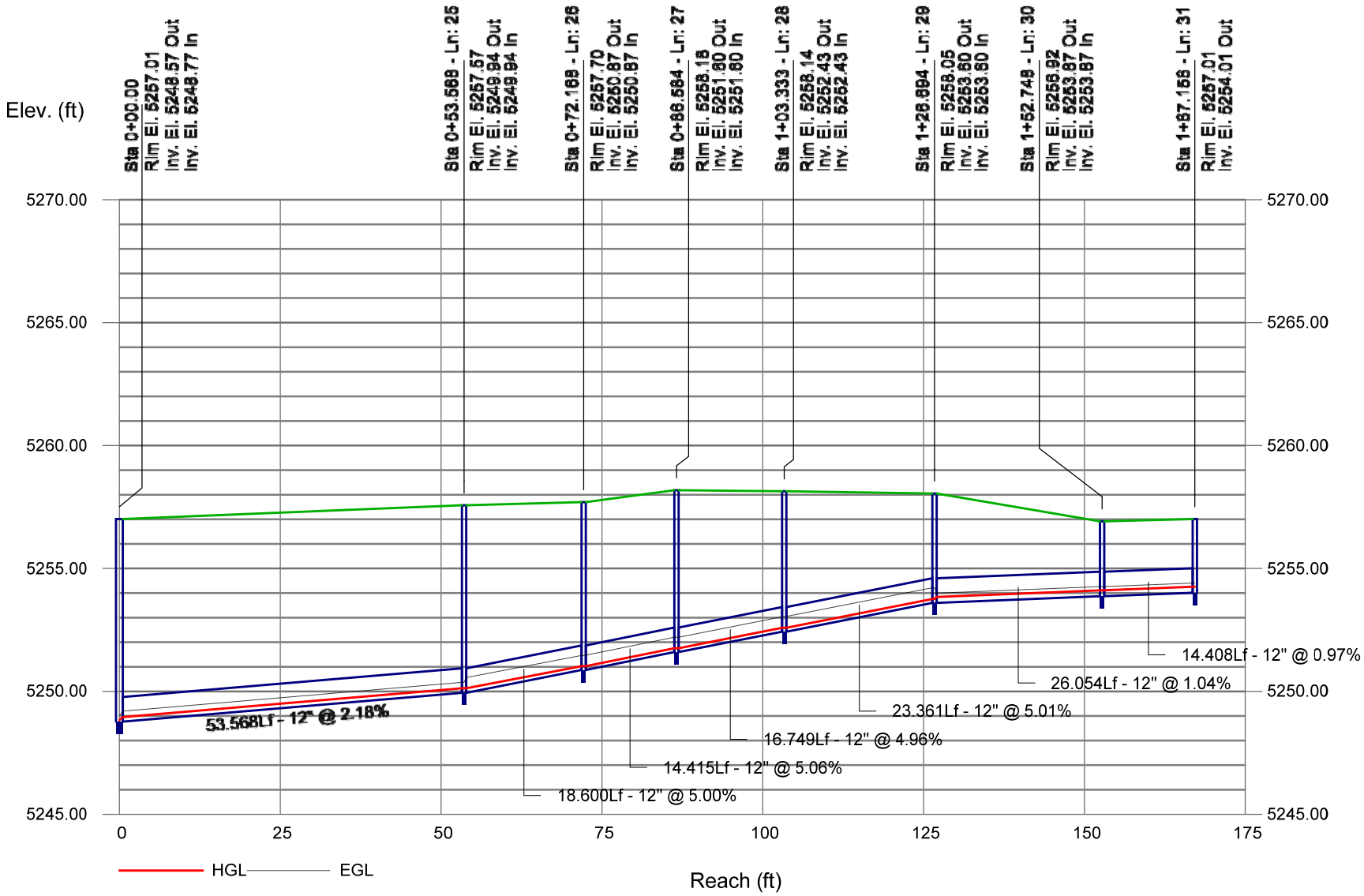
Storm Sewer Profile

Proj. file: System-B-2-year.stm



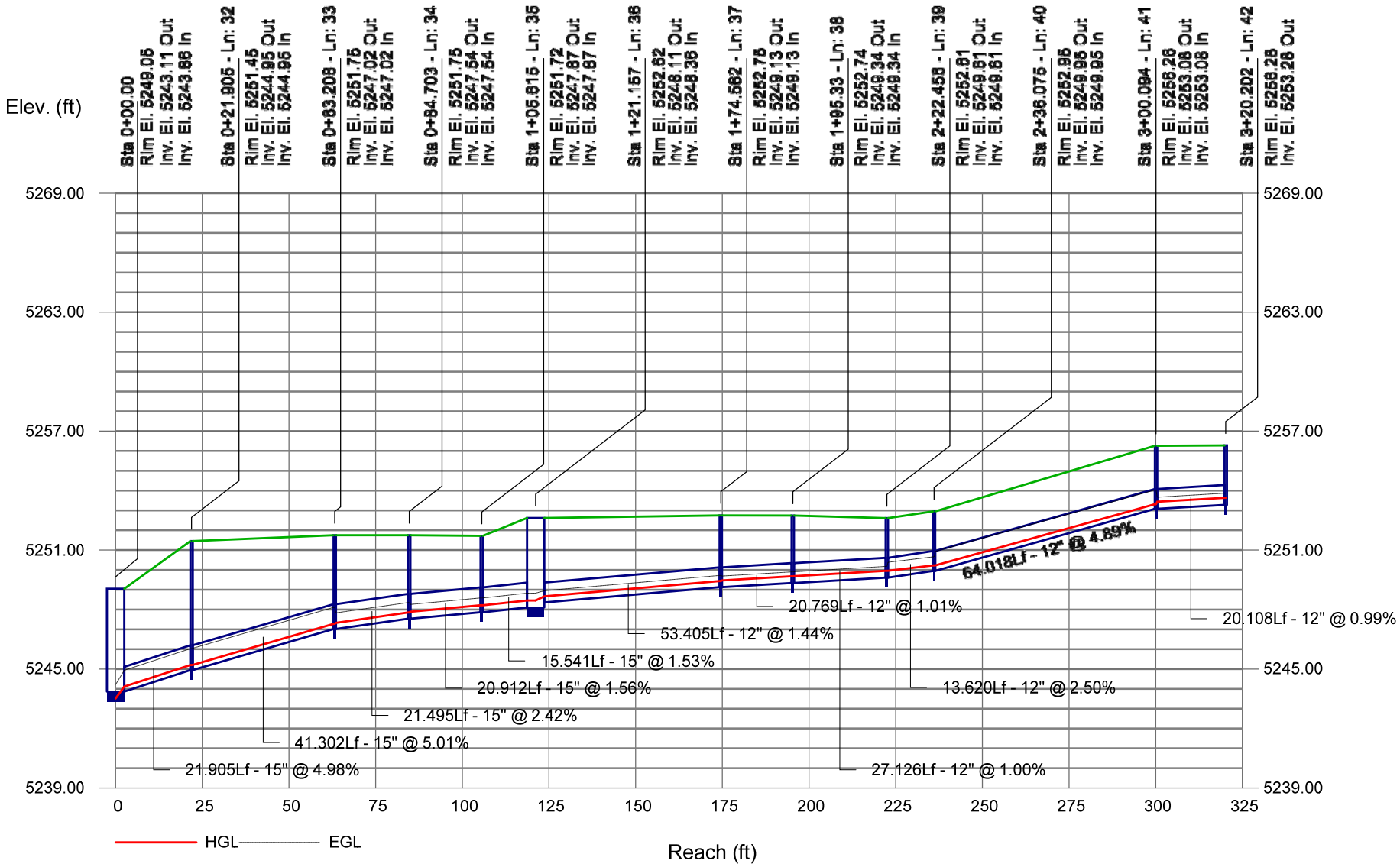
Storm Sewer Profile

Proj. file: System-B-2-year.stm



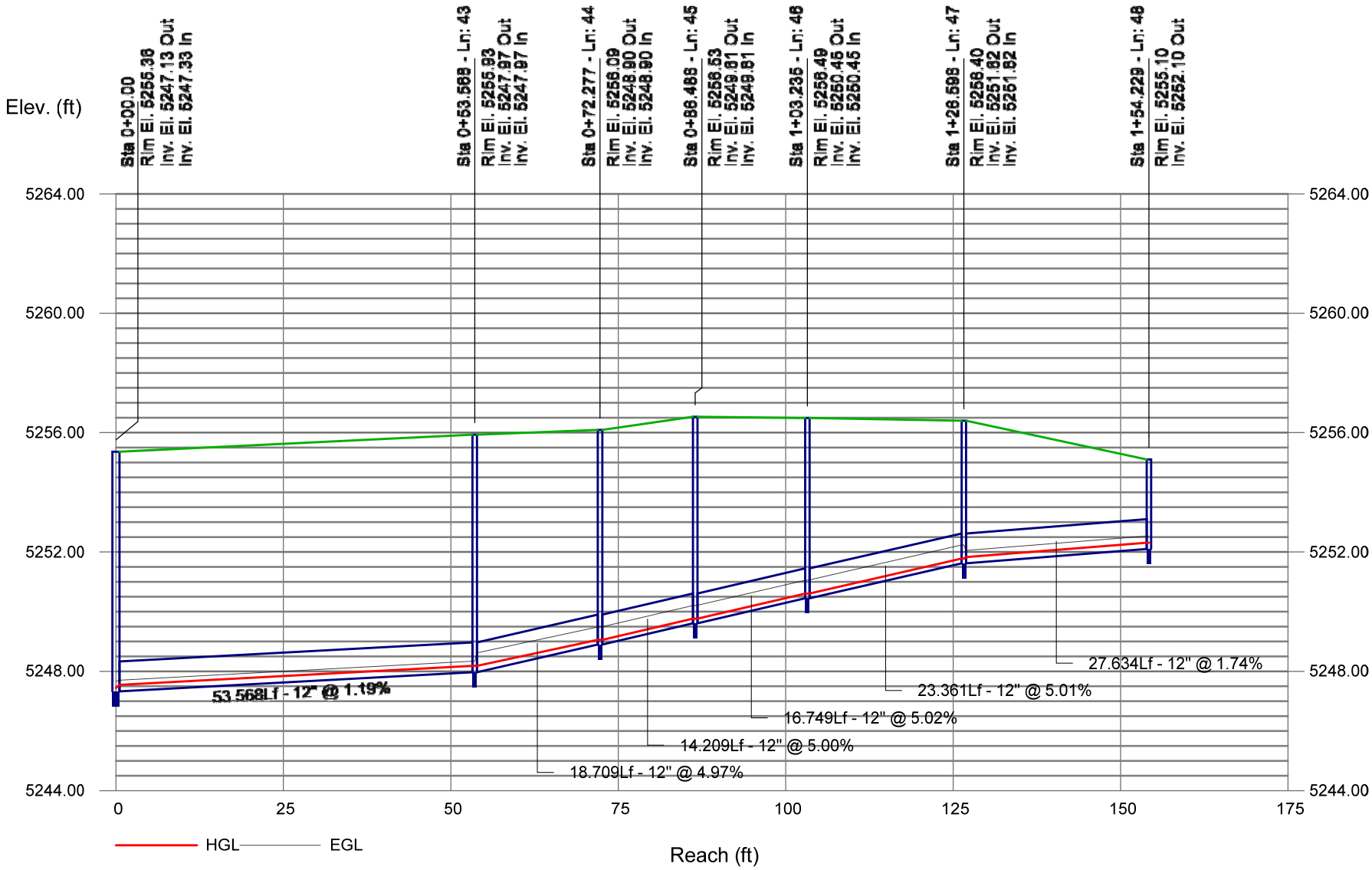
Storm Sewer Profile

Proj. file: System-B-2-year.stm



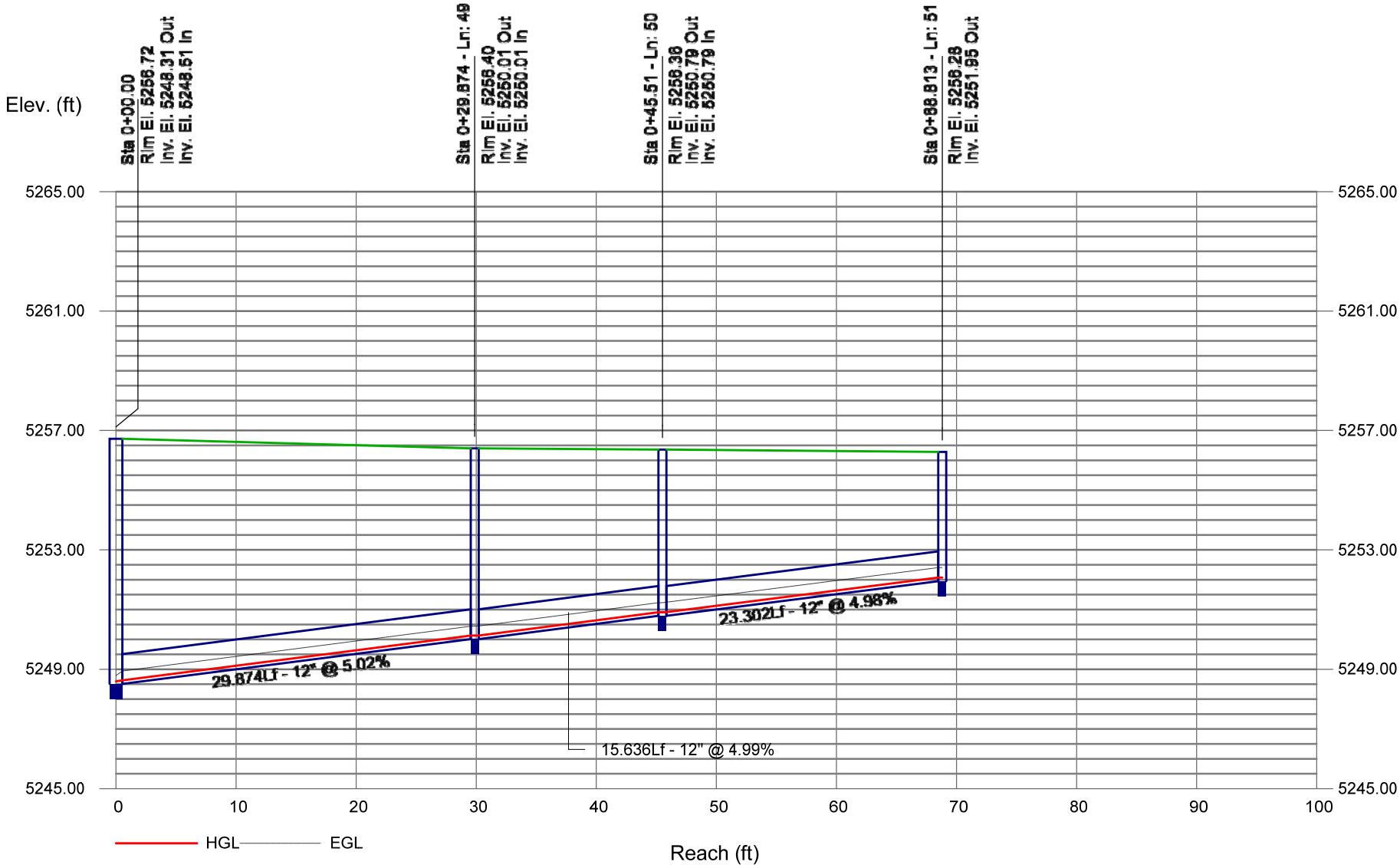
Storm Sewer Profile

Proj. file: System-B-2-year.stm



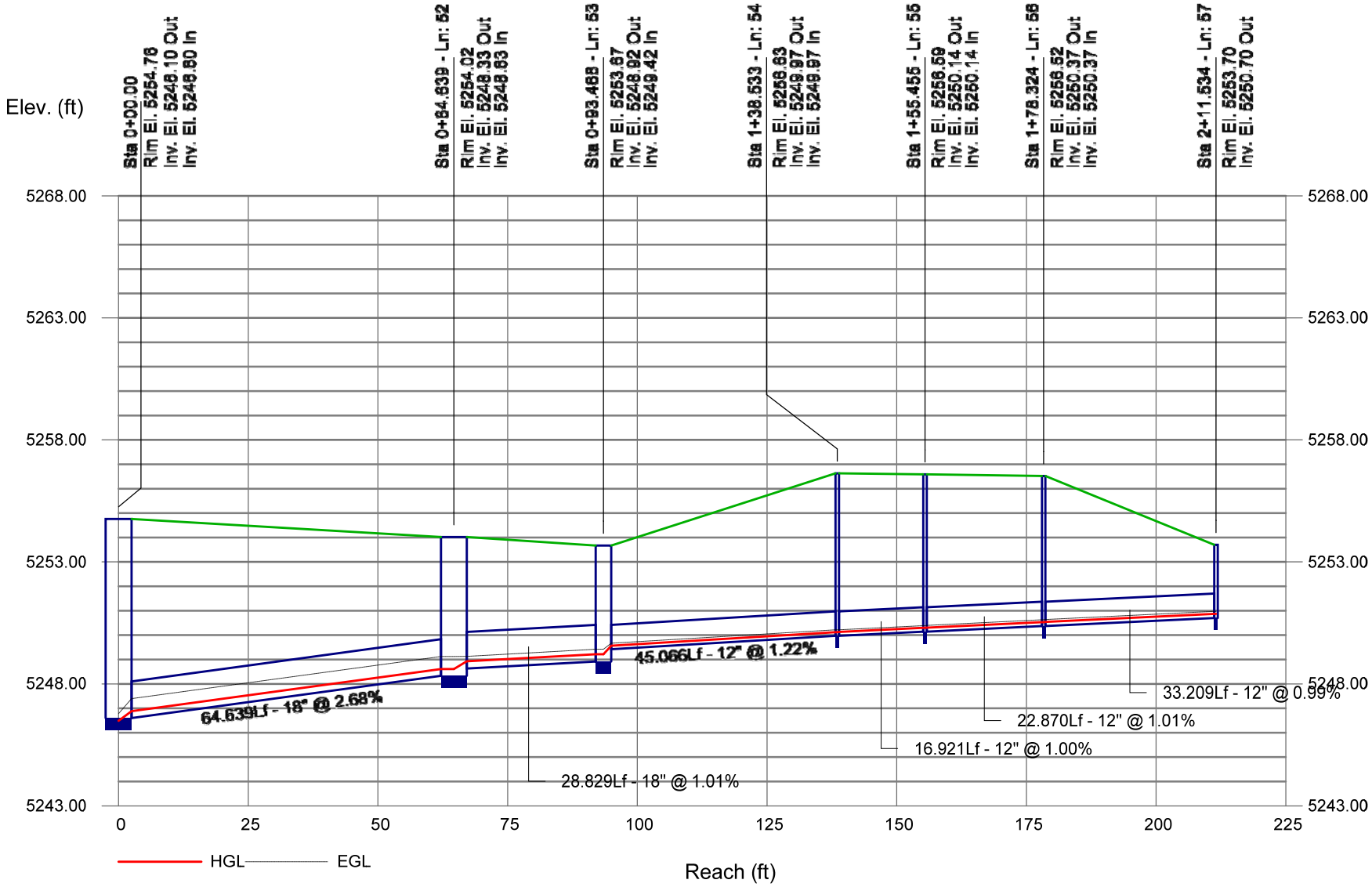
Storm Sewer Profile

Proj. file: System-B-2-year.stm



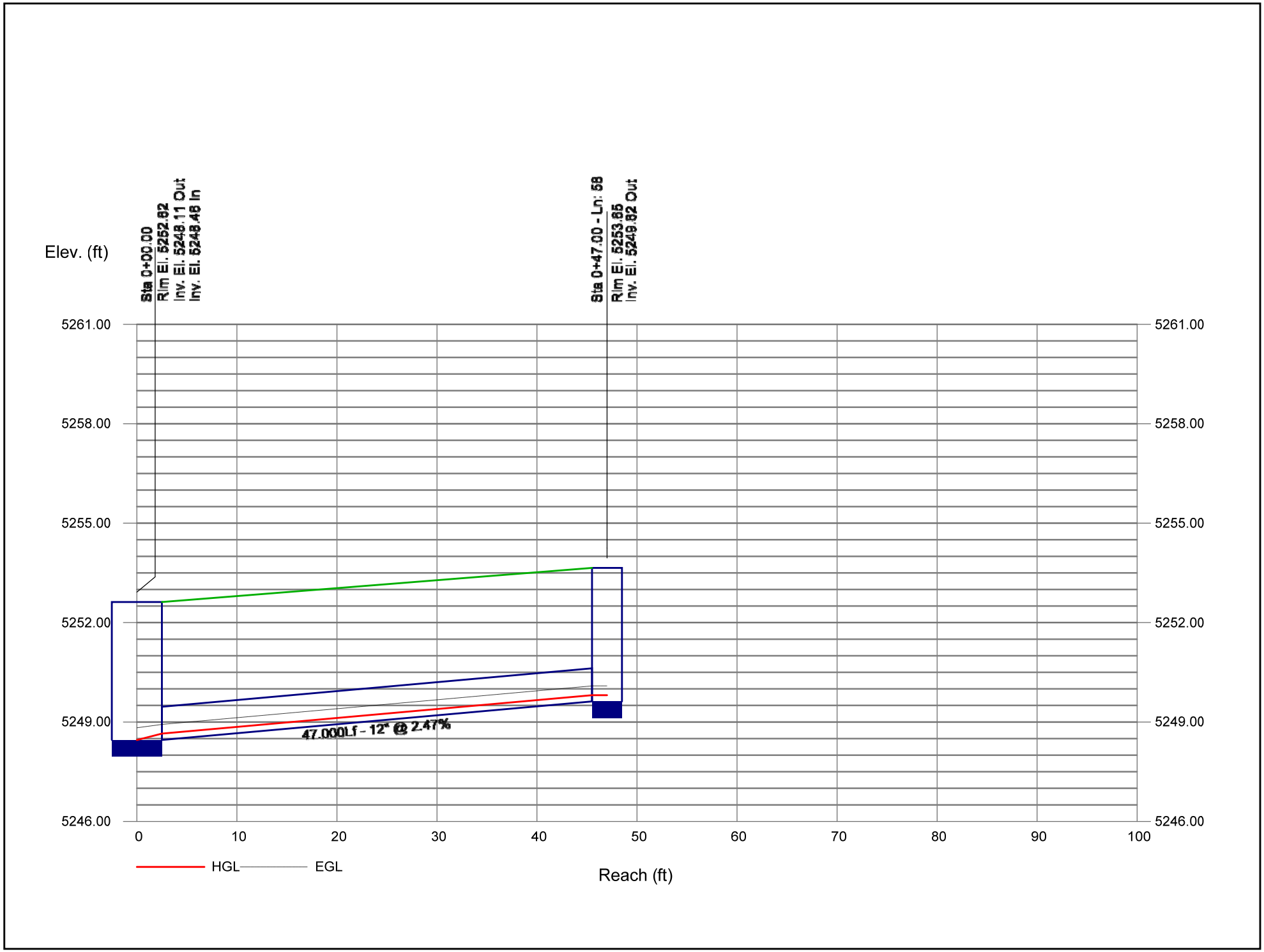
Storm Sewer Profile

Proj. file: System-B-2-year.stm



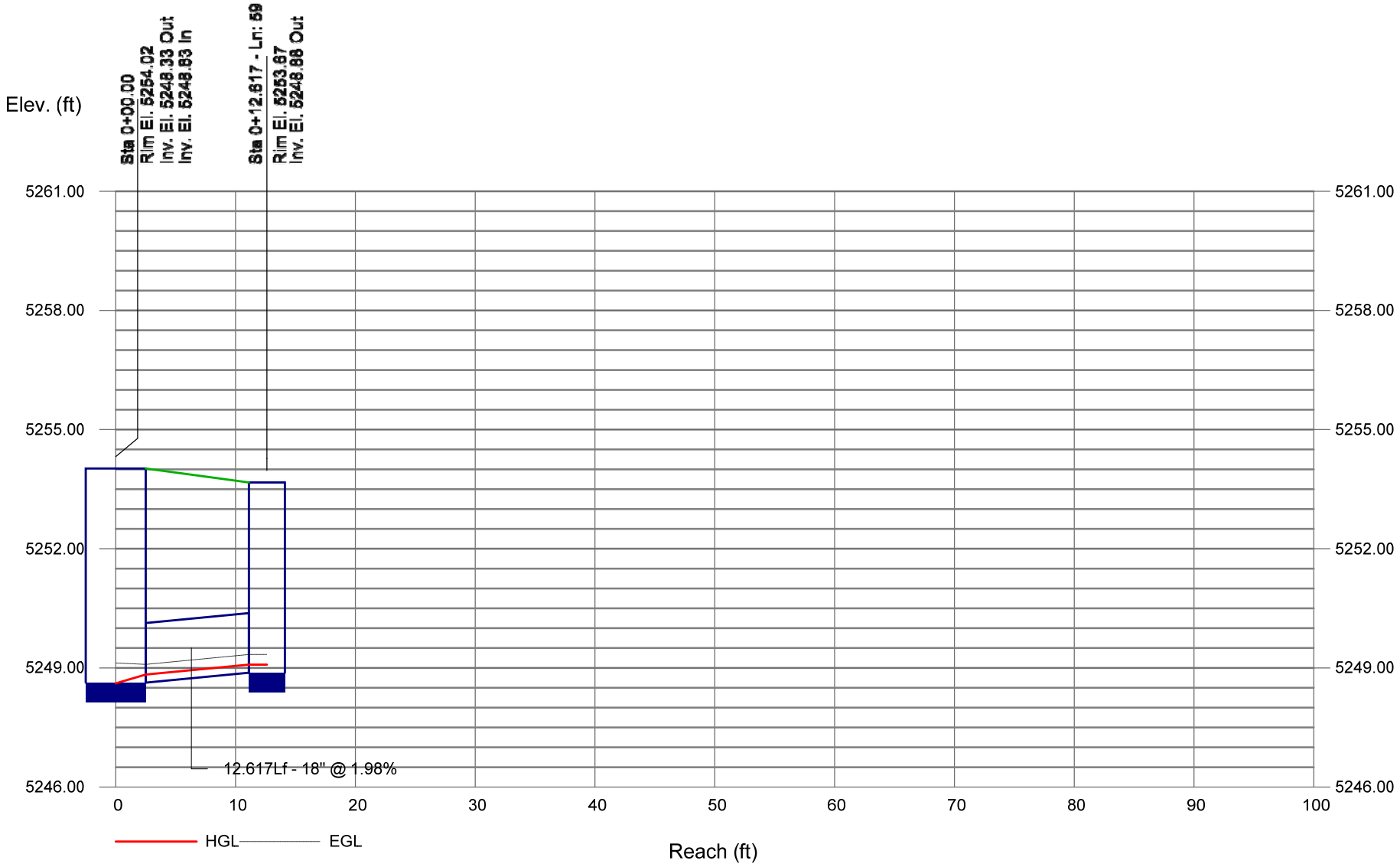
Storm Sewer Profile

Proj. file: System-B-2-year.stm



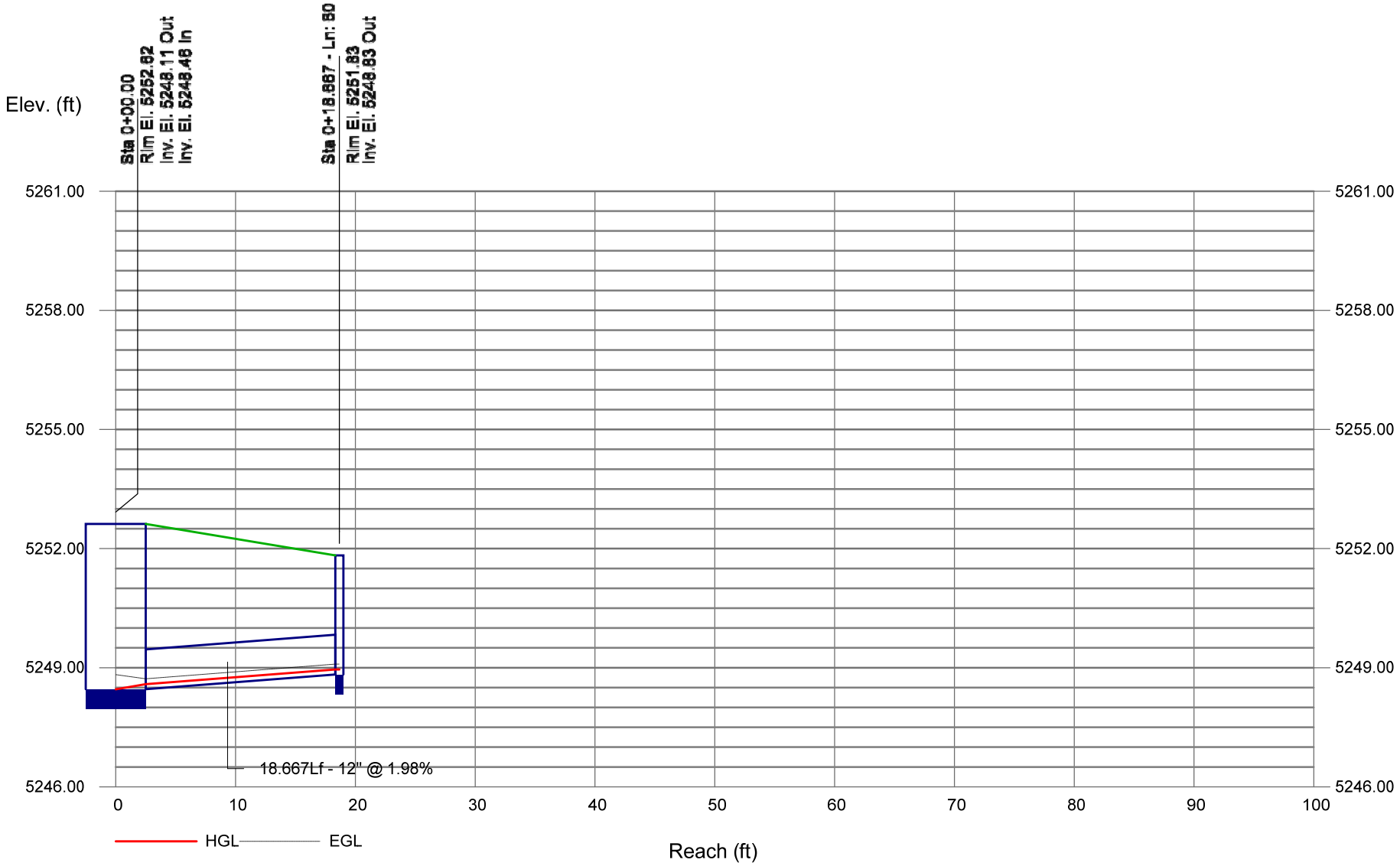
Storm Sewer Profile

Proj. file: System-B-2-year.stm



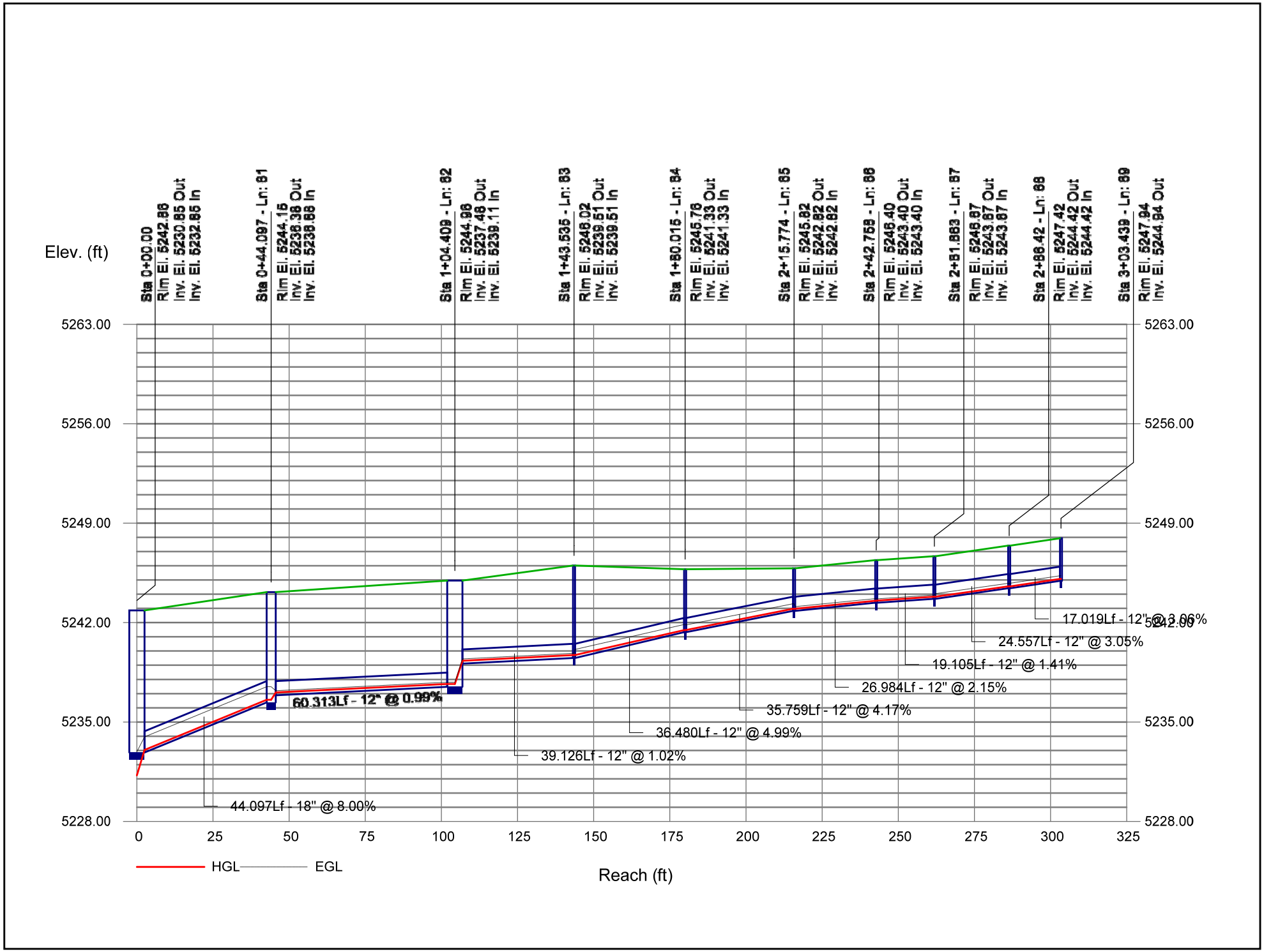
Storm Sewer Profile

Proj. file: System-B-2-year.stm

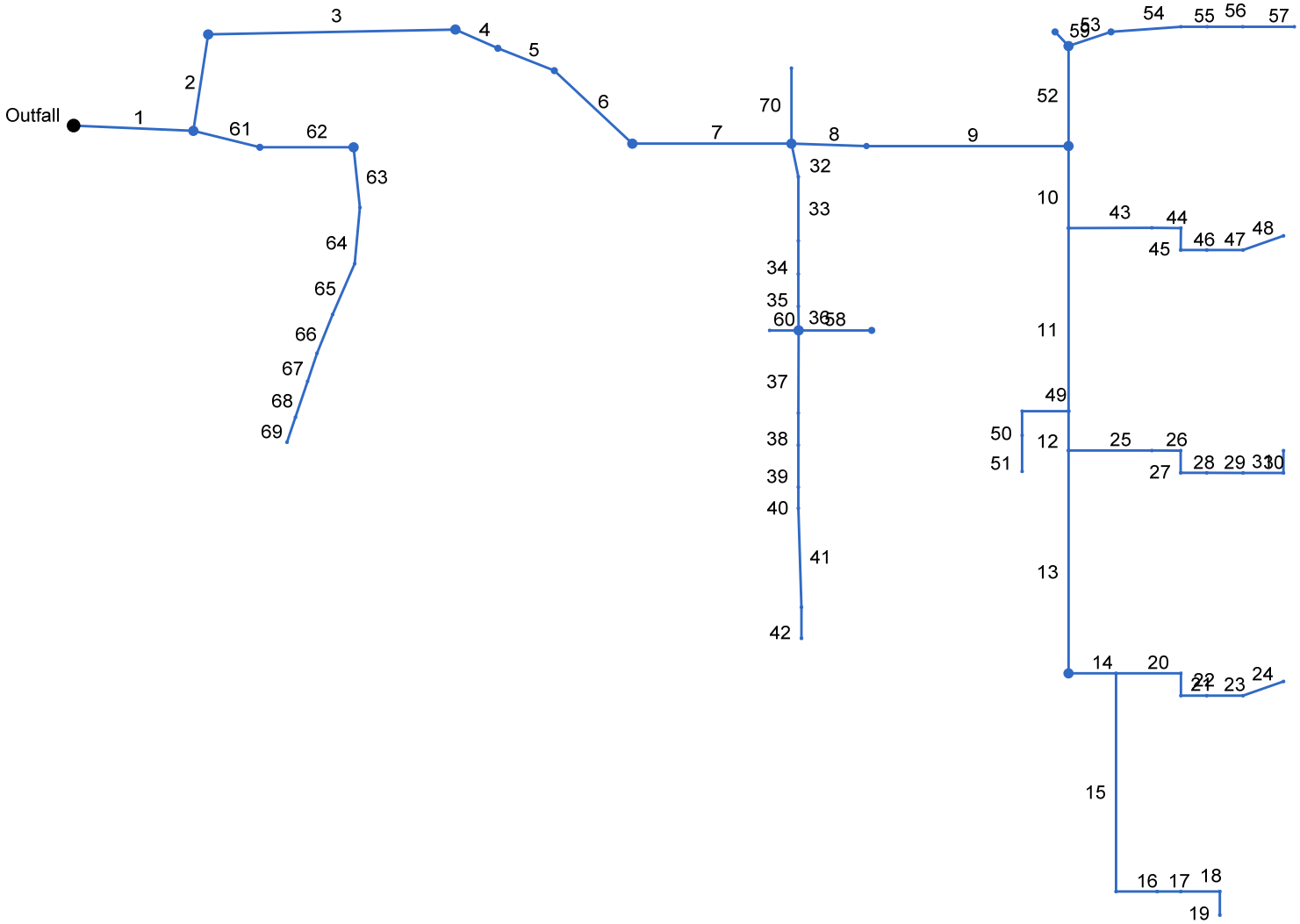


Storm Sewer Profile

Proj. file: System-B-2-year.stm



Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan



Project File: System-B-100-year.stm	Number of lines: 70	Date: 6/22/2015

Storm Sewers v10.00

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (35)	29.76	24	Cir	77.119	5226.52	5230.85	5.615	5228.38	5231.92	n/a	5231.92	End	Manhole
2	Pipe - (34)	26.41	24	Cir	63.071	5231.15	5232.61	2.315	5232.46	5233.92	n/a	5233.92	1	Manhole
3	Pipe - (33)	26.71	24	Cir	159.089	5232.91	5236.62	2.332	5234.23	5237.94	n/a	5237.94	2	Manhole
4	Pipe - (32)	26.77	24	Cir	29.916	5236.82	5237.51	2.306	5238.15	5238.84	n/a	5238.84	3	Manhole
5	Pipe - (31)	25.45	24	Cir	39.051	5237.71	5238.62	2.331	5238.99	5239.90	n/a	5239.90	4	Manhole
6	Pipe - (30)	20.66	24	Cir	68.943	5238.82	5240.43	2.336	5239.93	5241.54	n/a	5241.54	5	Manhole
7	Pipe - (29)	19.89	24	Cir	102.354	5240.73	5243.11	2.325	5241.82	5244.20	n/a	5244.20	6	Manhole
8	Pipe - (26)	14.02	24	Cir	48.300	5243.31	5244.60	2.670	5244.20	5245.45	n/a	5245.45	7	Manhole
9	Pipe - (25)	12.33	24	Cir	130.038	5244.80	5246.10	1.000	5245.85	5247.15	n/a	5247.15	8	Manhole
10	Pipe - (127)	6.85	18	Cir	53.000	5246.60	5247.13	1.001	5247.48	5248.01	n/a	5248.01	9	Manhole
11	Pipe - (126)	5.46	18	Cir	118.313	5247.13	5248.31	0.997	5248.01	5249.08	n/a	5249.08	10	Manhole
12	Pipe - (125)	4.78	18	Cir	25.480	5248.31	5248.57	1.021	5249.08	5249.28	n/a	5249.28	11	Manhole
13	Pipe - (124)	3.38	18	Cir	144.000	5248.57	5250.01	1.000	5249.28	5250.59	n/a	5250.59	12	Manhole
14	Pipe - (123)	2.69	12	Cir	30.554	5250.51	5250.82	1.015	5251.16	5251.47	n/a	5251.47	13	Manhole
15	Pipe - (122)	1.11	12	Cir	141.000	5251.53	5255.74	2.986	5251.82	5256.03	n/a	5256.03	14	Manhole
16	Pipe - (121)	1.13	12	Cir	26.475	5255.74	5256.00	0.981	5256.13	5256.39	n/a	5256.39	15	Manhole
17	Pipe - (120)	1.14	12	Cir	15.194	5256.00	5256.15	0.987	5256.39	5256.54	n/a	5256.54	16	Manhole
18	Pipe - (119)	1.15	12	Cir	25.125	5256.15	5256.40	0.995	5256.54	5256.79	n/a	5256.79	17	Manhole
19	Pipe - (187)	1.16	12	Cir	15.207	5256.40	5256.56	1.053	5256.79	5256.95	n/a	5256.95	18	Manhole
20	Pipe - (150)	1.84	12	Cir	41.722	5251.53	5253.62	5.010	5251.86	5253.95	n/a	5253.95	14	Manhole
21	Pipe - (149)	1.85	12	Cir	14.419	5253.62	5253.98	2.496	5254.02	5254.38	n/a	5254.38	20	Manhole
22	Pipe - (148)	1.86	12	Cir	16.641	5253.98	5254.14	0.962	5254.50	5254.66	n/a	5254.66	21	Manhole
23	Pipe - (147)	1.87	12	Cir	23.361	5254.14	5254.38	1.026	5254.66	5254.89	n/a	5254.89	22	Manhole
24	Pipe - (146)	1.89	12	Cir	27.634	5254.38	5254.65	0.977	5254.90	5255.17	n/a	5255.17	23	Manhole

Project File: System-B-100-year.stm | Number of lines: 70 | Run Date: 6/22/2015

NOTES: Return period = 100 Yrs.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
25	Pipe - (143)	1.82	12	Cir	53.568	5248.77	5249.94	2.184	5249.28	5250.35	n/a	5250.35	12	Manhole
26	Pipe - (142)	1.83	12	Cir	18.600	5249.94	5250.87	5.001	5250.35	5251.20	n/a	5251.20	25	Manhole
27	Pipe - (141)	1.84	12	Cir	14.415	5250.87	5251.60	5.064	5251.20	5251.93	n/a	5251.93	26	Manhole
28	Pipe - (140)	1.85	12	Cir	16.749	5251.60	5252.43	4.956	5251.93	5252.76	n/a	5252.76	27	Manhole
29	Pipe - (139)	1.87	12	Cir	23.361	5252.43	5253.60	5.008	5252.76	5253.93	n/a	5253.93	28	Manhole
30	Pipe - (138) (1)	1.88	12	Cir	26.054	5253.60	5253.87	1.036	5254.11	5254.38	n/a	5254.38	29	Manhole
31	Pipe - (138)	1.89	12	Cir	14.408	5253.87	5254.01	0.969	5254.39	5254.53	n/a	5254.53	30	Manhole
32	Pipe - (100)	5.67	15	Cir	21.905	5243.86	5244.95	4.978	5244.41	5245.50	n/a	5245.50	7	Manhole
33	Pipe - (101)	5.71	15	Cir	41.302	5244.95	5247.02	5.011	5245.50	5247.57	n/a	5247.57	32	Manhole
34	Pipe - (102)	5.73	15	Cir	21.495	5247.02	5247.54	2.419	5247.70	5248.22	n/a	5248.22	33	Manhole
35	Pipe - (103)	5.76	15	Cir	20.912	5247.54	5247.87	1.564	5248.32	5248.65	n/a	5248.65	34	Manhole
36	Pipe - (104)	5.77	15	Cir	15.541	5247.87	5248.11	1.533	5248.65	5248.89	n/a	5248.89	35	Manhole
37	Pipe - (107)	3.53	12	Cir	53.405	5248.36	5249.13	1.442	5249.05	5249.82	n/a	5249.91	36	Manhole
38	Pipe - (179)	3.54	12	Cir	20.769	5249.13	5249.34	1.011	5249.94	5250.15	n/a	5250.21	37	Manhole
39	Pipe - (178) (1)	3.56	12	Cir	27.126	5249.34	5249.61	0.995	5250.21	5250.43	n/a	5250.49	38	Manhole
40	Pipe - (178)	3.57	12	Cir	13.620	5249.61	5249.95	2.499	5250.49	5250.53	n/a	5250.53	39	Manhole
41	Pipe - (177)	3.62	12	Cir	64.018	5249.95	5253.08	4.889	5250.53	5253.56	n/a	5253.78	40	Manhole
42	Pipe - (175)	3.63	12	Cir	20.108	5253.08	5253.28	0.993	5253.92	5254.12	n/a	5254.53	41	Manhole
43	Pipe - (133)	1.82	12	Cir	53.568	5247.33	5247.97	1.195	5248.01	5248.45	n/a	5248.45	10	Manhole
44	Pipe - (132)	1.84	12	Cir	18.709	5247.97	5248.90	4.969	5248.45	5249.23	n/a	5249.23	43	Manhole
45	Pipe - (131)	1.85	12	Cir	14.209	5248.90	5249.61	4.997	5249.23	5249.94	n/a	5249.94	44	Manhole
46	Pipe - (130)	1.86	12	Cir	16.749	5249.61	5250.45	5.017	5249.94	5250.78	n/a	5250.78	45	Manhole
47	Pipe - (129)	1.87	12	Cir	23.361	5250.45	5251.62	5.008	5250.78	5251.95	n/a	5251.95	46	Manhole
48	Pipe - (128)	1.89	12	Cir	27.634	5251.62	5252.10	1.737	5252.06	5252.54	n/a	5252.54	47	Manhole

Project File: System-B-100-year.stm | Number of lines: 70 | Run Date: 6/22/2015

NOTES: Return period = 100 Yrs.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
49	Pipe - (137)	0.84	12	Cir	29.874	5248.51	5250.01	5.021	5249.08	5250.23	n/a	5250.23	11	Manhole
50	Pipe - (136)	0.85	12	Cir	15.636	5250.01	5250.79	4.990	5250.23	5251.01	n/a	5251.01	49	Manhole
51	Pipe - (135)	0.87	12	Cir	23.302	5250.79	5251.95	4.979	5251.01	5252.17	n/a	5252.17	50	Manhole
52	Pipe - (24)	6.07	18	Cir	64.639	5246.60	5248.33	2.677	5247.22	5248.95	n/a	5248.95	9	Manhole
53	Pipe - (23)	4.16	18	Cir	28.829	5248.63	5248.92	1.006	5249.29	5249.58	n/a	5249.58	52	Manhole
54	Pipe - (185)	1.04	12	Cir	45.066	5249.42	5249.97	1.221	5249.77	5250.32	n/a	5250.32	53	Manhole
55	Pipe - (183)	1.05	12	Cir	16.921	5249.97	5250.14	1.004	5250.34	5250.51	n/a	5250.51	54	Manhole
56	Pipe - (182)	1.07	12	Cir	22.870	5250.14	5250.37	1.006	5250.52	5250.75	n/a	5250.75	55	Manhole
57	Pipe - (181)	1.09	12	Cir	33.209	5250.37	5250.70	0.994	5250.75	5251.08	n/a	5251.08	56	Manhole
58	Pipe - (105)	1.43	12	Cir	47.000	5248.46	5249.62	2.468	5248.89	5249.97	n/a	5249.97	36	Manhole
59	Pipe - (36)	2.07	18	Cir	12.617	5248.63	5248.88	1.982	5249.01	5249.26	n/a	5249.26	52	Manhole
60	Pipe - (106)	0.94	12	Cir	18.667	5248.46	5248.83	1.983	5248.89	5249.12	n/a	5249.12	36	Manhole
61	Pipe - (99)	4.12	18	Cir	44.097	5232.85	5236.38	8.005	5233.23	5236.76	n/a	5236.76	1	Manhole
62	Pipe - (169)	1.43	12	Cir	60.313	5236.88	5237.48	0.995	5237.32	5237.92	n/a	5237.92	61	Manhole
63	Pipe - (168)	1.46	12	Cir	39.126	5239.11	5239.51	1.022	5239.55	5239.95	n/a	5239.95	62	Manhole
64	Pipe - (167)	1.48	12	Cir	36.480	5239.51	5241.33	4.990	5239.95	5241.62	n/a	5241.62	63	Manhole
65	Pipe - (166)	1.50	12	Cir	35.759	5241.33	5242.82	4.166	5241.64	5243.13	n/a	5243.13	64	Manhole
66	Pipe - (165) (1) (1) (1)	0.74	12	Cir	26.984	5242.82	5243.40	2.150	5243.13	5243.66	n/a	5243.66	65	Manhole
67	Pipe - (165) (1) (1)	0.76	12	Cir	19.105	5243.40	5243.67	1.413	5243.69	5243.96	n/a	5243.96	66	Manhole
68	Pipe - (165) (1)	0.77	12	Cir	24.557	5243.67	5244.42	3.054	5243.96	5244.66	n/a	5244.66	67	Manhole
69	Pipe - (165)	0.79	12	Cir	17.019	5244.42	5244.94	3.055	5244.66	5245.18	n/a	5245.18	68	Manhole
70	Pipe - (37)	1.69	12	Cir	48.777	5244.11	5244.60	1.005	5244.59	5245.08	n/a	5245.08	7	Manhole

Project File: System-B-100-year.stm | Number of lines: 70 | Run Date: 6/22/2015

NOTES: Return period = 100 Yrs.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	24	29.76	5226.52	5228.38	1.86	1.70	0.97	4.76	5233.14	0.000	77.119	5230.85	5231.92	1.06	1.70	17.50	4.76	5236.68	0.000	0.000	0.000	1.00	n/a
2	24	26.41	5231.15	5232.46	1.31*	2.19	0.00	2.27	5234.73	0.000	63.071	5232.61	5233.92	1.31	2.19	12.07	2.27	5236.19	0.000	0.000	0.000	0.99	n/a
3	24	26.71	5232.91	5234.23	0.00	0.00	0.00	0.00	5234.23	0.000	159.089	5236.62	5237.94	0.00**	0.00	12.14	0.00	5237.94	0.000	0.000	0.000	0.48	n/a
4	24	26.77	5236.82	5238.15	0.00	0.00	0.00	0.00	5238.15	0.000	29.916	5237.51	5238.84	0.00**	0.00	12.09	0.00	5238.84	0.000	0.000	0.000	0.15	n/a
5	24	25.45	5237.71	5238.99	0.00	0.00	0.00	0.00	5238.99	0.000	39.051	5238.62	5239.90	0.00**	0.00	12.02	0.00	5239.90	0.000	0.000	0.000	0.42	n/a
6	24	20.66	5238.82	5239.93	0.00	0.00	0.00	0.00	5239.93	0.000	68.943	5240.43	5241.54	0.00**	0.00	11.48	0.00	5241.54	0.000	0.000	0.000	0.73	n/a
7	24	19.89	5240.73	5241.82	0.00	0.00	0.00	0.00	5241.82	0.000	102.354	5243.11	5244.20	0.00**	0.00	11.36	0.00	5244.20	0.000	0.000	0.000	1.00	n/a
8	24	14.02	5243.31	5244.20	0.00	0.00	0.00	0.00	5244.20	0.000	48.300	5244.60	5245.45	0.00**	0.00	10.95	0.00	5245.45	0.000	0.000	0.000	0.15	n/a
9	24	12.33	5244.80	5245.85	0.00	0.00	6.98	0.00	5245.85	0.000	130.038	5246.10	5247.15	0.00**	0.00	7.35	0.00	5247.15	0.000	0.000	0.000	1.00	n/a
10	18	6.85	5246.60	5247.48	0.00	0.00	3.88	0.00	5247.48	0.000	53.000	5247.13	5248.01	0.00**	0.00	6.33	0.00	5248.01	0.000	0.000	0.000	1.00	n/a
11	18	5.46	5247.13	5248.01	0.00	0.00	3.19	0.00	5248.01	0.000	118.313	5248.31	5249.08	0.00**	0.00	5.99	0.00	5249.08	0.000	0.000	0.000	1.00	n/a
12	18	4.78	5248.31	5249.08	0.00	0.00	2.89	0.00	5249.08	0.000	25.480	5248.57	5249.28	0.00**	0.00	5.85	0.00	5249.28	0.000	0.000	0.000	1.00	n/a
13	18	3.38	5248.57	5249.28	0.00	0.00	2.75	0.00	5249.28	0.000	144.000	5250.01	5250.59	0.00**	0.00	5.29	0.00	5250.59	0.000	0.000	0.000	1.00	n/a
14	12	2.69	5250.51	5251.16	0.00	0.00	6.10	0.00	5251.16	0.000	30.554	5250.82	5251.47	0.00**	0.00	5.01	0.00	5251.47	0.000	0.000	0.000	1.00	n/a
15	12	1.11	5251.53	5251.82	0.00	0.00	1.41	0.00	5251.82	0.000	141.000	5255.74	5256.03	0.00**	0.00	5.93	0.00	5256.03	0.000	0.000	0.000	1.00	n/a
16	12	1.13	5255.74	5256.13	0.00	0.00	1.43	0.00	5256.13	0.000	26.475	5256.00	5256.39	0.00**	0.00	3.99	0.00	5256.39	0.000	0.000	0.000	0.15	n/a
17	12	1.14	5256.00	5256.39	0.00	0.00	1.45	0.00	5256.39	0.000	15.194	5256.15	5256.54	0.00**	0.00	4.01	0.00	5256.54	0.000	0.000	0.000	0.15	n/a
18	12	1.15	5256.15	5256.54	0.00	0.00	1.47	0.00	5256.54	0.000	25.125	5256.40	5256.79	0.00**	0.00	4.04	0.00	5256.79	0.000	0.000	0.000	1.00	n/a
19	12	1.16	5256.40	5256.79	0.00	0.00	1.48	0.00	5256.79	0.000	15.207	5256.56	5256.95	0.00**	0.00	4.13	0.00	5256.95	0.000	0.000	0.000	1.00	n/a
20	12	1.84	5251.53	5251.86	0.00	0.00	2.34	0.00	5251.86	0.000	41.722	5253.62	5253.95	0.00**	0.00	8.24	0.00	5253.95	0.000	0.000	0.000	1.00	n/a
21	12	1.85	5253.62	5254.02	0.00	0.00	2.35	0.00	5254.02	0.000	14.419	5253.98	5254.38	0.00**	0.00	6.41	0.00	5254.38	0.000	0.000	0.000	1.00	n/a
22	12	1.86	5253.98	5254.50	0.00	0.00	2.37	0.00	5254.50	0.000	16.641	5254.14	5254.66	0.00**	0.00	4.51	0.00	5254.66	0.000	0.000	0.000	0.15	n/a

Project File: System-B-100-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed.; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
23	12	1.87	5254.14	5254.66	0.00	0.00	2.39	0.00	5254.66	0.000	23.361	5254.38	5254.89	0.00**	0.00	4.64	0.00	5254.89	0.000	0.000	0.000	0.39	n/a
24	12	1.89	5254.38	5254.90	0.00	0.00	2.41	0.00	5254.90	0.000	27.634	5254.65	5255.17	0.00**	0.00	4.56	0.00	5255.17	0.000	0.000	0.000	1.00	n/a
25	12	1.82	5248.77	5249.28	0.00	0.00	2.31	0.00	5249.28	0.000	53.568	5249.94	5250.35	0.00**	0.00	6.08	0.00	5250.35	0.000	0.000	0.000	0.15	n/a
26	12	1.83	5249.94	5250.35	0.00	0.00	2.33	0.00	5250.35	0.000	18.600	5250.87	5251.20	0.00**	0.00	8.22	0.00	5251.20	0.000	0.000	0.000	1.00	n/a
27	12	1.84	5250.87	5251.20	0.00	0.00	2.34	0.00	5251.20	0.000	14.415	5251.60	5251.93	0.00**	0.00	8.27	0.00	5251.93	0.000	0.000	0.000	1.00	n/a
28	12	1.85	5251.60	5251.93	0.00	0.00	2.35	0.00	5251.93	0.000	16.749	5252.43	5252.76	0.00**	0.00	8.23	0.00	5252.76	0.000	0.000	0.000	0.15	n/a
29	12	1.87	5252.43	5252.76	0.00	0.00	2.38	0.00	5252.76	0.000	23.361	5253.60	5253.93	0.00**	0.00	8.27	0.00	5253.93	0.000	0.000	0.000	0.15	n/a
30	12	1.88	5253.60	5254.11	0.00	0.00	2.40	0.00	5254.11	0.000	26.054	5253.87	5254.38	0.00**	0.00	4.66	0.00	5254.38	0.000	0.000	0.000	1.00	n/a
31	12	1.89	5253.87	5254.39	0.00	0.00	2.41	0.00	5254.39	0.000	14.408	5254.01	5254.53	0.00**	0.00	4.55	0.00	5254.53	0.000	0.000	0.000	1.00	n/a
32	15	5.67	5243.86	5244.41	0.00	0.00	0.00	0.00	5244.41	0.000	21.905	5244.95	5245.50	0.00**	0.00	11.03	0.00	5245.50	0.000	0.000	0.000	0.24	n/a
33	15	5.71	5244.95	5245.50	0.00	0.00	0.00	0.00	5245.50	0.000	41.302	5247.02	5247.57	0.00**	0.00	11.08	0.00	5247.57	0.000	0.000	0.000	0.15	n/a
34	15	5.73	5247.02	5247.70	0.00	0.00	0.00	0.00	5247.70	0.000	21.495	5247.54	5248.22	0.00**	0.00	8.45	0.00	5248.22	0.000	0.000	0.000	0.15	n/a
35	15	5.76	5247.54	5248.32	0.00	0.00	7.34	0.00	5248.32	0.000	20.912	5247.87	5248.65	0.00**	0.00	7.15	0.00	5248.65	0.000	0.000	0.000	0.15	n/a
36	15	5.77	5247.87	5248.65	0.00	0.00	7.35	0.00	5248.65	0.000	15.541	5248.11	5248.89	0.00**	0.00	7.09	0.00	5248.89	0.000	0.000	0.000	1.00	n/a
37	12	3.53	5248.36	5249.05	0.00	0.00	4.49	0.00	5249.05	0.000	53.405	5249.13	5249.82	0.00**	0.00	6.08	0.00	5249.82	0.000	0.000	0.000	0.15	n/a
38	12	3.54	5249.13	5249.94	0.00	0.00	5.20	0.00	5249.94	0.000	20.769	5249.34	5250.15	0.00**	0.00	5.20	0.00	5250.15	0.000	0.000	0.000	0.15	n/a
39	12	3.56	5249.34	5250.21	0.00	0.00	4.90	0.00	5250.21	0.000	27.126	5249.61	5250.43	0.00**	0.00	5.18	0.00	5250.43	0.000	0.000	0.000	0.15	n/a
40	12	3.57	5249.61	5250.49	0.00	0.00	4.55	0.00	5250.49	0.000	13.620	5249.95	5250.53	0.00**	0.00	7.59	0.00	5250.53	0.000	0.000	0.000	0.15	n/a
41	12	3.62	5249.95	5250.53	0.00	0.00	4.61	0.00	5250.53	0.000	64.018	5253.08	5253.56	0.00**	0.00	9.81	0.00	5253.56	0.000	0.000	0.000	0.15	n/a
42	12	3.63	5253.08	5253.92	0.00	0.00	5.15	0.00	5253.92	0.000	20.108	5253.28	5254.12	0.00**	0.00	5.14	0.00	5254.12	0.000	0.000	0.000	1.00	n/a
43	12	1.82	5247.33	5248.01	0.00	0.00	2.32	0.00	5248.01	0.000	53.568	5247.97	5248.45	0.00**	0.00	4.87	0.00	5248.45	0.000	0.000	0.000	0.15	n/a
44	12	1.84	5247.97	5248.45	0.00	0.00	2.34	0.00	5248.45	0.000	18.709	5248.90	5249.23	0.00**	0.00	8.22	0.00	5249.23	0.000	0.000	0.000	1.00	n/a

Project File: System-B-100-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed.; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
45	12	1.85	5248.90	5249.23	0.00	0.00	2.35	0.00	5249.23	0.000	14.209	5249.61	5249.94	0.00**	0.00	8.25	0.00	5249.94	0.000	0.000	0.000	1.00	n/a
46	12	1.86	5249.61	5249.94	0.00	0.00	2.37	0.00	5249.94	0.000	16.749	5250.45	5250.78	0.00**	0.00	8.27	0.00	5250.78	0.000	0.000	0.000	0.15	n/a
47	12	1.87	5250.45	5250.78	0.00	0.00	2.39	0.00	5250.78	0.000	23.361	5251.62	5251.95	0.00**	0.00	8.29	0.00	5251.95	0.000	0.000	0.000	0.39	n/a
48	12	1.89	5251.62	5252.06	0.00	0.00	0.00	0.00	5252.06	0.000	27.634	5252.10	5252.54	0.00**	0.00	5.65	0.00	5252.54	0.000	0.000	0.000	1.00	n/a
49	12	0.84	5248.51	5249.08	0.00	0.00	1.07	0.00	5249.08	0.000	29.874	5250.01	5250.23	0.00**	0.00	6.59	0.00	5250.23	0.000	0.000	0.000	1.00	n/a
50	12	0.85	5250.01	5250.23	0.00	0.00	1.09	0.00	5250.23	0.000	15.636	5250.79	5251.01	0.00**	0.00	6.60	0.00	5251.01	0.000	0.000	0.000	0.15	n/a
51	12	0.87	5250.79	5251.01	0.00	0.00	1.11	0.00	5251.01	0.000	23.302	5251.95	5252.17	0.00**	0.00	6.63	0.00	5252.17	0.000	0.000	0.000	1.00	n/a
52	18	6.07	5246.60	5247.22	0.00	0.00	0.00	0.00	5247.22	0.000	64.639	5248.33	5248.95	0.00**	0.00	8.88	0.00	5248.95	0.000	0.000	0.000	0.96	n/a
53	18	4.16	5248.63	5249.29	0.00	0.00	0.00	0.00	5249.29	0.000	28.829	5248.92	5249.58	0.00**	0.00	5.61	0.00	5249.58	0.000	0.000	0.000	0.29	n/a
54	12	1.04	5249.42	5249.77	0.00	0.00	0.00	0.00	5249.77	0.000	45.066	5249.97	5250.32	0.00**	0.00	4.23	0.00	5250.32	0.000	0.000	0.000	0.15	n/a
55	12	1.05	5249.97	5250.34	0.00	0.00	0.00	0.00	5250.34	0.000	16.921	5250.14	5250.51	0.00**	0.00	3.95	0.00	5250.51	0.000	0.000	0.000	0.15	n/a
56	12	1.07	5250.14	5250.52	0.00	0.00	0.00	0.00	5250.52	0.000	22.870	5250.37	5250.75	0.00**	0.00	3.97	0.00	5250.75	0.000	0.000	0.000	0.15	n/a
57	12	1.09	5250.37	5250.75	0.00	0.00	0.00	0.00	5250.75	0.000	33.209	5250.70	5251.08	0.00**	0.00	3.97	0.00	5251.08	0.000	0.000	0.000	1.00	n/a
58	12	1.43	5248.46	5248.89	0.00	0.00	0.00	0.00	5248.89	0.000	47.000	5249.62	5249.97	0.00**	0.00	5.95	0.00	5249.97	0.000	0.000	0.000	1.00	n/a
59	18	2.07	5248.63	5249.01	0.00	0.00	0.00	0.00	5249.01	0.000	12.617	5248.88	5249.26	0.00**	0.00	5.89	0.00	5249.26	0.000	0.000	0.000	1.00	n/a
60	12	0.94	5248.46	5248.89	0.00	0.00	0.00	0.00	5248.89	0.000	18.667	5248.83	5249.12	0.00**	0.00	4.89	0.00	5249.12	0.000	0.000	0.000	1.00	n/a
61	18	4.12	5232.85	5233.23	0.00	0.00	0.00	0.00	5233.23	0.000	44.097	5236.38	5236.76	0.00**	0.00	11.81	0.00	5236.76	0.000	0.000	0.000	0.29	n/a
62	12	1.43	5236.88	5237.32	0.00	0.00	0.00	0.00	5237.32	0.000	60.313	5237.48	5237.92	0.00**	0.00	4.28	0.00	5237.92	0.000	0.000	0.000	1.00	n/a
63	12	1.46	5239.11	5239.55	0.00	0.00	0.00	0.00	5239.55	0.000	39.126	5239.51	5239.95	0.00**	0.00	4.34	0.00	5239.95	0.000	0.000	0.000	0.23	n/a
64	12	1.48	5239.51	5239.95	0.00	0.00	0.00	0.00	5239.95	0.000	36.480	5241.33	5241.62	0.00**	0.00	7.74	0.00	5241.62	0.000	0.000	0.000	0.36	n/a
65	12	1.50	5241.33	5241.64	0.00	0.00	0.00	0.00	5241.64	0.000	35.759	5242.82	5243.13	0.00**	0.00	7.28	0.00	5243.13	0.000	0.000	0.000	0.15	n/a
66	12	0.74	5242.82	5243.13	0.00	0.00	0.00	0.00	5243.13	0.000	26.984	5243.40	5243.66	0.00**	0.00	4.71	0.00	5243.66	0.000	0.000	0.000	0.15	n/a

Project File: System-B-100-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed.; ** Critical depth. ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

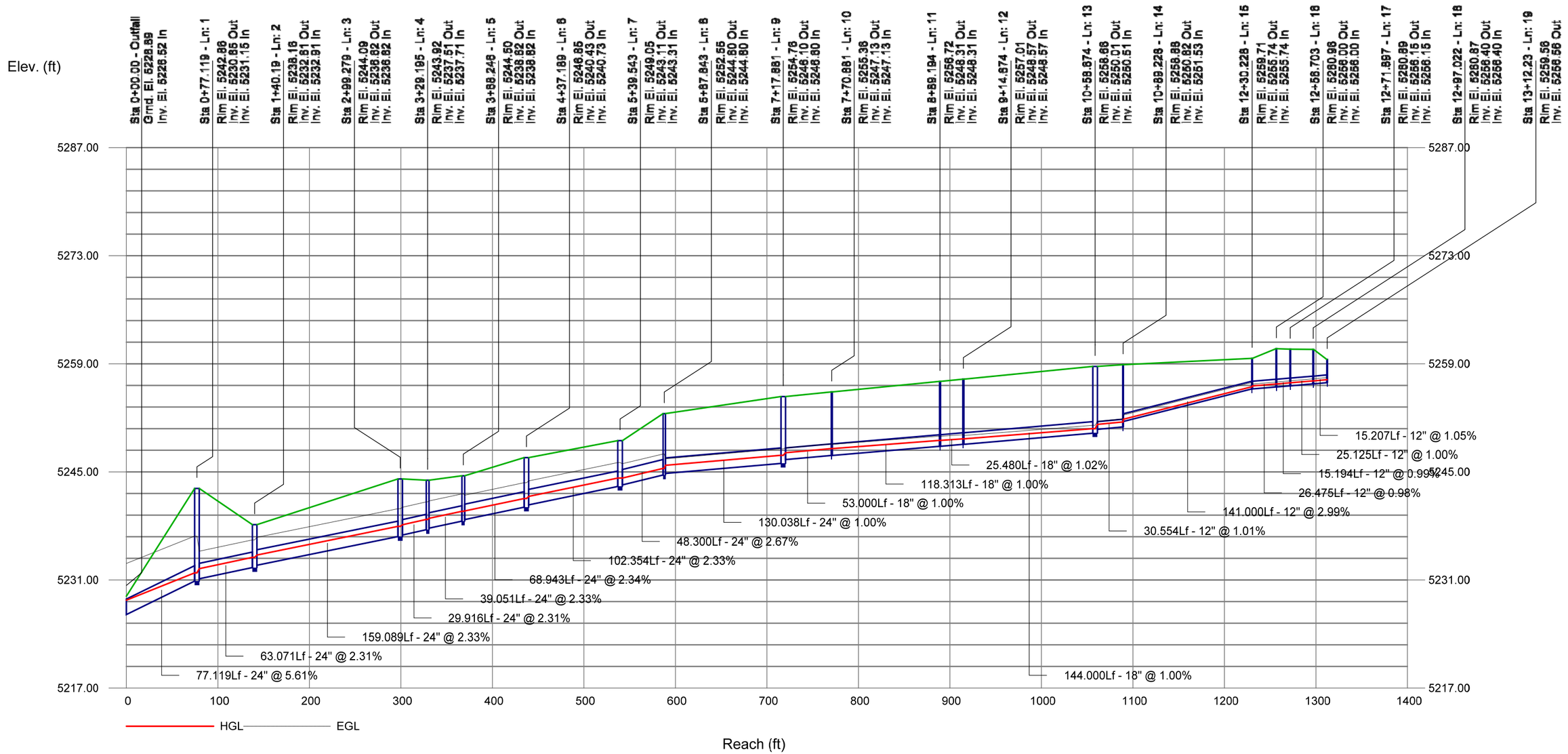
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
67	12	0.76	5243.40	5243.69	0.00	0.00	0.00	0.00	5243.69	0.000	19.105	5243.67	5243.96	0.00**	0.00	4.07	0.00	5243.96	0.000	0.000	0.000	0.15	n/a
68	12	0.77	5243.67	5243.96	0.00	0.00	0.00	0.00	5243.96	0.000	24.557	5244.42	5244.66	0.00**	0.00	5.40	0.00	5244.66	0.000	0.000	0.000	0.15	n/a
69	12	0.79	5244.42	5244.66	0.00	0.00	0.00	0.00	5244.66	0.000	17.019	5244.94	5245.18	0.00**	0.00	5.42	0.00	5245.18	0.000	0.000	0.000	1.00	n/a
70	12	1.69	5244.11	5244.59	0.00	0.00	0.00	0.00	5244.59	0.000	48.777	5244.60	5245.08	0.00**	0.00	4.48	0.00	5245.08	0.000	0.000	0.000	1.00	n/a

Project File: System-B-100-year.stm | Number of lines: 70 | Run Date: 6/22/2015

Notes: * depth assumed.; ** Critical depth. ; c = cir e = ellip b = box

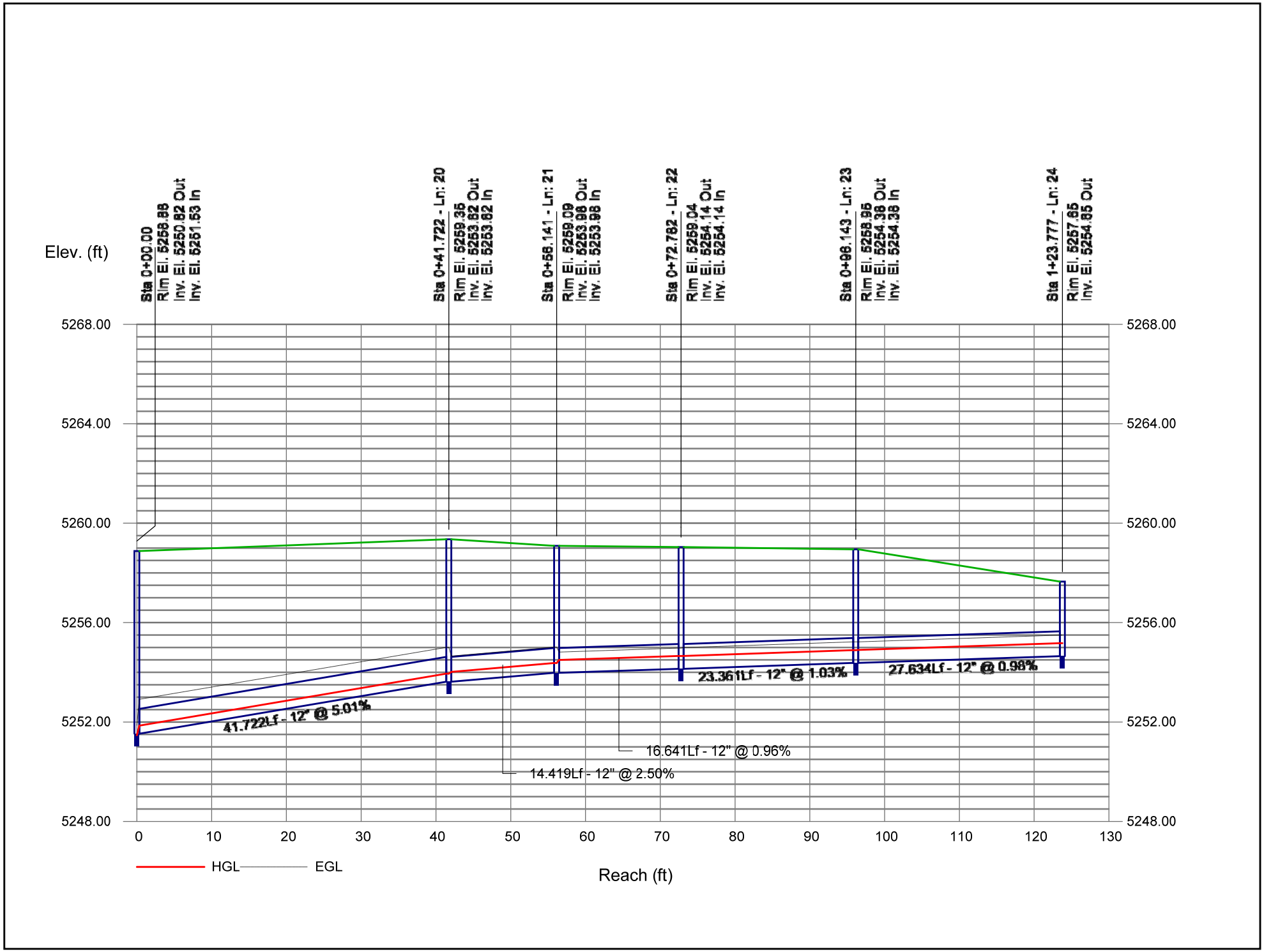
Storm Sewer Profile

Proj. file: System-B-100-year.stm



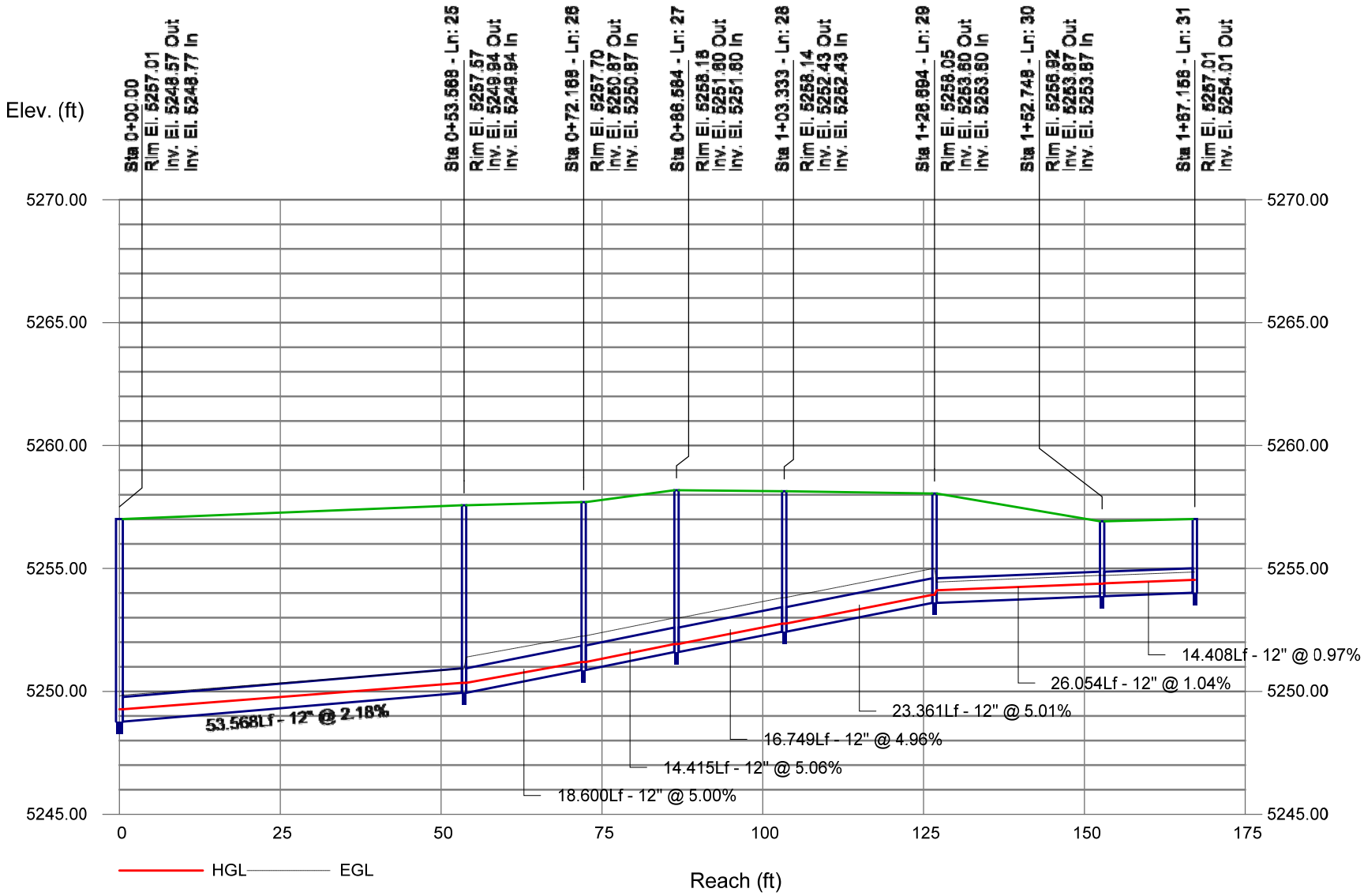
Storm Sewer Profile

Proj. file: System-B-100-year.stm



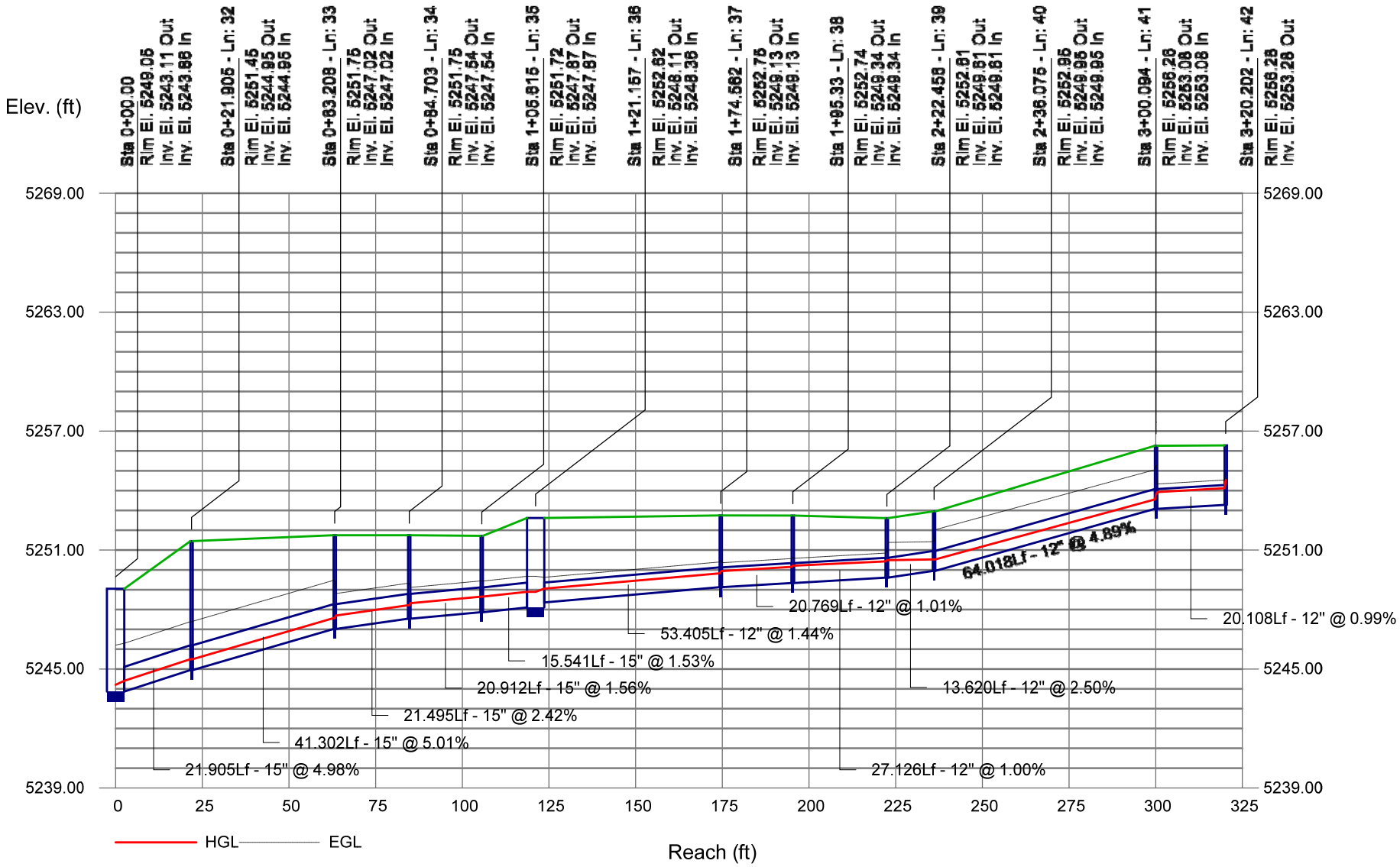
Storm Sewer Profile

Proj. file: System-B-100-year.stm



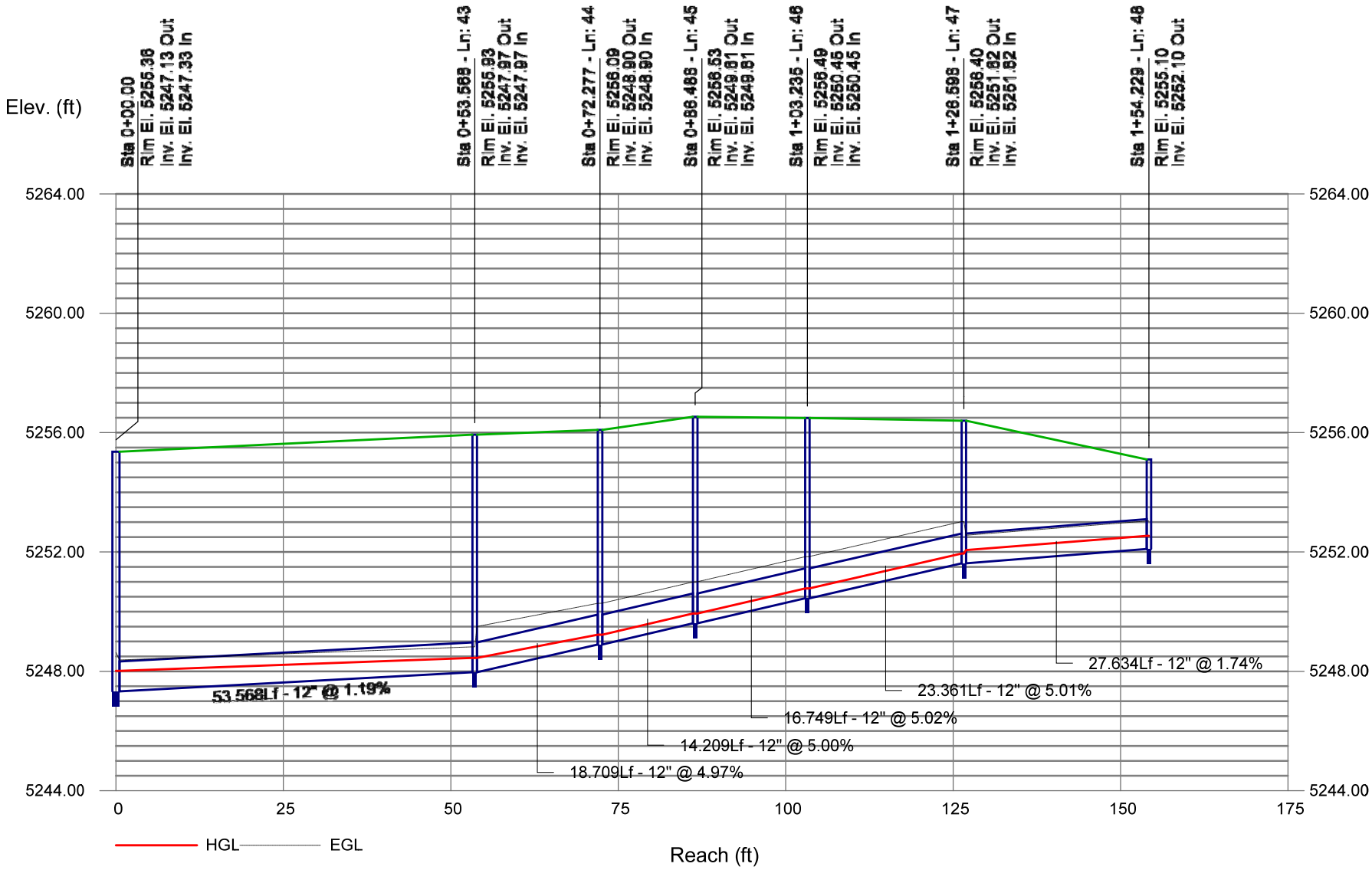
Storm Sewer Profile

Proj. file: System-B-100-year.stm



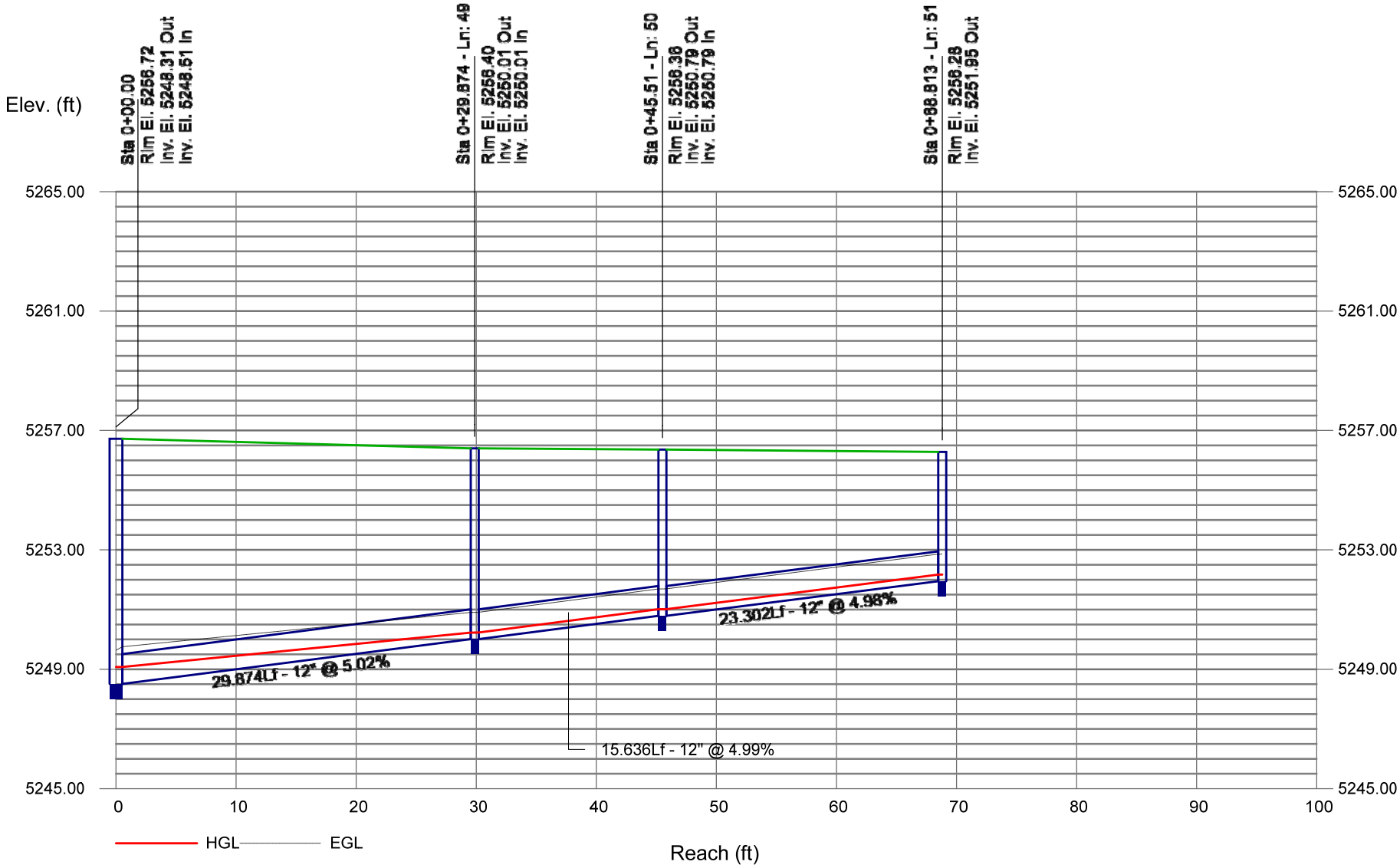
Storm Sewer Profile

Proj. file: System-B-100-year.stm



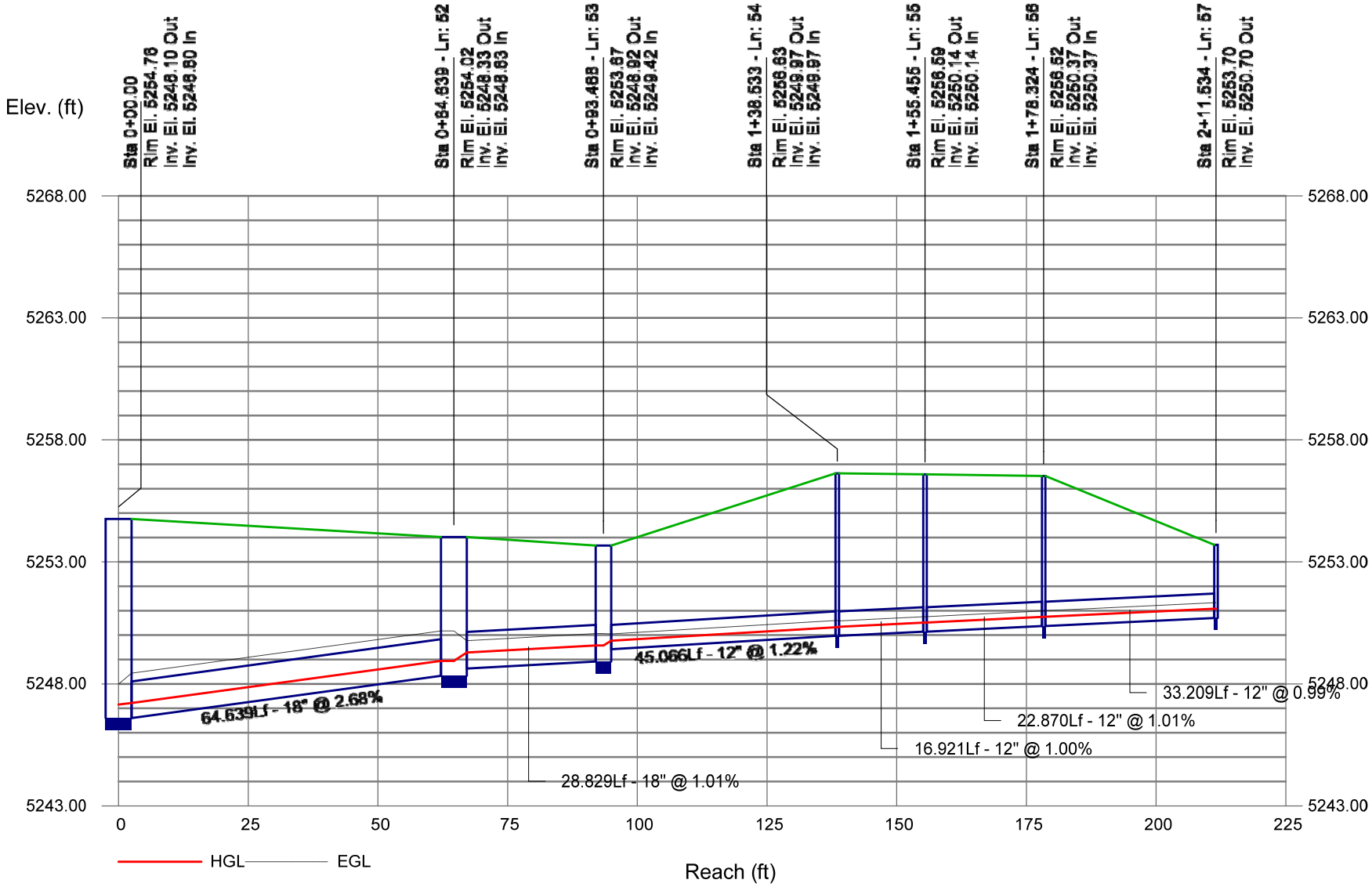
Storm Sewer Profile

Proj. file: System-B-100-year.stm



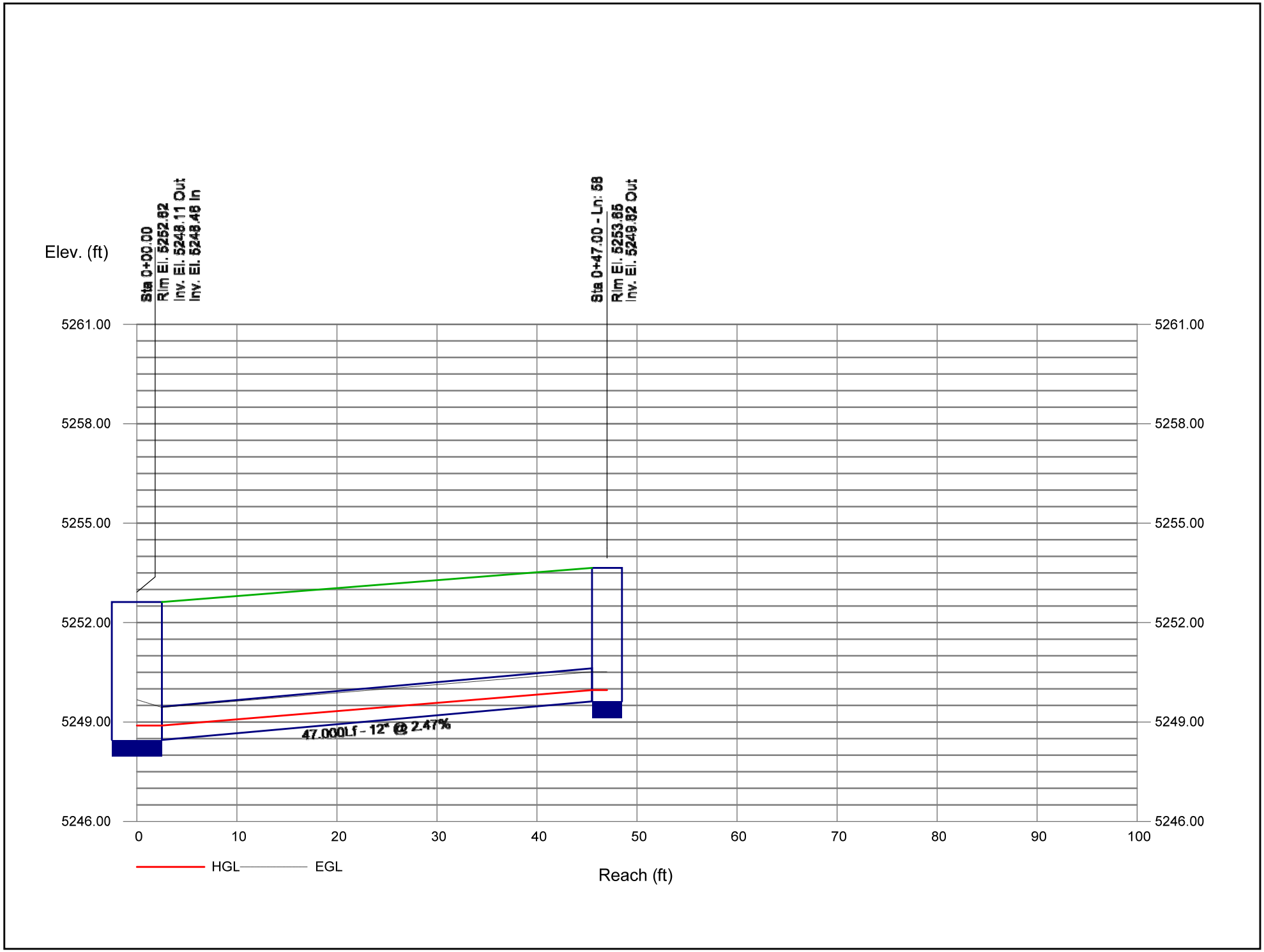
Storm Sewer Profile

Proj. file: System-B-100-year.stm



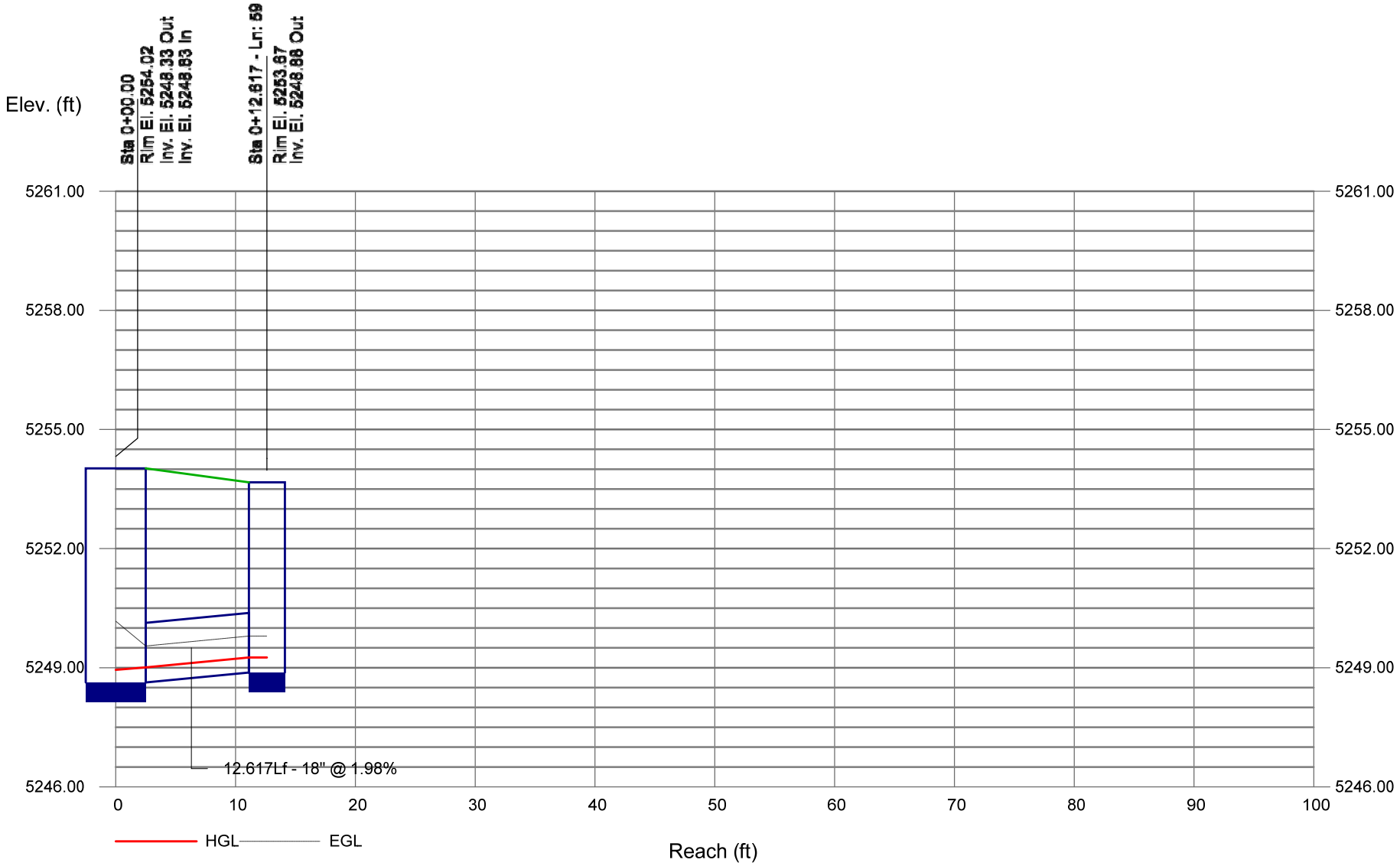
Storm Sewer Profile

Proj. file: System-B-100-year.stm



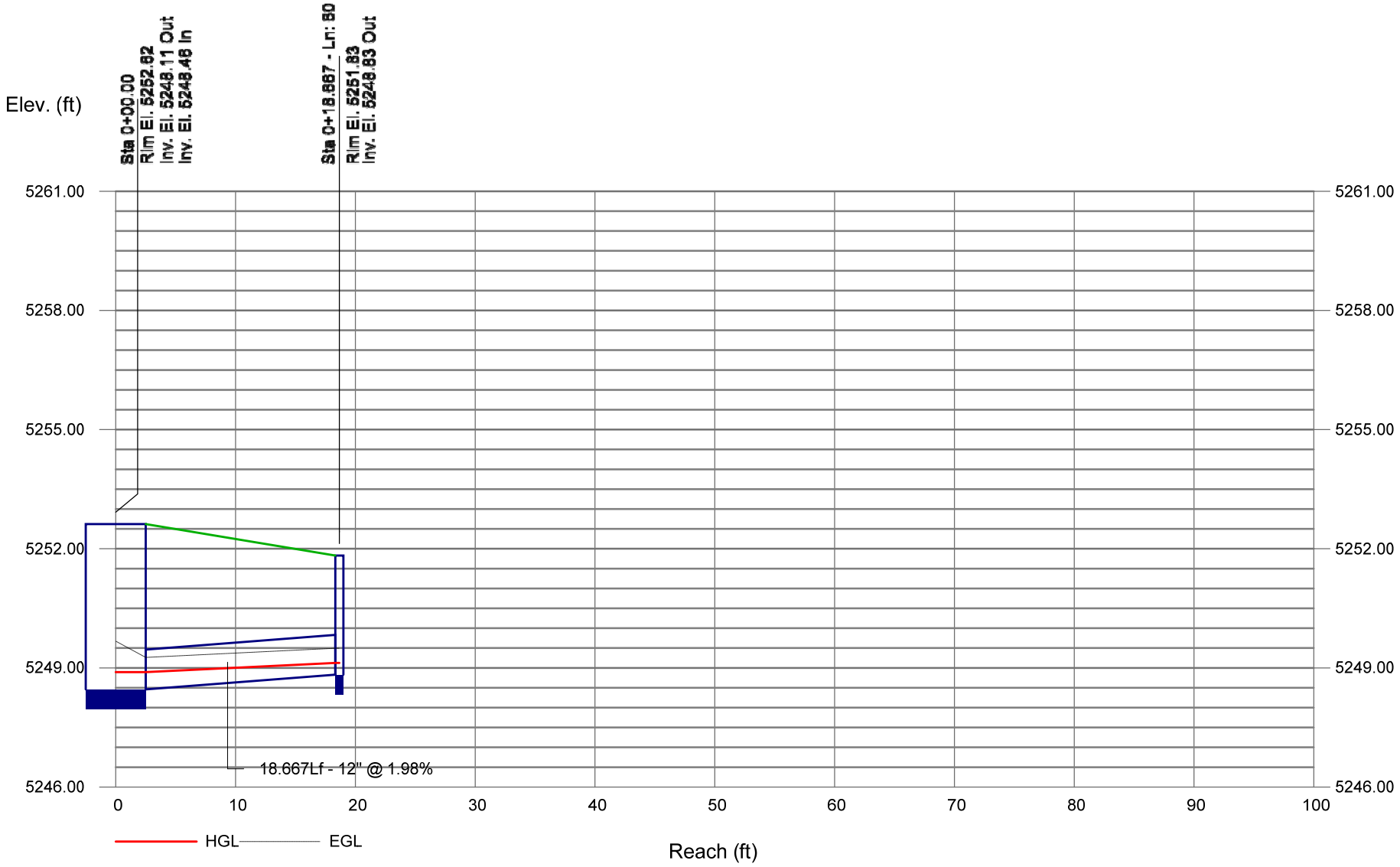
Storm Sewer Profile

Proj. file: System-B-100-year.stm



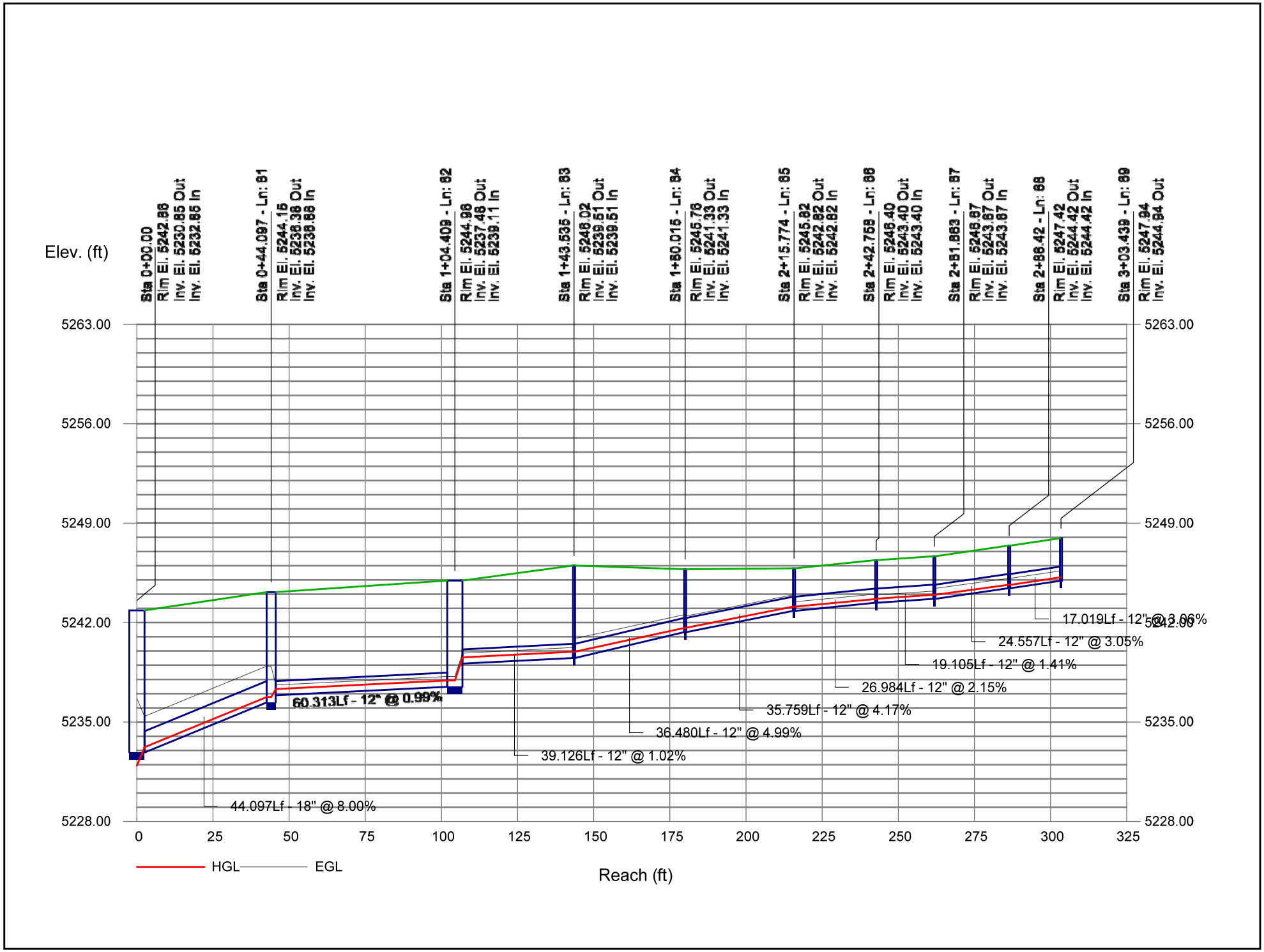
Storm Sewer Profile

Proj. file: System-B-100-year.stm

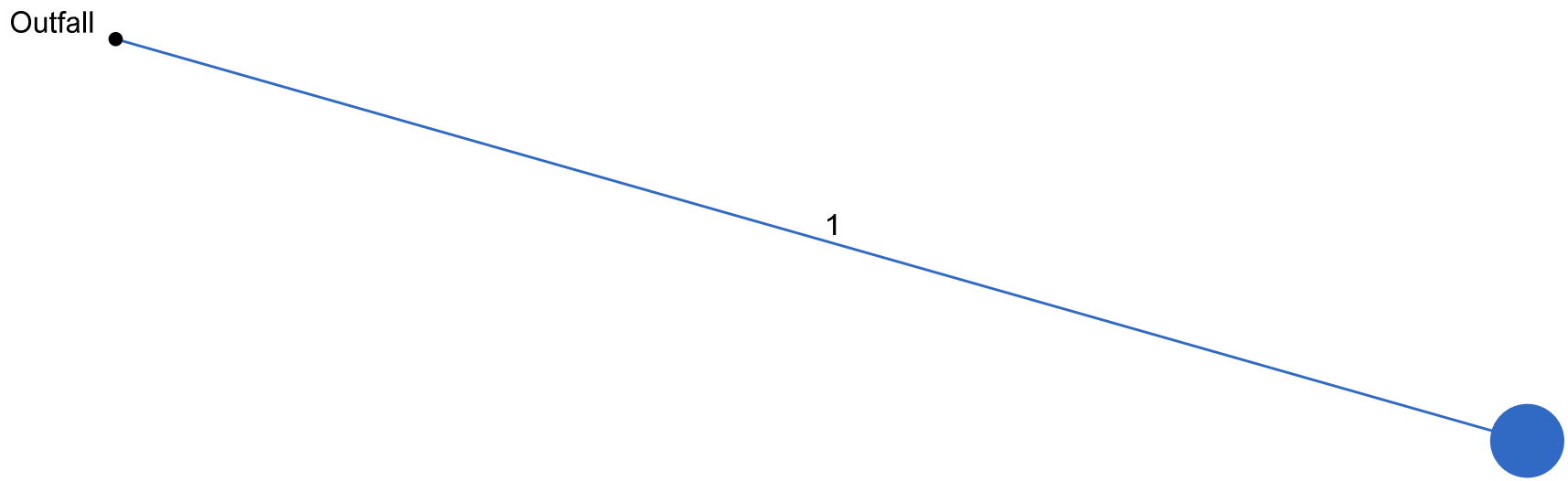


Storm Sewer Profile

Proj. file: System-B-100-year.stm



Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan



Project File: System-C-2-year.stm	Number of lines: 1	Date: 6/22/2015

Storm Sewers v10.00

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (84)	1.11	18	Cir	61.542	5232.25	5237.24	8.109	5232.65	5237.44	n/a	5237.44	End	Manhole

Project File: System-C-2-year.stm

Number of lines: 1

Run Date: 6/22/2015

NOTES: Return period = 2 Yrs.

Hydraulic Grade Line Computations

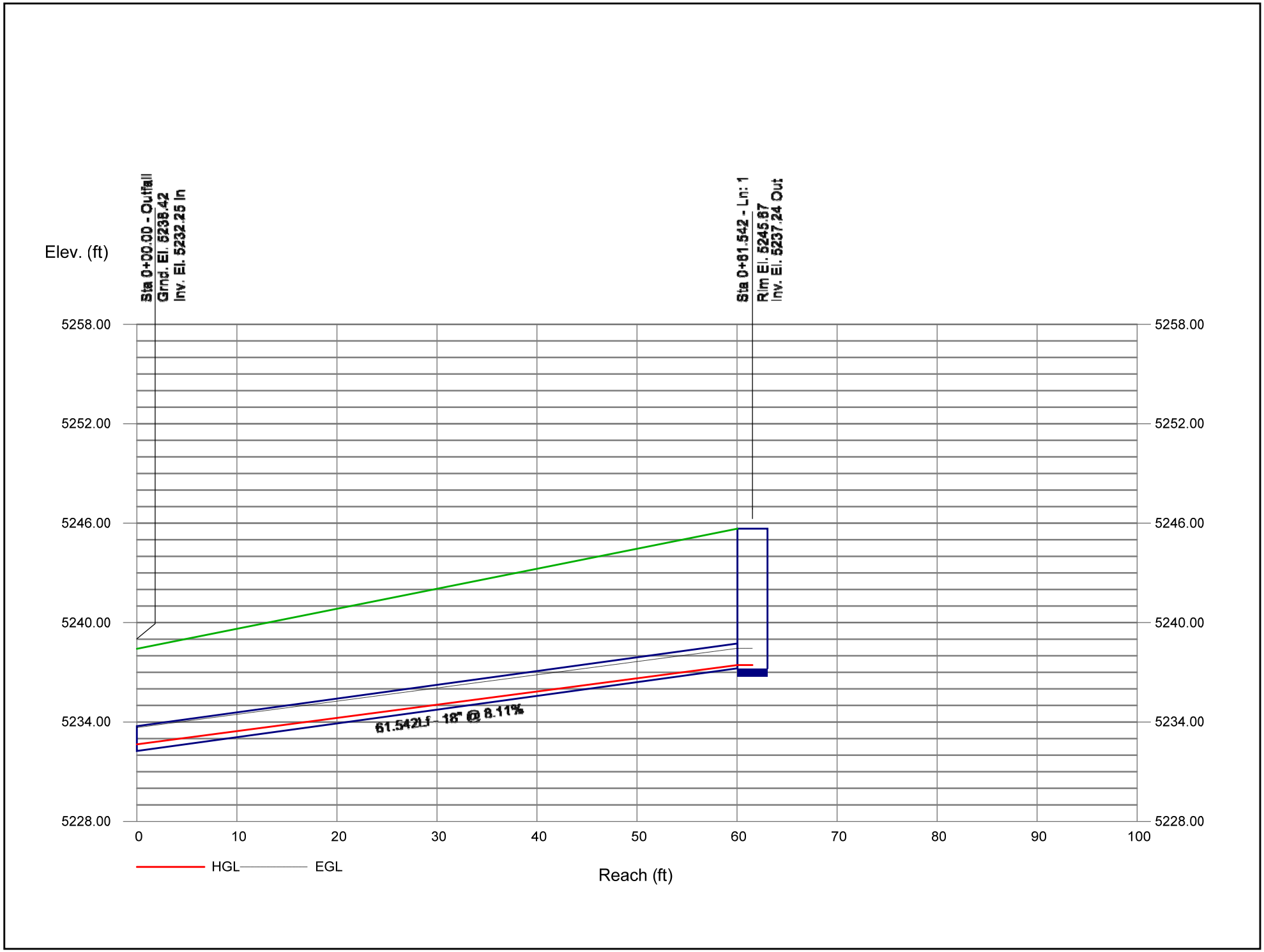
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	18	1.11	5232.25	5232.65	0.40	0.14	0.00	1.01	5233.66	0.000	61.542	5237.24	5237.44	0.20	0.14	8.06	1.01	5238.45	0.000	0.000	0.000	1.00	n/a

Project File: System-C-2-year.stm | Number of lines: 1 | Run Date: 6/22/2015

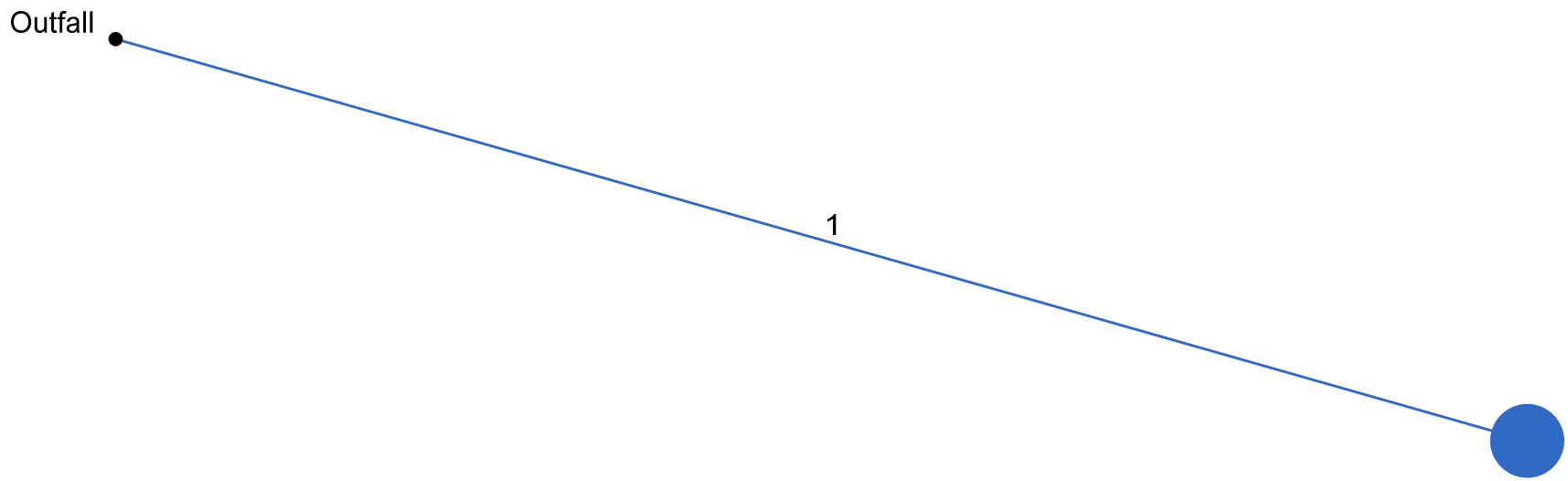
; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: System-C-2-year.stm



Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan



Project File: System-C-100-year.stm	Number of lines: 1	Date: 6/22/2015

Storm Sewers v10.00

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (84)	3.47	18	Cir	61.542	5232.25	5237.24	8.109	5232.96	5237.59	n/a	5237.59	End	Manhole

Project File: System-C-100-year.stm

Number of lines: 1

Run Date: 6/22/2015

NOTES: Return period = 100 Yrs.

Hydraulic Grade Line Computations

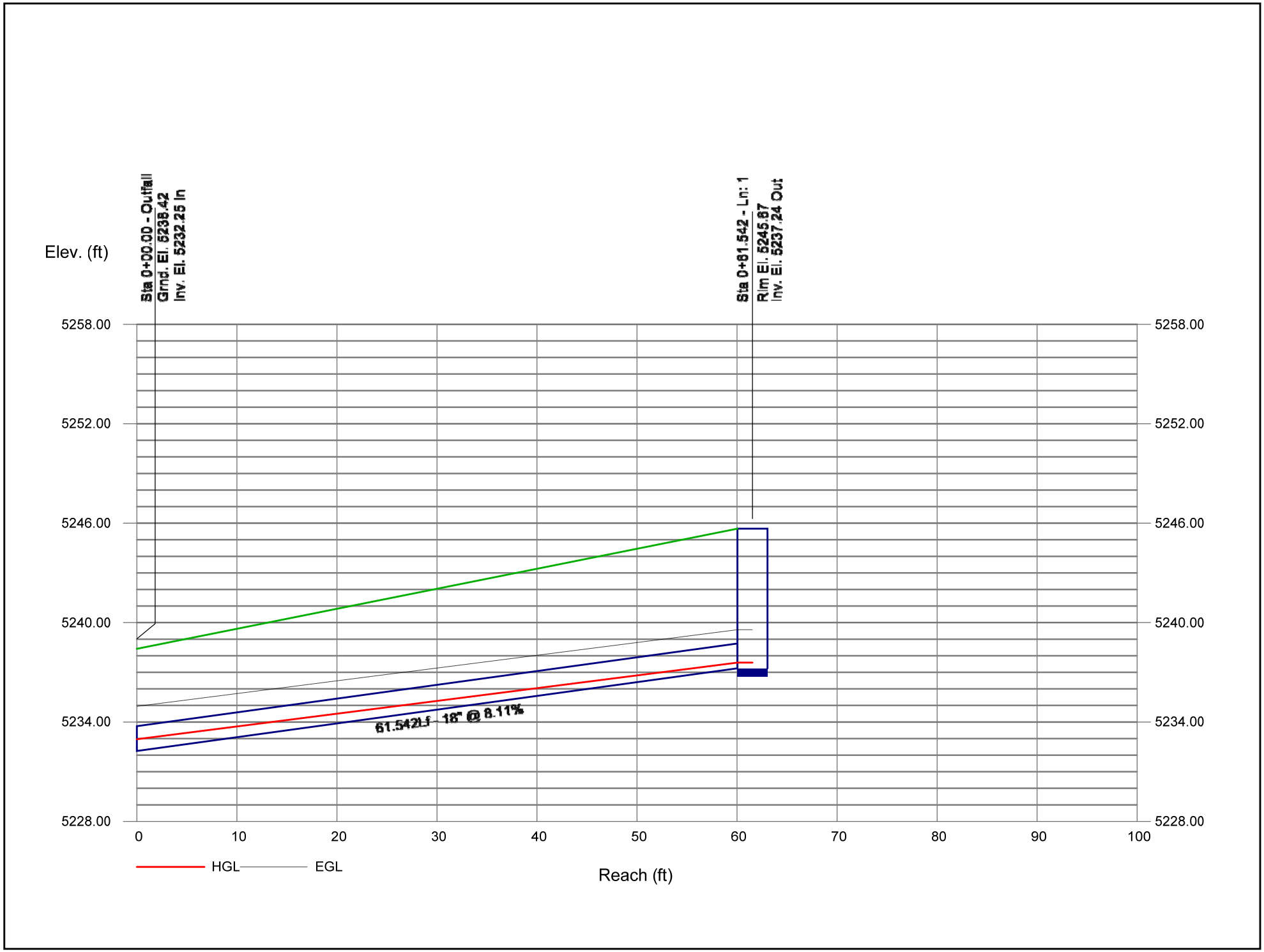
Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	18	3.47	5232.25	5232.96	0.71	0.31	0.00	1.98	5234.95	0.000	61.542	5237.24	5237.59	0.35	0.31	11.30	1.98	5239.57	0.000	0.000	0.000	1.00	n/a

Project File: System-C-100-year.stm | Number of lines: 1 | Run Date: 6/22/2015

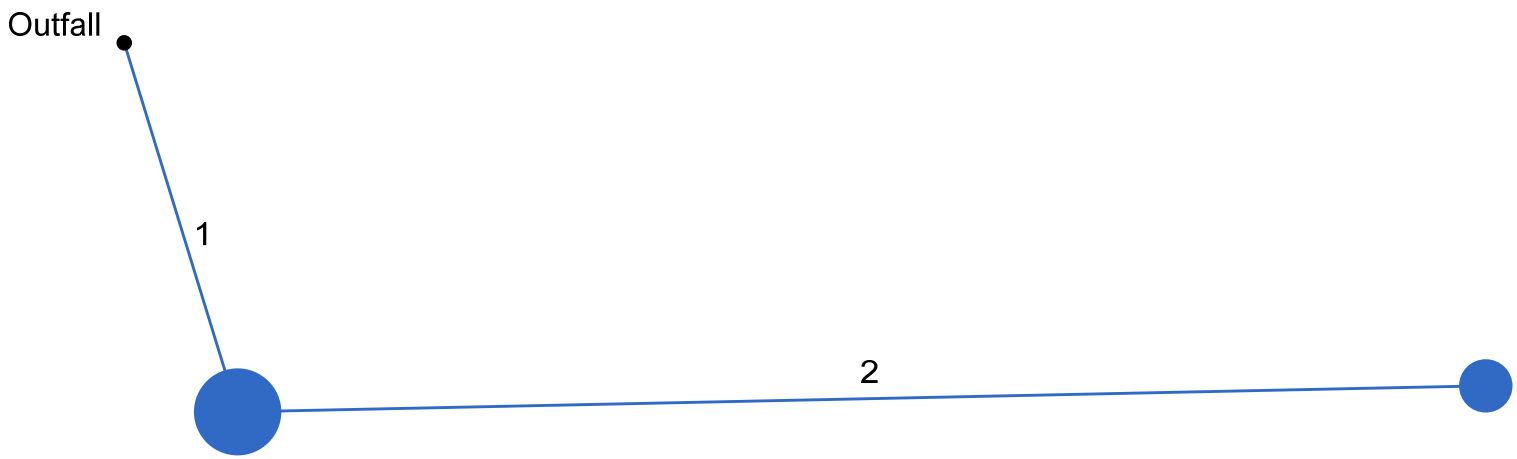
; c = cir e = ellip b = box

Storm Sewer Profile

Proj. file: System-C-100-year.stm



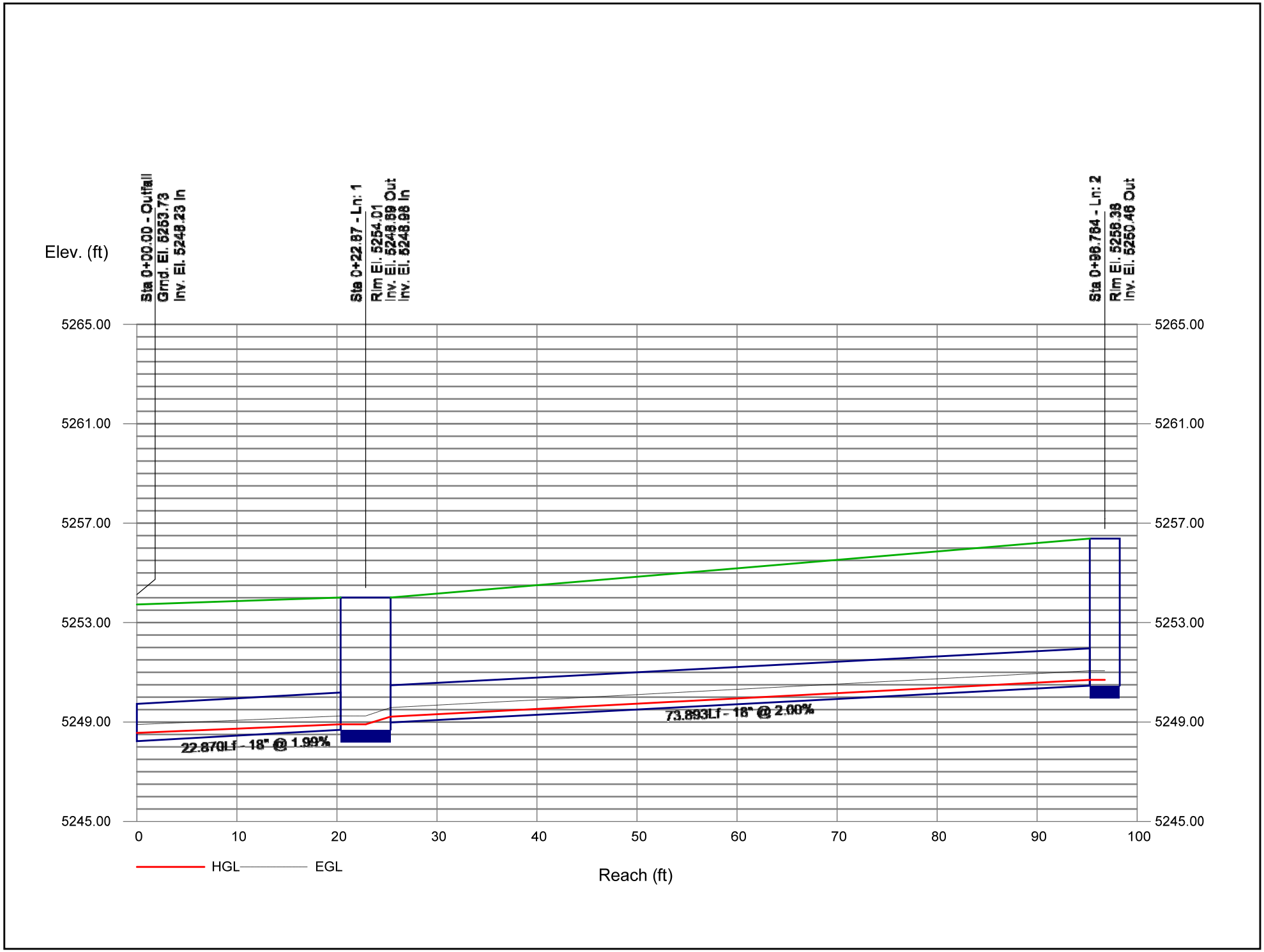
Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan



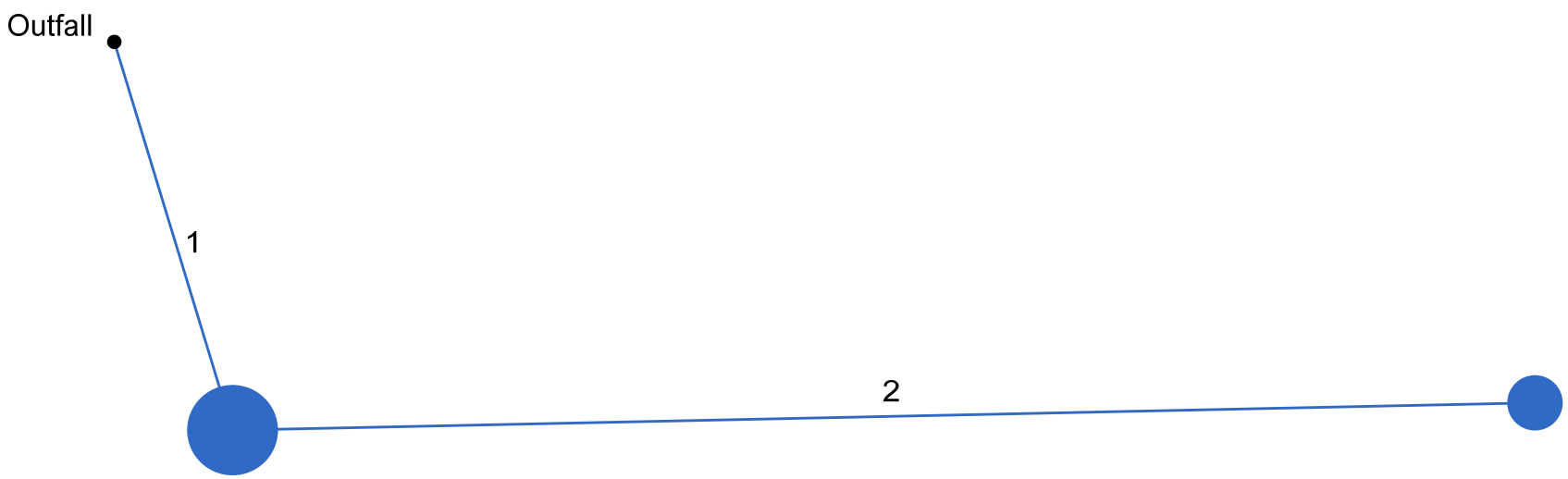
Project File: System-OS3-2-year.stm	Number of lines: 2	Date: 6/23/2015

Storm Sewer Profile

Proj. file: System-OS3-2-year.stm



Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2013 Plan

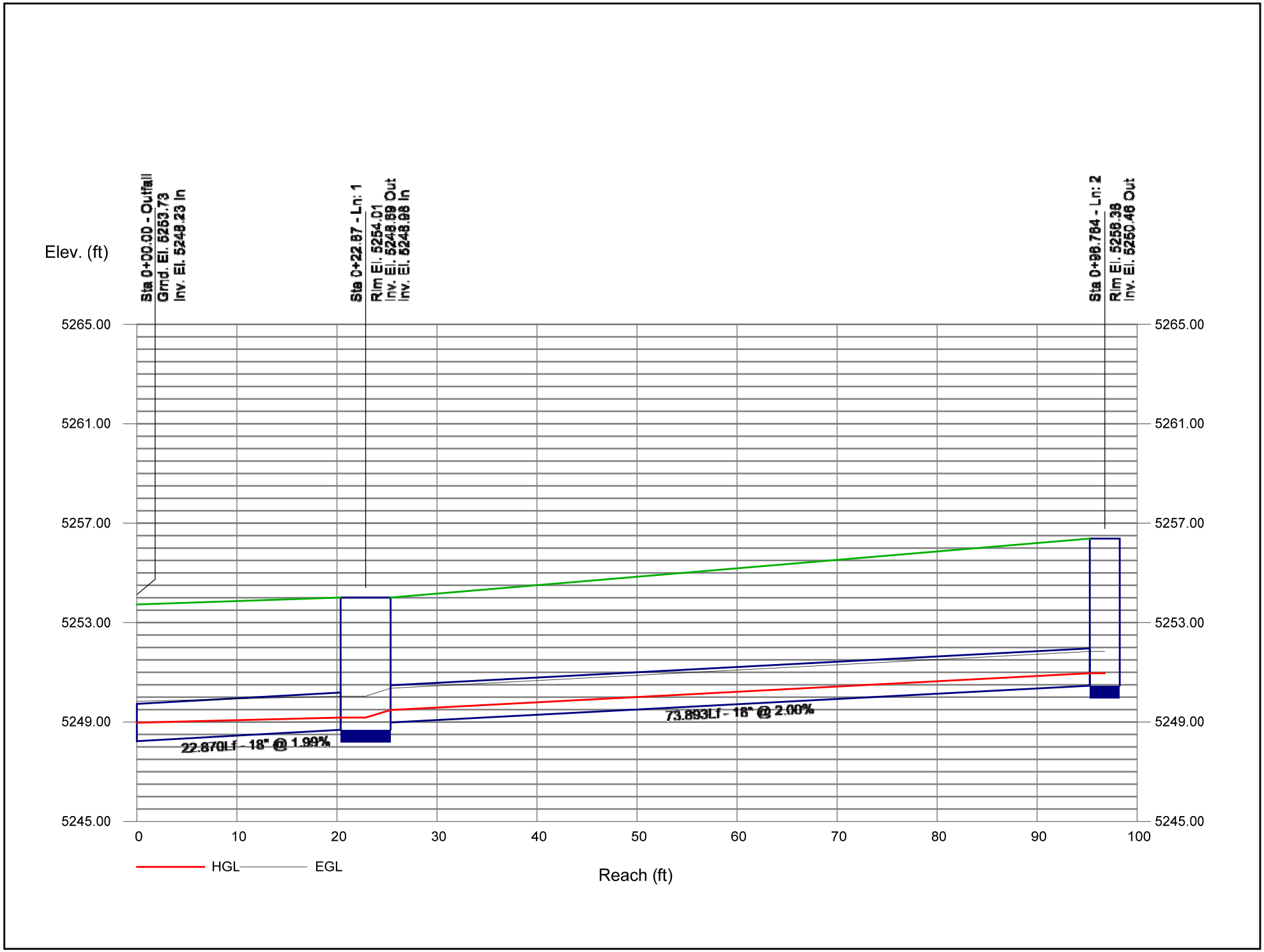


Project File: System-OS3-100-year.stm	Number of lines: 2	Date: 6/23/2015

Storm Sewers v10.00

Storm Sewer Profile

Proj. file: System-OS3-100-year.stm



Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (98)	3.79	18	Cir	22.870	5248.23	5248.69	1.990	5248.97	5249.18	n/a	5249.18	End	Manhole
2	Pipe - (97) (1)	3.90	18	Cir	73.893	5248.98	5250.46	2.003	5249.48	5250.96	n/a	5250.96	1	Manhole

Project File: System-OS3-100-year.stm | Number of lines: 2 | Run Date: 6/23/2015

NOTES: Return period = 100 Yrs.

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
	(in)	(cfs)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	(ft)	Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)	(K)	(ft)
1	18	3.79	5248.23	5248.97	0.74	0.51	0.00	0.86	5249.83	0.000	22.870	5248.69	5249.18	0.50	0.51	7.43	0.86	5250.04	0.000	0.000	0.000	0.97	n/a
2	18	3.90	5248.98	5249.48	0.50*	0.52	0.00	0.88	5250.36	0.000	73.893	5250.46	5250.96	0.50	0.52	7.50	0.88	5251.84	0.000	0.000	0.000	1.00	n/a

Project File: System-OS3-100-year.stm | Number of lines: 2 | Run Date: 6/23/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (98)	0.76	18	Cir	22.870	5248.23	5248.69	1.988	5248.56	5248.91	n/a	5248.91	End	Manhole
2	Pipe - (97) (1)	0.87	18	Cir	73.893	5248.98	5250.46	2.003	5249.22	5250.70	n/a	5250.70	1	Manhole

Project File: System-OS3-2-year.stm | Number of lines: 2 | Run Date: 6/23/2015

NOTES: Return period = 2 Yrs.

Hydraulic Grade Line Computations

Line	Size (in)	Q (cfs)	Downstream Invert elev (ft)	Downstream HGL elev (ft)	Downstream Depth (ft)	Downstream Area (sqft)	Downstream Vel (ft/s)	Downstream Vel head (ft)	Downstream EGL elev (ft)	Downstream Sf (%)	Len (ft)	Upstream Invert elev (ft)	Upstream HGL elev (ft)	Upstream Depth (ft)	Upstream Area (sqft)	Upstream Vel (ft/s)	Upstream Vel head (ft)	Upstream EGL elev (ft)	Upstream Sf (%)	Check Ave Sf (%)	Check Enrgy loss (ft)	JL coeff (K)	Minor loss (ft)
1	18	0.76	5248.23	5248.56	0.33	0.16	0.00	0.34	5248.90	0.000	22.870	5248.69	5248.91	0.22	0.16	4.66	0.34	5249.25	0.000	0.000	0.000	0.97	n/a
2	18	0.87	5248.98	5249.22	0.24*	0.18	0.00	0.36	5249.58	0.000	73.893	5250.46	5250.70	0.24	0.18	4.84	0.36	5251.06	0.000	0.000	0.000	1.00	n/a

Project File: System-OS3-2-year.stm | Number of lines: 2 | Run Date: 6/23/2015

Notes: * depth assumed. ; c = cir e = ellip b = box

C anne Report

Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc. Thursday, Jun 25 2015

asin O 1 wa e

Trape oida

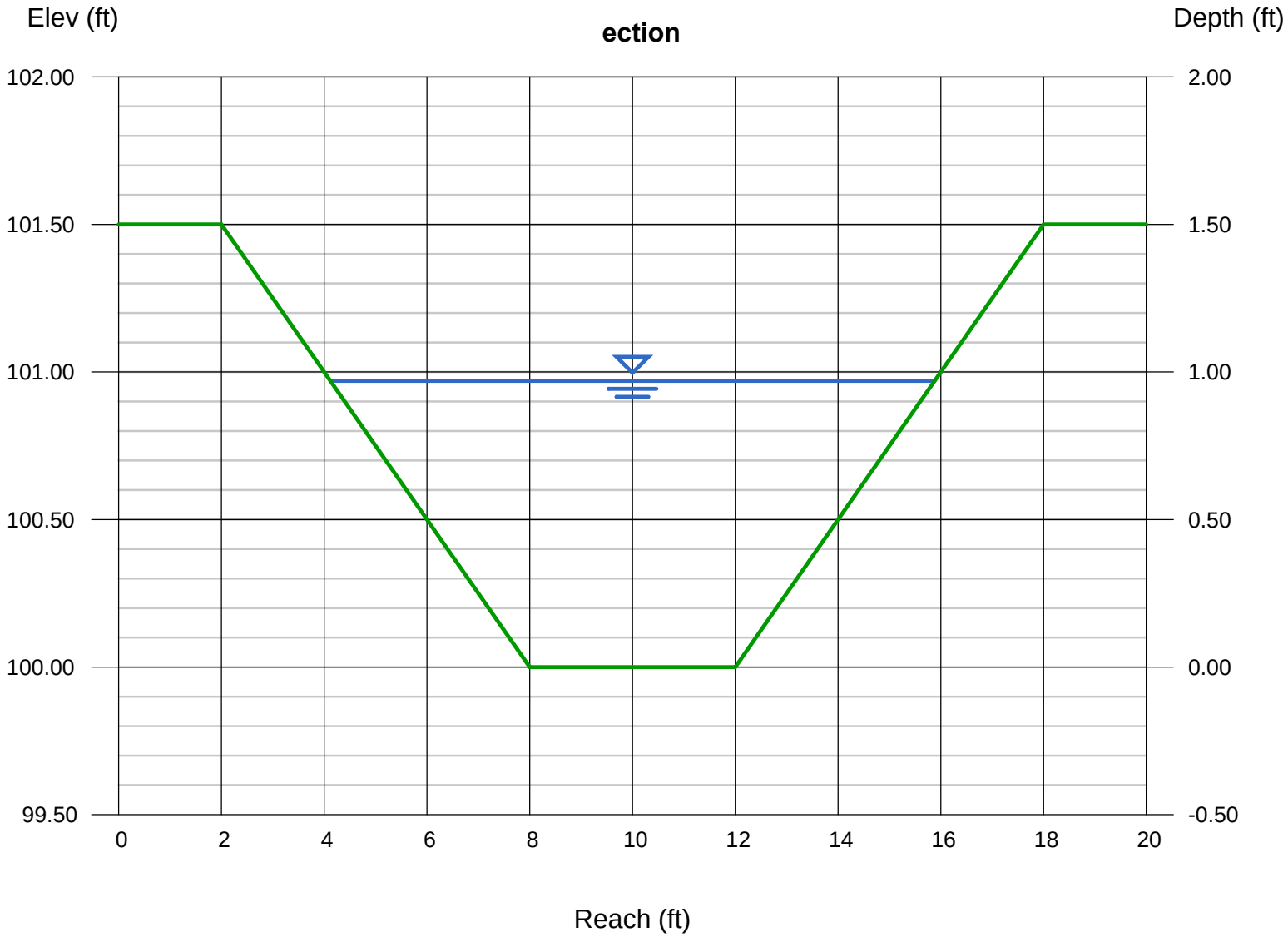
Bottom Width (ft)	= 4.00
Side Slopes (z:1)	= 4.00, 4.00
Total Depth (ft)	= 1.50
Invert Elev (ft)	= 100.00
Slope (%)	= 1.00
N-Value	= 0.025

Ca cu ations

Compute by:	Known Q
Known Q (cfs)	= 32.94

Hig ig ted

Depth (ft)	= 0.97
Q (cfs)	= 32.94
Area (sqft)	= 7.64
Velocity (ft/s)	= 4.31
Wetted Perim (ft)	= 12.00
Crit Depth, Yc (ft)	= 0.95
Top Width (ft)	= 11.76
EGL (ft)	= 1.26



C anne Report

Hydraflow Express Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc. Thursday, Jun 25 2015

asin O 2 wa e

Trape oida

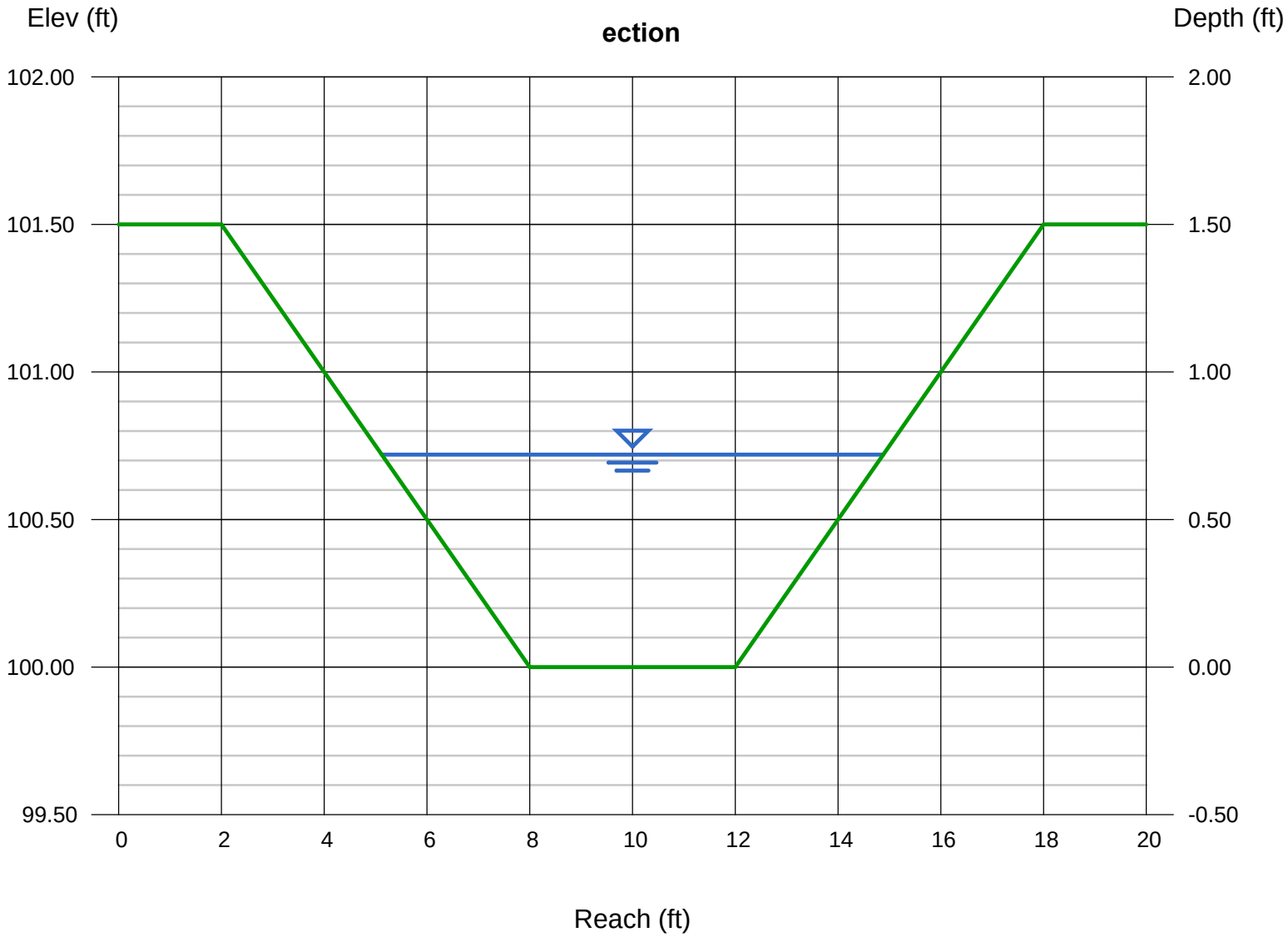
Bottom Width (ft)	=	4.00
Side Slopes (z:1)	=	4.00, 4.00
Total Depth (ft)	=	1.50
Invert Elev (ft)	=	100.00
Slope (%)	=	2.00
N-Value	=	0.025

Ca cu ations

Compute by:		Known Q
Known Q (cfs)	=	25.56

Hig ig ted

Depth (ft)	=	0.72
Q (cfs)	=	25.56
Area (sqft)	=	4.95
Velocity (ft/s)	=	5.16
Wetted Perim (ft)	=	9.94
Crit Depth, Yc (ft)	=	0.83
Top Width (ft)	=	9.76
EGL (ft)	=	1.13



ENERTIA CONSULTING GROUP

Project: Montex South
Subject: Riprap Sizing at Storm Drain Outfalls
Date: 2915/2015
By: bsc

RIPRAP SIZING AT OUTFALLS (UDFCD, SECTION 7.2)

OUTFALL ID	STATION (APPROX.)	Q-100 (cfs)	FLOW TYPE	Dc (ft)	Yn (ft)	[1]Da (Eq. MD-20)	Q/Da^1.5	[2]Yt/Dc	RIPRAP SIZE	COMMENT
3	na	30	Supercritical	2.00	1.1	1.6	15.4	0.4	Type H	Use Da parameter in place of Dc

[1] Replaced Da with Dc when the flow in the storm drain outfall is supercritical

[2] Assumed value of 0.4 based on UDFCD recommendations given unknown tailwater depths (UDFCD, Section 7.2)

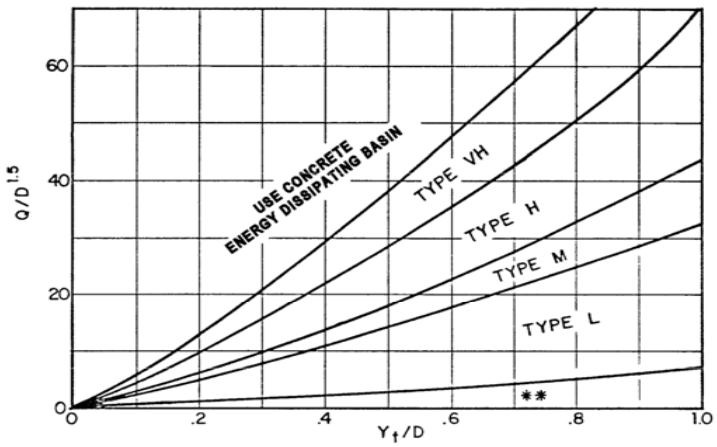
Dc = Culvert Diameter
Da = Adjusted Diamter
Yn = Normal Depth

Table MD-7—Classification and Gradation of Ordinary Riprap

Riprap Designation	% Smaller Than Given Size by Weight	Intermediate Rock Dimensions (inches)	d_{50} (inches)*
Type VL	70-100	12	
	50-70	9	
	35-50	6	6**
	2-10	2	
Type L	70-100	15	
	50-70	12	
	35-50	9	9**
	2-10	3	
Type M	70-100	21	
	50-70	18	
	35-50	12	12**
	2-10	4	
Type H	70-100	30	
	50-70	24	
	35-50	18	18
	2-10	6	
Type VH	70-100	42	
	50-70	33	
	35-50	24	24
	2-10	9	

* d_{50} = mean particle size (intermediate dimension) by weight.

** Mix VL, L and M riprap with 35% topsoil (by volume) and bury it with 4 to 6 inches of topsoil, all vibration compacted, and revegetate.



Use D_a instead of D whenever flow is supercritical in the barrel.
** Use Type L for a distance of 3D downstream.

Figure MD-21—Riprap Erosion Protection at Circular Conduit Outlet Valid for $Q/D^{2.5} \leq 6.0$

ENERTIA CONSULTING GROUP

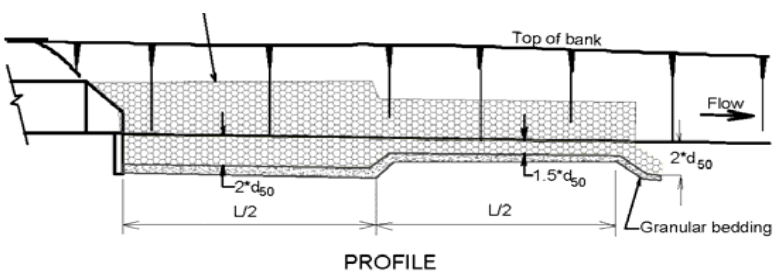
Project:	Montex South
Subject:	Riprap Sizing at Storm Drain Outfalls
Date:	15-Sep-15
By:	JMM

RIPRAP PROTECTION SIZING AT OUTFALLS (UDFCD, SECTION 7.3)

OUTFALL ID	Q/D^2.5	V (ft/s)	At (Eq. MD-23)	[3]Yt (ft)	Yt/D	EXPANSION FACTOR	[4]Lp (Eq. MD-22) (ft)	[4]Lp Min=3D (ft)	[4]Lp Max=10D (ft)	[5]Width (ft)

[3]Assumed tailwater depth of 0.5-feet at outfall.
[4]Length of protection begins at the toe of slope at the outfall.
[5]Width of riprap shall be a minimum of three times the storm outfall diameter.

V = Allowable Non-Eroding Velocity
Yt = Tailwater Depth
Lp = Length of Protection



NOTES: 1. Headwall with wingwalls or flared end section required at all culvert outlets.
2. Cutoff wall required at end of wingwall aprons and end section. Minimum depth of cutoff wall = 2*d50 or 3-feet, whichever is deeper.
3. Provide joint fasteners for flared end sections.

Figure MD-25—Culvert and Pipe Outlet Erosion Protection

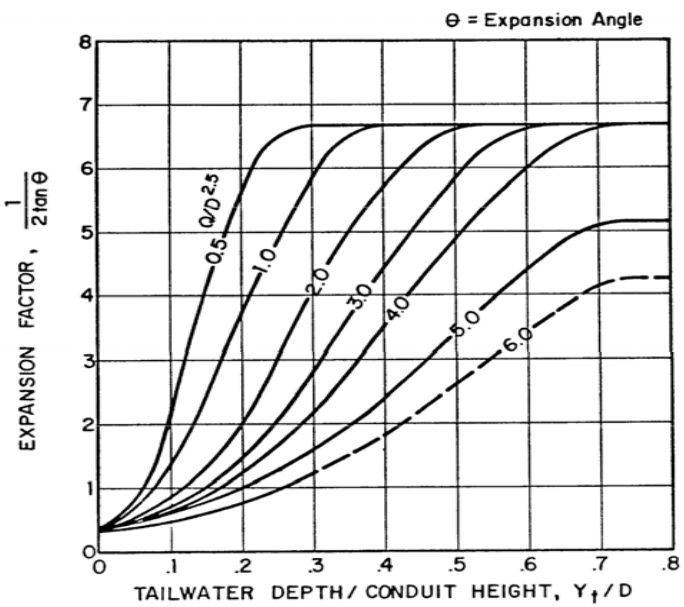


Figure MD-23—Expansion Factor for Circular Conduits

APPENDIX C

Reference Documents

DESIGN STORM RETURN PERIODS

Land Use or Zoning	Design Storm Return Period	
	Initial Storm	Major Storm
Residential	2-year	100-year
Business	5-year	100-year
Public Building Areas	5-year	100-year
Parks, Greenbelts, etc.	2-year	100-year
Open Channels and Drainage ways	10 year	100-year
Detention Facilities	Water Quality and 10 year	100-year

TABLE 800-3

PERCENT IMPERVIOUS FOR RATIONAL METHOD

LAND USE OR SURFACE CHARACTERISTICS	PERCENT IMPERVIOUS
Business	
Commercial Areas	95
Neighborhood Areas	85
Residential	
Single-Family	*
Multi-Unit (detached)	60
Multi-Unit (attached)	75
1/2 Acre Lot or Larger	*
Apartments	80
Industrial	
Light Areas	80
Heavy Areas	90
Parks, Cemeteries	5
Playgrounds	10
Schools	50
Railroad Yard Areas	15
Undeveloped Areas	
Historic Flow Analysis	2
Greenbelts, Agricultural	2
Offsite Flow Analysis	
(when land use not defined)	45
Streets	
Paved	100
Gravel	40
Drives and Walks	90
Roofs	90
Lawns, Sandy Soil	0
Lawns, Clay Soil	0

Note: These Rational Formula coefficients may not be valid for large basins.

* Refer to Urban Storm Drainage Criteria Manual for percent impervious values.

813.06 Rainfall Intensities

The rainfall intensities to be used in the computation of runoff using the Rational Method shall be obtained from the Rainfall Intensity Duration Curves for the Town of Erie, included in these STANDARDS AND SPECIFICATIONS.

813.03 Runoff Computations, Colorado Urban Hydrograph Procedure (CUHP)

The CUHP method is generally applicable to basins greater than 90 acres. However, the CUHP is required for watershed areas larger than 160-acres. The procedures for the CUHP, as explained in the Urban Storm Drainage Criteria Manual, shall be followed in the preparation of drainage reports and storm drainage facility designs in the Town. The CUHP program requires the input of a design storm, either as a detailed hyetograph or as a 1-hour rainfall depth. The program for the latter using the 2-hour storm distribution recommended in the Urban Storm Drainage Criteria Manual generates a detailed hyetograph distribution. The 1-hour rainfall depths for the Town of Erie are presented in Table 800-2.

Table 800-2
TOWN OF ERIE
ONE-HOUR RAINFALL DEPTH

Design Storm	Rainfall Depth (in.)
2-Year	1.01
5-Year	1.43
10-Year	1.73
50-Year	2.40
100-Year	2.70

The hydrograph from the CUHP program must be routed through any proposed conveyance facility using UDSWM or a similar method.

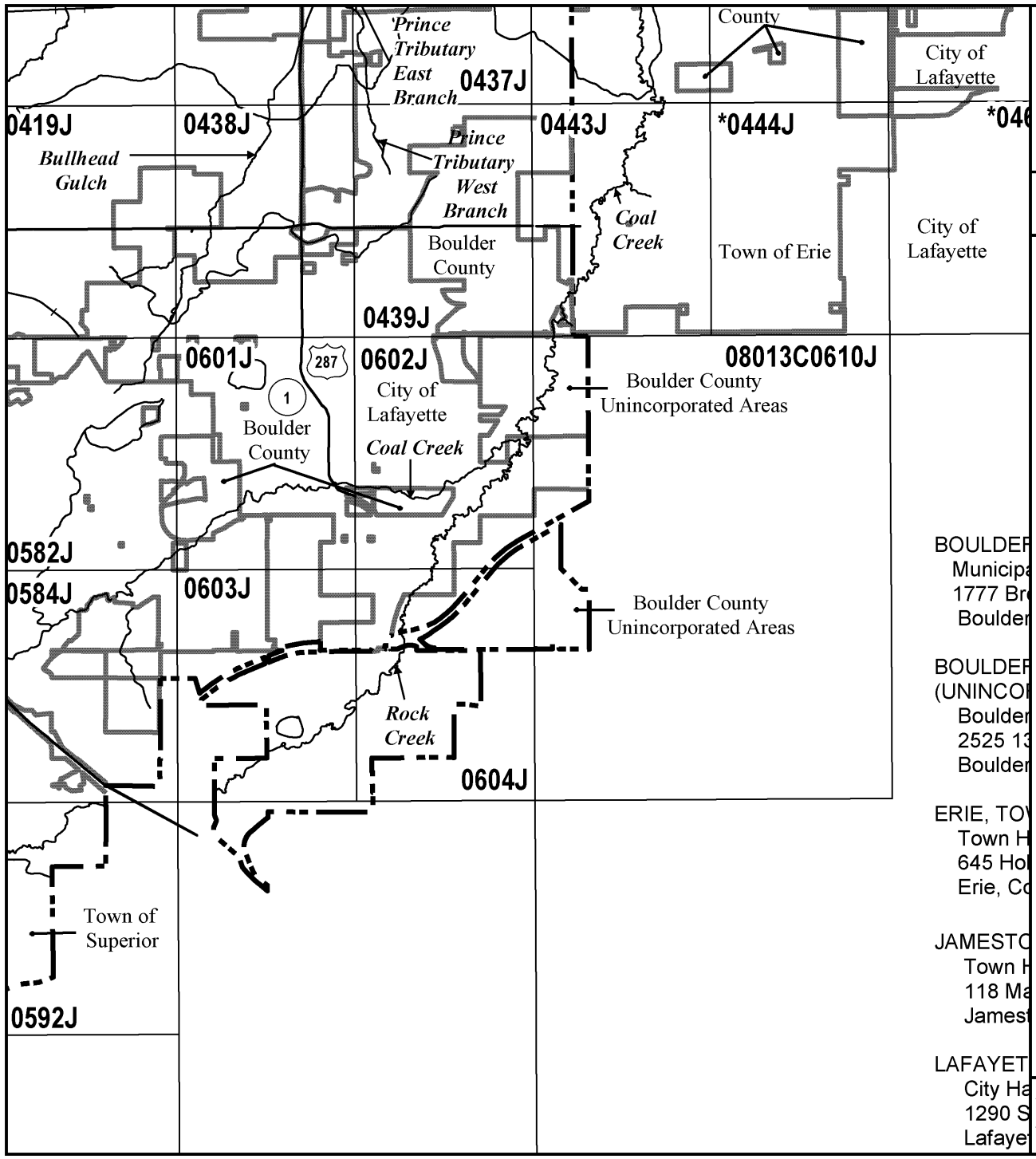
813.04 Runoff Computations, Rational Method

The Rational Method will be utilized for sizing storm sewers and for determining runoff magnitude from un-sewered areas. The limit of application of the Rational Method is approximately 160 acres. When the drainage basin exceeds 160 acres, the CUHP method shall be used.

The procedures for the Rational Method, as explained in the Urban Storm Drainage Criteria Manual, shall be followed in the preparation of drainage reports in the Town.

813.05 Runoff Coefficients

Rational method runoff coefficients: The runoff coefficient (C) to be used in conjunction with the Rational Method will be calculated using the percent imperviousness shown in Table 800-3 as explained in the Urban Storm Drainage Criteria Manual.



BOULDER
Municipa
1777 Br
Boulder

BOULDER
(UNINCOR
Boulder
2525 13
Boulder

ERIE, TO
Town H
645 Ho
Erie, Co

JAMESTO
Town H
118 Ma
James

LAFAYET
City Ha
1290 S
Lafaye

NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

SHEET 2 OF 2

PANELS PRINTED: 334, 342, 355, 357, 360, 365, 370, 376, 377, 378, 379, 385, 390, 391, 392, 393, 394, 401, 402, 403, 404, 407, 410, 411, 412, 413, 414, 416, 417, 418, 419, 429, 430, 435, 436, 437, 438, 439, 441, 443, 509, 530, 535, 557, 559, 560, 566, 567, 576, 577, 578, 579, 582, 583, 584, 586, 587, 591, 592, 601, 602, 603, 604, 610

(SEE SHEET 1 FOR ADDITIONAL PANELS PRINTED)

MAP NUMBER
08013CIND2B

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

08013C0394J	December 18, 20
08013C0401J	December 18, 20
08013C0402J	December 18, 20
08013C0403J	December 18, 20
08013C0404J	December 18, 20
08013C0407J	December 18, 20

COMMUNITY NAME	COMMUNITY NUMBER	
BOULDER, CITY OF	080024	0385, 0391, 0392, 0393, 0394, 040
BOULDER COUNTY UNINCORPORATED AREAS	080023	**0025, **0050, **0075, **0100, 0125, **0230, 0231, 0232, 0233, 0234, 024 0269, 0278, 0286, 0287, 0288, 0289, 0360, 0365, 0370, 0376, 0377, 03 0404, 0407, 0410, 0411, 0412, 0413, 0438, 0439, 0441, 0443, **0500, 050 **0575, 0576, 0577, 0578, 0579
ERIE, TOWN OF	080181	0429, 0435, 0436, 0437, 0438,
JAMESTOWN, TOWN OF	080216	
LAFAYETTE, CITY OF	080026	0418, 0419, 04
LONGMONT, CITY OF	080027	**0260, 0266, 0267, 0268, 02
LOUISVILLE, CITY OF	085076	0579, **0
LYONS, TOWN OF	080029	
NEDERLAND, TOWN OF	080255	
SUPERIOR, TOWN OF	080203	057
*WARD, TOWN OF	080292	

*NO SPECIAL FLOOD HAZARD AREAS IDENTIFIED

**PANEL NOT PRINTED

NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

FIRM

FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO

AND INCORPORATED AREAS

(SEE LISTING OF COMMUNITIES TABLE)

MAP INDEX

SHEET 2 OF 2

PANELS PRINTED: 334, 342, 355, 357, 360, 365, 370, 376, 377, 378, 379, 385, 390, 391, 392, 393, 394, 401, 402, 403, 404, 407, 410, 411, 412, 413, 414, 416, 417, 418, 419, 429, 430, 435, 436, 437, 438, 439, 441, 443, 509, 530, 535, 557, 559, 560, 566, 567, 576, 577, 578, 579, 582, 583, 584, 586, 587, 591, 592, 601, 602, 603, 604, 610

(SEE SHEET 1 FOR ADDITIONAL PANELS PRINTED)

MAP NUMBER
08013CIND2B

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

ALTA / ACSM LAND TITLE SURVEY
VISTA RIDGE COMMERCIAL AREA

LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
SHEET 1 OF 2

LEGAL DESCRIPTION (FROM COMMITMENT):

PARCEL A:

A PORTION OF TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEASTERLY CORNER OF SAID TRACT A: THENCE S00°12'01"E, 608.49 FEET ALONG THE EASTERLY LINE OF SAID TRACT A (BASIS OF BEARINGS);
THENCE S90°00'00"W, 332.94 FEET;
THENCE 78.54 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 45°00'00", AND A CHORD BEARING OF N67°30'00"W, 76.54 FEET;
THENCE N45°00'00"W, 182.11 FEET;
THENCE 117.81 FEET ALONG THE ARC OF A TANGENT CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 150.00 FEET, A CENTRAL ANGLE OF 45°00'00", AND A CHORD BEARING N67°30'00"W, 114.81 FEET;
THENCE N90°00'00"W, 19.93 FEET;
THENCE N00°00'00"W, 16.05 FEET;
THENCE 56.06 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 173.00 FEET, A CENTRAL ANGLE OF 18°34'05", AND A CHORD BEARING N09°17'02"E, 55.82 FEET;
THENCE N18°34'05"E, 286.04 FEET;
THENCE N00°00'00"W, 53.14' TO THE NORTHERLY LINE OF SAID TRACT A;
THENCE N88°51'39"E, 556.31 FEET ALONG THE SAID NORTHERLY LINE OF TRACT A TO THE **POINT OF BEGINNING.**

SAID PARCEL CONTAINS 338,827 SQUARE FEET OR 7.778 ACRES, MORE OR LESS.

PARCEL B:

A PORTION OF PARCEL 33 OF "VISTA RIDGE MASTER FINAL PLAT" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M. TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

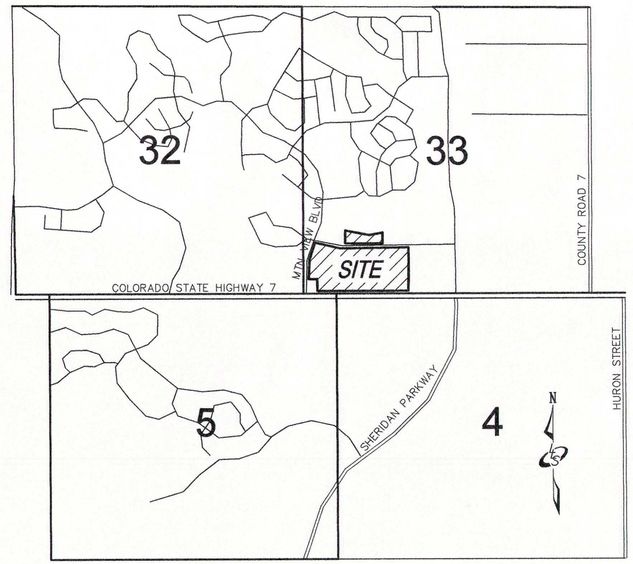
BEGINNING AT THE NORTHWESTERLY CORNER OF SAID PARCEL 33;
THENCE N 88° 48' 22" E, 173.66 FEET ALONG THE NORTHERLY LINE OF SAID PARCEL 33;
THENCE S00°00'00"E 612.10 FEET;
THENCE N90°00'00"W, 171.49 FEET TO THE WESTERLY LINE OF SAID PARCEL 33;
THENCE N00°12'01"W, 608.49 FEET ALONG SAID WESTERLY LINE OF PARCEL 33 TO THE **POINT OF BEGINNING.**

SAID PARCEL CONTAINS 105,313 SQUARE FEET OR 2.418 ACRES, MORE OR LESS.

PARCEL C:

LOT 2 OF "VISTA RIDGE FILING NO 2 – MINOR SUBDIVISION" (PLAT RECORDED 11/15/2007 AT RECEPTION NO. 3517715), TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

SAID PARCEL CONTAINS 175,823 SQUARE FEET OR 4.036 ACRES, MORE OR LESS.



VICINTY MAP
N.T.S.

GENERAL NOTES:

1. NOTICE: ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

2. BASIS OF BEARINGS: THE EASTERLY LINE OF TRACT A OF VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION, ASSUMED TO BEAR S00°12'01"E, TO MATCH RECORDED PLATS. MONUMENTS DESCRIBED ON DRAWING.

3. FOUND PROPERTY CORNERS ARE DESCRIBED HEREON.

4. NO BUILDINGS ARE PRESENTLY LOCATED ON THIS PROPERTY.

6. THIS PROPERTY IS LOCATED IN ZONE C (AREAS OF MINIMAL FLOODING) ACCORDING TO FIRM COMMUNITY PANEL NUMBER 0802660970 D WITH A REVISION DATE OF 09/28/1990.

7. THE SUBJECT PROPERTY ABUTS UPON AND HAS INGRESS TO AND EGRESS FROM DULY DEDICATED AND ACCEPTED PUBLIC STREETS KNOWN AS RIDGE VIEW DRIVE.

8. PROPERTY IS CURRENTLY ZONED PD (PLANNED DEVELOPMENT).

9. TOTAL AREA OF THREE THE PARCELS IS 14.232 ACRES.

10. THE RECORD DESCRIPTION OF THE SUBJECT PROPERTY FORMS A MATHEMATICALLY CLOSED FIGURE AND, TO THE EXTENT ANY EASEMENT CANNOT BE LOCATED FROM ITS RECORD DESCRIPTION, A NOTATION IS MADE HEREON.

11. TWO PLATS HAVE BEEN RECORDED THAT AFFECT PARCELS: "VISTA RIDGE FILING NO. 2 FINAL PLAT", RECORDED 06/06/2003 AT RECEPTION NO. 3070387 AND "VISTA RIDGE FILING NO. 2 MINOR SUBDIVISION", RECORDED 11/15/2007 AT RECEPTION NO. 3517715, WHICH IS A REPLAT OF PARCEL 35B OF FILING NO. 2.

SURVEY CERTIFICATION:

CERTIFIED TO:

CHARTERED DEVELOPMENT CORP.

FOR AND ON BEHALF OF LANGE LAND SURVEYS, LLC, I CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA, ACSM AND NSPS IN 2005, AND INCLUDES ITEMS 1–5 & 11A OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR LICENSED IN THE STATE OF COLORADO, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.

DATE: 8/28/14

COLORADO REGISTERED
SHANNON K. LANGE
37908
PROFESSIONAL LAND SURVEYOR

TITLE COMMITMENT NOTES:

THIS LAND SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY LANGE LAND SURVEYS, LLC. TO DETERMINE OWNERSHIP OF THIS PARCEL OF LAND, VERIFY THE DESCRIPTION SHOWN, VERIFY THE COMPATIBILITY OF THIS DESCRIPTION WITH THAT OF THE ADJACENT PARCELS OF LAND, OR VERIFY EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHT-OF-WAY OR TITLE OF RECORD, LANGE LAND SURVEYS, LLC RELIED UPON ORDER NO. 25121037, WITH A DATE OF APRIL 11, 2014, PREPARED BY LAND TITLE GUARANTEE COMPANY.

THE FOLLOWING COMMENTS ARE IN REGARDS TO THE ABOVE REFERENCED ORDER NO.'S

SCHEDULE A

ITEM # **COMMENT**

1. NOTED ABOVE.

2., 3., 4. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

5. THE LEGAL DESCRIPTION OF THE LAND SURVEYED IS SHOWN HEREON, TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

SCHEDULE B – SECTION 1 (REQUIREMENTS)

ITEM # **COMMENT**

1.–5. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS. THIS ALTA/ACSM LAND TITLE SURVEY IS A RESPONSE TO THE REQUEST FOR A SURVEY.

SCHEDULE B – SECTION 2 (EXCEPTIONS)

ITEM # **COMMENT**

1.–14. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

15. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND DETERMINED IT DOES NOT AFFECT SUBJECT PROPERTY.

16.–17. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

18. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND DETERMINED IT DOES NOT AFFECT SUBJECT PROPERTY.

19.–20. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

21. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND DETERMINED IT DOES NOT AFFECT SUBJECT PROPERTY.

22. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND DETERMINED IT DOES NOT AFFECT SUBJECT PROPERTY.

23. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND IT IS LOCATED AS SHOWN ON THIS SURVEY.

24.–25. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

26. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND IT IS LOCATED AS SHOWN ON THIS SURVEY.

27.–29. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

30. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND IT IS LOCATED AS SHOWN ON THIS SURVEY.

31.–32. LANGE LAND SURVEYS, LLC DID NOT EXAMINE OR ADDRESS THESE ITEMS.

33. ITEM INTENTIONALLY DELETED.

34. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND DETERMINED IT DOES NOT AFFECT SUBJECT PROPERTY.

35. LANGE LAND SURVEYS, LLC EXAMINED THIS ITEM AND IT IS LOCATED AS SHOWN ON THIS SURVEY.

36.–41. LANGE LAND SURVEYS DID NOT EXAMINE OR ADDRESS THESE ITEMS.

#	REVISIONS:	DATE:	BY:
1			
2			
3			
4			
5			
6			
7			
8			

JOB NUMBER: 1057-556

SHEET: 1 OF 2

DRAWN BY: LC
CHECKED BY: JRL
SCALE: 1" = 60'
DATE: 03/18/14
FILE NO. ALTA

ALTA / ACSM LAND TITLE SURVEY
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

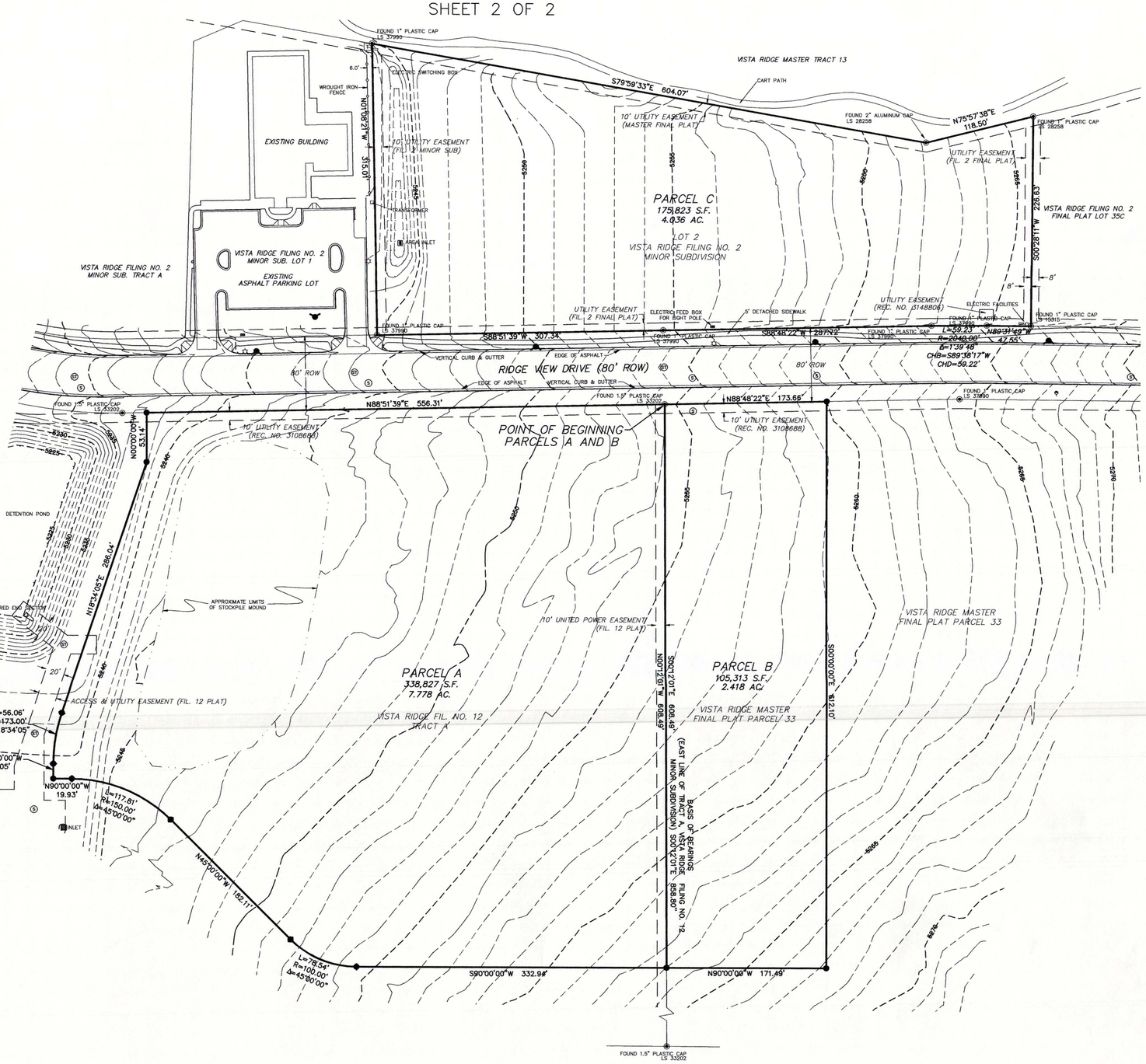
PREPARED FOR:
CHARTERED DEVELOPMENT

Lange Land Surveys
9572 W. 58TH AVE. ARVADA, CO 80002
P:(720) 242-9732 F:(720) 242-9654

ALTA / ACSM LAND TITLE SURVEY
VISTA RIDGE COMMERCIAL AREA

LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

SHEET 2 OF 2



SYMBOL LEGEND	
	MONUMENTED PROPERTY CORNER
	SET #5 REBAR WITH PLASTIC CAP PLS 37908
S	SANITARY SEWER MANHOLE
ST	STORM SEWER MANHOLE
	FIRE HYDRANT
	6' TYPE"R" INLET
	FIBER OPTIC WARNING SIGN
T	TELEPHONE PEDESTAL
	HANDICAP RAMP
	LIGHT POLE
	CONTOUR-MAJOR
	CONTOUR-MINOR

N

0 30 60 120

SCALE: 1" = 60'

#	REVISIONS:	DATE:	BY:
1			
2			
3			
4			
5			
6			
7			
8			

DRAWN BY: LC
CHECKED BY: JRL
SCALE: 1" = 60'
DATE: 03/18/14
FILE NO. ALTA

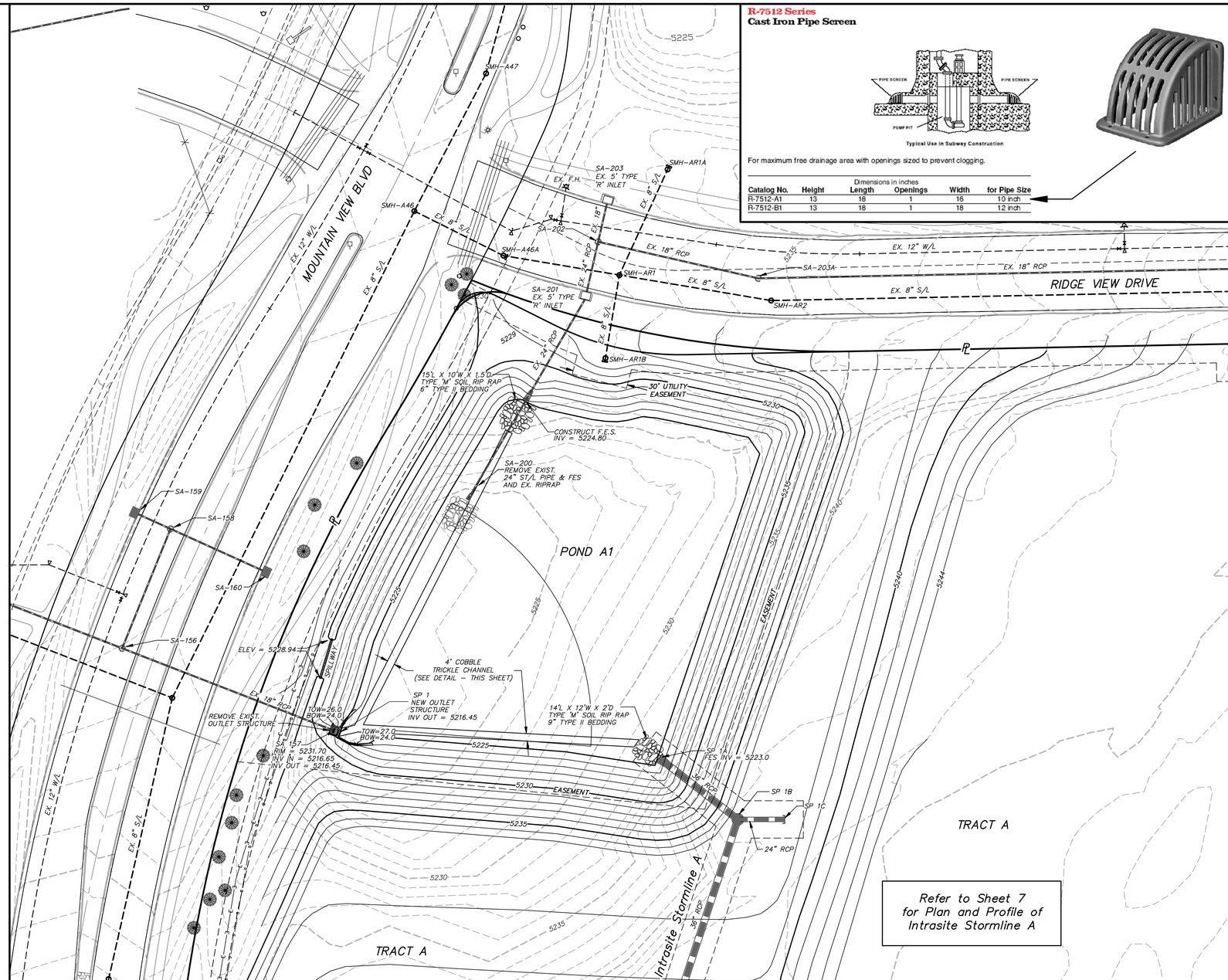
JOB NUMBER: 1057-556

SHEET: 2 OF 2

ALTA / ACSM LAND TITLE SURVEY
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

PREPARED FOR:
CHARTERED DEVELOPMENT

Lange Land Surveys
9572 W. 58TH AVE. ARVADA, CO 80002
P:(720) 242-9732 F:(720) 242-9654



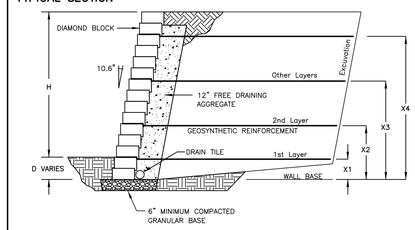
R-7512 Series
Cast Iron Pipe Screen

Typical Use in Subway Construction

For maximum free drainage area with openings sized to prevent clogging.

		Dimensions in inches			
Catalog No.	Height	Length	Openings	Width	for Pipe Size
R-7512-A1	13	18	1	16	10 inch
R-7512-B1	13	18	1	18	12 inch

TYPICAL SECTION



ANCHOR DIAMOND BLOCK *
GEOSYNTHETIC REINFORCED WALL
(SCALE 3/8"=1'-0")

DESIGN TABLE 8 LEVEL BACKFILL

EXPOSED WALL HIEGHT	DEPTH BELOW GRADE	TOTAL NO. COURSES FOR FINISHED WALL	LENGTH	GEOSYNTHETIC REINFORCEMENT PLACEMENT DISTANCE UP FROM WALL BASE IN FT.					
H	D		L	X1	X2	X3	X4	X5	X5
4'-0"	6"	9	4'	2'-0'					
5'-0"	6"	11	5'	0'-6"	3'-0"				
6'-0"	6"	13	5'-6"	1'-6"	4'-0"				
7'-0"	6"	15	6'-6"	2'-6"	5'-0"				
8'-0"	6"	17	7'	1'-0"	3'-6"	6'-0"			
9'-0"	6"	19	7'-6"	0'-6"	2'-0"	4'-6"	7'-0"		
10'-0"	6"	21	8'-6"	1'-0"	2'-6"	4'-6"	6'-6"	8'-6"	

DESIGN PARAMETERS:
Methodology - NCMA SRW Design Manual
Geosynthetic Reinforcement - LTDS = 670 lbs/ft (min)
Factor of Safety for Material Uncertainty - 1.5

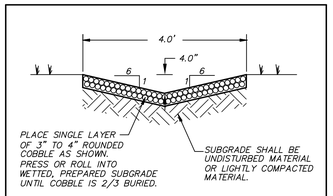
NOTE: Professional engineering must be considered for proper design and reinforcement placement.

* OR KEYSTONE BLOCK WALL EQUAL

POND SUMMARY
NEW STAGE-STORAGE INFORMATION

ELEVATION	VOLUME
5223	0.00 A.F.
5224	0.12 A.F.
5225	0.58 A.F.
5226	1.28 A.F.
5227	2.04 A.F.
5228	2.86 A.F.
5229	3.76 A.F.
5230	4.71 A.F.

SPILLWAY ELEVATION 5228.95
WQCV WSEL 5225.42 VOL. 0.86A.F. QRELEASE=0.43 CFS
10 YEAR WSEL 5227.46 VOL. 2.40 A.F. QRELEASE=8.00 CFS
100 YEAR WSEL 5228.94VOL. 3.70 A.F. QRELEASE=27.00 CFS



COBBLE TRICKLE CHANNEL
N.T.S.

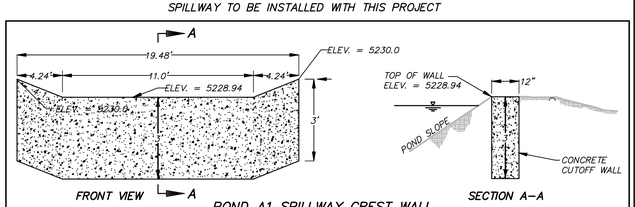
LEGEND

- Manhole
- Existing Manhole
- Thrust Block
- Proposed Water Valve
- Existing Water Valve
- Proposed Fire Hydrant
- Existing Fire Hydrant
- Plug
- Blowoff
- Proposed Water Line
- Existing Wate Line
- Proposed Sewer Line
- Existing Sewer Line
- Proposed Storm Line
- Existing Storm Line
- 10' Type 'R' Inlet
- 5' Type 'R' Inlet
- Proposed Index Contour
- Proposed Int. Contour
- Existing Index Contour
- Existing Int. Contour

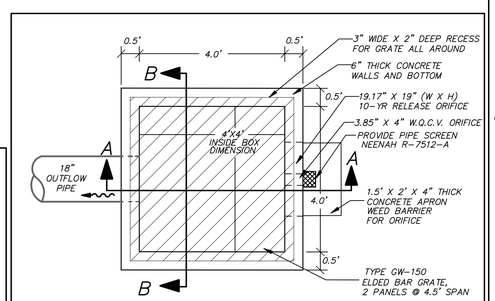
ALL UTILITIES ARE PROPOSED UNLESS OTHERWISE NOTED

GRAPHIC SCALE
30 0 15 30
(IN FEET)
1 inch = 30 ft.

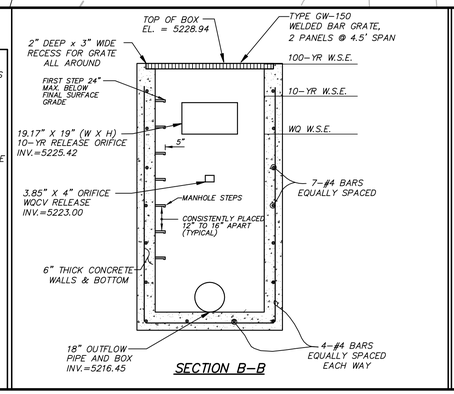
SPILLWAY TO BE INSTALLED WITH THIS PROJECT

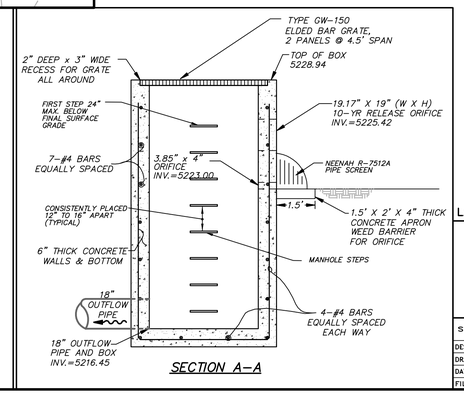


POND A1 SPILLWAY CREST WALL
NTS



POND A1 OUTFALL STRUCTURE
PLAN VIEW





LAST REVISED: 01/26/2009

VISTA RIDGE
POND A1

SCALE	HOR. 1"=30' VERT. N/A
DESIGN/APPR.	JJ
DRAWN BY	DH
DATE	9/17/08

HURST & ASSOCIATES, INC.
CONSULTING ENGINEERS
4999 Pearl East Circle, Suite 106
Boulder, Colorado 80301 (303) 449-8105

FILE G:\21423\PARCEL 32\CONST P32\9-POND A1 SHEET 9 OF 17

prepared by
Enertia Consulting Group, LLC
1437 Larimer Street
Denver, CO 80202

Storm Water Management Plan

Montex South at Vista Ridge, Erie, Colorado

prepared for

Chartered Development Corp
3160 Village Vista Drive
Erie, CO 80516

LAND • ENERGY • INFRASTRUCTURE

SWMP PLAN ACKNOWLEDGEMENT

SWMP Administrator Acknowledgement

This SWMP for the Montex South project described herein was prepared by me or under my direct supervision in accordance with the provisions of the Colorado Department of Public Health and Environment (CDPHE) guidelines. The SWMP has been prepared in accordance with good engineering, hydrologic and pollution control practices. I acknowledge responsibility for preparation of this SWMP Plan.

_____

J. Sean O'Hearn, PE, PG
Registered Professional Engineer
State of Colorado No. 33568

Date _____

For and on behalf of Enertia Consulting Group

Local Facility Acknowledgement

Chartered Development Corporation certifies that the grading, erosion, and sediment control measures for Montex South, shall be constructed, inspected and maintained according to this SWMP.

Chartered Development Corporation

_____
Name

_____
Date

TABLE OF CONTENTS

SWMP SIGNATURE PAGE

1.0	INTRODUCTION	1
1.1	Name, Address and Telephone Number of Applicant/Landowner	1
1.2	Name, Address and Telephone Number of SWMP Preparer	1
1.3	Name, Address and Telephone Number of Local Facility/SWMP Manager	1
2.0	PROJECT DESCRIPTION AND LOCATION	2
2.1	Project Purpose, Area of Disturbance and Total Construction Area	2
2.2	Construction Description and Sequence	2
	2.2.1 Installation of BMP's	3
	2.2.2 Clearing, Grubbing and Grading	3
	2.2.3 Overexcavation of Project Site	3
	2.2.4 Installation of Wet Utilities and Ridge View Court Construction	3
	2.2.5 Concrete Work	3
	2.2.6 Dry Utility Installation	3
	2.2.7 Landscaping/Seeding & Mulching Open Space Areas	3
2.3	Potential Sources of Pollution	4
3.0	EXISTING SITE CONDITIONS AND ADJACENT AREAS	7
4.0	EROSION AND SEDIMENT CONTROL MEASURES	8
4.1	Vehicular Access	8
4.2	Concrete Trucks	8
5.0	INSPECTIONS AND RECORDKEEPING	11
5.1	Inspections	11
5.2	Timing of Inspections	11
5.3	Inspection Reports	11
5.4	Stabilization Reports	12
5.5	Permit Requirements	12
5.6	Compliance with State & Local Regulations	12
6.0	NON STORM WATER EVENTS	13

APPENDIX A BMP Inspection and Maintenance Report Form
Construction & Stabilization Report Form

1.0 INTRODUCTION

The following Storm Water Management Plan (SWMP) has been prepared on behalf of Chartered Development Corporation for land development activities including: clearing, grubbing and grading; constructing roads and infrastructure improvements; and constructing 144 multi-family residential units within a 10.2 acre area south of Ridge View Drive in Erie Colorado (the Project). The goal of this SWMP is to identify possible pollutant sources that may contribute pollutants to storm water, and identify Best Management Practices (BMP's) that, when implemented, will reduce or eliminate any possible water quality impacts. The SWMP shall be implemented at the time the Project breaks ground, and revised as construction proceeds, to accurately reflect the conditions and practices at the Project site. This SWMP has been prepared in general accordance with CDPHE Water Quality Control Division, Storm Water Program requirements.

1.1 Name, Address and Telephone Number of General Permit Applicant

Ward Ritter
Chartered Development Corporation
3160 Village Vista Drive, Suite 104
Erie, CO 80516
0 4 2 4

1.2 Name, Address and Telephone Number of SWMP Preparer

J. Sean O'Hearn, PE, PG (CO PE No. 33568)
Enertia Consulting Group, LLC
1437 Larimer Street, Denver, CO 80202
20 4 1 1

1.3 Name, Address and Telephone Number of Local Facility/SWMP Manager

Chartered Development Corporation
3160 Village Vista Drive, Suite 104
Erie, CO 80516
0 4 2 4

2.0 PROJECT DESCRIPTION AND LOCATION

The Project consists of developing 144 multi-family units and appurtenant infrastructure on a +/- 10.2 acre site, which is identified as the 1st Amendment of Vista Ridge Filing No. 12. The site is gently sloping from east to west with an existing slope of approximately 3.2%. Existing ground cover consists of upland grasses. There are no wetlands or other sensitive resource areas on the 10.2 acre Project site.

The project is bounded to the north by Ridge View Drive, future commercial development to the east and south, and Detention Pond A1 to the west. The adjacent major roadways are Mountain View Boulevard to the west, Sheridan Parkway to the east and East Baseline Road to the south.

The Project is located in the southwest quarter of Section 33, Township 1 North, Range 68 West of the 6th Principle Meridian. The assigned latitude and longitude of the Project is 40.0026^0 and -105.0140^0, respectively.

Additional Project information and anticipated construction activities are described in Sections 2.1 and 2.2 below.

2.1 Project Purpose, Area of Disturbance and Total Construction Area

The primary purpose of the Project is to construct roads, infrastructure and building pads required for 36 foundations (4 multi-family units per foundation) in Vista Ridge. In order to complete the Project, an area of approximately 10.2 acres will be disturbed. For the purposes of this SWMP, this area is considered the total construction area. This area is currently unimproved and generally covered with native vegetation (approx. 70-80% coverage).

2.2 Construction Description and Sequence

Project construction activities generally include: installation of storm water BMP's; clearing, grubbing and grading; installation of wet utilities (water, sanitary and storm) and road subgrade; concrete work including curb & gutter and sidewalks; installation of dry utilities (gas, electric, data/communications); asphalt paving; and fine grading & landscaping open space areas. A general description of these construction activities is as follows.

2.2.1 Installation of BMP's

Erosion and sediment control BMP's shown on Figure 1 including vehicle tracking control at Ridge View Drive, inlet protection (west side of site) and silt fence along the limit of grading will be installed prior to any clearing and grubbing. Additional inlet protection, a concrete wash out area, and permanent seeding/mulching and other landscaping will be installed during the construction process. Figure 2 illustrates the final BMP condition.

2.2.2 Clearing, Grubbing and Grading

The entire 10.2 acre area will be cleared, grubbed and rough graded. Organics and other excess materials shall be stockpiled adjacent to Ridge View Drive. This designated stockpile area is illustrated on Figure 1.

2.2.3 Overexcavation of Project Site

Based on geotechnical requirements, the majority of the 10.2 acre area will be overexcavated to a maximum depth of 3' below roads, sidewalks and driveways and 22' below housing unit finished floor elevations. The excavated soils will be removed, stockpiled, reconditioned and reinstalled as part of this Project.

2.2.4 Installation of Wet Utilities and Ridge View Court Construction

Ridge View Court, the Project access road will be rough graded prior to water, sanitary sewer and storm sewer installation. Excess trench materials will be placed as engineered fill in the Ridge View Court alignment. Once utilities have been installed, curb & gutter and sidewalks will be installed prior to road surface compaction, fine grading and asphalt paving.

2.2.5 Concrete Work

Once wet utilities are installed and road subsurface materials installed and compacted, concrete curb & gutter and adjacent sidewalks will be constructed. As shown on Figure 2, a concrete wash out area will be located adjacent to the vehicle tracking control prior to concrete work.

2.2.6 Dry Utility Installation

Natural gas lines will be installed off the back of curb and electric/data communication lines will be installed in the Xcel trench located in the Ridge View Court right of way.

2.2.7 Landscaping/Seeding & Mulching Open Space Areas

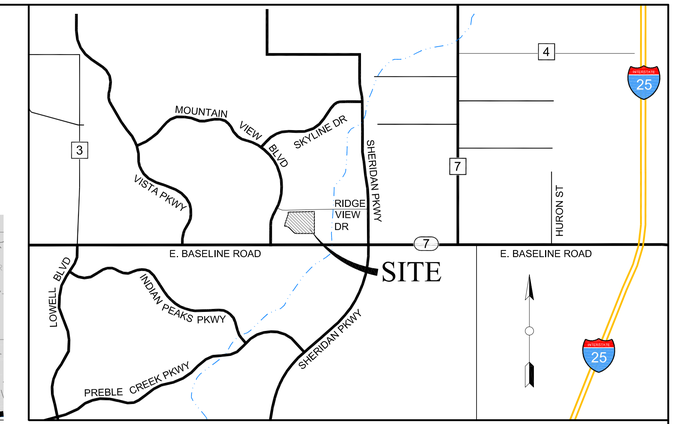
Stockpiled topsoil (if any) will be spread as needed over the graded ground surface in designated open space areas shown on Figure 2. These areas will be landscaped or seeded and mulched in accordance with the Project landscape design plans to achieve stabilization requirements described in Section 5.4 of this SWMP.

2.3 Potential Sources of Pollution

Soils within the construction area are classified as Type C and the primary potential pollutant source is exposed sediment. Secondary potential sources of pollution include concrete wash activities (e.g., sidewalks, curb & gutter construction) and uncontained releases from construction vehicles or heavy equipment or stored hazardous materials (if any). It is understood that the Project Contractor will implement a Spill Prevention, Control and Countermeasure (SPCC) Plan for the Project. It is anticipated that information including: on-site vehicle fueling procedures; temporary storage of fuel, hydraulic fluids, lubricants or other hazardous materials (if any); available emergency response materials and equipment; and emergency response contact information and procedures will be included in the SPCC Plan.

MONTEX SOUTH AT VISTA RIDGE
INITIAL STORMWATER BMP INSTALLATION

FIGURE 1



GENERAL LOCATION MAP

SCALE 1"=2000'

GENERAL LEGEND:

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- DIRECTION OF FLOW
- AREA OUTSIDE LIMIT OF CONSTRUCTION

BMP LEGEND:

- VTC — VEHICLE TRACKING CONTROL
- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- ED DS — EARTH DIKE / DIVERSION SWALE

N

0' 20' 40' 80'

SCALE: 1"=40'

MONTEX SOUTH AT VISTA RIDGE
STORM WATER MANAGEMENT PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

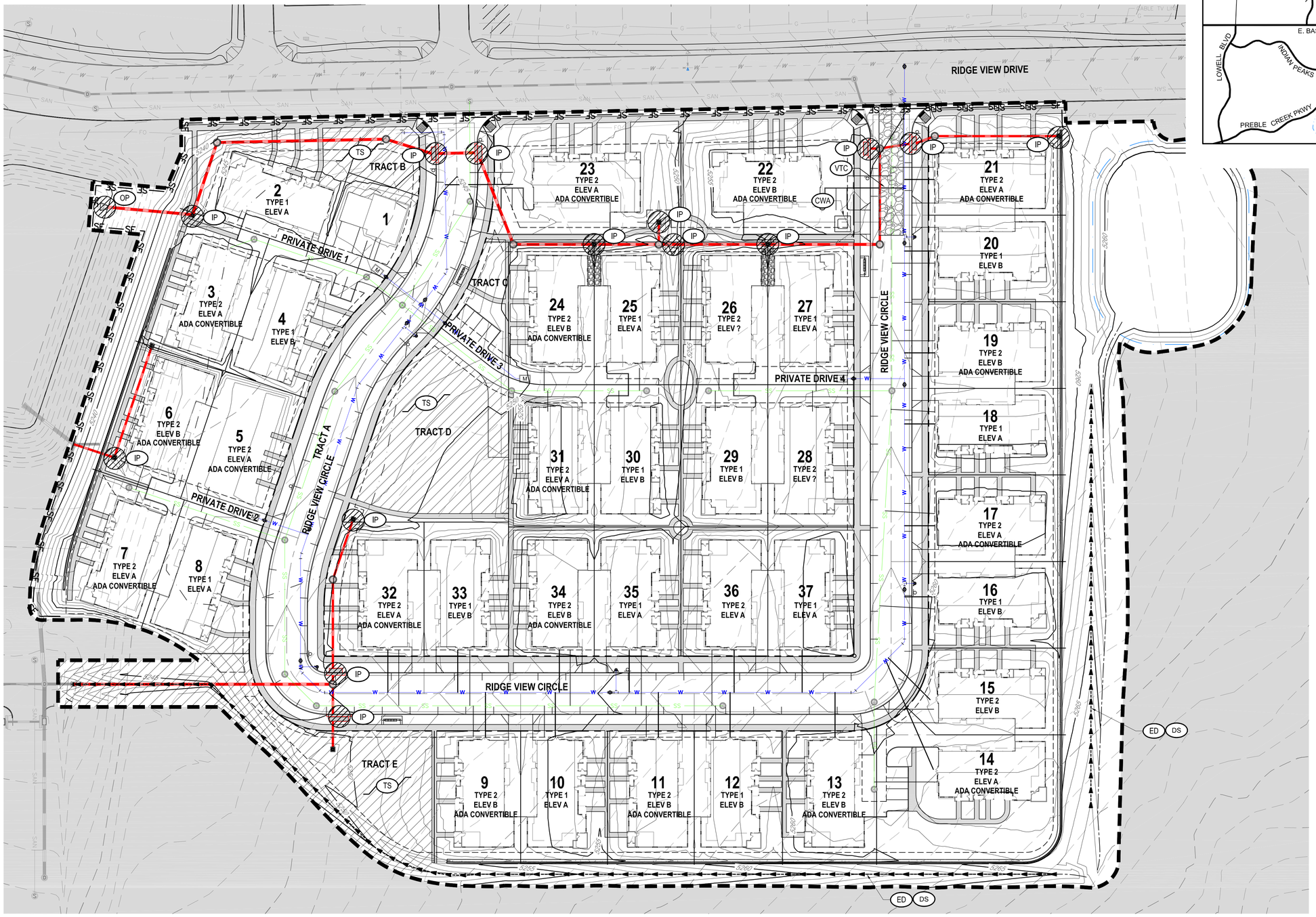
PLANNER:
HURST & ASSOCIATES
2500 BROADWAY STREET, SUITE 110
BOULDER, COLORADO 80304
303-449-9105

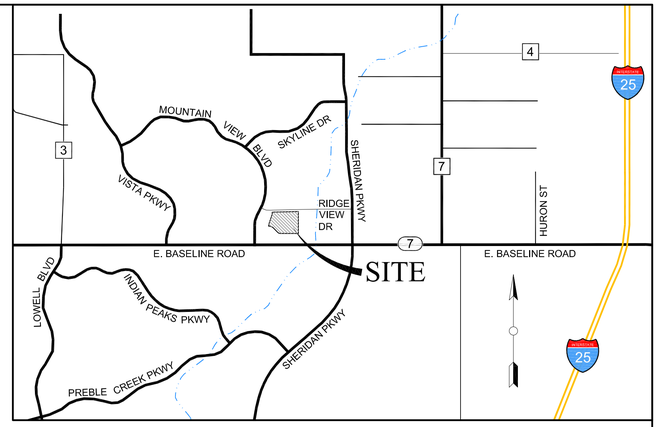
DATE: 12/5/2014

REVISED:

MONTEX SOUTH AT VISTA RIDGE
FINAL STORMWATER BMP INSTALLATION

FIGURE 2





GENERAL LOCATION MAP

SCALE 1"=2000'

GENERAL LEGEND:

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- DIRECTION OF FLOW
- AREAS TO BE LANDSCAPED
- AREA OUTSIDE LIMIT OF CONSTRUCTION

BMP LEGEND:

- VTC — VEHICLE TRACKING CONTROL
- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- TS — TEMPORARY SEEDING (AS REQUIRED)
- CWA — CONCRETE WASHOUT AREA
- IP — INLET PROTECTION
- OP — OUTLET PROTECTION
- ED DS — EARTH DIKE / DIVERSION SWALE

N

0' 20' 40' 80'

SCALE: 1"=40'

MONTEX SOUTH AT VISTA RIDGE
STORM WATER MANAGEMENT PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

PLANNER:
HURST & ASSOCIATES
2500 BROADWAY STREET, SUITE 110
BOULDER, COLORADO 80304
303-449-9105

DATE: 12/5/2014

REVISED:

3.0 EXISTING SITE CONDITIONS AND ADJACENT AREAS

The Project site is generally unimproved and the existing ground surface is vegetated and slopes from east to west at an average grade of about 3.2 percent. In general, the vegetative cover over the Project site is approximately 70-80 percent. Existing soils are classified as Type C. There are no wetland resource areas or other unique features on or near the Project site. Surface water flows overland from east to west.

The Project is located within a mixed use area in the Vista Ridge Planned Development. Currently, there are residential, institutional (school) and recreational (golf) developments adjacent to or surrounding Project. There are no streams or lakes adjacent to or surrounding the Project site. There are no anticipated allowable sources of non-storm water discharges at the Project Site.

4.0 EROSION AND SEDIMENT CONTROL MEASURES

The Project will be developed on unimproved land within Vista Ridge. Prior to clearing and grubbing the Project site, BMP's will be installed. As shown on Figure 1, proposed sediment controls to be installed prior to and during construction include: vehicle tracking control; inlet protection; silt fence; and soil stockpile area. BMP construction details are shown on Figures 3 and 4.

4.1 Vehicular Access

Construction related vehicles will enter and exit the Project site via Ridge View Drive. Vehicle tracking control will be installed as shown on Figure 1. Vehicle access will be controlled with construction markers (orange traffic cones). Since the construction area is not open to the public, non-construction related traffic will be minimal. The construction markers will direct non-construction related vehicles away from any construction areas.

Earth moving equipment will likely remain at the Project site through project completion. Delivery vehicles (e.g., trucks entering with wet utility pipe and appurtenances, concrete, asphalt) may be exposed to soil but given the vehicle tracking control located at Ridge View Drive, sediment tracking shall be significantly reduced. However, it is the contractor's responsibility to ensure that:

- Public streets shall be free of sediment and debris throughout Project construction;
- Any sediment tracked onto public streets shall be cleaned by using a vacuum type street sweeper, a brush type street sweeper with dust control, or manually using shovels and brooms;
- Public streets shall not be washed with water at any time; and
- The SWMP Manager shall inspect streets on a regular basis. The SWMP Manager shall complete inspections as soon as practical after a storm event and direct the cleanup sediment by the Contractor as necessary.

4.2 Concrete Trucks

Concrete trucks will enter and exit the Project site via Ridge View Drive. Prior to leaving the construction site, the concrete truck trough shall be cleaned (if necessary) in the designated concrete wash area adjacent to the vehicle tracking control (shown on Figure 2).

MONTEX SOUTH AT VISTA RIDGE
STORMWATER BMP INSTALLATION DETAILS

FIGURE 3

Eco-Pan Specification sheet

Eco-Pan objective
Allows for easy concrete pump washout, ready mix trucks, and other equipment associated with cement on site and easy off site recycling of the same concrete materials

Eco-Pan Application
Construction projects where concrete, stucco, mortar, grout and cement are used as a construction material or where cementitious wastewater is created.

Eco-Pan Maintenance
Inspect and clean out when ¾ full, not allowing the Eco-Pan to overflow.
Inspect wastewater level and request service, Replace with empty Eco-Pan, as needed.
Inspect Eco-Pan's to ensure that proper housekeeping are employed when washing out equipment.

Description
A self-contained and watertight eco-pan with added fork channels for portability captures and contains concrete wastewater and washout material. Our eco-pan's come in two sizes to accommodate every size pour, 1 yard /2 ton or 2.5 yard 4.5 ton.

SPECIFICATIONS
The eco-pan must be portable and temporary, watertight, equipped with fork channels and have a holding capacity to accept washout from approximately 250 yds - 2.5 yard /4.5ton, Or, 150yards-1yard /2 ton of poured concrete.

2.5 YARD / 4.5 TON

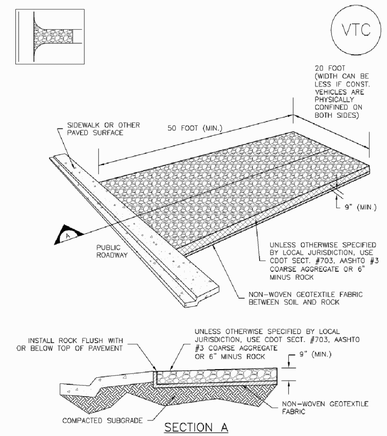
600 Gallon Capacity
20 to 30 Mixer Wash Outs*
7' x 7' x 26"

1 YARD / 2 TON

300 Gallon Capacity
10 to 15 Mixer Wash Outs*
7'x 7' x 14" (Enough to contain material from Pump Hopper)

CONCRETE WASHOUT DETAIL
NOT TO SCALE

Vehicle Tracking Control (VTC) SM-4

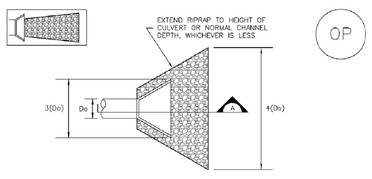


VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

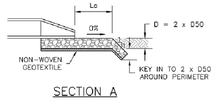
November 2010 Urban Drainage and Flood Control District VTC-3
Urban Storm Drainage Criteria Manual Volume 3

VEHICLE TRACKING CONTROL DETAIL
NOT TO SCALE

EC-8 Temporary Outlet Protection (TOP)



TEMPORARY OUTLET PROTECTION PLAN



SECTION A

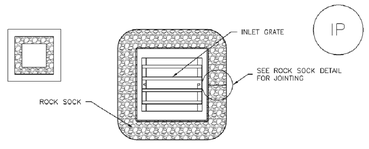
TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE			
PIPE DIAMETER, Do (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, Lo (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5 5	5 10	4 6
12	5 10	10 13	4 6
18	10 20 30 40	10 16 23 26	6 9 12 16
24	30 40 50 60	16 26 26 30	9 9 12 16

OP-1. TEMPORARY OUTLET PROTECTION

TOP-2 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

OUTLET PROTECTION DETAIL
NOT TO SCALE

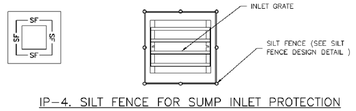
Inlet Protection (IP) SC-6



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

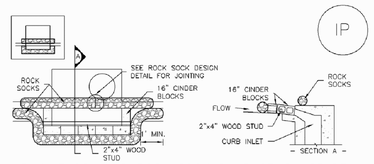
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET.

3. STRAW WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

November 2010 Urban Drainage and Flood Control District IP-5
Urban Storm Drainage Criteria Manual Volume 3

TYPE 13 SEDIMENT CONTROL DETAIL
NOT TO SCALE

SC-6 Inlet Protection (IP)



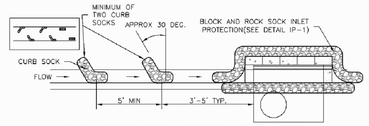
IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.

3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.

2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.

3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.

4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

IP-4 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

TYPE R SEDIMENT CONTROL DETAIL
NOT TO SCALE

MONTEX SOUTH AT VISTA RIDGE
STORM WATER MANAGEMENT PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

PLANNER:
HURST & ASSOCIATES
2500 BROADWAY STREET, SUITE 110
BOULDER, COLORADO 80304
303-449-9105

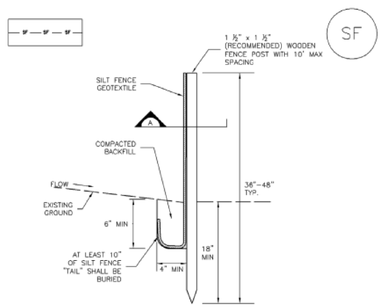
DATE: 12/5/2014

REVISED:

MONTEX SOUTH AT VISTA RIDGE
STORMWATER BMP INSTALLATION DETAILS

FIGURE 4

Silt Fence (SF) **SC-1**



SILT FENCE

SECTION A

SF–1. SILT FENCE

SILT FENCE DETAIL
NOT TO SCALE

SC-1 **Silt Fence (SF)**

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

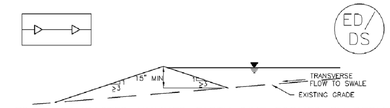
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

SILT FENCE DETAIL
NOT TO SCALE

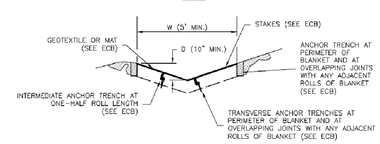
Earth Dikes and Drainage Swales (ED/DS) **EC-10**



ED–1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM

DS–1. COMPACTED UNLINED EXCAVATED SWALE

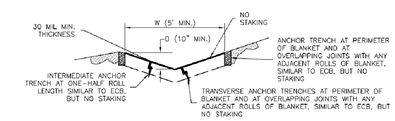
DS–2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



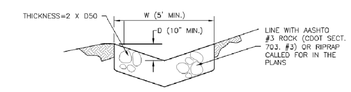
DS–3. ECB LINED SWALE (CUT AND FILL OR BERM)

EARTH DIKE/DIVERSION SWALE DETAIL
NOT TO SCALE

EC-10 **Earth Dikes and Drainage Swales (ED/DS)**



DS–4. SYNTHETIC LINED SWALE



DS–5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. SEE SITE PLAN FOR:
   - LOCATION OF DIVERSION SWALE
   - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED).
   - LENGTH OF EACH SWALE.
   - DEPTH, D, AND WIDTH, W DIMENSIONS.
   - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.

2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OF 10 CFS.

3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.

4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.

5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.

6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.

7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

EARTH DIKE/DIVERSION SWALE DETAIL
NOT TO SCALE

MONTEX SOUTH AT VISTA RIDGE
STORM WATER MANAGEMENT PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

PLANNER:
HURST & ASSOCIATES
2500 BROADWAY STREET, SUITE 110
BOULDER, COLORADO 80304
303-449-9105

DATE: 12/5/2014

REVISED:

5.0 INSPECTIONS AND RECORDKEEPING

The Project area shall be routinely inspected by the Contractor's SWMP Manager to ensure that installed erosion and sediment control measures are maintained in effective condition. Maintenance needs or additional controls identified during inspections shall be completed immediately or as soon as practical.

5.1 Inspections

Erosion and sediment control measures shall be inspected on a regular basis, at least one inspection every 2 weeks, to ensure that they are operating correctly. Areas used for storage of construction materials and equipment; inlets, the vehicle tracking pad, and the entire perimeter of the disturbed area shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Windblown litter will be policed on a daily basis. Locations where vehicles enter or exit the Project construction area (Ridge View Drive) will be inspected for evidence of off-site sediment tracking as described in Section 4.1 of this SWMP.

5.2 Timing of Inspections

During construction, inspections will be performed at least once every two weeks, and within 24 hours of the end of a storm event that can cause erosion. Where areas have been stabilized (as described in Section 5.4), inspections will be performed at least once every month until the CDPHE Storm Water Permit is terminated.

"Winter Waiver" - During the winter when the ground is frozen for more than one month, and land disturbances activities have been suspended, inspections are not required until one month before thawing conditions. The beginning and ending dates of the waiver period must be documented on the inspection report.

5.3 Inspection Reports

An inspection report (Appendix A of this SWMP) will be prepared and signed by the assigned individual after the completion of each inspection. Any noted deficiencies shall be corrected as soon as practical after the inspection. The reports shall be retained as part of this SWMP for at least three years from the date of final stabilization.

5.4 Stabilization Reports

Pictorial records shall be used to establish initial and final stabilization. These records will kept on file with other construction records. A stabilization report (Appendix A of this SWMP) will be completed to document beginning and end dates of construction and ground surface stabilization/revegetation activities. In disturbed areas, stabilization goals will be accomplished when all soil-disturbing activities have been completed and perennial vegetation has been established that is greater than or equal to 70% basal cover. Establishment success must occur within two growing seasons in order to meet the standard. A visual estimate of basal cover class using plots (such as the Daubenmire or Braun-Blanquet system) is the simplest monitoring protocol to perform. Monitoring is recommended at one year and two years following seeding so as to capture germination/growth of both cool and warm season species that are already present or were seeded. Monitoring will be performed by qualified personnel trained in monitoring protocol implementation and plant identification. Once stabilization is achieved, a Notice of Termination will be sent to the CDPHE removing this construction project for the SWMP permit requirements.

5.5 Permit Requirements

A copy of the applicable CDPHE General Permit for Storm Water Discharge from Construction Activities will be available from the Local Facility Contact/SWMP Manager or Contractor onsite. The general permit number is _____.

5.6 Compliance with State & Local Regulations

The Local Facility/SWMP Manager shall ensure compliance with applicable State, and/or local storm water permit and other regulatory requirements.

6.0 NON STORM WATER EVENTS

This Project will generally involve earthwork, concrete work, wet and dry utility installation, road construction and open space landscaping/seeding & mulching. Possible non-storm water discharges resulting from the Project include dust suppression water, fire suppression water and air conditioning condensate from vehicles or construction trailers.

Although bulk chemical or petroleum storage will not occur at the Project site, any such storage area would include secondary containment to prevent migration of a release. Potential chemical or petroleum leaks may occur from an onsite portable latrine, refueling of equipment, and leaks of lube oil or hydraulic fluid from construction equipment.

The Project area shall be maintained in a neat, orderly condition during construction. Waste materials at the Project site shall be collected and disposed of promptly at appropriate waste disposal site. A portable latrine may be used on site. Any sanitary waste that is present at the site will be collected and disposed by a designated, licensed operator. All waste from materials imported to the construction site area are to be removed by the contractor for appropriate disposal. No wastes of imported materials shall be buried, dumped or improperly disposed of.

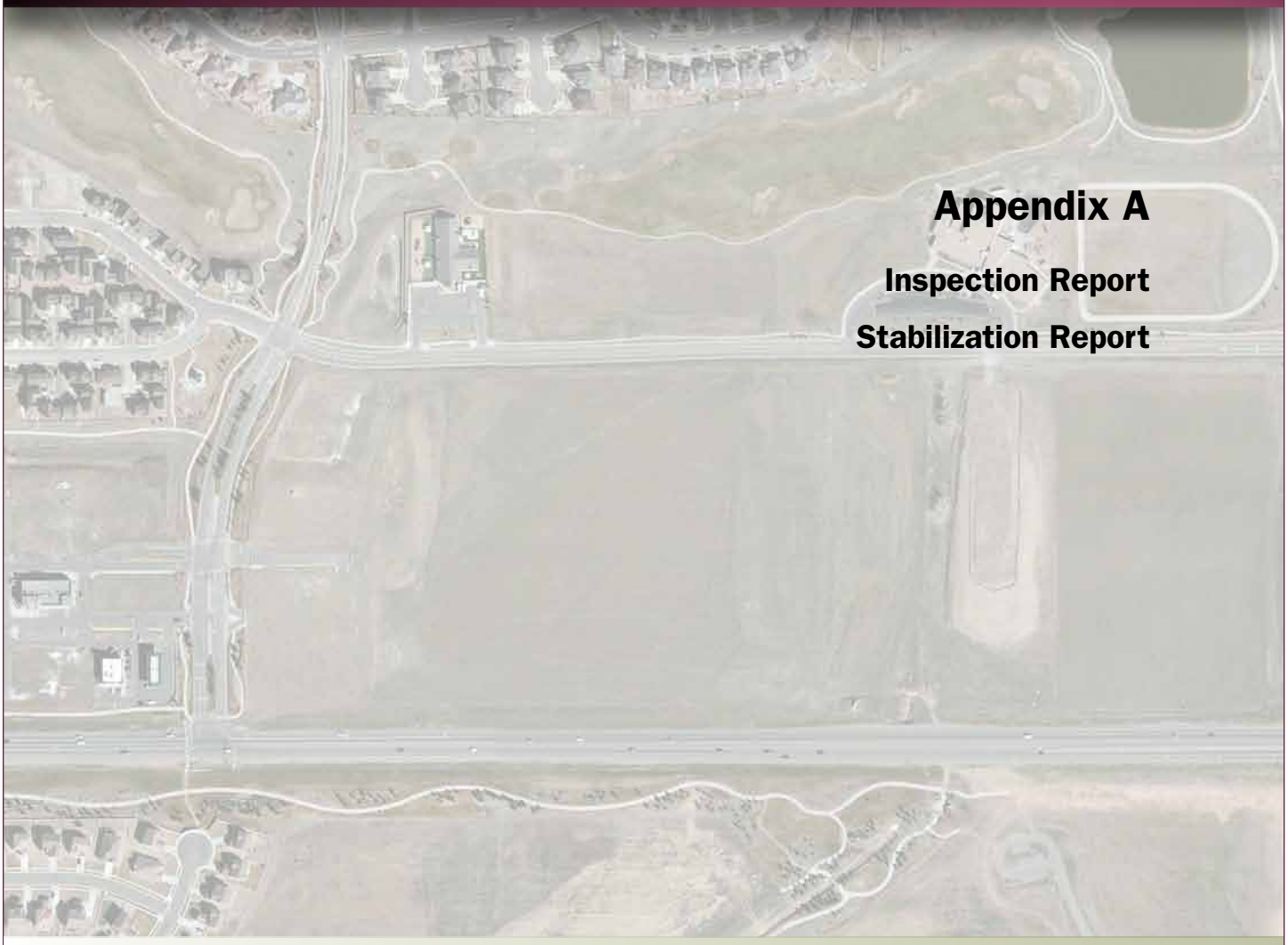
All equipment refueling shall occur in designated locations during daylight hours in accordance with the Project SPCC plan. It is anticipated that the refueling protocol requires that the operator constantly monitor the refueling process. Each fuel truck shall be equipped with a complete spill kit (including materials such as a shovel, containers for contaminated soils, sorbent socks and pads). All spills are to be addresses immediately and reported in accordance with the Project SPCC plan. In addition the Project area shall be visually inspected as a part of the standard 14 day inspection for any signs of spills.

Visual observation of leaks of equipment lube oils may be noted in the SWMP inspection report and corrected before daily operations begin. As required, any spills will be contained and contaminated soils removed from Project area in accordance with SPCC Plan requirements. Efforts to immediately repair any leaking equipment will be initiated. If the construction site experiences a spill of any hazardous substance, oil, or condensate in an amount which exceeds a federal or state reportable quantity, the spill must be reported. Note: if a release of over 25 gallons to the surface soils or any amount that could potentially impact storm water runoff is recognized, the Town of Erie Storm Water Compliance Manager and CDPHE will be notified as described in the Project SPCC plan.

prepared by
Enertia Consulting Group, LLC
1437 Larimer Street
Denver, CO 80202

Storm Water Management Plan

Montex South at Vista Ridge, Erie, Colorado



Appendix A

Inspection Report

Stabilization Report

LAND • ENERGY • INFRASTRUCTURE

I P CTIO A D AI T A C R PORT

PROJECT NAME: Montex South Residential Development DATE:

During construction, inspections will be performed at least once every 14 calendar days, and within 24 hours of the end of a storm event of 1 inch or greater. Where areas have been stabilized, or when runoff is unlikely due to winter or drought conditions, inspections will be performed at least once every month. "Winter Waiver" - During the winter when the ground is frozen for more than one month, and land disturbances activities have been suspended, inspections are not required until one month before thawing conditions. The beginning and ending dates of the waiver period must be documented here.

Beginning date: Ending Date:

	Y	N	N/A	COMMENTS
1) In the disturbed areas of the construction site that have not been finally stabilized, is there evidence of, or potential for sediment entering the drainage system?				
2) Are the sediment control measures (silt fences, hay bales, VTC, Inlet and Outlet Protection, etc) operating correctly? 2A) Have sediment controls been repaired or replaced where problems were noted?				
3) If applicable, in the areas used for storage of construction debris and construction chemicals, is there evidence of, or the potential for, pollutants to enter the drainage system?				
4) In locations where vehicles enter or exit the site, does sediment get tracked onto the road?				
5) If applicable, at discharge locations (where accessible) are the erosion control measures effective in preventing significant impacts to receiving waters?				
6) Were there any indications of spills from fueling trucks, equipment oil pans, or port-a-potties? Were measures taken to clean up these sites?				
7) Any other issues to note?				

I hereby certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:_____ Date:_____

TOR AT R A A T P A
CO TR CTIO TA I I ATIO R PORT

PROJECT NAME: Montex South Residential Development

ESTIMATED TOTAL ACERAGE TO BE DISTURBED: _ ACRES
(Length of Project X Width of R.O.W. ÷ 43,560)

LIST ALL POTENTIAL DRAINAGES AND WATER CROSSINGS:
DATES WHEN MAJOR CONSTRUCTION ACTIVITIES OCCUR:

Surveying & Staking	Date:		
Type of Vegetation:	Dry Land	Irrigated Land	
Estimated Vegetative Cover (%)	Picture Taken	Yes	No
ROW Clearing	Date:		
Describe Activity:			
Initiate Construction	Date:		
Describe Activity:			
Drainage Crossing	Date:		
Describe Activity:			
Drainage Crossing	Date:		
Describe Activity:			
Final Grading	Date:		
Describe Activity:			
Reseeding	Date:		
Type of Seed Applied:	Dry Land Seed Mix	Irrigated Land Seed Mix	
Final Stabilization	Date:		
Estimated Vegetative Cover (%)	Picture Taken	Y	N
Controls/BMP's Removed	Date:		

GENERAL ECOLOGICAL RESOURCES SURVEY

Montex at Vista Ridge

14.23 Acres within Section 33,

Township 1 North, Range 68 West

Erie, Colorado 80516

PREPARED FOR:

Chartered Development Corporation
c/o Ward Ritter
3160 Village Vista Drive, Suite 104
Erie, Colorado 80516

WESTERN ENVIRONMENT AND ECOLOGY, INC.
2217 West Powers Avenue
Littleton, Colorado 80120
(303) 730 3452 (phone)
(303) 730-3461 (fax)
www.westernenvironment.com

GENERAL ECOLOGICAL RESOURCES SURVEY

Montex at Vista Ridge

14.23 Acres within Section 33,

Township 1 North, Range 68 West

Erie, Colorado 80516

Western Environment and Ecology, Inc.

Project Number: 571-012-01

PREPARED FOR:

Chartered Development Corporation
c/o Ward Ritter
3160 Village Vista Drive, Suite 104
Erie, Colorado 80516

October 31st, 2014

Prepared by:

Austin Curry
Staff Scientist

WESTERN ENVIRONMENT AND ECOLOGY, INC.
2217 West Powers Avenue
Littleton, Colorado 80120
(303) 730 3452 (phone)
(303) 730-3461 (fax)
www.westernenvironment.com

TABLE OF CONTENTS

1.0	INTRODUCTION		1
2.0	STUDY AREA		2
3.0	METHODS		5
4.0	RESULTS AND DISCUSSION		7
	4.1	Wetlands	7
	4.2	Species Eliminated from Consideration	8
	4.3	Species Included in Survey	9
		Western Burrowing Owl	9
		Bald Eagle	9
		Mountain Plover	10
		Piping Plover	10
		Plains Sharp-Tailed Grouse	10
		Lesser Prairie Chicken	11
		Ferruginous Hawk	11
		Preble's Meadow Jumping Mouse	12
		Black-tailed Prairie Dog	12
		Ute Ladies'-Tresses Orchid	13
		Pawnee Montane Skipper	14
		Other Wildlife	14
5.0	CONCLUSIONS AND RECOMMENDATIONS		15
6.0	LITERATURE CITED		16

FIGURES

FIGURE 1	Site Location Map	3
FIGURE 2	Site Map	4

TABLES

TABLE 1	Threatened and Endangered Species in the Colorado Piedmont	6

1.0 INTRODUCTION

Western Environment and Ecology, Inc. (Western Environment) was retained by Mr. Ward Ritter, of the Chartered Development Corporation, to conduct a general survey of ecological resources, including threatened and endangered species, wetlands, and other significant habitats, on approximately 14.23 acres within the Town of Erie, Colorado. Mr. Ritter indicated that this study was in response to potential residential development of the site.

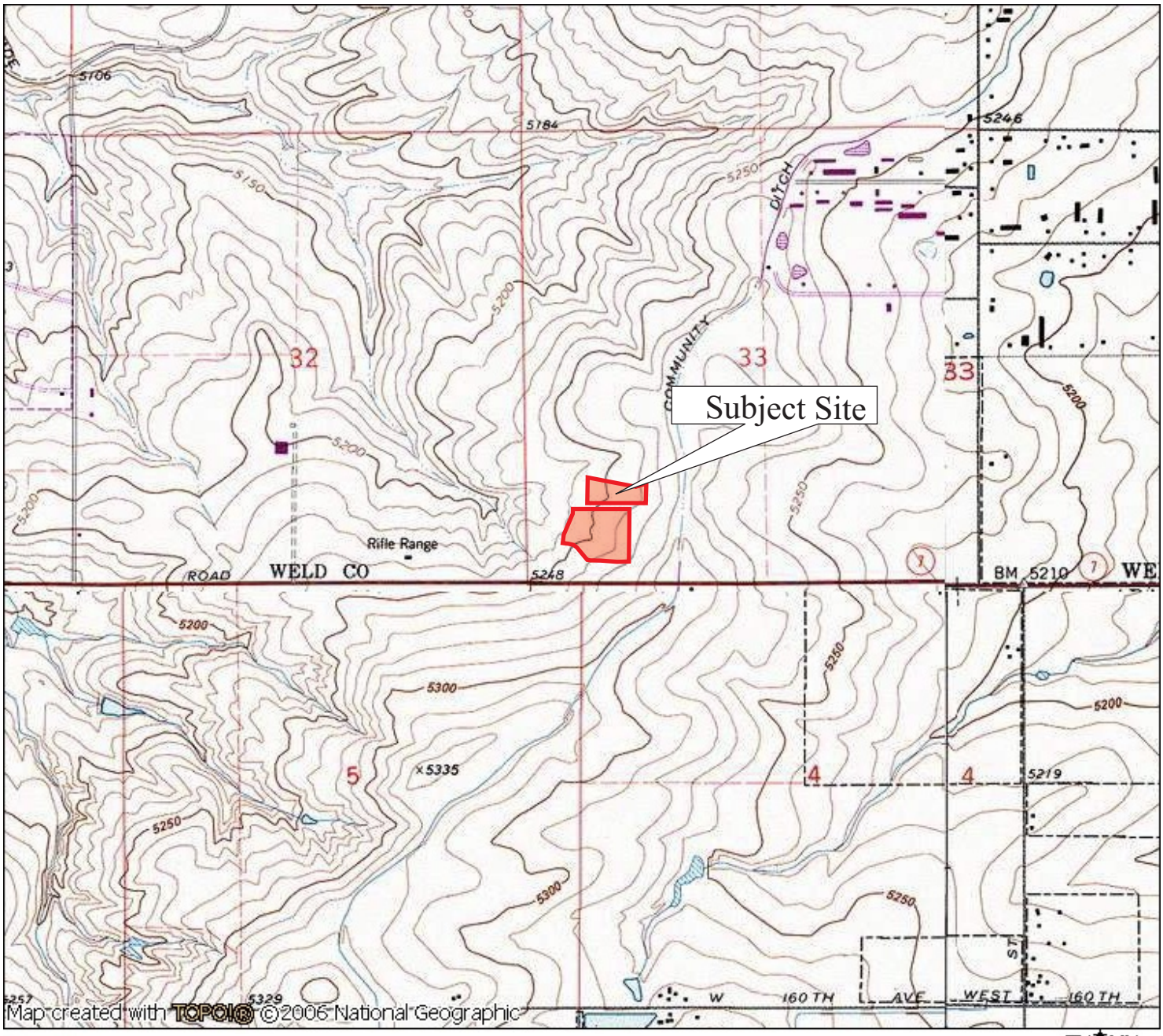
The objectives of this study were to (1) establish presence/absence and potential habitat of any federal or state threatened and endangered species on the property, (2) identify any wetlands or other ecologically sensitive areas on and adjacent to the property, and (3) make practical recommendations based on the results of the study.

View of the site from the east, Colorado National Golf Course to the right

2.0 STUDY AREA

The project site consists of two parcels totaling approximately 14.23 acres within Section 33, Township 1 North, Range 69 West, within the Town of Erie, Weld County, Colorado (Figure 1). The property is part of the Vista Ridge Subdivision located northeast of the intersection of East Baseline Road and Mountain View Boulevard (Figure 2). Ridge View Drive bisects the project site into two parcels. Colorado National Golf Course comprises the northern property boundary, Primrose Preschool borders the property to the northwest, and the Northern Ridge Baptist Church is present to the northeast. Undeveloped properties surround the southern parcel of the project. Properties in dry-farm agricultural production border the site to the south and east, while the lots comprising the western boundary are primarily covered with smooth brome (*Bromus inermis*) and cheatgrass *(Bromus tectorum*). Residential developments are present to the north, west and southwest of the project site.

The subject property was vacant at the time of the investigation. The majority of the site consisted of fallow dry-farm agricultural land dominated by Alfalfa (*Medicago sativa*). Additionally, a small hill, covered with smooth brome and cheatgrass, occurred on the southwestern end of the site. Bunch grass, short native grasses, and Russian thistle (*Salsola australis*) were also present on the site. No woody vegetation was present on the property. The approximate mean elevation of the property is 5,250 feet above sea level (USGS Frederick 7.5 Minute Quadrangle, 1994). The topography is generally flat, with a gradual slope to the west. Site geology includes eolian clays, silts and sands overlying the Cretaceous Age Laramie Formation (Tweto, 1979). The USRCS classifies the soils as Ulm clay loam on 0 to 3% slopes. No streams or stream beds occur on the property.



NATIONAL GEOGRAPHIC

0.0 0.5 1.0 miles

0.0 0.5 1.0 1.5 km

TN MN

8½°

10/31/14

Western environment and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 1 - Project Location Map,
14.23 Acres within Section 33,
Township 1 North, Range 68 West,
Erie, Colorado

Scale in feet

200 0 200 400

Western environment and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 2 - Site Map,
14.23 Acres within Section 33,
Township 1 North, Range 68 West,
Erie, Colorado

3.0 METHODS

Species that are federally or state listed as threatened or endangered, including federally proposed and candidate species, occurring or having historically occurred in Weld County were considered for this study (Table 1). The county classification was determined by following the Colorado Field Office of the U.S. Fish and Wildlife Service's county checklist (USFWS, 2011). The list was narrowed based on habitat requirements of the species relative to existing habitats on the project.

The property was surveyed on October 22nd, 2014. Information was collected on topography, ecosystems, and species of flora and fauna found on and adjacent to the property. Photographs were taken, and emphasis was placed on potential habitat of threatened and endangered species, and the presence of wetlands.

View of the site from the south

Table 1. Common name, scientific name, and status of federal and state threatened and endangered species that could occur or historically occurred in the Colorado Piedmont (CDOW, 2008; USFWS, 2008).

Common Name	Scientific Name	Status[1]
Birds		
Bald eagle	*Haliaeetus leucocephalus*	ST
Whooping crane	*Grus americana tabida*	FE, SE
Least Tern	*Sterna antillarum*	FE, SE
Mountain plover	*Charadrius montanus*	FPT, SC
Piping plover	*Charadrius melodus*	FT, ST
Mexican spotted owl	*Strix occidentalis lucida*	FT, ST
Plains Sharp-Tailed Grouse	*Tympanuchus phasianellus jamesii*	SE
Western burrowing owl	*Athene cunicularia*	ST
Lesser Prairie Chicken	*Tympanuchus pallidicinctus*	ST
Ferruginous Hawk	*Buteo regalis*	SC
Mammals		
Black-footed ferret	*Mustela nigripes*	FE, SE
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	FT, ST
Canada Lynx	*Lynx canadensis*	FT, SE
Kit Fox	*Vulpes macrotis*	SE
Black-tailed prairie dog	*Cynomys ludovicianus*	SC
Amphibians		
Boreal Toad	*Bufo boreas boreas*	SE
Northern Leopard Frog	*Rana pipiens*	SC
Plants		
Ute ladies'-tresses	*Spiranthes diluvialis*	FT
Colorado butterfly plant	*Gaura neomexicana coloradensis*	FT
Insects		
Pawnee montane skipper	*Hesperia leonardus montana*	FT

[1]**Status Codes:** FE = Federally Endangered, FT = Federally Threatened, FPT = Federally Proposed as Threatened, FC = Federal Candidate, SE = State Endangered, ST = State Threatened, SC = State Concerned

4.0 RESULTS AND DISCUSSION

4.1 Wetlands

No perennial waters, wetlands or obvious wetland habitat was observed on the project. Vegetation on the site was dominated by non-irrigated Alfalfa (*Medicago sativa*).

Western Environment evaluated, to the best of our ability based upon site conditions at the time of the survey, the three components of a jurisdictional wetland as defined in the US Army Corp of Engineers, (ACOE) Wetland Delineation Manual (1987). These components are: 1) Vegetation, 2) Soil and 3) Hydrology. The ACOE Manual defines *Nonwetlands* as "including upland areas that are neither deepwater aquatic habitats, wetlands, nor other special aquatic sites. They are seldom or never inundated, or if frequently inundated, they have saturated soils for only brief periods during the growing season, and, if vegetated, they normally support a prevalence of vegetation typically adapted for life only in aerobic soil conditions."

The U.S. Army Corps of Engineers (Corps) regulates the discharge of dredged or fill materials into Waters of the U.S. under the authority of Section 404 of the Clean Water Act. Waters of the U.S. include ephemeral, intermittent and perennial streams, their surface connected wetlands and adjacent wetlands, certain lakes, ponds, drainage ditches and irrigation ditches that have a nexus to interstate commerce.

<u>It is the opinion of Western Environment that the proposed development, as shown on Figure 2, does not impact waters or habitat subject to Corps regulations under Section 404 of the Clean Water Act</u>.

4.2 Wildlife Species Eliminated from Consideration as Occurring on the Project

The following threatened and endangered species that have historically been thought to occur in Weld County were immediately ruled out of serious consideration for this project based on available habitat: Mexican spotted owl, whooping crane, least tern, Canada lynx, kit fox, black-footed ferret, boreal toad, and Colorado butterfly plant.

The Mexican spotted owl was eliminated because it requires forests that are not present on the project. The whooping crane was also eliminated due to rarity in Colorado, and no known nesting or feeding habitat exists on or adjacent to the property. Less than 20 sightings of whooping cranes along the eastern plains and mountainous regions of Colorado have been recorded since 1931 (Andrews and Righter, 1992). The least tern inhabits sandy shorelines of reservoirs, lakes, and rivers with bare sandy shorelines. This shore bird is a casual to very rare spring and fall migrant on the northeastern plains of Colorado, and is unlikely to occur on the subject project.

The Canada lynx is a rare forest-dwelling species of northern latitudes that feeds primarily on snowshoe hares. No lynx habitat or its prey exist on the subject site. The kit fox is only know to occur on Colorado's desert slopes ranging from Montrose to Grand Junction. The black-footed ferret, which was eradicated from the Colorado Piedmont, has only been recently reintroduced in small numbers in northern Larimer and Weld Counties. These are experimental populations under study by the US Fish and Wildlife Service.

Colorado's only alpine species of toad, the boreal toad, has been found in spruce-fir forests and alpine meadows at elevations between 7,000 and 12,000 feet. The toad also requires lakes, marshes, ponds, or bogs with shallow water for breeding. These habitats do not exist on the property.

The Colorado butterfly plant has only been found in northern Larimer County in recent years and is generally associated with streams that do not exist onsite (Colorado Native Plant Society 1997).

4.3 Species Included in Survey

Western Burrowing Owl (*Athene cunicularia*)

State Threatened

The burrowing owl is found primarily in eastern Colorado as a summer resident. Two aspects of the biology of the western burrowing owl appear to influence both its regional and local abundance: 1) it prefers areas of short vegetation, and 2) it rarely, if ever, digs its own burrows. This migratory species is most often seen in Colorado during the summer months. Historically, burrowing owls were common wherever there were prairie dog colonies in northeastern Colorado. During the inspection, no prairie dog colonies were observed on the property.

Western burrowing owl, photo acquired on www.corbis.com.

Bald Eagle (*Haliaeetus leucocephalus*)

State Threatened

The bald eagle was removed from the Federal Endangered and Threatened Species List on July 9th, 2007. Western Environment reviewed the Natural Diversity Information Source (NDIS) and identified no active or inactive bald eagle nests within on or adjacent to the project. In winter bald eagles are transient and use areas that provide feeding and roosting opportunities. There is no permanent water or large trees on the property, therefore, it is unlikely that any bald eagles use the site. The Colorado Oil and Gas Conservation Commission (COGCC) did not indicate that a "Sensitive Wildlife Habitant" as defined by COGCC Series Rule 1200, for Bald Eagle Nesting and Roosting, was located near the subject property.

Mountain Plover (*Charadrius montanus*)

State Concerned Species

Typical habitat characteristics of the mountain plover are a mixture of short vegetation, bare ground, and a flat topography at both breeding and wintering locations. This small shorebird breeds in Colorado, and in parts of its breeding range the species commonly shows a preference for prairie dog towns and sites that are heavily grazed by domestic livestock. Prairie dog grazing promotes the short grasses that the plover prefers, and their digging creates areas of bare soil important for plover nesting. Mountain plovers were proposed for federal listing as threatened on February 16, 1999 (USFWS, 1999b), however the U.S. Fish and Wildlife Service withdrew the proposal on September 8, 2003. Mountain plovers breed in Eastern Colorado from approximately April 1st through August 1st. It is our opinion that no habitat conducive to Mountain Plovers was observed on the project.

Piping Plover *(Charadrius melodus)*

Federally Threatened, State Threatened

This small shorebird can be found on very sparsely vegetated beaches, mudflats and sandy areas near water on shores and islands. Piping Plovers usually arrive in Colorado in late April or early May, and leave when the nesting cycle is completed, or by late August. Nesting populations have been documented in eastern Colorado along the South Platte and Arkansas River drainages. Food sources for Piping Plovers include insects, crustaceans and other small aquatic animals. Plovers feed along beaches, especially in areas where waves have washed up debris (CDOW, 1994). Due to the lack of sandbars or mud-flats in the vicinity of the project, it is unlikely to occur.

Plains Sharp-Tailed Grouse *(Tympanuchus phasianellus jamesii*)

State Endangered

The Plains Sharp-Tailed Grouse historically occurred on Colorado's eastern grasslands. Grouse habitat is characterized by rolling hills with Gambles oak, sage brush, service berries and

grassy glades. This grouse is a resident from Alaska east to the Hudson Bay, and south to northern New Mexico. Currently, Colorado populations occur in Douglas County, northern and eastern Weld County, and Logan County east of Sterling. No known populations of the Plains Sharp-Tailed Grouse are known to occur in proximity to the subject project (CDOW, 2008).

Lesser Prairie Chicken (*Tympanuchus pallidicinctus*)

State Threatened

Historically, this bird occupied the grasslands of Texas, Oklahoma, New Mexico, Kansas and southeastern Colorado. It prefers sandy grassland areas abundant in midgrasses, sandsage and yucca. The majority of Colorado breeding pairs occur in the southeastern portion of the state in Baca, Prowers, Kiowa and Cheyenne Counties, and for the most part, on the Comanche National Grasslands near Campo. No known populations of the Plains Sharp-Tailed Grouse are known to occur in proximity to the subject project (CDOW, 2008).

Ferruginous Hawk (*Buteo regalis*)

State Concerned

This hawk is known to occur throughout eastern Colorado and in northwestern Colorado. In Colorado, the species is a common winter resident, but is considered an uncommon summer resident on the eastern plains (Andrews and Righter, 1992). Areas that could be potential nesting sites include large trees, rock outcrops, manmade structures such as windmills and power poles, or the ground. These birds often can be seen associated with prairie dog colonies, which they utilize for foraging. This hawk, as are all birds of prey, is federally protected under the Migratory Bird Species Act.

Preble's Meadow Jumping Mouse

(*Zapus hudsonius preblei*)

Federally Threatened, State Threatened

Preble's meadow jumping mouse

Typical Preble's habitat has been described as "well-developed plains riparian vegetation with relatively undisturbed grassland and a water source in close proximity," and "dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs" (Armstrong et al., 1997). Although any vegetation could offer cover and hibernacula for Preble's, the species is mostly known from habitat containing shrub cover, such as willow or narrow-leaf cottonwood.

Preble's are known to regularly range outward into adjacent uplands to feed and hibernate. For this reason, the U.S. Fish and Wildlife Service generally requires a 300 foot development buffer from the edge of the 100 year flood plain. Although Weld County is not contained within the USFWS Denver Metropolitan area Block Clearance Zone (BCZ), riparian habitat with a permanent water source likely suitable to Preble's was not observed on or adjacent to the project site.

Black-tailed Prairie Dog (*Cynomys ludovicianus*)

Former Candidate for Federal Listing, *State Concerned*

The U.S. Fish and Wildlife Service was petitioned to list the black-tailed prairie dog as a threatened species in July of 1998. The agency determined on February 3rd, 2000, that listing the species was warranted, but it was precluded because other species were in greater need of protection (USFWS, 2000). The black-tailed prairie dog was added to the candidate list, and the species' status was reviewed annually. On August 12th, 2004 the USFWS determined that the black-tailed prairie dog no longer meets the Endangered Species Act definition as threatened, and

was removed as a candidate for federal listing. The City of Erie, and Weld County have prepared Administrative Procedures and Policies for Prairie Dog Management. The inspection of the subject property identified no prairie dog colonies.

Ute Ladies'-Tresses Orchid

Ute Ladies'-Tresses Orchid (*Spiranthes diluvialis*)

Federally Threatened

This orchid usually occurs in "...old stream channels, alluvial terraces, wet meadows, and other sites where the soil is saturated to within 18" of the surface at least temporarily during the growing seasons" (USFWS, 1992). The eastern Colorado populations of species are located in mesic riparian meadows in relict tall grass prairie areas near Boulder Creek, South Boulder Creek, and Saint Vrain Creek in Boulder County, Colorado, and in mesic meadows in the riparian woodland understory along Clear Creek in Jefferson County, Colorado (USFWS 50 CFR Part 17). One population was historically identified in Weld County east of Greeley near Crow Creek in 1856, but is now considered extirpated. Soil conditions and vegetation composition of known *Spiranthes* sites suggest that wetlands regulated by the Corps under the Clean Water Act qualify as potential *Spiranthes* habitat. Orchid surveys are required in Boulder and Jefferson Counties, and in the 100-year flood plains and perennial tributaries of the South Platte River, Fountain Creek, and the Yampa Rivers if construction is expected to impact these areas (USFWS 1992). Generally, these surveys must be completed during blooming season (July 20 to August 31). It should be noted that the survey is only required in areas where proposed construction activities are to occur in potential *Spiranthes* habitat, and only when a **Federal** permit (for instance a permit to place fill materials into a Waters of the U.S. under Section 404 of the Clean Water Act) or **Federal** funding is utilized for an activity in those habitats. If a Federal

permit or funding is needed for an activity on the project, the agency responsible for issuing the permit or providing the funds would consult the Service to determine how the action may affect the species or its designated critical habitat. The Service would then work with the agency and/or landowner to modify the project and minimize impacts. No perennial waters occur on the property, nor is *Spiranthes* designated Critical Habitat. It is the opinion of Western Environment that *Spiranthes* does not inhabit the project.

Pawnee montane skipper (*Hesperia leonardus montana*)

Federally Threatened

This butterfly occurs in dry, open Ponderosa pine woodlands at an elevation range of 6,000 to 7,000 feet within the Pikes Peak Granite formation. Assessment of the skipper indicates that the insect's habitat is centered near Deckers, Colorado, with their range estimated to be 37.9 square miles (USFWS, 1998). The adult butterflies emerge from their pupae in late July for feeding and mating. The females then deposit their eggs on the leaves of blue grama grass, the larval food supply. Little is known about the larval and pupal stages of the species. Recent surveys of the skipper suggest that their populations may be at an all time high (recorded) after the Hayman Fire of 2002 (Colorado Natural Heritage Program, January 2005). This is likely due to the necessity of fire to remove trees, and promote herbaceous grass growth including blue grama and gayfeather on the forest floor. The subject project does not occur in known Pawnee montane skipper habitat.

Other Wildlife

Western Environment did not observed any wildlife on, or adjacent to the project site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

At the time of the survey, no threatened or endangered species or their obvious habitat were seen on the subject site. Additionally, no wetlands or Waters of the U.S. subject to regulation under Section 404 of the Clean Water Act occur on the project.

No ecological issues were identified with the site.

6.0 LITERATURE CITED

Andrews, R. and R. Righter. 1992. Colorado birds: a reference to their distribution and habitat. Denver Museum of Natural History. Denver. 442 pp.

Armstrong, D.M., M.E. Bakeman, A. Deans, C.A. Meaney, and T.R. Ryon. 1997. Conclusions and recommendations *in*: Report on habitat findings on the Preble's meadow jumping mouse. Edited by M. E. Bakeman. Report to USFWS and Colorado Division of Wildlife.

Bechard, M.J., Knight, D.G., Smith, and R.E. Fitzner. 1990. Nest sites and habitats of sypatric hawks (*Buteo spp*.) Washington Journal of Field Ornithology 61:159-170.

Colorado Division of Wildlife. 1999. Endangered, Threatened, and Special Concern Wildlife

Colorado Division of Wildlife. November 2003. Conservation Plan for Grassland Species in Colorado. Colorado Grassland Species Working Group. November 2003. Denver, Co.

Colorado Division of Wildlife. 2006. Natural Diversity Information Source Maps. Last Updated September, 2006.

Colorado Native Plant Society. 1997. Rare plants of Colorado, 2nd edition. Falcon Press® Publishing Co., Inc. and Rocky Mountain Nature Association in cooperation with Colorado Native Plant Society. Helena, Montana and Estes Park, Colorado. 105 pp.

Colorado Natural Heritage Program. January 2005. Pawnee Montane Skipper Post-fire Habitat Assessment Survey, September 2004.

Fitzgerald, J.P., C.A. Meaney, and D.M. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History and University Press of Colorado. Niwot, Colorado. 467 pp.

Graul, W.D. 1975. Breeding biology of the mountain plover. Wilson Bulletin 87:6-31.

Hoogland, John L. 1995. The Black-tailed Prairie Dog. The University of Chicago Press, Chicago and London.

Jennings, W.F. 1989. Final report. Species studied: *Eustoma grandiflorum*, *Spiranthes diluvialis*, *Malaxis brachypoda*, *Hypoxis hirsuta*, *Physaria bellii*, *Aletes humilis*. Unpublished report prepared for the Nature Conservancy under the Colorado Natural History Small Grants Program. The Nature Conservancy, Boulder, Colorado. 48 pp.

Jennings, W.F. 1990. Final report. Species studied: *Spiranthes diluvialis*, *Sisyrinchium pallidum*. Unpublished report prepared for The Nature Conservancy under the Colorado Natural History Small Grants Program. The Nature Conservancy, Boulder, Colorado. 29 pp.

Jones, S.R. 1998. Burrowing owl. Pages 220-221 *in* H.E. Kingery, ed. Colorado breeding bird atlas. Colorado Bird Atlas Partnership. Denver.

Kingery, H.E. 1998. Colorado breeding bird Atlas. Colorado Bird Atlas Partnership. Denver.

Long, Kim. Prairie Dogs, A Wildlife Handbook, Johnson Books, Boulder, 2002.

National List of Plant Species That Occur in Wetlands, Region 4, 5, and 8, Resource Management Group, Inc., Michigan, 1994.

Nichols, F.E. and J.A. Daley. 1995. 1995 Prairie Dog Counts on the Cathy Fromme Prairie. Professional report submitted to the Fort Collins Natural Resources Department. 8p.

Remote Sensing Research. 1996. 1996 Coyote Ridge Prairie Dog Study. Professional report submitted to the City of Fort Collins Natural Resources Department.

Sibley, David Allen. 2000. The Sibley Guide to Birds. Alfred A. Knopf, Inc. New York.

Tileston, J.V., and R.R. Lechleitner. 1966. Some Comparisons of the Black-tailed and White-tailed Prairie Dogs in North-central Colorado. American Midland Naturalist 75:292-316.

U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey of Adams County, Colorado. Historical Replica, October 1974.

U.S. Department of Agriculture, NRCS. 2001. The PLANTS Database, Version 3.1 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA

U.S. Department of Agriculture. No date. Midwestern wetland flora: Field office guide to plant species. USDA Soil Conservation Service, Midwest National Technical Center, Lincoln, Nebraska. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page http://www.npwrc.usgs.gov/resource/othrdata/plntguid/plntguid.htm (Version 16JUL97).

U.S. Fish and Wildlife Service, Region 6, Pawnee Montane Skipper Butterfly Recovery Plan. September, 1998

U.S. Fish and Wildlife Service Ecological Services Colorado Field Office, Federally Listed and Candidate Species and Their Status in Colorado, August 21, 2001.

U.S. Fish and Wildlife Service. 1999. Interim Survey Guidelines for Preble's Meadow Jumping Mouse.

U.S. Fish and Wildlife Service. 1992. Interim Survey Requirements for *Spiranthes Diluvialis*.

U.S. Fish and Wildlife Service. 1999b. Services proposes to list mountain plover as threatened. News Release 99-02.

U.S. Fish and Wildlife Service. Fish and Wildlife Service Proposes to Remove the Preble's Meadow Jumping Mouse from the Endangered Species List, News Release. Jan. 28, 2005.

Whitson, Tom, et al. 2000. Weeds of the West. Western Society of Weed Science, Newark, CA.

Cultural Resource File Search – Montex South at Vista Ridge

A cultural resource file search was conducted by History Colorado on October 30, 2014. The file search included historical, cultural resources, archaeological and paleontological data base review. As shown on the attached History Colorado letter and USGS map, 5 sites and 2 surveys were located in the vicinity of the project area. Further analysis indicates that the site 5WL3356 is located in the Montex South area. Based on information provided by History Colorado (See attached email dated 10/31/14), site 5WL3356 is classified as an Isolated Find. That means a single or few artifacts with no evidence for any longer use or occupation were all that was found. In the case of 5WL3356, the item found was a single piece of historic glass. Isolated finds are not eligible, by definition, to the National Register of Historic Places.

HISTORY COLORADO
Office of Archaeology and Historic Preservation
1200 Broadway, Denver, Colorado 80203

Mr. Sean O'Hearn
Enertia Consulting Group
1437 Larimer Street,
Denver, CO 80202

October 30, 2014

Re: Vista Ridge Filing 14, Montex at Vista Ridge
File Search No. 18544

At your request, the Office of Archaeology and Historic Preservation has conducted a search of the Colorado Inventory of Cultural Resources located in the following areas:

PM	T	R	S
6th	1N	68W	33

5 sites and 2 surveys were located in the designated area(s).

If information on sites in the project area was found, detailed information follows the summary. If no sites or districts were found, but surveys are known to have been conducted in the project area, survey information follows the summary. We do not have complete information on surveys conducted in Colorado, and our site files cannot be considered complete because most of the state has not been surveyed for cultural resources. There is the possibility that as yet unidentified cultural resources exist within the proposed impact area.

Therefore, in the event there is Federal or State involvement, we recommend that a professional survey be conducted to identify any cultural resources in the project area, which are eligible to be listed in the National Register of Historic Places. We look forward to consulting with you regarding the effect of the proposed project on any eligible cultural resource in accordance with the Advisory Council on Historic Preservation Procedures and the Preservation and Protection of Historic and Cultural Resources (36 CFR 800). Please provide this office with the results of the cultural resource survey for our review of professional adequacy and compliance with regulations.

If you have any questions, please contact the Office of Archaeology and Historic Preservation at (303) 866-3395 or 3392.

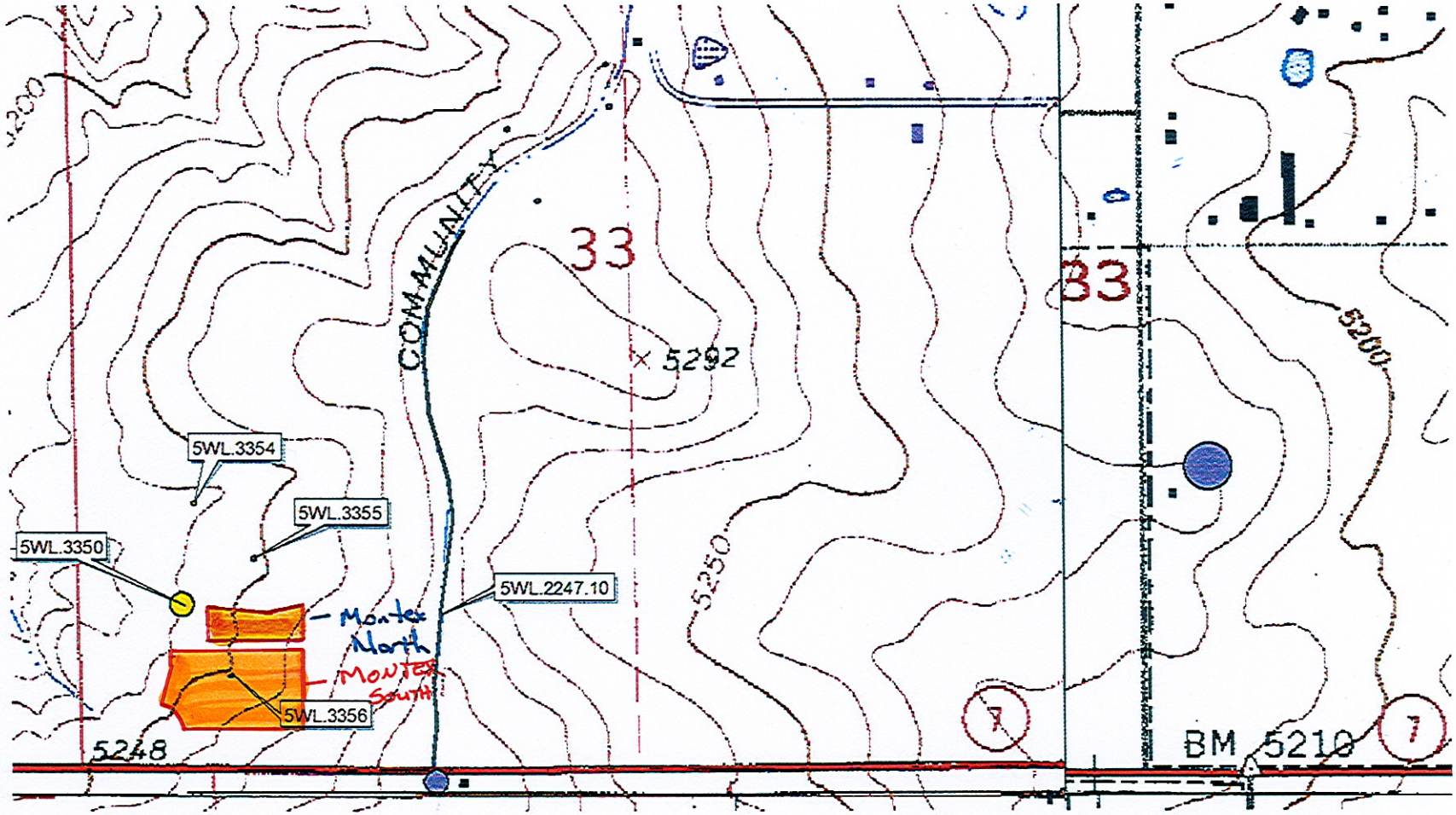
Thank you for your interest in Colorado's cultural heritage.

Richard Wilshusen
Deputy State Historic Preservation Officer for Archaeology
State Archaeologist

Kevin Black
Assistant State Archaeologist

*Information regarding significant archaeological resources is excluded from the Freedom of Information Act. Therefore, legal locations of these resources must not be included in documents for public distribution.

18544_s/18544_sy


5200
COMMUNITY
33
× 5292
33
5200
5250
5WL.3354
5WL.3355
5WL.3350
5WL.2247.10
Monte North
Monte South
5WL.3356
5248
7
BM 5210
7

Sean O'Hearn

From: ., HC_FileSearch
Sent: Friday, October 31, 2014 8:07 AM
To: Sean O'Hearn
Subject: Re: new file search in Erie CO

Hi Sean,

Sure I can measure those distances. From the ditch, 5WL3356 is due west 305 meters (1000 feet), and from Highway 7 it is due north 140 meters (459 feet).

Again, sorry I wasn't able to definitively say whether these resources were in or out. I usually can work from a map of a project area and do that.

One thing to note is 5WL3356 was just what is called an Isolated Find. That means a single or few artifacts with no evidence for any longer use or occupation were all that was found. In the case of 5WL3356 it was just a single piece of historic glass. Isolated finds are not eligible, by definition, to the National Register of Historic Places.

Bob

On Thu, Oct 30, 2014 at 3:03 PM, Sean O'Hearn <sean.ohearn@enertiacg.com> wrote:

Thanks for the help Bob. The only resource area that may be on the site is 5WL.3356. Using your system, can you approximately measure the distance from 5WL.3356 to the irrigation ditch and to SH 7? That will help us locate our site on your map, in lieu of sending a shape file (we don't have that capability).

This has certainly been the most interesting site we've worked on together! Thanks again. Sean

From: ., HC_FileSearch [mailto:hc_filesearch@state.co.us]
Sent: Thursday, October 30, 2014 10:57 AM

To: Sean O'Hearn
Subject: Re: new file search in Erie CO

Hi Sean,

Thanks for sending that other map. It does help a bit more, but one of the problems is we work on quad maps here and our quad maps display the area before all those subdivisions went in so it's a little hard to rectify locations because there has been so much development in the area. I used the coordinate you provided as well.

I'm sure the ditch is just east of your project area. I think the other site and three isolated finds are within or quite near your project area. I've attached a screenshot of our GIS with the resources labelled, and possibly you can use that to verify if these resources are within the vicinity of your project.

Sorry I'm not able to nail this one down as precisely as I'd like. I normally can. If you'd happen to be able to provide a shapefile of the 14.2 acre parcel I could use that to definitively say which are in or out.

Bob

On Thu, Oct 30, 2014 at 10:11 AM, Sean O'Hearn <sean.ohearn@enertiacg.com> wrote:

Thanks Bob. For the entire section, it makes sense that there are cultural resource sites given the mining activity that occurred in the region. Is it possible to assess only the specific 14.2 acre site and surrounding area? I've attached a better site plan that may help. Also, in the application I sent yesterday, I included the lat and long of the center of the study area if that helps too (40.002409, -105.014137).

Thanks in advance for the further review and please add another $8 charge for the additional work. It's probably the most reasonable data request fee in all of Colorado. Enjoy the day. Sean

From: ., HC_FileSearch [mailto:hc_filesearch@state.co.us]
Sent: Thursday, October 30, 2014 9:58 AM
To: Sean O'Hearn
Subject: Re: new file search in Erie CO

Hi Sean,

Here are the results for this file search. I couldn't quite tell from the map the exact location of the 14.2 acre parcel, so the five resources are in the general vicinity of the SW quarter of Section 33. I included the Community Ditch, though it looks like your parcel is west of the ditch from the map.

Let me know if you have any questions.

Bob

Robert Cronk
Cultural Resource Information/GIS Specialist
History Colorado-OAHP
1200 Broadway, Denver, CO 80203
ph 303-866-5216

Robert.cronk@state.co.us

On Wed, Oct 29, 2014 at 4:14 PM, Sean O'Hearn <sean.ohearn@enertiacg.com> wrote:

Hi Bob, hope you have a good evening. When you get a chance, could you process the attached file search request. I've attached a vicinity map to the application in case it helps.

As always, thanks.

Sean

J. Sean O'Hearn, PE, PG

Enertia Consulting Group

1437 Larimer Street

Denver, CO 80202

(720) 473-3131

sean.ohearn@enertiacg.com

Preliminary Geotechnical Engineering Report

FAIRWAYS AT VISTA RIDGE
RIDGE VIEW DRIVE AND
MOUNTAIN VIEW BOULEVARD
ERIE, COLORADO

Prepared for:

Chartered Development Corporation
1965 Fairway Pointe Drive
Erie, Colorado 80516

Prepared by:

Pickering, Cole & Hivner, LLC
PCH Project No. 12.139.13

March 24, 2014

March 24, 2014

Chartered Development Corporation
1965 Fairway Pointe Drive
Erie, Colorado 80516

Attn: Mr. Ward Ritter

Re: Preliminary Geotechnical Engineering Report
Fairways at Vista Ridge Residential Development
Ridge View Drive and Mountain View Boulevard
Erie, Colorado
PCH Project No. 12.139.13

Pickering Cole & Hivner, LLC (PCH) has completed a preliminary geotechnical engineering investigation for the proposed residential development to be located east of the subject intersection in Erie, Colorado. This study was performed in general accordance with our Proposal and Agreement for Services executed April 24, 2013.

This letter summarizes subsurface conditions and key geotechnical considerations. The entire report should be read and used for site design preliminary structure design, and construction planning purposes. Particular attention should be given to the items noted below and to the section of the report titled General Comments for an understanding of the report limitations.

- **Subsurface Conditions:** Existing fill, consisting of lean clay and claystone bedrock fragments was encountered in Boring Nos. 1 and 4 and extended to a depth of about 4 feet below existing site grade. The near-surface soils encountered in the remainder of the borings at the site consisted of lean clays with varying amounts of sand. Sedimentary claystone and sandstone bedrock was encountered below the fill and native clays at depths ranging from about 4 to 10 feet below the ground surface and extended to the full depth of exploration. Groundwater was encountered in two of the eight borings at depths ranging from about 19 to 20 feet below existing site grade.

- **Expansive Soils and Bedrock:** The clay overburden soils and underlying claystone bedrock materials have variable swell potential, ranging from low to very high. This report provides recommendations to help mitigate the effects of soil shrinkage and expansion. However, even if these procedures are followed, some movement and at least minor cosmetic cracking in the structures, flatwork, etc. should be anticipated. Even with the measures recommended in this report, this movement may cause minor cosmetic distress that is common in this geologic region.

- **Foundations and Floor Slabs:** Considering the size and type of construction planned and the subsurface conditions encountered in our test borings, we have evaluated two foundation systems that can be considered for support of the structures on the site. These include deep foundations such as straight shaft piers (caissons), micropiles, or helical piles drilled into bedrock or shallow foundations

such as spread footings or post-tensioned slabs. We feel that deep foundations best mitigate the risk of post-construction movement where expansive soils are present. It has been our experience that this alternative is typically cost prohibitive for large residential buildings, such as the planned four-plex "Manor Home" buildings.

If the use of shallow foundations is desired, in our experience the expansive potential of the clay soils and bedrock may be reduced by subexcavation, moisture conditioning, and recompaction of these materials. This process does not mitigate the potential for movement as effectively as deep foundations, ***however, we believe that the magnitude of movement can be reduced to tolerable levels by supporting shallow foundations and floor slabs on a sufficient zone of properly compacted fill. In general, we believe on-site soils would be acceptable for use in this fill zone. Additional details are discussed in the report.***

- **Pavement Design and Structural Sections**: Based on the poor quality clay soils and *assumed* traffic volumes, we estimate light-duty pavements for automobile parking areas should include a minimum of 5-½ to 6 inches of asphalt concrete or, alternately, 5 inches of Portland cement concrete. Heavy-duty pavements such as fire lanes, main drive isles, and driveways should include a minimum of 6-½ to 7 inches of asphalt concrete or, alternately, 6 inches of Portland cement concrete.

  The Town of Erie typically requires the use of a composite section of asphalt concrete over aggregate base course and the Town Standards also require the installation of edge drain behind the curb along public roads. These measures will be required for any public roadway improvements and should be considered for private roadway construction as well.

- **Surface Drainage:** The amount of movement associated with foundations, floor slabs, pavements, etc. is typically related to the wetting of underlying supporting soils. Therefore, it is imperative that surface water be directed away from foundations and other critical elements where movement must be held to a minimum. The recommendations outlined in the "Surface Drainage" section of this report should be used by the project Civil Engineer to develop grading plans that promote rapid runoff of storm water. Landscaping should be designed to minimize the amount of irrigation needed in proximity of the foundations.

This report should not be used for final structural design. Supplemental exploration is required for final design (typically a minimum of one boring per structure is recommended in this geologic region). These additional services will be used to develop final structural design parameters and to confirm and/or modify the preliminary recommendations and conclusions contained in this report.

We appreciate being of service to you in the geotechnical engineering phase of this project, and are prepared to assist you during the construction phases as well. Please do not hesitate to contact us if you have any questions concerning this report or any of our testing, inspection, design and consulting services.

Sincerely,
Pickering, Cole & Hivner

COLORADO REGISTERED
ANDREW J. GARNER
34273
3/27/14
PROFESSIONAL ENGINEER

Glenn D. Ohlsen, P.E.
Staff Engineer

Andrew J. Garner, P.E.
Senior Project Manager

TABLE OF CONTENTS

Page No.

Letter of Transmittal ii
INTRODUCTION 1
PROJECT INFORMATION 1
SITE EXPLORATION PROCEDURES 2
Field Exploration 2
Laboratory Testing 2
SITE CONDITIONS 3
SUBSURFACE CONDITIONS 3
Geology 3
Soil and Bedrock Conditions 4
Field and Laboratory Test Results 4
Groundwater Conditions 4
ENGINEERING RECOMMENDATIONS 5
Geotechnical Considerations 5
Earthwork and Site Development 6
General Considerations 6
Site Preparation 6
Fill Materials 6
Fill Placement and Compaction 7
Excavation and Trench Construction 8
Preliminary Structure Foundation Design 8
Deep Foundations 8
Shallow Foundations with Deep Overexcavation 9
Below-Grade Construction 9
Seismic Considerations 10
Floor Slab Design and Construction 10
Preliminary Private Pavement Thickness Design 11
Final Grading, Landscaping, and Surface Drainage 13
Additional Design and Construction Considerations 14
Exterior Slabs 14
Underground Utilities 15
Concrete Corrosion Protection 15
GENERAL COMMENTS 15

APPENDIX A: BORING LOCATION DIAGRAM, BORING LOGS
APPENDIX B: LABORATORY TEST RESULTS AND SUMMARY
APPENDIX C: GENERAL NOTES

PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

FAIRWAYS AT VISTA RIDGE RESIDENTIAL DEVELOPMENT
RIDGE VIEW DRIVE AND MOUNTAIN VIEW BOULEVARD
ERIE, COLORADO

PCH Project No. 12.139.13
March 24, 2014

INTRODUCTION

This report contains the results of our preliminary geotechnical engineering exploration for the proposed residential development to be located east of the intersection of Ridge View Drive and Mountain View Boulevard in Erie, Colorado.

The purpose of these services is to provide initial subsurface information and geotechnical engineering recommendations relative to:

- Subsurface soil and bedrock conditions
- Groundwater conditions
- Site preparation and earthwork
- Preliminary structure foundation alternatives
- Below-grade construction
- Floor slab construction
- Preliminary pavement sections
- Surface and subsurface drainage

The recommendations contained in this report are based upon the results of field and laboratory testing, engineering analyses, our experience with similar soil conditions, similar projects, and our understanding of the proposed project.

PROJECT INFORMATION

Based on the information provided, we understand that the project will include the construction of approximately 56 single-family cluster homes and 24 four-plex "Manor Home" apartment buildings on approximately 14 acres of vacant land. The site is located east of the intersection of Ridge View Drive and Mountain View Boulevard and includes Lot 33 of Vista Ridge Subdivision and Lot 2, Vista Ridge Filing No. 2 Minor Subdivision. Approximately 4 acres of the property is located north of Ridge View Drive and the remainder of the property is located south of Ridge View Drive.

We understand that the proposed single-family residences will include one to two stories of wood-framed construction over concrete basement foundations. We understand the apartment buildings will include two stories of wood framing over at grade foundations. We assume that all structures will include attached, at-grade garages.

The site was previously graded as part of the overall development, however, we assume some grading of the site will be required to install infrastructure and provide site drainage. We estimate that maximum earthen cut and fill depths on the order of about 5 to 8 feet could be required, exclusive of any sub-excavation that may be necessary to mitigate swell potential of the expansive soils and bedrock known to be present in the area.

Other major site development will include the installation of utilities, as well as the construction of private asphalt concrete and/or Portland cement concrete parking areas, and site landscape improvements. We assume that roadways within the development will be privately maintained and not subject to the Town of Erie roadway design standards.

If our assumptions noted herein are inaccurate or if you have additional information that may be useful, please forward at your convenience.

SITE EXPLORATION PROCEDURES

The scope of the services performed for this project included a preliminary-phase subsurface exploration program, laboratory testing, and engineering analysis.

Field Exploration: Our scope of services included geotechnical exploration of the subsurface materials by advancing eight, widely-spaced test borings on the site, shown on the Boring Location Diagram included in Appendix A. Borings were advanced to depths ranging from about 25 to 35 feet below existing site grades with a truck-mounted drilling rig utilizing 4-inch diameter, solid-stem auger.

Our field engineer recorded lithologic logs of each boring during the drilling operations. At selected intervals, samples of the subsurface materials were obtained by driving Modified California split-barrel samplers. Penetration resistance measurements were obtained by driving the sample barrels into the subsurface materials with a 140-pound manual hammer falling 30 inches. The penetration resistance value is a useful index to the consistency, relative density or hardness of the materials encountered.

Groundwater measurements were conducted in each boring at the time of site exploration and a minimum of two days later.

Laboratory Testing: Samples retrieved during the field exploration were returned to our laboratory for observation by the project geotechnical engineer, and were classified in general accordance with the Unified Soil Classification System described in Appendix C. Samples of bedrock were classified in general

accordance with the general notes for Rock Classification. At that time, an applicable laboratory-testing program was formulated to determine engineering properties of the subsurface materials. Following the completion of the laboratory testing, the field descriptions were confirmed or modified as necessary, and Boring Logs were prepared. These logs are presented in Appendix A.

Laboratory test results are presented in Appendix B. These results were used for the geotechnical engineering analyses and the development of foundation and earthwork recommendations. Laboratory tests were performed in general accordance with the applicable local or other accepted standards.

Selected soil and bedrock samples were tested for the following engineering properties:

- Water content
- Dry density
- Consolidation/Swell
- Moisture-Density relationship
- Grain size
- Plasticity Index
- Water soluble sulfates
- Remolded swell potential

SITE CONDITIONS

The site is located east of the intersection of Ridge View Drive and Mountain View Boulevard in Erie, Colorado. As discussed, approximately 4 acres of the property is located on the north side of Ridge View Drive, with the remainder located south of that roadway. The northern parcel is bound by a golf course (Colorado National Golf Club) to the north and private schools (Vista Ridge Academy and Primrose School) to the east and west. The southern parcel is bound by undeveloped land on the east and south, and a large soil stockpile and regional stormwater detention area to the west.

Vegetation includes a sparse to moderate growth of native grasses and weeds. We were not provided with any topographic information, however, the site appears to slope gently down to the west, with the exception of the soil stockpile. We estimate that the overall topographic relief to be on the order of about 20 feet or more across the site. Site drainage was generally in the form of sheet surface flow directed to the west.

SUBSURFACE CONDITIONS

Geology: Surficial geologic conditions at the site, as mapped by the U.S. Geological Survey (USGS) ([1]Colton, 1977), primarily consist of Loess (Mantles pre-Broadway alluvium) of Pleistocene Age. These materials are described as fine-grained silt, clay and sand. Thickness of this is reported up to 12 feet.

Bedrock underlying the surface units consists of the Laramie Formation of Upper Cretaceous Age. The upper part of the formation is reported to include claystone, shale, sandy shale, and scattered lenticular

[1] Colton, R.B., and Anderson, L.W., 1977, ***Preliminary Geologic Map of the Erie Quadrangle, Boulder, Weld, and Adams Counties, Colorado,*** United States Geological Survey, Map MF-882.

beds of sandstone and lignite. The thickness of this upper unit is reported to be on the order of 600 to 700 feet in thickness.

Mapping completed by the Colorado Geological Survey ([2]Hart, 1972) indicates the site includes soils and bedrock considered to possess "High to Very High Swell Potential". The expansive materials generally include the clay overburden soils and clayey bedrock.

Due to the relatively flat nature of the site, geologic hazards at the site are anticipated to be low. In addition, based upon review of the maps showing the extent of mining in the Boulder-Weld coal field for the area ([3]Roberts, Hynes, and Woodward, 2001), the project is located outside of areas identified as being underlain by past mine workings. A detailed evaluation of subsidence potential is beyond the scope of this study. However, it is our opinion that the planned construction should not cause significant subsidence.

Due to the relatively flat nature of the site, other geologic hazards at the site are anticipated to be low. Seismic activity in the area is anticipated to be low, and the property should be relatively stable from a structural standpoint. With proper site grading around proposed structures, erosional problems at the site should be reduced.

Soil and Bedrock Conditions: Existing fill, consisting of lean clay and claystone bedrock fragments was encountered in Boring Nos. 1 and 4 and extended to a depth of about 4 feet below existing site grade. The near-surface soils encountered in the remainder of the borings at the site consisted of lean clays with varying amounts of sand. Sedimentary claystone and sandstone bedrock was encountered below the fill and native clays at depths ranging from about 4 to 10 feet below the ground surface and extended to the full depth of exploration.

Field and Laboratory Test Results: Field test results indicate that the native and fill clay soils are very stiff to hard in consistency. The bedrock is medium hard to very hard in hardness.

Samples of the existing clay soils and claystone bedrock exhibited moderate to very high expansion upon wetting in our laboratory. Water-soluble sulfate testing indicated moderate to severe concentrations ranging from 300 to 1,600 parts per million (ppm).

Groundwater Conditions: Groundwater was encountered in Boring 4 at a depth of about 21 feet below existing site grade during drilling. The other borings remained dry immediately after drilling. When checked a minimum of two days later, groundwater was encountered in Boring Nos. 4 and 8 at depths of about 19 to 20 feet below grade. Groundwater was not present in the remaining borings at that time.

---

[2] Hart, Stephen S., 1972, ***Potentially Swelling Soil and Rock in the Front Range Urban Corridor, Colorado***, Colorado Geological Survey, Sheet 1 of 4.

[3] Roberts, S.B., Hynes, J.L., and Woodward, C.L., 2001, ***Maps showing the extent of mining, locations of mine shafts, adits, air shafts, and bedrock faults, and thickness of overburden above abandoned coal mines in the Boulder-Weld coal field, Boulder, Weld, and Adams Counties, Colorado***, United States Geological Survey, Geologic Investigations Series I-2735.

These observations are only representative of the locations explored at the time of our exploration and may fluctuate seasonally, particularly in the southern lower extents of the site.

Based upon review of U.S. Geological Survey Maps ([4]Hillier, et al, 1983), regional groundwater beneath the project area is mapped as an area where localized water-table aquifers occur in colluvial and aeolian deposits, and in sedimentary bedrock. Depth to water table generally ranges from 5 to 20 feet.

ENGINEERING RECOMMENDATIONS

Geotechnical Considerations: Based on the information obtained from our subsurface exploration, laboratory testing, and a cursory review of geologic conditions, it is our opinion that the site appears suitable for development of the proposed project provided the recommendations in this report are followed. The following primary geotechnical considerations were identified:

- **Expansive Soils and Bedrock:** ***Expansive soils and bedrock are a geologic hazard that is present at this site and will impact the design, construction, and performance of foundations, exterior flatwork, pavements and other features of the development.*** Geologic mapping by the USGS and our laboratory test data indicate the clay soils and bedrock materials range from low to very highly expansive. These materials are common in vicinity of the site, and when subjected to normal post-construction wetting, commonly result in uneven floor slabs or foundation movement causing mostly cosmetic distress such as uneven door and window frames, drywall cracking, etc. ***The risk of this distress will increase if excessive wetting or drying of the expansive soils is allowed to occur. This wetting could be due to excessive irrigation, poor surface drainage, water line breaks, or other items outside of our control. Therefore, site maintenance is critical.***

  Based on our experience with similar materials and testing of select samples from this site, we believe that subexcavation, adding significant moisture, and recompaction of these soils will result in significantly reducing the expansive potential of the native soils and bedrock (essentially "pre-swelling" the materials). This process is commonly used to substantially reduce, but not eliminate, the risk of movement and distress associated with this geologic hazard.

- **Foundations and Floor Slabs:** Considering the size and type of construction planned and the subsurface conditions encountered in our test borings, we have evaluated two foundation systems that can be considered for support of the structures on the site. These include deep foundations such as straight shaft piers (caissons), micropiles, or helical piles drilled into bedrock (caissons) or shallow foundations such as spread footings or post-tensioned slabs. We feel that deep foundations best mitigate the risk of post-construction movement where expansive soils are present. It has been our experience that this alternative is typically cost prohibitive for large residential buildings, such as the planned four-plex Manor Home buildings.

[4] Hillier, Donald E.; and Schneider, Paul A., Jr., 1979, ***Depth to Water Table (1976-1977) in the Boulder-Fort Collins-Greeley Area, Front Range Urban Corridor, Colorado***, United States Geological Survey, Map I-856-I.

If the use of shallow foundations is desired, in our experience the expansive potential of the clay soils and bedrock may be reduced by subexcavation, moisture conditioning, and recompaction of these materials. This process does not mitigate the potential for movement as effectively as deep foundations, ***however, we believe that the magnitude of movement can be reduced to tolerable levels by supporting shallow foundations and floor slabs on a sufficient zone of properly compacted fill. In general, we believe on-site soils would be acceptable for use in this fill zone. Additional details are discussed below.***

Earthwork and Site Development:

- **General Considerations:** The following presents our initial recommendations for site preparation, excavation, subgrade preparation and placement of engineered fills on the project based on the limited plans provided and common construction methods. As the design plans are finalized, these recommendations should be refined accordingly.

  All earthwork on the project should be observed and evaluated by PCH. The evaluation of earthwork should include observation and testing of engineered fills, subgrade preparation, foundation bearing soils and other geotechnical conditions exposed during the construction of the project.

- **Site Preparation:** Strip and remove existing vegetation, debris, and any other deleterious materials from the site. Stripped materials consisting of vegetation and organic materials should be wasted from the site or stockpiled for use in re-vegetation of non-structural areas of the site.

  It is anticipated that excavations for the proposed construction can be accomplished with conventional heavy-duty earthmoving equipment. However, excavations penetrating the bedrock may require ripping or jack-hammering to advance excavations.

  The stability of the site subgrade may be affected by precipitation, proximity to groundwater, detention ponds, repetitive construction traffic, or other factors. If unstable conditions are encountered or develop during construction, workability may be improved by scarifying and aeration. Gravel augmentation or chemical treatment could also be considered for very soft areas.

- **Fill Materials:** The on-site materials are generally considered suitable for use in fill zones beneath structures and new pavements. Evaluation of the stockpiled soils was not included in our scope of services, however, if similar to the on-site materials, the stockpiled materials may be re-used as fill on the site. Clay soils and bedrock materials should be processed to a soil-like consistency, with a maximum fragment size of about 2 to 3 inches. All fill soils will require moisture conditioning prior to compaction.

Imported soils (if required) should conform to the following:

Gradation	Percent finer by weight (ASTM C136)
6"	100
3"	70-100
No. 4 Sieve	50-100
No. 200 Sieve	20-60

- Liquid Limit ..... 45 (max)
- Plasticity Index ..... 20 (max)
- Maximum expansive potential (%)* 1.0

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about optimum water content. The sample is confined under a 500 psf surcharge and submerged.

Fill Placement and Compaction: Subgrade soils beneath new fill, engineered fills used to bring the site to construction grade, fill beneath structures, and other backfill soils should be placed and compacted according to the recommendation in the following table:

Criteria	Recommended values
Lift Thickness	8 to 12 inches, depending on compaction equipment
Moisture Content Range	• Clay soils: +1% to +4% over optimum • Imported Sand soils: -2% below to +3% above optimum • Pavement areas: Optimum to +2% above optimum
Compaction	On-site clays: ASTM D698 standard Proctor dry density • Upper fill soils and subgrade soils: 95% minimum • > 12 ft below finished grade: 98% minimum Imported sands: ASTM D1557 modified Proctor dry density • Below foundations: 98% minimum • All other areas: 95% minimum

At a minimum, fill soils placed for site grading, beneath structures, utility trench backfill, and pavement subgrade soils should be tested to confirm that earthwork is being performed according to our recommendations and project specifications. Subsequent lifts of fill should not be placed on previous lifts if the moisture content or dry density is determined to be less than specified. We also recommend that the in-place fill materials comprised of on-site clay be tested for expansion potential frequently to that the fill mass is low expansive.

Excavation and Trench Construction: Excavations into the native clays and bedrock are expected to stand on relatively steep temporary slopes. All excavations should be sloped, shored, and/or dewatered in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards. Individual contractors are responsible for providing OSHA competent personnel to evaluate the safety of excavations on the site daily.

The soils to be penetrated by the proposed excavations may vary significantly across the site. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, the actual conditions should be evaluated to determine any excavation modifications necessary to maintain safe conditions.

As a safety measure, it is recommended that all vehicles and soil piles be kept to a minimum lateral distance from the crest of the slope equal to no less than the slope height. The exposed slope face should be protected against the elements.

Preliminary Structure Foundation Design: As discussed, foundation designs should be based on additional subsurface exploration and analyses for each building. We have evaluated the use of deep and shallow foundation systems for support of the proposed residential structures at the site. Deep foundations would include grade beams supported on straight shaft drilled piers (caissons), micropiles, or helical piles drilled into bedrock. Shallow foundations would include spread footings or post-tensioned slab-on-grade foundations bearing either on a zone of tested and approved engineered fill.

Deep Foundations: Straight shaft drilled piers (caissons) socketed into the deeper bedrock materials are commonly used in this region to mitigate the risk of post-construction movement associated with wetting of the expansive soils/bedrock. We are available to discuss the use of micropiles as well. Helical piles are most likely not feasible due to the shallow bedrock conditions.

Drilled piers are designed to extend through the upper zones of expansive materials to bear in the deeper bedrock materials that are not as likely to experience significant movements. Cast-in-place concrete grade beams are used to span between piers, and a void space is constructed below the grade beam.

Based on our limited study and the shallow bedrock beneath most of the site drilled pier lengths would likely range from about 35 to 40 feet from current site grades. Drilling to the likely design depths should be possible with the heavy-duty caisson drill rigs commonly used in the area.

Some hard bedrock lenses should be anticipated, and the drilling contractor may need to use specialized drilling equipment or techniques to achieve the required length/penetration below these lenses.

Our experience in the area suggests that the bedrock formation can also contain water-bearing seams. This condition, if encountered during drilling, will at least require the use of a concrete pump truck with a tremie extension to discharge concrete at the bottom of the pier hole in order to displace excessive water. Where dry or relatively dry conditions are encountered during pier drilling and no caving of the overburden soil occurs, it will probably be possible to construct the pier using "drill and pour" construction methods. In some cases, groundwater flows could require the use of temporary steel casing to maintain the sides of the shafts while completing drilling and concrete placement, however, we believe these areas will be relatively isolated.

Shallow Foundations with Deep Overexcavation: Shallow foundations can also be considered at this site provided the expansive soils and bedrock are substantially mitigated to reduce the risk of movement. The use of spread footings can be considered for single-family residential construction, however, we understand that post-tensioned slab-on-grade foundations are also being considered for support of the Manor Homes. ***In our opinion, the use of these shallow foundations should only be considered if movement can be tolerated. If movement must be minimized, deep foundations should be used.***

In order to reduce movement to levels that can normally be tolerated, subexcavation of the expansive soils would be required. These on-site soils would then be processed, moisture conditioned and recompacted to provide a zone of low-expansive fill beneath foundations***. Based on our widely spaced test borings, we estimate that deep subexcavation will need to extend a minimum depth of 10 feet below the lowest foundation bearing depth.***

Based on our experience with shallow foundations, including post-tensioned slabs, foundation movements, even after subexcavation, could result in periodic, and possibly seasonal, cosmetic distress to drywall, window frames, door fames and other features. Movements should be reduced and tend to be more uniform when bearing on the recommended zone of fill. We estimate that total foundation movement on the order of about 1 to 2 inches could still be possible. ***Excessive movement could occur should the subsurface soils become wetted to significant depths, which could result in potential excessive movement and severe cracking.*** This could be due to over watering of landscaping, poor drainage, improperly functioning drain systems, and/or broken utility lines. Therefore, it is imperative that the surface drainage recommendations contained in subsequent sections of this report be followed.

Below-Grade Construction: Based on current groundwater conditions, we believe that basement construction should be feasible on the site. Post-construction perched groundwater typically develops at the bottom of basement excavations since the subsurface soils are relatively impermeable and tend to trap water. To collect this perched groundwater, to limit impact to foundation-bearing soils, and prevent the water from entering basement areas, installation of a perimeter foundation drainage system is recommended around the perimeter of the basement excavation.

Normally, the drain systems would be constructed around the exterior of the foundation and would be used to collect water that would tend to accumulate at the base of the foundation excavation after completion of development. Foundation drainage systems would typically include a properly sized perforated pipe, embedded in gravel, designed to discharge flows into the storm sewer system or to a sump pit where water could be pumped to a suitable discharge. We are available to provide additional recommendations regarding the design and installation of a perimeter drain systems around all below-grade portions of the structures.

Seismic Considerations: Based on the soil and bedrock conditions encountered in the test holes drilled on the site, we estimate that portions of the site may be classified as Seismic Site Class C according to the 2012 International Building Code (Table 1613.5.2). The Seismic Site Class was estimated based on extrapolation of data beyond the deepest depth explored, using methods allowed by the code. Actual shear wave velocity testing/analysis and/or exploration to 100 feet was not performed.

Floor Slab Design and Construction: As discussed, expansive materials are present on this site. Floor slabs placed on these materials may be subject to potentially excessive movement. This movement could result in cosmetic distress such as drywall cracking and distress of other elements supported on the floor slab. ***Where deep foundations (drilled piers) are utilized, we recommend the use of a structural floor system suspended above the subgrade soils and supported on the deep foundation elements.***

Conventional slab-on-grade floors may be considered, however, to reduce the movement slabs should bear on a zone of low expansive engineered fill soils as discussed above for shallow foundations. Based on our limited evaluation, we estimate that movement of conventional slab-on-grade floors bearing on at least 10 feet of engineered fill may still be subject to about 1 to 2 inches of total movement. The owner/end-user must accept the risk of this floor movement.

The movement estimates outlined above assume that the other recommendations in this report are followed. Some movement can typically be accommodated using typical expansive subgrade precautions in the design and construction of conventional slab-on-grade floors. ***Additional movement could occur should the subsurface soils become wetted to significant depths, which could result in potential excessive movement causing uneven floor slabs and severe cracking.*** We typically recommend minimal landscaping be installed and downspouts be hard-piped to storm sewer systems as described in subsequent sections of this report.

The following additional recommendations are typically provided for conventional slab-on-grade floors:

- Positive separations and/or isolation joints should be provided between slabs and all foundations, columns or utility lines to allow independent movement.

- Control joints should be provided in conventional slabs to control the location and extent of cracking.

- Typically, a minimum 2-inch void space is recommended below non-bearing partition walls placed on the floor slab. As an alternative, this "slip joint" is often framed above partition walls. Some movement and cosmetic distress to drywall and other finishes could occur if this is done.

- Special framing details should be provided at doorjambs and frames within partition walls to avoid potential distortion. Partition walls should be isolated from suspended ceilings. The isolation should be checked and maintained throughout the life of the project.

- Interior trench backfill placed beneath slabs should consist of on-site soils, moisture conditioned and compacted in accordance with recommended specifications outlined below.

- The use of a vapor retarder may need to be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the architect, slab designer and/or contractor(s) should refer to ACI 302 for procedures and cautions regarding the use and placement of a vapor retarder.

- Floor slabs should not be constructed on frozen subgrade.

- Other design and construction considerations, as outlined in Section 302.1R of the *ACI Design Manual*, are recommended.

Preliminary Private Pavement Thickness Design: The preliminary design of private pavements for the project is based on the procedures outlined in the 1993 *Guideline for Design of Pavement Structures* by the American Association of State Highway and Transportation Officials (AASHTO) and the Colorado Department of Transportation (CDOT). Any public improvements will have to be designed in accordance with Town of Erie standards, which would include additional subsurface investigation for pavement thickness design.

The referenced design methods are based on the subgrade soil support properties and anticipated traffic values.

- **Expansive Subgrade Mitigation and Subgrade Support:** Flexible (asphalt cement concrete, AC) and rigid (Portland cement concrete, PCC) pavements supported on the expansive soils and bedrock will move and may crack due to soil shrink and swell. Subexcavation, maintaining proper surface drainage behind curbs and sidewalks, providing edge drains, chemical stabilization and other methods can help reduce the distress. However, even if these recommendations are followed, some pavement distress (such as longitudinal "edge" cracking, etc.) should be anticipated and may need to be repaired. It may be possible to further reduce movement and distress if significantly more expensive measures are used. We are available to discuss additional alternatives with you.

To reduce potential movements and distress beneath private pavements to a level typically considered acceptable in this geologic region, we recommend pavement subgrade soils be subexcavated, moisture conditioned, and replaced as engineered fill. Based on our experience and current CDOT recommendations, subexcavation on the order of 5 feet below main drives and 3 feet below parking lot pavements will generally provide adequate reduction in surface deflection for these low speed roadways. Existing soils should be subexcavated, moisture-conditioned and recompacted to 95 percent of standard Proctor density (ASTM D698) at moisture contents between optimum to 3 percent above optimum. Stabilization of these soils may also be required to provide a stable base for paving.

Based on the properties of the poorest quality subgrade soils, we have estimated a resilient modulus of 3,025 psi for the subgrade soils.

- **Assumed Traffic:** We assume that pavements associated with the project will include private drive lanes, driveways, fire lanes, and surface parking for automobiles and light trucks. We assume that private pavements will include asphalt concrete or Portland cement concrete. Any improvements to adjacent public roadways will need to be designed and constructed according to the governing standards

  Based on our experience with similar projects, the following traffic criteria were used for determining pavement thicknesses using a design life of 20 years:

  - Driveways and parking stalls - maximum daily traffic of 1,000 cars per day (equivalent single-axle loads, ESAL's of 22,000)
  - Main site access drives and fire lanes – up to 5 trips/day by single-axle delivery trucks per day, 1 combined-axle truck per day and 1 trash truck per day, plus maximum daily traffic of 1,000 cars per day (73,000 ESAL’s)

  The owner should review these assumptions, and we should be contacted to confirm or modify these resulting pavement sections, if needed.

- **Pavement Sections:** Recommended alternatives for flexible and rigid pavements are summarized for each traffic area as follows:

Traffic Area	Alternative	Preliminary Pavement Thickness (Inches)		
		Asphalt Concrete Surface	Aggregate Base Course	Portland Cement Concrete
Light-Duty Automobile and Light Truck Parking Only	A	5-½ to 6	--	--
	B	3-½ to 4	7 to 8	--
	C	--	--	5
Heavy-Duty Private Drives, Fire Lanes, Delivery truck access	A	6-½ to 7	--	--
	B	4 to 4-½	9 to 10	--
	C	--	--	6

Pavement thicknesses recommended are based on approved subgrade materials being properly moisture conditioned and compacted prior to paving. The Town of Erie typically requires the use of a composite section for public roadways (Alternative B outlined above for each type of paved area). In addition, Town of Erie standards require that the base course be drained by installing edge drains behind curbs. These measures should also be considered to reduce the potential for distress for the private pavements associated with this project.

A proofroll of the subgrade soils should also be performed prior to paving and any soft/yielding areas remediated. Paving materials used at the site should meet current Town of Erie and CDOT specifications.

Future performance of pavements constructed on the subgrade soils at this site will be dependent upon several factors, including:

- Maintaining stable moisture content of the subgrade soils.
- Providing for a planned program of preventative maintenance.

Minimizing excess moisture, which can reach the subgrade soils, can enhance the performance of all pavements. Preventative maintenance should be planned and provided for an ongoing pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment.

Final Grading, Landscaping, and Surface Drainage: All grades must be adjusted to provide positive drainage away from structures during construction and maintained throughout the life of the proposed project. Infiltration of water into utility or foundation excavations must be prevented during

construction. Landscaped irrigation adjacent to foundations should be eliminated where possible or minimized to only limited drip irrigation.

Water permitted to pond near or adjacent to the perimeter of the structures (either during or post-construction) can result in significantly higher soil movements than those discussed in this report. As a result, any estimations of potential movement described in this report cannot be relied upon if positive drainage is not obtained and maintained, and water is allowed to infiltrate the fill and/or subgrade.

Exposed ground should be sloped at a minimum of 10 percent grade for at least 10 feet beyond the perimeter of the buildings, where possible. We understand that this may not be feasible in all unpaved areas due to ADA access requirements and other required design features. In these areas, exterior grades should be sloped as much as possible down to area drain systems, swales, and/or sidewalk chases to facilitate drainage. Downspouts could also be connected to area drain systems to help reduce wetting. If this is not possible, roof drain flows should be directed onto pavements or discharge a minimum of 5 feet away from the structure or through the use of splash blocks or downspout extensions.

Backfill against foundations, exterior walls and in utility and sprinkler line trenches should be well compacted and free of construction debris to reduce the possibility of moisture infiltration. After building construction and prior to project completion, we recommend that verification of final grading be performed to document that positive drainage, as described above, has been achieved. This is especially important in areas where heating and cooling units are placed in close proximity to the buildings.

Planters located adjacent to the structure should preferably be self-contained (planter boxes, potted landscaping, etc.). Sprinkler mains and spray heads should be located a minimum of 5 feet away from the buildings. We recommend the use of Xeric landscaping, requiring little or no irrigation, be used within 5 feet of foundations. If drip irrigation is required in this zone, systems should timed to provide only the amount of water needed to sustain growth. Irrigation systems should be frequently checked for proper performance and any breakages fixed as soon as possible.

Additional Design and Construction Considerations:

- **Exterior Slabs:** Exterior slabs-on-grade, exterior architectural features, and utilities founded on the on-site soils may experience some movement due to frost heave and potential volume change of backfill in utility trenches and around building pads. Overexcavation and recompaction to a depth of 3 feet should be considered to help limit movement of high-profile or critical PCC flatwork. Potential movement could be reduced by:

    - minimizing moisture increases in the subgrade soils.

- controlling moisture-density during placement of any backfill.
- using designs which allow vertical movement between the exterior features and adjoining structural elements.
- placing effective control joints on relatively close centers.

- **Underground Utilities:** All underground piping within or near the proposed structure should be designed with flexible couplings, so minor deviations in alignment do not result in breakage or distress. Utility knockouts in foundation walls should be oversized to accommodate differential movements.

  It is strongly recommended that a representative of the geotechnical engineer provide nearly full-time observation and compaction testing of trench backfill within building and pavement areas.

- **Concrete Corrosion Protection:** Results of soluble sulfate testing indicate that project concrete should include Portland cement meeting the specifications of ASTM Type V or equivalent. Foundation concrete should be designed for potentially severe sulfate exposure in accordance with the provisions of Section 318, Chapter 4, of the *ACI Design Manual*.

GENERAL COMMENTS

Supplemental exploration and analyses should be performed in order to develop final design parameters and to confirm and/or modify the preliminary recommendations and conclusions contained in this report.

PCH should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our preliminary geotechnical recommendations in the project site design and specifications. PCH should also be retained to provide testing and observation during the excavation, grading, foundation and construction phases of the project.

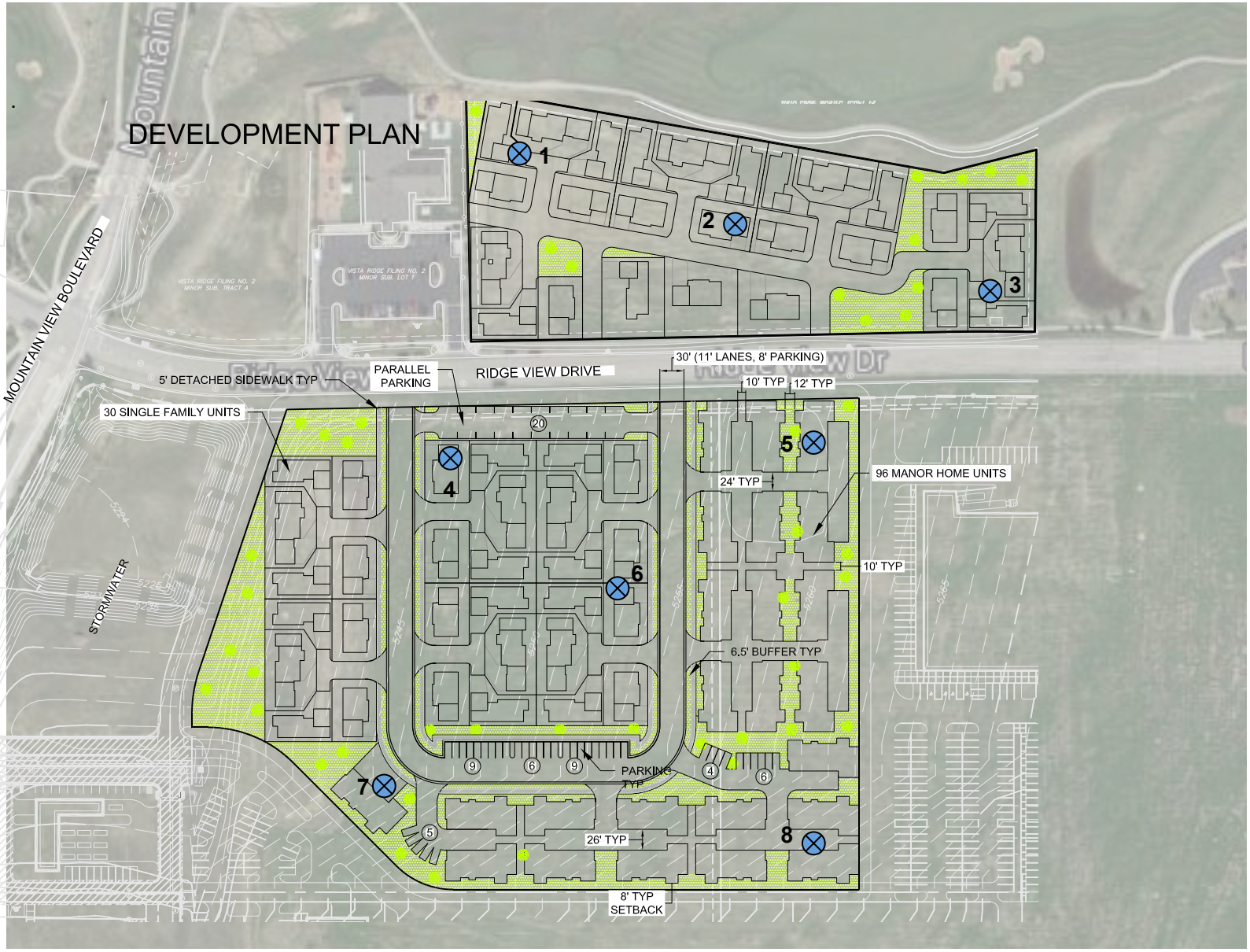
The analysis and recommendations presented in this preliminary report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include, either specifically or by implication, any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This preliminary report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes are planned in the nature, design, or location of the project as outlined in this report, the conclusions and recommendations contained in this report shall not be considered valid unless PCH reviews the changes, and either verifies or modifies the conclusions of this report in writing.

APPENDIX A

BORING LOCATION DIAGRAM
BORING LOGS



1 APPROXIMATE BORING LOCATION

BORING LOCATION DIAGRAM
FAIRWAYS AT VISTA RIDGE
ERIE, COLORADO
PCH PROJECT NO. 12.139.13

Pickering, Cole, & Hivner, LLC
1070 W. 124th Ave., Suite 300
Westminster, CO 80234
(303) 996-2999
PCH

LOG OF BORING NO. 1

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	15-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Vine Laboratories / CME-850 Track Rig	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ None - While Drilling ▽ None - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		FILL - CLAY/CLAYSTONE, olive gray, brown, tan, dry to moist, hard	1		CB	50/11"	11	10.5	120	7.9	0.50
		4.0 ft									
5		**CLAYSTONE BEDROCK**, varies sandy, gray, brown, rust, slightly calcareou, moist, medium hard to very hard	2		CB	49	12	15.7	115		
10			3		CB	50/11"	11	15.3	117	16.9	0.50
15			4		CB	50/10"	10	14.0	114		
20			5		CB	50/8"	8	7.7	128		
25			6		CB	50/5"	5	10.1	125		
30											
35			7		CB	50/4"	4	8.6	121		
40		Boring terminated at about 35 feet									

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).

Transitions between layers is shown for information only, actual transitions may be gradual.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

** Disturbed sample

Pickering, Cole, and Hivner

Geotechnical and Environmental Engineers

Westminster, Colorado – 303.996.2999

LOG OF BORING NO. 2

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	7-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Dakota Driiling / Diedrich D-50	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ None - While Drilling ▽ None - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		LEAN CLAY with SAND, with weathered claystone bedrock fragments with depth, brown, rust, tan, calcareous, moist, very stiff to hard	1	CL	CB	26	12	17.0	112		
5			2	CL	CB	50/6"	6	10.3	127	6.4	0.20
		7.0 ft									
		CLAYSTONE BEDROCK, olive gray, dark gray, brown, rust, moist, very hard									
10			3		CB	50/6"	6	18.2	115	11.5	0.50
15			4		CB	50/6"	6	16.1	110		
20			5		CB	50/5"	5	14.1	104		
25			6		CB	50/6"	6	13.5	119	5.6	2.00
		Boring terminated at 25 feet									
30											
35											
40											

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).
Transitions between layers is shown for information only, actual transitions may be gradual.
This information pertains only to this boring and should not be interpreted as being indicative of the site.
** Disturbed sample

PCH

Pickering, Cole, and Hivner
Geotechnical and Environmental Engineers
Westminster, Colorado – 303.996.2999

LOG OF BORING NO. 3

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	15-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Vine Laboratories / CME-850 Track Rig	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ None - While Drilling ▽ None - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		LEAN CLAY with SAND, to Sandy Lean Clay, light brown, tan, calcareous, dry to moist, very stiff									
5			1	CL	CB	24	12	9.6	103		
		7.0 ft									
		CLAYSTONE BEDROCK, varies sandy, gray, rust, brown, varies calcareous, with trace lignite, moist, medium hard to very hard									
10			2		CB	50	12	10.2	124	6.5	0.50
15			3		CB	50/8"	8	32.0	106	6.3	1.00
20			4		CB	50/11"	11	16.7	115		
25			5		CB	45	12	18.2	113	2.8	2.00
30											
35			6		CB	50/5"	5	10.4	118		
40		Boring terminated at about 35 feet									

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).
Transitions between layers is shown for information only, actual transitions may be gradual.
This information pertains only to this boring and should not be interpreted as being indicative of the site.
** Disturbed sample

PCH

Pickering, Cole, and Hivner
Geotechnical and Environmental Engineers
Westminster, Colorado – 303.996.2999

LOG OF BORING NO. 4

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	7-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Dakota Driiling / Diedrich D-50	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ 21 ft - 2/7/2014 ▽ 20 ft - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		FILL - SANDY LEAN CLAY, and Claystone/Sandstone fragments, brown, rust, tan, moist, very stiff	1	CL	CB	30	12	13.4	118	0.4	0.50
		4.0 ft									
5		**SANDY LEAN CLAY,** brown, rust, tan, calcareous, moist, hard	2	CL	CB	45	12	11.6	125	6.5	0.50
10		10.0 ft	3	CL	CB	50/11"	11	7.5	123		
		CLAYSTONE/SANDSTONE BEDROCK, interbedded, gray, rust, brown, tan, varies calcareous, moist to wet, medium hard to very hard									
15			4		CB	49	12	10.5	126	0.7	1.00
20 ▽			5		CB	50/6"	6	13.6	105		
25			6		CB	25/0"	0				
30											
35			7		CB	50	12	20.0	109		
40		Boring terminated at about 35 feet									

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).

Transitions between layers is shown for information only, actual transitions may be gradual.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

** Disturbed sample

Pickering, Cole, and Hivner

Geotechnical and Environmental Engineers

Westminster, Colorado – 303.996.2999

LOG OF BORING NO. 5

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	7-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Dakota Driiling / Diedrich D-50	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ None - While Drilling ▽ None - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		SANDY LEAN CLAY, to Lean Clay with Sand, brown, tan, calcareous, dry to moist, hard	1	CL	CB	50/11"	11	11.9	119		
5			2	CL	CB	50/8"	8	6.6	105	-4.1	0.50
		9.0 ft									
10		**CLAYSTONE BEDROCK**, gray, dark gray, rust, brown, moist, hard to very hard	3		CB	50/8"	8	15.1	116	11.0	0.50
15			4		CB	50/7"	7	15.9	110		
20			5		CB	50/5"	5	14.9	118	3.9	2.00
25			6		CB	50/5"	5	15.8	110		
30		Boring terminated at about 25 feet									
35											
40											

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).

Transitions between layers is shown for information only, actual transitions may be gradual.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

** Disturbed sample

PCH

Pickering, Cole, and Hivner

Geotechnical and Environmental Engineers

Westminster, Colorado – 303.996.2999

LOG OF BORING NO. 6

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	7-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Dakota Driiling / Diedrich D-50	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ None - While Drilling ▽ None - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		SANDY LEAN CLAY, brown, rust, tan, calcareous, moist, very stiff	1	CL	CB	25	12	16.6	113	2.6	0.20
5		5.0 ft									
		CLAYSTONE/SANDSTONE BEDROCK, interbedded, tan, reddish brown, grey, moist, medium hard to very hard	2		CB	49	12	7.0	123		
10			3		CB	50/6"	6	5.9	111		
15			4		CB	50/2"	2	5.1	111		
20			5		CB	50/6"	6	3.5	112		
25			6		CB	50/10"	10				
30		Boring terminated at about 25 feet									
35											
40											

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).

Transitions between layers is shown for information only, actual transitions may be gradual.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

** Disturbed sample

PCH

Pickering, Cole, and Hivner

Geotechnical and Environmental Engineers

Westminster, Colorado – 303.996.2999

LOG OF BORING NO. 7

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	7-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Dakota Driiling / Diedrich D-50	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ None - While Drilling ▽ None - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		SANDY LEAN CLAY, brown, rust, tan, calcareous, moist, hard									
5			1	CL	CB	50/10"	10	9.7	117	6.1	0.50
		7.0 ft									
		CLAYSTONE BEDROCK, with interbedded Sandstone, gray, rust, brown, moist, medium hard to very hard									
10			2		CB	43	12	19.0	114	8.4	0.50
15			3		CB	50/10"	12	11.8	123	5.7	1.00
20			4		CB	50/7"	7	11.6	124		
25			5		CB	50/6"	6	10.0	126		
		Boring terminated at about 25 feet									
30											
35											
40											

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).

Transitions between layers is shown for information only, actual transitions may be gradual.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

** Disturbed sample

PCH

Pickering, Cole, and Hivner

Geotechnical and Environmental Engineers

Westminster, Colorado – 303.996.2999

LOG OF BORING NO. 8

PROJECT:	Fairways at Vista Ridge	PROJECT NO.:	12.139.13
CLIENT:	Chartered Development Corporation	DATE:	7-Feb-14
LOCATION:	Erie, Colorado	ELEVATION:	Not Provided
DRILLER / RIG:	Dakota Driiling / Diedrich D-50	LOGGED BY:	G. Ohlsen
DEPTH TO WATER:	▼ None - While Drilling ▽ 19 ft - 2/17/14		

Depth	Soil Graphic	Description	Samples No.	USCS	Type	Blows per foot*	Recovery, in	Moisture Content, %	Dry Density, pcf	Swell or Consol. (-), %	Surcharge, ksf
		Low growth grass and weeds at surface									
		LEAN CLAY with SAND, brown, rust, moist 4.0 ft									
5		**CLAYSTONE BEDROCK**, gray, rust, brown, with trace lignite, moist, medium hard to very hard	1		CB	50/12"	12	15.5	114	12.5	0.50
10			2		CB	50/6"	6	13.5	121	3.1	0.50
15			3		CB	50/10"	10	20.2	109	2.6	1.00
20	▽		4		CB	50/8"	8	16.5	114	2.1	1.00
25			5		CB	48	12	16.0	114	1.9	2.00
30			6		CB	50/8"	8	14.8	113		
35			7		CB	50/5"	5	14.2	108	0.3	2.00
40		Boring terminated at about 35 feet									

* Values represent blows/ft (unless otherwise noted) using sampler indicated. This value may not be indicative of Standard Penetration Test (N-values).
Transitions between layers is shown for information only, actual transitions may be gradual.
This information pertains only to this boring and should not be interpreted as being indicative of the site.
** Disturbed sample

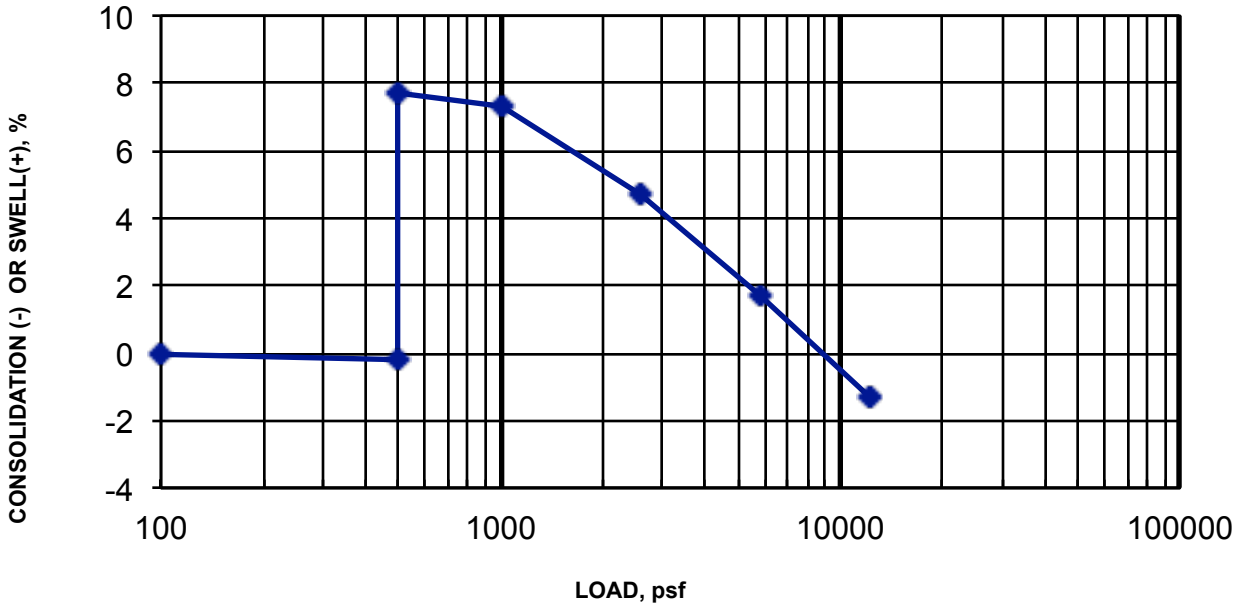
PCH

Pickering, Cole, and Hivner
Geotechnical and Environmental Engineers
Westminster, Colorado – 303.996.2999

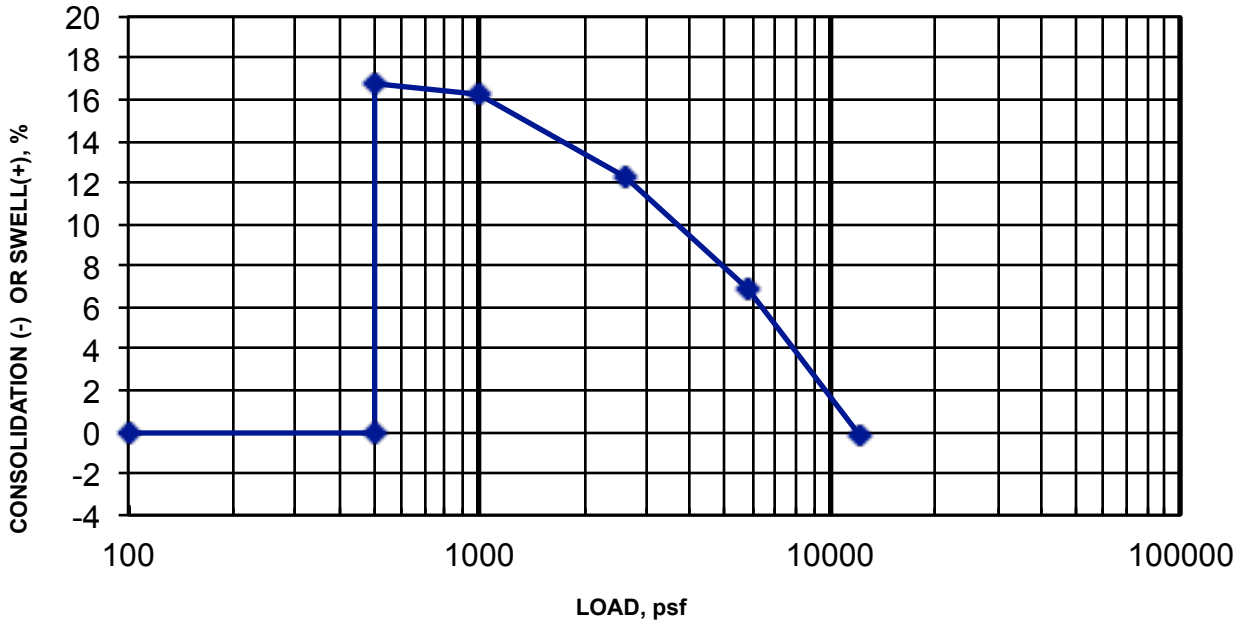
APPENDIX B

LABORATORY TEST RESULTS AND SUMMARY

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 1 at 2 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Fill - Clay/Claystone		
PRE-TEST MOISTURE CONTENT	10.5%	**DRY DENSITY**	120 pcf

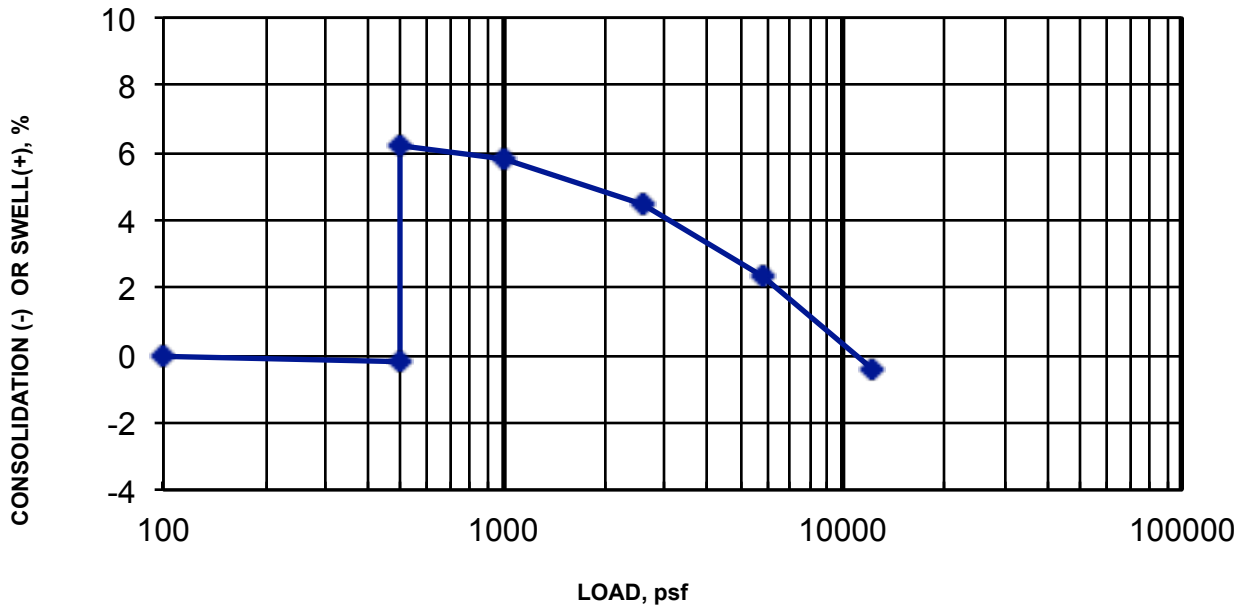


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 1 at 9 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	15.3%	**DRY DENSITY**	117 pcf

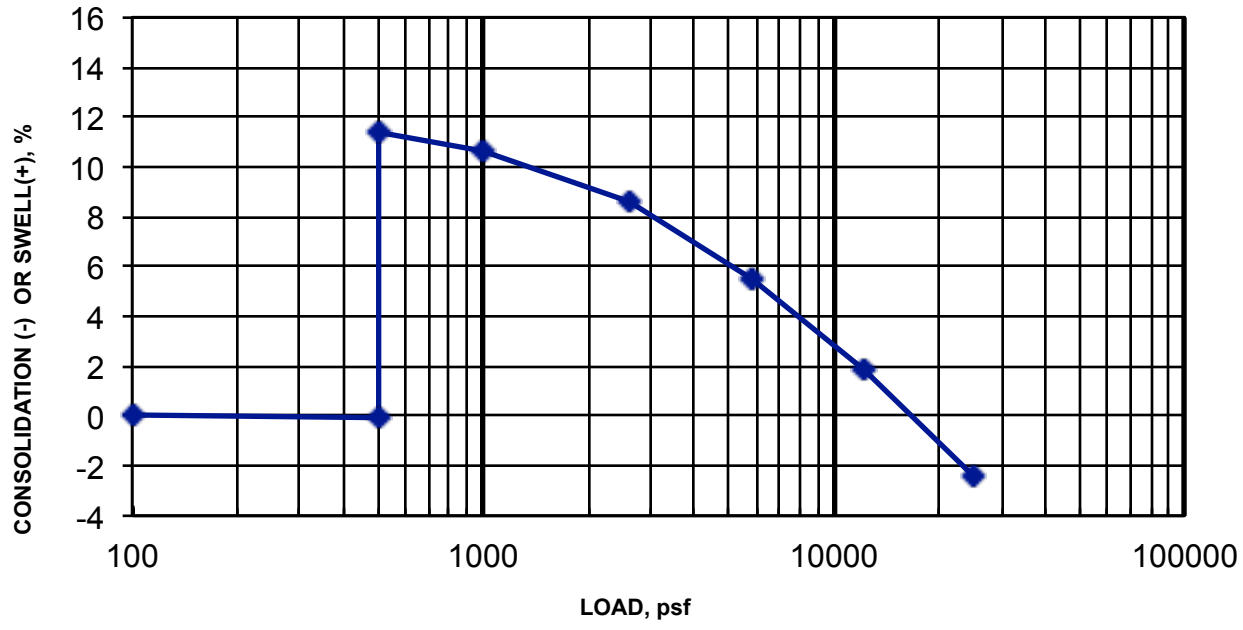
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 2 at 5 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Lean Clay with Sand		
PRE-TEST MOISTURE CONTENT	10.3%	**DRY DENSITY**	127 pcf

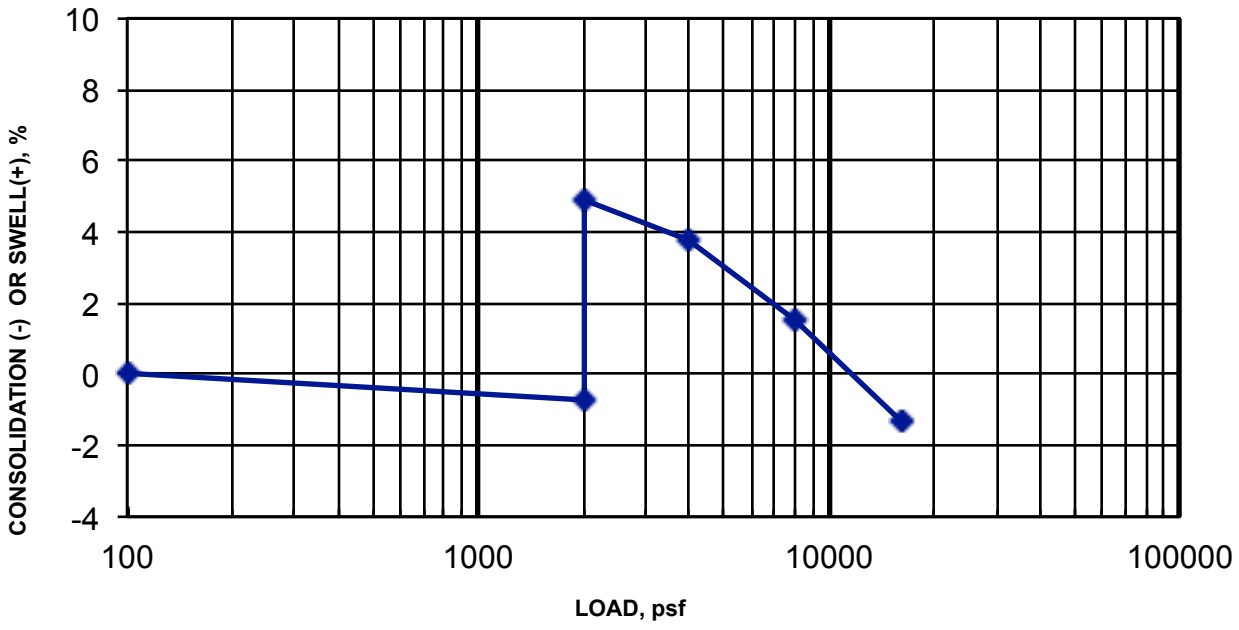


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 2 at 9 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	18.2%	**DRY DENSITY**	115 pcf

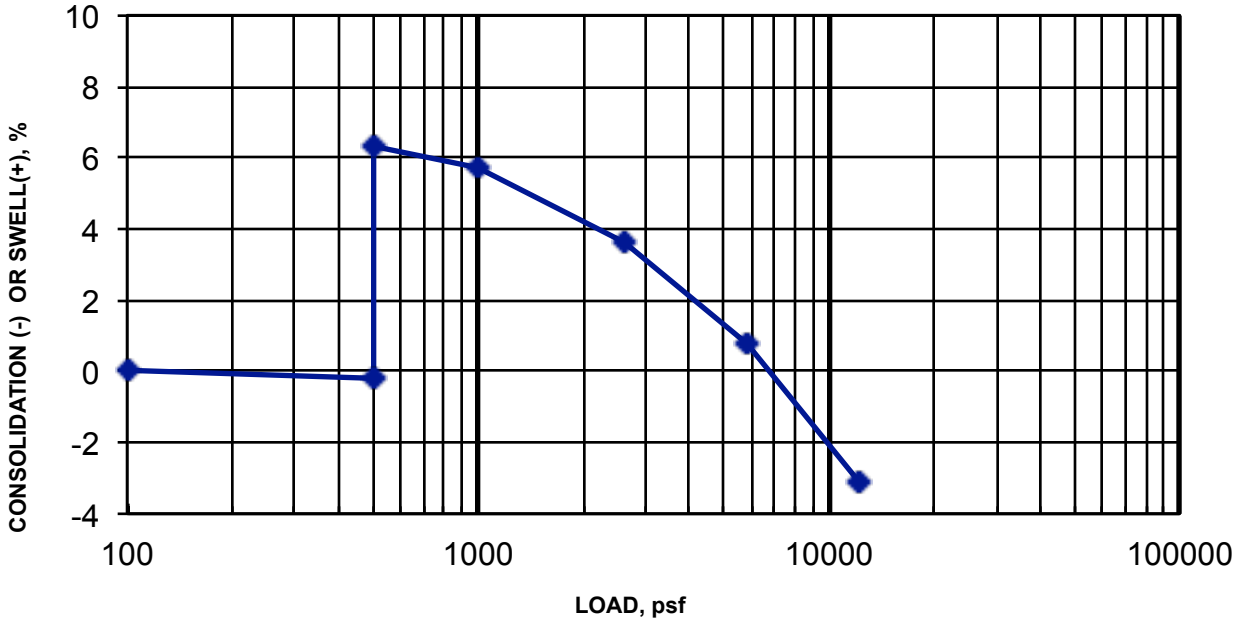
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 2 at 24 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	13.5%	**DRY DENSITY**	119 pcf

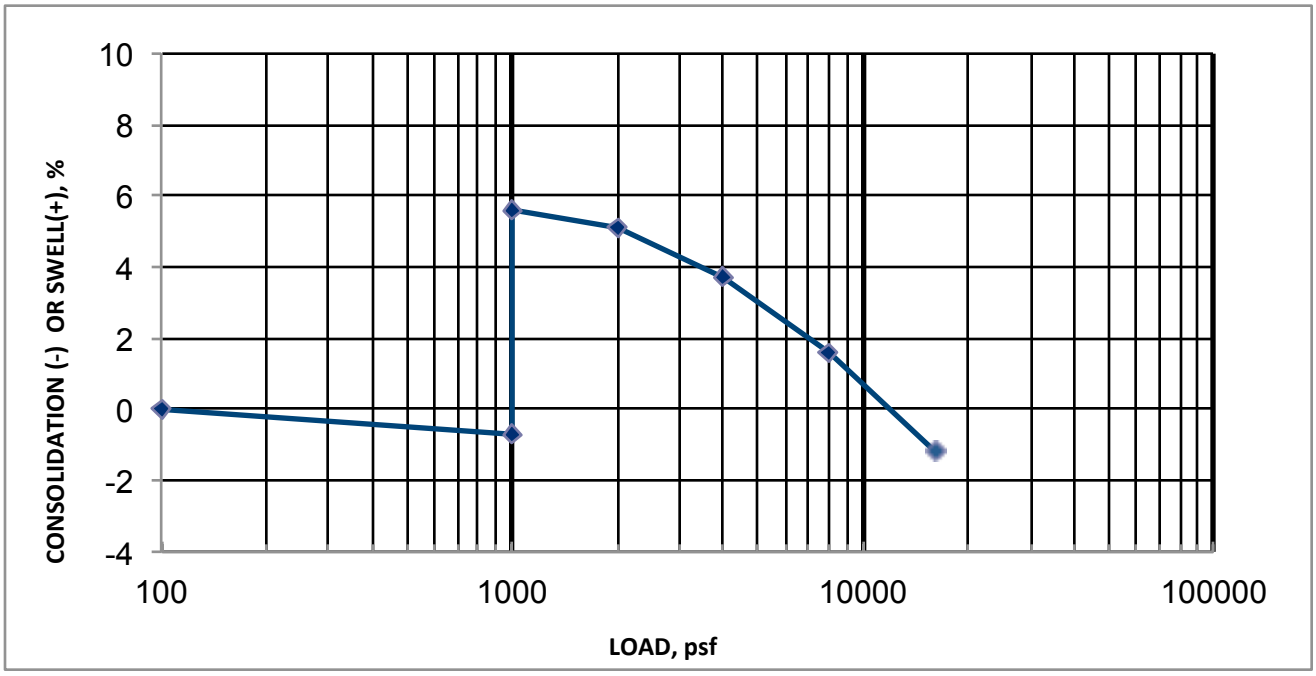


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 3 at 9 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	10.2%	**DRY DENSITY**	124 pcf

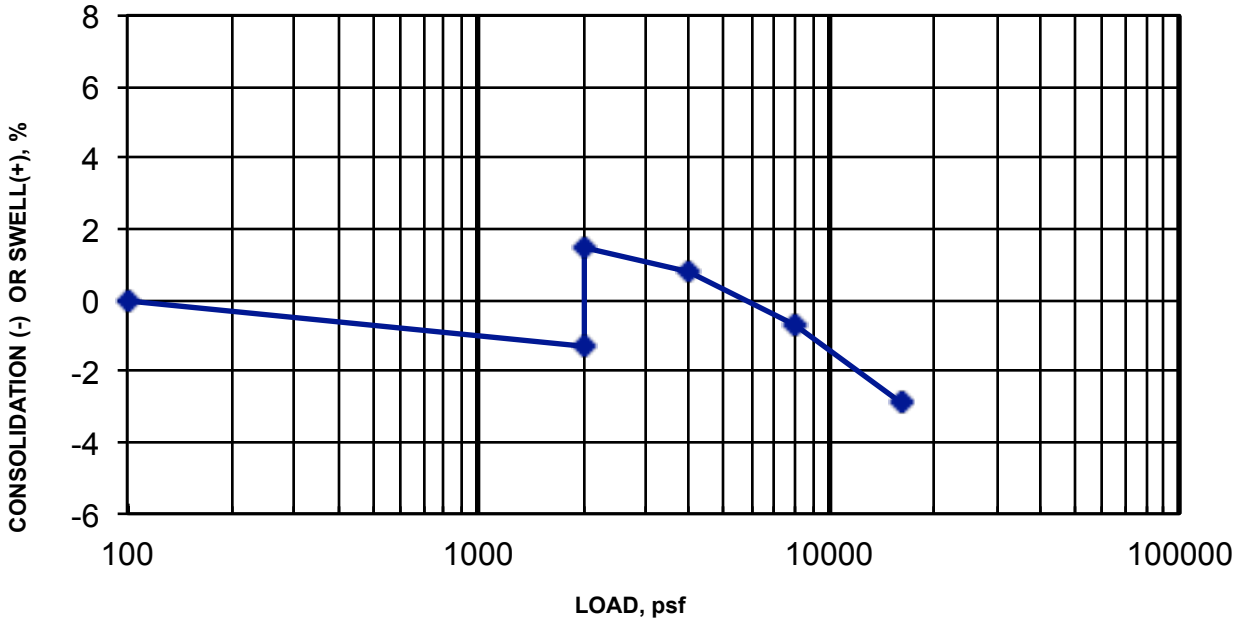
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 3 at 14 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	32.0%	**DRY DENSITY**	106 pcf

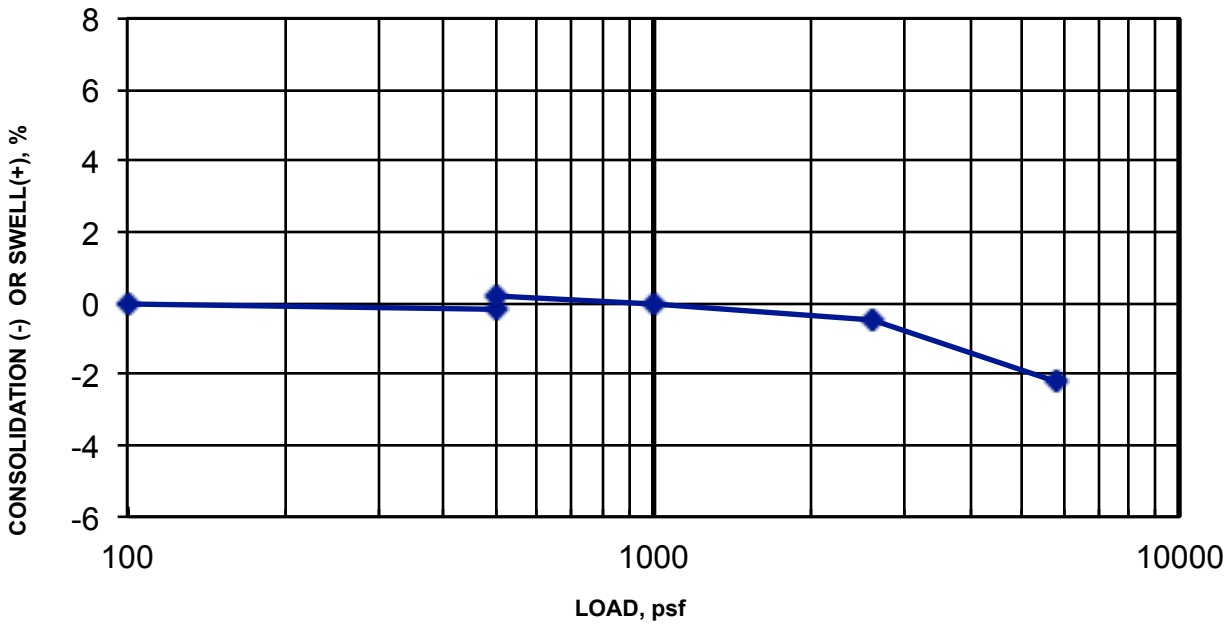


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 3 at 19 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	17.4%	**DRY DENSITY**	113 pcf

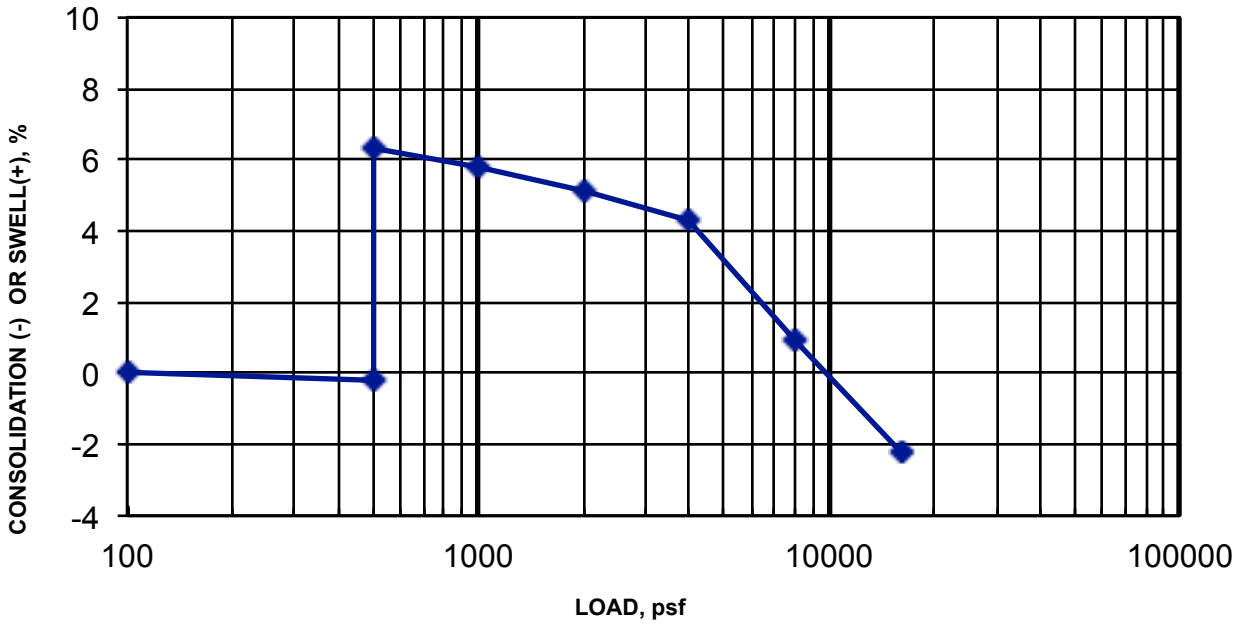
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 4 at 2 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Fill - Sandy Lean Clay		
PRE-TEST MOISTURE CONTENT	13.4%	**DRY DENSITY**	118 pcf

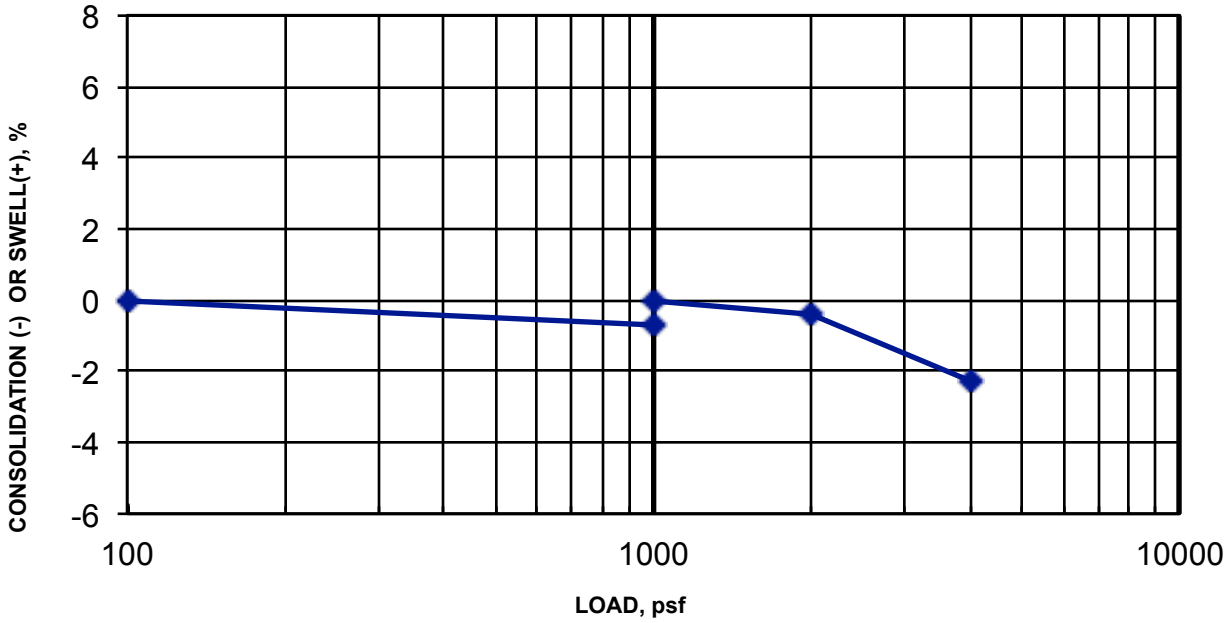


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 4 at 5 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Sandy Lean Clay		
PRE-TEST MOISTURE CONTENT	11.6%	**DRY DENSITY**	125 pcf

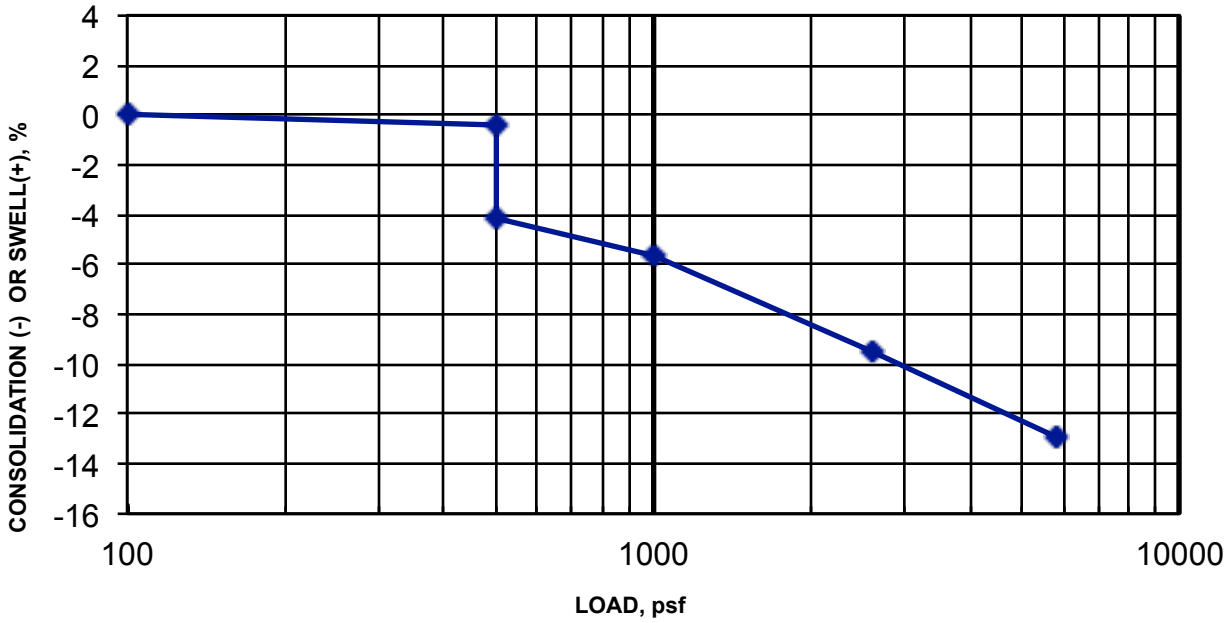
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 4 at 14 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone/Sandstone Bedrock		
PRE-TEST MOISTURE CONTENT	10.5%	**DRY DENSITY**	126 pcf

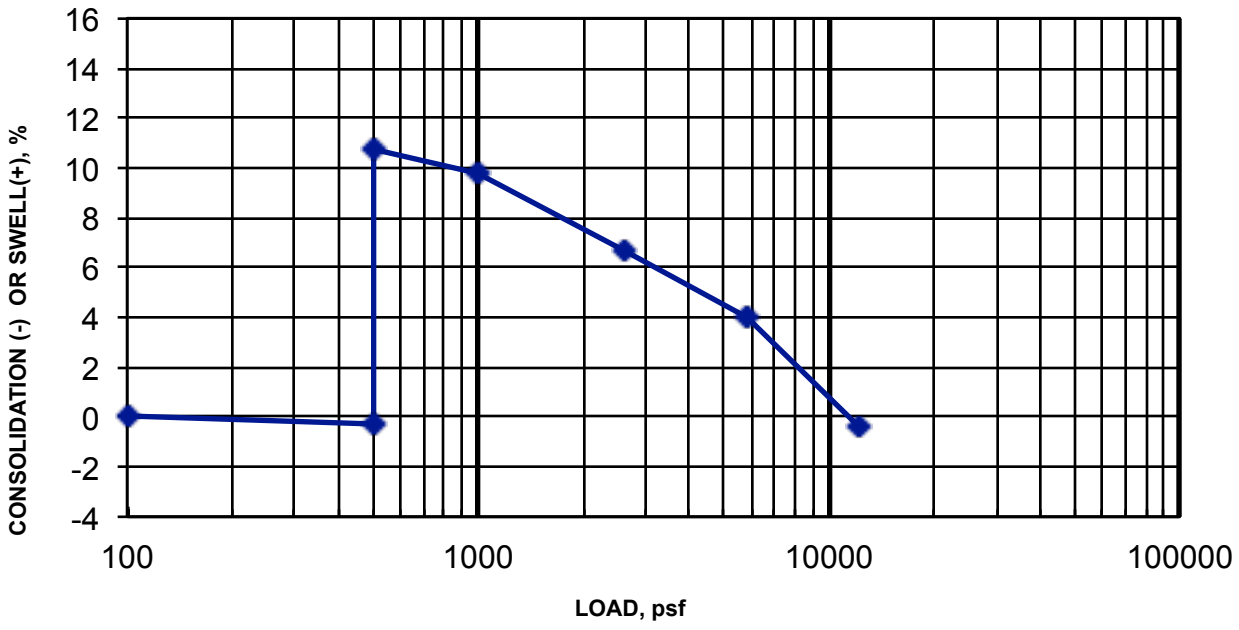


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 5 at 5 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Sandy Lean Clay		
PRE-TEST MOISTURE CONTENT	6.6%	**DRY DENSITY**	105 pcf

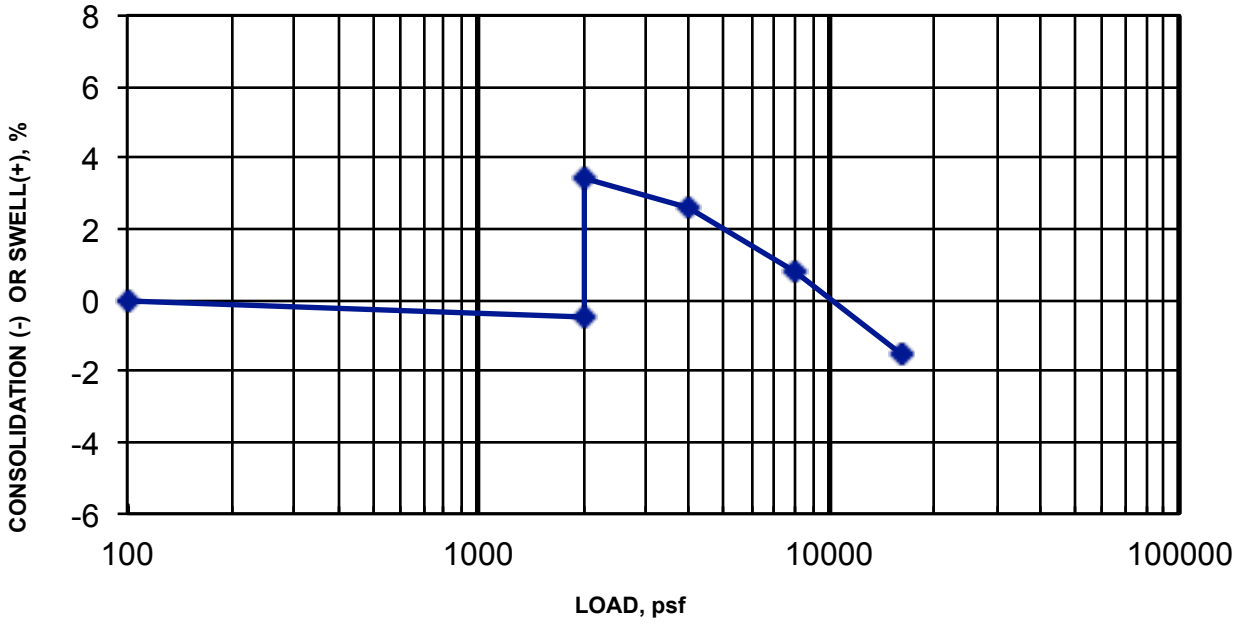
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 5 at 9 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	15.1%	**DRY DENSITY**	116 pcf

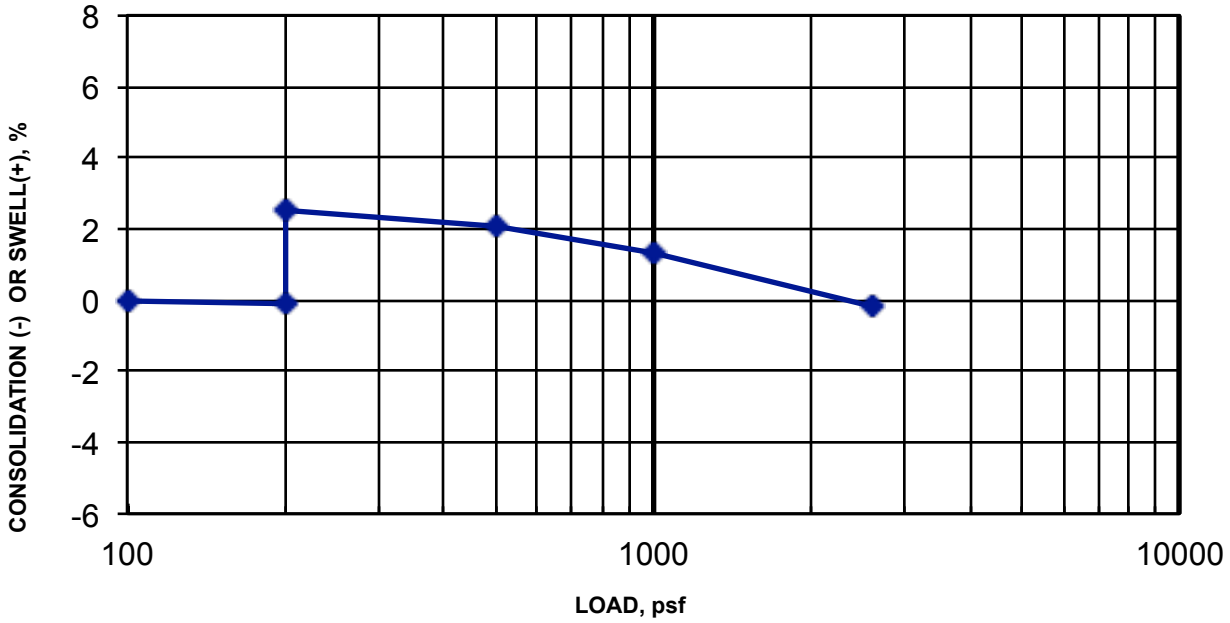


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 5 at 19 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	14.9%	**DRY DENSITY**	118 pcf

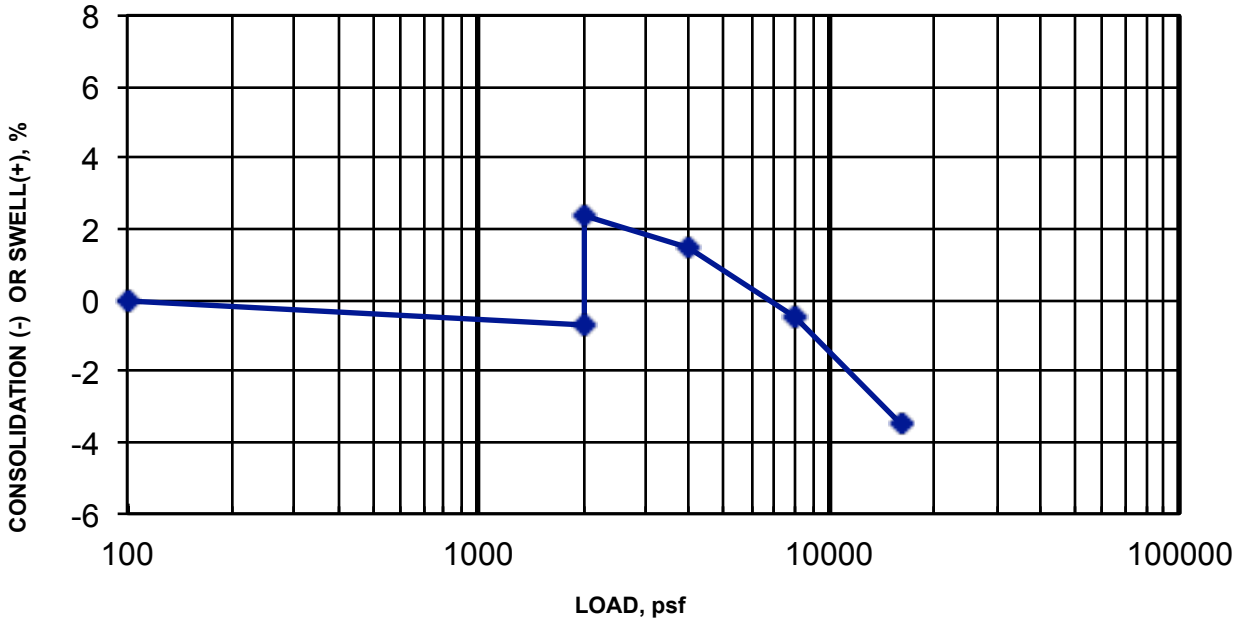
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 6 at 2 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Sandy Lean Clay		
PRE-TEST MOISTURE CONTENT	16.6%	**DRY DENSITY**	113 pcf

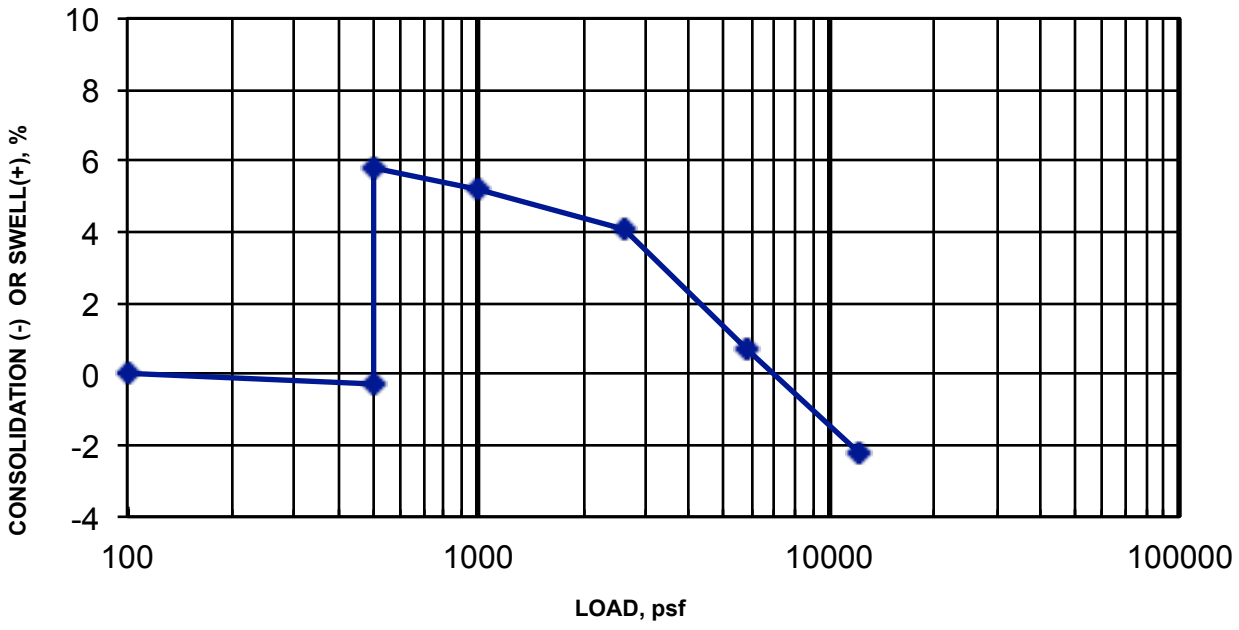


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 6 at 24 ft	**START DATE**	3/3/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	19.4%	**DRY DENSITY**	110 pcf

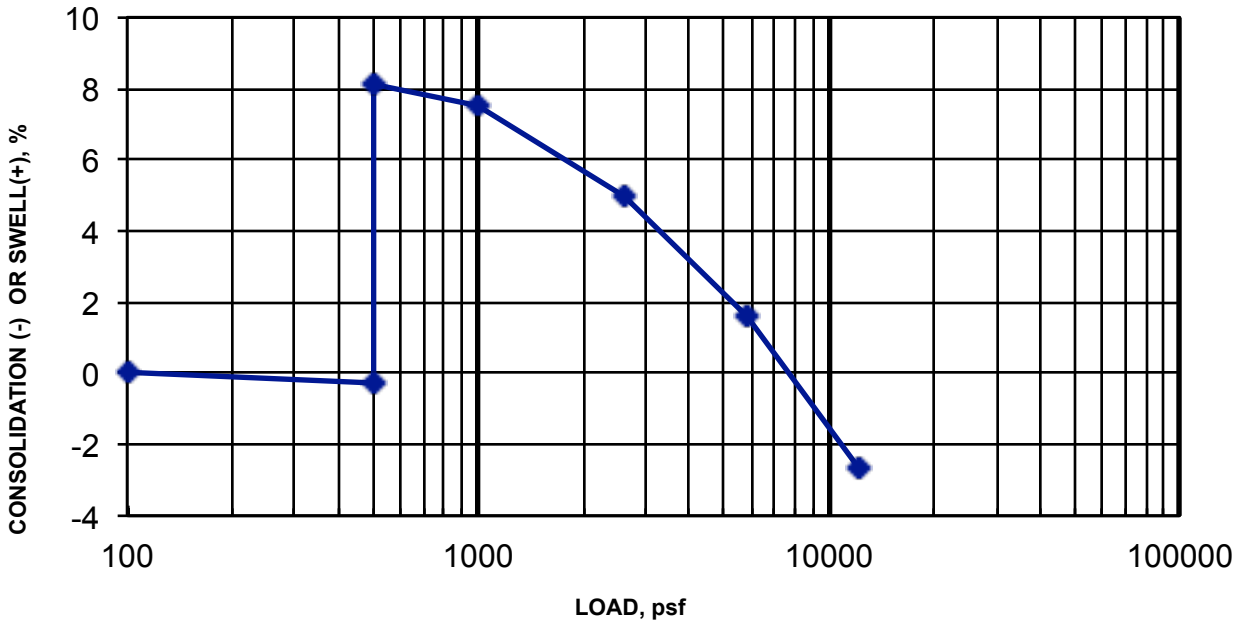
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 7 at 4 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Sandy Lean Clay		
PRE-TEST MOISTURE CONTENT	9.7%	**DRY DENSITY**	117 pcf

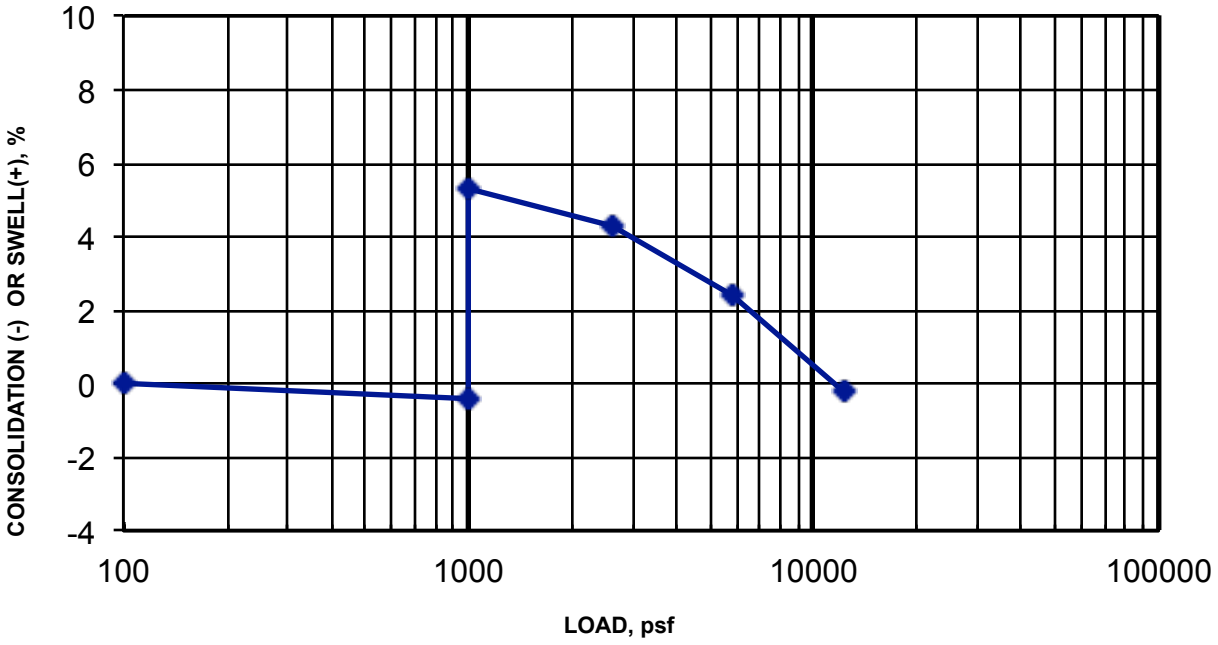


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.14
SAMPLE ID	Boring 7 at 9 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	19.0%	**DRY DENSITY**	114 pcf

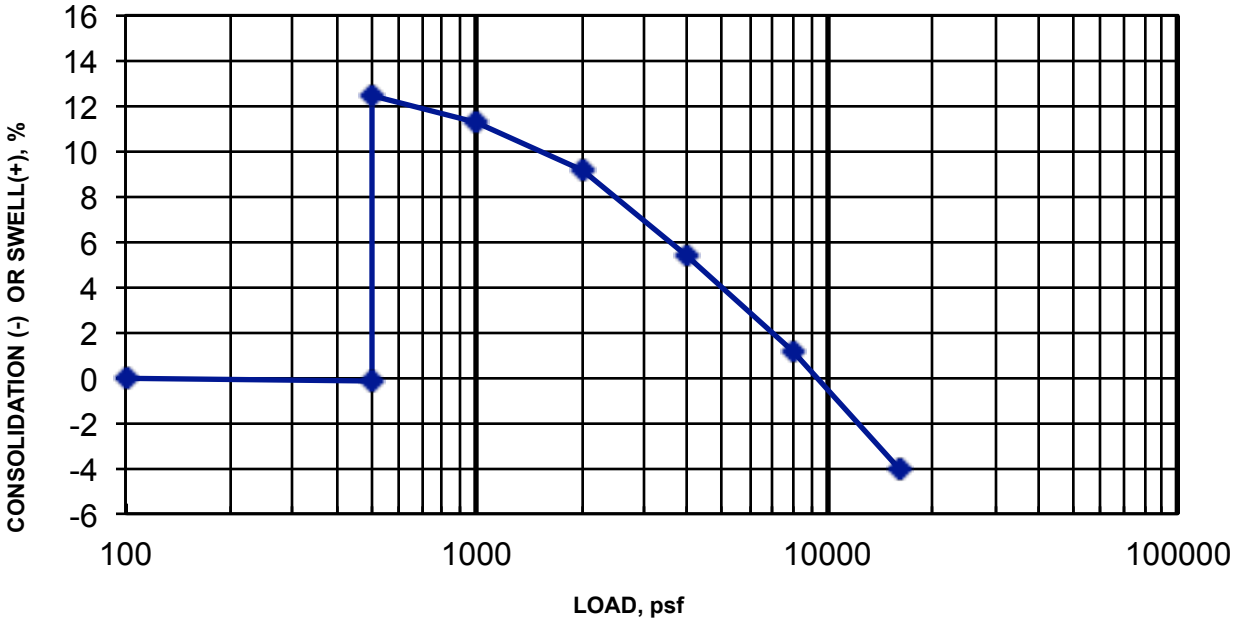
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.14
SAMPLE ID	Boring 7 at 14 ft	**START DATE**	3/3/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	11.8%	**DRY DENSITY**	123 pcf

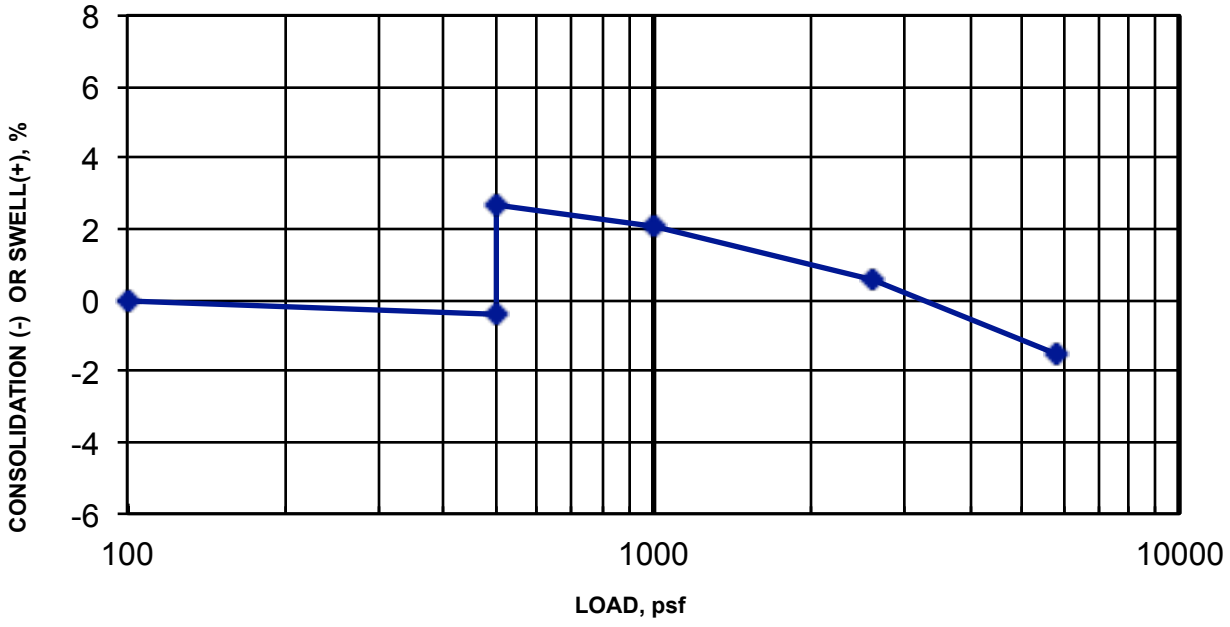


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 8 at 4 ft	**START DATE**	2/25/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	15.5%	**DRY DENSITY**	114 pcf

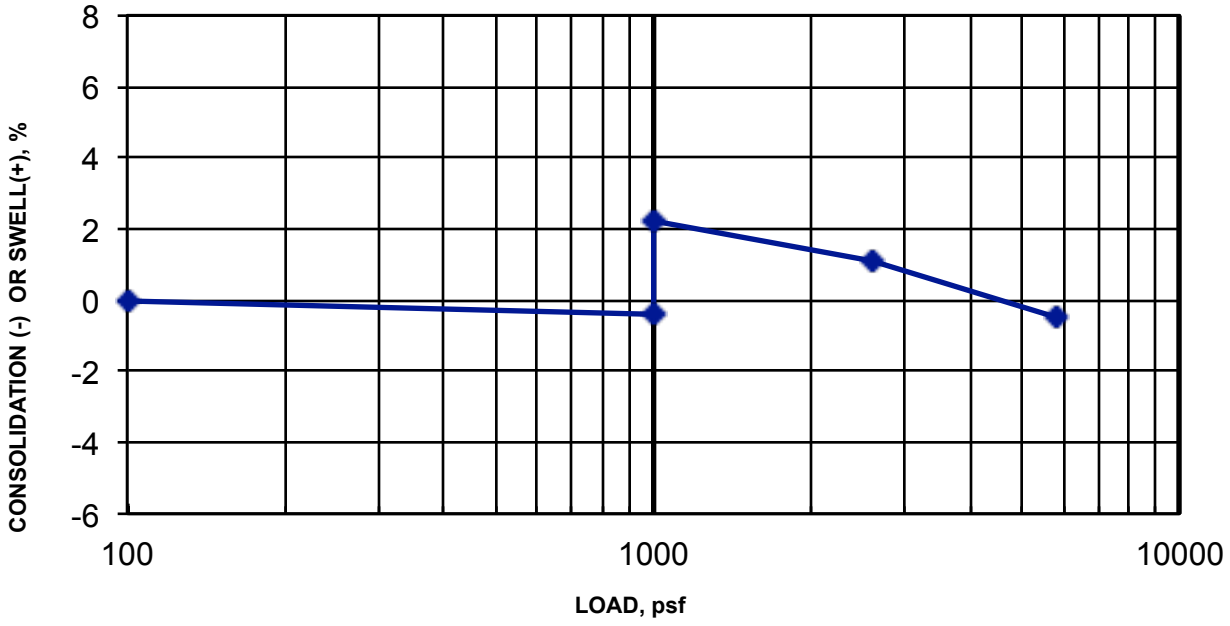
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 8 at 9 ft	**START DATE**	2/27/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	13.5%	**DRY DENSITY**	121 pcf

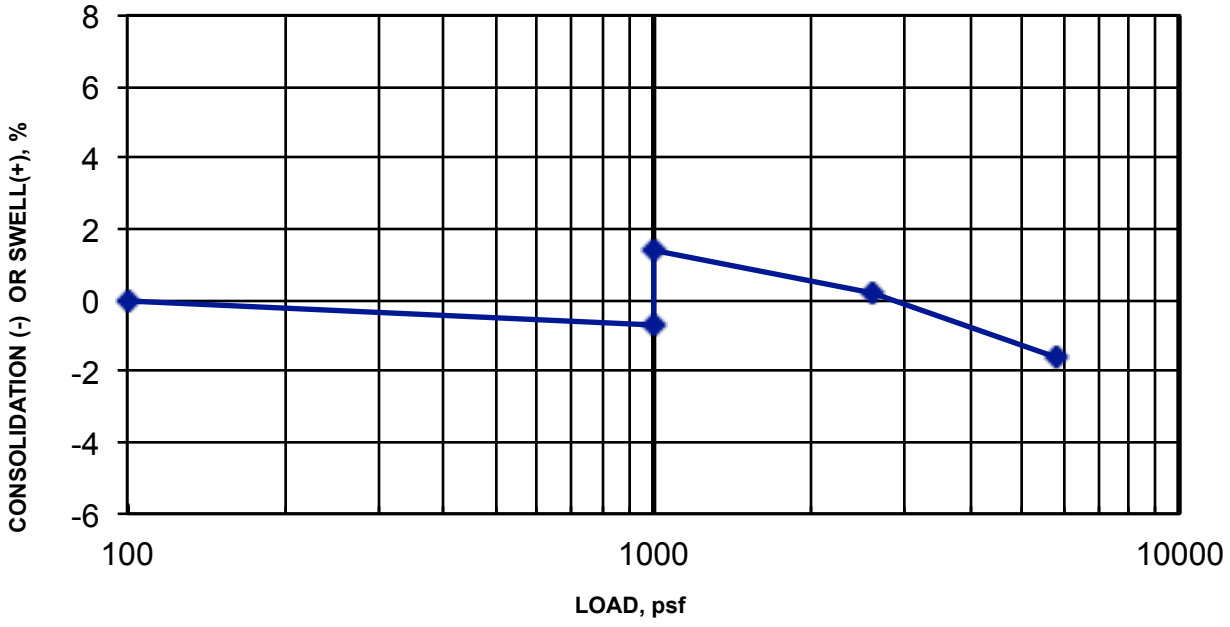


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 8 at 14 ft	**START DATE**	3/3/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	20.2%	**DRY DENSITY**	109 pcf

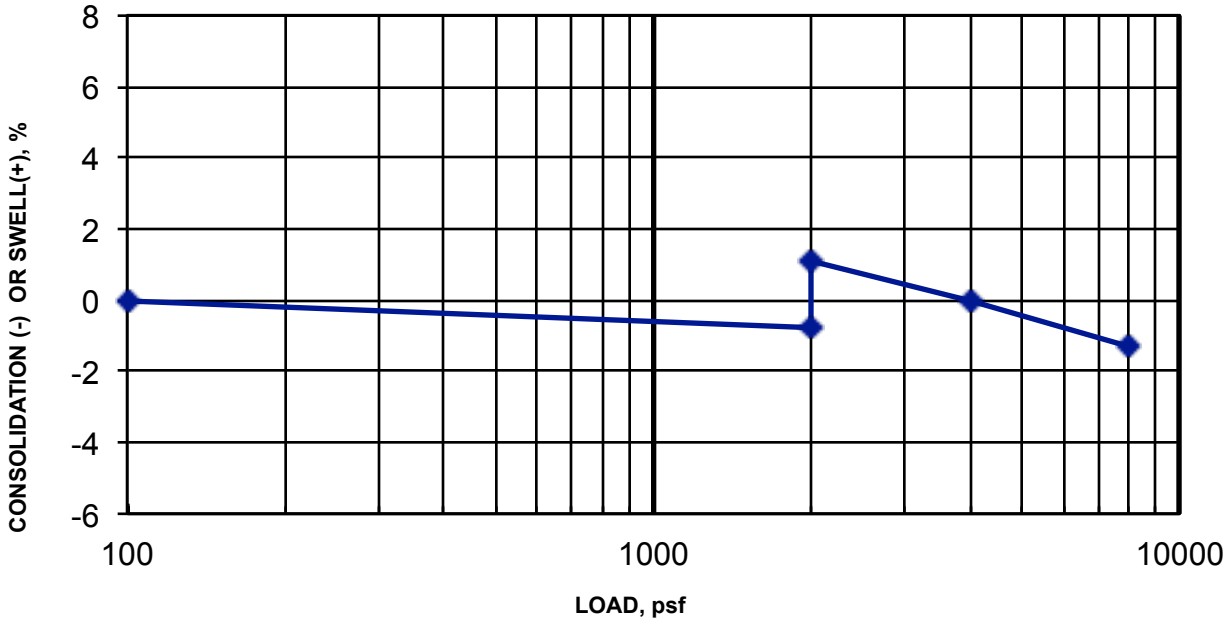
Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.14
SAMPLE ID	Boring 8 at 19 ft	**START DATE**	3/3/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	16.5%	**DRY DENSITY**	114 pcf

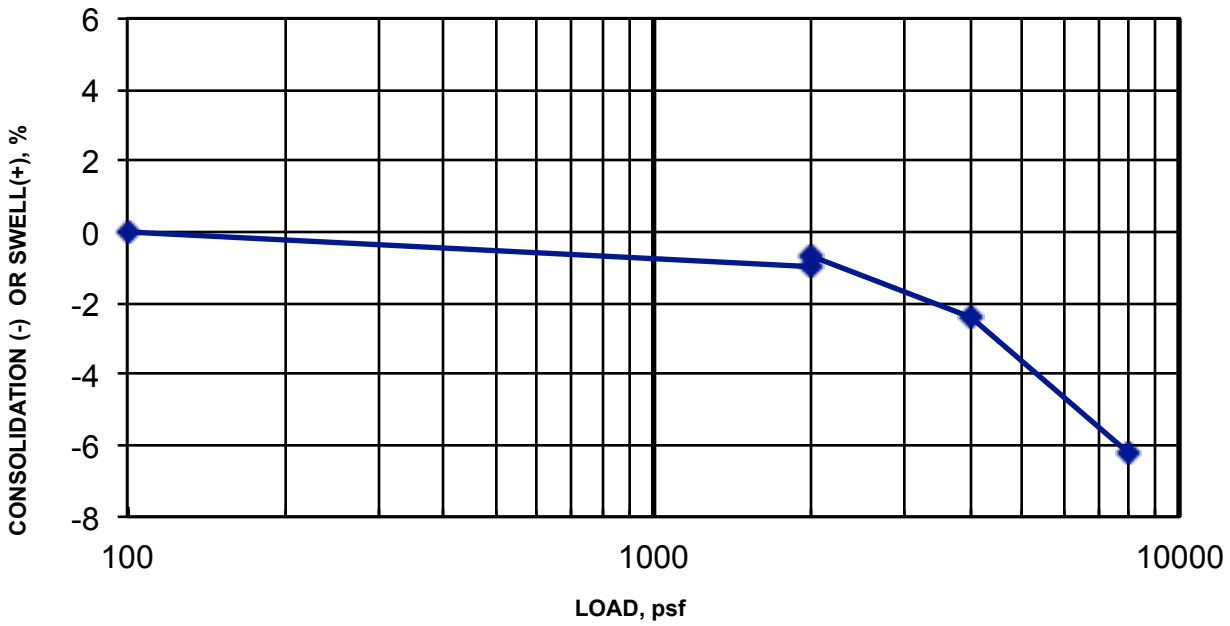


PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.13
SAMPLE ID	Boring 8 at 24 ft	**START DATE**	3/3/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	16.0%	**DRY DENSITY**	114 pcf

Pickering, Cole and Hivner, LLC

1070 W. 124th Ave., Suite 300 • Westminster, Colorado 80234

SWELL/CONSOLIDATION TESTING



PROJECT	Fairways at Vista Ridge	**PROJECT NO.**	12.139.14
SAMPLE ID	Boring 8 at 34 ft	**START DATE**	2/27/14
SAMPLE DESCRIPTION	Claystone Bedrock		
PRE-TEST MOISTURE CONTENT	14.2%	**DRY DENSITY**	108 pcf

Fairways at Vista Ridge
Erie, Colorado
PCH Project No. 12.139.13

SUMMARY OF LABORATORY TEST RESULTS

Boring No.	Depth (ft)	Soil Description	Moisture Content (%)	Dry Density (pcf)	Swell (+) or Consolidation (-) (%)	Surchagre Pressure (psf)	Water Soluble Sulfate (ppm)	Passing #200 Sieve (%)	Atterberg Limits		
									LL	PL	PI
1	2	Fill - Clay/Claystone	10.5%	120	+7.9	500	300				
1	4	Claystone Bedrock	15.7%	115				96	51	17	34
1	9	Claystone Bedrock	15.3%	117	+16.9	500					
1	14	Claystone Bedrock	14.0%	117							
1	19	Claystone Bedrock	7.7%	128							
1	24	Claystone Bedrock	10.1%	125							
1	34	Claystone Bedrock	8.6%	121							
2	2	Lean Clay with Sand	17.0%	112				84	44	18	26
2	5	Lean Clay with Sand	10.3%	127	+6.4	500					
2	9	Claystone Bedrock	18.2%	115	+11.5	500					
2	14	Claystone Bedrock	16.1%	110							
2	19	Claystone Bedrock	14.1%	104							
2	24	Claystone Bedrock	13.5%	119	+5.6	2,000					
3	4	Sandy Lean Clay	9.6%	103							
3	9	Claystone Bedrock	10.2%	124	+6.5	500					
3	14	Claystone Bedrock	32.0%	106	+6.3	1,000					
3	19	Claystone Bedrock	17.4%	113	+2.8	2,000					
3	24	Claystone Bedrock	16.7%	113							
3	34	Claystone Bedrock	10.4%	118							
4	2	Fill - Sandy Lean Clay	13.4%	118	+0.4	500					
4	5	Sandy Lean Clay	11.6%	125	+6.5	500	400				
4	9	Sandy Lean Clay	7.5%	123							
4	14	Claystone/Sandstone Bedrock	10.5%	126	+0.7	1,000					
4	19	Claystone/Sandstone Bedrock	13.6%	105							
4	34	Claystone Bedrock	20.0%	109							

Fairways at Vista Ridge
Erie, Colorado
PCH Project No. 12.139.13

SUMMARY OF LABORATORY TEST RESULTS

Boring No.	Depth (ft)	Soil Description	Moisture Content (%)	Dry Density (pcf)	Swell (+) or Consolidation (-) (%)	Surchagre Pressure (psf)	Water Soluble Sulfate (ppm)	Passing #200 Sieve (%)	Atterberg Limits		
									LL	PL	PI
5	2	Sandy Lean Clay	11.9%	119				70	37	18	19
5	5	Sandy Lean Clay	6.6%	105	-4.1	500					
5	9	Claystone Bedrock	15.1%	116	+11.0	500					
5	14	Claystone Bedrock	15.9%	110							
5	19	Claystone Bedrock	14.9%	118	+3.9	2,000					
5	24	Claystone Bedrock	15.8%	110							
6	2	Sandy Lean Clay	16.6%	113	+2.6	200	300				
6	5	Claystone/Sandstone Bedrock	7.0%	123							
6	9	Claystone/Sandstone Bedrock	5.9%	111				68	39	18	21
6	14	Claystone/Sandstone Bedrock	5.1%	111							
6	19	Claystone/Sandstone Bedrock	3.5%	112							
6	24	Claystone Bedrock	19.4%	111	+3.1	2,000					
7	4	Sandy Lean Clay	9.7%	117	+6.1	500					
7	9	Claystone Bedrock	19.0%	114	+8.4	500		94	52	18	34
7	14	Claystone Bedrock	11.8%	123	+5.7	1,000					
7	19	Claystone Bedrock	11.6%	124							
7	24	Claystone/Sandstone Bedrock	10.0%	126							
8	4	Claystone Bedrock	15.5%	114	+12.5	500	1,600	99	58	19	39
8	9	Claystone Bedrock	13.5%	121	+3.1	500					
8	14	Claystone Bedrock	20.2%	109	+2.6	1,000					
8	19	Claystone Bedrock	16.5%	114	+2.1	1,000					
8	24	Claystone Bedrock	16.0%	114	+1.9	2,000					
8	29	Claystone Bedrock	14.8%	113							
8	34	Claystone Bedrock	14.2%	108	+0.3	2,000					

Fairways at Vista Ridge
Erie, Colorado
PCH Project No. 12.139.13

SUMMARY OF LABORATORY TEST RESULTS

Boring No.	Depth (ft)	Soil Description	Moisture Content (%)	Dry Density (pcf)	Swell (+) or Consolidation (-) (%)	Surchagre Pressure (psf)	Water Soluble Sulfate (ppm)	Passing #200 Sieve (%)	Atterberg Limits		
									LL	PL	PI
Boring No.	**Depth (ft)**	**Soil Description**	**Moisture Content (%)**	**Dry Density (pcf)**	**Swell (+) or Consolidation (-) (%)**	**Surchagre Pressure (psf)**	**(Proctor) Maximum Dry Density (pcf)**	**Optimum Moisture Content (%)**	**Atterberg Limits**		
									LL	**PL**	**PI**
Comp.*	< 20 ft	Remolded Claystone(Borings 1 & 3)	19.8	104.4	+3.1	500	107.7	17.5	45	17	28
Comp.**	< 20 ft	Remolded Claystone(Borings 5, 7 & 8)	18.1	103.2	+4.0	500	108.0	18.0	48	17	31

*Composite sample of claystone bedrock from noted borings - Remolded to approximately 97% of standard Proctor dry density at about 2% above optimum moisture content

**Composite sample of claystone bedrock from noted borings - Remolded to approximately 96% of standard Proctor dry density at about optimum moisture content

APPENDIX C

GENERAL NOTES

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1⅜" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube – 2.5" O.D., unless otherwise noted	PA:	Power Auger
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
CB:	California Barrel - 1.92" I.D., 2.5" O.D., unless otherwise noted	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB:	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value". For 2.5" O.D. California Barrel samplers (CB) the penetration value is reported as the number of blows required to advance the sampler 12 inches using a 140-pound hammer falling 30 inches, reported as "blows per inch," and is not considered equivalent to the "Standard Penetration" or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling
WCI:	Wet Cave in	WD:	While Drilling
DCI:	Dry Cave in	BCR:	Before Casing Removal
AB:	After Boring	ACR:	After Casing Removal

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

FINE-GRAINED SOILS

(CB) Blows/Ft.	(SS) Blows/Ft.	Consistency
< 3	0-2	Very Soft
3-5	3-4	Soft
6-10	5-8	Medium Stiff
11-18	9-15	Stiff
19-36	16-30	Very Stiff
> 36	> 30	Hard

COARSE-GRAINED SOILS

(CB) Blows/Ft.	(SS) Blows/Ft.	Relative Density
0-5	< 3	Very Loose
6-14	4-9	Loose
15-46	10-29	Medium Dense
47-79	30-50	Dense
> 79	> 50	Very Dense

BEDROCK

(CB) Blows/Ft.	(SS) Blows/Ft.	Consistency
< 24	< 20	Weathered
24-35	20-29	Firm
36-60	30-49	Medium Hard
61-96	50-79	Hard
> 96	> 79	Very Hard

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Terms of Other Constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Terms of Other Constituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifiers	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1-10
Medium	11-30
High	30+

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification	
					Group Symbol	Group Name[B]
Coarse Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$[E]		GW	Well graded gravel[F]
			$Cu < 4$ and/or $1 > Cc > 3$[E]		GP	Poorly graded gravel[F]
		Gravels with Fines More than 12% fines[C]	Fines classify as ML or MH		GM	Silty gravel[F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$[E]		SW	Well graded sand[I]
			$Cu < 6$ and/or $1 > Cc > 3$[E]		SP	Poorly graded sand[I]
		Sands with Fines More than 12% fines[D]	Fines classify as ML or MH		SM	Silty sand[G,H,I]
			Fines classify as CL or CH		SC	Clayey sand[G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line[J]		CL	Lean clay[K,L,M]
			PI < 4 or plots below "A" line[J]		ML	Silt[K,L,M]
		Organic	**Liquid limit - oven dried**	< 0.75	OL	Organic clay[K,L,M,N]
			Liquid limit - not dried			Organic silt[K,L,M,O]
	Silts and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line		CH	Fat clay[K,L,M]
			PI plots below "A" line		MH	Elastic silt[K,L,M]
		Organic	Liquid limit - oven dried	< 0.75	OH	Organic clay[K,L,M,P]
			Liquid limit - not dried			Organic silt[K,L,M,Q]
Highly organic soils	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well graded gravel with silt, GW-GC well graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well graded sand with silt, SW-SC well graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

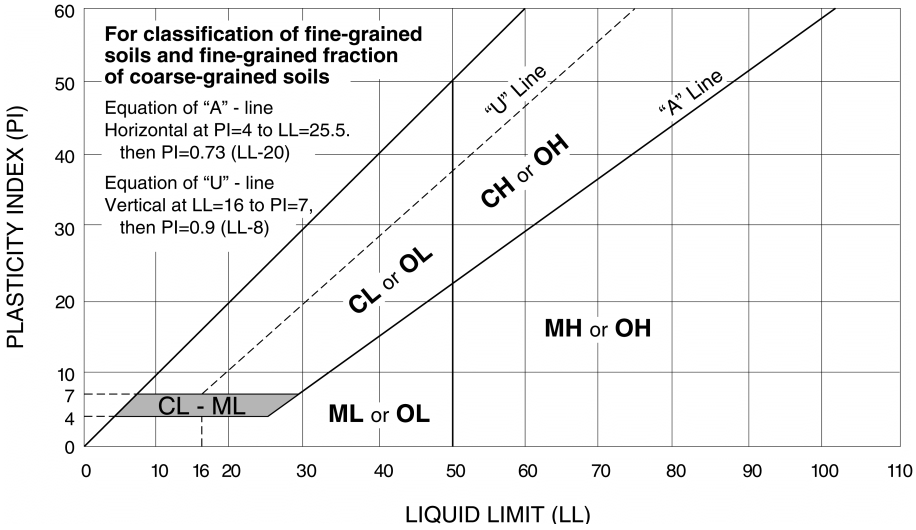
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



ROCK CLASSIFICATION
(Based on ASTM C-294)

Sedimentary Rocks

Sedimentary rocks are stratified materials laid down by water or wind. The sediments may be composed of particles or pre-existing rocks derived by mechanical weathering, evaporation or by chemical or organic origin. The sediments are usually indurated by cementation or compaction.

Chert Very fine-grained siliceous rock composed of micro-crystalline or cyrptocrystalline quartz, chalcedony or opal. Chert is various colored, porous to dense, hard and has a conchoidal to splintery fracture.

Claystone Fine-grained rock composed of or derived by erosion of silts and clays or any rock containing clay. Soft massive and may contain carbonate minerals.

Conglomerate Rock consisting of a considerable amount of rounded gravel, sand and cobbles with or without interstitial or cementing material. The cementing or interstitial material may be quartz, opal, calcite, dolomite, clay, iron oxides or other materials.

Dolomite A fine-grained carbonate rock consisting of the mineral dolomite [$CaMg(CO_3)_2$]. May contain noncarbonate impurities such as quartz, chert, clay minerals, organic matter, gypsum and sulfides. Reacts with hydrochloric acid (HCL).

Limestone A fine-grained carbonate rock consisting of the mineral calcite ($CaCO_3$). May contain noncarbonate impurities such as quartz, chert, clay minerals, organic matter, gypsum and sulfides. Reacts with hydrochloric acid (HCL).

Sandstone Rock consisting of particles of sand with or without interstitial and cementing materials. The cementing or interstitial material may be quartz, opal, calcite, dolomite, clay, iron oxides or other material.

Shale Fine-grained rock composed of or derived by erosion of silts and clays or any rock containing clay. Shale is hard, platy, of fissile may be gray, black, reddish or green and may contain some carbonate minerals (calcareous shale).

Siltstone Fine grained rock composed of or derived by erosion of silts or rock containing silt. Siltstones consist predominantly of silt sized particles (0.0625 to 0.002 mm in diameter) and are intermediate rocks between claystones and sandstones and may contain carbonate minerals.

LABORATORY TEST
SIGNIFICANCE AND PURPOSE

TEST	SIGNIFICANCE	PURPOSE
California Bearing Ratio	Used to evaluate the potential strength of subgrade soil, subbase, and base course material, including recycled materials for use in road and airfield pavements.	***Pavement Thickness Design***
Consolidation	Used to develop an estimate of both the rate and amount of both differential and total settlement of a structure.	***Foundation Design***
Direct Shear	Used to determine the consolidated drained shear strength of soil or rock.	***Bearing Capacity, Foundation Design, and Slope Stability***
Dry Density	Used to determine the in-place density of natural, inorganic, fine-grained soils.	***Index Property Soil Behavior***
Expansion	Used to measure the expansive potential of fine-grained soil and to provide a basis for swell potential classification.	***Foundation and Slab Design***
Gradation	Used for the quantitative determination of the distribution of particle sizes in soil.	***Soil Classification***
Liquid & Plastic Limit, Plasticity Index	Used as an integral part of engineering classification systems to characterize the fine-grained fraction of soils, and to specify the fine-grained fraction of construction materials.	***Soil Classification***
Permeability	Used to determine the capacity of soil or rock to conduct a liquid or gas.	***Groundwater Flow Analysis***
pH	Used to determine the degree of acidity or alkalinity of a soil.	***Corrosion Potential***
Resistivity	Used to indicate the relative ability of a soil medium to carry electrical currents.	***Corrosion Potential***
R-Value	Used to evaluate the potential strength of subgrade soil, subbase, and base course material, including recycled materials for use in road and airfield pavements.	***Pavement Thickness Design***
Soluble Sulfate	Used to determine the quantitative amount of soluble sulfates within a soil mass.	***Corrosion Potential***
Unconfined Compression	To obtain the approximate compressive strength of soils that possess sufficient cohesion to permit testing in the unconfined state.	***Bearing Capacity Analysis for Foundations***
Water Content	Used to determine the quantitative amount of water in a soil mass.	***Index Property Soil Behavior***

REPORT TERMINOLOGY
(Based on ASTM D653)

Allowable Soil Bearing Capacity	The recommended maximum contact stress developed at the interface of the foundation element and the supporting material.
Alluvium	Soil, the constituents of which have been transported in suspension by flowing water and subsequently deposited by sedimentation.
Aggregate Base Course	A layer of specified material placed on a subgrade or subbase usually beneath slabs or pavements.
Backfill	A specified material placed and compacted in a confined area.
Bedrock	A natural aggregate of mineral grains connected by strong and permanent cohesive forces. Usually requires drilling, wedging, blasting or other methods of extraordinary force for excavation.
Bench	A horizontal surface in a sloped deposit.
Caisson (Drilled Pier or Shaft)	A concrete foundation element cast in a circular excavation which may have an enlarged base. Sometimes referred to as a cast-in-place pier or drilled shaft.
Coefficient of Friction	A constant proportionality factor relating normal stress and the corresponding shear stress at which sliding starts between the two surfaces.
Colluvium	Soil, the constituents of which have been deposited chiefly by gravity such as at the foot of a slope or cliff.
Compaction	The densification of a soil by means of mechanical manipulation
Concrete Slab-on-Grade	A concrete surface layer cast directly upon a base, subbase or subgrade, and typically used as a floor system.
Differential Movement	Unequal settlement or heave between, or within foundation elements of structure.
Earth Pressure	The pressure exerted by soil on any boundary such as a foundation wall.
ESAL	Equivalent Single Axle Load, a criteria used to convert traffic to a uniform standard, (18,000 pound axle loads).
Engineered Fill	Specified material placed and compacted to specified density and/or moisture conditions under observations of a representative of a geotechnical engineer.
Equivalent Fluid	A hypothetical fluid having a unit weight such that it will produce a pressure against a lateral support presumed to be equivalent to that produced by the actual soil. This simplified approach is valid only when deformation conditions are such that the pressure increases linearly with depth and the wall friction is neglected.
Existing Fill (or Man-Made Fill)	Materials deposited throughout the action of man prior to exploration of the site.
Existing Grade	The ground surface at the time of field exploration.

REPORT TERMINOLOGY
(Based on ASTM D653)

Expansive Potential	The potential of a soil to expand (increase in volume) due to absorption of moisture.
Finished Grade	The final grade created as a part of the project.
Footing	A portion of the foundation of a structure that transmits loads directly to the soil.
Foundation	The lower part of a structure that transmits the loads to the soil or bedrock.
Frost Depth	The depth at which the ground becomes frozen during the winter season.
Grade Beam	A foundation element or wall, typically constructed of reinforced concrete, used to span between other foundation elements such as drilled piers.
Groundwater	Subsurface water found in the zone of saturation of soils or within fractures in bedrock.
Heave	Upward movement.
Lithologic	The characteristics which describe the composition and texture of soil and rock by observation.
Native Grade	The naturally occurring ground surface.
Native Soil	Naturally occurring on-site soil, sometimes referred to as natural soil.
Optimum Moisture Content	The water content at which a soil can be compacted to a maximum dry unit weight by a given compactive effort.
Perched Water	Groundwater, usually of limited area maintained above a normal water elevation by the presence of an intervening relatively impervious continuous stratum.
Scarify	To mechanically loosen soil or break down existing soil structure.
Settlement	Downward movement.
Skin Friction (Side Shear)	The frictional resistance developed between soil and an element of the structure such as a drilled pier.
Soil (Earth)	Sediments or other unconsolidated accumulations of solid particles produced by the physical and chemical disintegration of rocks, and which may or may not contain organic matter.
Strain	The change in length per unit of length in a given direction.
Stress	The force per unit area acting within a soil mass.
Strip	To remove from present location.
Subbase	A layer of specified material in a pavement system between the subgrade and base course.
Subgrade	The soil prepared and compacted to support a structure, slab or pavement system.

LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com

October 30, 2014

Chartered Development Corporation
c/o Ward Ritter
3160 Village Vista Drive, Suite 104
Erie, CO 80516

Re: Montex North and South
Vista Ridge Zones 15 and 16
Trip Generation Comparison
Erie, CO
(LSC #140970)

Dear Mr. Ritter:

Per your request, we have completed this letter for Zone 16 of the Vista Ridge development in Erie, Colorado. The purpose of this letter is to compare trip generation from the currently proposed land use with the trip generation from the previously studied land use from the December, 2000 *Vista Ridge Traffic Impact Analysis* (TIA) by LSC and a recent trip generation comparison by LSC in September, 2013.

The currently proposed plan for the Vista Ridge development maintains the shopping center area at about 340,000 square feet. The residential development on the south portion will be reduced from 200 apartment units to 144 apartment units and one single-family detached unit. The northern portion will include 26 single-family detached, age-targeted dwelling units. The northern portion is actually in Zone 15, but was included in this analysis to show the entire site currently being proposed has a lower trip generation potential than the 200 apartment units previously assumed in Zone 16.

Table 1 shows the estimated trip generation potential from the 2000 LSC analysis (6th edition of the ITE *Trip Generation Manual*, 1997), for the trip generation comparison completed in September, 2013, and for the currently proposed land use based on the trip generation rates from the 9th edition of the ITE *Trip Generation Manual*, 2012.

Table 1 shows the currently proposed change in land use is expected to generate about 818 fewer weekday trips, about 63 fewer morning peak-hour trips, and about 155 fewer afternoon peak-hour trips than the original study. The findings in the December, 2000 *Vista Ridge TIA* are still applicable.

* * * * *

We trust this information will assist you in planning for the Montex North and South development.

Respectfully submitted,

LSC Transportation Consultants, Inc.

By:_____
Christopher S. McGranahan, P.E., PTOE

CSM/wc

10-30-14

Enclosures: Table 1

Z:\LSC\Projects\2014\140970-Montex\Report\Montex-103014.wpd

Tab e 1
TI AT D TRAFFIC RATIO
onte ort and out
rie, CO
C o 140 0 October 2014

Traffic Analysis Zone [2]	Land Use Description	Assumed Trip Generation Units		Generation Rates [1] Average Weekday Traffic	Peak-Hour AM In	Peak-Hour AM Out	Peak-Hour PM In	Peak-Hour PM Out	Percent External Traffic	External Trips Generated Average Weekday Traffic	Peak-Hour AM In	Peak-Hour AM Out	Peak-Hour PM In	Peak-Hour PM Out
and se and Trip eneration Appro ed ased on ista Ridge TIA, Dece ber 2000 by C														
16	Office [3]	83	KSF [4]	11.01	1.37	0.19	0.25	1.24	90%	822	103	14	19	92
	Commercial [5]	392	KSF	41.84	0.56	0.36	1.89	2.05	75%	12,316	165	106	557	604
	Tota one 1								**Tota**	**1 ,1**	**2**	**120**		
Recent Trip eneration Co parison epte ber, 201 by C														
16	Shopping Center [6]	340.5	KSF	44.23	0.599	0.367	1.919	2.079	75%	11,295	153	94	490	531
	Apartments [7]	200.0	DU [8]	6.65	0.102	0.408	0.403	0.217	90%	1,197	18	73	73	39
									Tota	**12,4 2**	**1 1**	**1**		**0**
Current y Proposed and se														
16	Shopping Center [6]	340.5	KSF	44.23	0.599	0.367	1.919	2.079	75%	11,295	153	94	490	531
16 North	Single-Family - Age-Targeted [7]	26.0	DU [8]	6.60	0.132	0.353	0.397	0.238	90%	154	3	8	9	6
16 South	Single-Family [9]	1.0	DU	9.52	0.188	0.563	0.630	0.370	90%	9	0	1	1	0
16 South	Apartments [10]	144.0	DU	6.65	0.102	0.408	0.403	0.217	90%	862	13	53	52	28
									Tota	**12, 20**	**1**	**1**	**2**	
									Difference	**1**			**24**	**1 1**
											A		**P**	**1**

Notes:
(1) *Trip Generation*, Institute of Transportation Engineers, 6th Edition, 1997 (previously proposed land use) and 9th Edition, 2012 (currently proposed land use).
(2) Refer to Figure 4 from December 2000 TIA for zone locations.
(3) ITE Land Use No. 710, General Office Building
(4) KSF = 1,000 square feet
(5) ITE Land Use No. 820, Shopping Center - formula rate
(6) ITE Land Use No. 820, Shopping Center - formula rate - assumes a floor area ratio of 0.15 on 49.82 acres plus a future 15.0 KSF Walgreens store
(7) Average of ITE Land Use No. 210, Single-Family Detached and ITE Land Use No. 251, Senior Adult Housing Detached
(8) DU = Dwelling Unit
(9) ITE Land Use No. 210, Single-Family Detached
(10) ITE Land Use No. 220, Apartments

TRAFFIC IMPACT ANALYSIS

VISTA RIDGE

ERIE, COLORADO

TRANSPORTATION CONSULTANTS, INC.

LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com

August 4, 2000

Mr. James R. Spehalski, P.E.
Simeon Residential Properties
6312 S. Fiddlers Green Circle, Suite 340E
Englewood, CO 80111

Re: Vista Ridge
Erie, CO
(LSC #982080)

Dear Mr. Spehalski:

We are pleased to submit our revised traffic impact study of the proposed Vista Ridge in Erie, Colorado. This study updates our earlier reports dated January 27, and November 23, 1999.

This traffic impact study first provides a summary of the existing roadways and traffic volumes in the vicinity of the proposed development and a summary of planned improvements to the roadway system. Next, estimates are made of the amount and directional distribution of vehicular traffic likely to be generated. This information is then combined with projected future traffic volumes in the vicinity to evaluate the impact of the new development on the existing and future roadway system and, where appropriate, to make recommendations for the required roadway improvements.

We trust that our findings and recommendations will assist in the planning for the proposed Vista Ridge. Please call us if we can be of further assistance.

Respectfully submitted,

LSC Transportation Consultants, Inc.

By: John C. La Sala
John C. La Sala, P.E.

COLORADO REGISTERED
John C. La Sala
34638
PROFESSIONAL ENGINEER

AJA/JL/wc

F:\PROJECTS\1998\982080\R1-VIRI.WPD

Traffic Impact Analysis

Vista Ridge

Erie, Colorado

Prepared for

Mr. James R. Spehalski, P.E.
Simeon Residential Properties
6312 S. Fiddlers Green Circle, Suite 340E
Englewood, CO 80111

Prepared by

LSC Transportation Consultants, Inc.
1889 York Street
Denver, CO 80206
(303) 333-1105

August 4, 2000
(LSC #982080)

TABLE OF CONTENTS

Section	Description	Page
A	Introduction	1
B	Roadway and Traffic Conditions	2
C	Land Use Plan and Traffic Generation	7
D	Traffic Distribution	10
E	Traffic Impacts	14
F	Recommendations	19
G	Conclusions	21

Appendix A: Existing Traffic Counts
Appendix B: Capacity Analyses

LIST OF ILLUSTRATIONS

Figure	Description	Page
1	Site Location	4
2	Year 1999 Traffic Activity	5
3	Year 2020 Background Traffic	6
4	Proposed Roadways and Traffic Analysis Zones	8
5	Directional Distribution of Project-Generated Traffic	12
6	Assignment of Project-Generated Traffic	13
7	Year 2020 Total Traffic	16
8	Year 2020 Recommendations	18

LIST OF TABULATIONS

Table	Description	
1	Traffic Generation Estimates	9
2	Intersection Levels of Service	17

SECTION A
Introduction

The proposed Vista Ridge development is to be located on an approximately 923-acre tract of land located east of Weld County Road 3 (CR 3), north of Baseline Road or State Highway 7 (SH 7), west of a proposed extension of Sheridan Boulevard, and south of CR 4 in the Town of Erie, Colorado. The site is planned to be a mixed-use development comprising residential, commercial and office land uses. Access to the development will be provided from four access points on SH 7 (with two of these restricted to right-turns-only), three access points on CR 3, and one on Sheridan Boulevard.

LSC Transportation Consultants, Inc. has been retained by Simeon Residential Properties to determine the traffic impacts of the proposed development on the surrounding roadway system. This report summarizes the following analysis procedures which were utilized in the evaluation:

- A review and analysis of present roadway and traffic conditions in the vicinity of the site and a review of planned and proposed roadway improvements in the general vicinity.
- A determination of the average weekday and peak-hour vehicle-trip generation for the proposed development.
- An analysis of the estimated directional distribution of site-generated traffic and an assignment of that traffic to the adjacent street network.
- A determination of the future traffic volumes in the vicinity of the site.
- An evaluation of the impacts of site-generated traffic expressed in terms of the development's traffic as an increment of total projected traffic on the surrounding roadway system and the resulting Levels of Service on the adjacent major roadways and intersections.
- A determination of appropriate roadway standards and improvements which will ensure optimum traffic operation for traffic entering and exiting the site.

SECTION B
Roadway and Traffic Conditions

Figure 1 illustrates the location of the site relative to the surrounding roadway system. As indicated, the site is located along the north side of Baseline Road and about two miles west of I-25. Weld County Road 3 separates the northern half of the site from the developing adjacent Erie Airpark residential subdivision. A portion of County Road 5 traverses the eastern third of the site.

Area Roadways

Major roadways in the vicinity of the site are described below with a brief discussion of anticipated future roadway improvements.

- SH 7 (Baseline Road) is an important State Highway (SH 7) with about 35 miles of continuity between Boulder on the west and I-76 east of Brighton. In the vicinity of the site, Baseline Road has a two-lane cross-section plus turn lanes at CR 3 and CR 5. It is posted with a 65 mph speed limit. The Colorado Department of Transportation (CDOT) classifies this segment of SH 7 as a Rural Arterial (RA) roadway in the 1998 *Colorado State Highway Access Code*.

- CR 3, 4, 5 and 7 are paved two-lane county roads with north facing Stop signs at Baseline Road. It should be noted that CR 5 through Vista Ridge is expected to be vacated in conjunction with the development. The landfill access will be re-routed to and from the north. On the north, CR 3 will be terminated at the gridline for CR 4. CR 4 will be moved slightly north of its gridline and connect the proposed north-south collector roadway with CR 5 on the east.

- Sheridan Boulevard is a north-south principal arterial which presently has its northern terminus in the City of Broomfield. The long-range *Town of Erie Transportation Plan* envisions extension of Sheridan Boulevard northeast to SH 7 at the east site boundary, then continuing northeast to a new interchange with I-25 located halfway between County Roads 4 and 6.

Existing and Future Traffic Conditions

Figure 2 illustrates current commuter peak-hour turning movement traffic activity along Baseline Road in the vicinity of the site. In addition, existing truck traffic along CR 5 between Baseline and the landfill to the north of CR 4 is also shown. This data is based on peak period counts conducted by Counter Measures, Inc. on January 12, 1999 (print-outs of all count data are enclosed in Appendix A). Estimates of nearby existing average

weekday traffic, which has been extrapolated from peak-hour data, is also shown on Figure 2.

Figure 3 illustrates 2020 background traffic projections in the vicinity of Vista Ridge based on data provided by Felsburg, Holt & Ullevig for the Town of Erie. The *Town of Erie 2020 Plan* envisions Baseline as a four- to six-lane regional arterial roadway (140-foot right-of-way) and Sheridan Boulevard as a four-lane major arterial.

Traffic estimates for the Newhall property, a mixed-use site located directly south of Vista Ridge, were added to these projections. Based upon preliminary projections provided by Sear-Brown, the Newhall site would generate approximately 61,000 vehicle-trips per day at full buildout. It should be noted that a traffic impact study for the Newhall development has not yet been filed and traffic projections used for this study are preliminary only. Buildout estimates of traffic from the Newhall site were included in the 2020 background traffic provided in Figure 3.

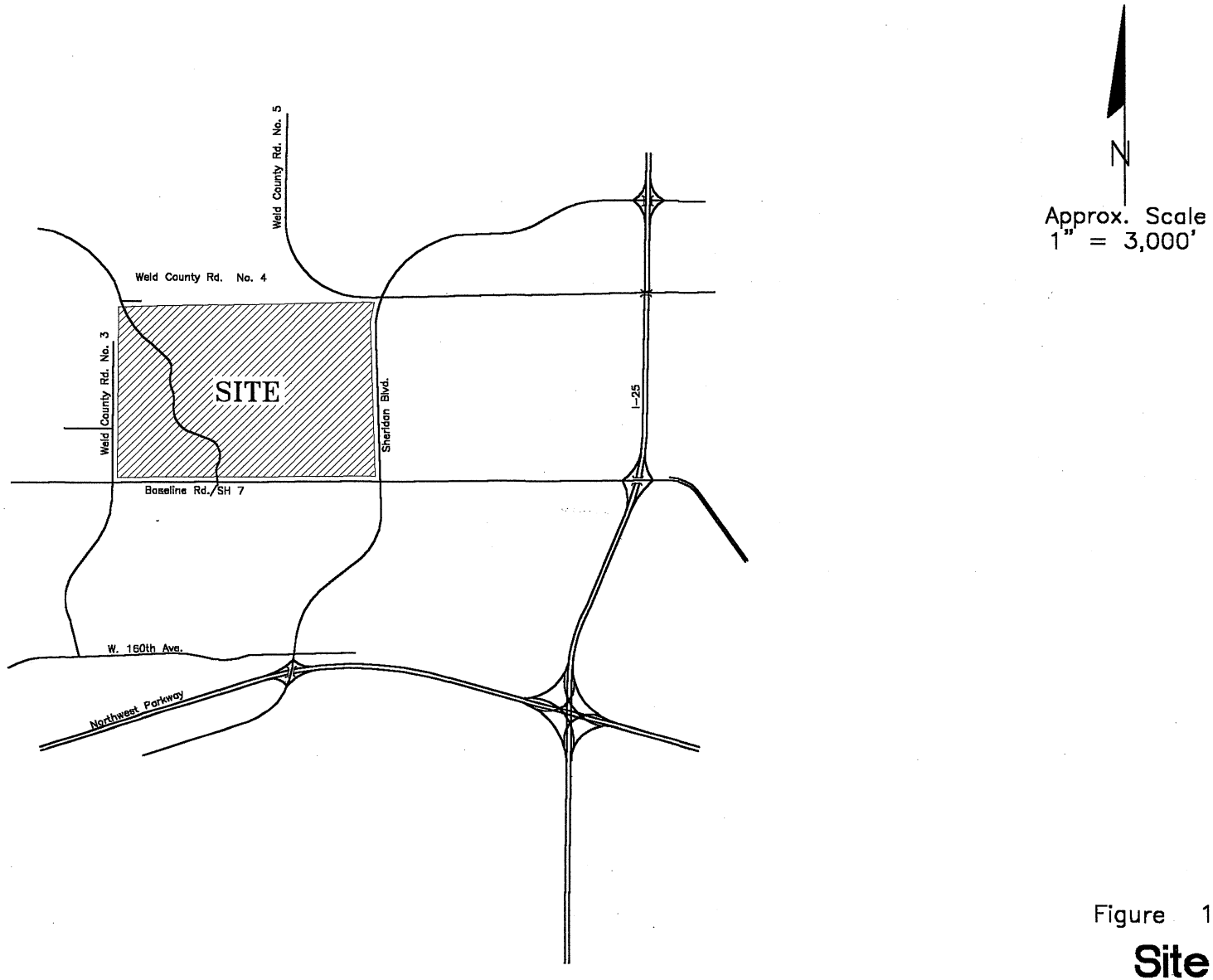


Figure 1

Site Location

August, 2000
Vista Ridge (LSC # 982080)

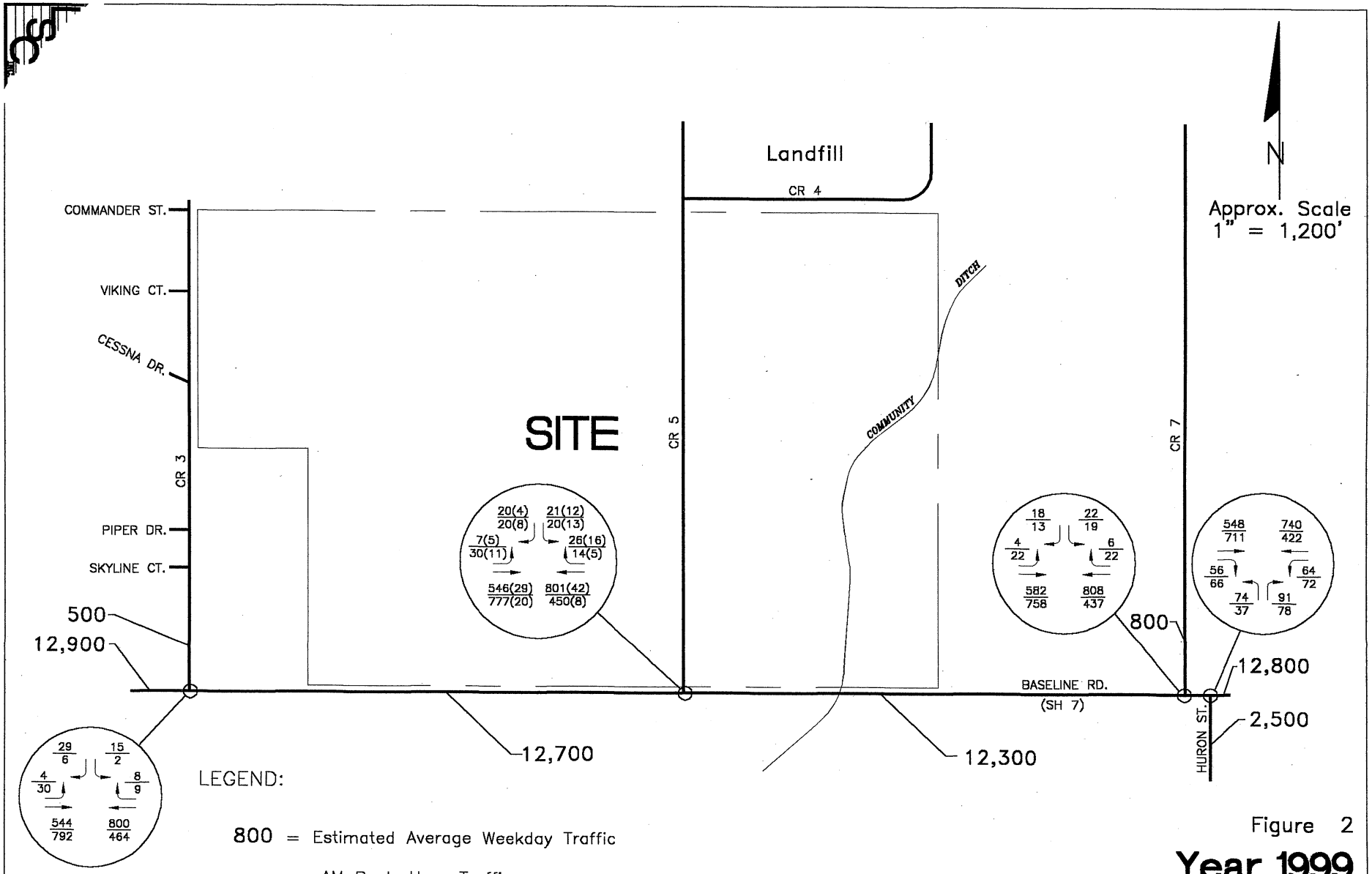
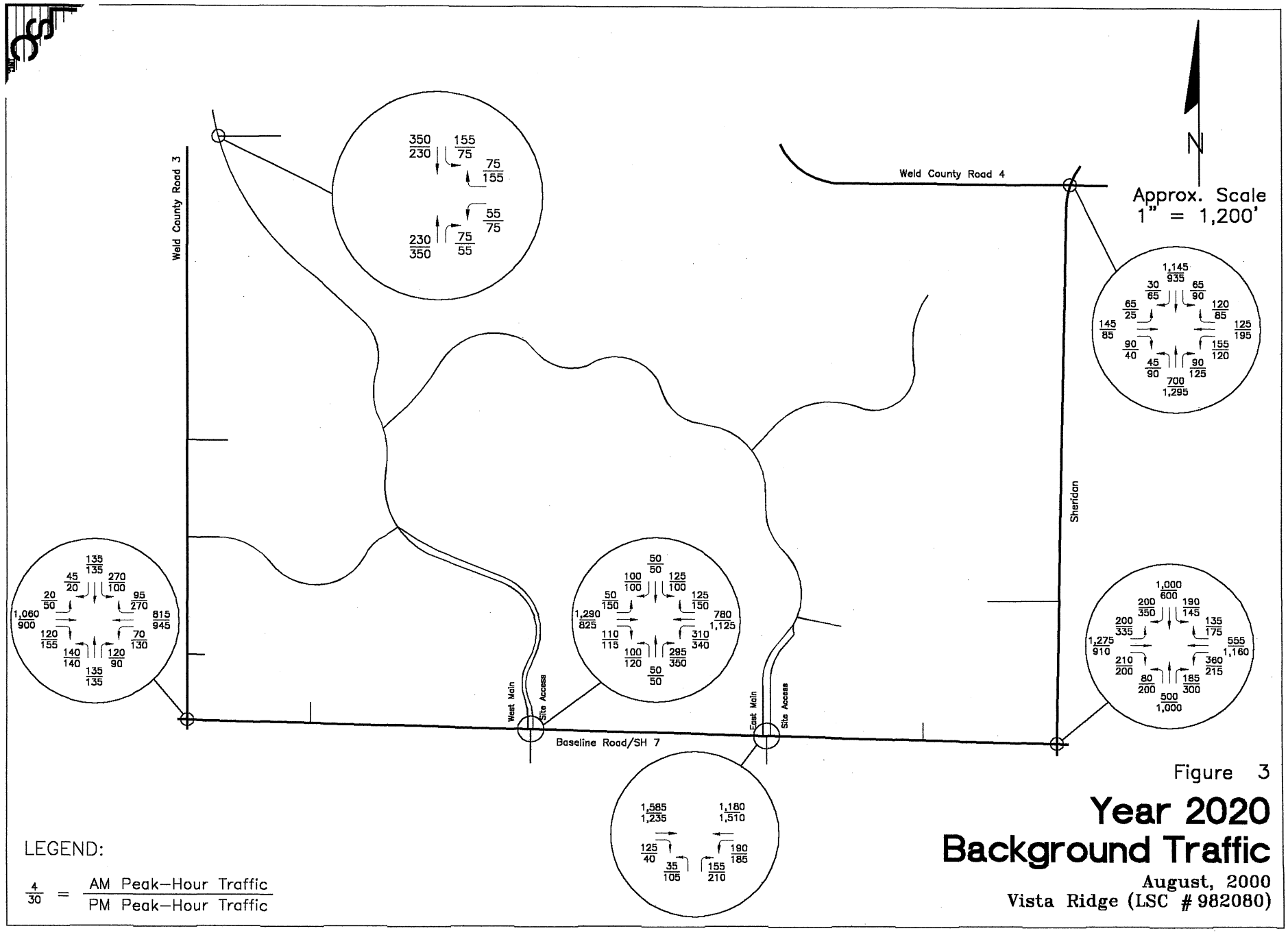


Figure 2

Year 1999 Traffic Activity

August, 2000
Vista Ridge (LSC # 982080)



LEGEND:

$\frac{4}{30} = \frac{\text{AM Peak-Hour Traffic}}{\text{PM Peak-Hour Traffic}}$

Figure 3

Year 2020 Background Traffic

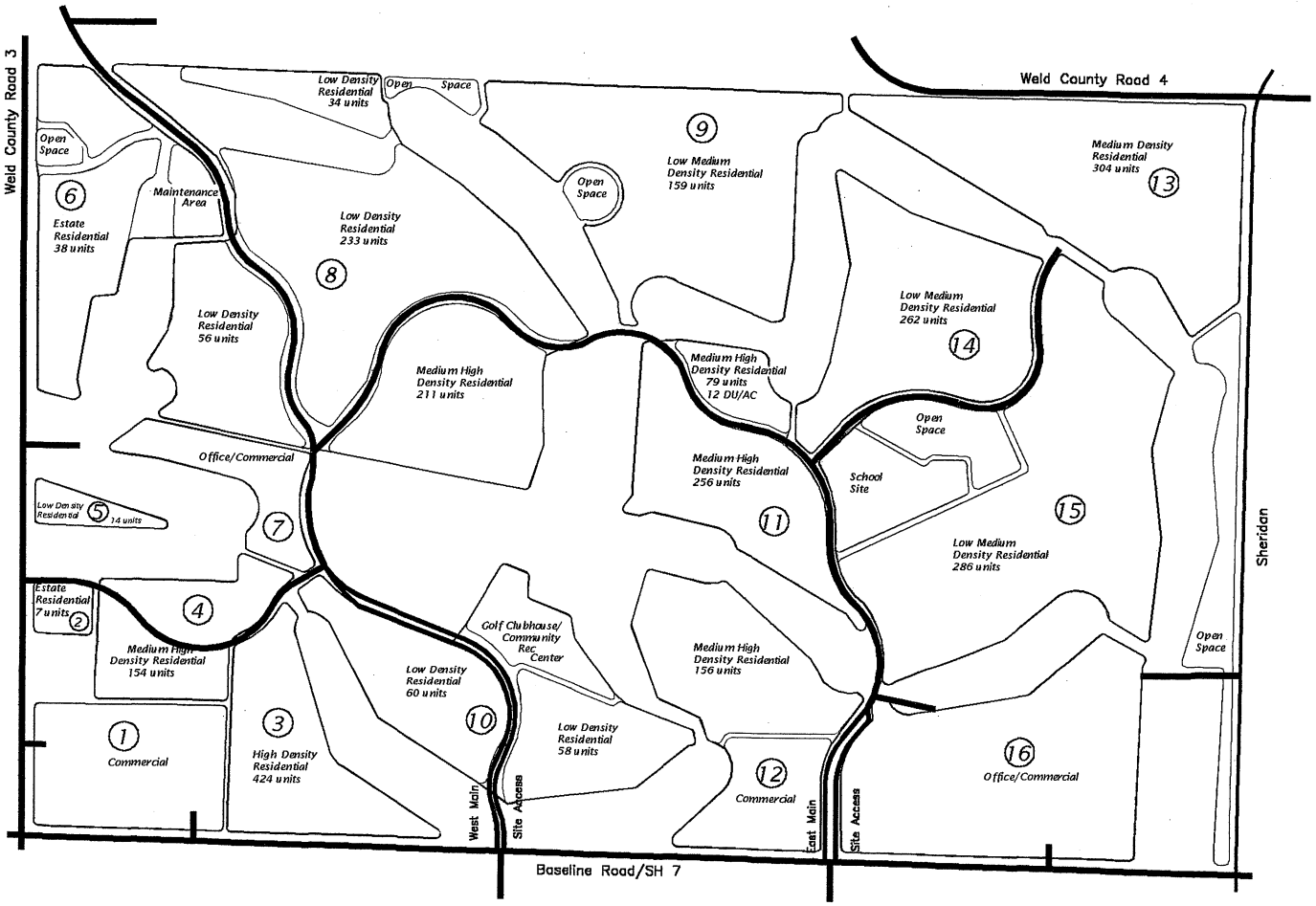
August, 2000

Vista Ridge (LSC # 982080)

SECTION C
Land Use Plan and Traffic Generation

The land use and access plan for the Vista Ridge development is shown in Figure 4. The 923-acre site will contain a variety of uses consisting of approximately 2,678 residential units, 75 acres of commercial development, 21 acres of open space, a 230-acre golf course, a community recreation center, and a school. The proposed site plan envisions four access points on the south side of the development on SH 7 (two full movement and two right-turn-only accesses), three access points on the west side of the development on CR 3, one access on the north side on CR 4, and one access on the east side on the proposed extension of Sheridan Boulevard.

The amount of traffic that will be generated by Vista Ridge has been estimated using trip generation rates published by the Institute of Transportation Engineers in its report *Trip Generation*, 6th Edition, 1997. The results of the generation analysis are given in Table 1. As indicated, the area has been subdivided into 16 Traffic Analysis Zones (TAZ). At this time, the State Farm Insurance Company is planning to occupy Parcel A. As indicated in Table 1, it has been estimated that some of the vehicle-trips generated within Vista Ridge will be "internal trips" (trips taking place entirely within Vista Ridge between various uses). About ten percent of the trips generated by the office and residential areas and 50 percent of the trips generated by the community center, golf course and school would be internal. For the commercial areas, about five percent of trips are considered internal with about 20 percent pass-by trips. Pass-by trips are trips for which the parcels of the proposed project are not a primary destination. These trips do not add trips to the surrounding network. From the trip generation calculations, it is estimated that approximately 50,706 external vehicle-trips would be generated on an average week-day which equates to 25,353 entering and 25,353 exiting trips at the site access points during a 24-hour period. During the morning peak-hour, 2,519 vehicle-trips, or about five percent of the daily total, would be generated with 1,013 entering and 1,506 exiting vehicles. In the evening peak-hour, 4,930 vehicle-trips would be generated, constituting about ten percent of the daily total. There would be 2,626 entering and 2,304 exiting vehicles.



N

Approx. Scale
1" = 1,200'

Figure 4

Proposed Roadways and Traffic Analysis

August, 2000
Vista Ridge (LSC # 982080)

LEGEND:

(1) = Traffic Analysis Zone TAZ Boundary Number

Table 1
ESTIMATED TRAFFIC GENERATION
Vista Ridge
LSC No. 982080, July 2000

Traffic Analysis Zone (2)	Land Use Description	Assumed Trip Generation Units			Generation Rates (1) Average Weekday Traffic	Peak-Hour AM In	Peak-Hour AM Out	Peak-Hour PM In	Peak-Hour PM Out	Percent External Traffic	Generation Rates (1) Average Weekday Traffic	Peak-Hour AM In	Peak-Hour AM Out	Peak-Hour PM In	Peak-Hour PM Out
1	Commercial	228	KSF	(3)	50.77	0.70	0.45	2.28	2.47	75%	8,692	120	76	390	422
2	Single-Family	7	d.u.	(4)	9.57	0.19	0.56	0.65	0.36	90%	60	1	4	4	2
3	Multi-Family	424	d.u.		5.86	0.07	0.37	0.36	0.18	90%	2,236	29	139	138	68
4	Multi-Family	154	d.u.		5.86	0.07	0.37	0.36	0.18	90%	812	10	51	50	25
5	Single-Family	14	d.u.		9.57	0.19	0.56	0.65	0.36	90%	121	2	7	8	5
6	Single-Family	38	d.u.		9.57	0.19	0.56	0.65	0.36	90%	327	6	19	22	12
7	Office	39	KSF	(6)	11.01	1.37	0.19	0.25	1.24	90%	386	48	7	9	43
	Commercial	39	KSF		95.40	1.43	0.91	4.15	4.50	75%	2,791	42	27	121	132
	Total Zone 7										**3,177**	**90**	**33**	**130**	**175**
8	Single-Family	289	d.u.		9.57	0.19	0.56	0.65	0.36	90%	2,489	49	146	168	95
	Multi-Family	211	d.u.		5.86	0.07	0.37	0.36	0.18	90%	1,113	14	69	69	34
	Total Zone 8										**3,602**	**63**	**216**	**237**	**129**
9	Single-Family	159	d.u.		9.57	0.19	0.56	0.65	0.36	90%	1,369	27	81	92	52
10	Golf Course	18	holes	(7)	5.04	0.16	0.05	0.10	0.20	50%	45	1	0	1	2
	Community Center	50	KSF	(8)	17.00	0.87	0.45	0.60	1.16	50%	425	22	11	15	29
	Single-Family	118	d.u.		9.57	0.19	0.56	0.65	0.36	90%	1,016	20	60	69	39
	Total Zone 10										1,487	43	71	84	69
11	Multi-Family	256	d.u.		5.86	0.07	0.37	0.36	0.18	90%	1,350	17	84	83	41
12	Commercial	114	KSF		65.05	0.92	0.59	2.88	3.12	75%	5,562	79	51	246	267
	Multi-Family	156	d.u.		5.86	0.07	0.37	0.36	0.18	90%	823	11	51	51	25
											6,385	**90**	**102**	**297**	**292**
13	Single-Family	304	d.u.		9.57	0.19	0.56	0.65	0.36	90%	2,618	51	154	177	100
14	Single-Family	262	d.u.		9.57	0.19	0.56	0.65	0.36	90%	2,257	44	133	152	86
15	Single-Family	286	d.u.		9.57	0.19	0.56	0.65	0.36	90%	2,463	48	145	166	94
	School	1,200	students	(9)	1.02	0.171	0.119	0.03	0.06	50%	612	103	71	18	36
	Total Zone 15										**3,075**	**151**	**216**	**184**	**130**
16	Office	83	KSF	(6)	11.01	1.37	0.19	0.25	1.24	90%	822	103	14	19	92
	Commercial	392	KSF		41.84	0.56	0.36	1.89	2.05	75%	12,316	165	106	557	604
	Total Zone 16										**13,138**	**268**	**120**	**576**	**696**
	Total All Zones										**50,706**	**1,013**	**1,506**	**2,626**	**2,304**

Notes:
(1) Rates as cited in "Trip Generation", Institute of Transportation Engineers, 6th Edition, 1997.
(2) Refer to Figure 4 for zone locations.
(3) ITE Land Use No. 820, Shopping Center. Based on a floor area ratio of 0.20.
(4) ITE Land Use No. 210, Single-Family Detached Housing.
(5) ITE Land Use No. 230, Residential Condominium/Townhouse.
(6) ITE Land Use No. 710, General Office Building.
(7) ITE Land Use No. 430, Golf Course.
(8) ITE Land Use No. 495, Recreational Community Center.
(9) ITE Land Use No. 520, Elementary School.

SECTION D
Traffic Distribution

The directional distribution of site-generated vehicular traffic on the roadways providing access to and from the proposed Vista Ridge development is a key element in the planning of the project's specific access requirements and in determining its traffic impacts on surrounding roadways and intersections. Major factors which influence the traffic distribution include:

- The site's location relative to the population and activity centers. (The site is located nearly equidistant between the metropolitan Denver, Boulder and Longmont areas.)

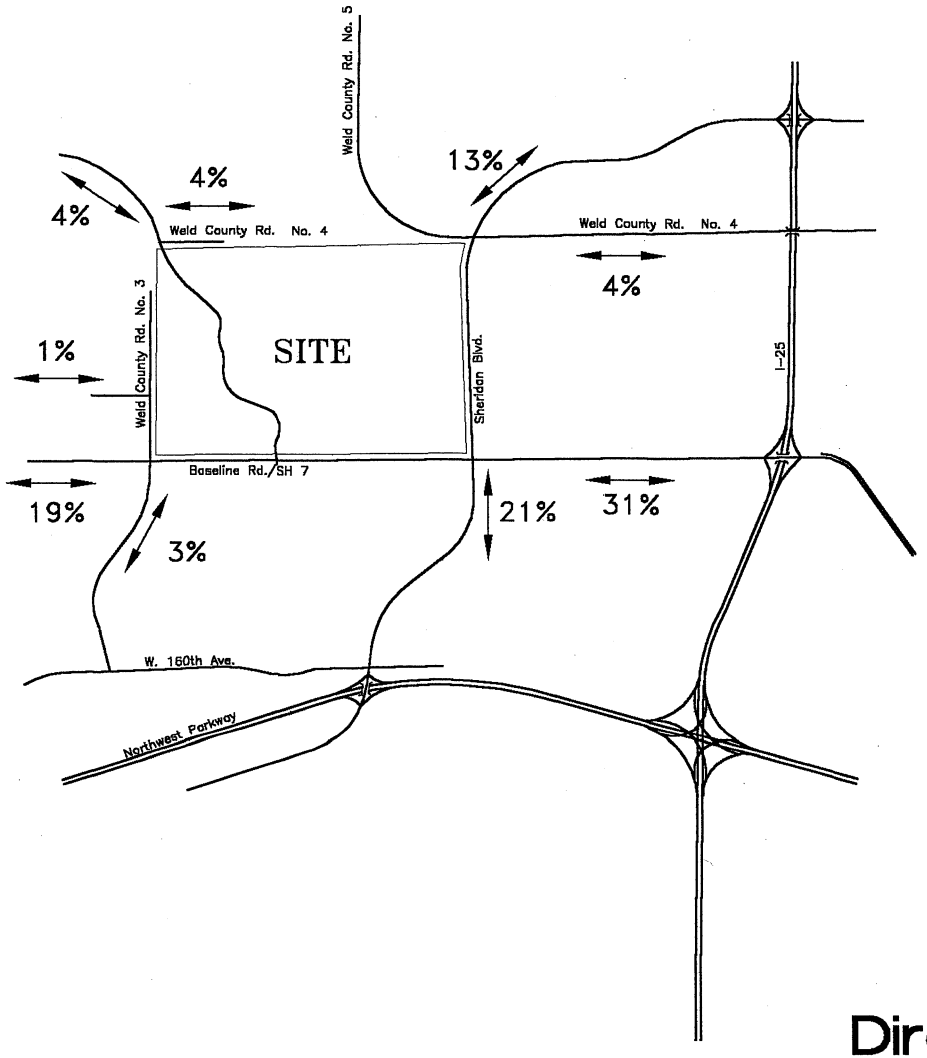
- The future roadway network serving the area as detailed in the latest *Erie Transportation Plan*. (This plan depicts three nearby interchanges: the existing interchange at SH 7/I-25, a new interchange at the northern extension of Sheridan Boulevard and I-25, and at the junction of the proposed Northwest Parkway with Sheridan Boulevard. Additionally, it is expected that a significant amount of traffic would be oriented to and from Boulder via Baseline Road.)

- The specific access and circulation characteristics of the development plan. (The plan includes a somewhat circuitous, east-west collector roadway and a total of nine external accesses.)

Based upon the influences described above, Figure 5 shows the anticipated directional distribution of traffic to be generated by the Vista Ridge development at buildout. As indicated, approximately 31 percent of all external traffic will be oriented to and from the east via Baseline Road (SH 7), 21 percent will be oriented to and from the south via Sheridan Boulevard, 19 percent will be oriented to and from the west via Baseline Road, and 13 percent will be oriented to and from the north via Sheridan Boulevard. Minor percentages of less than ten percent would use an extension of the proposed north-south collector roadway to and from the north, CR 4 to and from the east, and CR 5 to and from the north.

Traffic Assignment

By applying the traffic generation estimates of Table 1 to the distribution pattern of Figure 5, the resulting project-generated traffic on the street system can be computed. These traffic volumes are shown in Figure 6. Morning and evening peak-hour turning movement traffic volumes are shown at the eight access points and four external intersections along SH 7, CR 3, CR 4, and Sheridan Boulevard.



N

Approx. Scale
1" = 3,000'

LEGEND:

65% = Percent Directional Distribution

Figure 5

Directional Distribution of Project-Generated Traffic

August, 2000
Vista Ridge (LSC # 982080)

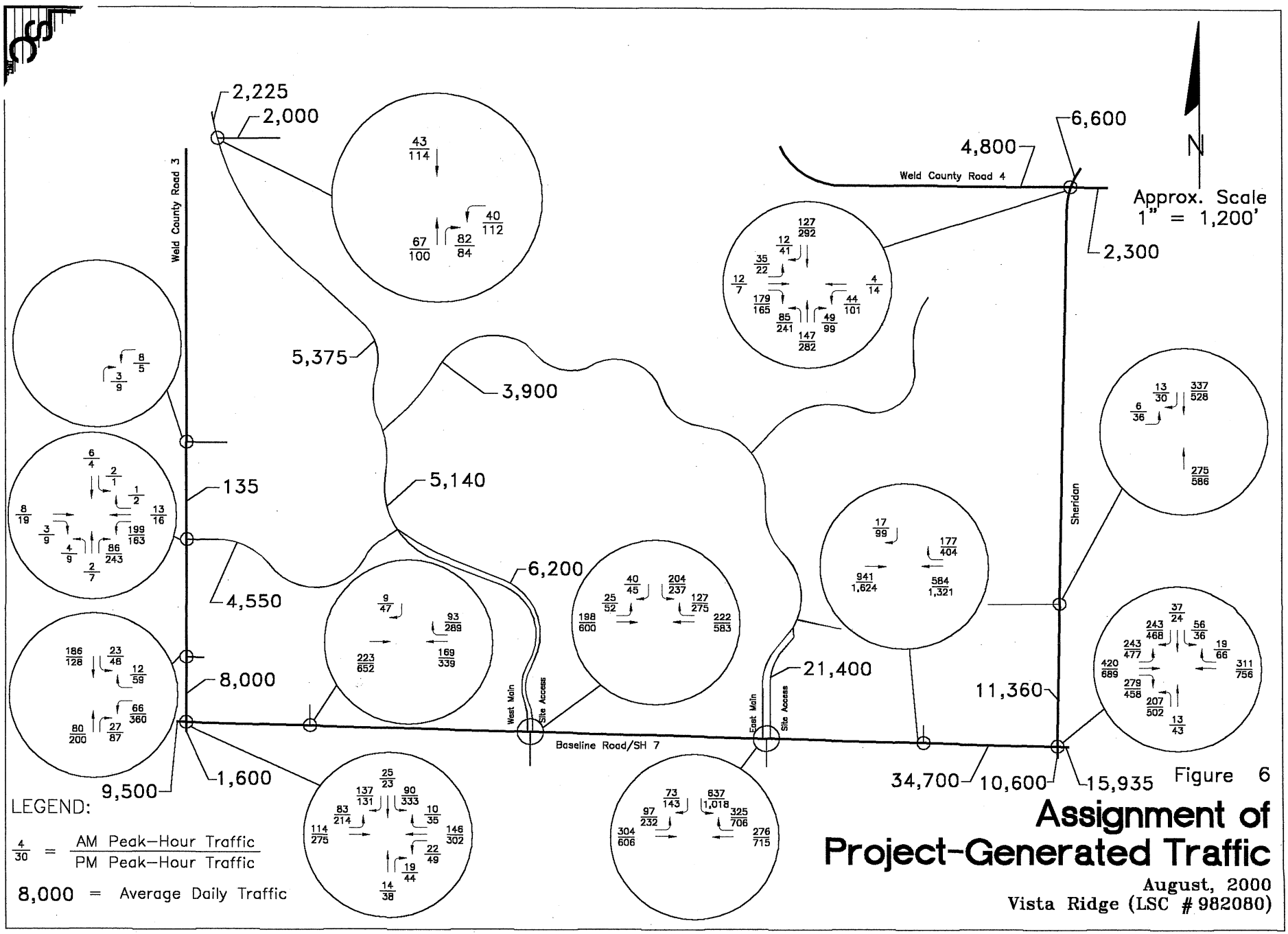


Figure 6

Assignment of Project-Generated Traffic

August, 2000

Vista Ridge (LSC # 982080)

SECTION E
Traffic Impacts

Traffic impacts in this analysis have been quantified in terms of average total weekday traffic (AWT) and Levels of Service (LOS) at nearby intersections during morning and evening peak travel periods. Impacts have been quantified for a buildout situation in which the project-generated traffic is added to anticipated Year 2020 background traffic.

Figure 7 illustrates the combination of Year 2020 background traffic plus project-generated traffic volumes given in Figure 6. Also included in Figure 7 is average daily traffic (ADT) on several internal and external roadway links.

Level of Service Capacity Analyses

A significant methodology for determining traffic impacts is to examine the Levels of Service at the individual intersections and access points that will be directly impacted by a development. To assess the traffic impacts of the Vista Ridge development, intersection Level of Service (LOS) analyses have been conducted at the four access intersections on SH 7 and at the intersections of SH 7/CR 3 and SH 7/Sheridan Boulevard. Signalized and Stop controlled intersection capacities have been analyzed in accordance with the requirements of the 1997 *Highway Capacity Manual* (HCM) using the "operations" methodology. The concept of Level of Service is used as a basis for computing combinations of roadway operating conditions which accommodate various levels of traffic activity. By definition, six different Levels of Service are used (A, B, C, D, E, and F), with "A" being virtually a free-flow traffic condition and "F" being a congested condition. Appendix B contains output from the software *Traffix*, version 7.1 (1999), which uses the 1997 HCM methods. The output includes additional information concerning trip generation and the assignment of project-generated traffic.

Traffic volumes used in the analyses were taken from Figures 3 and 7. The summary results of the capacity analyses are given in Table 2. Assumptions for lane geometry and traffic controls used in the capacity analyses are illustrated in Figure 8. Four through lanes have been assumed on Sheridan Boulevard and on Baseline Road west of the East

Main Site Access. East of the Main Site access, six through lanes would likely be required on SH 7 in 2020.

CR 3/SH 7: This intersection is expected to operate at a good Level of Service (LOS "C") during both the morning and evening peak-hour periods of 2020 with signalization when site-generated traffic is added. Assumed lane geometry includes dual southbound left-turn lanes.

SH 7/RTO Accesses: The commercial accesses on SH 7 will be restricted to right-turns-only. These intersections would not require signalization. The southbound right-turn movement will be the critical movement at each of these intersections. At the west RTO access, southbound right-turns will operate at very good Levels of Service (LOS "B") during both the morning and evening peak commuter hours. At the east RTO access, southbound right-turns will operate at LOS "B" during the morning peak-hour and LOS "D" during the evening peak-hour period.

SH 7/FMA Accesses: It has been projected that a northbound approach will exist at both of these accesses, with traffic volumes emanating from the Newhall Property. During the morning peak period, the west full movement access (FMA) will operate at LOS "C" while the east FMA will operate at LOS "B". Both the west and east FMA's on Baseline Road will operate at LOS "D" during the evening peak-hour. Dual southbound left-turn lanes have been anticipated at the east full movement access.

SH 7/Sheridan Boulevard: This intersection will operate at Level of Service "C" with the addition of project-generated traffic during the morning peak period. During the evening peak-hour, if assumptions in the traffic projections hold, the intersection will operate at capacity in 2020 (LOS "E"). Geometry assumptions include dual left-turn lanes and a single right-turn lane from all approaches.

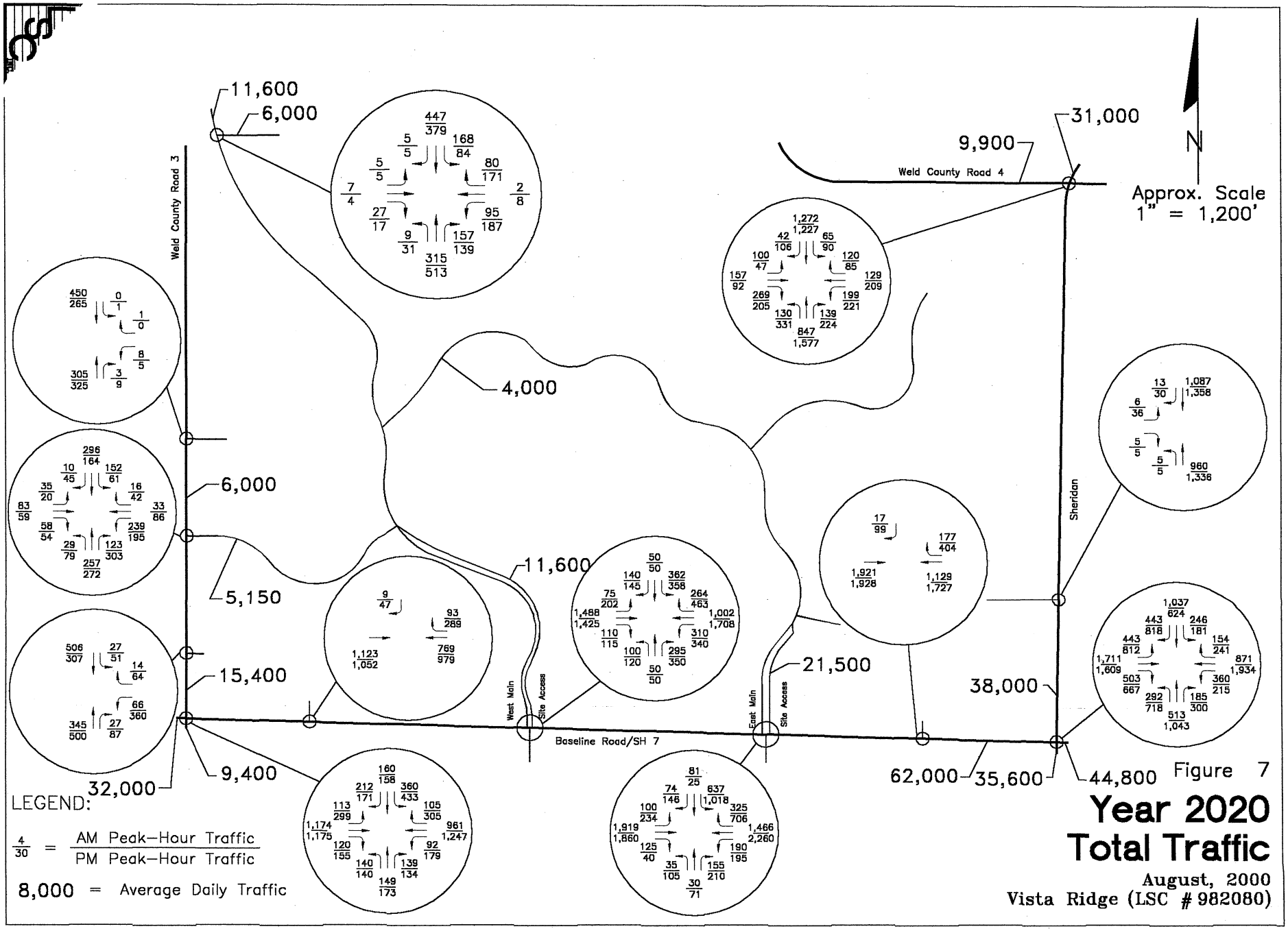


Figure 7

Year 2020 Total Traffic

August, 2000

Vista Ridge (LSC # 982080)

Table 2
Intersection Levels of Service (1)
Vista Ridge
Town of Erie, Colorado

Intersections	Intersection Control	2020 Background Traffic Level of Service AM	2020 Background Traffic Level of Service PM	2020 Total Traffic Level of Service AM	2020 Total Traffic Level of Service PM
1) CR 3/SH 7	Signalized	B	B	C	C
Delay (sec./veh.)		19.5	17.3	25.7	33.8
2) West RTO/SH 7	Unsignalized	--	--	B (2)	B (2)
Delay (sec./veh.)		--	--	11.3	13.3
3) West Main Access/SH 7	Signalized	C	C	C	D
Delay (sec./veh.)		22.7	22.0	33.3	36.3
4) East Main Access/SH 7	Signalized	--	--	B	D
Delay (sec./veh.)		--	--	19.2	41.5
5) East RTO/SH7	Unsignalized	--	--	B (2)	D (2)
Delay (sec./veh.)		--	--	13.7	28.5
6) Sheridan Blvd./SH 7	Signalized	C	C	C	E
Delay (sec./veh.)		25.5	25.4	31.8	56.5

Notes:
(1) Intersection Level of Service (LOS) and delay reported for signalized intersections; Critical LOS and delay reported for unsignalized intersections. Capacity analyzed using the 1997 HCM methodology.
(2) Southbound right-turn movement.

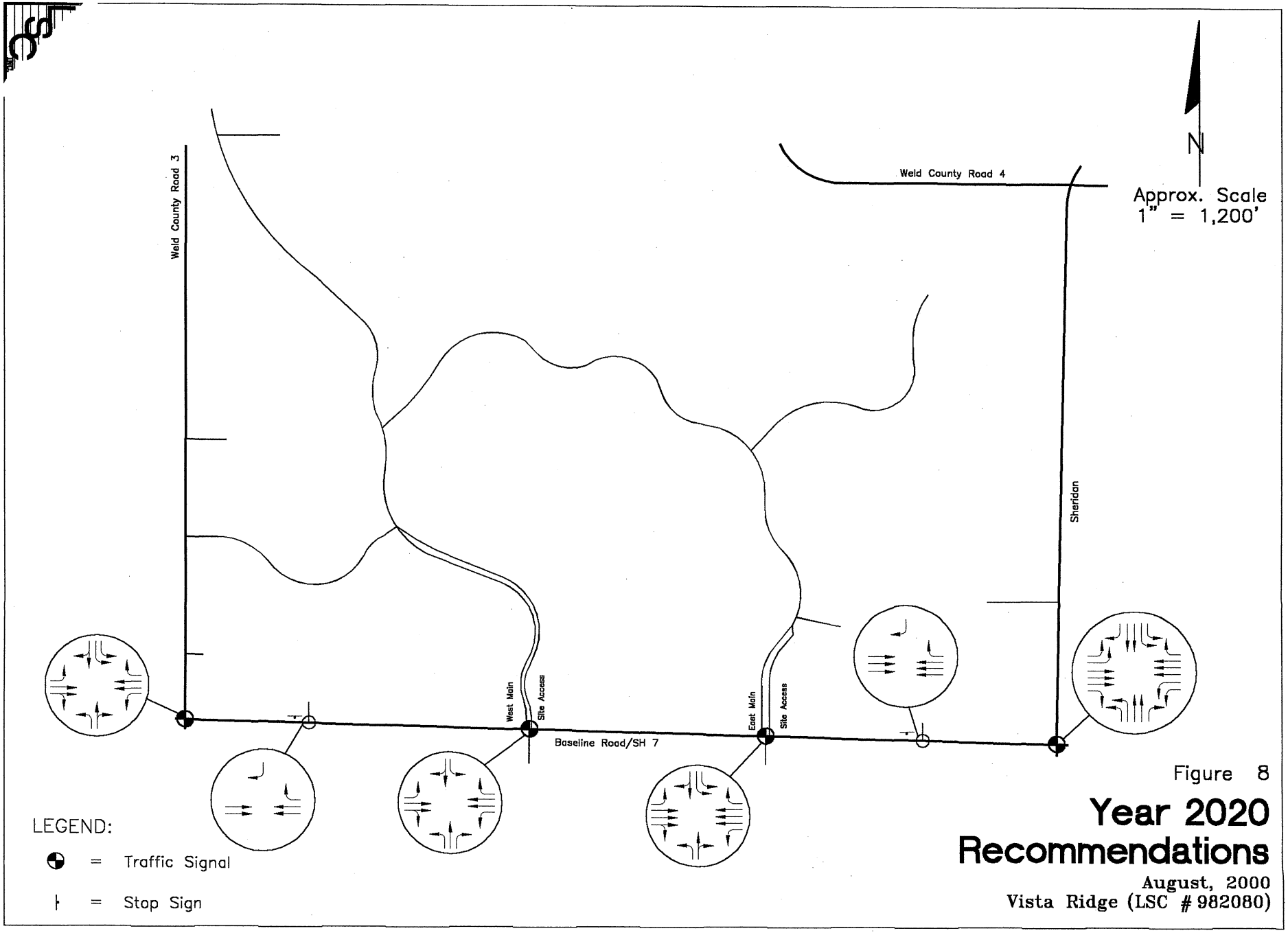


Figure 8

Year 2020 Recommendations

August, 2000
Vista Ridge (LSC # 982080)

SECTION F
Recommendations

Several recommendations for SH 7 (Baseline Road) are summarized below and depicted on Figure 8. Recommended speed change lane lengths have been estimated in accordance with the 1998 revised *Colorado State Highway Access Code*.

1. By the Year 2020, signalization will be needed at the intersections of SH 7 with CR 3, both proposed full movement accesses, and Sheridan Boulevard.

2. In order to reduce hazards of high speed travel through an area of increasing development, in conjunction with development of the proposed project the speed limit on SH 7 should be reduced from 65 mph to 45 or 50 mph. Speed change lanes have been designed assuming a speed limit of 50 mph. Re-direct taper on Baseline Road should be designed at a ratio of 50:1 where needed. All tapers for speed change lanes should be 180 feet in length. By the Year 2020, four through lanes will be needed on SH 7 west of the East FMA site access, with six lanes from that intersection eastward.

3. Both full movement accesses and the east RTO access should have westbound right-turn acceleration lanes, each of 760 feet length including 180 feet of taper.

4. At the intersection of SH 7/CR 3, an eastbound left-turn lane of 800 feet length including 180 feet of taper will be needed. A westbound right-turn lane of 500 feet length including 180 feet of taper will also be needed.

5. At the western RTO access, a westbound right-turn lane of 500 feet length including 180 feet of taper will be needed.

6. At the west full movement access, an eastbound left-turn lane of 700 feet length and westbound right-turn lane of 500 feet length should be installed. Both of these lengths include 180 feet of taper.

7. At the east full movement access, an eastbound left-turn lane of 735 feet length plus a westbound right-turn lane of 500 feet length should be installed. Dual left-turn lanes will be needed southbound.

8. At the eastern RTO access, a westbound right-turn lane of 500 feet length including 180 feet of taper will be needed.

9. At the intersection of SH 7/Sheridan Boulevard, dual eastbound left-turn lanes of 950 feet length and a right-turn lane of 500 feet length will be needed. In the westbound direction, dual left-turn lanes of 700 feet length and a right-turn lane of 500 feet length will be needed. Dual left-turn lanes will also be needed

both northbound and southbound. All four approaches should have channelized right-turn lanes with right-turn acceleration lanes of 760 feet length including 180 feet of taper.

SECTION G
Conclusions

Based upon the foregoing analysis, the following conclusions may be made concerning the proposed Vista Ridge development in Erie:

1. When completed, Vista Ridge will generate 50,706 external vehicle-trips during an average weekday. About 63,380 total "driveway trips" would be generated by the entire development, but about eight percent of these would occur entirely within the Vista Ridge development and not impact the external street system, and an additional 12 percent would be pass-by trips which would not increase external traffic.

2. The directional distribution of project-generated traffic is expected to result in approximately 44 percent of the traffic being oriented to and from the east toward I-25, 21 percent to and from the south and the Northwest Parkway, and 19 percent to and from the west via Baseline Road. Minor percentages of traffic (less than ten percent per direction) will travel to and from other destinations.

3. Peak-hour capacity analyses indicate overall Levels of Service "D" or better operating conditions on all six intersections studied along Baseline Road, with the exception of the Sheridan Boulevard/SH 7 intersection, which may operate at LOS "E" if buildout of the area achieves levels assumed in this analysis.

4. Speed change (acceleration and deceleration) lanes should be installed on State Highway 7 (Baseline Road) in accordance with the criteria of the 1998 revised *Colorado State Highway Access Code* as specified in Section F of this report.

5. Given implementation of the 2020 traffic control and laneage recommendations cited herein (refer to Figure 8), the traffic generated by Vista Ridge can be accommodated by the future roadway system.

prepared by
Enertia Consulting Group, LLC
1437 Larimer Street
Denver, CO 80202

Preliminary Utility Study

Montex South at Vista Ridge, Erie, Colorado

prepared for

Chartered Development Corp
3160 Village Vista Drive
Erie, CO 80516

LAND • ENERGY • INFRASTRUCTURE

ENERTIA CONSULTING GROUP LLC

1437 Larimer St.
Denver, CO 80202
303•875•7131
shawn.merz@enertiacg.com

June 17, 2015

Mr. Martin Ostholthoff
Town of Erie
Community Development Director
645 Holbrook Street
P.O. Box 750
Erie, CO 80516

RE: Final Utility Letter Report
Montex South at Vista Ridge

Dear Mr. Ostholthoff:

This Final Utility Letter Report (Report) is being submitted to the Town of Erie in partial fulfillment of the Site Plan application requirements for Vista Ridge Filing No. 12 Minor Subdivision, 1st Amendment (Montex South). The intent of this Report is to: (i) summarize the water demands and fire flow capacity of the proposed water system being submitted to the Town of Erie for review; (ii) determine sanitary sewer capacity requirements for the proposed 144-unit development in accordance with the Town of Erie Standards and Specifications.

Background Information

The Montex South project is located in a portion of the southwest quarter of Section 33, Township 1 North, Range 68 West of the 6th Principle Meridian. The project is bounded to the north by Ridge View Drive, future commercial development to the east and south, and Detention Pond A1the west. The adjacent major roadways are Mountain View Boulevard to the west, Sheridan Parkway to the east and East Baseline Road to the south. The proposed site consists of 10.2 acres. The developed parcel will consist of 144 multi-family homes and a single-family home which will be used as a rental office. The density of the development is 14.2 dwelling units/acre. The construction will be Type V Construction. Connections will be made to an existing 12-inch waterline and 8-inch sanitary sewer located in Ridge View Drive.

Water System

The proposed water system for Montex South is a looped system which connects to the existing 12-inch waterline in Ridge View Drive. The proposed water system consists of 1662 LF ~ 8-inch PVC, 243 LF ~ 4-inch DIP, 4 meter vaults and 6 fire hydrants which will provide domestic potable water, fire protection and irrigation for the multi-family units and open space.

To calculate the water demands, an average demand of 140 gallons per capita per day (GPCD) was used with peaking factors of 2.6 and 3.9 for the maximum day and maximum hour demands. The resident unit multiplier was calculated at 1.7 residents per unit based on the Utility Letter dated. Based on this criterion the total average day demand is 24.1 gallons per minute (gpm). Total maximum day and maximum hour demands are 62.6 gpm and 94.0 gpm respectively.

No irrigation criteria for the Town of Erie was found in the Standards and Specifications. Therefore, Broomfield irrigation criterion was assumed for calculations. The irrigation rate is assumed to be 2.5 ac-ft/year/acre with a max day rate of 0.07 ac-ft/day/acre and a peak rate of 23.5 gpm/acre. For this report the irrigation rate was conservatively applied to the entire site pervious area. This results in an average day

irrigation demand of 5.0 gpm, a max day irrigation demand of 50.8 gpm and a max hour irrigation demand of 75.3 gpm. Three irrigation tap locations have been assumed which will provide irrigation through the site.

There are four 4-inch dead end waterlines which terminate in a master meter vault. Individual building services will be run to these vaults. Fire hydrants will be provided on the 8-inch looped water line spaced no more than 300-feet. Per the Town of Erie Standards and Specification, 1500 gpm for duration of 2 hours is required for multi-family units. All private dead end private drives are less than 150' with exception of Private Drive 2. A turnaround has been provided on this drive at the parking lot west of Building 31.

To evaluate the water distribution system hydraulics and determine adequate design, the proposed water system was modeled assuming a full build out condition using Hazen-Williams Formula within Bentley WaterCAD version V8i software. Flow tests were performed on the fire hydrants adjacent to the site to determine the pressures in existing 12" waterline in Ridge View Drive which were used to set the model boundary conditions. A Hazen-Williams Friction Coefficient of 100 was used for 4-inch, 8-inch and 12-inch pipe as outlined in the Town of Erie Standards and Specifications. The water demands calculated for the project were applied to the junctions throughout the system. The distribution system was modeled under four scenarios based on an open pipe system which include: average day demand, maximum day demand, maximum day demand with fire flow demand, and maximum hour demand.

It was determined that each fire hydrant in the proposed water system is capable of providing 1500 gpm with a maximum velocity of 10 ft/sec during the maximum day demand. Pressures for all scenarios are within the operating pressure requirements outlined in the Town of Erie Standards and specifications.

The water calculations attached for reference.

Sanitary Sewer

The proposed Montex South sanitary system serves 144 multi-family units and the rental office. The pipe infrastructure consists of 2004 LF of 8-inch PVC sewer which will connect to an existing 8-inch PVC sanitary sewer located in Ridge View Drive north of the site.

The sanitary demands for the project were calculated using the requirements defined by the Town of Erie Standards and Specifications. A flow rate of 90 gpcd with residential multiplier of 1.7 was used to determine the Average Daily Flow Rate. The average daily flow rate at design point 1 is 0.012 cfs (0.008 MGD) and 0.022 cfs (0.014 MGD) at design point 2. A peaking factor of 5 was used to determine the maximum flow rate which resulted in 0.062 cfs (0.040 cfs MGD) at design point 1 and 0.111 cfs (0.072 MGD) at design point 2. Using Manning's Equation with a roughness coefficient of 0.011 and a pipe slope of 1.00% yields a velocity of 2.04 ft/sec for an 8-inch sewer at design point 1. The minimum slope for an 8-inch pipe at design point 2 is 1.00% which results in a velocity of 2.43 ft/sec.

The calculations and flow criteria are attached for reference.

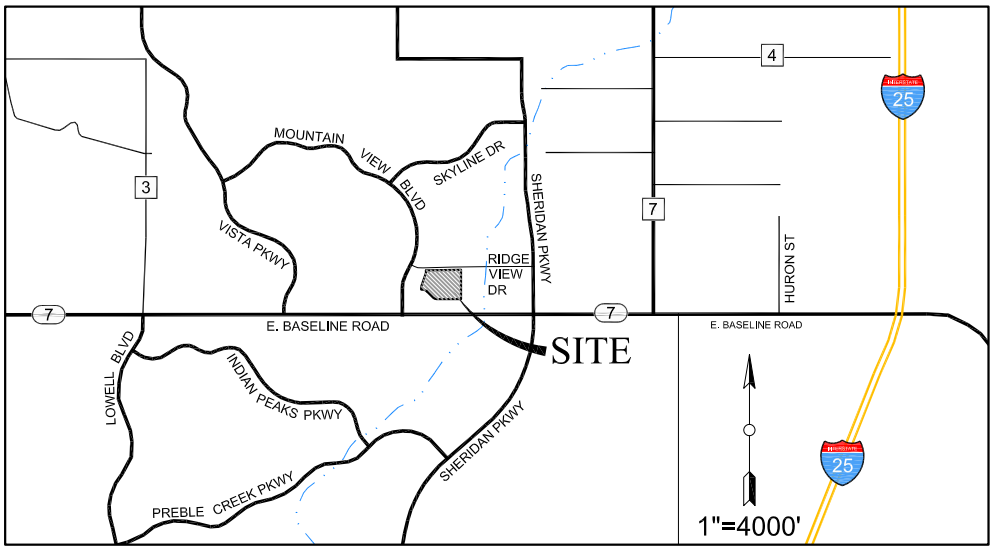
We trust that this Report is acceptable and complete. Please contact me at shawn.merz@enertiacg.com or (720) 502-6574 should you have any questions regarding this submittal.

Sincerely,

ENERTIA CONSULTING GROUP, LLC

Shawn Merz, PE, LEED AP
Senior Engineer

Enclosures



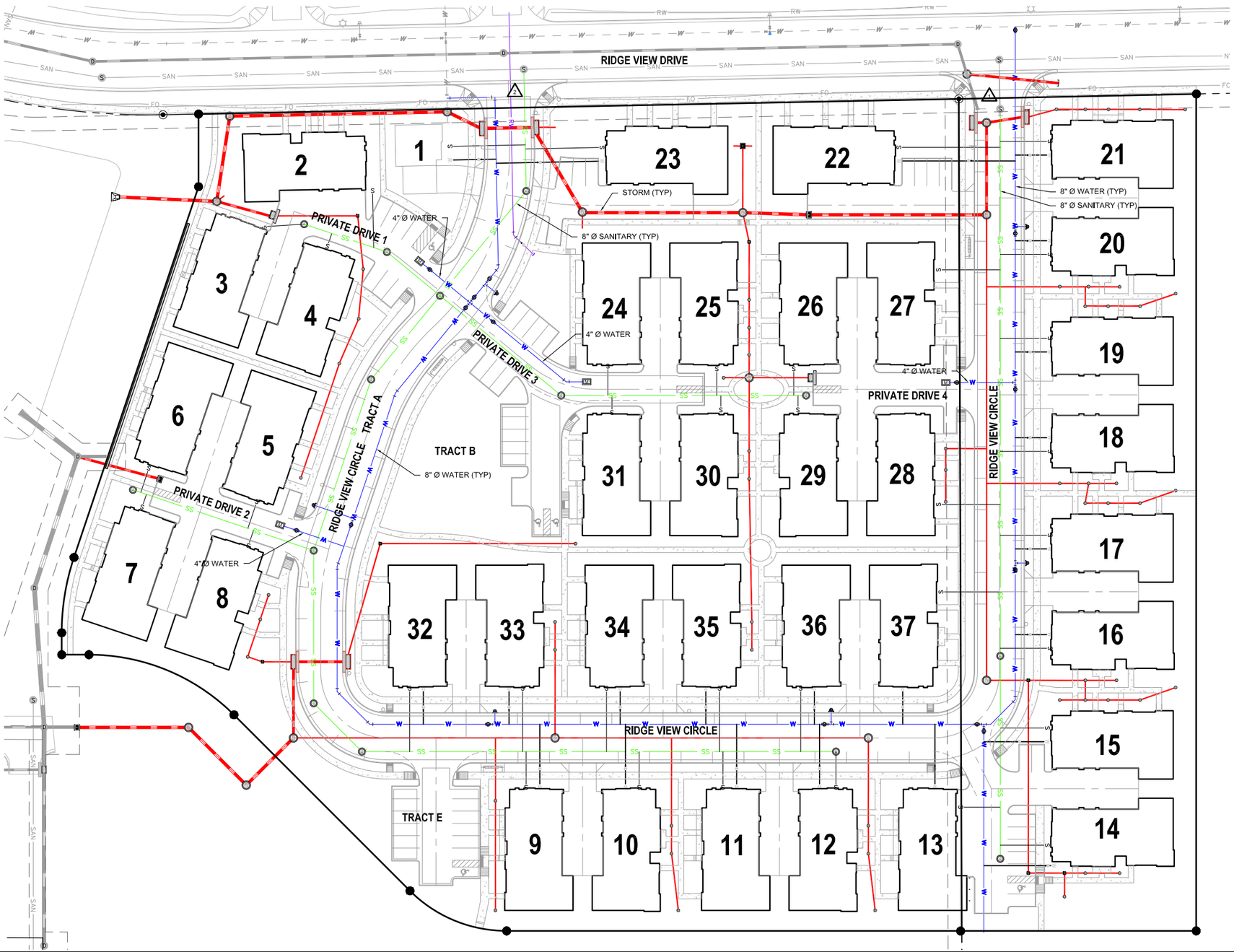
VICINITY MAP

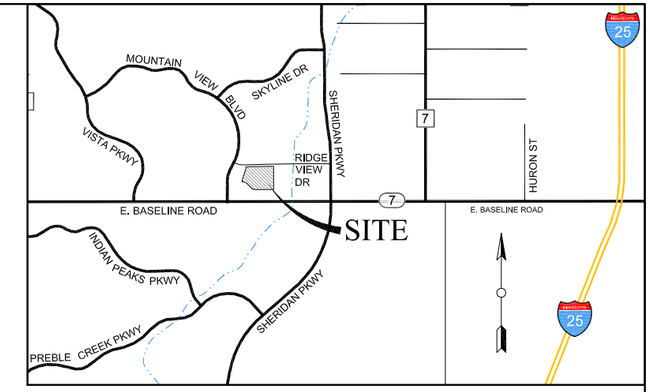
VISTA RIDGE FILING NO. 12 MINOR SUBDIVISION, 1ST AMENDMENT

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12; AND, A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT, SITUATED IN A PORTION OF SECTION 32 AND A PORTION OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

10.1960 ACRES - 37 LOTS / 5 TRACTS

SP-000046-2014





GENERAL LOCATION MAP

SCALE 1"=2000'

DESIGN POINT SUMMARY TABLE

DESIGN POINT	Q_{AVG} (CFS)	Q_{PEAK} (CFS)
1	0.012	0.062
2	0.022	0.111

MONTEX SOUTH AT VISTA RIDGE
UTILITY EXHIBIT

APPLICANT:
CHARTERED DEVELOPMENT CORP.
3160 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 80516
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

N

0' 20' 40' 80'

SCALE: 1"=40'

DRAWN BY: SM
APRVD BY: SM
DATE: 11/17/2014
REVISED: 06/17/2015

1

SHEET 1 OF 1

Montex South at Vista Ridge Water Demand Summary

Building Demand Breakdown

Node	Land Use	Buildings	Units (EA)	Residential/Unit Multiplier[1]	Avg. Demand (GPCD) (GPD/ACRE)	Average Day Demand GPM	Max Day/Avg Day Peaking Factor	Max Day Demand (GPM)	Max Hr/Ave Day Peaking Factor	Max Hour Demand (GPM)
J-2	Buildings 1	1	1	3.00	140	0.29	2.60	0.76	3.90	1.14
J-2	Buildings 23	1	4	1.70	140	0.66	2.60	1.72	3.90	2.58
J-2						**0.95**		**2.48**		**3.72**
J-5	Buildings 32	1	4	1.70	140	0.66	2.60	1.72	3.90	2.58
J-6	Buildings 9, 10, 11, 12, 33, 34, 35, 36	8	32	1.70	140	5.29	2.60	13.75	3.90	20.63
J-7	Buildings 13, 37	2	8	1.70	140	1.32	2.60	3.44	3.90	5.16
J-9	Building 16	1	4	1.70	140	0.66	2.60	1.72	3.90	2.58
J-10	Buildings 17, 18	2	8	1.70	140	1.32	2.60	3.44	3.90	5.16
J-12	Buildings 19, 20	2	8	1.70	140	1.32	2.60	3.44	3.90	5.16
J-13	Buildings 21, 22	2	8	1.70	140	1.32	2.60	3.44	3.90	5.16
J-15	Buildings 2, 3, 4	3	12	1.70	140	1.98	2.60	5.16	3.90	7.74
J-16	Buildings 24, 25, 30, 31	4	16	1.70	140	2.64	2.60	6.88	3.90	10.31
J-17	Buildings 5, 6, 7, 8	4	16	1.70	140	2.64	2.60	6.88	3.90	10.31
J-18	Buildings 14, 15	2	8	1.70	140	1.32	2.60	3.44	3.90	5.16
J-20	Buildings 26, 27, 28, 29	4	16	1.70	140	2.64	2.60	6.88	3.90	10.31
			145			**24.09**		**62.64**		**93.96**

Irrigation Demand Breakdown

Node	Land Use		Irrigation Area (sf)	Irrigation Area (acres)	Irrigation Rate[2] (GPM/acre)	Average Day Demand (GPM)	Max Day Irrigation Rate[3] (GPM/acre)	Max Day Demand (GPM)	Peak Flow Rate[4] (GPM/acre)	Max Hour Demand (GPM)
I-1	Irrigation Area 1		46,524	1.0680	1.55	1.66	15.84	16.92	23.50	25.10
I-2	Irrigation Area 2		46,524	1.0680	1.55	1.66	15.84	16.92	23.50	25.10
I-3	Irrigation Area 3		46,524	1.0680	1.55	1.66	15.84	16.92	23.50	25.10
			139,572	**3.20**		**4.97**		**50.75**		**75.30**
					Total Demand	**29.06**		**113.39**		**169.25**

[1] Per July 31, 2013 Utility Letter by Hurst & Associates

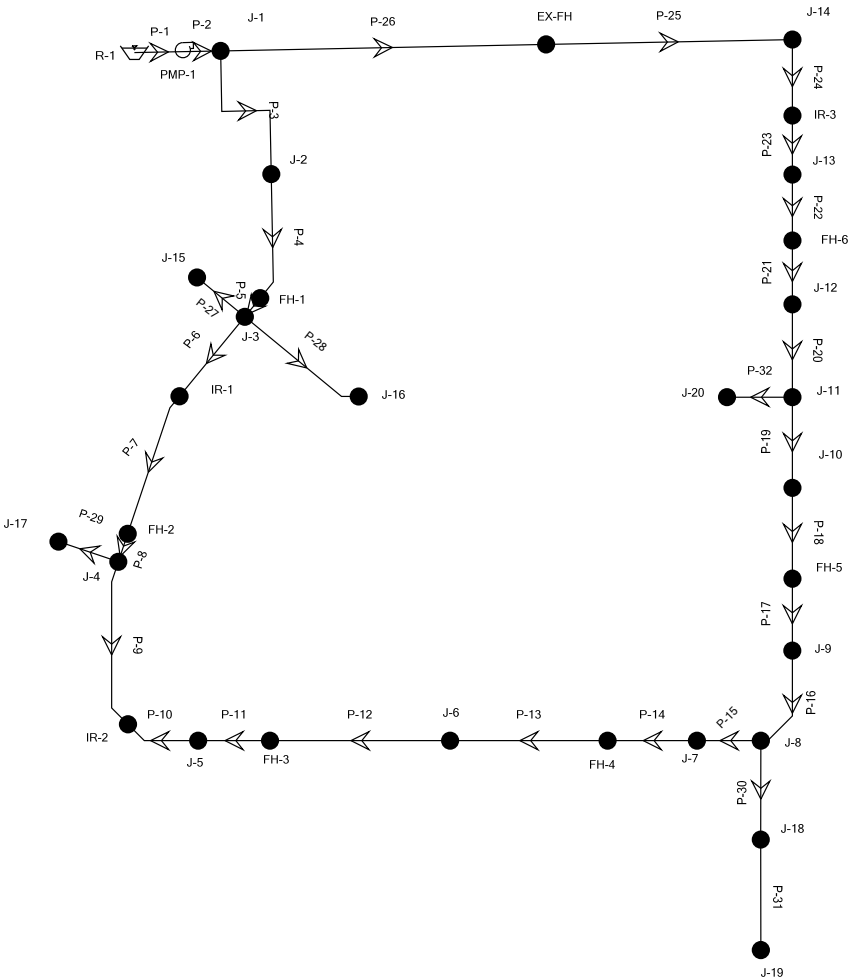
[2] Irrigation Rate - Assume 2.5 ac-ft/yr/acre

[3] Irigation Rate - Assume 0.07 ac-ft/day/acre

Montex-South-WaterCAD.wtg

Scenario: Max Hour

Active Scenario: Max Hour



Montex-South-WaterCAD.wtg

FlexTable: Reservoir Table

Active Scenario: Base

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	5,242.60	0.01	5,242.60

Montex-South-WaterCAD.wtg

FlexTable: Pump Table

Active Scenario: Base

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	5,242.50	Connection	On	5,242.60	5,427.40	0.01	184.80

Montex-South-WaterCAD.wtg
FlexTable: Junction Table
Active Scenario: Base

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	5,242.50	0.00	5,427.40	80.0
J-2	5,245.00	0.00	5,427.40	78.9
FH-1	5,246.00	0.00	5,427.40	78.5
J-3	5,246.00	0.00	5,427.40	78.5
J-15	5,246.78	0.00	5,427.40	78.1
IR-1	5,246.96	0.00	5,427.40	78.1
FH-2	5,247.84	0.00	5,427.40	77.7
J-4	5,248.00	0.00	5,427.40	77.6
J-17	5,248.10	0.00	5,427.40	77.6
J-16	5,249.26	0.00	5,427.40	77.1
IR-2	5,249.36	0.00	5,427.40	77.0
EX-FH	5,249.74	0.00	5,427.40	76.9
J-5	5,250.41	0.00	5,427.40	76.6
FH-3	5,251.53	0.00	5,427.40	76.1
IR-3	5,254.05	0.00	5,427.40	75.0
J-13	5,254.06	0.00	5,427.40	75.0
J-6	5,254.42	0.00	5,427.40	74.8
FH-6	5,254.82	0.00	5,427.40	74.7
J-14	5,255.23	0.00	5,427.40	74.5
J-12	5,255.31	0.00	5,427.40	74.5
J-11	5,256.09	0.00	5,427.40	74.1
J-20	5,256.77	0.00	5,427.40	73.8
J-10	5,256.86	0.00	5,427.40	73.8
FH-4	5,256.99	0.00	5,427.40	73.7
FH-5	5,257.78	0.00	5,427.40	73.4
J-9	5,258.00	0.00	5,427.40	73.3
J-7	5,258.20	0.00	5,427.40	73.2
J-8	5,259.00	0.00	5,427.40	72.9
J-18	5,259.13	0.00	5,427.40	72.8
J-19	5,261.48	0.00	5,427.40	71.8

Montex-South-WaterCAD.wtg

FlexTable: Pipe Table

Active Scenario: Base

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-27	45	J-3	J-15	4.0	Ductile Iron	100.0	0.000	0.00	0.00	0.000
P-29	46	J-4	J-17	4.0	Ductile Iron	100.0	0.000	0.00	0.00	0.000
P-28	104	J-3	J-16	4.0	Ductile Iron	100.0	0.000	0.00	0.00	0.000
P-32	48	J-11	J-20	4.0	Ductile Iron	100.0	0.000	0.00	0.00	0.000
P-5	18	FH-1	J-3	8.0	PVC	100.0	0.000	0.02	0.00	0.000
P-6	75	J-3	IR-1	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-7	108	IR-1	FH-2	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-8	21	FH-2	J-4	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-13	115	J-6	FH-4	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-14	65	FH-4	J-7	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-15	47	J-7	J-8	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-16	78	J-8	J-9	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-20	68	J-11	J-12	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-21	46	J-12	FH-6	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-22	48	FH-6	J-13	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-11	52	J-5	FH-3	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-12	131	FH-3	J-6	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-3	125	J-1	J-2	8.0	PVC	100.0	0.000	0.02	0.00	0.000
P-4	94	J-2	FH-1	8.0	PVC	100.0	0.000	0.02	0.00	0.000
P-23	43	J-13	IR-3	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-24	55	IR-3	J-14	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-17	52	J-9	FH-5	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-31	80	J-19	J-18	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-30	72	J-18	J-8	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-18	66	FH-5	J-10	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-19	66	J-10	J-11	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-9	124	J-4	IR-2	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-10	56	IR-2	J-5	8.0	PVC	100.0	0.000	0.01	0.00	0.000
P-1	36	R-1	PMP-1	12.0	PVC	100.0	0.000	0.01	0.00	0.000

Montex-South-WaterCAD.wtg

FlexTable: Pipe Table

Active Scenario: Base

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-2	26	PMP-1	J-1	12.0	PVC	100.0	0.000	0.01	0.00	0.000
P-25	180	J-14	EX-FH	12.0	PVC	100.0	0.000	0.00	0.00	0.000
P-26	237	EX-FH	J-1	12.0	PVC	100.0	0.000	0.00	0.00	0.000

Montex-South-WaterCAD.wtg
FlexTable: Reservoir Table
Active Scenario: Average Day

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	5,242.60	29.04	5,242.60

Montex-South-WaterCAD.wtg

FlexTable: Pump Table

Active Scenario: Average Day

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	5,242.50	Connection	On	5,242.60	5,426.47	29.04	183.87

Montex-South-WaterCAD.wtg
FlexTable: Junction Table
Active Scenario: Average Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	5,242.50	0.00	5,426.47	79.6
J-2	5,245.00	0.95	5,426.46	78.5
FH-1	5,246.00	0.00	5,426.46	78.1
J-3	5,246.00	0.00	5,426.46	78.1
J-15	5,246.78	1.98	5,426.46	77.7
IR-1	5,246.96	1.66	5,426.46	77.7
FH-2	5,247.84	0.00	5,426.46	77.3
J-4	5,248.00	0.00	5,426.46	77.2
J-17	5,248.10	2.64	5,426.46	77.2
J-16	5,249.26	2.64	5,426.46	76.7
IR-2	5,249.36	1.66	5,426.46	76.6
EX-FH	5,249.74	0.00	5,426.46	76.5
J-5	5,250.41	0.66	5,426.46	76.2
FH-3	5,251.53	0.00	5,426.46	75.7
IR-3	5,254.05	1.66	5,426.46	74.6
J-13	5,254.06	1.32	5,426.46	74.6
J-6	5,254.42	5.29	5,426.46	74.4
FH-6	5,254.82	0.00	5,426.46	74.3
J-14	5,255.23	0.00	5,426.46	74.1
J-12	5,255.31	1.32	5,426.46	74.1
J-11	5,256.09	0.00	5,426.46	73.7
J-20	5,256.77	2.64	5,426.46	73.4
J-10	5,256.86	1.32	5,426.46	73.4
FH-4	5,256.99	0.00	5,426.46	73.3
FH-5	5,257.78	0.00	5,426.46	73.0
J-9	5,258.00	0.66	5,426.46	72.9
J-7	5,258.20	1.32	5,426.46	72.8
J-8	5,259.00	0.00	5,426.46	72.5
J-18	5,259.13	1.32	5,426.46	72.4
J-19	5,261.48	0.00	5,426.46	71.4

Montex-South-WaterCAD.wtg

FlexTable: Pipe Table

Active Scenario: Average Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-27	45	J-3	J-15	4.0	Ductile Iron	100.0	0.000	1.98	0.05	0.000
P-29	46	J-4	J-17	4.0	Ductile Iron	100.0	0.000	2.64	0.07	0.000
P-28	104	J-3	J-16	4.0	Ductile Iron	100.0	0.000	2.64	0.07	0.000
P-32	48	J-11	J-20	4.0	Ductile Iron	100.0	0.000	2.64	0.07	0.000
P-5	18	FH-1	J-3	8.0	PVC	100.0	0.000	13.59	0.09	0.000
P-6	75	J-3	IR-1	8.0	PVC	100.0	0.000	8.97	0.06	0.000
P-7	108	IR-1	FH-2	8.0	PVC	100.0	0.000	7.31	0.05	0.000
P-8	21	FH-2	J-4	8.0	PVC	100.0	0.000	7.31	0.05	0.000
P-13	115	J-6	FH-4	8.0	PVC	100.0	0.000	-2.94	0.02	0.000
P-14	65	FH-4	J-7	8.0	PVC	100.0	0.000	-2.94	0.02	0.000
P-15	47	J-7	J-8	8.0	PVC	100.0	0.000	-4.26	0.03	0.000
P-16	78	J-8	J-9	8.0	PVC	100.0	0.000	-5.58	0.04	0.000
P-20	68	J-11	J-12	8.0	PVC	100.0	0.000	-10.20	0.07	0.000
P-21	46	J-12	FH-6	8.0	PVC	100.0	0.000	-11.52	0.07	0.000
P-22	48	FH-6	J-13	8.0	PVC	100.0	0.000	-11.52	0.07	0.000
P-11	52	J-5	FH-3	8.0	PVC	100.0	0.000	2.35	0.01	0.000
P-12	131	FH-3	J-6	8.0	PVC	100.0	0.000	2.35	0.01	0.000
P-3	125	J-1	J-2	8.0	PVC	100.0	0.000	14.54	0.09	0.000
P-4	94	J-2	FH-1	8.0	PVC	100.0	0.000	13.59	0.09	0.000
P-23	43	J-13	IR-3	8.0	PVC	100.0	0.000	-12.84	0.08	0.000
P-24	55	IR-3	J-14	8.0	PVC	100.0	0.000	-14.50	0.09	0.000
P-17	52	J-9	FH-5	8.0	PVC	100.0	0.000	-6.24	0.04	0.000
P-31	80	J-19	J-18	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-30	72	J-18	J-8	8.0	PVC	100.0	0.000	-1.32	0.01	0.000
P-18	66	FH-5	J-10	8.0	PVC	100.0	0.000	-6.24	0.04	0.000
P-19	66	J-10	J-11	8.0	PVC	100.0	0.000	-7.56	0.05	0.000
P-9	124	J-4	IR-2	8.0	PVC	100.0	0.000	4.67	0.03	0.000
P-10	56	IR-2	J-5	8.0	PVC	100.0	0.000	3.01	0.02	0.000
P-1	36	R-1	PMP-1	12.0	PVC	100.0	0.000	29.04	0.08	0.000

Montex-South-WaterCAD.wtg

FlexTable: Pipe Table

Active Scenario: Average Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-2	26	PMP-1	J-1	12.0	PVC	100.0	0.000	29.04	0.08	0.000
P-25	180	J-14	EX-FH	12.0	PVC	100.0	0.000	-14.50	0.04	0.000
P-26	237	EX-FH	J-1	12.0	PVC	100.0	0.000	-14.50	0.04	0.000

Montex-South-WaterCAD.wtg
FlexTable: Reservoir Table
Active Scenario: Max Day

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	5,242.60	113.43	5,242.60

Montex-South-WaterCAD.wtg

FlexTable: Pump Table

Active Scenario: Max Day

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	5,242.50	Connection	On	5,242.60	5,423.89	113.43	181.29

Montex-South-WaterCAD.wtg
FlexTable: Junction Table
Active Scenario: Max Day

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	5,242.50	0.00	5,423.89	78.5
J-2	5,245.00	2.48	5,423.87	77.4
FH-1	5,246.00	0.00	5,423.86	77.0
J-3	5,246.00	0.00	5,423.86	77.0
J-15	5,246.78	5.16	5,423.85	76.6
IR-1	5,246.96	16.92	5,423.85	76.5
FH-2	5,247.84	0.00	5,423.85	76.2
J-4	5,248.00	0.00	5,423.85	76.1
J-17	5,248.10	6.88	5,423.84	76.0
J-16	5,249.26	6.88	5,423.85	75.5
IR-2	5,249.36	16.92	5,423.85	75.5
EX-FH	5,249.74	0.00	5,423.88	75.3
J-5	5,250.41	1.72	5,423.85	75.0
FH-3	5,251.53	0.00	5,423.85	74.6
IR-3	5,254.05	16.92	5,423.87	73.5
J-13	5,254.06	3.44	5,423.87	73.5
J-6	5,254.42	13.75	5,423.85	73.3
FH-6	5,254.82	0.00	5,423.86	73.1
J-14	5,255.23	0.00	5,423.88	73.0
J-12	5,255.31	3.44	5,423.86	72.9
J-11	5,256.09	0.00	5,423.86	72.6
J-20	5,256.77	6.88	5,423.85	72.3
J-10	5,256.86	3.44	5,423.85	72.2
FH-4	5,256.99	0.00	5,423.85	72.2
FH-5	5,257.78	0.00	5,423.85	71.9
J-9	5,258.00	1.72	5,423.85	71.8
J-7	5,258.20	3.44	5,423.85	71.7
J-8	5,259.00	0.00	5,423.85	71.3
J-18	5,259.13	3.44	5,423.85	71.3
J-19	5,261.48	0.00	5,423.85	70.2

Montex-South-WaterCAD.wtg

FlexTable: Pipe Table

Active Scenario: Max Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-27	45	J-3	J-15	4.0	Ductile Iron	100.0	0.000	5.16	0.13	0.000
P-29	46	J-4	J-17	4.0	Ductile Iron	100.0	0.000	6.88	0.18	0.000
P-28	104	J-3	J-16	4.0	Ductile Iron	100.0	0.000	6.88	0.18	0.000
P-32	48	J-11	J-20	4.0	Ductile Iron	100.0	0.000	6.88	0.18	0.000
P-5	18	FH-1	J-3	8.0	PVC	100.0	0.000	52.59	0.34	0.000
P-6	75	J-3	IR-1	8.0	PVC	100.0	0.000	40.55	0.26	0.000
P-7	108	IR-1	FH-2	8.0	PVC	100.0	0.000	23.63	0.15	0.000
P-8	21	FH-2	J-4	8.0	PVC	100.0	0.000	23.63	0.15	0.000
P-13	115	J-6	FH-4	8.0	PVC	100.0	0.000	-15.64	0.10	0.000
P-14	65	FH-4	J-7	8.0	PVC	100.0	0.000	-15.64	0.10	0.000
P-15	47	J-7	J-8	8.0	PVC	100.0	0.000	-19.08	0.12	0.000
P-16	78	J-8	J-9	8.0	PVC	100.0	0.000	-22.52	0.14	0.000
P-20	68	J-11	J-12	8.0	PVC	100.0	0.000	-34.55	0.22	0.000
P-21	46	J-12	FH-6	8.0	PVC	100.0	0.000	-37.99	0.24	0.000
P-22	48	FH-6	J-13	8.0	PVC	100.0	0.000	-37.99	0.24	0.000
P-11	52	J-5	FH-3	8.0	PVC	100.0	0.000	-1.88	0.01	0.000
P-12	131	FH-3	J-6	8.0	PVC	100.0	0.000	-1.88	0.01	0.000
P-3	125	J-1	J-2	8.0	PVC	100.0	0.000	55.07	0.35	0.000
P-4	94	J-2	FH-1	8.0	PVC	100.0	0.000	52.59	0.34	0.000
P-23	43	J-13	IR-3	8.0	PVC	100.0	0.000	-41.43	0.26	0.000
P-24	55	IR-3	J-14	8.0	PVC	100.0	0.000	-58.35	0.37	0.000
P-17	52	J-9	FH-5	8.0	PVC	100.0	0.000	-24.23	0.15	0.000
P-31	80	J-19	J-18	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-30	72	J-18	J-8	8.0	PVC	100.0	0.000	-3.44	0.02	0.000
P-18	66	FH-5	J-10	8.0	PVC	100.0	0.000	-24.23	0.15	0.000
P-19	66	J-10	J-11	8.0	PVC	100.0	0.000	-27.67	0.18	0.000
P-9	124	J-4	IR-2	8.0	PVC	100.0	0.000	16.75	0.11	0.000
P-10	56	IR-2	J-5	8.0	PVC	100.0	0.000	-0.17	0.00	0.000
P-1	36	R-1	PMP-1	12.0	PVC	100.0	0.000	113.43	0.32	0.000

Montex-South-WaterCAD.wtg

FlexTable: Pipe Table

Active Scenario: Max Day

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-2	26	PMP-1	J-1	12.0	PVC	100.0	0.000	113.43	0.32	0.000
P-25	180	J-14	EX-FH	12.0	PVC	100.0	0.000	-58.35	0.17	0.000
P-26	237	EX-FH	J-1	12.0	PVC	100.0	0.000	-58.35	0.17	0.000

Montex-South-WaterCAD.wtg
FlexTable: Reservoir Table
Active Scenario: Max Hour

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	5,242.60	169.29	5,242.60

Montex-South-WaterCAD.wtg

FlexTable: Pump Table

Active Scenario: Max Hour

Label	Elevation (ft)	Pump Definition	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	5,242.50	Connection	On	5,242.59	5,422.22	169.29	179.63

Montex-South-WaterCAD.wtg
FlexTable: Junction Table
Active Scenario: Max Hour

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	5,242.50	0.00	5,422.22	77.8
J-2	5,245.00	3.72	5,422.18	76.7
FH-1	5,246.00	0.00	5,422.16	76.2
J-3	5,246.00	0.00	5,422.15	76.2
J-15	5,246.78	7.74	5,422.15	75.9
IR-1	5,246.96	25.10	5,422.14	75.8
FH-2	5,247.84	0.00	5,422.13	75.4
J-4	5,248.00	0.00	5,422.13	75.3
J-17	5,248.10	10.31	5,422.12	75.3
J-16	5,249.26	10.31	5,422.13	74.8
IR-2	5,249.36	25.10	5,422.13	74.7
EX-FH	5,249.74	0.00	5,422.21	74.6
J-5	5,250.41	2.58	5,422.13	74.3
FH-3	5,251.53	0.00	5,422.13	73.8
IR-3	5,254.05	25.10	5,422.18	72.7
J-13	5,254.06	5.16	5,422.17	72.7
J-6	5,254.42	20.63	5,422.13	72.6
FH-6	5,254.82	0.00	5,422.17	72.4
J-14	5,255.23	0.00	5,422.20	72.2
J-12	5,255.31	5.16	5,422.16	72.2
J-11	5,256.09	0.00	5,422.15	71.8
J-20	5,256.77	10.31	5,422.14	71.5
J-10	5,256.86	5.16	5,422.15	71.5
FH-4	5,256.99	0.00	5,422.13	71.4
FH-5	5,257.78	0.00	5,422.14	71.1
J-9	5,258.00	2.58	5,422.14	71.0
J-7	5,258.20	5.16	5,422.13	70.9
J-8	5,259.00	0.00	5,422.13	70.6
J-18	5,259.13	5.16	5,422.13	70.5
J-19	5,261.48	0.00	5,422.13	69.5

Montex-South-WaterCAD.wtg

FlexTable: Pipe Table

Active Scenario: Max Hour

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
P-27	45	J-3	J-15	4.0	Ductile Iron	100.0	0.000	7.74	0.20	0.000
P-29	46	J-4	J-17	4.0	Ductile Iron	100.0	0.000	10.31	0.26	0.000
P-28	104	J-3	J-16	4.0	Ductile Iron	100.0	0.000	10.31	0.26	0.000
P-32	48	J-11	J-20	4.0	Ductile Iron	100.0	0.000	10.31	0.26	0.000
P-5	18	FH-1	J-3	8.0	PVC	100.0	0.000	78.50	0.50	0.000
P-6	75	J-3	IR-1	8.0	PVC	100.0	0.000	60.45	0.39	0.000
P-7	108	IR-1	FH-2	8.0	PVC	100.0	0.000	35.35	0.23	0.000
P-8	21	FH-2	J-4	8.0	PVC	100.0	0.000	35.35	0.23	0.000
P-13	115	J-6	FH-4	8.0	PVC	100.0	0.000	-23.27	0.15	0.000
P-14	65	FH-4	J-7	8.0	PVC	100.0	0.000	-23.27	0.15	0.000
P-15	47	J-7	J-8	8.0	PVC	100.0	0.000	-28.43	0.18	0.000
P-16	78	J-8	J-9	8.0	PVC	100.0	0.000	-33.59	0.21	0.000
P-20	68	J-11	J-12	8.0	PVC	100.0	0.000	-51.64	0.33	0.000
P-21	46	J-12	FH-6	8.0	PVC	100.0	0.000	-56.80	0.36	0.000
P-22	48	FH-6	J-13	8.0	PVC	100.0	0.000	-56.80	0.36	0.000
P-11	52	J-5	FH-3	8.0	PVC	100.0	0.000	-2.64	0.02	0.000
P-12	131	FH-3	J-6	8.0	PVC	100.0	0.000	-2.64	0.02	0.000
P-3	125	J-1	J-2	8.0	PVC	100.0	0.000	82.22	0.52	0.000
P-4	94	J-2	FH-1	8.0	PVC	100.0	0.000	78.50	0.50	0.000
P-23	43	J-13	IR-3	8.0	PVC	100.0	0.000	-61.96	0.40	0.000
P-24	55	IR-3	J-14	8.0	PVC	100.0	0.000	-87.06	0.56	0.000
P-17	52	J-9	FH-5	8.0	PVC	100.0	0.000	-36.17	0.23	0.000
P-31	80	J-19	J-18	8.0	PVC	100.0	0.000	0.00	0.00	0.000
P-30	72	J-18	J-8	8.0	PVC	100.0	0.000	-5.16	0.03	0.000
P-18	66	FH-5	J-10	8.0	PVC	100.0	0.000	-36.17	0.23	0.000
P-19	66	J-10	J-11	8.0	PVC	100.0	0.000	-41.33	0.26	0.000
P-9	124	J-4	IR-2	8.0	PVC	100.0	0.000	25.04	0.16	0.000
P-10	56	IR-2	J-5	8.0	PVC	100.0	0.000	-0.06	0.00	0.000
P-1	36	R-1	PMP-1	12.0	PVC	100.0	0.000	169.29	0.48	0.000

Montex-South-WaterCAD.wtg

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Max Day + FF

Label	Fire Flow Iterations	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Is Fire Flow Run Balanced?
EX-FH	3	True	1,500.00	3,411.69	1,500.00	3,411.69	20.0	29.7	20.0	25.6	J-19	20.0	25.6	J-19	True
FH-1	3	True	1,500.00	2,076.80	1,500.00	2,076.80	20.0	44.7	20.0	41.5	J-19	20.0	41.5	J-19	True
FH-2	3	True	1,500.00	2,377.50	1,500.00	2,377.50	20.0	34.4	20.0	34.5	J-17	20.0	34.5	J-17	True
FH-3	4	True	1,500.00	2,774.76	1,500.00	2,774.76	20.0	20.9	20.0	22.2	J-6	20.0	22.2	J-6	True
FH-4	5	True	1,500.00	2,712.00	1,500.00	2,712.00	20.0	20.0	20.0	21.0	J-19	20.0	21.0	J-19	True
FH-5	3	True	1,500.00	2,424.00	1,500.00	2,424.00	20.0	28.8	20.0	28.5	J-19	20.0	28.5	J-19	True
FH-6	3	True	1,500.00	2,052.60	1,500.00	2,052.60	20.0	41.7	20.0	40.2	J-19	20.0	40.2	J-19	True
IR-1	3	True	1,500.00	2,218.81	1,516.92	2,235.73	20.0	39.8	20.0	38.4	J-19	20.0	38.4	J-19	True
IR-2	3	True	1,500.00	2,597.85	1,516.92	2,614.77	20.0	27.0	20.0	27.4	J-5	20.0	27.4	J-5	True
IR-3	3	True	1,500.00	1,893.82	1,516.92	1,910.74	20.0	46.6	20.0	44.2	J-19	20.0	44.2	J-19	True
J-1	3	True	1,500.00	3,411.69	1,500.00	3,411.69	20.0	36.2	20.0	28.0	J-19	20.0	28.0	J-19	True
J-2	3	True	1,500.00	1,915.88	1,502.48	1,918.36	20.0	49.9	20.0	44.8	J-19	20.0	44.8	J-19	True
J-3	3	True	1,500.00	2,104.75	1,500.00	2,104.75	20.0	43.8	20.0	40.9	J-19	20.0	40.9	J-19	True
J-4	3	True	1,500.00	2,409.36	1,500.00	2,409.36	20.0	33.4	20.0	33.3	J-17	20.0	33.3	J-17	True
J-5	3	True	1,500.00	2,687.37	1,501.72	2,689.09	20.0	23.9	20.0	24.3	FH-3	20.0	24.3	FH-3	True
J-6	5	True	1,500.00	2,743.55	1,513.75	2,757.30	20.0	20.0	20.0	21.6	FH-4	20.0	21.6	FH-4	True
J-7	4	True	1,500.00	2,699.60	1,503.44	2,703.04	20.0	20.2	20.0	20.1	J-19	20.0	20.1	J-19	True
J-8	3	True	1,500.00	2,624.25	1,500.00	2,624.25	20.0	22.1	20.0	21.0	J-19	20.0	21.0	J-19	True
J-9	3	True	1,500.00	2,502.97	1,501.72	2,504.68	20.0	26.2	20.0	25.7	J-19	20.0	25.7	J-19	True
J-10	3	True	1,500.00	2,325.96	1,503.44	2,329.40	20.0	32.3	20.0	31.9	J-19	20.0	31.9	J-19	True
J-11	3	True	1,500.00	2,228.19	1,500.00	2,228.19	20.0	35.7	20.0	35.1	J-19	20.0	35.1	J-19	True
J-12	3	True	1,500.00	2,125.86	1,503.44	2,129.30	20.0	39.2	20.0	38.1	J-19	20.0	38.1	J-19	True
J-13	3	True	1,500.00	1,972.37	1,503.44	1,975.81	20.0	44.4	20.0	42.3	J-19	20.0	42.3	J-19	True
J-14	3	True	1,500.00	3,411.68	1,500.00	3,411.68	20.0	25.1	20.0	24.1	J-19	20.0	24.1	J-19	True
J-15	(N/A)	(N/A)	1,500.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	(N/A)	20.0	(N/A)	(N/A)	(N/A)
J-16	(N/A)	(N/A)	1,500.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	(N/A)	20.0	(N/A)	(N/A)	(N/A)
J-17	(N/A)	(N/A)	1,500.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	(N/A)	20.0	(N/A)	(N/A)	(N/A)
J-18	3	True	1,500.00	1,563.28	1,503.44	1,566.72	20.0	43.1	20.0	42.1	J-19	20.0	42.1	J-19	True
J-19	3	True	1,500.00	1,563.28	1,500.00	1,563.28	20.0	39.7	20.0	43.1	J-18	20.0	43.1	J-18	True
J-20	(N/A)	(N/A)	1,500.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	(N/A)	20.0	(N/A)	(N/A)	(N/A)

Report of Inspection/Test

Fire Hydrant #1

October 21, 2014

Integrated Safety Services of Colorado, LLC
9082 Marshall Ct.
Westminster, CO 80031
Phone: 303-278-1538
Fax: 303-278-1519

Property	**Owner/Agent**
Montex at Vista Ridge	Enertia Consulting Group, LLC
Mountain View Blvd/Ridge View Drive Erie, CO 80516	1437 Larimer St Denver, CO 80202
Shawn Merz (720)502-6574	Shawn Merz (720)502-6574

Conducted by: Matthew Foster
Inspection Ref: 73353

Print Date: 10/22/2014

Signatures

Inspector - Printed	Inspector - Signature	Date Completed	
Signature on Original			I state that the information on this form is correct at the time and place of my inspection, and all equipment tested at this time was left in operational condition upon completion of this inspection except as noted.

Hydrant Flow Test Inspection

Yes	Free from ice or water in barrel ?
Yes	Free from leaks or cracks at outlets and top of hydrants?
Yes	Threads,outlets,caps & stem in good condition and lubricated?
Yes	Pumper and nozzle caps are slightly more than hand tight?
NA	Exposed piping is properly secured and free from leaks or physical damage?
Yes	Is paint in good condition?
Yes	Operating nut not worn, twisted or broken?
Yes	Operating nut turns without difficulty?
Yes	Road box and shutoff valve is visible and accessible?
Yes	Hydrant flowed until clear (min 1 Minute)?
Yes	Dry Barrels drain in at least 1 hour?
NA	Dry barrels requiring pumping are identified?
Yes	Control valves operated through full range?
Yes	Hydrant shuts off completely?
NA	Strainers, if installed, not blocked and corrosion free?
NA	Strainers cleaned (if possible)?
NA	Monitor nozzles moved through full range?
NA	Monitor nozzle flowed acceptable water?
NA	Monitor nozzle lubricated?
NA	Backflow assembles, if installed, passed full flow test?

Fire Hydrant Flow Test 50%

1st Hyd E of 2998	Residual Hydrant Location
2nd Hyd E of 2998	Flow Hydrant Location
80	Static PSI
70	Residual PSI
17	Pitot PSI
2 1/2	Orifice Size
9	Discharge Coefficient
695	Water Flow GPM

Fire Hydrant Flow Test 100%

1st Hyd E of 2998	Residual Hydrant Location
2nd Hyd E of 2998	Flow Hydrant Location
80	Static PSI
75	Residual PSI
22	Pitot PSI
2 1/2	Orifice Size
9	Discharge Coefficient
791	Water Flow GPM

Copyright 2002-2014 Life Safety Inspector, OnSite Software

Report of Inspection/Test

Fire Hydrant #2

October 21, 2014

Integrated Safety Services of Colorado, LLC
9082 Marshall Ct.
Westminster, CO 80031
Phone: 303-278-1538
Fax: 303-278-1519

Property	**Owner/Agent**
Montex at Vista Ridge	Enertia Consulting Group, LLC
Mountain View Blvd/Ridge View Drive Erie, CO 80516	1437 Larimer St Denver, CO 80202
Shawn Merz (720)502-6574	Shawn Merz (720)502-6574

Conducted by: Matthew Foster
Inspection Ref: 73354

Print Date: 10/22/2014

Signatures

Inspector - Printed	Inspector - Signature	Date Completed	
Signature on Original			I state that the information on this form is correct at the time and place of my inspection, and all equipment tested at this time was left in operational condition upon completion of this inspection except as noted.

Hydrant Flow Test Inspection

Yes	Free from ice or water in barrel ?
Yes	Free from leaks or cracks at outlets and top of hydrants?
Yes	Threads,outlets,caps & stem in good condition and lubricated?
Yes	Pumper and nozzle caps are slightly more than hand tight?
NA	Exposed piping is properly secured and free from leaks or physical damage?
Yes	Is paint in good condition?
Yes	Operating nut not worn, twisted or broken?
Yes	Operating nut turns without difficulty?
Yes	Road box and shutoff valve is visible and accessible?
Yes	Hydrant flowed until clear (min 1 Minute)?
Yes	Dry Barrels drain in at least 1 hour?
NA	Dry barrels requiring pumping are identified?
Yes	Control valves operated through full range?
Yes	Hydrant shuts off completely?
NA	Strainers, if installed, not blocked and corrosion free?
NA	Strainers cleaned (if possible)?
NA	Monitor nozzles moved through full range?
NA	Monitor nozzle flowed acceptable water?
NA	Monitor nozzle lubricated?
NA	Backflow assembles, if installed, passed full flow test?

Fire Hydrant Flow Test 50%

2nd Hyd E of 2998	Residual Hydrant Location
1st Hyd E of 2998	Flow Hydrant Location
72	Static PSI
75	Residual PSI
14	Pitot PSI
2 1/2	Orifice Size
9	Discharge Coefficient
631	Water Flow GPM

Fire Hydrant Flow Test 100%

2nd Hyd E of 2998	Residual Hydrant Location
1st Hyd E of 2998	Flow Hydrant Location
72	Static PSI
90	Residual PSI
22	Pitot PSI
2 1/2	Orifice Size
9	Discharge Coefficient
791	Water Flow GPM

Copyright 2002-2014 Life Safety Inspector, OnSite Software

APPENDIX B

FIRE-FLOW REQUIREMENTS FOR BUILDINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION B101
GENERAL

B101.1 Scope. The procedure for determining fire-flow requirements for buildings or portions of buildings hereafter constructed shall be in accordance with this appendix. This appendix does not apply to structures other than buildings.

SECTION B102
DEFINITIONS

B102.1 Definitions. For the purpose of this appendix, certain terms are defined as follows:

FIRE-FLOW. The flow rate of a water supply, measured at 20 pounds per square inch (psi) (138 kPa) residual pressure, that is available for fire fighting.

FIRE-FLOW CALCULATION AREA. The floor area, in square feet (m^2), used to determine the required fire flow.

SECTION B103
MODIFICATIONS

B103.1 Decreases. The fire chief is authorized to reduce the fire-flow requirements for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

B103.2 Increases. The fire chief is authorized to increase the fire-flow requirements where conditions indicate an unusual susceptibility to group fires or conflagrations. An increase shall not be more than twice that required for the building under consideration.

B103.3 Areas without water supply systems. For information regarding water supplies for fire-fighting purposes in rural and suburban areas in which adequate and reliable water supply systems do not exist, the *fire code official* is authorized to utilize NFPA 1142 or the *International Wildland-Urban Interface Code.*

SECTION B104
FIRE-FLOW CALCULATION AREA

B104.1 General. The fire-flow calculation area shall be the total floor area of all floor levels within the *exterior walls*, and under the horizontal projections of the roof of a building, except as modified in Section B104.3.

B104.2 Area separation. Portions of buildings which are separated by *fire walls* without openings, constructed in accordance with the *International Building Code,* are allowed to be considered as separate fire-flow calculation areas.

B104.3 Type IA and Type IB construction. The fire-flow calculation area of buildings constructed of Type IA and Type IB construction shall be the area of the three largest successive floors.

Exception: Fire-flow calculation area for open parking garages shall be determined by the area of the largest floor.

SECTION B105
FIRE-FLOW REQUIREMENTS FOR BUILDINGS

B105.1 One- and two-family dwellings. The minimum fire-flow and flow duration requirements for one- and two-family *dwellings* having a fire-flow calculation area that does not exceed 3,600 square feet (344.5 m^2) shall be 1,000 gallons per minute (3785.4 L/min) for 1 hour. Fire-flow and flow duration for *dwellings* having a fire-flow calculation area in excess of 3,600 square feet (344.5m^2) shall not be less than that specified in Table B105.1.

Exception: A reduction in required fire-flow of 50 percent, as *approved*, is allowed when the building is equipped with an *approved automatic sprinkler system.*

B105.2 Buildings other than one- and two-family dwellings. The minimum fire-flow and flow duration for buildings other than one- and two-family *dwellings* shall be as specified in Table B105.1.

Exception: A reduction in required fire-flow of up to 75 percent, as *approved*, is allowed when the building is provided with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. The resulting fire-flow shall not be less than 1,500 gallons per minute (5678 L/min) for the prescribed duration as specified in Table B105.1.

SECTION B106
REFERENCED STANDARDS

ICC	IBC—12	International Building Code	B104.2, Table B105.1
ICC	IWUIC—12	International Wildland-Urban Interface Code	B103.3
NFPA	1142—12	Standard on Water Supplies for Suburban and Rural Fire Fighting	B103.3

TABLE B105.1
MINIMUM REQUIRED FIRE-FLOW AND FLOW DURATION FOR BUILDINGS

FIRE-FLOW CALCULATION AREA (square feet)					FIRE-FLOW (gallons per minute)[b]	FLOW DURATION (hours)
Type IA and IB[a]	Type IIA and IIIA[a]	Type IV and V-A[a]	Type IIB and IIIB[a]	Type V-B[a]		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	3
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m2, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the *International Building Code*.

b. Measured at 20 psi residual pressure.

APPENDIX C

FIRE HYDRANT LOCATIONS AND DISTRIBUTION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION C101
GENERAL

C101.1 Scope. Fire hydrants shall be provided in accordance with this appendix for the protection of buildings, or portions of buildings, hereafter constructed.

SECTION C102
LOCATION

C102.1 Fire hydrant locations. Fire hydrants shall be provided along required fire apparatus access roads and adjacent public streets.

SECTION C103
NUMBER OF FIRE HYDRANTS

C103.1 Fire hydrants available. The minimum number of fire hydrants available to a building shall not be less than that listed in Table C105.1. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in Table C105.1 when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted.

SECTION C104
CONSIDERATION OF EXISTING FIRE HYDRANTS

C104.1 Existing fire hydrants. Existing fire hydrants on public streets are allowed to be considered as available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads.

SECTION C105
DISTRIBUTION OF FIRE HYDRANTS

C105.1 Hydrant spacing. The average spacing between fire hydrants shall not exceed that listed in Table C105.1.

Exception: The fire chief is authorized to accept a deficiency of up to 10 percent where existing fire hydrants provide all or a portion of the required fire hydrant service.

Regardless of the average spacing, fire hydrants shall be located such that all points on streets and access roads adjacent to a building are within the distances listed in Table C105.1.

TABLE C105.1
NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENT (gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS[a, b, c] (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT[d]
1,750 or less	1	500	250
2,000-2,250	2	450	225
2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more[e]	200	120

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m.

a. Reduce by 100 feet for dead-end streets or roads.

b. Where streets are provided with median dividers which cannot be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute and 400 feet for higher fire-flow requirements.

c. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

d. Reduce by 50 feet for dead-end streets or roads.

e. One hydrant for each 1,000 gallons per minute or fraction thereof.

Montex South at Vista Ridge Sanitary Design Summary

Sanitary Sewer Design Flow

Land Use	Number of Buildings	Units	Residential/Unit Multiplier	Unit Wastewater Flow Rate (GPCD) (GPD/ACRE)	Average Day Demand (GPD)	Average Day Demand (cfs)	Average Day Demand (MGD)	Wastewater Peaking Factor[1]	Max Day Demand (GPD)	Max Day Demand (cfs)	Max Day Demand (MGD)
Buildings 13-22, 27, 28, 37	13	52	1.70	90	7,956	0.012	0.008	5.00	39,780	0.062	0.040
Design Point 1					**7,956**	**0.012**	**0.008**		**39,780**	**0.062**	**0.040**
Buildings 2-12, 23-26, 29-36	23	92	1.70	90	14,076	0.022	0.014	5.00	70,380	0.109	0.070
Building 1	1	1	3.00	90	270	0.000	0.000	5.00	1,350	0.002	0.001
Design Point 2					**14,346**	**0.022**	**0.014**		**71,730**	**0.111**	**0.072**
Total					**22,302**	**0.035**	**0.022**		**111,510**	**0.173**	**0.112**

[1] $PF = 3.8/(ADF)^{0.17}$ (2.5 min, 5.0 max)

Free Online Manning Pipe Flow Calculator

List of Calculators Hydraulics Language

Manning Formula Uniform Pipe Flow at Given Slope and Depth

Can you help me translate this calculator to your language or host this calculator at your web site?

Montex South

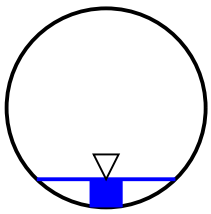
Design Point 1

Set units: m mm ft inches

Pipe diameter, d_0	0.67	ft
Manning roughness, n ?	0.011	
Pressure slope (possibly ? equal to pipe slope), S_0	.01 rise/run	
Percent of (or ratio to) full depth (100% or 1 if flowing full)	0.1411	fraction

Results:

Flow, q	0.0620	cfs
Velocity, v	2.0428	ft/sec
Velocity head, h_v	0.0649	ft
Flow area	0.0303	ft^2
Wetted perimeter	0.5160	ft
Hydraulic radius	0.0588	ft
Top width, T	0.4665	ft
Froude number, F	1.41	
Shear stress (tractive force), tau	0.0590	psf



Please give us your valued words of suggestion or praise. Did this free calculator exceed your expectations in every way?

Home | Support | FreeSoftware | Engineering Services | Engineering Calculators | Technical Documents | Blog (new in 2009) | Personal essays | Collaborative Family Trees | Contact

Last Modified 06/16/2015 17:19:15

Free Online Manning Pipe Flow Calculator

List of Calculators Hydraulics Language

Manning Formula Uniform Pipe Flow at Given Slope and Depth

Can you help me translate this calculator to your language or host this calculator at your web site?

Montex South

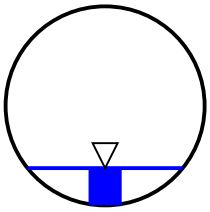
Design Point 2

Set units: m mm ft inches

Pipe diameter, d_0	0.67	ft
Manning roughness, n ?	0.011	
Pressure slope (possibly ? equal to pipe slope), S_0	.01 rise/run	
Percent of (or ratio to) full depth (100% or 1 if flowing full)	0.1874	fraction

Results:

Flow, q	0.1110	cfs
Velocity, v	2.4284	ft/sec
Velocity head, h_v	0.0917	ft
Flow area	0.0457	ft^2
Wetted perimeter	0.5999	ft
Hydraulic radius	0.0762	ft
Top width, T	0.5229	ft
Froude number, F	1.45	
Shear stress (tractive force), tau	0.0784	psf



Please give us your valued words of suggestion or praise. Did this free calculator exceed your expectations in every way?

Home | Support | FreeSoftware | Engineering Services | Engineering Calculators | Technical Documents | Blog (new in 2009) | Personal essays | Collaborative Family Trees | Contact

Last Modified 06/16/2015 17:19:15

ATTACHMENT C

1529 Market St., Suite 200
Denver, CO 80202
303.564.3435
shawn.merz@enertiacg.com

September 17, 2015

R. Martin Ostholthoff
Community Development Director
Town of Erie
Community Development Department
645 Holbrook Street
PO Box 750
Erie, CO 80516

Re: SP-000046-2014, PP-000055-2014 Vista Ridge Filing No. 12, 1st Amendment

Dear Mr. Ostholthoff:

This letter presents a response to the comments received on August 26, 2015 for the Preliminary Plat and Site Plan Submittals for Montex South at Vista Ridge.

Development Review Team (DRT) Preliminary Plat Comments (8/20/2015)

Preliminary Plat

1. General Comments
   a. The Board of Trustee's approved Vista Ridge Filing 14 (King Soopers) at its August 11th meeting. Recordation of the plat is eminent, and the subdivision creates three residual future development tracts, of which Tract B is a part of your proposed Vista Ridge Filing 12, 1st Amendment. Please update the legal descriptions, area totals, and tract numbering. A copy of the final Vista Ridge Filing 14 is attached.
   Response: The legal descriptions, area totals and tract numbering have been updated.

   b. Proof of recordation and establishment of an HOA for common areas and shared facilities is required at Final Plat. *Update:* The applicant stated that an HOA is no longer necessary. Remove any HOA references from the plat, specifically the Tract Summary Chart.
   Response: HOA references have been removed.

   c. See redlines for technical adjustments and comments.
   Response: Redlines containing technical adjustments and comments have been addressed.

2. Sheet 1 – Cover Sheet
   a. Re-letter the tracts per the following comments and update notes, tables, and drawings accordingly.
   Response: Tracts, notes and tables have been updated per comments.

   b. Update the Tract Summary Chart. Tract A1 (to be A2 and minus the detention pond) is a future development tract and should be retained by the Owner.
   Response: The Tract Summary Chart has been updated.

c. Note 6 provides for a blanket drainage easement. Revise note to exclude those areas within the building footprints from that blanket easement.
Response: The note has been updated to exclude the areas within the building footprint.

d. Add to the General Notes:
   14. Maintenance Definition: Maintenance is the process of preserving capital improvements, structures, development, or systems to meet its function or original intent of the facility. This is the preservation, conservation, keeping in good conditions, operating safely, operating efficiently, testing, inspection, servicing, repairing, grading, cleaning, picking up trash and debris, pest control, painting, mowing, pruning, and prolonging of these facilities. Maintenance also includes the provision of financial support to maintain the facilities. Facilities include but are not limited to: landscaping, open areas, grass, shrubs, trees, playgrounds, site furniture and fixtures, retaining walls, signs, sidewalks, drainage structures such as ponds, swales, drain pans, inlets, and outlet structures.

   Response: Maintenance definition note has been added to plat general notes.

e. *Condition of PP approval*: A separate Vacation application will need to be processed concurrent with any final plat to vacate the existing 10-foot utility easement created by the Vista Ridge Filing No. 12 plat.
Response: Comment noted.

3. Sheet 2 – Plat
   a. Divide off the detention pond into its own tract. The notes for blanket drainage easements, open space, and landscaping will be cleaner and not encumber the future commercial lots in the balance of Tract A1 (to be Tract A2).
   Response: The detention pond is now within a separate tract A-1.

   b. Match the dimensions of the east property line and the eastern portions of the north and south property lines of Lot 3 to Tract B of the Vista Ridge Filing 14 plat.
   Response: The dimensions and linework of the east property line now match that of the Filing 14 plat.

   c. Delete the dashed lines for easements within Tract A. The entire width of Tract A shall be an easement per Note 2 and the Use in the Tract Summary Chart.
   Response: Easements have been removed within Tract A.

   d. Delete all the "Rec. No. _____" placeholders for easements to be dedicated via the final plat. The placeholders are only for easements dedicated by separate instrument.
   Response: Deleted all Rec. No. placehoders.

   e. Add a "0" to the Project Number.
   Response: Added 0 to the project number.

4. Sheet 3 – Plat
   a. Delete all the "Rec. No. _____" placeholders for easements to be dedicated via the final plat. The placeholders are only for easements dedicated by separate

instrument (i.e. the Access & Utility Easement dedicated in the pond by the original Filing 12 plat).
Response: Deleted all Rec. No. placeholders.

Site Plan

5. General Comments
   a. Add the Architectural Elevations to the Site Plan Set.
      Response: Colored elevations have been added to the Site Plan Set; Sheets A1-A4.

   b. Combine the Landscape Plans, Photometrics and Architectural Elevations physically into the same plan set (Sheets C1-C7).
      Response: The Landscape Plans, Photometrics Plans and Architectural Elevations are combined into the Site Plan Set.

   c. See redlines for technical adjustments and comments.
      Response: All redlines have been addressed per comments received.

6. Sheet C1
   a. Separate out the pocket park acreage from the "Planted/Mulched Area" under the Landscape heading of the Land Use Tabulation. The balance will be used for calculation of trees and shrubs in the landscape drawings.
      Response: The pocket park acreage has been separated out as requested.

7. Sheet C2
   a. Buildings 5, 8, and 32 are into or have roof overhangs within the front setback line of 15'. The VRDP does not allow encroachments in the front setback for roof overhangs (V.O.d).
      Response: Per email dated May 20, 2015 from staff to Ward Ritter and myself, item number one identifies that, "Front Setback Encroachments: The eave encroachments may project into the front setback by up to 2'." We have proceeded with this direction. Please see email attached to this comment response letter.

   b. Provide a sidewalk connection and curb ramp from the southeast parking lot to the sidewalk of Ridgeview Circle.
      Response: A sidewalk and curb ramp from the southeast parking lot to the sidewalk of Ridgeview Circle has been added.

   c. On the previous submittal tree lawns were shown as 8' wide per the requirements of the UDC (10.6.5.F.1.c.i). The tree lawns are now shown as 6.5'. Revise to 8'.
      Response: The tree lawns have been revised to be 8' from back of curb to the edge of the walk.

   d. The Building 14 footprint does not match the Building Type 2 footprint notated on the sheet. Revise footprint to match the model proposed.
      Response: Building 14 labeling has been revised to be a Type 1, Elevation A per the footprint.

   e. The UDC's requirements for architectural variety of Manor Homes states that models with identical facades shall not be placed adjacent to or across the street

from one another (10.6.7.F.1.e.ii). Buildings 25 & 30 are identical and are adjacent.
Response: Building 25 is now a Type 1, Elevation A and building 30 is a Type 1, Elevation B to comply with section (10.6.7.F.e.ii).

f. A select number of parking spaces encroach into the setbacks along Ridge View Circle. Please submit a request for Alternative Equivalent Compliance addressed to the Planning Commission to allow parking in the setbacks.
Response: A request for Alternative Equivalent Compliance to allow parking within the setback is included.

g. Delete the southwestern parking stall in the lot west of Building 9 as it encroaches into the setback/landscape buffer adjacent to a future road.
Response: The southwestern parking stall in the lot west of building 9 has been removed as requested.

8. Sheet C3
   a. Add sidewalk connectors to the street (see redlines).
   Response: Sidewalk connectors per relines have been added.

   b. Depending on the depth of the line, the storm pipe just south of Building 2 may be in Building 2's foundation zone of influence.
   Response: The location so the storm outfall is unfortunately confined to this location and is only close to the foundation of building 2 at the southwest corner. This is a reinforced concrete pipe that is shallow and only 18" in diameter thus virtually eliminating any possible rework.

   c. See redlines for potential light locations for safety along walkways.
   Response: All buildings will have building mounted lights to assist with safety at night. The central located light suggestion, has been added.

9. Sheet C4
   a. The sidewalk connection south of Building 14 ascends approximately 3' to the south property line, but no steps, wing walls, or railings are shown, as applicable.
   Response: Seven steps with a handrail have been added to this location.

   b. The Proposed Diversion Swale leader is not pointing to a swale.
   Response: The diversion swale adjacent to the east and south property line has been added.

10. Sheet C6
    a. Each building model provides 1-one bedroom, 2-two bedrooms, and 1-three bedroom units. Each building is required to provide 7.5 off-street parking stalls for the building occupants (10.6.6.D.1.c & Table 6.6-1). Each building model provides 6 off-street parking stalls in the garages resulting in 1.5 (rounded to 2) parking stalls still required on site. *Update:* Thank you for the parking exhibit. There are a few formatting and clarification revisions needs. Please discuss with staff to update and finalize.
    Response: In conjunction with discussions with the Town staff, we have prepared formatting updates to clarify the location and distance of the off-street parking for residents. Please see sheets C6 and C7 of the Site Plan.

11. Sheet C7
    a. The development, in aggregate, is required to provide 1 guest parking space for every three units (Table 6.6-1). With a 144 units, 48 guest spaces are required. While the Town's interpretation of the code allows those guest spaces to be located off-site (i.e. as on-street parking), the guest spaces are required to be within 200' of the building they are intended to serve (10.6.6.E.2.a). Provide a color-coded chart showing that each guest space is within 200' of the building it is designated to serve. *Update:* Thank you for the parking exhibit. There are a few formatting and clarification revisions needs. Please discuss with staff to update and finalize.
    Response: Response: In conjunction with discussions with the Town staff, we have prepared formatting updates to clarify the location and distance of the guest parking. Please see sheets C6 and C7 of the Site Plan.

12. Sheets L1 – L7
    a. Each lot shall independently satisfy the Town's landscape requirements (10.6.4.E). Do not use a typical building landscape detail. Show actual plantings in the plans.
    Response: Revised so all plant material is called out by species.

    b. Update the landscape requirements table on Sheet L1. The square feet used to calculate the trees and shrubs required for the landscaped area shall match the landscape area shown on the table on Sheet C1 (total landscaped area minus the pocket park). The landscape plans show 114,224 sf versus the cover sheet which shows 140,328 sf.
    Response: Updated landscape requirement table to include all landscape area within the lot in 10-6-4.E.6.a; and the footnote that the landscape area provided includes the ROW and pocket park in the calculation.

    c. Evergreen trees to be 8' minimum height.
    Response: Per the Town of Erie Park and Recreation Construction Standards and Specifications, 1062.07 Plant Materials, Size Requirements, All evergreen trees shall be a minimum of six (6) feet tall or larger.

    d. Modify the sight triangles to the stopped approach calculation on Drawing ST5 of the Town's Standards and Specs.
    Response: The site triangles have been revised as requested.

    e. Provide a component list (including quantities and square feet) to verify that the Pocket Park meets the minimum Pocket Park Component Standards of the Town of Erie Parks, Recreation, Open Space and Trails Master Plan (PROST).
    Here is the link to the PROST: http://www.erieco.gov/index.aspx?nid=825
    Response:
    Provided List A Infrastructure – (All Required)
    1. ***2 benches***
    2. ***4 bicycle racks***
    3. ***1 dog pick up station***
    4. ***1 Identification sign***
    5. ***1 individual shelter with 2 picnic tables***
    6. ***Irrigation***
    7. ***4,930 SF Open turf area***
    8. ***Sidewalks (ADA accessible)***
    9. ***2 trash receptacles***
    10. ***5 deciduous trees; 3 ornamental trees; two evergreen trees; 20 shrubs; 24 perennials, & 3 ornamental grasses***

Provided List B - (selected one of two required)
1. Display garden.
Other choices deemed not appropriate or too large for the pocket park.

Provided List C – (selected four of the three required)
1. 1 individual shelter with 2 picnic tables
2. Community garden
3. Open turf sculpted as a play berm, mound or hill with a minimum three foot height
4. Public art

Architectural Drawings

13. General Comments
    a. Provide color elevations.
    Response: Color elevations are now provided within the Site Plan, please see sheets A1-A4

    b. Number sheets sequential with the site plan set (i.e. A1, A2, etc.)
    Response: Architectural sheets are now numbered A1-A4 as requested.

    c. Dimension widths of building in the floor plan and heights of building in the elevations, typical for all sheets.
    Response: Dimensions have been added to both the elevations for height and the floor plans for width and lengths.

    d. Delete setback and property lines in the floor plans, typical for all sheets.
    Response: Setback and property lines have been removed from the architectural sheets.

Public Works (PW) Preliminary Plat Comments (8/20/2015)

Comments for Phase II Drainage Study:

1. The title of the report has been changed to a Phase III Drainage Report, but it is still a Phase II report. A Phase III report is required with Final Plat.
   Response: In conversations with staff, Riprap calculations were not included with the previous submittal. These have been added and the report as prepared is a Phase III Drainage Report.

Previous Comments for Preliminary Construction Plans:

3. On sheet 9:
   f. Irrigation services need to be shown for Tracts B, C, D, and E.
   Response: A raw waterline has been stubbed to the open space for irrigation use.

   The Town will need more information on using raw water for this site such as who's providing the water, the water rights being used, and the infrastructure serving it.

   Response: In coordinating with the Metropolitan District, it is unclear if there are water rights available at this time. That said, we have removed the raw water service and installed to potable water irrigation services; these are included on sheet C3 (Utility Plan).

New Comments for Preliminary Construction Plans:

1. The storm sewer line along Ridge View Drive will need to be extended east across the property frontage to the property to the east.
   Response: The stormsewer located at the northeast corner of the development has been extended to provide conveyance for the property to the east.

REFERRAL AGENCY COMMENTS:

Felsburg Holt & Ullevig (August 17, 2015)

Response to Comments

1a, 1b, 1g, 4 & 5 are complete with no further action.

2. We have previously suggested that the traffic impact analyses for Montex North and South be coordinated closely with the analyses for the King Soopers development in order to provide the Town of Erie with a complete picture of the traffic that will be using Ridge View Drive and the two intersections at each end. While this coordination has yet to be addressed, it does appear that the King Soopers documentation includes Tracts A and A2 in their analysis. However, access to these tracts is not fully addressed either this submittal or the King Soopers materials. We remain concerned about future cross-access and shared access issues. Again, coordinated traffic impact studies for these developments should address these concerns.
   Response: The property between Montex South and the King Soopers is now under contract by a commercial developer and is beginning the development process. This will allow the opportunity to coordinate the cross-access concerns of the Town as these are the parcels that control these access locations.

Mountain View Fire Rescue (December 19, 2014)

No further comments.

Xcel Energy (January 26, 2015)

Public Service Company of Colorado's (PSCo) Right of Way & Permits Department has reviewed the plat and site plans for **Montex South at Vista Ridge Filing No. 12 – 2nd referral**. Because natural gas must be installed along road access ways, all private drives will need to be utilized for gas main extension in order to service "internal" buildings (nos. 3, 6, 7, 25, 26, 29, 30 and 31) that are not otherwise accessible. PSCo also requests a 6-foot utility easement within the Lots directly adjacent to both sides of Tract A for natural gas distribution facilities.

The property owner/developer/contractor must contact the **Builder's Call Line at 1-800-628-2121** and complete the application process for any new gas service. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details. Additional easements may need to be acquired by separate document for new facilities.
Response: A 6' utility easement has been provided on the Preliminary Plat for gas service to buildings 3, 6, 7, 25, 26, 29, 30 & 31 as requested.

We trust that our responses to the comments are acceptable and complete. Please do not hesitate to call should you have any questions.

Sincerely,

ENERTIA CONSULTING GROUP, LLC

Bonner Gilmore
Managing Partner

Town of rie
Open pace and Trai s Ad isory
oard

From: Town of Erie Open Space and Trails Advisory Board (OSTAB)
To: Todd Bjerkaas, Senior Planner, Community Development
Date: January 16, 2015

ub ect: onte out Referra Pre i inary P at and ite P an

Location: south side of Ridge View Drive.

OSTAB has reviewed the referral materials, compared them to Town planning documents, and has prepared the following comments, questions, and recommendations for the Town's consideration in evaluating this application.

Open pace and t e atura Areas In entory Al :

Discussion: There are no NAI sites on this property. There is no proposed qualifying open space on this property. The open space obligation in the Town's Unified Development Plan (UDC) was met previous by Vista Ridge Development Corporation.

Recommendations: None

Trai s:

Discussion: There are no existing spine trails nearby. There are no proposed spine trails. There are no proposed neighborhood trails.

We typically recommend that a perimeter trail or sidewalk be included to maximize the walking opportunities for residents within their development. This application has such a sidewalk on the west side, but not on the south or east sides. However, there will be future commercial development on those sides, and there will be a wall constructed on both the south and east sides. Therefore, we do not think that a perimeter trail would be very beneficial in this specific situation.

Recommendation: None

Please pass this referral letter to the Applicant, and appropriate town departments, boards, and commissions. Thank you for your attention to these matters. OSTAB is available to discuss any of the above in more detail as needed.

Sincerely,

Open pace and Trai s Ad isory oard

Denise Brady
Kevin Chard
Dawn Fraser
Monica Kash
Nicole Littman
Ken Martin (Chair)
Joe Martinez

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

7/17/15

___Town of Erie Community Development

___Town of Erie Parks & Recreation

X Mountain View Fire Protection District

___Felsburg Holt & Ullevig

___Town of Erie Engineering

___Public Review

___St. Vrain Valley School District

___XCEL Energy

Planner: Todd Bjerkaas **Date: July 16, 2015**

Project: Montex South at Vista Ridge **Applicant: Chartered Development**

Description: Preliminary Plat & Site Plan

Location: South side of Ridge View Drive between Sheridan and Mountain View Blvds.

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, August 18, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

___We have reviewed this application and find conflicts with our interests.

X See comments below or attached letter.

Comments:_____

_____

_____

_____

Signature: [illegible] **Date:** 7/29/15

Name (Please Print) LuAnn Penfold

645 Holbrook • P.O. Box 750 • Erie, Colorado 80516 • Phone (303) 926-2770 -• Fax (303) 926-2706

MOUNTAIN VIEW FIRE RESCUE
3561 North Stagecoach Road, Unit 200• Longmont, CO 80504
(303) 772-0710 • FAX (303) 651-7702

July 29, 2015

Mr. Todd Bjerkaas
Town of Erie, Community Development
P.O. Box 750
Erie, CO 80516

Dear Mr. Bjerkaas

I have reviewed the submitted material pertaining to the Montex South at Vista Ridge preliminary plat and site plan located on the south side of Ridge View Drive between Sheridan and Mountain View Boulevards in Erie and shall make the following comments:

- Fire apparatus access is satisfactory as shown on the plans submitted. All roads must be completed with at least one layer of asphalt and street intersections signed before building permits may be issued.

- Fire hydrant locations are satisfactory as shown on the plans submitted. Fire hydrants must be approved by public works prior to the issuance of building permits.

We appreciate being involved in the planning process and should you have any questions, please contact me at 303-772-0710 x 1121.

Sincerely,

LuAnn Penfold
Fire Marshal

LMP/lp

cc: project file

lp07.16.15

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401
303.384.2655

Karen Berry
State Geologist

January 13, 2015

Todd Bjerkaas
Community Development Services
Town of Erie
P.O. Box 750
Erie, CO 80516

Location:
SW¼ SW¼ Section 33,
T1N, R68W of the 6th P.M.
40.0018, -105.015

Subject: Montex South at Vista Ridge – Site Plan and Preliminary Plat
Town of Erie, Weld County, CO; CGS Unique No. WE-15-0018

Dear Todd:

Colorado Geological Survey has reviewed the Montex South at Vista Ridge site plan and preliminary plat referral. I understand the applicant proposes 37 lots containing 144 multi-family rental units in 36 quadplexes and a rental office on approximately 10.2 acres located immediately northeast of E. Baseline Rd. and Mountain View Blvd.

With this referral, I received a Development Referral requesting CGS's review (December 12, 2014), Montex South at Vista Ridge Site Plan and Preliminary Plat Land Use Applications (signed November 14, 2014), Montex South Site Plan and Preliminary Plat narratives (Enertia, December 9 and November 17, 2014), a set of Site Plans (December 5, 2014), a set of three Preliminary Plat sheets (Lange Land Surveys, December 19, 2014), and a Preliminary Geotechnical Engineering Report (Pickering, Cole & Hivner [PCH], March 24, 2014).

The site is not undermined, and is not exposed to any geologic hazards that would preclude the proposed residential use and density. However, the site is underlain by very highly expansive clay fill, clay soils, and claystone bedrock at shallow depths that will cause significant damage to improvements unless carefully mitigated.

Very highly expansive soils and bedrock. Five of PCH's borings are located within the proposed Montex South development. 17 swell-consolidation tests were performed on clay fill, clay, and claystone samples, and one swell-consolidation test was performed on a remolded, composite sample of claystone to estimate the properties of overexcavated and replaced material. Moderate consolidation of 4.1% and moderate to very high swell values of up to 12.5% when wetted under a 500 psf load were observed. PCH makes appropriate *preliminary* recommendations (pages 8-9) for mitigating the risk of structural damage associated with the very highly expansive soils and bedrock, including overexcavation and replacement with moisture-conditioned, properly compacted, low expansive fill to a depth of at least ten feet below lowest foundation bearing depths, and/or drilled pier foundations with structural floor systems. I agree with PCH that individual foundation designs must be based on additional subsurface exploration and analyses for each building.

Deep underdrain system. The applicant doesn't indicate whether basements are planned. Since the proposed units will be rentals, it is not clear whether basements are part of the development plans. If basements are NOT planned, this section may not apply -- it depends on the depth of, and the hydraulic conductivity of the bedrock beneath and surrounding, the overexcavation. However, if overexcavation is performed, the need for a deep

underdrain system should be evaluated. This would help prevent the development of a shallow, perched water condition in the "bathtub" created by the overexcavation. Perched water can accumulate in the overexcavated and replaced soils as a result of disruption of historic groundwater flow through permeable zones in the upper bedrock and/or infiltration from the surface, potentially causing wetting and softening of foundation bearing soils, and excessive swell or settlement. The hydraulic conductivity of the upper bedrock zones beneath and surrounding the site (a function of the presence or absence of fractures, discontinuities, and permeable sandstone lenses and layers) should be a factor in determining whether an underdrain system is needed.

Additional, lot-specific investigations. Even after ground modifications (if implemented) and grading are complete, it is possible that some of the overexcavated and replaced fill will be moderate or higher swelling and some lots may require drilled pier foundations to resist uplift. Additional investigations, consisting of drilling, sampling, lab testing and analysis, will be needed on each lot, once grading is complete, to verify that swell potential values have been reduced to acceptable levels before shallow foundations and slab-on-grade floors are determined to be feasible. PCH's grading and surface drainage, subsurface drainage (including individual perimeter foundation drain systems, pages 9-10), floor system (pages 10-11), utility, concrete (sulfate attack-resistant Type V cement should be used in all foundation concrete and concrete that will be in contact with site soils), and preliminary pavement recommendations are valid.

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please call me at 303-384-2643, or e-mail carlson@mines.edu.

Sincerely,

Jill Carlson, C.E.G.
Engineering Geologist

St. Vrain Valley
School District

January 22, 2015

Todd Bjerkaas
Town of Erie
645 Holbrook
Erie CO 80516

RE: Montex South at Vista Ridge

Dear Todd:

Thank you for referring the Montex Referral to the School District.

The District has reviewed the development proposal in terms of (1) available school capacity, (2) required land dedications and/or cash-in-lieu fees and (3) transportation/access considerations. After reviewing the above proposal, **t e c oo District supports t is proposed de e op ent sub ect to re iewing future student pro ections capacities at ac Roc rie Hig c oo** The reasons for this position and other relevant information is as follows.

This development will add 144 units (36x4plex units), plus 1 single family detached unit equaling 145 total units. Black Rock Elementary in the current school year reported a lower than expected kindergarten enrollment. The SVVSD Planning Department is currently reviewing future projections for Black Rock. Enrollment at Black Rock will continue to be monitored and when capacities are reached steps for mitigating overcrowding (as outlined below and on the attached page) will be taken.

Should this development be approved, the options for managing the short and long term overcrowding in these schools may include adding modular classrooms and implementing split or staggered schedules as needed. Other options may include, but not be limited to, implementing year-round schools or asking voters to approve new bonds for additional school facilities or a mill levy for additional operating funds. It should be noted that a lack of operating funds may be a factor in delaying construction and occupancy of new school facilities in this area.

Detailed information on the specific capacity issues, the land dedication requirements and transportation impacts for this proposal follow in Attachment A. A land dedication is required with this project and there are comments on pedestrian access included in the attachment. The recommendation of the District noted above applies to the attendance boundaries current as of the date of this letter. These attendance boundaries may change in the future as new facilities are constructed and opened. If you have any further questions or concerns regarding this referral, please feel free to contact me via e-mail at kragerud_ryan@svvsd.org or at the number below.

Sincerely,

Ryan Kragerud, AICP
Planning/GIS

Enc.: Attachment A – Specific Project Analysis
Cash-in-lieu chart

ST. VRAIN VALLEY SCHOOL DISTRICT PLANNING DEPARTMENT. 395 SOUTH PRATT PARKWAY, LONGMONT, CO 80501. SCOTT TOILLION, DIRECTOR. PHONE 303-682-7229. FAX 303-682-7344.

ATTACH T A pecific Pro ect Ana ysis

PRO CT: onte

(1) SCHOOL CAPACITY

The Board of Education has established a District-wide policy of reviewing new development projects in terms of the impact on existing and approved school facilities within the applicable feeder system. Any residential project within the applicable feeder that causes the 125% school benchmark capacity to be exceeded within 5 years would not be supported. This determination includes both existing facilities and planned facilities from a voter-approved bond. The building capacity, including existing and new facilities, along with the impact of this proposal and all other approved development projects for this feeder is noted in the chart below.

AC ROC TAR

CAPACIT I FOR ATIO				CAPACIT CH AR (includes projected students, plus development's student impact)									
School Level	Building Capacity	Stdts. Oct-14	Stdt. Impact	**2014 1**		**201 1**		**201 1**		**201 1**		**201 1**	
				Stdts	Cap.	Stdts	Cap.	Stdts	Cap.	Stdts	Cap.	Stdts	Cap.
Elementary	637	694	23	699	110%	743	117%	828	**1 0**	951	**14**	1115	**1**
Middle (EMS)	720	833	9	835	116%	898	125%	931	**12**	981	**1**	1047	**14**
High (EHS)	896	799	9	801	89%	822	92%	861	96%	919	103%	996	111%
Total	2496		41	2334		2462		2621		2852		3158	

*students from new housing are added according to a 5 year buildout of approved plats within the school feeder.

Specific comments concerning this proposal regarding School Capacity are as follows:

- *Specific Impact* - This application will add 1 single family and 144 multi-family dwelling units and 41 additional students in the **ac Roc e entary**, **rie idd e** and **rie Hig c oo Feeder**.
- *Benchmark Determination* – Black Rock elementary and Erie middle school are projected to exceed 125% of capacity in 5 years with students from this development. The School District continues to monitor capacity but the developer should be aware both schools will exceed the capacity benchmark. To avoid this please see the voluntary mitigation options below. The Board of Education has not voted on whether to seek a bond for capital improvements to mitigate capacity issues at the time of this application.
- *Mitigation Options* - The Town of Erie and the developer should also be aware that the School Board has developed a mitigation policy that would assist in providing capacity for the new students in this subdivision. Under the policy, should an applicant wish to begin construction on a residential development prior to the District's ability to provide additional capacity, the applicant may mitigate the development's impact on the feeder by agreeing to a voluntary, per-unit payment. Funds would be used to provide permanent or temporary capacity within the impacted feeder. The Planning Department would be happy to discuss this type of mitigation for the proposal with either the town or developer.
- *Phasing Plan* – The District would appreciate a phasing plan from the applicant at the time of final plat to more accurately calculate the impacts of this development.

(2) LAND DEDICATIONS AND CASH IN-LIEU FEES

The implementation of the Intergovernmental Agreement (IGA) Concerning Fair Contributions for Public School Sites by the town of Erie requires that the applicant either dedicate land directly to the School District along with provision of the adjacent infrastructure and/or pay cash-in-lieu (CIL) fees based on the student yield of the development. CIL fees provide funds for land acquisition and water rights acquisition, which is only a small component of providing additional school capacity for a feeder. Specific comments regarding land dedications and CIL fees for this referral are as follows:

- *Dedication and/or Cash-in-lieu Requirements* – no land is required therefore CIL payments will be required.
- *Number of Units covered by land dedication* – na
- *Dedication/Cash-in-lieu Procedures – Receipts for dwelling unit credits may be obtained at the time of building permit in the St. Vrain Valley School District Business Office – 395 S. Pratt Parkway, Longmont, CO.*

.

3) TRANSPORTATION/ACCESS

Transportation considerations for a project deal with bussing and pedestrian access to and from the subdivision. Pedestrian access, in particular, is an important goal of the School District in order to facilitate community connection to schools and to minimize transportation costs. Specific comments for this application are as follows:

- *Provision of Busing* - Busing for this project, under the current boundaries, would most likely not be provided at the at the middle school or high school levels.
- *Pedestrian/Access Issues* – The planned layout of this neighborhood will allow for sufficient access to the elementary school shown.

c oo P anning
tandards And
Ca cu ation of
In ieu Fees

ing e Fa i y

c oo P anning tandards

	u ber Of nits	Pro ected tudent ie d	tudent Faci ity tandard	ite i e tandard Acres	Acres of and Contribution	De e oped and a ue	Cas in ieu Contribution
Elementary	1	0.22	525	10	0.00	$80,117	
		0.22					
Middle Level	1	0.1	750	25	0.00	$80,117	
		0.1					
High School	1	0.11	1200	50	0.00	$80,117	
		0.11					
Total		0.43			0.01	$80,117	$970

Single Family Student Yield is .43

0
Per nit

c oo P anning
tandards And
Ca cu ation of
In ieu Fees

u ti Fa i y							
		c oo P anning tandards					
	u ber	Pro ected	tudent	ite i e	Acres of	De e oped	
	Of	tudent	Faci ity	tandard	and	and	Cas in ieu
	nits	ie d	tandard	Acres	Contribution	a ue	Contribution
Elementary	144	0.15	525	10	0.41	$80,117	
		21.6					
Middle Level	144	0.06	750	25	0.29	$80,117	
		8.64					
High School	144	0.06	1200	50	0.36	$80,117	
		8.64					
Total		38.88			1.06	$80,117	$84,878
Multi-Family Student Yield is .25							
							Per nit

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

RECEIVED
JUL 17 2015
FELSBURG, HOLT & ULLEVIG

___Town of Erie Community Development ___Town of Erie Engineering

___Town of Erie Parks & Recreation ___Public Review

___Mountain View Fire Protection District ___St. Vrain Valley School District

X Felsburg Holt & Ullevig ___XCEL Energy

Planner: Todd Bjerkaas **Date: July 16, 2015**

Project: Montex South at Vista Ridge **Applicant: Chartered Development**

Description: Preliminary Plat & Site Plan

Location: South side of Ridge View Drive between Sheridan and Mountain View Blvds.

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, August 18, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

___We have reviewed this application and find conflicts with our interests.

X See comments below or attached letter.

Comments:_____

Signature: _____ **Date:** 08/17/2015

Name (Please Print) CHARLES M. BUCK

FELSBURG HOLT & ULLEVIG

connecting and enhancing communities

August 17, 2015

MEMORANDUM

TO: Todd Bjerkaas

FROM: Charles M. Buck, P.E., PTOE

SUBJECT: Review of Preliminary Plat & Site Plan
PROJECT: Montex South (Vista Ridge LLC)
FHU # 95-190

I have reviewed the applicant's response to comments (dated July 7, 2015), preliminary plat, and site plan for the proposed development of Montex South which is located on the south side of Ridge View Drive in the southeast corner of the Vista Ridge development. I have specifically looked at this information from the perspective of traffic engineering and transportation planning but not general civil or utility engineering. This development would involve 144 apartments with two access points to Ridge View Drive. I have the following observations regarding this information:

Response to Comments

1a. As noted by the applicant, the residential uses in Montex South (144 apartment units) represents a decrease in the trip generation previously considered for the site.

1b. Based on the applicant's response, and on review of documentation for the King Soopers development proposal, it appears that all adjacent development within TAZ 16 is generally accounted for between the various trip generation analyses. Although the nearby King Soopers proposal would increase the overall trip generation potential of Vista Ridge TAZ 16, the current Montex South residential zoning would help mitigate potential traffic impacts.

1g. The applicant's clarification relative to the nomenclature of adjacent tracts ("Tract F", Tract B", and Tracts A and A2 of the current preliminary plat) does indicate the potential for double-counting trip generation in the commercial areas.

2. We have previously suggested that the traffic impact analyses for Montex North and South be coordinated closely with the analyses for the King Soopers development in order to provide the Town of Erie with a complete picture of the traffic that will be using Ridge View Drive and the two intersections at each end. While this coordination has yet to be addressed, it does appear that the King Soopers documentation includes Tracts A and A2 in their analysis. However, access to these tracts is not fully addressed in either this submittal or the King Soopers materials. We remain concerned about future cross-access and shared access issues. Again, coordinated traffic impact studies for these developments should address these concerns.

6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832
www.fhueng.com info@fhueng.com

Preliminary Plat and Site Plan

4. The site plan now shows how the site accesses will align opposite existing accesses along the north side of Ridge View Drive.

5. Based on the responses to Town staff and emergency responder comments, the documents now appear to address our concerns regarding the private drives.

The above constitutes our review of the materials provided. Please call if you have any questions or need additional information.

TOWN OF ERIE
PLANNING COMMISSION MEETING
October 7, 2015

SUBJECT: **PUBLIC HEARING:**

Consideration of Resolution P15-31: A Resolution Making Certain Findings Of Fact And Conclusions Favorable To The Site Plan For Vista Ridge Filing No. 12, 1st Amendment, Town Of Erie, County Of Weld, State Of Colorado.

PURPOSE: Consideration of a Site Plan for a 144 unit multi-family residential development with leasing office within Vista Ridge Filing No. 12, 1st Amendment.

PROJECT NO.: SP-000046-2014

CODE: Erie Municipal Code, Title 10

DEPARTMENT: Community Development

PRESENTER: Todd Bjerkaas PLA, Senior Planner

STAFF RECOMMENDATION:

Staff finds the request for Alternative Equivalent Compliance for Vista Ridge Filing No. 12, 1st Amendment in compliance with the Approval Criteria and recommends the Planning Commission adopt draft Resolution No. P15-31 approving the request for Alternative Equivalent Compliance.

Staff finds the request for Minor Modification for Vista Ridge Filing No. 12, 1st Amendment in compliance with the Approval Criteria and recommends the Planning Commission adopt draft Resolution No. P15-31 approving the request for Minor Modification.

Staff finds the Site Plan for the Vista Ridge Filing No. 12, 1st Amendment in compliance with the Site Plan Approval Criteria and recommends the Planning Commission adopt draft Resolution No. P15-31 approving the Site Plan with the following conditions:

1. The Site Plan approval requires the Vista Ridge Filing No. 12, 1st Amendment Final Plat be approved and recorded before the Site Plan is signed and put into effect.
2. Staff may direct the consultants to make technical corrections to the documents.

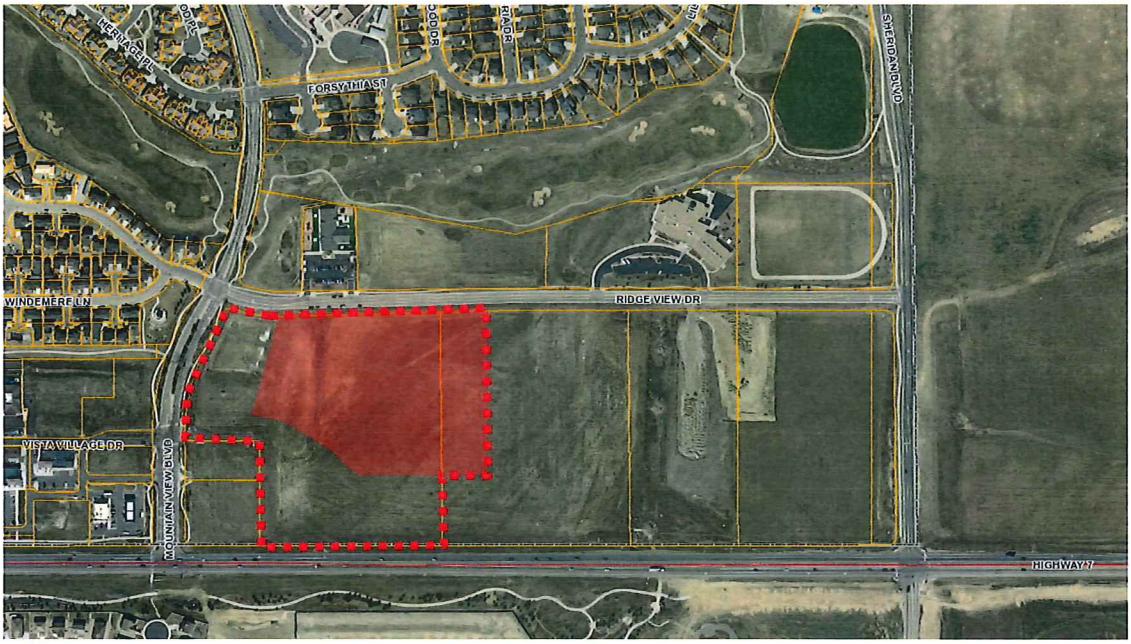
SUMMARY AND BACKGROUND OF SUBJECT MATTER:

Applicant: Chartered Development Corporation
Ward Ritter
3160 Village Vista Drive, #104
Erie, Colorado, 80516

Owner: Montex (Vista Ridge), LLC
Andy Chaikovsky

Existing Conditions:

Location:
Vista Ridge Filing No. 12, 1st Amendment is located on the southeast corner of Mountain View Boulevard and Ridge View Drive. The Preliminary Plat area is outlined in red dashes below. The Site Plan area is shaded in red.



Zoning: PD – Vista Ridge Planned Development

Project Size: 10.197 Acres

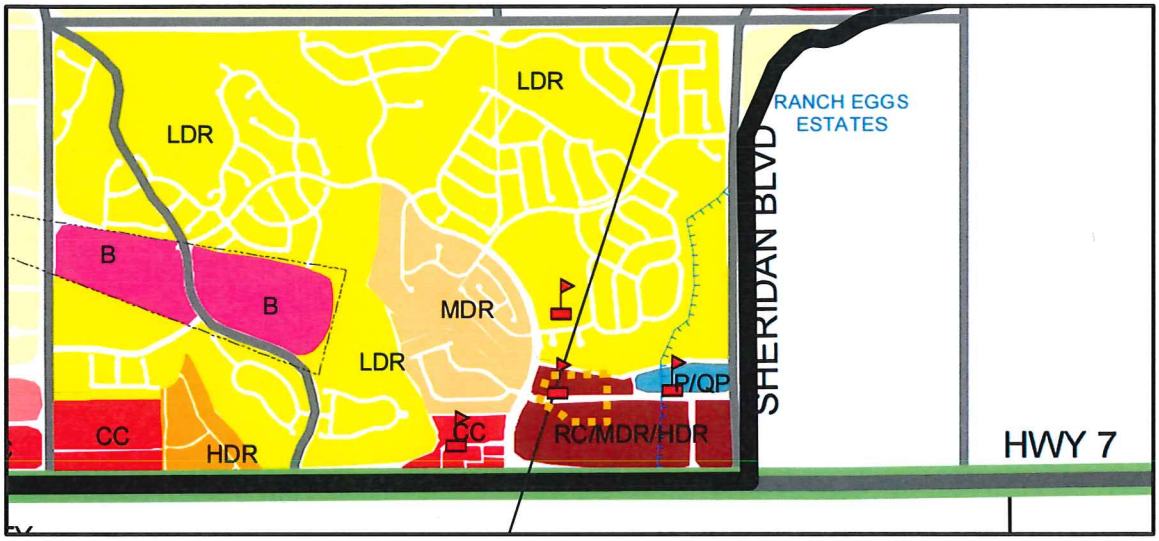
Existing Use: Vacant Lot

Adjacent Land-Use/Zoning:

	ZONING	LAND USE
NORTH	Vista Ridge PD – Planned Development	Institutional (Primrose School) Residential (Montex North)
EAST	Vista Ridge PD – Planned Development	Commercial (King Soopers)
SOUTH	Broomfield PUD – Planned Unit Development	Single Family Residential /Vacant
WEST	Vista Ridge PD – Planned Development	Detention/Commercial /Residential

Compliance with Town of Erie Comprehensive Plan:

The 2005 Comprehensive Plan land use designation for Vista Ridge Filing 12 is RC/ MDR/ HDR-Regional Commercial/Medium Density Residential/High Density Residential as shown on the Land Use Plan Map. The proposed Site Plan is in compliance with the High Density Residential land use designation.



Compliance with Vista Ridge PD:

The Vista Ridge Development Plan designates Planning Area 7-3, which includes Vista Ridge Filing No. 12, as Medium/High Residential, High Density Residential Multi-family Residential, and Commercial Uses. Planning Area 7-3 may have up to 200 dwelling units. The previously approved Lot 2, Vista Ridge Filing No. 2 Site Plan to the north included 25 detached single family - detached units. With approval of 144 units in this Site Plan, the total residential units in Planning Area 7-3 is 169, 31 units less than the 200 permitted in the PD. In Section O. *High Density Planning Area* of the Development Plan, multi-family buildings are permitted by right at a density not to exceed 16.0 units per acre. The proposed Site Plan has a density of 14.1 units/acre. The proposed Site Plan is in compliance with the PD regulations.

SITE SPECIFIC DEVELOPMENT INFORMATION:

The applicant is proposing to construct 36 4-unit Manor Homes for a total of 144 units. The 37th building will be the leasing office. The units and leasing office are proposed on Lots 1, 2, and 3 of the proposed Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat. The units are accessed by a private road located in Tract B that provides two connections to Ridge View Drive. A pocket park meeting the Town's minimum requirements is located centrally in the development on Tract C. On-street and off-street parking is provided throughout the development.

Lot 1:

- Lot Size: 1.641 acres
- Buildings: 7 Manor Homes/1 Leasing Office
- Units: 28
- Building footprints: 25,581 square feet

- Gross floor area: 44,621 square feet
- Building Height: 29 feet 11.5 inches

Lot 2:

- Lot Size: 3.465 acres
- Buildings: 16 Manor Homes
- Units: 64
- Building footprints: 55,011 square feet
- Gross floor area: 98,506 square feet
- Building Height: 29 feet 11.5 inches

Lot 3:

- Lot Size: 2.928 acres
- Buildings: 13 Manor Homes
- Units: 52
- Building footprints: 44,658 square feet
- Gross floor area: 79,943 square feet
- Building Height: 29 feet 11.5 inches

Architecture:

- Each building includes 4 units
- Two building types (1 and 2) each with two elevations (A and B)
- Building Type 1
    - Footprint: 3,369 sf footprint
    - Gross Floor Area: 5,989 sf
    - Units Range in size from 867 sf to 1,439 sf plus garages
    - 1 Bedroom Unit (x1)
    - 2 Bedroom Units (x2)
    - 3 Bedroom Unit (x1)
    - 1 Car Garages (x2)
    - 2 Car Garages (x2)
- Building Type 2
    - Footprint: 3,492 sf footprint
    - Gross Floor Area: 6,287 sf
    - Units Range in size from 677 sf to 1,462 sf plus garages
    - 1 Bedroom Unit (x1)
    - 2 Bedroom Units (x2)
    - 3 Bedroom Unit (x1)
    - 1 Car Garages (x2)
    - 2 Car Garages (x2)
- Staff's architectural review finds that the buildings and elevations are in compliance with the Town of Erie UDC Development and Design Standards and the Vista Ridge Development Plan requiring masonry of at least 20 percent on the front elevation and of at least 10 percent on sides facing a public street.
- Each building incorporates a variety of textures and colors including stone, wainscot, lap siding, vertical siding, and shingle siding.
- Architectural detailing includes: porches; balconies; patios; combination of roof angles including gable, hipped, and shed; wall projections and recesses; brackets; and window shutters.

Vehicular Access:

- Ridge View Circle, the loop drive within Vista Ridge Filing 12, 1st Amendment has two-full-movement accesses proposed on Ridge View Drive.
- The two access points are aligned with Primrose Academy and Montex North.
- Each building's garages are accessed via alleys or driveways at the rear of each building. All buildings front or side to public vehicle and pedestrian routes.
- A cross access easement and public access easement is provided in all common areas of Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat.
- There are no vehicular connections to the commercial area, however, five pedestrian connections to the commercial area are proposed.

Parking:

- Required Resident Parking: 270 parking spaces
- Provided Resident Parking: 273 parking spaces
- Required Guest Parking: 48 parking spaces
- Provided Guest Parking: 66 parking spaces
- On-street parking is not allowed on Ridge View Drive or Mountain View Boulevard.
- The applicant has requested Alternative Equivalent Compliance and Minor Modification, as detailed in the following sections, to achieve the Town's off-street resident parking requirements.

Pedestrian Access:

- Applicant will construct a new sidewalk along its frontage on Ridge View Drive and to the intersection with Mountain View Boulevard.
- Sidewalks are proposed on both sides of Ridge View Circle with 8' wide tree lawns as required by code.
- Pedestrian connections are shown through the development and between buildings to provide access to each unit.
- The applicant will construct five pedestrian connections between the Ridge View Circle sidewalk and the future commercial development to the east and south.
- Bicycle parking is located at the pocket park.

Lighting:

- New street lights are located along Ridge View Circle internal to the site.
- Pedestrian lights are shown along walkways at adjacent to parking areas.
- Each building has wall sconces adjacent to front doors and rear garages.
- The streets lights are a maximum of 20 feet tall with full cut-off light fixtures.

Landscaping:

- A 10 foot landscape buffer in addition to the building side setback requirement is shown on the east and south edges of the site between the residential and commercial uses as required in Section J of the Vista Ridge Development Plan.
- Landscaping of the site on Lots 1, 2, and 3 has met the UDC requirements.

Utilities:

- The applicant will construct an on-site stormwater system that drains to the existing detention pond in Tract A1 to the west.
- Town of Erie water and sanitary sewer mains will be constructed in Tract B. The mains are located in easements shown in the proposed Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat.

REQUESTS FOR ALTERNATIVE EQUIVALENT COMPLIANCE:

Pursuant to Municipal Code 10.6.1.C "Alternative Equivalent Compliance", the procedure permits a site-specific plan that is equal to or better than the strict application of a design standard. The following "Alternative Equivalent Compliance" requests, listed below after the Code citation being altered, are being requested for approval. Please also reference the letter addressing each Alternative Equivalent Compliance request included in the attachment that follows this memo.

a. Parking Setbacks:

Code Requirement:

The Municipal Code's Section 10.6.4.E.8.b. requirement for setbacks of parking spaces is identified below with the portion of the Code that is being requested for alternative equivalent compliance highlighted in yellow:

"Parking spaces shall not encroach into any required setback or landscape buffer area unless that parking area is part of a shared assemblage that crosses a property line."

Request for Alternative Equivalent Compliance:

There are approximately 12 parking stalls that are located within the 15' front setback along Vista Ridge Circle where buildings front the internal roadway. The consultant's justification for the request is included in the attached letter.

The intent of the Parking Lots section in the UDC's Landscaping, Screening, and Fencing requirements is to "break up expanses of pavement, create shade, buffer views of parking lots from adjacent streets and development, and enhance the overall appearance of each project."

Staff has determined that given the configuration of the multi-family development and the character of Ridge View Circle, the intent of the code section is met:

i. *"break up expanses of pavement":* The 57 off-street parking stalls are distributed among 18 separate areas (ranging in size from 1 stall to 12 stalls) throughout the development and avoids the potential of a larger centralized parking area.

ii. *"create shade":* The parking stalls within setbacks are located in close proximity to the 8' wide Ridge View Circle tree lawn which contains trees spaced no more than 40' apart resulting in the provision of shade.

iii. *"buffer views of parking lots from adjacent streets and development":* Ridge View Circle is a private road (with public access) and internal to the development. The parking stalls are not readily visible from public right-of-way, streets, or adjacent development.

iv. *"enhance the overall appearance of each project.":* Using the Ridge View Circle setback area for parking keeps the buildings tight to the front setback line and create a more urban and pedestrian scale streetscape. Pushing the parking out of the setback would in turn push the buildings back from the roadway and change the pedestrian scale by distancing the porches, patios, and balconies which activate the streetscape. The design also allows better distribution of off-street parking and provides parking closer to the individual units each space serves.

Staff has determined that the design meets the intent of the UDC requirements for parking setback.

ALTERNATIVE EQUIVALENT COMPLIANCE ANALYSIS:

The request for Alternative Equivalent Compliance, listed above, was reviewed for conformance with Municipal Code 10.6.1.C.5. Approval Criteria. Staff finds the requests in compliance with the Approval Criteria listed below.

a. The proposed alternative achieves the intent of the subject design standard to the same or better degree than the subject standard.

   Staff: The alternative achieves the intent of the standard.

b. The proposed alternative achieves the goals and policies of the Town's Comprehensive Master Plan to the same or better degree than the subject standard.

   Staff: The proposed alternative achieves the goals and policies of the Town's Comprehensive Master Plan.

c. The proposed alternative results in benefits to the community that are equivalent to or better than compliance with the subject design standard.

   Staff: The proposed alternatives benefit the community by providing equivalent or better compliance than the design standard in a way that compliments a multi-family development of the size and density of Vista Ridge Filing 12, 1st Amendment.

REQUESTS FOR MINOR MODIFICATIONS:

Pursuant to Municipal Code 10.7.8 "Minor Modifications", the procedure permits a site plan that contains minor deviations from otherwise applicable standards. Minor Modifications are to be used when the small size of the modification requested, and the unlikelihood of any adverse effects on nearby properties or the neighborhood, make it unnecessary to complete a formal Variance process. The Planning Commission may approve Minor modifications of up to a maximum of 10 percent for certain development and zoning district standards including quantitative development standards set forth in Chapter 6. The following "Minor Modification" request, listed below after the Code citation being altered, is being requested for approval.

a. Parking Dimensions:

Code Requirement:

The Municipal Code's Section 10.6.6.D.1.c.i. requirement for off-street parking location is identified below with the portion of the Code that is being requested for minor modification highlighted in yellow:

"Off-street parking for residential uses shall be located within 200 feet of the primary building entrance of the primary building."

Request for Modification:

Each building model provides 1-one bedroom, 2-two bedrooms, and 1-three bedroom units. Each building is required to provide 7.5 off-street parking stalls for the building occupants (10.6.6.D.1.c & Table 6.6-1). Each building model

provides 6 off-street parking stalls in the garages resulting in 1.5 (rounded to 2) parking stalls still required on site. The UDC does not allow on-street (off-site) parking to be credited towards the resident parking. Per the applicant's Resident Parking Plat, 10 buildings are located between 200' and 220' from the 1.5 off-street used to meet the Town's parking requirement. The modification is no more than 10 percent longer than the UDC requirement of 200' and is within the 10 percent allowance of the minor modification process.

Staff has determined that given the size and density of the development, the use of common greens and pedestrian corridors, and the extra on-street guest parking close to units that will in reality be used by residents in the development, a minor modification of 10 percent is warranted.

MINOR MODIFICATION ANALYSIS:

The request for Minor Modification, listed above, was reviewed for conformance with Municipal Code 10.7.8.D. Approval Criteria. Staff finds the requests in compliance with the Approval Criteria listed below.

a. The requested modification is generally consistent with the Town's Comprehensive Master Plan and the stated purpose of this UDC;

   Staff: The proposed modification achieves the goals and policies of the Town's Comprehensive Master Plan by providing adequate parking at residential developments.

b. The requested modification meets all other applicable building and safety codes;

   Staff: The proposed modification meets all other applicable building and safety codes.

c. The requested modification does not encroach into a recorded easement;

   Staff: The proposed modification does not affect the function or use of any easement.

d. The requested modification will have no significant adverse impact on the health, safety, or general welfare of surrounding property owners or the general public, or such impacts will be substantially mitigated; and

   Staff: The proposed modification has no significant adverse impact.

e. The requested modification is necessary to either: (a) compensate for some practical difficulty or some unusual aspect of the site of the proposed development not shared by landowners in general; or (b) accommodate an alternative or innovative design practice that achieves to the same or better degree the objective of the existing design standard to be modified. In determining if "practical difficulty" exists, the approval criteria for Variances in Section 7.9 shall be considered.

   Staff: The proposed modification is a result of the applicant's vision for the multi-family development to have several units open onto common greens and to have uninterrupted lengths of common areas and pedestrian corridors. To meet the strict application of the code, these common greens would be severed with additional access drives and parking lots.

SITE PLAN ANALYSIS:

The Site Plan for the multi-family development within Vista Ridge Filing No. 12, 1st Amendment was reviewed for conformance with Municipal Code, Title 10, Section 7.12.F.9 Approval Criteria. Staff finds the Site Plan in compliance with the Site Plan Approval Criteria as listed below.

a. The Site Plan is generally consistent with the Town's Comprehensive Master Plan;

   Staff: The Site Plan is generally consistent with the Town's Comprehensive Master Plan.

b. The Site Plan is generally consistent with any previously approved subdivision plat, planned development, or any other precedent plan or land use approval as applicable;

   Staff: The Site Plan is consistent with the proposed Vista Ridge Filing No. 12, 1st Amendment Preliminary Plat and the Vista Ridge PD Development Plan.

c. The Site Plan complies with all applicable development and design standards set forth in this Code, including but not limited to the provisions in Chapter 2, Chapter 3, Chapter 4, and Chapter 6;

   Staff: The Site Plan complies with all applicable development and design standards set forth in the UDC.

d. Any significant adverse impacts reasonably anticipated to result from the use will be mitigated or offset to the maximum extent practicable; and

   Staff: Significant adverse impacts are not anticipated.

e. The development proposed on the Site Plan and its general location is or will be compatible with the character of surrounding land uses.

   Staff: The development proposed is compatible with the character of the surrounding land uses.

STAFF RECOMMENDATION:

Staff finds the request for Alternative Equivalent Compliance for Vista Ridge Filing No. 12, 1st Amendment in compliance with the Approval Criteria and recommends the Planning Commission adopt draft Resolution No. P15-31 approving the request for Alternative Equivalent Compliance.

Staff finds the request for Minor Modification for Vista Ridge Filing No. 12, 1st Amendment in compliance with the Approval Criteria and recommends the Planning Commission adopt draft Resolution No. P15-31 approving the request for Minor Modification.

Staff finds the Site Plan for the Vista Ridge Filing No. 12, 1st Amendment in compliance with the Site Plan Approval Criteria and recommends the Planning Commission adopt draft Resolution No. P15-31 approving the Site Plan with the following conditions:

1. The Site Plan approval requires the Vista Ridge Filing No. 12, 1st Amendment Final Plat be approved and recorded before the Site Plan is signed and put into effect.
2. Staff may direct the consultants to make technical corrections to the documents.

NEIGHBORHOOD MEETING:

As required by the Municipal Code a Neighborhood Meeting was held on April 22, 2015 at 6:15 p.m. at the Vista Ridge Community Center. The required notice for the Neighborhood Meeting was provided and a copy of the minutes and sign-in sheet are attached.

PUBLIC NOTICE:

Notice of this Public Hearing has been provided as follows:

Published in the Colorado Hometown Weekly:	September 16, 2015
Property Posted as required:	September 17, 2015
Letters to Adjacent Property Owners:	September 18, 2015

Approved by:

R. Martin Ostholthoff
Community Development Director

Attachments:

A. Resolution P15-31
B. Site Plan
C. Application Materials
D. Alternative Equivalent Compliance Request
E. Neighborhood Meeting Exhibits
F. Referral Comments & Responses

ATTACHMENT A

RESOLUTION NO. P15-31

A RESOLUTION MAKING CERTAIN FINDINGS OF FACT AND CONCLUSIONS FAVORABLE TO THE SITE PLAN FOR VISTA RIDGE FILING NO. 12, 1st AMENDMENT, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

WHEREAS, the Planning Commission of the Town of Erie, Colorado, has received and considered the Site Plan for the multi-family development in Vista Ridge Filing No. 12, 1st Amendment, on Wednesday, October 7, 2015, on the application of the Chartered Development Corporation, 3160 Village Vista Drive, Erie, Colorado for the following real property; to wit:

A Portion of Tract A, Vista Ridge Filing No. 12; and Tract B, Vista Ridge Filing No. 14; and

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE TOWN OF ERIE, COLORADO, as follows:

Section 1. Findings of Fact.

1. The applicant's application and supporting documents are in substantial compliance with the Town of Erie Municipal Code, Title 10.

2. The Site Plan has met Municipal Code, Title 10, Section 7.12.F.9 Approval Criteria:

    a. The Site Plan is generally consistent with the Town's Comprehensive Master Plan;

    b. The Site Plan is consistent with any previously approved subdivision plat, planned development, or any other precedent plan or land use approval as applicable;

    c. The Site Plan complies with all applicable development and design standards set forth in this Code, including but not limited to the provisions in Chapter 2, Chapter 3, Chapter 4, and Chapter 6;

    d. Any significant adverse impacts reasonably anticipated to result from the use will be mitigated or offset to the maximum extent practicable; and

    e. The development proposed on the Site Plan and its general location is or will be compatible with the character of surrounding land uses.

3. The Site Plan as proposed, with the following conditions, preserves the health, safety, welfare and interest of the citizens of the Town of Erie, Colorado:

    a. The Site Plan approval requires the Vista Ridge Filing No. 12, 1st Amendment Final Plat be approved and recorded before the Site Plan is signed and put into effect.

b. Staff may direct the consultants to make technical corrections to the documents.

4. Municipal Code 10.6.1.C "Alternative Equivalent Compliance", permits a site-specific plan that contains design standards equal to or better than the strict application of the design standards contained in the Municipal Code. The following requested changes to the design standards, listed below after the Code citation being altered, is found to be equal to or better than the strict application of the design standards and are granted approval:

    a. Municipal Code Section 10.6.4.E.8.b "Parking spaces shall not encroach into any required setback or landscape buffer area unless that parking area is part of a shared assemblage that crosses a property line."

        i. Alternative Equivalent Compliance: Allow the parking spaces on Lots 1, 2 and 3 of Vista Ridge Filing No. 12, 1st Amendment to be located within the front setbacks along Ridge View Circle. The parking design meets the intent of the code to "break up expanses of pavement, create shade, buffer views of parking lots from adjacent streets and development, and enhance the overall appearance of each project."

5. The design standards that have been granted approval for "Alternative Equivalent Compliance", listed above, have met Erie Municipal Code, Title 10, Section 6.1.C. Approval Criteria for "Alternative Equivalent Compliance":

    a. The proposed alternative achieves the intent of the subject design standard to the same or better degree than the subject standard;

    b. The proposed alternative achieves the goals and policies of the Town's Comprehensive Master Plan to the same or better degree than the subject standard;

    c. The proposed alternative results in benefits to the community that are equivalent to or better than compliance with the subject design standard;

6. Municipal Code 10.7.8 "Minor Modifications" permits a site-specific plan that contains minor deviations from otherwise applicable standards that may be approved by the Planning Commission. Minor Modifications are to be used when the small size of the modification requested, and the unlikelihood of any adverse effects on nearby properties or the neighborhood, makes it unnecessary to complete a formal Variance process. The Planning Commission may approve Minor modifications of up to a maximum of 10 percent for certain development and zoning district standards including quantitative development standards set forth in Chapter 6:

    a. Municipal Code Section 10.6.6.D.1.c.i "Off-street parking for residential uses shall be located within 200 feet of the primary building entrance of the primary building."

        i. Minor Modification: Allow the maximum travel distance for off-street resident parking for ten buildings on Lots 1, 2 and 3 of Vista Ridge Filing

No. 12, 1st Amendment to be 220 feet. The modification is 10 percent longer than the UDC requirement of 200 feet. The design has provided continuous common areas and pedestrian corridors which would otherwise be broken up by the addition of parking within 200 feet of the ten buildings.

7. The design standards that have been granted approval for "Minor Modification", listed above, have met Erie Municipal Code, Title 10, Section 7.8. Approval Criteria for "Minor Modifications":

    a. The requested modification is generally consistent with the Town's Comprehensive Master Plan and the stated purpose of this UDC;

    b. The requested modification meets all other applicable building and safety codes;

    c. The requested modification does not encroach into a recorded easement;

    d. The requested modification will have no significant adverse impact on the health, safety, or general welfare of surrounding property owners or the general public, or such impacts will be substantially mitigated; and

    e. The requested modification is necessary to either: (a) compensate for some practical difficulty or some unusual aspect of the site of the proposed development not shared by landowners in general; or (b) accommodate an alternative or innovative design practice that achieves to the same or better degree the objective of the existing design standard to be modified. In determining if "practical difficulty" exists, the approval criteria for Variances in Section 7.9 shall be considered.

Section 2. Conclusions and Order Recommending Approval of the Site Plan for Vista Ridge Filing No. 12, 1st Amendment.

1. The applicant's application and supporting documents are in substantial compliance with the Town of Erie Municipal Code, Title 10.

2. The Site Plan has met Town of Erie Municipal Code, Title 10, Section 7.12.F.9 Approval Criteria.

3. The Site Plan as proposed, subject to the following conditions, will preserve the health, safety, welfare and interest of the citizens of the Town of Erie, Colorado.

    a. The Site Plan approval requires the Vista Ridge Filing No. 12, 1st Amendment Final Plat be approved and recorded before the Site Plan is signed and put into effect.

    b. Staff may direct the consultants to make technical corrections to the documents.

4. Municipal Code 10.6.1.C "Alternative Equivalent Compliance", permits a site-specific plan that that contains design standards equal to or better than the strict application of the design standards contained in the Municipal Code. The requested changes to the design standards are found to be equal to or better than the strict application of the design standards and are granted approval.

5. The design standards that have been granted approval for "Alternative Equivalent Compliance" have met Erie Municipal Code, Title 10, Section 6.1.C Approval Criteria for "Alternative Equivalent Compliance".

6. Municipal Code 10.7.8 "Minor Modifications" permits a site-specific plan that contains minor deviations from otherwise applicable standards that may be approved by the Planning Commission. Minor Modifications are to be used when the small size of the modification requested, and the unlikelihood of any adverse effects on nearby properties or the neighborhood, makes it unnecessary to complete a formal Variance process. The requested modification is found to be within 10 percent of the quantitative development standard set forth in Chapter 6.

7. The design standards that have been granted approval for "Minor Modification" have met Erie Municipal Code, Title 10, Section 7.8. Approval Criteria for "Minor Modifications."

INTRODUCED, READ, SIGNED AND APPROVED this 7th day of October, 2015.

TOWN OF ERIE, PLANNING COMMISSION

By: _____
J. Eric Bottenhorn, Chair

ATTEST:

By: _____
Hallie S. Sawyer, Secretary

ATTACHMENT B

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT - SITE PLAN

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST □UARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST
OF THE □TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.197 ACRES - 3 LOTS / 2 TRACTS
SP-00004□-2014

LAND USE TABULATION

LAND USE:	MULTI-FAMILY RESIDENTIAL
GROSS SITE AREA:	444,140 SF (10.196 AC) = 100.0%
HARDSCAPE:	328,968 SF (7.55 AC) = 74.1%
BUILDING FOOTPRINT:	*139,687 SF (3.21 AC) = 31.5%*
PARKING/ROADS/SIDEWALKS:	*189,281 SF (4.35 AC) = 42.6%*
LANDSCAPE:	115,172 SF (3.22 AC) = 25.9%
LOT AREA	*83,090 SF (1.91 AC) = 18.8%*
POCKET PARK	*8,027 SF (0.18 AC) =1.7%*
ROW AREA	*24,055 SF (0.55 AC) =5.4%*
EXISTING VEGITATION	*0 SF (0 AC) = 0.00%*
BUILDING TYPE:	
MANOR TYPE 1, 2 STORY (5,989 SF)	15
MANOR TYPE 2, 2 STORY (6,287 SF)	21
PLAN P7, LEASING OFFICE (1,664 SF)	1

PARKING INVENTORY (144 UNITS)

(R) RESIDENT	**SPACES**
MANOR HOMES GARAGE (63.7%)	216
OFF-STREET SURFACE PAKING (15.9%)	57
TOTAL RESIDENT PARKING SPACES	273 (270 REQUIRED)
(G) GUEST	
GUEST ON-STREET PARKING (16.8%)	57
GUEST OFF-STREET PARKING (2.4%)	5
RENTAL OFFICE GUEST PARKING (1.2%)	4 (2 GARAGE)
TOTAL GUEST PARKING SPACES	66 (48 REQUIRED)
TOTAL PARKING SPACES	**339**

PARKING NOTES:

1. ALL ON STREET PARKING SPACES ARE 23'X8'. ALL OFF STREET PARKING ARE 20'X9'.
2. ONE VAN ACCESSIBLE ADA SPACE AND FOUR STANDARD ADA SPACES HAVE BEEN PROVIDED AND ARE INCLUDED IN THE RESIDENT PARKING COUNT.
3. PERCENTAGES SHOWN ARE CALCULATED USING THE TOTAL PARKING SPACES.

SITE PLAN APPROVAL CERTIFICATE

THIS SITE PLAN HAS BEEN REVIEWED AND FOUND TO BE COMPLETE AND IN ACCORDANCE WITH APPLICABLE TOWN OF ERIE REGULATIONS

Director of Community Development _____ Date _____

Planning Commission Chair (if applicable) _____ Date _____

The undersigned as the owner or owners representative of lands described herein, hereby agrees on behalf of himself/herself, their heirs, successors, and assigns to develop and maintain the property described hereon in accordance with this approved Site Plan and in compliance with the town of Erie Unified Development Code and Municipal Code.

Owner Signature _____ Owner Name Printed _____

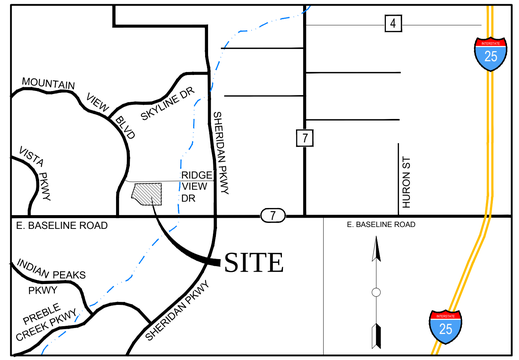
Acknowleged before me this _____ day of _____, 2015

by_____ as _____.

Witness my hands and official seal

Notary Public _____

My commission expires: _____



VICINITY MAP

SCALE 1"=2000□

SHEET INDEX

COVER SHEET	C1
SITE PLAN	C2
UTILITY PLAN	C3
GRADING / DRAINAGE PLAN	C4
ADA ACCESSIBILITY PLAN	C5
RESIDENT PAR□ING PLAN	C□
GUEST PAR□ING PLAN	C7
LANDSCAPE NOTES	L1
LANDSCAPE PLAN	L2
LANDSCAPE PLAN	L3
LANDSCAPE PLAN	L4
LANDSCAPE PLAN	L5
LANDSCAPE DETAILS	L□
LANDSCAPE DETAILS	L7
ARCHITECTURAL ELEVATIONS	A1
ARCHITECTURAL ELEVATIONS	A2
ARCHITECTURAL ELEVATIONS	A3
ARCHITECTURAL ELEVATIONS	A4
PHOTOMETRIC PLAN	E1
PHOTOMETRIC DETAILS	E2

ENGINEER

ENERTIA CONSULTING GROUP
1529 MAR□ET STREET, STE. 200
DENVER, COLORADO 80202
303-875-7131
CONTACT: BONNER GILMORE

APPLICANT

CHARTERED DEVELOPMENT CORPORATION
31□0 VILLAGE VISTA DR, STE 104
ERIE, CO 8051□
303-545-2554
CONTACT: WARD RITTER

LANDSCAPE / PLANNER

HURST □ ASSOCIATES
2500 BROADWAY STREET, SUITE 110
BOULDER, COLORADO 80304
303-449-9105
CONTACT: RHONDA DIC□, RLA

ELECTRICAL

RG ENGINEERING CONSULTANTS
2555 WALNUT STREET, SUITE B
DENVER, COLORADO 80205
303-355-5534
CONTACT: SOPHIA GISIN

ARCHITECT

WOODLEY ARCHITECTURAL GROUP
731 SOUTHPAR□ DRIVE, SUITE B
LITTLETON, COLORADO
303-531-5082
CONTACT: ADAM CASSELLA, AIA, LEED AP

SURVEYOR

LANGE LAND SURVEYS
9572 W. 58TH AVENUE
ARVADA, COLORADO 80002
720-242-9732
CONTACT: JON LANGE, PLS

LEGAL DESCRIPTION:

A RESUBDIVISION OF: A PORTION OF TRACT A, VISTA RIDGE FILING NO. 2 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT: LOCATED IN THE SOUTHWEST □UATER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST OF THE □TH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

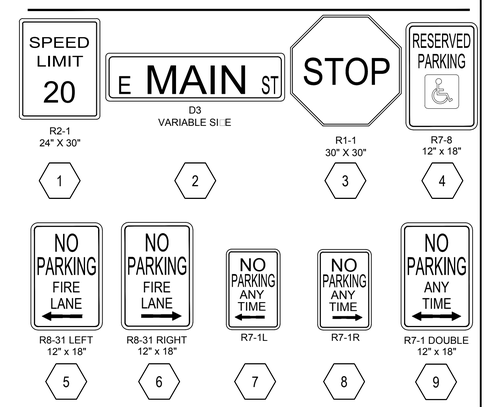
MONTEX SOUTH AT VISTA RIDGE
COVER SHEET

DRAWN BY:	BC
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	0□/29/2015
	09/15/2015

C1

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT - SITE PLAN

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST □UARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST
OF THE □TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.197 ACRES - 3 LOTS / 2 TRACTS
SP-00004□-2014



SIGNAGE NOTES:

1. STREET NAME SIGNS AND POSTS AND BASES SHALL BE PER TOWN OF ERIE STANDARDS.
2. STOP SIGNS SHOULD BE PLACED BETWEEN PC AND 6' FROM PC FOLLOWING M.U.T.C.D. STANDARDS.

LEGEND

PROPERTY LINE	FIRE HYDRANT
CURB & GUTTER	MANHOLE
ROW	SIGN
CENTERLINE	CONCRETE SIDEWALK
PROPOSED 5' CONTOUR	UNDERDRAIN
PROPOSED 1' CONTOUR	EASEMENT
EXISTING 5' CONTOUR	WALL
EXISTING 1' CONTOUR	RIP RAP
STORM INLET	5500.00 PROPOSED ELEVATION
STORM DRAIN	5500.00 EXISTING ELEVATION
LIGHT	CONCRETE PAVING
(R) RESIDENT PARKING	
(G) GUEST PARKING	

GENERAL NOTES

1. SEE PHOTOMETRIC PLAN FOR LOCATION, SIZE AND HEIGHT OF PROPOSED LIGHT FIXTURES.
2. INTERIOR ROADWAYS ARE PRIVATE AND SHALL BE MAINTAINED BY THE OWNER.
3. FENCE LOCATIONS ARE SHOWN ON THE LANDSCAPE PLAN.
4. ALL ON-SITE STORM DRAINS ARE PRIVATE AND SHALL BE MAINTAINED BY THE OWNER.

MONTEX SOUTH AT VISTA RIDGE SITE PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
31□0 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 8051□
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

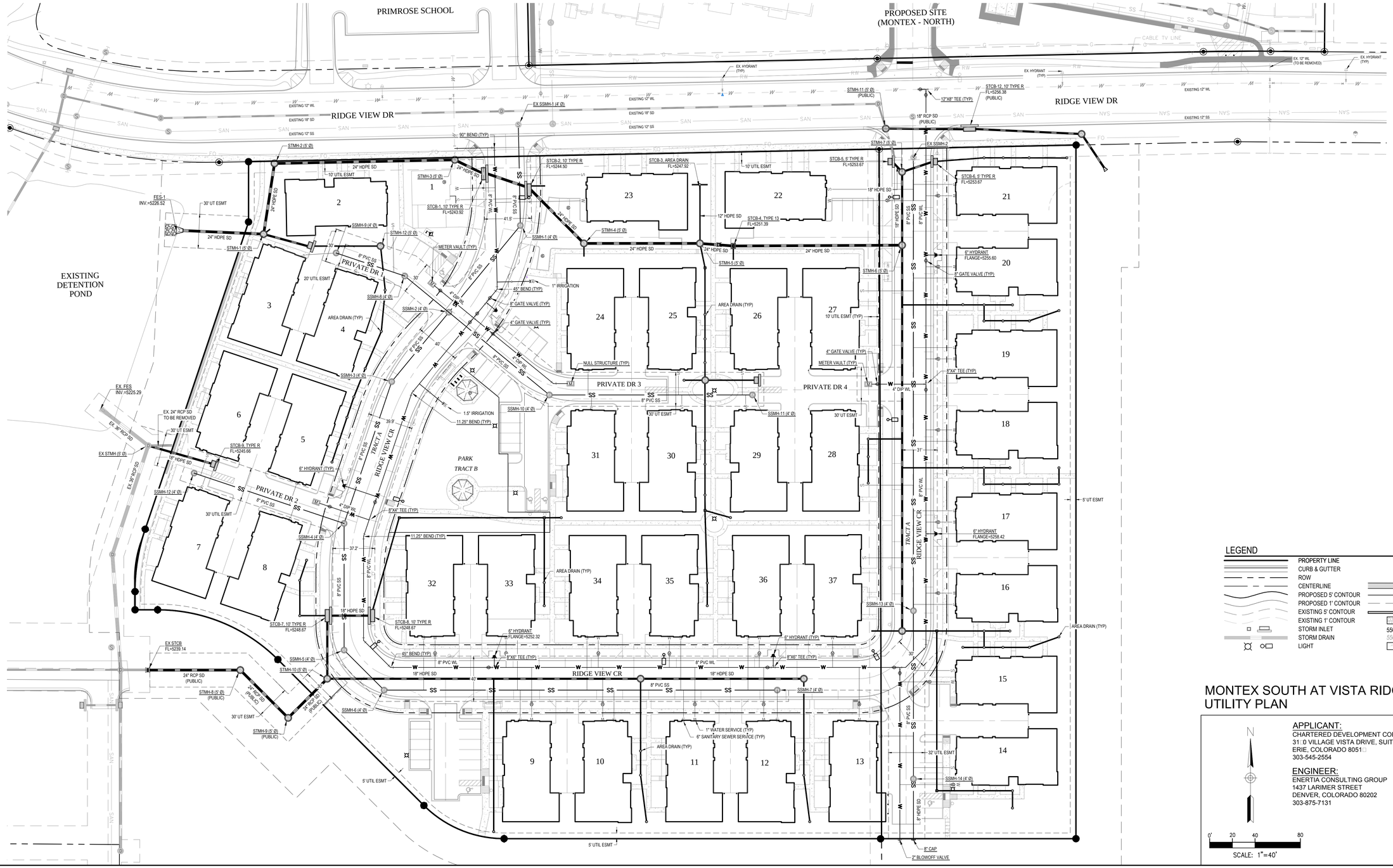
SCALE: 1"=40'

DRAWN BY:	BC
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	0□/29/2015
	09/15/2015

C2

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT - SITE PLAN

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST □UARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST
OF THE □TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.197 ACRES - 3 LOTS / 2 TRACTS
SP-00004□-2014



LEGEND

PROPERTY LINE		FIRE HYDRANT	
CURB & GUTTER		MANHOLE	
ROW		SIGN	
CENTERLINE		CONCRETE SIDEWALK	
PROPOSED 5' CONTOUR		UNDERDRAIN	
PROPOSED 1' CONTOUR		EASEMENT	
EXISTING 5' CONTOUR		WALL	
EXISTING 1' CONTOUR		RIP RAP	
STORM INLET	5500.00	PROPOSED ELEVATION	
STORM DRAIN	5500.00	EXISTING ELEVATION	
LIGHT		CONCRETE PAVING	

MONTEX SOUTH AT VISTA RIDGE
UTILITY PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
31□0 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 8051□
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

0' 20 40 80
SCALE: 1"=40'

DRAWN BY:	BC
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	0□/29/2015
	09/15/2015

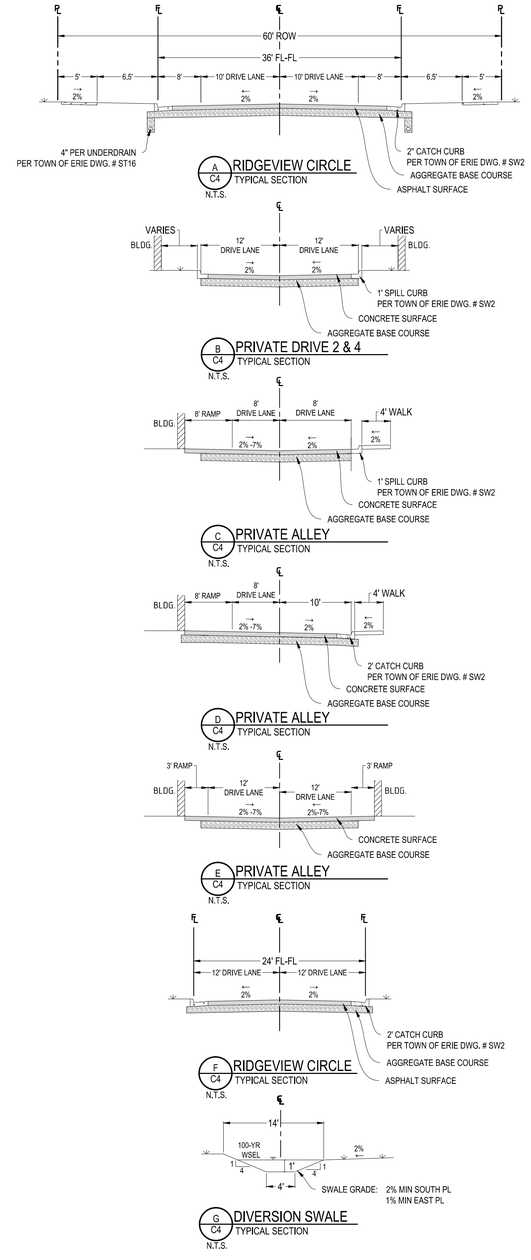
C3

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT - SITE PLAN

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST
OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.197 ACRES - 3 LOTS / 2 TRACTS
SP-00004[illegible]-2014

LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR		UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING



MONTEX SOUTH AT VISTA RIDGE
GRADING PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
310 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 8051[illegible]
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

N

0' 20 40 80
SCALE: 1"=40'

DRAWN BY:	BC
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	0[illegible]/29/2015
	09/15/2015

C4

G C4 GENERAL NOTES

1. SEE GEOTECHNICAL REPORT (BY PHC) FOR ROADWAY CROSS SECTION DETAILS

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT - SITE PLAN

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST □UARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST
OF THE □TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.197 ACRES - 3 LOTS / 2 TRACTS
SP-00004□-2014

LEGEND

	PROPERTY LINE		FIRE HYDRANT
	CURB & GUTTER		MANHOLE
	ROW		SIGN
	CENTERLINE		CONCRETE SIDEWALK
	PROPOSED 5' CONTOUR	UD	UNDERDRAIN
	PROPOSED 1' CONTOUR		EASEMENT
	EXISTING 5' CONTOUR		WALL
	EXISTING 1' CONTOUR		RIP RAP
	STORM INLET	5500.00	PROPOSED ELEVATION
	STORM DRAIN	5500.00	EXISTING ELEVATION
	LIGHT		CONCRETE PAVING
(R)	RESIDENT PARKING		
(G)	GUEST PARKING		

ACCESS — ADA FRONT DOOR & GARAGE ACCESSIBLE

VISIT — ADA FRONT DOOR ACCESSIBLE

ADA ACCESSIBLE ROUTE

ADA ACESSABILITY TABLE

TYPE		#	PNTS
ACCESSIBLE UNITS	(4 PTNS)	15	60
VISITABLE UNITS	(1 PNT)	12	12
TOTAL			72 (66 REQUIRED)

(TOTAL UNITS = 144)

MONTEX SOUTH AT VISTA RIDGE
ACCESIBILITY PLAN

N

0' 20 40 80
SCALE: 1"=40'

APPLICANT:
CHARTERED DEVELOPMENT CORP.
31□0 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 8051□
303-545-2554

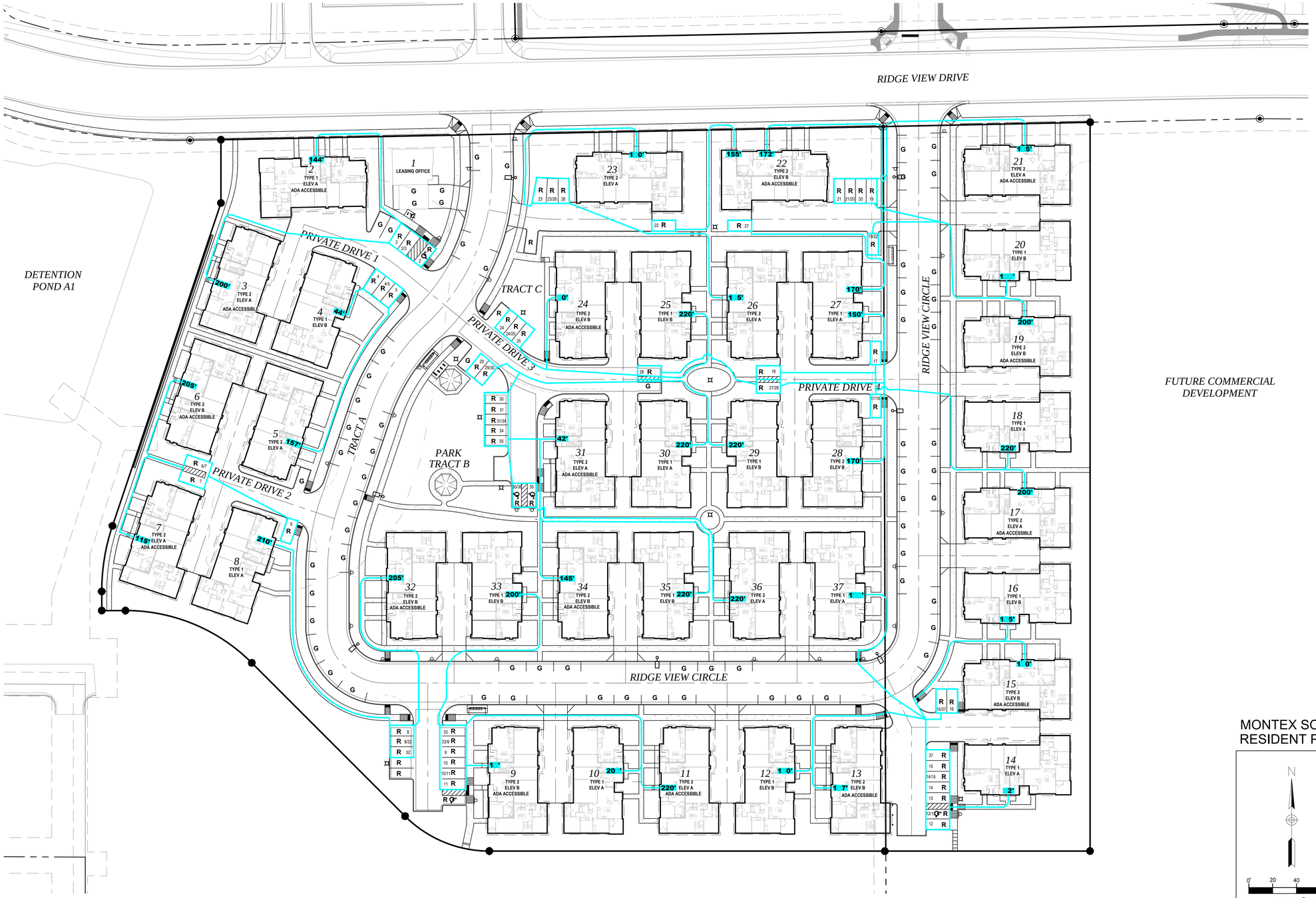
ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

DRAWN BY:	BC
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	0□/29/2015
	09/15/2015

C5

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT - SITE PLAN

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST □UARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST
OF THE □TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.197 ACRES - 3 LOTS / 2 TRACTS
SP-00004□-2014



LEGEND

G	GUEST PARKING SPACE (66 TOTAL)
R	TENANT PARKING SPACE (57 TOTAL)
	ASSUMED WALKING PATH *

*LONGEST DISTANCE TO PARKING SPOT

MONTEX SOUTH AT VISTA RIDGE
RESIDENT PAR□ING PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
31□0 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 8051□
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

N

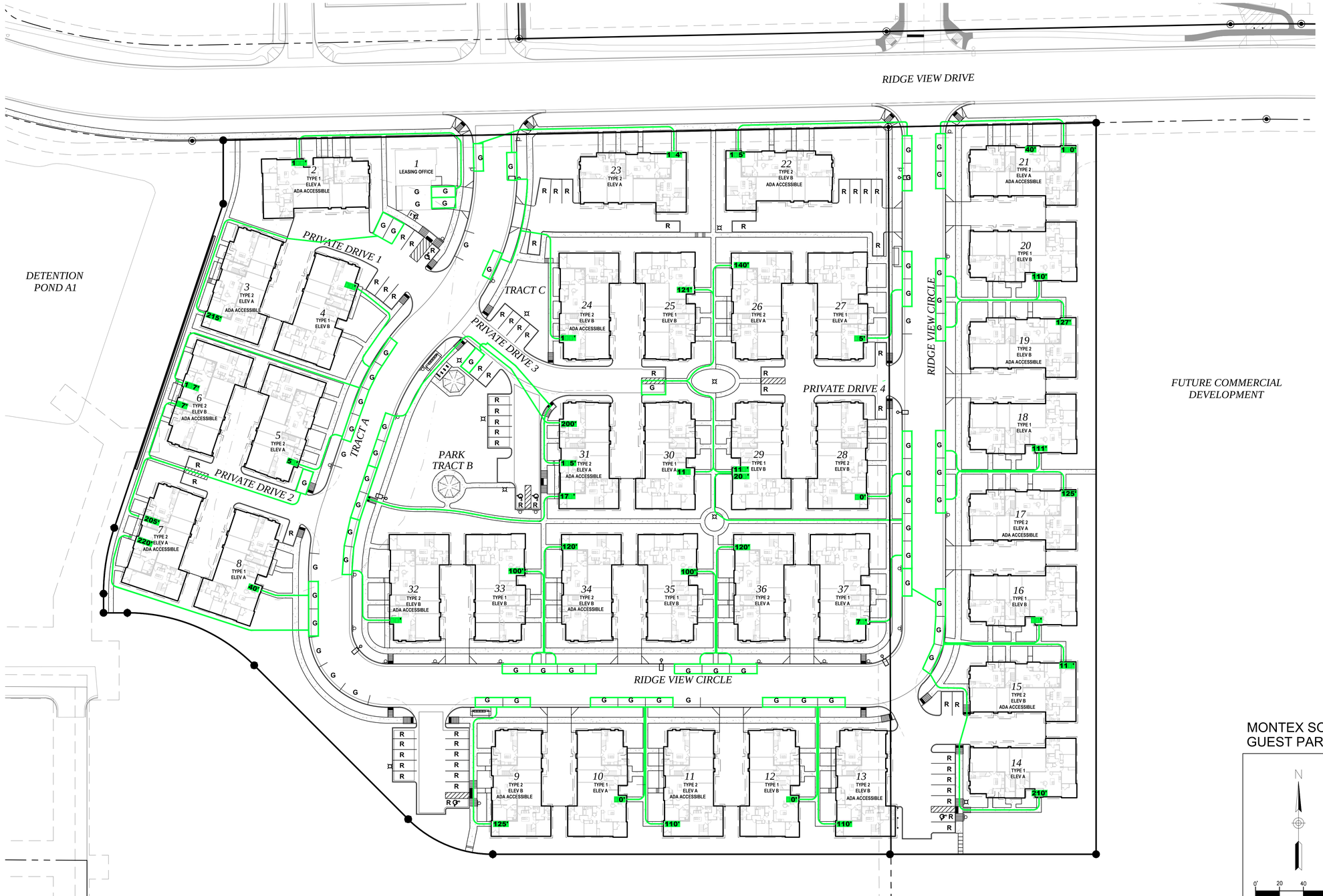
0' 20 40 80
SCALE: 1"=40'

DRAWN BY:	BC
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	0□/29/2015
	09/15/2015

C□

VISTA RIDGE FILING NO. 12, 1ST AMENDMENT - SITE PLAN

A PORTION OF TRACT A, VISTA RIDGE FILING NO. 12 AND A PORTION OF PARCEL 33, VISTA RIDGE MASTER FINAL PLAT:
LOCATED IN THE SOUTHWEST □UARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE □8 WEST
OF THE □TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
10.197 ACRES - 3 LOTS / 2 TRACTS
SP-00004□-2014



LEGEND

G	GUEST PARKING SPACE (66 TOTAL)
R	TENANT PARKING SPACE (57 TOTAL)
———	ASSUMED WALKING PATH *

*LONGEST DISTANCE TO PARKING SPOT

MONTEX SOUTH AT VISTA RIDGE
GUEST PAR□ING PLAN

APPLICANT:
CHARTERED DEVELOPMENT CORP.
31□0 VILLAGE VISTA DRIVE, SUITE 104
ERIE, COLORADO 8051□
303-545-2554

ENGINEER:
ENERTIA CONSULTING GROUP
1437 LARIMER STREET
DENVER, COLORADO 80202
303-875-7131

N

0' 20 40 80
SCALE: 1"=40'

DRAWN BY:	BC
APRVD BY:	SM
DATE:	12/5/2014
REVISED:	0□/29/2015
	09/15/2015

C7

ATTACHMENT C

TOWN OF ERIE
Community Development Department – Planning Division
645 Holbrook Street – PO Box 750 – Erie, CO 80516
Tel: 303.926.2770 – Fax: 303.926.2706 – Web: www.erieco.gov

LAND USE APPLICATION

Please fill in this form completely. Incomplete applications will not be processed.

STAFF USE ONLY

FILE NAME: Montex-South at Vista Ridge
FILE NO: SP-14-00048 DATE SUBMITTED: 11-18-14 FEES PAID: 2850-

PROJECT/BUSINESS NAME: Montex South at Vista Ridge

PROJECT ADDRESS: Vista Ridge South Side of Ridgeview Drive

PROJECT DESCRIPTION: Residential development, providing 144 multi-family units and 1 rental office.

LEGAL DESCRIPTION *(attach legal description if Metes & Bounds)*

Subdivision Name: 1467 3334 9003

Filing #: 12 Lot #: NA Block #: NA Section: 33 Township: 1 North Range: 68 West

OWNER *(attach separate sheets if multiple)*

Name/Company: Montex (Vista Ridge, LLC)
Contact Person: Andy Chaikovsky
Address: 4915 Gaylord St
City/State/Zip: Englewood, CO 80113
Phone: 303.783.8425 Fax:
E-mail: achaikovsky@comcast.net

AUTHORIZED REPRESENTATIVE

Company/Firm: Chartered Development Corporation
Contact Person: Ward Ritter
Address: 3160 Village Vista Drive, #104
City/State/Zip: Erie, CO 80516
Phone: 303.545.2554 Fax:
E-mail: ward@charteredhomes.com

MINERAL RIGHTS OWNER *(attach separate sheets if multiple)*

Name/Company: N/A
Address:
City/State/Zip:

MINERAL LEASE HOLDER *(attach separate sheets if multiple)*

Name/Company: N/A
Address:
City/State/Zip:

LAND-USE & SUMMARY INFORMATION

Present Zoning: PD
Proposed Zoning: PD
Gross Acreage: 10.196
Gross Site Density (du/ac): 14.2/ac
Lots/Units Proposed: 37/145
Gross Floor Area:

SERVICE PROVIDERS

Electric: United Power
Metro District: Vista Ridge Metro District
Water *(if other than Town)*:
Gas: Xcel Energy
Fire District: Mountain View Fire Protection District
Sewer *(if other than Town)*:

PAGE TWO MUST BE SIGNED AND NOTARIZED

DEVELOPMENT REVIEW FEES

ANNEXATION		**SUBDIVISION**	
☐ Major (10+ acres)	$ 4000.00	☐ Sketch Plan	$ 1000.00 + 10.00 per lot
☐ Minor (less than 10 acres)	$ 2000.00	☐ Preliminary Plat	$ 2000.00 + 40.00 per lot
☐ Deannexation	$ 1000.00	☐ Final Plat	$ 2000.00 + 20.00 per lot
COMPREHENSIVE PLAN AMENDMENT		☐ Minor Subdivision Plat	$ 2000.00
☐ Major	$ 3000.00	☐ Minor Amendment Plat	$ 1000.00 + 10.00 per lot
☐ Minor	$ 1200.00	☐ Road Vacation (constructed)	$ 1000.00
ZONING/REZONING		☐ Road Vacation (paper)	$ 100.00
☐ Rezoning	$ 1700.00 + 10.00 per acre	**SITE PLAN**	
☐ PUD Rezoning	$ 1700.00 + 10.00 per acre	☑ Residential	$ 1400.00 + 10.00 per unit
☐ PUD Amendment	$ 1700.00 + 10.00 per acre	☐ Non-Resi. (>10,000 sq. ft.)	$ 2200.00
☐ Major PD Amendment	$ 3700.00 + 10.00 per acre	☐ Non-Resi. (>2,000 sq. ft.)	$ 1000.00
☐ Minor PD Amendment	$ 500.00	☐ Non-Resi. (<2,000 sq. ft.)	$ 200.00
SPECIAL REVIEW USE		☐ Amendment (major)	$ 1100.00
☐ Major	$ 1000.00	☐ Amendment (minor)	$ 350.00
☐ Minor	$ 400.00	**VARIANCE**	$ 600.00
☐ Oil & Gas	$ 1200.00	**SERVICE PLAN**	$ 10,000.00

*All fees **include** both Town of Erie Planning & Engineering review. These fees **do not include** referral agency review fees, outside consultant review fees, or review fees incurred by consultants acting on behalf of staff. See Town of Erie Municipal Code, Title 2-10-5 for all COMMUNITY DEVELOPMENT FEES.*

text

The undersigned is fully aware of the request/proposal being made and the actions being initiated on the referenced property. The undersigned understand that the application must be found to be complete by the Town of Erie before the request can officially be accepted and the development review process initiated. The undersigned is aware that the applicant is fully responsible for all reasonable costs associated with the review of the application/request being made to the Town of Erie. Pursuant to Chapter 7 (Section 7.2.B.5) of the Unified Development Code (UDC) of the Town of Erie, applicants shall pay all costs billed by the Town for legal, engineering and planning costs incurred by staff, including consultants acting on behalf of staff, necessary for project review. By this acknowledgement, the undersigned hereby certify that the above information is true and correct.

Owner: Date:

Owner: President Date:

Applicant: Chartered Development Corporation Date: 11/14/14

BRANDON CHANDLER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20144004192
MY COMMISSION EXPIRES JANUARY 29, 2018

STATE OF COLORADO)
) ss.
County of Weld)

The foregoing instrument was acknowledged before me this 17th day of November, 2014, by Ward Ritter, President.

My commission expires: 1/29/18.
Witness my hand and official seal.

Notary Public

1437 Larimer St.
Denver, CO 80202
303•875•7131
bonner.gilmore@enertiacg.com

Mr. Marty Ostholthoff, Director of Community Development
Town of Erie
645 Holbrook Street
Erie, CO 80516

December 9, 2014

RE: Montex South – Site Plan Section 3 Written Narrative (South Parcel)

Dear Mr. Ostholthoff:

General project concept and purpose of the request:

Montex South at Vista Ridge is within Vista Ridge's Planning area 7-3 and is proposing 36 manor homes (4-plex units) and one single family detached unit. The proposed multi-family residential project adds to the diversity of housing types within Vista Ridge and Erie with a unique multi-family product that is designed as a Manor Home (appears as a large single family home). Four units are provided within each Manor Home building, all with attached direct access garages. Floor plans in the Manor Home will include a three bedroom unit, two bedroom plus loft townhome unit, two bedroom flat unit and a one bedroom flat unit. Each building will sited on its own lot to facilitate phasing and financing.

The project site is made up of 10.20 acres and is bound by Ridge View Drive to the north, and existing detention facility to the west and future commercial to the south and east. Ridge View Drive also will provide access and egress to the site.

Vista Ridge Development Plan Amendment #6 permits up to 200 residential units within Planning Area 7-3. Article V, Section F (Medium/High Density Planning Area) Subsections 5.d, 5.e and 5.f of the Vista Ridge Development Plan have been amended to accommodate various encroachments into the setbacks.

The proposed Montex at Vista Ridge is a Medium Density Residential project that matches the Towns Comprehensive Masterplan. The Towns' Comprehensive Masterplan allows for Regional Commercial, Medium Density Residential and High Density Residential uses within these two parcels.

The proposed Site Plan is generally consistent with the concepts previously approved within the Vista Ridge Development and is consistent with the Vista Ridge PD that governs the master development as a whole. In addition, the proposed Site Plan complies with the applicable design and development standards set forth in Chapters 2 thru 6 of the UDC and is consistent with the recently reviewed Sketch Plan submittal.

The proposed site plan will be compatible with the surrounding land uses as they become developed over time. This corridor is primarily commercial with two existing schools. The addition of 36 Manor Homes (144 multi-family units) will only help the commercial thrive with a walkability and convenience aspect.

Approval Criteria:

1. The Site Plan is consistent with the Town of Erie Comprehensive Master Plan;

   The Montex South Site Plan offers a unique concept of multi-family rental units with attached garages and varying building types and facades. The development embraces a pedestrian friendly approach with a pocket park, open space, and sidewalk connectively for abled and disabled persons to future commercial development. This development fits into the fabric of the overall Vista Ridge Planned Development.

2. The Site Plan is consistent with any previously approved subdivision plat, planned development, or any other precedent plan or land use approval as applicable;

   Montex South is part of the Vista Ridge Planned Development and is consistent with the General Provisions, Architectural Standards, Land Use Regulations, Ancillary Use, and Vehicular Circulation Standards provided therein.

3. The Site Plan complies with all applicable development and design standards set forth in the Municipal Code Title 10 - UDC, including but not limited to the provisions in Chapter 2, *Zoning Districts*, Chapter 3, *Use Regulations*, Chapter 4, *Dimensional Requirements*, and Chapter 6, *Development and Design Standards*;

   Montex South consists of multi-family dwelling units with a density is 14.2 units/acre. This is consistent with Erie's High Density Zoning District (HR). Lot standards, setbacks and maximum heights have all been met for the HR Zoning District. The development complies with the Erie Development and Design Standards or the Vista Ridge PUD.

4. Any significant adverse impacts reasonably anticipated to result from the use will be mitigated or offset to the maximum extent practicable;

   No significant impacts are anticipated from the Montex South Development.

5. The development proposed on the Site Plan and its general location is or will be compatible with the character of surrounding land uses.

   There is currently no development surrounding the proposed Montex South site.

Architecture:

The Manor Homes are designed to appear like a neighborhood of large single family homes in the Woodley Architect's Colorado Style. 7 floor plans, 2 building types, two distinct exterior elevations and roof designs per building type that include 1, 2 and 3 bedroom townhomes and flats, all with attached, direct access garages.

Development Schedule:

The project will be constructed as a single phase and buildings will be constructed as leasing allows. The development is anticipated to begin construction in the spring of 2015 with building permits being pulled by mid-summer 2015.

Integration:

The proposed development is consistent with the overall masterplan of the Vista Ridge Planned Development and will complement the adjacent uses.

Brief description regarding the location, function and ownership/maintenance of public and private open space, parks, trails, common areas, common buildings:

Passive open space is provided within Tracts B, C, D & E totaling .073 acres. Included with these tracts is a planned 0.36 acre pocket park (Tract D) that is central to the site. The intent of the Montex South Park is to meet the needs of the future residents. Amenities may include seating, barbeque grills, lawn and enhanced landscape areas. The pocket park will be privately owned and maintained as in Filing 5. No open space is provided. Detention will occur west of the site in a regional, off-site detention basin. No trails are proposed. Common areas are to be landscaped and privately owned and maintained. The only common building proposed, is a leasing and maintenance center at the entrance to the project. That building is a patio home from the Montex North site, adapted to the leasing, model and maintenance uses. No other common buildings are proposed.

Brief description regarding the substance of any existing or proposed covenants, special conditions, grants of easements, or other restrictions applying to the proposed subdivision:

The proposed covenants will be consistent with PUD's in this marketplace and will govern private streets, architectural control, landscape maintenance, snow removal and common areas.

Sincerely,

Bonner Gilmore
Managing Partner

Land Title
GUARANTEE COMPANY
WWW.LTGC.COM

Customer Distribution

Our Order Number: ABB25121037-4

Date: 10-30-2014

Property Address: VISTA RIDGE ERIE

For Closing Assistance
Tom Blake
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6237 (phone)
303-393-4959 (fax)
tblake@ltgc.com

Closer's Assistant
Marshall Ray
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6218 (phone)
303-393-4704 (fax)
mray@ltgc.com

For Title Assistance
Bruce Rosellen
5975 GREENWOOD PLAZA BLVD
GREENWOOD VILLAGE, CO 80111
303-850-4130 (phone)
303-393-4842 (fax)
brosellen@ltgc.com

Buyer/Borrower
CHARTERED DEVELOPMENT CORP.
Attention: WARD RITTER
2705 DUNDEE PLACE
ERIE, CO 80516
805-284-6152 (home)
303-545-2554 (work)
ward@charteredhomes.com
Delivered via: Electronic Mail

LAND TITLE GUARANTEE COMPANY
Attention: PETER TOBIN
3033 E 1ST AVE #600
DENVER, CO 80206
303-321-1880 (work)
303-322-7603 (work fax)
ptobin@ltgc.com
Delivered via: Electronic Mail

Seller/Owner
MONTEX (VISTA RIDGE), LLC
Attention: ANDY CHAIKOVSKY
4915 SOUTH GAYLORD STREET
ENGLEWOOD, CO 80113
303-783-9425 (work)
303-783-9427 (work fax)
achaikovsky@comcast.net
Delivered via: Electronic Mail

BONNER GILMORE, SURVEYOR
Attention: BONNER GILMORE, SURVEYOR
720-502-6573 (work)
Delivered via: Electronic Mail

Agent for Seller
VISTA RIDGE DEVELOPMENT CORP
Attention: JAMES SPEHALSKI
4950 S YOSEMITE ST #F2-503
GREENWOOD VILLAGE, CO 80112
303-920-9400 (work)
303-920-9440 (work fax)
jaspehalski@marathonlc.com
Delivered via: Linked Commitment Delivery

BROWNSTEIN HYATT FARBER & SCHRECK PC
Attention: KATHY OSTER
410 17TH ST 22ND FL
DENVER, CO 80202
303-223-1323 (work)
303-223-0323 (work fax)
koster@bhfs.com
Delivered via: Linked Commitment Delivery

Attorney for Seller
BROWNSTEIN HYATT FARBER & SCHRECK PC
Attention: GREGORY VALLIN
410 17TH ST 22ND FL
DENVER, CO 80202
303-223-1100 (work)
303-223-1111 (work fax)
gvallin@bhfs.com
Delivered via: Electronic Mail

BROWNSTEIN HYATT FARBER SCHRECK, LLP
Attention: KATHY OSTER
410 SEVENTEENTH STREET, #2200
DENVER, CO 80202
303-223-1343 (work)
koster@bhfs.com
Delivered via: Electronic Mail

Attorney for Buyer
SHARI BAKER LLC
Attention: SHARI BAKER
1630A 30TH STREET
BOULDER, CO 80301
303-442-3751 (work)
303-957-2643 (work fax)
shari@sbakerlaw.com
Delivered via: Electronic Mail

Land Title Guarantee Company

Estimate of Title Fees

Order Number: ABB25121037-4 Date: 10-30-2014

Property Address: VISTA RIDGE ERIE

Buyer/Borrower: CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION

Seller: MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY

Wire Instructions	
Bank:	FIRSTBANK OF COLORADO
Address:	10403 W COLFAX AVENUE LAKEWOOD, CO 80215
Phone:	303-237-5000
Credit:	LAND TITLE GUARANTEE COMPANY
ABA No:	107005047
Account:	2160521825
Attention:	Tom Blake
Please note: We do not accept ACH electronic transfers.	

Visit Land Title's website at www.ltgc.com for directions to any of our offices.

Estimate of Title Insurance Fees	
ALTA Owners Policy 06-17-06 (Builder Rate)	$2,730.00
Deletion of Exceptions 1-3	$60.00
Deletion of General Exception 4	$25.00
Endorsement 100.31-06 (MODIFIED LIMITED TO HARD MINERALS NOT OIL AND GAS RIGHTS)	$521.00
Tax Certificate (will be ordered prior to closing)	$75.00
Additional Parcel	$150.00
If Land Title Guarantee Company will be closing this transaction, the fees listed above will be collected at closing.	
Total	$3,561.00
THANK YOU FOR YOUR ORDER!	

ALTA COMMITMENT
First American Title Insurance Company
Schedule A

Order Number: ABB25121037-4

Customer Ref-Loan No.:

Property Address:

VISTA RIDGE ERIE

1. Effective Date:

10-23-2014 at 05:00PM

2. Policy to be Issued and Proposed Insured:

"ALTA" Owner's Policy 06-17-06 $2,700,000.00
Proposed Insured:
CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION

3. The estate or interest in the land described or referred to in this Commitment and covered herein is:

A FEE SIMPLE

4. Title to the estate or interest covered herein is at the effective date hereof vested in:

MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY

5. The Land referred to in this Commitment is described as follows:

PARCEL A:

A PORTION OF TRACT A OF "VISTA RIDGE FILING NO 12 MINOR SUBDIVISION" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEASTERLY CORNER OF SAID TRACT A: THENCE S 00° 12' 01" E, 608.49 FEET ALONG THE EASTERLY LINE OF SAID TRACT A (BASIS OF BEARINGS);
THENCE S 90° 00' 00" W, 332.94 FEET;
THENCE 78.54 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 100.00 FEET, A CENTRAL ANGLE OF 45° 00' 00", AND A CHORD BEARING OF N 67° 30' 00" W, 76.54 FEET;
THENCE N 45° 00' 00" W, 182.11 FEET;
THENCE 117.81 FEET ALONG THE ARC OF A TANGENT CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 150.00 FEET, A CENTRAL ANGLE OF 45° 00' 00", AND A CHORD BEARING N 67° 30' 00" W, 114.81 FEET;
THENCE N 90° 00' 00" W, 19.93 FEET;
THENCE N00°00'00"W, 16.05 FEET;
THENCE 56.06 FEET ALONG THE ARC OF A TANGENT CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 173.00 FEET, A CENTRAL ANGLE OF 18°34' 05", AND A CHORD BEARING N09°17'02"E, 55.82 FEET;
THENCE N18°34'05"E, 342.47 FEET TO THE NORTHERLY LINE OF SAID TRACT A;
THENCE N88° 51' 39"E, 538.34 FEET ALONG THE SAID NORTHERLY LINE OF TRACT A TO THE POINT OF BEGINNING.

PARCEL B:

ALTA COMMITMENT
First American Title Insurance Company
Schedule A

Order Number: ABB25121037-4

Customer Ref-Loan No.:

A PORTION OF PARCEL 33 OF "VISTA RIDGE MASTER FINAL PLAT" LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M. TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWESTERLY CORNER OF SAID PARCEL 33;
THENCE N 88° 48' 22" E, 173.66 FEET ALONG THE NORTHERLY LINE OF SAID PARCEL 33 (BASIS OF BEARINGS);
THENCE S00°00'00"E 612.10 FEET;
THENCE N90°00'00"W, 171.49 FEET TO THE WESTERLY LINE OF SAID PARCEL 33;
THENCE N00°12'01"W, 608.49 FEET ALONG SAID WESTERLY LINE OF PARCEL 33 TO THE POINT OF BEGINNING.

PARCEL C:

LOT 2 OF "VISTA RIDGE FILING NO 2 - MINOR SUBDIVISION" (PLAT RECORDED 11/15/2007 AT RECEPTION NO. 3517715), TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO.

Copyright 2006-2014 American Land Title Association. All Rights Reserved

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.

ALTA COMMITMENT
First American Title Insurance Company
Schedule B Section 1

(Requirements)

Order Number: ABB25121037-4

The following are the requirements to be complied with:

Payment to or for the account of the grantors or mortgagors of the full consideration for the estate or interest to be insured.

Proper instrument(s) creating the estate or interest to be insured must be executed and duly filed for record, to-wit:

1. RECORD RELEASE OR PROOF OF PAYMENT OF NOTICES RECORDED MARCH 16, 2012 AT RECEPTION NO. 3832301 AND MAY 21, 2013 AT RECEPTION NO. 3933756.

2. A FULL COPY OF THE FULLY EXECUTED OPERATING AGREEMENT AND ANY AND ALL AMENDMENTS THERETO FOR MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY MUST BE FURNISHED TO LAND TITLE GUARANTEE COMPANY. SAID AGREEMENT MUST DISCLOSE WHO MAY CONVEY, ACQUIRE, ENCUMBER, LEASE OR OTHERWISE DEAL WITH INTERESTS IN REAL PROPERTY FOR SAID ENTITY.

   NOTE: ADDITIONAL REQUIREMENTS MAY BE NECESSARY UPON REVIEW OF THIS DOCUMENTATION.

3. DULY EXECUTED AND ACKNOWLEDGED STATEMENT OF AUTHORITY SETTING FORTH THE NAME OF MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY AS A LLC. THE STATEMENT OF AUTHORITY MUST STATE UNDER WHICH LAWS THE ENTITY WAS CREATED, THE MAILING ADDRESS OF THE ENTITY, AND THE NAME AND POSITION OF THE PERSON(S) AUTHORIZED TO EXECUTE INSTRUMENTS CONVEYING, ENCUMBERING, OR OTHERWISE AFFECTING TITLE TO REAL PROPERTY ON BEHALF OF THE ENTITY AND OTHERWISE COMPLYING WITH THE PROVISIONS OF SECTION 38-30-172, CRS.

   NOTE: THE STATEMENT OF AUTHORITY MUST BE RECORDED WITH THE CLERK AND RECORDER.

4. WARRANTY DEED FROM MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY TO CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION CONVEYING SUBJECT PROPERTY.

5. PROVIDE LAND TITLE GUARANTEE COMPANY WITH A CURRENT SURVEY OF SUBJECT PROPERTY. UPON REVIEW, ADDITIONAL REQUIREMENTS AND/OR EXCEPTIONS MAY BE NECESSARY.

   LAND TITLE IS NOT RESPONSIBLE FOR ORDERING SAID SURVEY.

   SAID SURVEY MUST BE CERTIFIED TO LAND TITLE GUARANTEE COMPANY AND OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY.

   NOTE: ITEMS 1-3 OF THE STANDARD EXCEPTIONS WILL BE DELETED UPON RECEIPT OF AN APPROVED SURVEY. MATTERS DISCLOSED BY SAID SURVEY MAY BE ADDED TO SCHEDULE B-2 HEREOF.

   UPON THE APPROVAL OF THE COMPANY AND THE RECEIPT OF A NOTARIZED FINAL LIEN AFFIDAVIT, ITEM NO. 4 OF THE STANDARD EXCEPTIONS ON THE OWNER'S POLICY, WILL BE AMENDED AS FOLLOWS:

   ITEM NO. 4 OF THE STANDARD EXCEPTIONS IS DELETED AS TO ANY LIENS OR FUTURE LIENS

ALTA COMMITMENT
First American Title Insurance Company
Schedule B Section 1

(Requirements)

Order Number: ABB25121037-4

The following are the requirements to be complied with:

RESULTING FROM WORK OR MATERIAL FURNISHED AT THE REQUEST OF MONTEX (VISTA RIDGE), LLC, A COLORADO LIMITED LIABILITY COMPANY.
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY SHALL HAVE NO LIABILITY FOR ANY LIENS ARISING FROM WORK OR MATERIAL FURNISHED AT THE REQUEST OF CHARTERED DEVELOPMENT CORP., A NEVADA CORPORATION.

NOTE: ITEM 5 OF THE STANDARD EXCEPTIONS WILL BE DELETED IF LAND TITLE GUARANTEE COMPANY CONDUCTS THE CLOSING OF THE CONTEMPLATED TRANSACTION(S) AND RECORDS THE DOCUMENTS IN CONNECTION THEREWITH.

NOTE: UPON PROOF OF PAYMENT OF 2013 TAXES, ITEM 6 WILL BE AMENDED TO READ:

TAXES AND ASSESSMENTS FOR THE YEAR 2014 AND SUBSEQUENT YEARS.

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

1. **Any facts, rights, interests, or claims thereof, not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.**

2. **Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.**

3. **Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.**

4. **Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.**

5. **Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date of the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.**

6. **(a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.**

7. **(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water.**

8. RESERVATIONS BY THE UNION PACIFIC RAILROAD COMPANY COMPANY OF:
(1) ALL OIL, COAL AND OTHER MINERALS UNDERLYING SUBJECT PROPERTY,
(2) THE EXCLUSIVE RIGHT TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, AND
(3) THE RIGHT OF INGRESS AND EGRESS AND REGRESS TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, ALL AS CONTAINED IN DEED RECORDED JUNE 04, 1902, IN BOOK 201 AT PAGE 16.

   MINERAL DEED RECORDED NOVEMBER 3, 1972 AT RECEPTION NO. 1602712 IN BOOK 681
   AND
   RELINQUISHMENT AND QUIT CLAIM RECORDED AUGUST 21, 2000 AT RECEPTION NO. 2788395 .

9. OIL AND GAS LEASE RECORDED NOVEMBER 30, 1972 UNDER RECEPTION NO. 1602713 IN BOOK 681 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.

   NOTE: EXTENSION OF THE ABOVE LEASE AS CLAIMED BY AFFIDAVIT OF PRODUCTION WAS RECORDED DECEMBER 07, 2000 UNDER RECEPTION NO. 2811882.AND
   SURFACE USE AGREEMENT RECORDED AUGUST 21, 2000 AT RECEPTION NO. 2788394 AND AMENDED NOVEMBER 15, 2004 AT RECEPTION NO. 3235488
   AND
   REQUEST FOR NOTIFICATION RECORDED MAY 28, 2002 AT RECEPTION NO. 2954455

10. TERMS, CONDITIONS AND PROVISIONS OF CERTIFICATE OF ORGANIZATION FOR THE NORTHWEST PARKWAY PUBLIC HIGHWAY AUTHORITY RECORDED JUNE 30, 1999 AT RECEPTION

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

NO. 2703636 AND RE-RECORDED NOVEMBER 19, 1999 AT RECEPTION NO. 2733705.

11. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 30, 2000 AT RECEPTION NO. 2790549.

12. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 30, 2000 AT RECEPTION NO. 2790550.

13. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION AGREEMENT RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793930 AND RE-RECORDED DECEMBER 8, 2000 AT RECEPTION NO. 2812291.

14. TERMS, CONDITIONS AND PROVISIONS OF ORDER AND DECREE RECORDED JANUARY 08, 2001 AT RECEPTION NO. 2817763 AND NOTICE RECORDED JUNE 14, 2006 AT RECEPTION NO. 3396125.

15. RIGHT OF WAY EASEMENT AS GRANTED TO FARMERS RESERVOIR AND IRRIGATION COMPANY IN INSTRUMENT RECORDED OCTOBER 22, 2001, UNDER RECEPTION NO. 2893921.

16. TERMS, CONDITIONS AND PROVISIONS OF MASTER DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS RECORDED DECEMBER 14, 2001 AT RECEPTION NO. 2909244 AND AMENDED JANUARY 28, 2003 AT RECEPTION NO. 3027600.

17. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED DECEMBER 04, 2001 AT RECEPTION NO. 2905896.

    NOTICE RECORDED JUNE 14, 2006 AT RECEPTION NO. 3396125

18. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE RECORDED PLAT OF VISTA RIDGE MASTER FINAL PLAT RECORDED SEPTEMBER 6, 2001 AT RECEPTION NO. 2903870.

19. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793940 AND AMENDMENT RECORDED FEBRUARY 27, 2002 AT RECEPTION NO. 2928673.

20. TERMS, CONDITIONS AND PROVISIONS OF DECLARATION OF GOLF PLAY COVENANTS RECORDED JULY 07, 2003 AT RECEPTION NO. 3080606.

21. RIGHT OF WAY EASEMENT AS GRANTED TO UNITED POWER INC IN INSTRUMENT RECORDED APRIL 17, 2002, UNDER RECEPTION NO. 2943714.

22. TERMS, CONDITIONS AND PROVISIONS OF AGREEMENT RECORDED JULY 22, 2003 AT RECEPTION NO. 3086574.

23. RIGHT OF WAY EASEMENT AS GRANTED TO UNITED POWER INC IN INSTRUMENT RECORDED SEPTEMBER 22, 2003, UNDER RECEPTION NO. 3108688.

24. RESTRICTIVE COVENANTS, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP,

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS CONTAINED IN INSTRUMENT RECORDED NOVEMBER 19, 2008, UNDER RECEPTION NO. 3590556.

25. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION MAPS RECORDED AUGUST 25, 2000 AT RECEPTION NO. 2789487 AND RECORDED SEPTEMBER 15, 2000 AT RECEPTION NO. 2793937 AND 2793938 AND 2793939

26. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF VISTA RIDGE FILING NO 2 RECORDED NOVEMBER 15, 2007 AT RECEPTION NO. 3517715.

27. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED JUNE 06, 2003 AT RECEPTION NO. 3070386.

28. TERMS, CONDITIONS AND PROVISIONS OF STORM PIPE AGREEMENT RECORDED JANUARY 07, 2008 AT RECEPTION NO. 3527519.

29. TERMS, CONDITIONS AND PROVISIONS OF ORDER RECORDED DECEMBER 14, 2001 AT RECEPTION NO. 2908969 AND 2908970 AND 2908971 AND 2908972.

30. EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS, RESERVATIONS AND NOTES ON THE PLAT OF VISTA RIDGE FILING NO 12 RECORDED NOVEMBER 19, 2008 AT RECEPTION NO. 3590554.

31. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT AGREEMENT RECORDED NOVEMBER 19, 2008 AT RECEPTION NO. 3590555.

32. RESTRICTIVE COVENANTS, WHICH DO NOT CONTAIN A FORFEITURE OR REVERTER CLAUSE, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS CONTAINED IN INSTRUMENT RECORDED NOVEMBER 19, 2008, UNDER RECEPTION NO. 3590557.

33. (ITEM INTENTIONALLY DELETED)

34. TERMS, CONDITIONS AND PROVISIONS OF DEED OF EASEMENT RECORDED NOVEMBER 28, 2001 AT RECEPTION NO. 2903864.

35. RIGHT OF WAY EASEMENT AS GRANTED TO TOWN OF ERIE IN INSTRUMENT RECORDED JANUARY 28, 2004, UNDER RECEPTION NO. 3148806.

36. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN RECORDED MARCH 03, 2011 AT RECEPTION NO. 3753956.

37. TERMS, CONDITIONS AND PROVISIONS OF TITLE COMPANIES AND OTHER INTERESTED PARTIES: PLEASE BE ON NOTICE THAT: RECORDED MARCH 16, 2012 AT RECEPTION NO. 3832301.

38. TERMS, CONDITIONS AND PROVISIONS OF NOTICE TO TITLE COMPANIES AND OTHER

First American Title Insurance Company
Schedule B Section 2

(Exceptions)

Order Number: ABB25121037-4

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

INTERESTED PARTIES RECORDED MAY 21, 2013 AT RECEPTION NO. 3933756 AND RERECORDED AUGUST 20, 2014 UNDER RECEPTION NO. 4039682.

39. TERMS, CONDITIONS AND PROVISIONS OF DEVELOPMENT PLAN AMENDMENT NO 6 RECORDED NOVEMBER 25, 2013 AT RECEPTION NO. 3980214.

40. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED NOVEMBER 25, 2013 AT RECEPTION NO. 3980215.

41. TERMS, CONDITIONS AND PROVISIONS OF NOTICE TO TITLE COMPANIES AND OTHER INTERESTED PARTIES RECORDED MARCH 18, 2014 AT RECEPTION NO. 4002991.

JOINT NOTICE OF PRIVACY POLICY OF

LAND TITLE GUARANTEE COMPANY,
LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION,
LAND TITLE INSURANCE CORPORATION AND
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

This Statement is provided to you as a customer of Land Title Guarantee Company and Meridian Land Title, LLC, as agents for Land Title Insurance Corporation and Old Republic National Title Insurance Company.

We want you to know that we recognize and respect your privacy expectations and the requirements of federal and state privacy laws. Information security is one of our highest priorities. We recognize that maintaining your trust and confidence is the bedrock of our business. We maintain and regularly review internal and external safeguards against unauthorized access to non-public personal information ("Personal Information").

In the course of our business, we may collect Personal Information about you from:

- applications or other forms we receive from you, including communications sent through TMX, our web-based transaction management system;
- your transactions with, or from the services being performed by, us, our affiliates, or others;
- a consumer reporting agency, if such information is provided to us in connection with your transaction;

  and
- the public records maintained by governmental entities that we either obtain directly from those entities, or from our affiliates and non-affiliates.

Our policies regarding the protection of the confidentiality and security of your Personal Information are as follows:

- We restrict access to all Personal Information about you to those employees who need to know that information in order to provide products and services to you.
- We maintain physical, electronic and procedural safeguards that comply with federal standards to protect your Personal Information from unauthorized access or intrusion.
- Employees who violate our strict policies and procedures regarding privacy are subject to disciplinary action.
- We regularly access security standards and procedures to protect against unauthorized access to Personal Information.

WE DO NOT DISCLOSE ANY PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT PERMITTED BY LAW.

Consistent with applicable privacy laws, there are some situations in which Personal Information may be disclosed. We may disclose your Personal Information when you direct or give us permission; when we are required by law to do so, for example, if we are served a subpoena; or when we suspect fraudulent or criminal activities. We also may disclose your Personal Information when otherwise permitted by applicable privacy laws such as, for example, when disclosure is needed to enforce our rights arising out of any agreement, transaction or relationship with you.

Our policy regarding dispute resolution is as follows. Any controversy or claim arising out of or relating to our privacy policy, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

LAND TITLE GUARANTEE COMPANY

LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION

DISCLOSURE STATEMENTS

Note: Pursuant to CRS 10-11-122, notice is hereby given that:

A) The Subject real property may be located in a special taxing district.
B) A Certificate of Taxes Due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent.
C) The information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor.

Note: Effective September 1, 1997, CRS 30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The clerk and recorder may refuse to record or file any document that does not conform, except that, the requirement for the top margin shall not apply to documents using forms on which space is provided for recording or filing information at the top margin of the document.

Note: Colorado Division of Insurance Regulations 3-5-1, Paragraph C of Article VII requires that "Every title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed". Provided that Land Title Guarantee Company conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception number 5 will not appear on the Owner's Title Policy and the Lenders Policy when issued.

Note: Affirmative mechanic's lien protection for the Owner may be available (typically by deletion of Exception no. 4 of Schedule B, Section 2 of the Commitment from the Owner's Policy to be issued) upon compliance with the following conditions:

A) The land described in Schedule A of this commitment must be a single family residence which includes a condominium or townhouse unit.
B) No labor or materials have been furnished by mechanics or material-men for purposes of construction on the land described in Schedule A of this Commitment within the past 6 months.
C) The Company must receive an appropriate affidavit indemnifying the Company against un-filed mechanic's and material-men's liens.
D) The Company must receive payment of the appropriate premium.
E) If there has been construction, improvements or major repairs undertaken on the property to be purchased within six months prior to the Date of the Commitment, the requirements to obtain coverage for unrecorded liens will include: disclosure of certain construction information; financial information as to the seller, the builder and or the contractor; payment of the appropriate premium fully executed Indemnity Agreements satisfactory to the company, and, any additional requirements as may be necessary after an examination of the aforesaid information by the Company.

No coverage will be given under any circumstances for labor or material for which the insured has contracted for or agreed to pay.

Note: Pursuant to CRS 10-11-123, notice is hereby given:

This notice applies to owner's policy commitments containing a mineral severance instrument exception, or exceptions, in Schedule B, Section 2.

A) That there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and
B) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Pursuant to CRS 10-1-128(6)(a), It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado division of insurance within the department of regulatory agencies.

Nothing herein contained will be deemed to obligate the company to provide any of the coverages referred to herein unless the above conditions are fully satisfied.

Commitment to Insure

ALTA Commitment - 2006 Rev.

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, a Minnesota corporation, (Company) for a valuable consideration, commits to issue its policy or policies of title insurance, as identified in Schedule A, in favor of the Proposed Insured named in Schedule A, as owner or mortgagee of the estate or interest in the land described or referred to in Schedule A, upon payment of the premiums and charges and compliance with the requirements; all subject to the provisions of Schedule A and B and to the Conditions of this Commitment.

This Commitment shall be effective only when the identity of the Proposed Insured and the amount of the policy or policies committed for have been inserted in Schedule A by the Company. All liability and obligation under this commitment shall cease and terminate six months after the Effective Date or when the policy or policies committed for shall issue, whichever first occurs, provided that the failure to issue such policy or policies is not the fault of the Company.

CONDITIONS AND STIPULATIONS

1. The term "mortgage", when used herein, shall include deed of trust, trust deed, or other security instrument.
2. If the proposed Insured has or acquires actual knowledge of any defect, lien, encumbrance, adverse claim or other matter affecting the estate or interest or mortgage thereon covered by this Commitment other than those shown in Schedule B hereof, and shall fail to disclose such knowledge to Company in writing, the Company shall be relieved from liability for any loss or damage resulting from any act of reliance hereon to the extent the Company is prejudiced by failure to so disclose such knowledge. If the proposed Insured shall disclose such knowledge to the Company, or if the Company otherwise acquires actual knowledge of any such defect, lien, encumbrance, adverse claim or other matter, the Company at its option may amend Schedule B of this Commitment accordingly, but such amendment shall not relieve the Company from liability previously incurred pursuant to paragraph 3 of these Conditions and Stipulations.
3. Liability of the Company under this Commitment shall be only to the named proposed Insured and such parties included under the definition of Insured in the form of policy or policies committed for and only for actual loss incurred in reliance hereon in undertaking in good faith (a) to comply with the requirements hereof or (b) to eliminate exceptions shown in Schedule B, or (c) to acquire or create the estate or interest or mortgage thereon covered by this Commitment. In no event shall such liability exceed the amount stated in Schedule A for the policy or policies committed for and such liability is subject to the insuring provisions and the Conditions and Stipulations and the Exclusions from Coverage of the form of policy or policies committed for in favor of the proposed Insured which are hereby incorporated by reference and are made a part of this Commitment except as expressly modified herein.
4. This commitment is a contract to issue one or more title insurance policies and is not an abstract of title or a report of the condition of title. Any action or actions or rights of action that the proposed Insured may have or may bring against the Company arising out of the status of the title to the estate or interest or the status of the mortgage thereon covered by this Commitment must be based on and are subject to the provisions of this Commitment.
5. The policy to be issued contains an arbitration clause. All arbitrable matters when the Amount of Insurance is $2,000,000 or less shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. You may review a copy of the arbitration rules at www.alta.org.

STANDARD EXCEPTIONS

In addition to the matters contained in the Conditions and Stipulations and Exclusions from Coverage above referred to, this Commitment is also subject to the following:

1. Rights or claims of parties in possession not shown by the Public Records.
2. Easements, or claims of easements, not shown by the Public Records.
3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts which a correct survey or inspection of the Land would disclose and which are not shown by the Public Records.
4. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the Public Records.
5. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the Public Records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.

IN WITNESS WHEREOF, Old Republic National Title Insurance Company has caused its corporate name and seal to be affixed by its duly authorized officers on the date shown in Schedule A to be valid when countersigned by a validating officer or other authorized signatory.

Issued by:
Land Title Guarantee Company
3033 East First Avenue
Suite 600
Denver, Colorado 80206
303-850-4165

John E. Freyer
President

Authorized Officer or Agent

Old Republic National Title Insurance Company
a Stock Company
400 Second Avenue South
Minneapolis, Minnesota 55401
(612)371-1111

Mark Bilbrey
President

Rande Yeager
Secretary

AMERICAN LAND TITLE ASSOCIATION

CHARTERED HOMES
COLOR & MATERIAL SCHEDULE

OCTOBER 31, 2014

	SIDING	TRIM, FASCIA, GARAGE	Accent	ROOF TILE	STONE
SCHEME 1					
	CL2954 PERPETUA	CLW 1031W GORGE WATER	CL2986 JUMPSUIT		
SCHEME 2				RUSTIC SLATE	
	CL2902 OLD WASHER	CLW 1031W GORGE WATER	CL2674 STORM BAY		OLD COUNTRYLEDGE CHABLIS
SCHEME 3					
	CLW 1031W GORGE WATER	CL2953 HARVARD	CL3065 SQUEEKY GREEN		
SCHEME 4				NATURAL TIMBER	
	CL2984 RELIC	CLW 1031W GORGE WATER	CL2983 CENTAUER		OLD COUNTRYLEDGE GREY QUARTZITE
SCHEME 5					
	CL2675 MOMMIA	CL2674 STORM BAY	CL2955 MISSIVE		
SCHEME 6					
	CL2865 EXILE	CL2863 KERATIN	CL1252 ONION		OLD COUNTRYLEDGE SHASTA BLEND

ATTACHMENT D

1529 Market St. Ste 200
Denver, CO 80202
303•875•7131
Bonner.gilmore@enertiacg.com

September 21, 2015

Mr. Todd Bjerkaas
Town of Erie
Senior Planner
645 Holbrook Street
P.O. Box 750
Erie, CO 80516

RE: Montex South Alternative Equivalent Compliance Request
Resident Parking within Setback

Dear Planning Commission Members:

The applicant, Chartered Development, would like to formally request an alternative equivalent compliance for the proposed Montex South multi-family development. The request as as follows:

I. There are 16 off street, resident parking spaces within the setback of Ridgeview Circle.

Rather than a traditional, three story walkup apartment building with a significant parking lot, the alternative design of Montex South allows for each and every unit to have a direct access garage. This alternative design creates a non-traditional multi-family project that is creative which creates a challenge to adhere to the Town of Erie's Uniform Development Code Section (10.6.4.E.8.b) which does not allow for parking within the setback. The parking shown within the setback is for off-street resident parking and does not negatively impact the aesthetics or usability of the development.

Please contact me at bonner.gilmore@enertiacg.com or (303) 875-7131 should you have any questions regarding this request.

Sincerely,

ENERTIA CONSULTING GROUP, LLC

Bonner Gilmore
Managing Partner

ATTACHMENT E

Vista Ridge Filing 2 1st Amendment (Montex North) and Vista Ridge Filing 12 1st Amendment (Montex South) Neighborhood Meeting

Date

6:15 – 7:15 P.M. April 22, 2015

Location

Vista Ridge Community Center – Community Room
2750 Vista Parkway
Erie, CO 80516

Purpose

To present the proposed development to the neighboring residents, let them ask questions and provide feedback from the local residents. In addition, the meeting fulfills the requirement of holding a neighborhood meeting prior to the public hearing process.

Presentation

The room set up with our display boards for our planned neighborhood meeting and as we prepared to start at as advertised at 6:30 we opened the doors at 6:15 as folks wandered in from the open house style meeting King Soopers was holding across the hallway from us which started at 6:00. We modified our presentation plans to an open house style to accommodate the neighbors who showed up in a fairly steady stream. We made ourselves available at the front of the room by the visual displays to field any and all questions asked and offer unsolicited information as well on the developments as well.

Questions

6:15:
With the visual displays we had set up at the front of the room we began to welcome folks to our meeting and make ourselves available to field questions from those who joined us. Ward Ritter started fielding questions and showing people the product plans, Vista Ridge aerial photo and the site layouts.

Most questions fielded by Ward (President) and Tony Chaves (Director of Construction) were in reference to the apartment/Manor homes. People were curious how many apartments there were per building (4), If there was enough space and parking (yes – two - two car and two-one car garages per building with additional resident parking in open off street spaces with guest parking available on the street through the development as well as ample open space), and whether or not the people living in the apartments would get access to the Vista Ridge Pool and Fitness center or not (yes and yes. The previous evening Ward Ritter made a presentation to the Vista Ridge HOA

BOD regarding the development and it was constructively received and annexation into the HOA was discussed and acknowledged by the Board. The annexation is by right per the CC&Rs).

There was a lot of positive feedback about the attached direct access garages for the apartment homes, especially from the women in attendance. They commented on the security and peace of mind that that feature allows for, especially single women. Lots of positive feedback on the floor plans – both townhomes and single level units, particularly on the ground floor plans well as the exterior elevations – "they look like large homes".

There were questions about time frame and build time (hope to start this year and an approximate 2 year buildout once underway).

There were also questions pertaining to the product we plan to build like how many stories are your patio homes, are your basements finished – (ranch and yes).

Questions about the price points we planned on selling our homes for as well as rental range – (Patio homes base price starting at approximately $300,000 and rents about $1,400 - $2,000 – all subject to change).

There were several questions having to do with the future adjacent commercial lot plans including King Soopers and where driveway locations on Ridge View and Highway 7 would be and what the access thru the commercial area would possibly look like. We displayed our Vista Ridge aerial photograph with the Fairways/Montex sites overlayed on it along with King Soopers along with a conceptual site plan for the remainder commercial land to help people get a visual on what the proposals.

7:00:
King Soopers started to put away their visual plan boards were wrapping up so the remaining few neighbors from their room headed over to our room to look at what we had on display. More of the same questions were asked and answered by Ward.

7:15:
Everyone had left and we packed up and did the same.

Conclusion

Everyone who came by to look at the plans and ask questions was very pleasant and respectful. Most seemed satisfied with what we have proposed. We fielded questions, provided answers, listened and exchanged business cards with numerous neighbors. The main focus of those who came by seemed to be geared towards what was going on in the commercial zones rather then residential.

Sign In Sheet

Name	Address	Phone	Email
John Beswadi	2602 Lilac Circle	(3) 666-6753	
Erik Johnke	2369 Dogwood circle	720-890 7582	
Sue Fiorino	2785 Dundee PL	7-389-7407	
Lee Metcalfe	268 Dogwood Dr	(3) 532-5773	
Marian Metcalfe			
Tim Hedahl	2680 Ironwood Pl	720-849-8443	
Art + Janet Enns	2743 Windermere Ln	720 320 2936	
Janet Cummings			
CATHY OLSON	2030 CEDARWOOD PLACE, ERIE	303-499-0360	
Whitney Bryen	5450 Western Ave	303-473-1113	
James Stevenson	9750 W. Amherst Pl Littleton	720-371-4116	

UNITED STATES POSTAL SERVICE®

Certificate of Bulk Mailing

MAILER: Prepare this statement in ink. Affix meter, PC Postage®, or (uncanceled) postage stamps in payment of total fee due in the block to the right. Present to acceptance unit at the time of mailing. This certificate does not provide evidence that a piece was mailed to a particular address. If paying fee by permit imprint, enter information in the adjacent block to the right.

Mailers must affix meter, PC Postage, or (uncanceled) postage stamps here in payment of total fee due.

UNITED STATES POSTAL SERVICE®

1000

U.S. POSTAGE
PAID
LAFAYETTE,CO
80026
APR 06, 15
AMOUNT
$7.80
00110980-11

If payment of total fee due is being paid by Permit Imprint, include the PostalOne! Transaction Number here: _____

Fee for Certificate	
Up to 1,000 pieces (1 certificate for total number)	Use Current Price List (Notice 123)
For each additional 1,000 pieces, or fraction thereof	
Duplicate Copy ☐	

Number of Identical Weight Pieces	Class of Mail	Postage for Each Mailpiece Paid ☐ Verified	Number of Pieces to the Pound	Total Number of Pounds	Total Postage Paid for Mailpieces	Fee Paid
			35	12.60 oz	35	7.80

Mailed For	Mailed By
Chartered Development	Brandon Chandler

Postmaster's Certification

It is hereby certified that the number of mailpieces presented and the associated postage and fee were verified. This certificate does not provide evidence that a piece was mailed to a particular address.

Bernadette M My

(Postmaster or Designee)

PS Form **3606,** January 2013, *(Page 1 of 1)*

LAFAYETTE CO 80026
APR 06 2015
USPS

TOWN OF ERIE
AFFIDAVIT OF NEIGHBORHOOD MEETING NOTICE POSTING

Montex North + South Preplat + Site plan
(PROJECT NAME & APPLICATION TYPE)

I, Ward Ritter, ATTEST THAT NOTICE WAS POSTED IN ACCORDANCE WITH THE ERIE MUNICIPAL CODE, TITLE 10, – "UNIFIED DEVELOPMENT CODE AND DESIGN GUIDELINES," AT LEAST 15 DAYS BEFORE THE SCHEDULED NEIGHBORHOOD MEETING, ON THE 7th DAY OF April, 2015 A.D. THE PHOTOS, ABOVE, ARE A TRUE AND CORRECT PHOTO OF THE NEIGHBORHOOD MEETING NOTICE SO POSTED.

(SIGNATURE HERE)

STATE OF COLORADO)
) ss.
COUNTY OF Weld)

ACKNOWLEDGED BEFORE ME THIS 22 DAY OF April, 2015 BY Ward Ritter
AS President.

WITNESS MY HAND AND OFFICIAL SEAL

NOTARY PUBLIC

MY COMMISSION EXPIRES: 1/29/18

BRANDON CHANDLER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20144004192
MY COMMISSION EXPIRES JANUARY 29, 2018

ATTACHMENT F

1529 Market St., Suite 200
Denver, CO 80202
303.564.3435
shawn.merz@enertiacg.com

September 17, 2015

R. Martin Ostholthoff
Community Development Director
Town of Erie
Community Development Department
645 Holbrook Street
PO Box 750
Erie, CO 80516

Re: SP-000046-2014, PP-000055-2014 Vista Ridge Filing No. 12, 1st Amendment

Dear Mr. Ostholthoff:

This letter presents a response to the comments received on August 26, 2015 for the Preliminary Plat and Site Plan Submittals for Montex South at Vista Ridge.

Development Review Team (DRT) Preliminary Plat Comments (8/20/2015)

Preliminary Plat

1. General Comments
   a. The Board of Trustee's approved Vista Ridge Filing 14 (King Soopers) at its August 11th meeting. Recordation of the plat is eminent, and the subdivision creates three residual future development tracts, of which Tract B is a part of your proposed Vista Ridge Filing 12, 1st Amendment. Please update the legal descriptions, area totals, and tract numbering. A copy of the final Vista Ridge Filing 14 is attached.
   Response: The legal descriptions, area totals and tract numbering have been updated.

   b. Proof of recordation and establishment of an HOA for common areas and shared facilities is required at Final Plat. *Update:* The applicant stated that an HOA is no longer necessary. Remove any HOA references from the plat, specifically the Tract Summary Chart.
   Response: HOA references have been removed.

   c. See redlines for technical adjustments and comments.
   Response: Redlines containing technical adjustments and comments have been addressed.

2. Sheet 1 – Cover Sheet
   a. Re-letter the tracts per the following comments and update notes, tables, and drawings accordingly.
   Response: Tracts, notes and tables have been updated per comments.

   b. Update the Tract Summary Chart. Tract A1 (to be A2 and minus the detention pond) is a future development tract and should be retained by the Owner.
   Response: The Tract Summary Chart has been updated.

c. Note 6 provides for a blanket drainage easement. Revise note to exclude those areas within the building footprints from that blanket easement.
Response: The note has been updated to exclude the areas within the building footprint.

d. Add to the General Notes:
   14. Maintenance Definition: Maintenance is the process of preserving capital improvements, structures, development, or systems to meet its function or original intent of the facility. This is the preservation, conservation, keeping in good conditions, operating safely, operating efficiently, testing, inspection, servicing, repairing, grading, cleaning, picking up trash and debris, pest control, painting, mowing, pruning, and prolonging of these facilities. Maintenance also includes the provision of financial support to maintain the facilities. Facilities include but are not limited to: landscaping, open areas, grass, shrubs, trees, playgrounds, site furniture and fixtures, retaining walls, signs, sidewalks, drainage structures such as ponds, swales, drain pans, inlets, and outlet structures.

   Response: Maintenance definition note has been added to plat general notes.

e. *Condition of PP approval*: A separate Vacation application will need to be processed concurrent with any final plat to vacate the existing 10-foot utility easement created by the Vista Ridge Filing No. 12 plat.
Response: Comment noted.

3. Sheet 2 – Plat
   a. Divide off the detention pond into its own tract. The notes for blanket drainage easements, open space, and landscaping will be cleaner and not encumber the future commercial lots in the balance of Tract A1 (to be Tract A2).
   Response: The detention pond is now within a separate tract A-1.

   b. Match the dimensions of the east property line and the eastern portions of the north and south property lines of Lot 3 to Tract B of the Vista Ridge Filing 14 plat.
   Response: The dimensions and linework of the east property line now match that of the Filing 14 plat.

   c. Delete the dashed lines for easements within Tract A. The entire width of Tract A shall be an easement per Note 2 and the Use in the Tract Summary Chart.
   Response: Easements have been removed within Tract A.

   d. Delete all the "Rec. No. _____" placeholders for easements to be dedicated via the final plat. The placeholders are only for easements dedicated by separate instrument.
   Response: Deleted all Rec. No. placehoders.

   e. Add a "0" to the Project Number.
   Response: Added 0 to the project number.

4. Sheet 3 – Plat
   a. Delete all the "Rec. No. _____" placeholders for easements to be dedicated via the final plat. The placeholders are only for easements dedicated by separate

instrument (i.e. the Access & Utility Easement dedicated in the pond by the original Filing 12 plat).
Response: Deleted all Rec. No. placeholders.

Site Plan

5. General Comments
   a. Add the Architectural Elevations to the Site Plan Set.
      Response: Colored elevations have been added to the Site Plan Set; Sheets A1-A4.

   b. Combine the Landscape Plans, Photometrics and Architectural Elevations physically into the same plan set (Sheets C1-C7).
      Response: The Landscape Plans, Photometrics Plans and Architectural Elevations are combined into the Site Plan Set.

   c. See redlines for technical adjustments and comments.
      Response: All redlines have been addressed per comments received.

6. Sheet C1
   a. Separate out the pocket park acreage from the "Planted/Mulched Area" under the Landscape heading of the Land Use Tabulation. The balance will be used for calculation of trees and shrubs in the landscape drawings.
      Response: The pocket park acreage has been separated out as requested.

7. Sheet C2
   a. Buildings 5, 8, and 32 are into or have roof overhangs within the front setback line of 15'. The VRDP does not allow encroachments in the front setback for roof overhangs (V.O.d).
      Response: Per email dated May 20, 2015 from staff to Ward Ritter and myself, item number one identifies that, "Front Setback Encroachments: The eave encroachments may project into the front setback by up to 2'." We have proceeded with this direction. Please see email attached to this comment response letter.

   b. Provide a sidewalk connection and curb ramp from the southeast parking lot to the sidewalk of Ridgeview Circle.
      Response: A sidewalk and curb ramp from the southeast parking lot to the sidewalk of Ridgeview Circle has been added.

   c. On the previous submittal tree lawns were shown as 8' wide per the requirements of the UDC (10.6.5.F.1.c.i). The tree lawns are now shown as 6.5'. Revise to 8'.
      Response: The tree lawns have been revised to be 8' from back of curb to the edge of the walk.

   d. The Building 14 footprint does not match the Building Type 2 footprint notated on the sheet. Revise footprint to match the model proposed.
      Response: Building 14 labeling has been revised to be a Type 1, Elevation A per the footprint.

   e. The UDC's requirements for architectural variety of Manor Homes states that models with identical facades shall not be placed adjacent to or across the street

from one another (10.6.7.F.1.e.ii). Buildings 25 & 30 are identical and are adjacent.
Response: Building 25 is now a Type 1, Elevation A and building 30 is a Type 1, Elevation B to comply with section (10.6.7.F.e.ii).

f. A select number of parking spaces encroach into the setbacks along Ridge View Circle. Please submit a request for Alternative Equivalent Compliance addressed to the Planning Commission to allow parking in the setbacks.
Response: A request for Alternative Equivalent Compliance to allow parking within the setback is included.

g. Delete the southwestern parking stall in the lot west of Building 9 as it encroaches into the setback/landscape buffer adjacent to a future road.
Response: The southwestern parking stall in the lot west of building 9 has been removed as requested.

8. Sheet C3
   a. Add sidewalk connectors to the street (see redlines).
   Response: Sidewalk connectors per relines have been added.

   b. Depending on the depth of the line, the storm pipe just south of Building 2 may be in Building 2's foundation zone of influence.
   Response: The location so the storm outfall is unfortunately confined to this location and is only close to the foundation of building 2 at the southwest corner. This is a reinforced concrete pipe that is shallow and only 18" in diameter thus virtually eliminating any possible rework.

   c. See redlines for potential light locations for safety along walkways.
   Response: All buildings will have building mounted lights to assist with safety at night. The central located light suggestion, has been added.

9. Sheet C4
   a. The sidewalk connection south of Building 14 ascends approximately 3' to the south property line, but no steps, wing walls, or railings are shown, as applicable.
   Response: Seven steps with a handrail have been added to this location.

   b. The Proposed Diversion Swale leader is not pointing to a swale.
   Response: The diversion swale adjacent to the east and south property line has been added.

10. Sheet C6
    a. Each building model provides 1-one bedroom, 2-two bedrooms, and 1-three bedroom units. Each building is required to provide 7.5 off-street parking stalls for the building occupants (10.6.6.D.1.c & Table 6.6-1). Each building model provides 6 off-street parking stalls in the garages resulting in 1.5 (rounded to 2) parking stalls still required on site. *Update:* Thank you for the parking exhibit. There are a few formatting and clarification revisions needs. Please discuss with staff to update and finalize.
    Response: In conjunction with discussions with the Town staff, we have prepared formatting updates to clarify the location and distance of the off-street parking for residents. Please see sheets C6 and C7 of the Site Plan.

11. Sheet C7
    a. The development, in aggregate, is required to provide 1 guest parking space for every three units (Table 6.6-1). With a 144 units, 48 guest spaces are required. While the Town's interpretation of the code allows those guest spaces to be located off-site (i.e. as on-street parking), the guest spaces are required to be within 200' of the building they are intended to serve (10.6.6.E.2.a). Provide a color-coded chart showing that each guest space is within 200' of the building it is designated to serve. *Update:* Thank you for the parking exhibit. There are a few formatting and clarification revisions needs. Please discuss with staff to update and finalize.
    Response: Response: In conjunction with discussions with the Town staff, we have prepared formatting updates to clarify the location and distance of the guest parking. Please see sheets C6 and C7 of the Site Plan.

12. Sheets L1 – L7
    a. Each lot shall independently satisfy the Town's landscape requirements (10.6.4.E). Do not use a typical building landscape detail. Show actual plantings in the plans.
    Response: Revised so all plant material is called out by species.

    b. Update the landscape requirements table on Sheet L1. The square feet used to calculate the trees and shrubs required for the landscaped area shall match the landscape area shown on the table on Sheet C1 (total landscaped area minus the pocket park). The landscape plans show 114,224 sf versus the cover sheet which shows 140,328 sf.
    Response: Updated landscape requirement table to include all landscape area within the lot in 10-6-4.E.6.a; and the footnote that the landscape area provided includes the ROW and pocket park in the calculation.

    c. Evergreen trees to be 8' minimum height.
    Response: Per the Town of Erie Park and Recreation Construction Standards and Specifications, 1062.07 Plant Materials, Size Requirements, All evergreen trees shall be a minimum of six (6) feet tall or larger.

    d. Modify the sight triangles to the stopped approach calculation on Drawing ST5 of the Town's Standards and Specs.
    Response: The site triangles have been revised as requested.

    e. Provide a component list (including quantities and square feet) to verify that the Pocket Park meets the minimum Pocket Park Component Standards of the Town of Erie Parks, Recreation, Open Space and Trails Master Plan (PROST).
    Here is the link to the PROST: http://www.erieco.gov/index.aspx?nid=825
    Response:
    Provided List A Infrastructure – (All Required)
    1. ***2 benches***
    2. ***4 bicycle racks***
    3. ***1 dog pick up station***
    4. ***1 Identification sign***
    5. ***1 individual shelter with 2 picnic tables***
    6. ***Irrigation***
    7. ***4,930 SF Open turf area***
    8. ***Sidewalks (ADA accessible)***
    9. ***2 trash receptacles***
    10. ***5 deciduous trees; 3 ornamental trees; two evergreen trees; 20 shrubs; 24 perennials, & 3 ornamental grasses***

Provided List B - (selected one of two required)
1. Display garden.
Other choices deemed not appropriate or too large for the pocket park.

Provided List C – (selected four of the three required)
1. 1 individual shelter with 2 picnic tables
2. Community garden
3. Open turf sculpted as a play berm, mound or hill with a minimum three foot height
4. Public art

Architectural Drawings

13. General Comments
    a. Provide color elevations.
    Response: Color elevations are now provided within the Site Plan, please see sheets A1-A4

    b. Number sheets sequential with the site plan set (i.e. A1, A2, etc.)
    Response: Architectural sheets are now numbered A1-A4 as requested.

    c. Dimension widths of building in the floor plan and heights of building in the elevations, typical for all sheets.
    Response: Dimensions have been added to both the elevations for height and the floor plans for width and lengths.

    d. Delete setback and property lines in the floor plans, typical for all sheets.
    Response: Setback and property lines have been removed from the architectural sheets.

Public Works (PW) Preliminary Plat Comments (8/20/2015)

Comments for Phase II Drainage Study:

1. The title of the report has been changed to a Phase III Drainage Report, but it is still a Phase II report. A Phase III report is required with Final Plat.
   Response: In conversations with staff, Riprap calculations were not included with the previous submittal. These have been added and the report as prepared is a Phase III Drainage Report.

Previous Comments for Preliminary Construction Plans:

3. On sheet 9:
   f. Irrigation services need to be shown for Tracts B, C, D, and E.
   Response: A raw waterline has been stubbed to the open space for irrigation use.

   The Town will need more information on using raw water for this site such as who's providing the water, the water rights being used, and the infrastructure serving it.

   Response: In coordinating with the Metropolitan District, it is unclear if there are water rights available at this time. That said, we have removed the raw water service and installed to potable water irrigation services; these are included on sheet C3 (Utility Plan).

New Comments for Preliminary Construction Plans:

1. The storm sewer line along Ridge View Drive will need to be extended east across the property frontage to the property to the east.
   Response: The stormsewer located at the northeast corner of the development has been extended to provide conveyance for the property to the east.

REFERRAL AGENCY COMMENTS:

Felsburg Holt & Ullevig (August 17, 2015)

Response to Comments

1a, 1b, 1g, 4 & 5 are complete with no further action.

2. We have previously suggested that the traffic impact analyses for Montex North and South be coordinated closely with the analyses for the King Soopers development in order to provide the Town of Erie with a complete picture of the traffic that will be using Ridge View Drive and the two intersections at each end. While this coordination has yet to be addressed, it does appear that the King Soopers documentation includes Tracts A and A2 in their analysis. However, access to these tracts is not fully addressed either this submittal or the King Soopers materials. We remain concerned about future cross-access and shared access issues. Again, coordinated traffic impact studies for these developments should address these concerns.
   Response: The property between Montex South and the King Soopers is now under contract by a commercial developer and is beginning the development process. This will allow the opportunity to coordinate the cross-access concerns of the Town as these are the parcels that control these access locations.

Mountain View Fire Rescue (December 19, 2014)

No further comments.

Xcel Energy (January 26, 2015)

Public Service Company of Colorado's (PSCo) Right of Way & Permits Department has reviewed the plat and site plans for **Montex South at Vista Ridge Filing No. 12 – 2nd referral**. Because natural gas must be installed along road access ways, all private drives will need to be utilized for gas main extension in order to service "internal" buildings (nos. 3, 6, 7, 25, 26, 29, 30 and 31) that are not otherwise accessible. PSCo also requests a 6-foot utility easement within the Lots directly adjacent to both sides of Tract A for natural gas distribution facilities.

The property owner/developer/contractor must contact the **Builder's Call Line at 1-800-628-2121** and complete the application process for any new gas service. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details. Additional easements may need to be acquired by separate document for new facilities.
Response: A 6' utility easement has been provided on the Preliminary Plat for gas service to buildings 3, 6, 7, 25, 26, 29, 30 & 31 as requested.

We trust that our responses to the comments are acceptable and complete. Please do not hesitate to call should you have any questions.

Sincerely,

ENERTIA CONSULTING GROUP, LLC

Bonner Gilmore
Managing Partner

TOWN OF ERIE
PLANNING COMMISSION MEETING
October 7, 2015

SUBJECT: **PUBLIC HEARING:**

Consideration of Resolution P15-32: A Resolution Regarding The Preliminary Plat Of Sierra Vista Preliminary Plat, Adopting Certain Findings Of Fact And Conclusions Favorable To The Preliminary Plat.

PURPOSE: Consideration of a Preliminary Plat that includes 169 single-family lots, 6 tracts for park, open space, landscaping, and drainage use, and 2 tracts for future commercial development and access.

PROJECT FILE NO: PP-000317-2015

ZONING: LR – Low Density Residential
CC – Community Commercial

CODE: Erie Municipal Code, Title 10

DEPARTMENT: Community Development
Todd Bjerkaas PLA, Senior Planner

STAFF RECOMMENDATION

Staff finds the Sierra Vista Preliminary Plat in compliance with the Preliminary Plat Approval Criteria and recommends the Planning Commission adopt Resolution P15-32 recommending approval to the Board of Trustees with the following conditions:

1. A Surface Use Agreement between the owner of Sierra Vista and Anadarko Entities, Kerr-McGee and any other mineral rights owners allowing full use of the surface as shown in the Preliminary Plat shall be required prior to Final Plat approval.
2. A subsidence hazard investigation as detailed in the Colorado Geological Survey's referral response of April 28, 2015 shall be required prior to final plat approval.
3. A jurisdictional wetlands determination from the Army Corps of Engineers shall be required prior to final plat approval.
4. The Avigation Easement for Sierra Vista shall be recorded.
5. Drainage conveyance shall be shown outside of the 30' Erie Airpark access easement during construction drawings for the final plat.
6. Disturbance to existing Erie Airpark taxiways during final plat construction shall be restored.
7. Forms 7460-1 and 7460-2 shall be submitted to the FAA and results of the study submitted to the Town and airport management prior to final plat approval.
8. Delete "future" designations and labels from preliminary plat drawings. Timing of improvements shall be determined at final plat.
9. Technical corrections to the Sierra Vista Preliminary Plat shall be made to the Town's satisfaction.

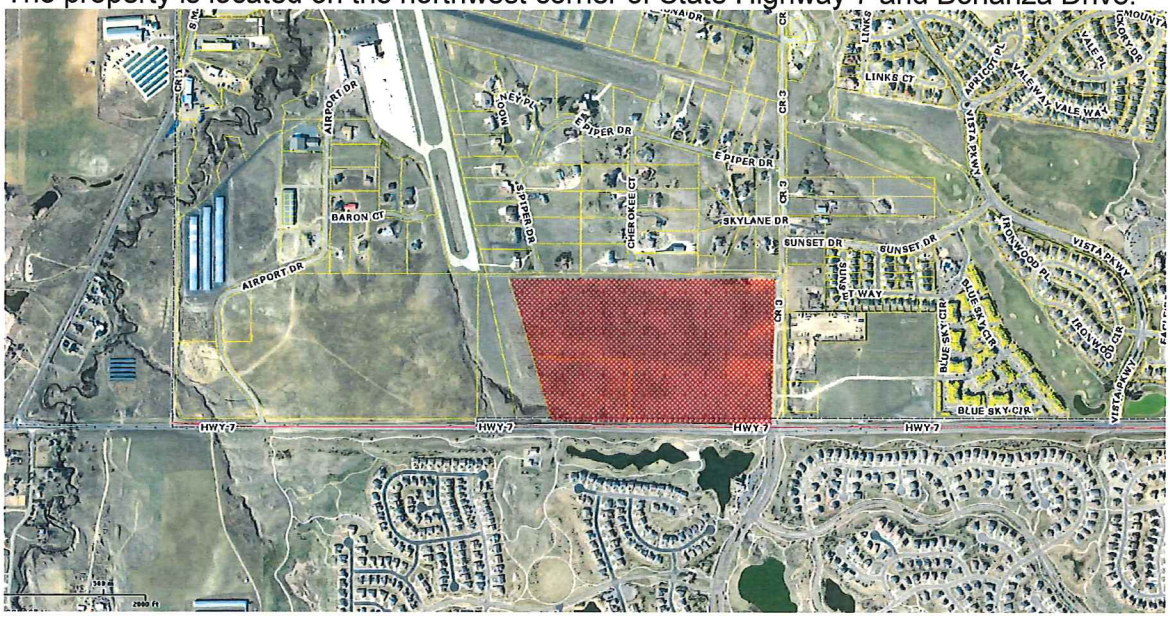
SUMMARY AND BACKGROUND OF SUBJECT MATTER:

Applicant: **Highway 7 and Bonanza, LLC**
Jeff Handlin
9033 E. Easter Place, Suite 110
Centennial, Colorado, 80112

Owners: **Karen K. Kramer and Pratt Properties, LP**
Karen K. Kramer and Susan Pratt
105 S. Sunset, Suite H
Longmont, CO 80501

BC Land, LLC
Blake Carlson

Location:
The property is located on the northwest corner of State Highway 7 and Bonanza Drive.



Existing Conditions:

Zoning:	LR – Low Density Residential CC – Community Commercial
Project Size:	60.476 Acres
Existing Use:	Vacant Land

Adjacent Land-Use/Zoning:

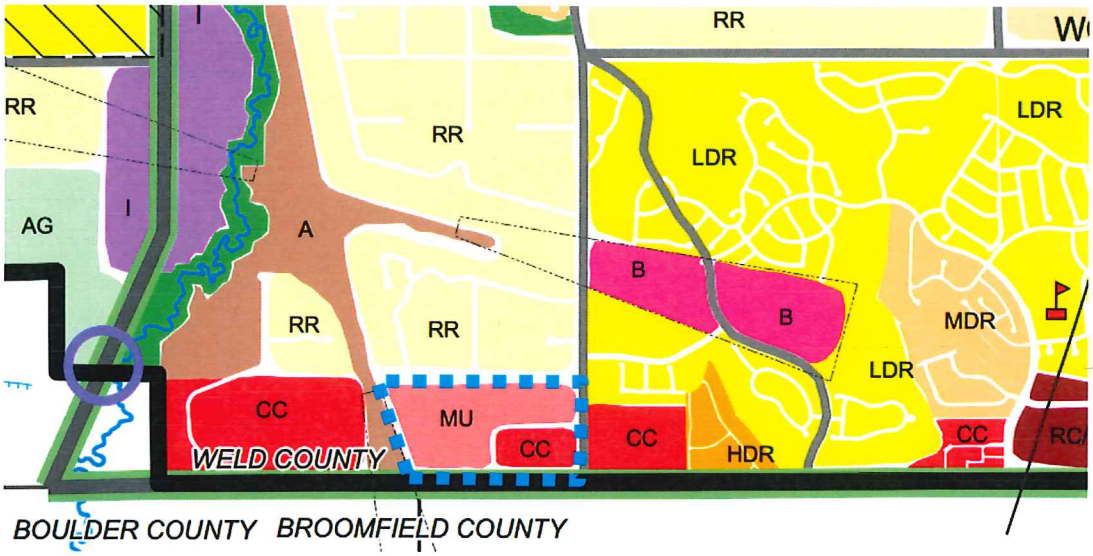
	ZONING	LAND USE
NORTH	RR – Rural Residential	Erie Air Park Subdivision
SOUTH	PUD (Broomfield) – Residential	Anthem Subdivision
EAST	PD – Commercial	Kum & Go Gas Station
WEST	AP – Airport	Erie Airport

Purpose of Preliminary Plat:
The Sierra Vista Preliminary Plat proposes development of 169 single family lots throughout the LR zoned portion of the property and 1 commercial future development tract in the CC zoned district. 7 additional tracts are shown to accommodate open space, a park, landscaping, access, and utilities in the Sierra Vista Preliminary Plat.

Development Data:

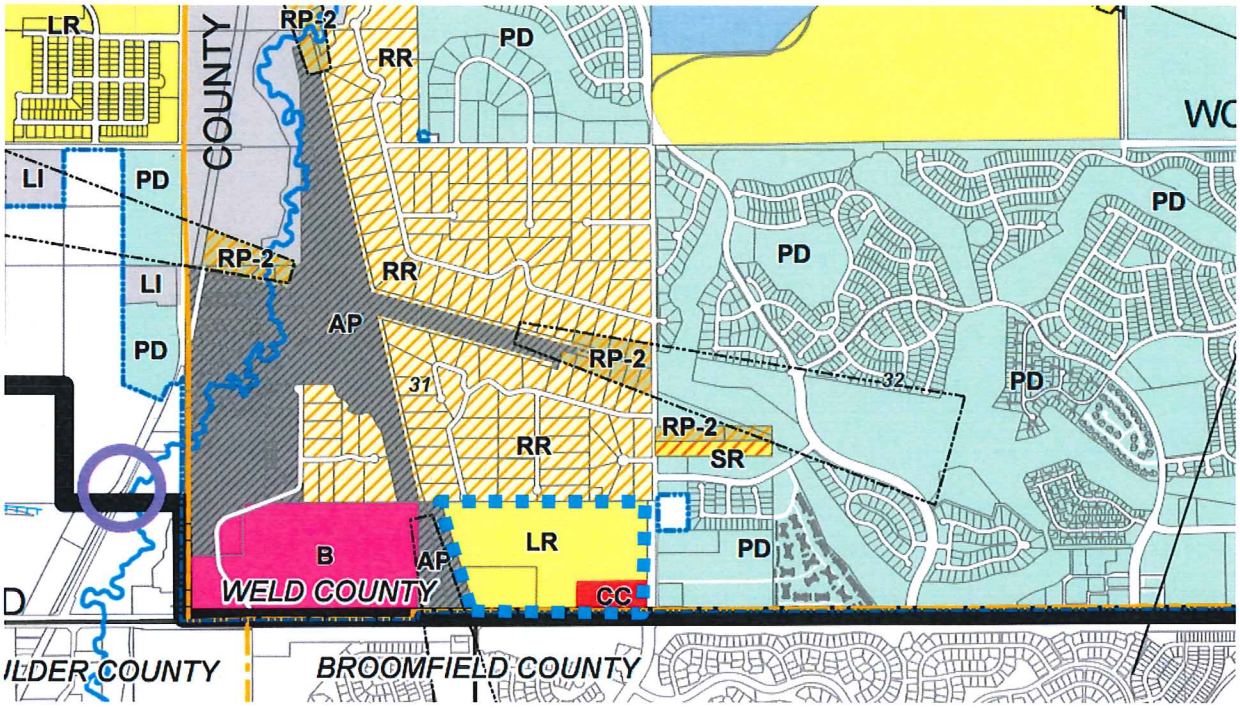
- Preliminary Plat Size: 60.476 acres
- LR Zoning Area: 54.48 acres
- CC Zoning Area: 6 acres
- Number of Residential Lots: 169 lots
- Number of Commercial Tracts: 1 tract
- Number of Tracts (OS/ Parks/Landscape/Access): 7 tracts
- Residential Density Proposed: 3.1 dwelling units per acre
- Residential Density Allowed: 5.0 dwelling units per acre

Compliance with Town of Erie Comprehensive Plan
The application is in Compliance with the Land Use designations on the Comprehensive Plan, Land Use Plan Map. This particular property allows Mixed Use and Community Commercial land uses.



Compliance with the Town of Erie Zoning Map
The Board of Trustees approved the LR – Low Density Residential and CC – Community Commercial zoning districts for the Sierra Vista property at the October 14, 2014 Board of Trustees meeting. 6 acres of property at the southeast corner of the site is zoned CC and the remaining 54.48 acres is zoned LR. The single-family residential lots are shown within the LR zoned district and the future commercial lot is shown in the CC district.

The density proposed for the LR district is 3.10 units/acre and is in compliance with the LR zoning districts maximum density of 5 units/acre.



Commercial Tract and Access:
The commercial tract at the northeast corner of Bonanza Drive and State Highway 7 is Tract E of the preliminary plat and is 5.37 acres in size. Tract D will provide direct access from State Highway 7 to the commercial area via an access drive. Sheet 10 of the Preliminary Plat shows conceptual grading to accommodate commercial development on Tract E. The access drive from SH 7 climbs up approximately 35' to the commercial pad. A retaining wall approximately 15' to 18' in height would be constructed along SH 7 to create the developable pad.

Roadways:
A Traffic Report was submitted for the Sierra Vista Preliminary Plat. All of the streets proposed are public roads and are in compliance with the Towns Standards and Specifications.

As a part of the Preliminary Plat, the applicant proposes to provide two (2) new street connections to Bonanza Drive and one (1) new connection to Highway 7 to serve the commercial area. The Highway 7 access is shown in the CDOT access control plan as a three-quarter movement intersection. No internal vehicular connection is shown stubbed to the western property as that area is Town of Erie airport property or to the northern property as that is an existing residential subdivision (Erie Airpark) with no existing right-of-way connections.

The applicant will make improvements to Bonanza Drive along its frontage including adding a southbound right-turn lane onto westbound State Highway 7.

Utilities:
The property will be served by the Town of Erie for water and sanitary services; however, the Town does not currently have sanitary service available to serve the development. In order to provide sanitary service, off-site improvements are required to be built by the Town and portions reimbursed by the developer as detailed in the Sierra Vista Annexation Agreement. This construction includes extending the South Coal Creek Sanitary Sewer from the north end of the airport runway to the western edge of Sierra Vista. The developer will continue the sanitary through Sierra Vista and provide a stub for the commercial area in Vista Ridge located east of Bonanza Drive which is currently served by a lift station.

At the time of building permit, raw water fees are collected that allow the Town to purchase water rights ensuring an adequate water supply for potable water and wastewater services. In addition, raw water fees are collected at final plat approval for irrigation of parks, open space, and common areas.

Utility service providers for the property are Xcel Energy for electric and gas, and Century Link Communications and Comcast for telephone and cable television services. Utility easements for these providers will be established at the time of final plat.

Drainage and Erosion:
A Drainage Study was submitted and reviewed. The site drains in two directions separated by an east-west ridge down the middle of the property. Two detention ponds are proposed at the northwest and southwest corners of the property in the dedicated open space tract. Outfalls are located at existing drainage ways to the west.

Drainage along the north property line is shown in a 30' taxiway easement for Erie Airpark residents. A condition of approval that staff proposes requires all drainage conveyance to be located outside of this easement. A condition that any disturbance to existing taxiways shall be restored has also been proposed by staff.

Natural Areas Inventory:
The Town of Erie Natural Areas Inventory identifies a natural area within the Sierra Vista Preliminary Plat.

Natural Area #110

Natural Area Site #110 covers the drainage area at the southwest corner of the Sierra Vista property. The report states that the area is a tributary of Coal Creek that crosses Highway 7 with perennial water and vegetation and serves as a movement corridor for wildlife. The portion of Natural Area #110 located within the property is shown as open space in the preliminary plat.

Threatened and Endangered Species and Significant Habitats
A site specific Natural Resource Survey, completed by ERO Resources Corp., was submitted to assess threatened and endangered species and significant habitats.

The report concludes that no threatened or endangered species or obvious habitats were seen on the subject property.

Parks, Open Space and Trails:
The applicant is preserving a large open space area along the western edge of the development with views to the mountains and the Erie Airport. An oversized pocket park is shown adjacent to the open space at the western edge of the home sites. There is a large setback at least 120' in depth between residential lots and the State Highway 7 frontage. The depth of the landscape tract is similar in depth to the buffer of Anthem Ranch lots to SH 7 right-of-way in Broomfield.

Public Dedication Requirements:
The public parks and open space dedication requirements for the Sierra Vista property are based on the proposed residential build-out of 169 dwelling units. The required dedications for parks and open space can be found on the table below and are approximate. Depending on the number of lots final platted, actual dedication requirements may change.

Public Dedications	Required for Preliminary Plat (acres)	Proposed for Preliminary Plat (acres)
Pocket Park	0.24	2.13*
Neighborhood Park	1.42	0*
Community Park	2.36	0*
Open Space	8.02	10.96**

*The applicant is requesting that the Neighborhood Park and Community Park dedication requirements (3.78 acres) be transferred to the enlarged pocket park in the forms of increased acreage (1.89 acres) and incremental construction costs.

**Located in Tract A to be owned by the Town and maintained by the Metro District. Final acreage credited as UDC required Open Space may change during final construction documents.

Parks
The developer is showing one (1) oversized pocket park in the subdivision totaling 2.13 acres that will be owned and maintained by the Sierra Vista Metro District (SVMD).

The development is required to dedicate less than seven (7) acres of neighborhood park land and less than thirty (30) acres of community park land. The Town, in its discretion where no suitable land for neighborhood or community parks is suitable, may require the developer to pay fee-in-lieu of land dedication or the equivalent monetary value. At the Sierra Vista Sketch Plan presentations before the Board of Trustees on December 9, 2014 and subsequently on January, 27, 2015, the Board requested larger park space within the development instead of a fee-in-lieu. The applicant is proposing enlarging the required 0.25 acre pocket park to 2.13 acres and constructing additional improvements in the park as equivalent monetary value as a substitute for the Neighborhood and Community Park dedication requirements of 3.78 acres. *Note:* The request of the Board of Trustees and any solution presented by the applicant at Sketch Plan is not binding to either party in the consideration of the Preliminary Plat or Final Plat for the development.

The pocket park is located on the western edge of the development to take advantage of the views to the mountains and Erie Airport. As a result, the pocket park is located more than a quarter-mile (1/4) away from some residents (approximately 22 lots) in Sierra Vista it is intended to serve as required by the UDC. The applicant's request for relief from this requirement is included in the project narrative.

Open Space
Tract A is 10.96 acres in size and credited towards the open space requirement of 8.02 acres for Sierra Vista. The open space is located at the western edge of the property with views to the mountains and Erie Airport and is adjacent to the Town-owned parcel for Erie Airport. The open space narrows to approximately 200' (less than the 300' required by Code); however, the UDC allows the Board of Trustees to allow a lesser amount for a trail which the applicant has incorporated within the corridor. The Town of Erie Open Space and Trails Advisory Board (OSTAB) has found the dimensions with the corresponding trail acceptable as open space.

Pedestrian Trails:
Local trails to be maintained by the SVMD are located around the perimeter of the subdivision except for a small stretch along the north boundary. This trail section would be adjacent to the Erie Airpark subdivision and private taxiways resulting in a possible conflict between pedestrians and taxiing planes. For this stretch, the trail loop moves internally to the street. There are several trail connections from the internal streets to this perimeter trail.

Housing Diversity:
UDC Section 10.6.7.D.1 details housing diversity requirements for proposed subdivisions within the Town. A parcel 40 acres or less in size requires one (1) housing type. A parcel 41-80 acres in size requires two (2) housing types or one (1) housing type and one (1) housing type variation as detailed in Table 6.7-1 below.

TABLE 6.7-1: HOUSING DIVERSITY

Development Parcel Size	Required Mix of Housing Type				
0-40 Acres	1 housing type				
41-80 Acres	2 housing types	or	1 housing type and 1 housing type variation		
81-160 Acres	3 housing types	or	2 housing types and 1 housing type variation		
161-240 Acres	4 housing types	or	3 housing types and 1 housing type variation	or	2 housing types and 2 housing type variations
241-320 Acres	4 housing types	or	3 housing types and 1 housing type variation		
321-480 Acres	5 housing types	or	4 housing types and 1 housing type variation	or	3 housing types and 2 housing type variations
481-640 Acres	5 housing types	or	4 housing types and 1 housing type variation		
641+ Acres	6 housing types	or	5 housing types and 1 housing type variation	or	4 housing types and 2 housing type variations

The applicant is proposing single-family detached lots ranging in size from 5,750 sf to 18,199 sf. The applicant has introduced a housing type (front loaded single-family detached on lots 5,000 to 9,999 sf) for 164 of the 169 lots. The remaining five lots are over 10,000 sf in size.

The size of the plat is 60.48 acres and the size of the LR zoned area is 54.48 acres. If the open space, park, and commercial areas were excluded from the project, the developable portion of the property for residential uses would be less than 40 acres. The applicant has provided a request in the project narrative for Alternative Equivalent Compliance for relief from this requirement.

Schools:
The proposed subdivision is located in the St. Vrain Valley School District. No school site is proposed on the property. The homebuilder will be responsible for paying a fee-in-lieu of land dedication to SVVSD for each building permit to satisfy the requirements of the Town's Intergovernmental Agreement with SVVSD.

Police Services:
The Erie Police Department will provide service to the property.

Fire Protection:
The Mountain View Fire Protection District will provide fire and emergency medical services. The district has proposed a new fire station approximately 1,000' north of Sierra Vista at the northeast corner of Bonanza Drive and Piper Drive.

Airport:
The Erie Airport is located directly to the west and northwest of the Sierra Vista subdivision. The Airport Manager and the Federal Aviation Administration both received application referrals, and their responses are attached. An exhibit delineating the limits in plan for visual approaches and potential instrument approaches to the airport is also attached along with cross sections of the Part 77 Imaginary Surfaces relationship to proposed grading and homes in Sierra Vista.

An Avigation Easement has not yet been recorded for the property as required by the Annexation Agreement. A condition requiring recordation is proposed.

Oil/Gas Facilities:
The applicant has not yet executed a Surface Use Agreement (SUA) with the mineral rights owners of the property, Anadarko Entities and Kerr McGee. The ALTA Survey shows three potential well site windows on Sierra Vista, and Anadarko has submitted an objection letter which is attached. Lots are shown throughout these windows. A condition of approval has been provided requiring a Surface Use Agreement (SUA) between the owner of Sierra Vista and any mineral rights owner(s) allowing full use of the surface as shown in the Preliminary Plat prior to any Final Plat approvals.

Soils and Geology:
The Colorado Geological Survey (CGS) reviewed various technical/engineering documents and studies provided by the applicant that address subsidence risks, soil conditions and ground water levels for the property. The site is not undermined according to available mine maps; however, CGS notified the Town through its referral response that a portion of the northeastern corner of Sierra Vista is located within a mapped "Severe Subsidence Hazard" area. CGS stated: "Due to the distance between the northeastern corner of the site and mapped Baseline Mine workings, a subsidence hazard investigation does not appear to be necessary. However, if the town wishes to be conservative, a subsidence hazard investigation consisting of several borings near the northeastern corner of the property, extending to a depth of at least 100 feet, could be required to verify that mine-related voids are not present beneath the site." The applicant has proposed lots on the area under question, and staff has directed the applicant to perform a mine subsidence investigation and report for this northeast corner.

The Geotechnical Investigation report provided by the applicant also addresses soil conditions for the property. The report states that expansive soils exist. The expansive soil issue will be mitigated in that prior to the issuance of a building permit; site specific soil tests are required for each lot that will be the basis for foundation design that mitigates expansive soil issues.

APPROVAL CRITERIA - STAFF ANALYSIS:

The proposed Preliminary Plat for Sierra Vista was reviewed for conformance with Municipal Code, Title 10, UDC Section 10.7.7.C.10. Approval Criteria. Staff finds the Preliminary Plat in compliance with the Preliminary Plat Approval Criteria as listed below.

a. The subdivision is generally consistent with the Town's Comprehensive Master Plan.

   Staff: The proposed subdivision is generally consistent with the 2005 Comprehensive Plan Land Use Plan Map land use designation of MU – Mixed Use and CC – Community Commercial.

b. The subdivision is generally consistent with and implements the intent of the specific zoning district in which it is located.

   Staff: The proposed subdivision is in compliance with the LR – Low Density Residential and CC – Community Commercial zoning districts.

c. The general layout of lots, streets, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed to meet the Town's standards related to health and safety and in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees/vegetation and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this UDC.

   Staff: The proposed subdivision meets the applicable Town's standards.

d. The subdivision complies with all applicable use, development, and design standards set forth in Chapters 3, 5 and 6 of this UDC that have not otherwise been modified or waived pursuant to this Chapter or this UDC. Applicants shall refer to the Development Standards in Chapter 5 of this UDC and shall consider them in the layout of the subdivision in order to avoid creating lots or patterns of lots in the subdivision that will make compliance with such development and design standards difficult or infeasible.

   Staff: The proposed subdivision meets the Town's UDC standards that have not otherwise been modified or waived pursuant to Chapters 7 or the UDC.

e. The subdivision complies with all applicable regulations, standards, requirements, or plans of the Federal or State governments and other relevant jurisdictions, including but not limited to wetlands, water quality, erosion control, and wastewater regulations.

   Staff: As conditioned, the proposed subdivision will meet applicable Federal and State standards.

f. The subdivision will not result in significant adverse impacts on the natural environment, including air, water, noise, storm water management, wildlife, and vegetation, or such impacts will be substantially mitigated.

   Staff: No significant adverse impacts are anticipated with the proposed subdivision.

g. The subdivision shall be integrated and connected, where appropriate, with adjacent development through street connections, sidewalks, trails, and similar features.

   Staff: The proposed subdivision will be integrated into the existing road and pedestrian network.

h. The subdivision will not result in significant adverse impacts on adjacent properties, or such impacts will be substantially mitigated.

   Staff: As conditioned, no significant adverse impacts are anticipated with the proposed subdivision.

i. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools are available to serve the subject property, while maintaining sufficient levels of service to existing development.

   Staff: Adequate facilities are available to serve the proposed subdivision.

j. As applicable, the proposed phasing plan for development of the subdivision is rational in terms of available infrastructure capacity.

   Staff: Adequate infrastructure will be available to serve the proposed subdivision.

STAFF RECOMMENDATION

Staff finds the Sierra Vista Preliminary Plat in compliance with the Preliminary Plat Approval Criteria and recommends the Planning Commission adopt Resolution P15-32 recommending approval to the Board of Trustees with the following conditions:

1. A Surface Use Agreement between the owner of Sierra Vista and Anadarko Entities, Kerr-McGee and any other mineral rights owners allowing full use of the surface as shown in the Preliminary Plat shall be required prior to Final Plat approval.
2. A subsidence hazard investigation as detailed in the Colorado Geological Survey's referral response of April 28, 2015 shall be required prior to final plat approval.
3. A jurisdictional wetlands determination from the Army Corps of Engineers shall be required prior to final plat approval.
4. The Avigation Easement for Sierra Vista shall be recorded.
5. Drainage conveyance shall be shown outside of the 30' Erie Airpark access easement during construction drawings for the final plat.
6. Disturbance to existing Erie Airpark taxiways during final plat construction shall be restored.
7. Forms 7460-1 and 7460-2 shall be submitted to the FAA and results of the study submitted to the Town and airport management prior to final plat approval.
8. Delete "future" designations and labels from preliminary plat drawings. Timing of improvements shall be determined at final plat.
9. Technical corrections to the Sierra Vista Preliminary Plat shall be made to the Town's satisfaction.

NEIGHBORHOOD MEETING:

As required by the Municipal Code a Neighborhood Meeting was held on September 21, 2015 at 6:00 p.m. at the Vista Ridge Community Center. The required notice for the Neighborhood Meeting was provided and a copy of the minutes and sign-in sheet are attached.

PUBLIC NOTICE:

Notice of this Public Hearing has been provided as follows:

Published in the Daily Times Call:	September 21, 2015
Property Posted as required:	September 18, 2015
Letters to Adjacent Property Owners:	September 21, 2015

Approved by:

R. Martin Ostholthoff
Community Development Director

Attachments:

A. Resolution P15-30
B. Application Materials
C. Natural Areas Inventory
D. Referral Comments/Responses

ATTACHMENT A

RESOLUTION NO. P15-32

A RESOLUTION REGARDING THE SIERRA VISTA PRELIMINARY PLAT, ADOPTING CERTAIN FINDINGS OF FACT AND CONCLUSIONS FAVORABLE TO THE PRELIMINARY PLAT.

WHEREAS, the Planning Commission of the Town of Erie, Colorado, considered the Sierra Vista Preliminary Plat on Wednesday, October 7, 2015 on the application of Highway 7 and Bonanza, LLC, 9033 E. Easter Place, Suite 100, Centennial, CO 80112, such Preliminary Plat being a plat of the following real property; to wit:

> A Portion of the South ½ of the Southeast ¼ of Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, Town of Erie, County of Weld, State of Colorado.

WHEREAS, the Preliminary Plat is detailed on the attached "Exhibit A" Sierra Vista Preliminary Plat; and

WHEREAS, said Sierra Vista Preliminary Plat is incorporated herein and made part hereof by this reference.

NOW, THEREFORE, BE IT RESOLVED BY THE PLANNING COMMISSION OF THE TOWN OF ERIE, COLORADO, as follows:

Section 1. Findings of Fact.

1. The applicant's application and supporting documents are in substantial compliance with Section 7.7.C of Title 10, Town of Erie Municipal Code.
2. The Town of Erie Municipal Code shall be followed in the development of the property.
3. A development agreement will be required at such time as the property is approved for the final plat.
4. The Preliminary Plat as proposed, subject to the following conditions, will preserve the health, safety, welfare and interest of the citizens of the Town of Erie, Colorado.
    a. A Surface Use Agreement between the owner of Sierra Vista and Anadarko Entities, Kerr-McGee and any other mineral rights owners allowing full use of the surface as shown in the Preliminary Plat shall be required prior to Final Plat approval.
    b. A subsidence hazard investigation as detailed in the Colorado Geological Survey's referral response of April 28, 2015 shall be required prior to final plat approval.
    c. A jurisdictional wetlands determination from the Army Corps of Engineers shall be required prior to final plat approval.

d. The Avigation Easement for Sierra Vista shall be recorded.

e. Drainage conveyance shall be shown outside of the 30' Erie Airpark access easement during construction drawings for the final plat.

f. Disturbance to existing Erie Airpark taxiways during final plat construction shall be restored.

g. Forms 7460-1 and 7460-2 shall be submitted to the FAA and results of the study submitted to the Town and airport management prior to final plat approval.

h. Delete "future" designations and labels from preliminary plat drawings. Timing of improvements shall be determined at final plat.

i. Technical corrections to the Sierra Vista Preliminary Plat shall be made to the Town's satisfaction

Section 2. Conclusions and Order Recommending Approval of the Sierra Vista Preliminary Plat to the Board of Trustees.

1. Based on the above Findings of Fact, the Planning Commission hereby forwards the Sierra Vista Preliminary Plat application to the Board of Trustees with the Planning Commission's recommendation for approval with the conditions of approval listed above.

INTRODUCED, READ, SIGNED AND APPROVED this 7th day of October 2015.

TOWN OF ERIE, PLANNING COMMISSION

_____

J. Eric Bottenhorn, Chairman

ATTEST:

_____

Hallie S. Sawyer, Secretary

EXHIBIT A

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO 60.476 ACRES - 169 LOTS - 8 TRACTS PP-000317-2015

LEGAL DESCRIPTION:

A PART OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT, THE SE CORNER OF SAID SE 1/4 OF SECTION 31;

THENCE N00°29'47"W ALONG THE EAST LINE OF SAID SE 1/4, A DISTANCE OF 75.31 FEET;

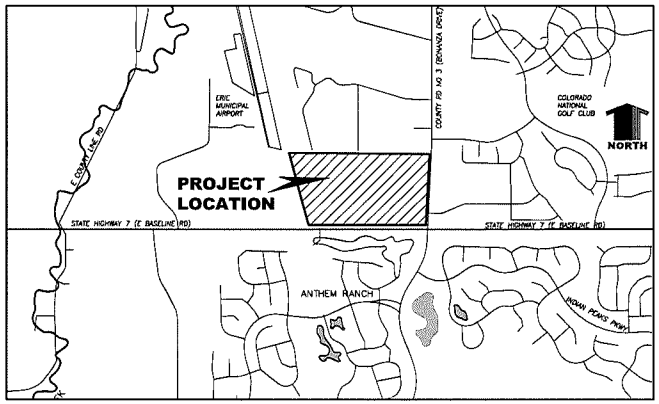
THENCE S89°30'13"W, A DISTANCE OF 109.21 FEET TO THE WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1631 AT RECEPTION NO. 2572958, SAID POINT ALSO BEING THE NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 2170911 AND THE POINT OF BEGINNING;

THENCE ALONG SAID NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7, ALONG A LINE 75.00 FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SE 1/4 THE FOLLOWING 2 COURSES;
1) THENCE S89°40'06"W, A DISTANCE OF 1895.40 FEET;
2) THENCE S89°42'14"W, A DISTANCE OF 13.43 FEET TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 2225423;

THENCE ALONG SAID EASTERLY LINE THE FOLLOWING 2 COURSES:
1) THENCE N17°16'21"W, A DISTANCE OF 1176.48 FEET;
2) THENCE N12°59'17"W, A DISTANCE OF 123.38 FEET TO THE NORTH LINE OF SAID S 1/2 OF THE SE 1/4 OF SECTION 31;

THENCE N89°39'51"E ALONG SAID NORTH LINE, A DISTANCE OF 2330.26 FEET TO SAID WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS DESCRIBED IN BOOK 1631 AT RECEPTION NO. 2572958; THENCE ALONG SAID WESTERLY RIGHT OF WAY THE FOLLOWING 2 COURSES:
1) THENCE S04°01'23"W, A DISTANCE OF 564.23 FEET;
2) THENCE S00°19'04"W, A DISTANCE OF 683.43 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 60.476 ACRES, MORE OR LESS.



VICINITY MAP
1" = 1000'

SHEET INDEX

T1	1	TITLE SHEET
SP1	2	PRELIMINARY PLAT OVERALL
SP2–SP5	3–6	PRELIMINARY PLAT ENLARGEMENTS
EC1	7	EXISTING CONDITIONS
OU1	8	OVERALL UTILITY PLAN
GR1–GR2	9–10	GRADING PLANS
L1–L11	11–21	LANDSCAPE PLANS
TOTAL	21	

GENERAL NOTES:

1. THERE ARE NO MAPPED 100–YEAR FLOODPLAINS FOR THE SITE.
2. ALL POCKET PARKS SHALL HAVE A PUBLIC ACCESS EASEMENT.
3. AN 8' UTILITY EASEMENT WILL OCCUR ALONG FRONT AND REAR PROPERTY LINES ON INDIVIDUAL LOTS AND AN 8' UTILITY EASEMENT WILL BE DEDICATED ALONG INTERNAL R.O.W. FRONTAGE.

LAND USE SUMMARY

TYPE	AREA (AC)	REQUIRED	% OF TOTAL AREA
RESIDENTIAL LOTS	26.89	N/A	44.46
PUBLIC ROW	10.38	N/A	17.16
POCKET PARK	2.13	0.24	3.52
OPEN SPACE*	13.92	8.25	23.02
COMMERCIAL	5.37	N/A	8.88
FUTURE DEVELOPMENT	1.79	N/A	2.96
TOTALS	60.48	N/A	100

* TRACT A (10.96 ACRES) DEDICATED TO MEET OPEN SPACE REQUIREMENTS

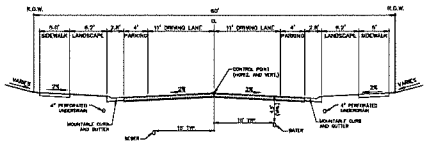
TRACT SUMMARY CHART

TRACT	AREA (AC)	USE	OWNERSHIP	MAINTENANCE
TRACT A	10.963	OPEN SPACE/DRAINAGE	TOWN OF ERIE	SVMD*
TRACT B	2.128	PARK	SVMD	SVMD
TRACT C	0.633	OPEN SPACE	SVMD	SVMD
TRACT D	1.787	ACCESS	OWNER	OWNER
TRACT E	5.369	FUTURE DEVELOPMENT	OWNER	OWNER
TRACT F	0.167	OPEN SPACE	SVMD	SVMD
TRACT G	0.010	OPEN SPACE	DEVELOPER	DEVELOPER
TRACT H	2.152	OPEN SPACE	SVMD	SVMD

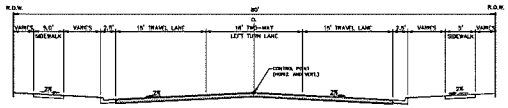
* SIERRA VISTA METROPOLITAN DISTRICT

PARKS & OPEN SPACE SUMMARY CHART

TYPE	REQUIRED	PROVIDED
POCKET PARK	0.24	2.13
NEIGHBORHOOD PARK	1.42	0
CITY PARK	2.36	0
OPEN SPACE	8.02	10.96



60' R.O.W. LOCAL
N.T.S.



BONANZA DRIVE (80' R.O.W)
N.T.S.

PROJECT BASIS OF BEARINGS:

BEARINGS ARE BASED ON THE NORTH RIGHT OF WAY LINE OF STATE HIGHWAY NO. 7. SAID LINE IS ASSUMED TO BEAR N89°40'06"E, AND IS MONUMENTED ON THE WEST WITH A #4 REBAR WITH CAP L.S. #10855, ON THE EAST WITH A #4 REBAR WITH CAP L.S. #10855.

DEVELOPER:
HIGHWAY 7 AND BONANZA, LLC
9033 EAST EASTER PLACE, SUITE 110
CENTENNIAL, CO 80112
(303) 604–5448
CONTACT: JEFF HANDLIN

TOWN OF ERIE:
645 HOLBROOK ST.
ERIE, COLORADO 80516
(303) 926–2700
CONTACT: TODD BJERKAAS

ENGINEER/SURVEYOR:
CALIBRE ENGINEERING, INC.
9090 SOUTH RIDGELINE BLVD., SUITE 105
HIGHLANDS RANCH, CO 80129
(303) 730–0434
CONTACT: TODD A. JOHNSON

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: T1.dwg
Job Number: GREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering Inc.
9090 South Ridgeline Boulevard Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

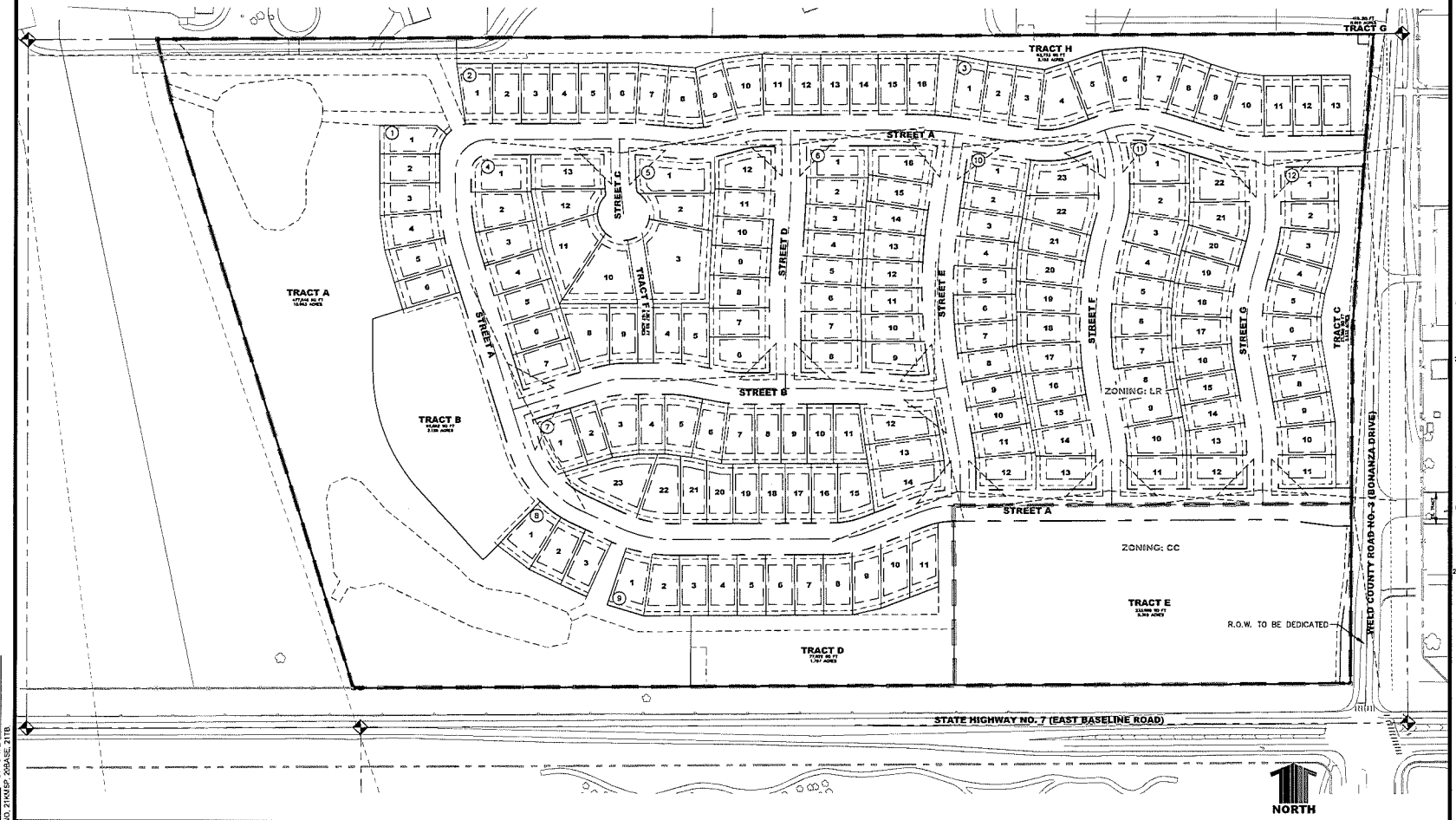
SIERRA VISTA
PRELIMINARY PLAT
TITLE SHEET

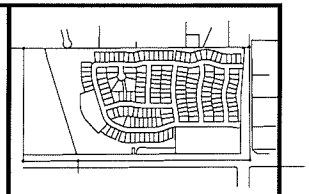
Sheet: T1 | 1 of 21
Date: SEPTEMBER 14, 2015

PATH P:\GREAD\SIERRA VISTA\CADD\CIV\U31-PRELIMINARY PLAT\T1.DWG
PLOTTED BY Ryan Loftus PLOT DATE 9/14/2015 10:30 AM
XREFS W:\Typical Road Sections, w\Xref-typsp, 21TB

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





NORTH

KEYMAP

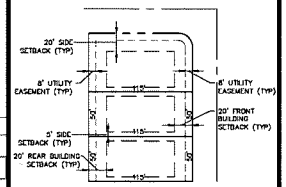
CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

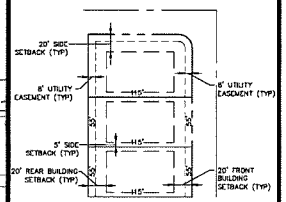
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT
LOTS – 50' X 115'



TYPICAL LOT
LOTS – 55' X 115'

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: SP1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
1 inch = 100 ft. Horizontal (0 50 100 200)
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering Inc.
5690 South Ridgeline Boulevard Suite 105
Highlands Ranch, CO 80129 (303) 730-8434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
OVERALL

Sheet **SP1** 2 of 21
Date SEPTEMBER 14, 2015

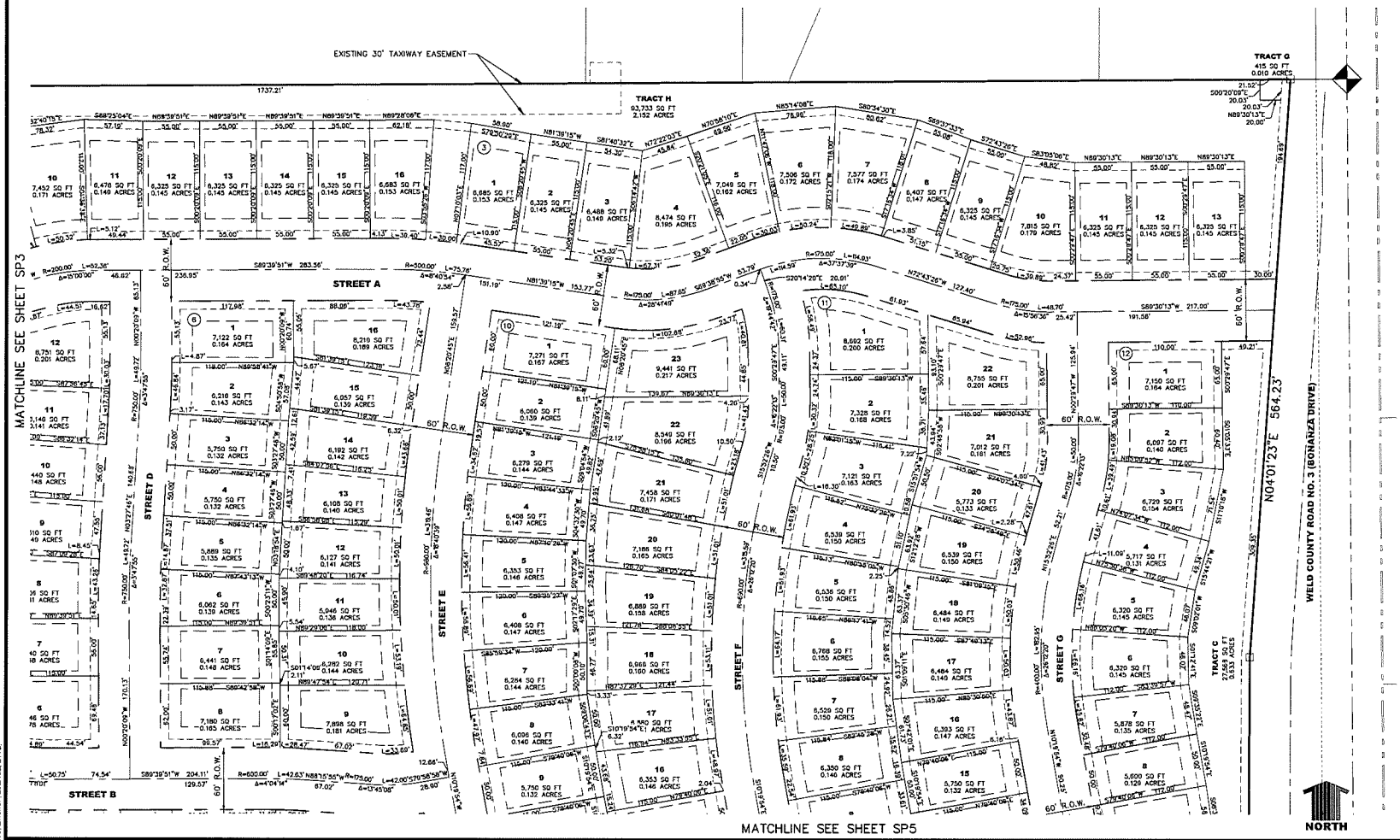
PATH: P:\OREAD SIERRA VISTA\ACAD\CIVIL\PRELIMINARY PLAT\SP1.DWG
PLOTTED BY: BOBLUSKA PLOT DATE: 9/14/2015 8:54 AM
XREFS: 20EPH, 21ANXIO, 21KMSP, 20BASE, 21TB

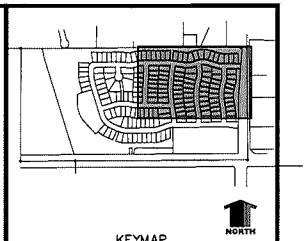
SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

60.476 ACRES - 169 LOTS - 8 TRACTS

PP-000317-2015





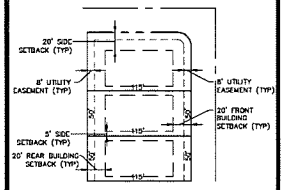
KEYMAP

CONSTRUCTION NOTES:

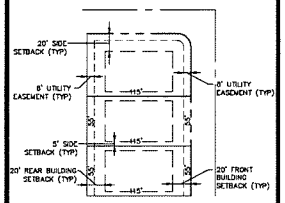
1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT
LOTS - 50' X 115'



TYPICAL LOT
LOTS - 55' X 115'

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION

Drawing Name: SP2.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
1 inch = 50 ft. Horizontal
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering Inc.
6990 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 790-9434
www.calibreengineering.com
Construction Management Civil Engineering Surveying

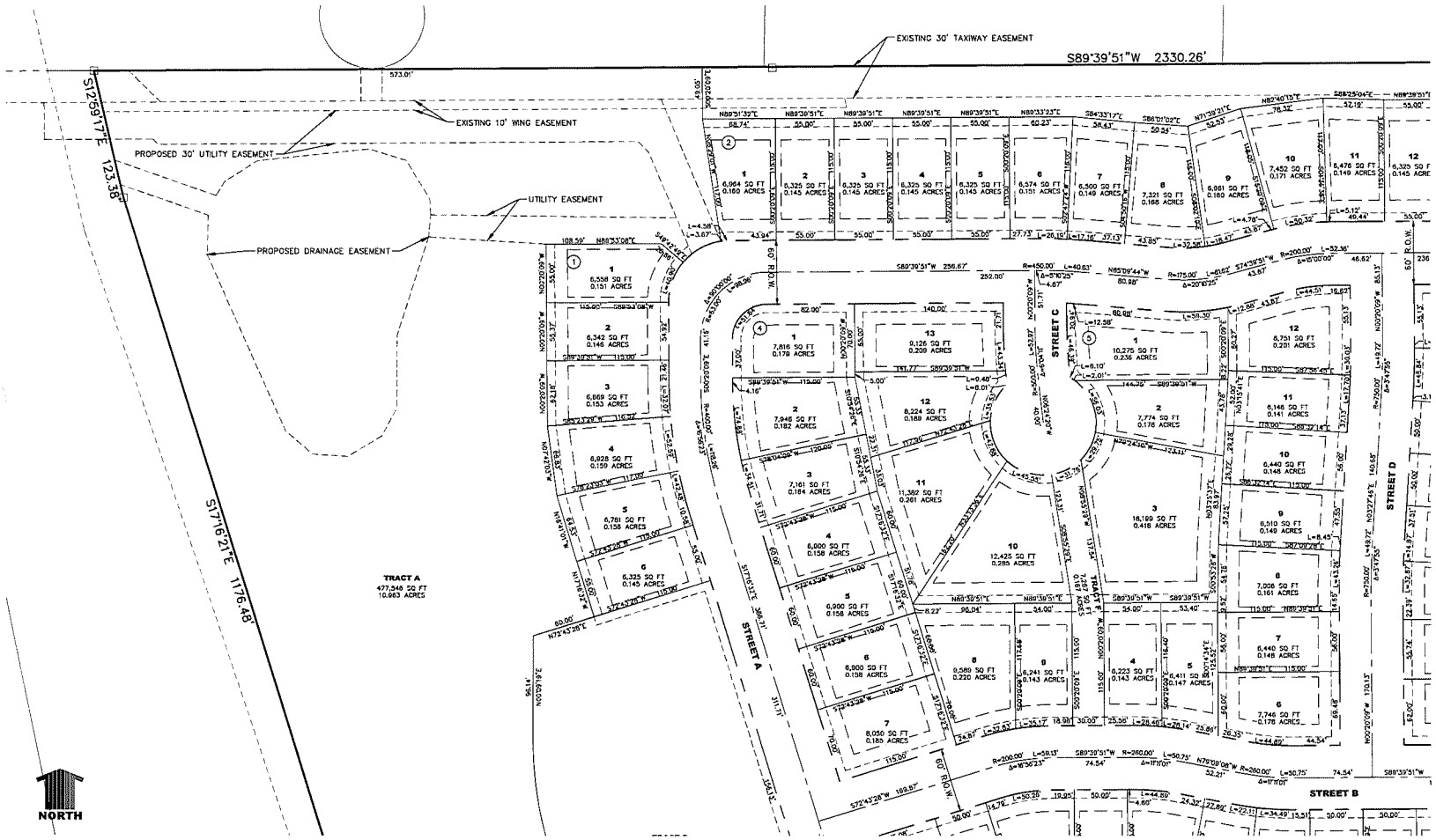
SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

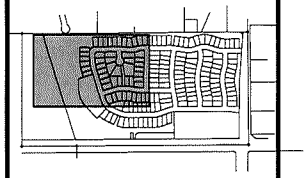
Sheet **SP2** 3 of 21
Date SEPTEMBER 14, 2015

PATH P:\OREAD SIERRA VISTA\CADD\CIV\21-PRELIMINARY PLATS\P2.DWG
PLOTTED BY Ryan Lotka PLOT DATE 9/14/2015 9:55 AM
XREFS 20EPL 21AZND 21KMP 26KASE 21TB

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





KEYMAP

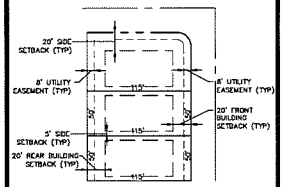
NORTH

CONSTRUCTION NOTES:

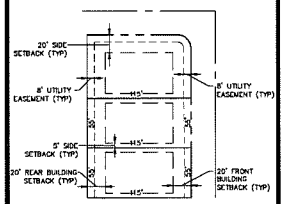
1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT
LOTS - 50' X 115'



TYPICAL LOT
LOTS - 50' X 115'

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION

Drawing Name: SP2.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC

0 25 50 100
1 inch = 50 ft. Horizontal

Designer	Drafter	Checked
BKM	RJL	TAJ

Calibre
Calibre Engineering Inc.
9850 South Ridge-line Boulevard Suite 105
Highlands Ranch, CO 80129 (303) 790-9334
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

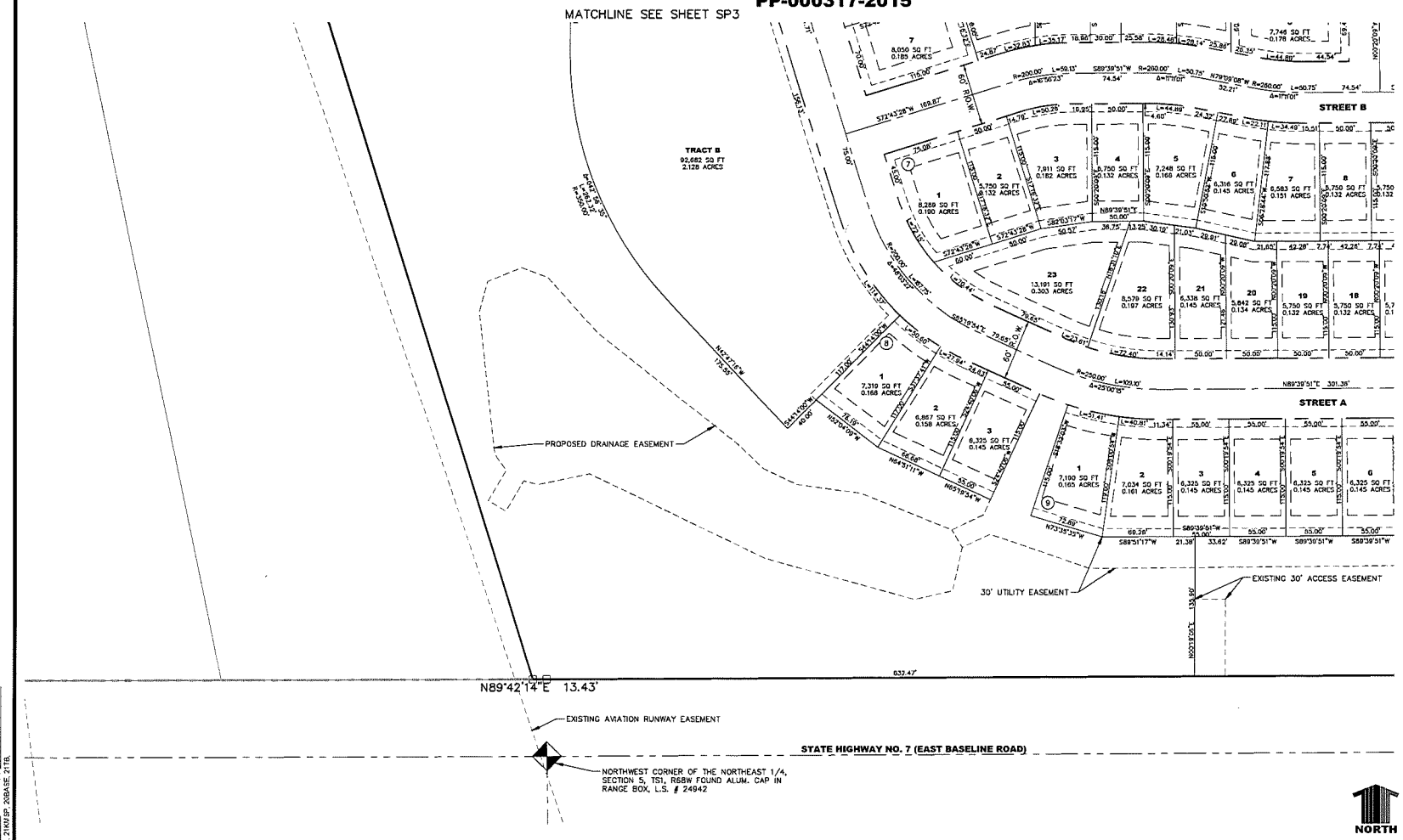
Sheet **SP3** 4 of 21

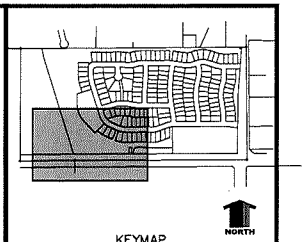
Date SEPTEMBER 14, 2015

PATH P:\OREAD SIERRA VISTA\CADD\000\01 PRELIMINARY PLAT\SP2.DWG
PLOTTED BY Ryan LeBus PLOT DATE 9/14/2015 8:58 AM
XREFS 20EPR, 21ANXD, 21NXSP, 20BASE, 21TB

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





KEYMAP

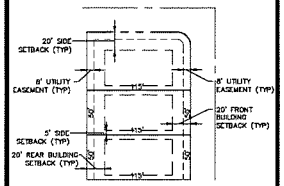
CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

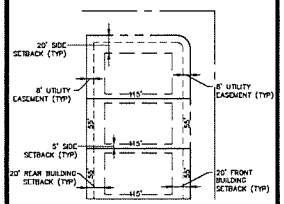
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT
LOTS – 50' X 115'



TYPICAL LOT
LOTS – 55' X 115'

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION

Drawing Name	SP2.dwg
Job Number	OREAD SIERRA VISTA
Prepared For	HIGHWAY 7 & BONANZA, LLC
Scale	1 inch = 50 ft. Horizontal
Designer	BKM
Drafter	RJL
Checked	TAJ

Calibre
Calibre Engineering Inc.
3050 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 740-0424
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

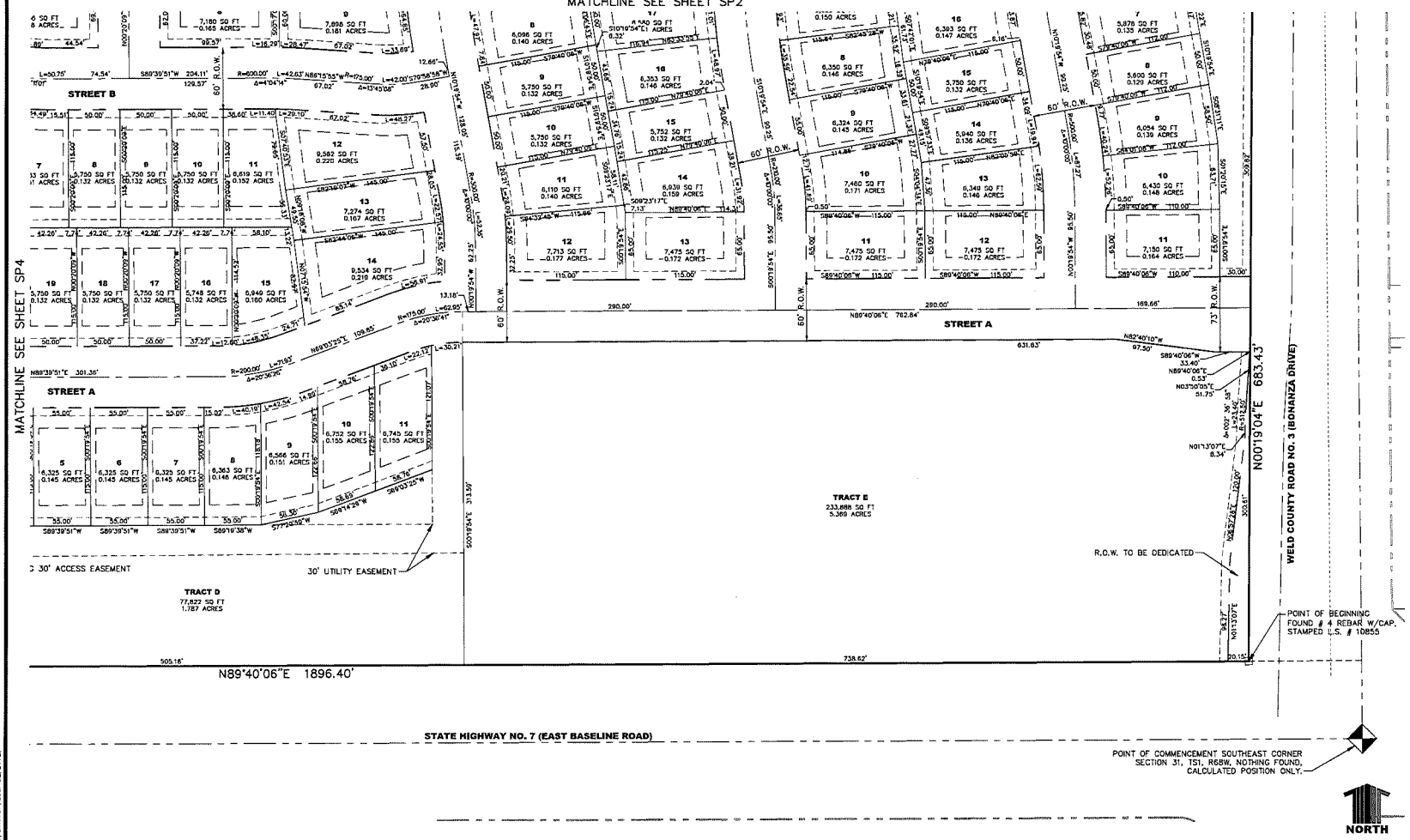
Sheet **SP4** 5 of 21

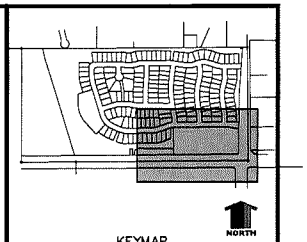
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\COV\01-PRELIMINARY PLAT\SP2.DWG
PLOTTED BY: Ryan LuBus PLOT DATE: 9/14/2015 8:55 AM
XREFS: 20EPN, 21ANNO, 21KUSP, 20BASE, 21TB.

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





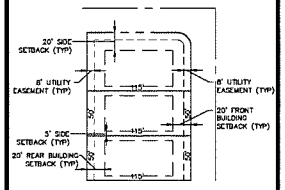
KEYMAP

CONSTRUCTION NOTES:

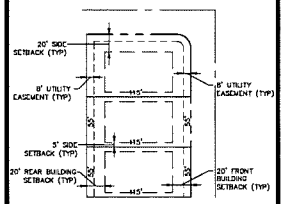
1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT
LOTS - 50' X 115'



TYPICAL LOT
LOTS - 55' X 115'

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: SP2.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
1 inch = 50 ft. Horizontal
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering Inc.
5050 South Ridgeline Boulevard Suite 165
Highlands Ranch, CO 80129 (303) 738-0344
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

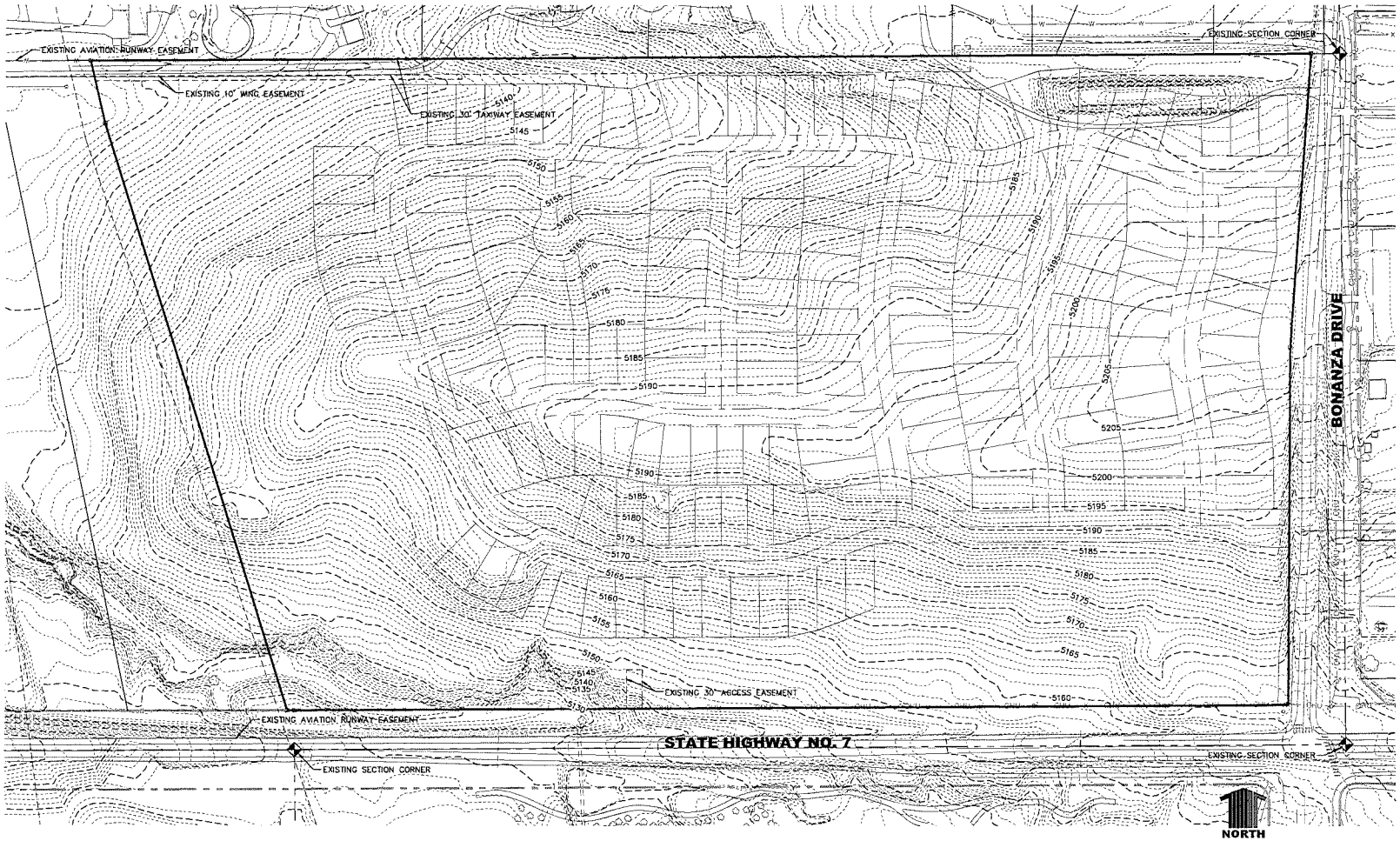
SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

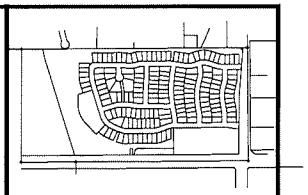
Sheet **SP5** 6 of 21
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\SP2.DWG
PLOTTED BY: Ryan LaBuis PLOT DATE: 9/14/2015 8:56 AM
XREFS 20EPH, 21AXNO, 21KMSP, 20BASE, 21TB

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





KEYMAP

CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

LEGEND

- 5130 — EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- G — EXISTING GAS LINE
- RW — EXISTING RAW WATER LINE
- X — EXISTING FENCE
- EXISTING WELL

UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: EC1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
0 50 100 200
1 inch = 100 ft. Horizontal
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering Inc.
5000 South Ridgeline Boulevard Suite 195
Highlands Ranch, CO 80129 (303) 790-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

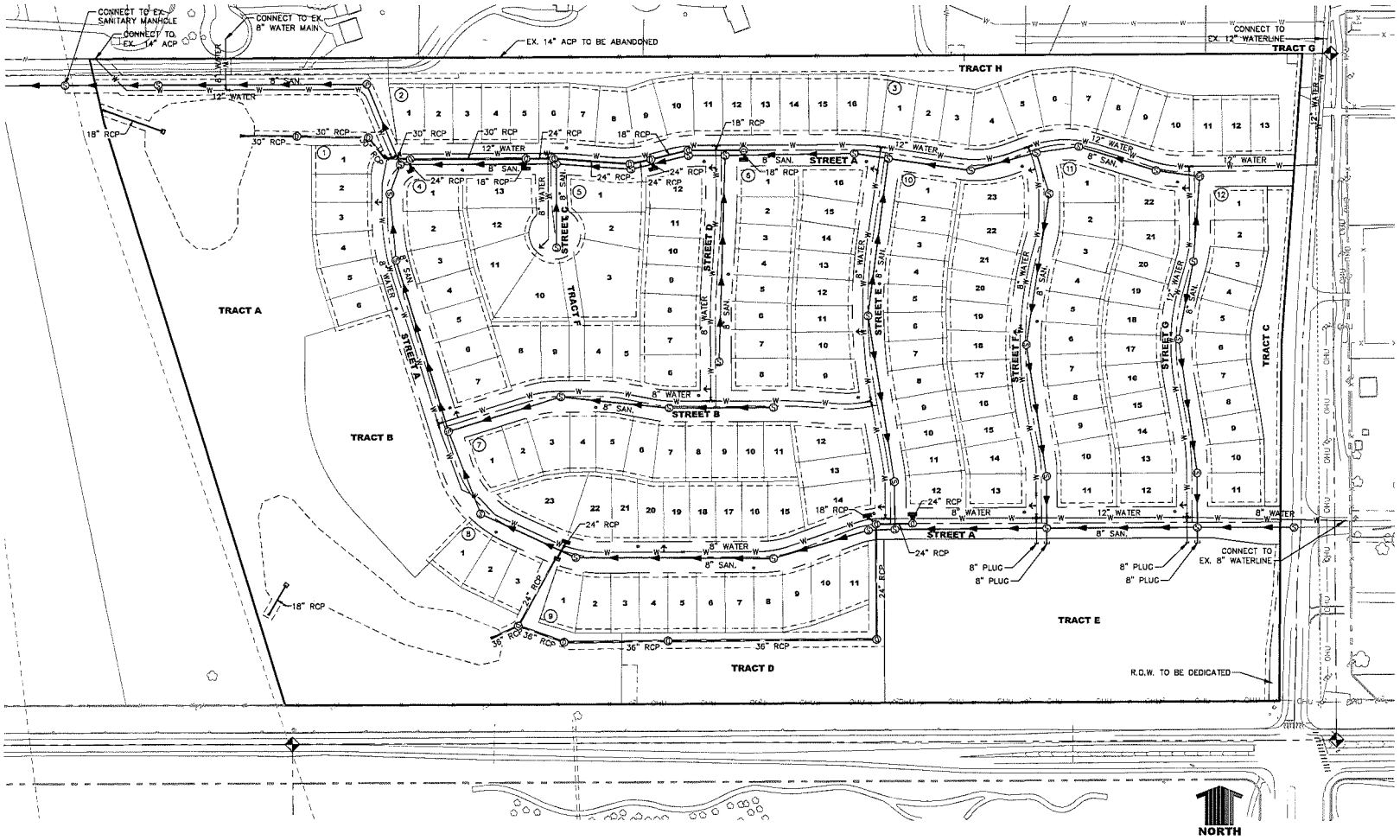
SIERRA VISTA
PRELIMINARY PLAT
EXISTING CONDITIONS

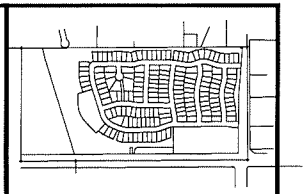
Sheet **EC1** 7 of 21
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\01-PRELIMINARY PLAT\EC1.DWG
PLOTTED BY: Ryan Lefka PLOT DATE: 9/14/2015 8:56 AM
XREFS: 20ELIT, 20EPN, 21KMEG, 20BASE, 21TB

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





KEYMAP

NORTH

CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

LEGEND

- WATER MAIN
- SANITARY SEWER MAIN
- STORM DRAINAGE MAIN
- STORM DRAINAGE INLET
- FIRE HYDRANT
- WATER VALVE
- EXISTING STORM DRAINAGE
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING GAS
- EXISTING TELEPHONE
- EXISTING ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING OVERHEAD ELECTRIC
- EXISTING RAW WATER

UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION

Drawing Name: OU1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
1 inch = 100 ft. Horizontal
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering Inc.
5950 South Ridgeline Boulevard Suite 165
Highlands Ranch, CO 80129 (303) 730-0454
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

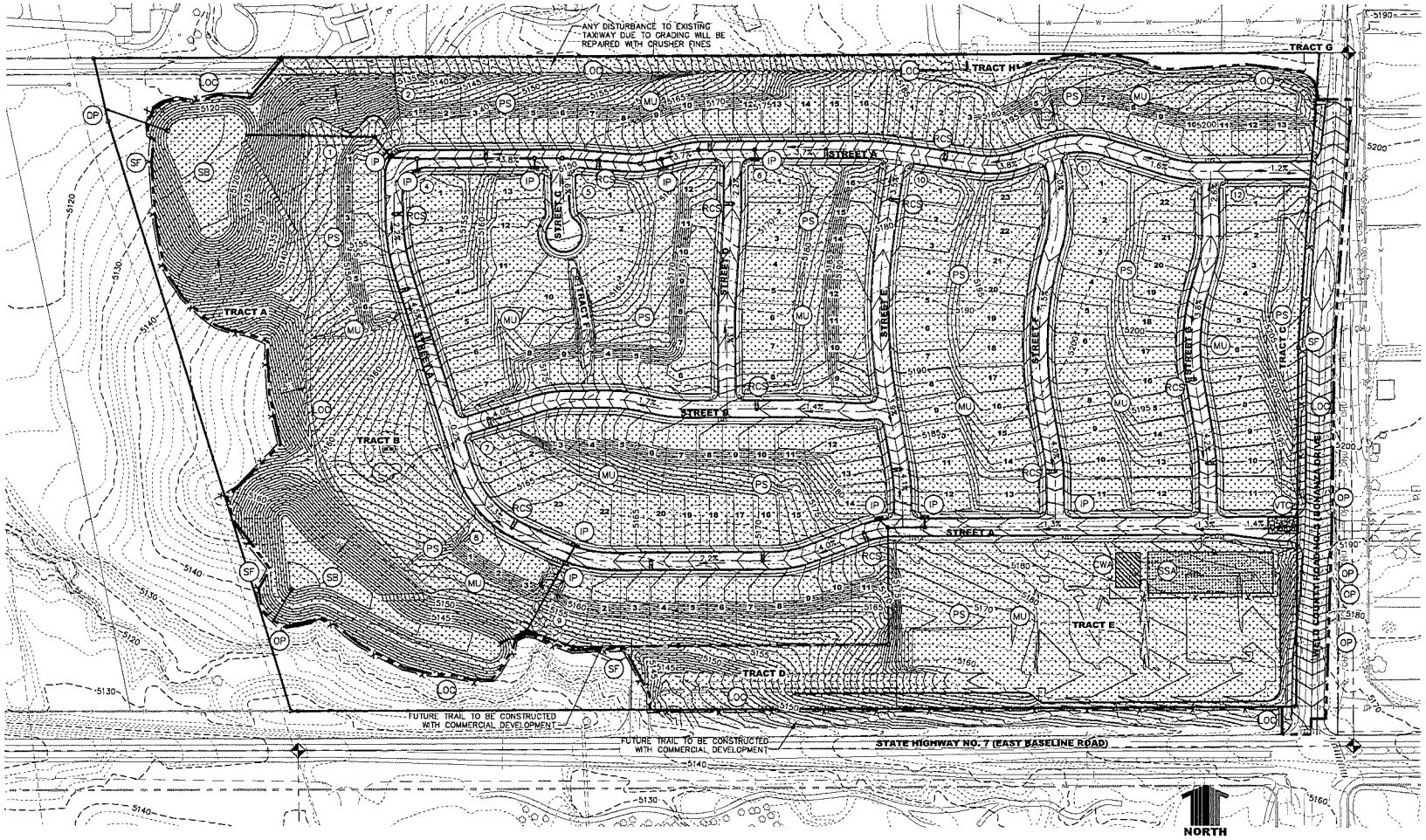
SIERRA VISTA
PRELIMINARY PLAT
OVERALL UTILITY PLAN

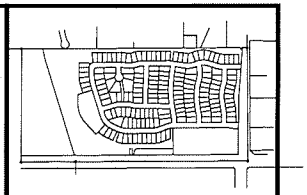
Sheet OU1 — 8 of 21
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\OU\21-PRELIMINARY PLAT\OU1.DWG
PLOTTED BY: Ryan LeBrun PLOT DATE: 9/14/2015 5:57 AM
XREFS: 21ANXO, 20EUT, 20EPN, 20PUT, 21UNOU, 20BASE, 21TB

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





KEYMAP

CONSTRUCTION NOTES:
EROSION CONTROL

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND:

- SF — SILT FENCE EROSION BARRIER
- VTC — TRACKING CONTROL PAD
- RCS — ROUGH CUT STREET CONTROL
- SSA — STAGE STORAGE AREA
- SB — SEDIMENT BASIN
- OP — OUTLET PROTECTION
- IP — INLET PROTECTION
- MU — MULCHING
- PS — PERMANENT SEEDING (PER TOWN REQUIREMENTS)
- LOC — LIMITS OF CONSTRUCTION
- CWA — CONCRETE WASHOUT AREA PER DETAIL ON DT SHEETS.
- PROPOSED CONTOURS — 4925
- EXISTING CONTOURS — 4925
- PROPOSED STORM DRAIN MANHOLE — D
- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM END SECTION
- FLOW ARROW
- SWALE

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: GR1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
Scale: 1 inch = 100 ft. Horizontal
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering Inc.
3000 South Ridgeline Boulevard Suite 105
Highland Ranch, CO 80129 (303) 770-6434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

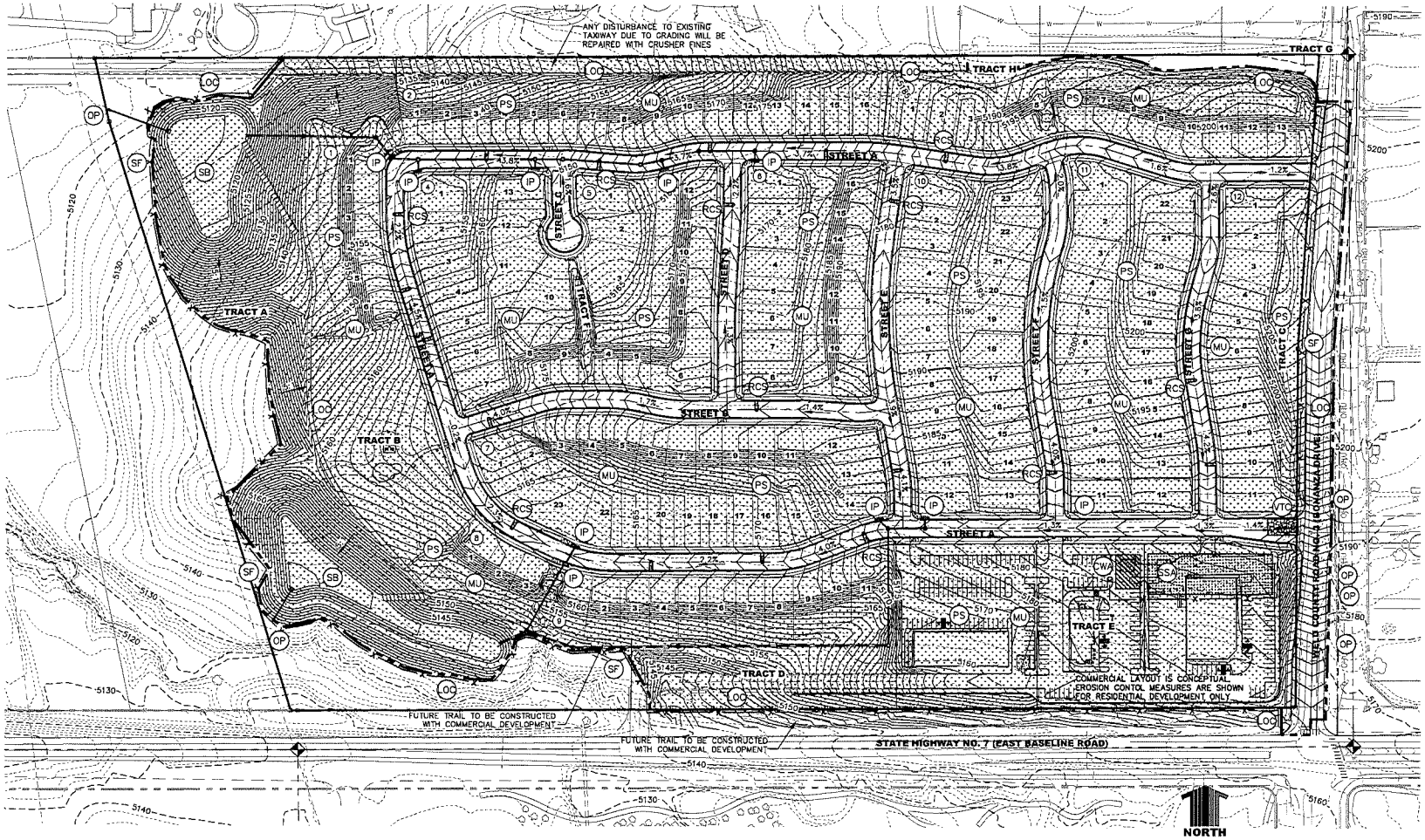
SIERRA VISTA
PRELIMINARY PLAT
GRADING AND EROSION CONTROL PLAN

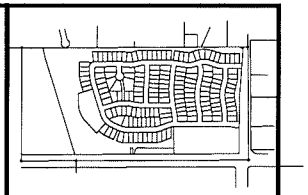
Sheet **GR1** 9 of 21
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\CIV\L31-PRELIMINARY PLAT\GR1.DWG
PLOTTED BY: Ryan Lebus PLOT DATE: 9/14/2015 8:58 AM
XREFS: W:\Commercial Opt 5, 20EUT, 20EPN, 21NXNO, 20PPN, 21MXGR, 20BASE, 21TB

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015





KEYMAP

CONSTRUCTION NOTES:
EROSION CONTROL

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND:

- SF — SILT FENCE EROSION BARRIER
- VTC — TRACKING CONTROL PAD
- RCS — ROUGH CUT STREET CONTROL
- SSA — STAGE STORAGE AREA
- SB — SEDIMENT BASIN
- OP — OUTLET PROTECTION
- IP — INLET PROTECTION
- MU — MULCHING
- PS — PERMANENT SEEDING (PER TOWN REQUIREMENTS)
- LOC — LIMITS OF CONSTRUCTION
- CWA — CONCRETE WASHOUT AREA PER DETAIL ON DT SHEETS.
- PROPOSED CONTOURS — 4925
- EXISTING CONTOURS — 4925
- PROPOSED STORM DRAIN MANHOLE — D
- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM END SECTION
- FLOW ARROW
- SWALE

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: GR1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
0 50 100 200 — 1 inch = 100 ft. Horizontal
Designer: BKM | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering, Inc.
5690 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 736-0424
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

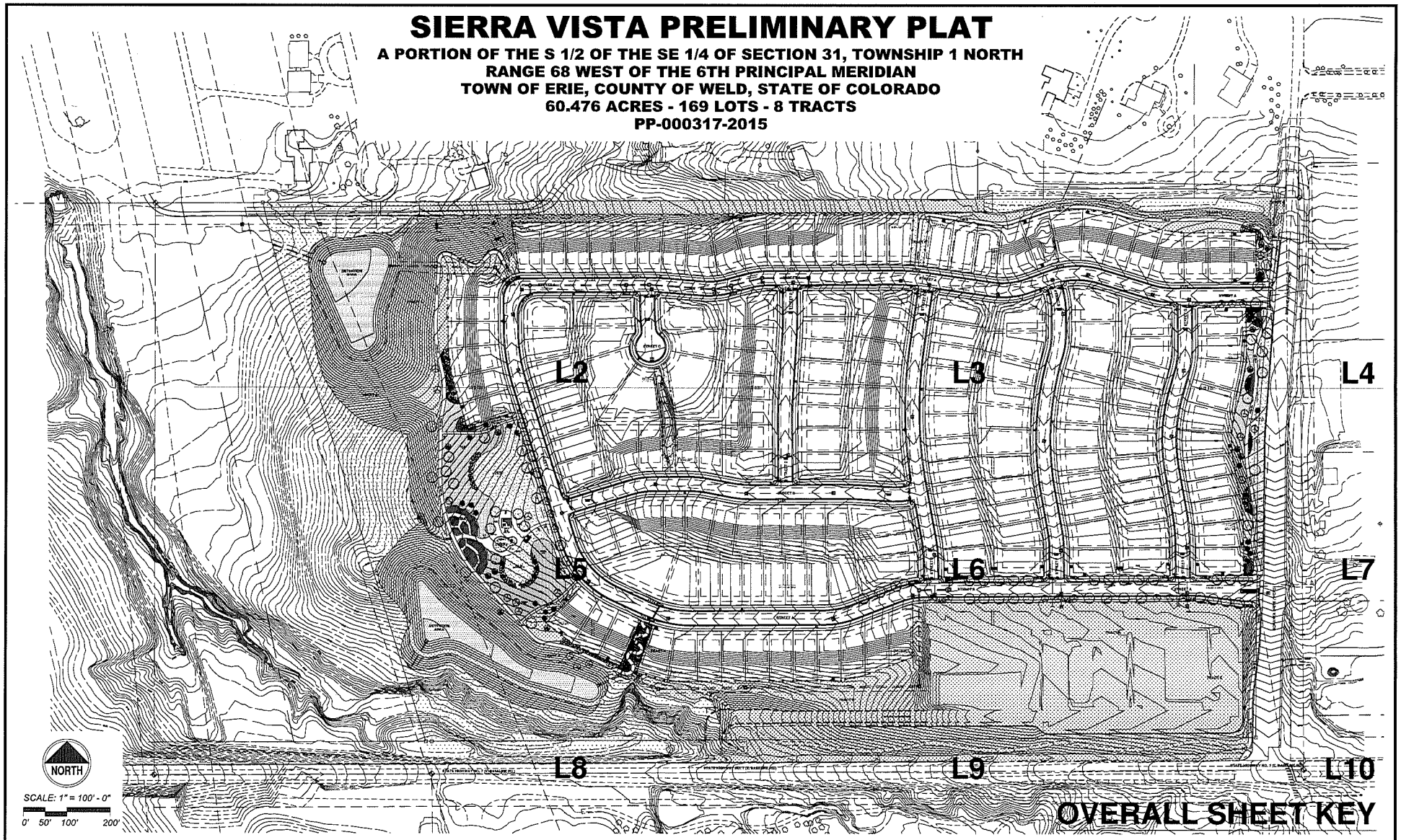
SIERRA VISTA
PRELIMINARY PLAT
CONCEPTUAL FINAL GRADING PLAN

Sheet **GR2** 10 of 21
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\PRELIMINARY PLAT\GR1.DWG
PLOTTED BY: Ryan Lafus PLOT DATE: 9/14/2015 8:59 AM
XREFS: W-Commercial Oct 5, XEUT 20PN, 21NAN10, 20PN, 21NVGR, 20BASE, 21TB,

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION

Drawing Name: MLS_Land.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC

Designer	Drafter	Checked
MLS	MLS	MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

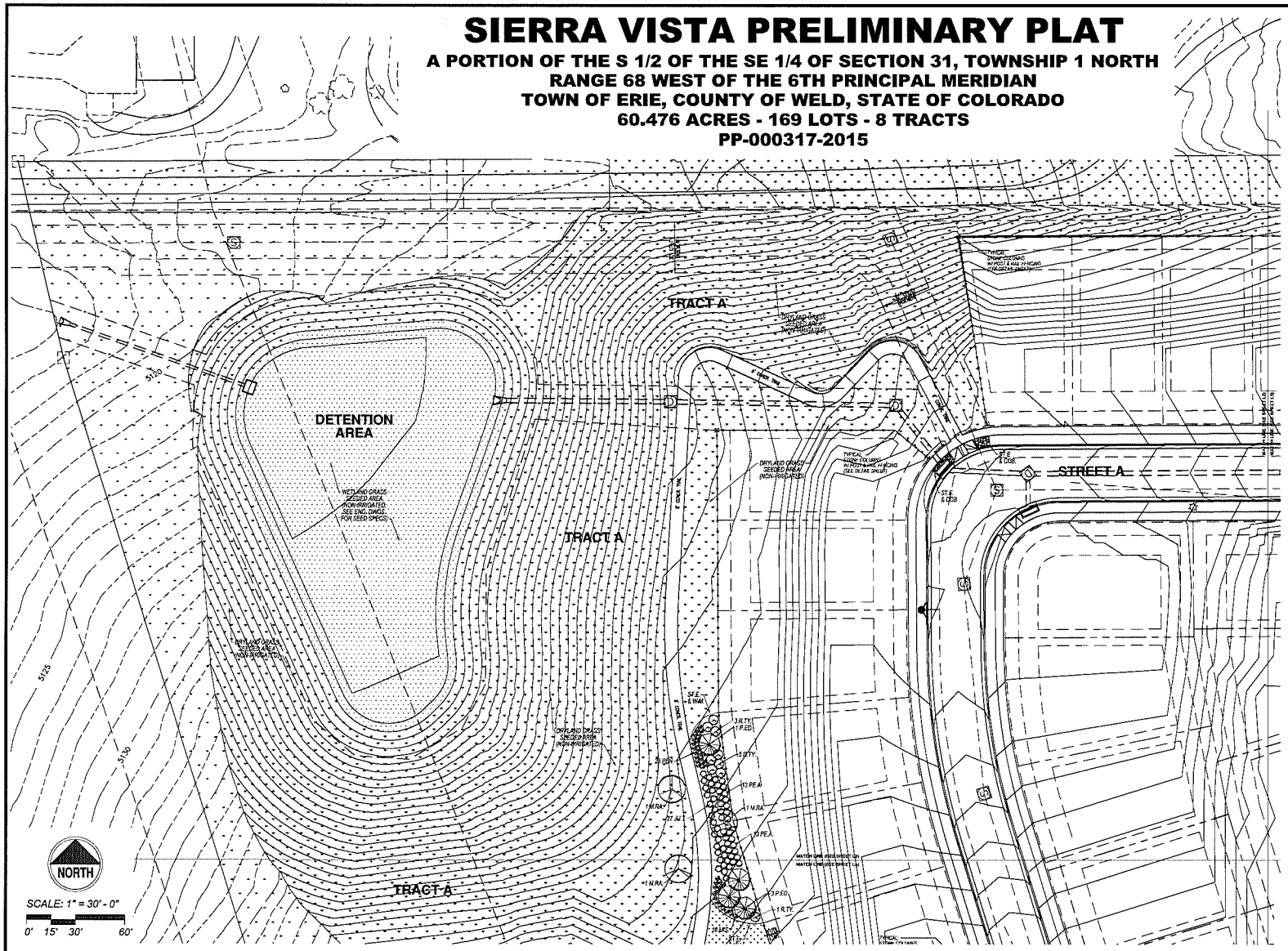
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L1** 11 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2009 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 790-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

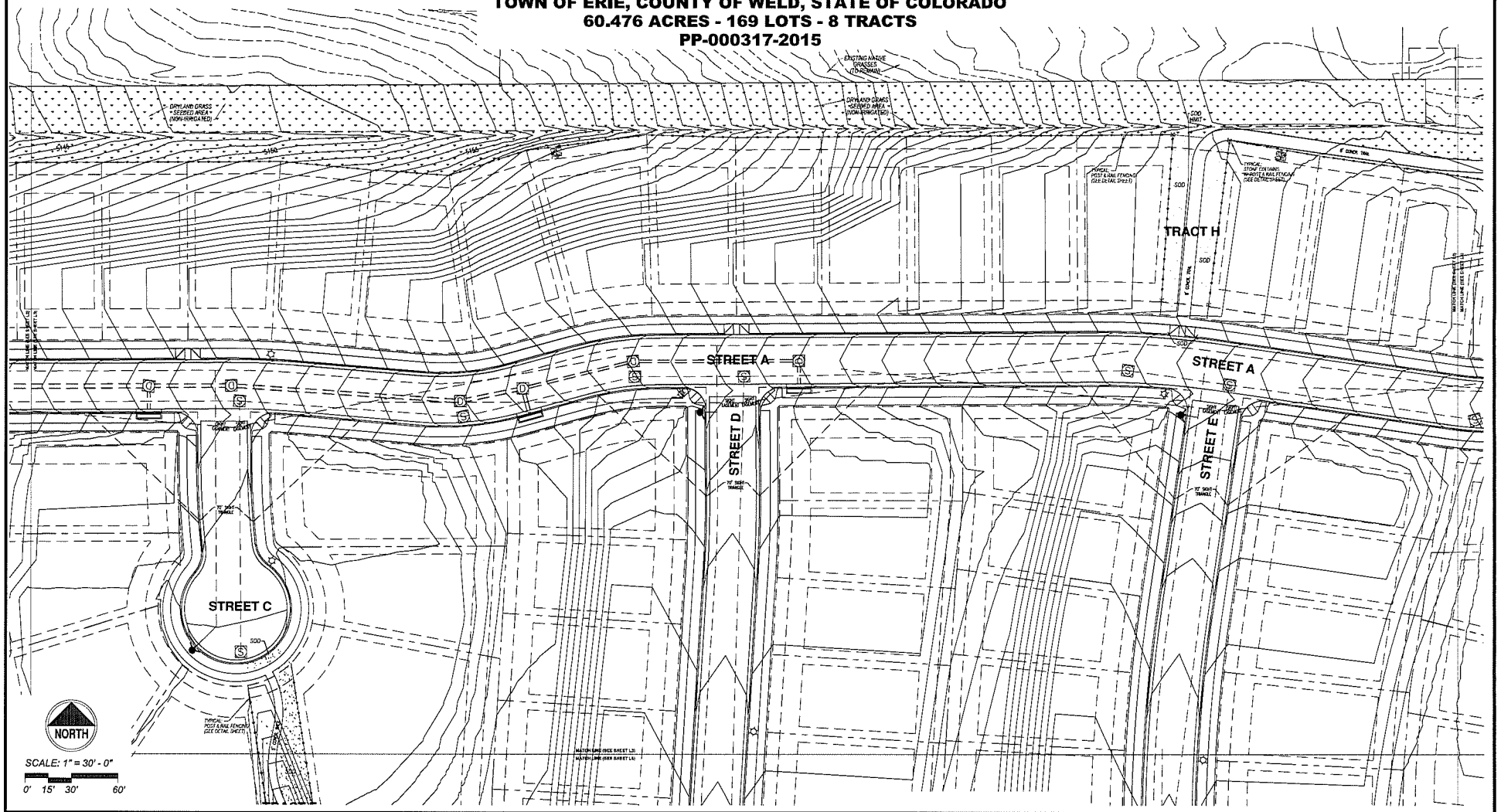
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L2** 12 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION	Drawing Name: MLS_Land.dwg	Job Number: OREAD SIERRA VISTA	Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brumbleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 — 01/01/2000 — Original Date of Licensure — STATE OF COLORADO — REGISTERED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9390 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 790-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

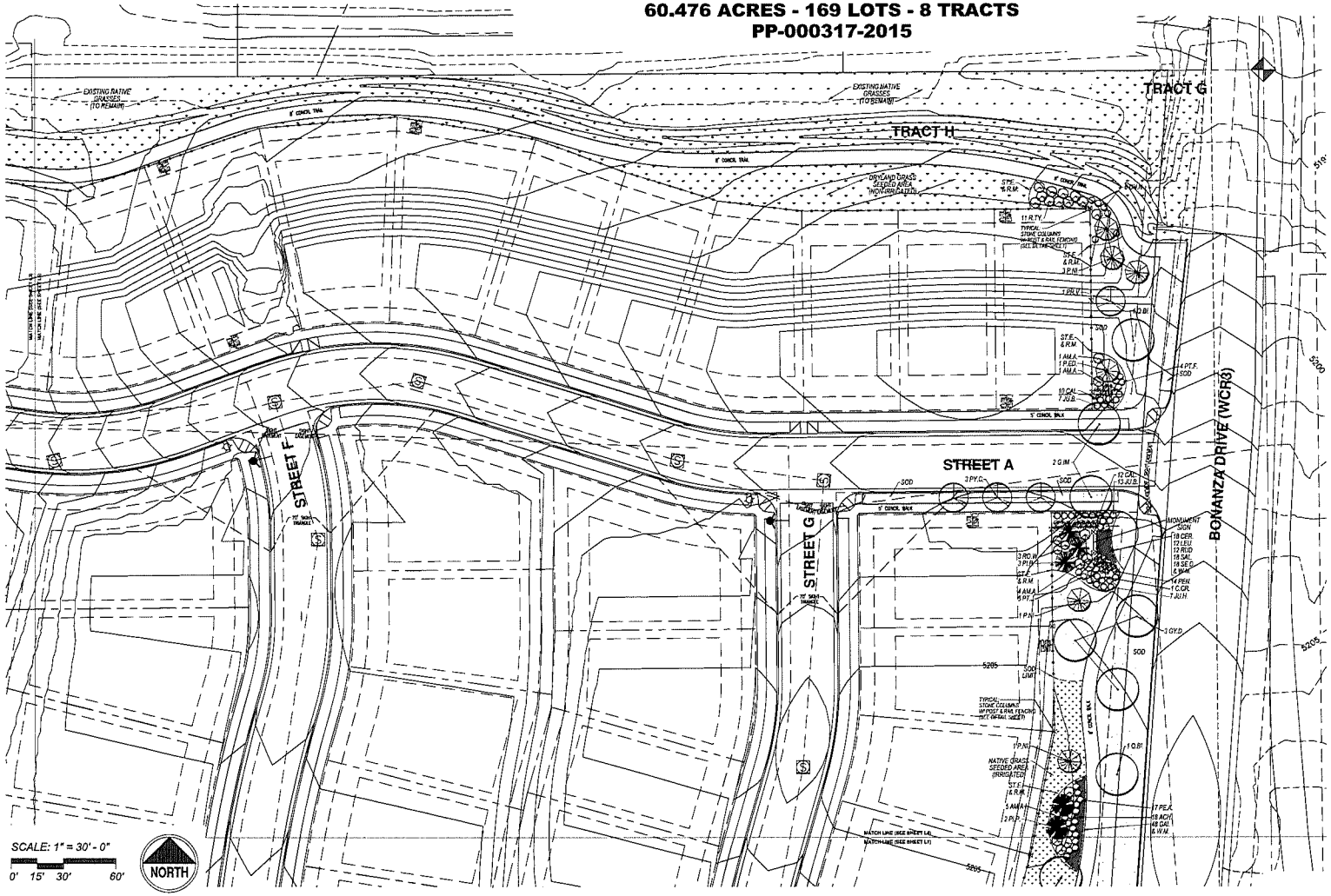
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L3** 13 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 Registered Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L4** 14 of 21

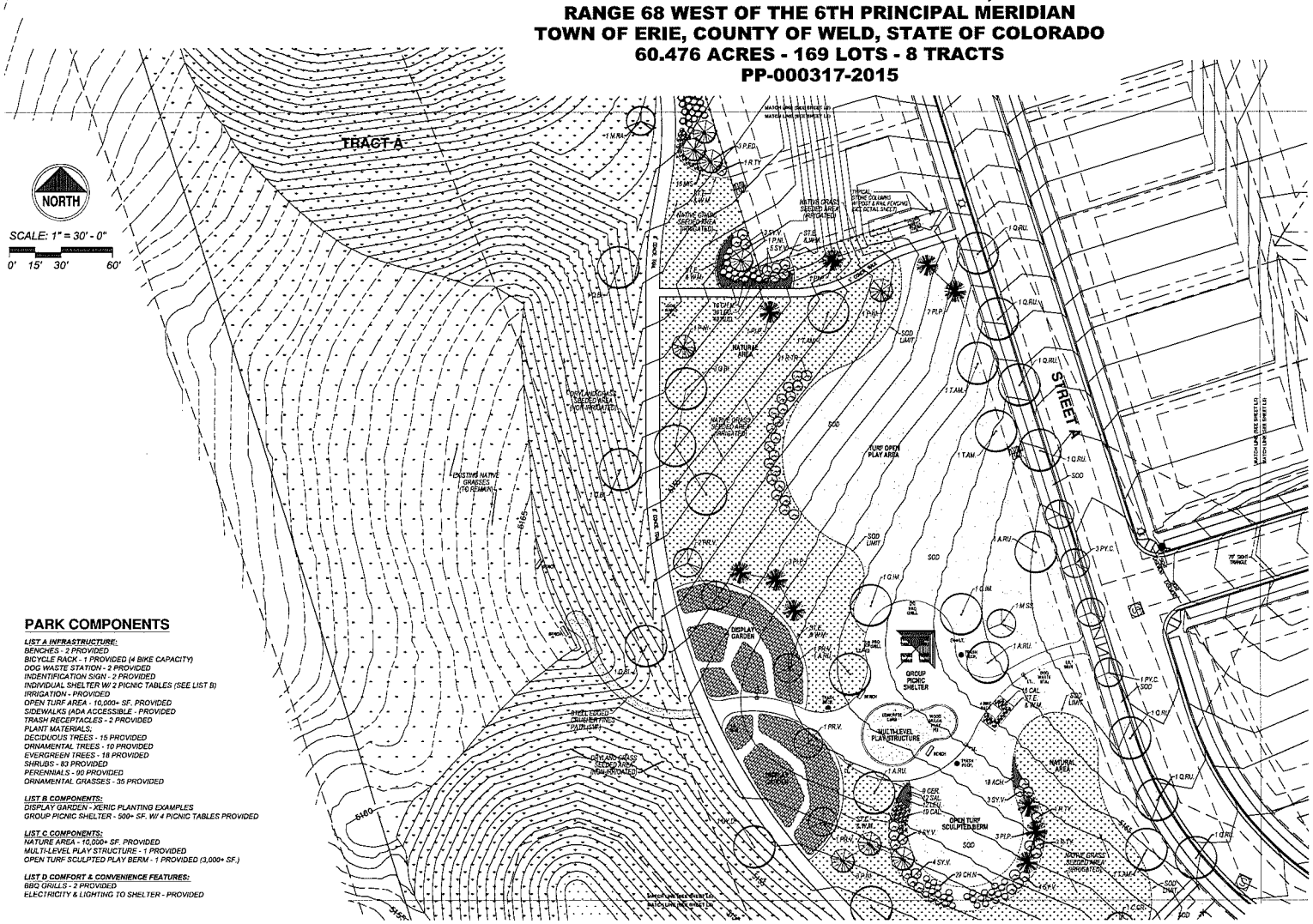
Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

60.476 ACRES - 169 LOTS - 8 TRACTS

PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

PARK COMPONENTS

LIST A INFRASTRUCTURE:
BENCHES - 2 PROVIDED
BICYCLE RACK - 1 PROVIDED (4 BIKE CAPACITY)
DOG WASTE STATION - 2 PROVIDED
INDENTIFICATION SIGN - 2 PROVIDED
INDIVIDUAL SHELTER W/ 2 PICNIC TABLES (SEE LIST B)
IRRIGATION - PROVIDED
OPEN TURF AREA - 10,000+ SF. PROVIDED
SIDEWALKS (ADA ACCESSIBLE - PROVIDED
TRASH RECEPTACLES - 2 PROVIDED
PLANT MATERIALS:
DECIDUOUS TREES - 15 PROVIDED
ORNAMENTAL TREES - 10 PROVIDED
EVERGREEN TREES - 18 PROVIDED
SHRUBS - 83 PROVIDED
PERENNIALS - 90 PROVIDED
ORNAMENTAL GRASSES - 35 PROVIDED

LIST B COMPONENTS:
DISPLAY GARDEN - XERIC PLANTING EXAMPLES
GROUP PICNIC SHELTER - 500+ SF. W/ 4 PICNIC TABLES PROVIDED

LIST C COMPONENTS:
NATURE AREA - 10,000+ SF. PROVIDED
MULTI-LEVEL PLAY STRUCTURE - 1 PROVIDED
OPEN TURF SCULPTED PLAY BERM - 1 PROVIDED (3,000+ SF.)

LIST D COMFORT & CONVENIENCE FEATURES:
BBQ GRILLS - 2 PROVIDED
ELECTRICITY & LIGHTING TO SHELTER - PROVIDED

GENERAL NOTES:

1) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 — STATE OF COLORADO — REGISTERED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9080 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 790-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

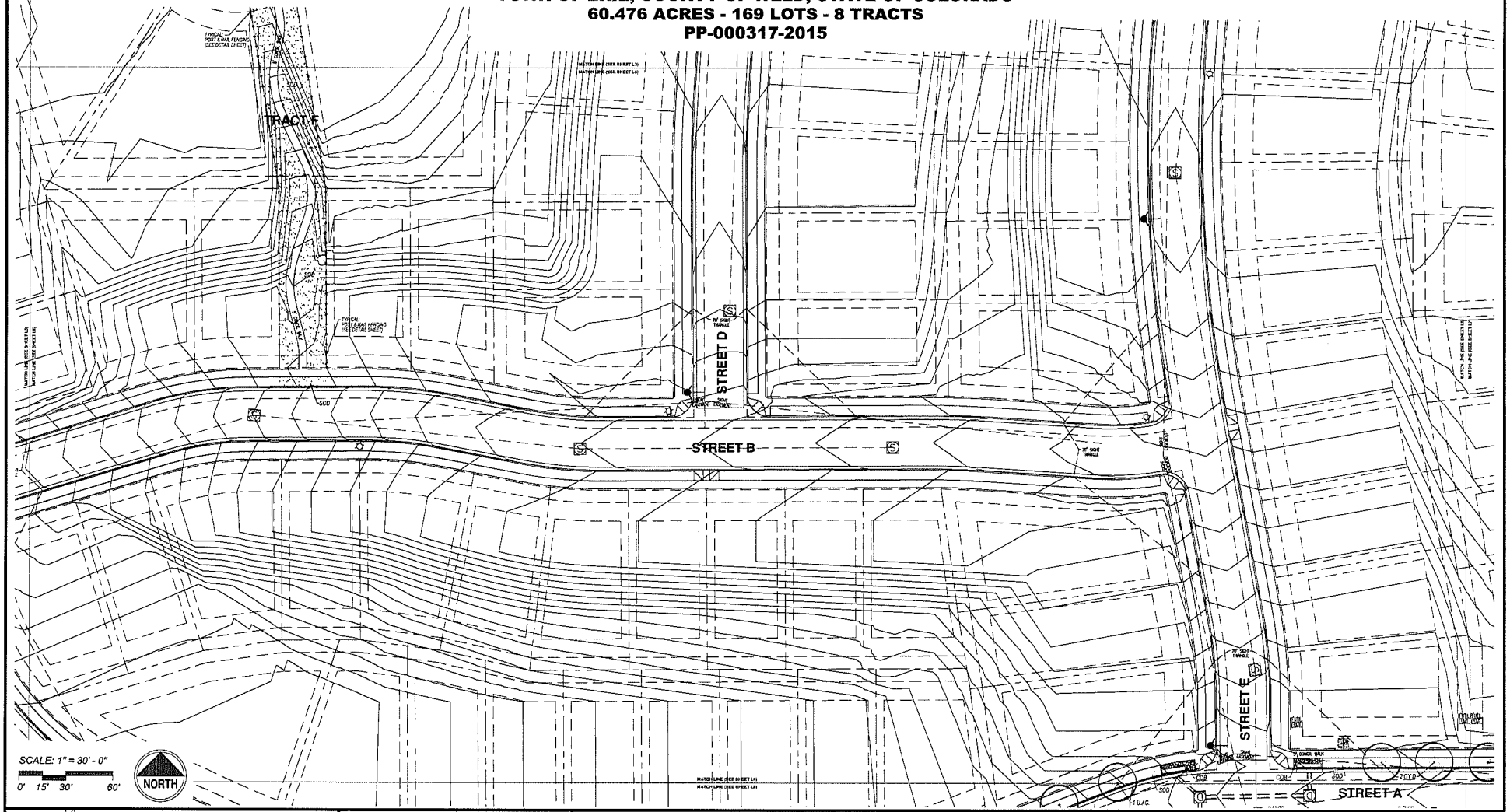
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L5** 15 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION

Drawing Name	MLS_Land.dwg
Job Number	OREAD SIERRA VISTA
Prepared For	HIGHWAY 7 & BONANZA, LLC
Designer	MLS
Drafter	MLS
Checked	MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@anl.com

MICHAEL L. STAHL 332 Registered Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

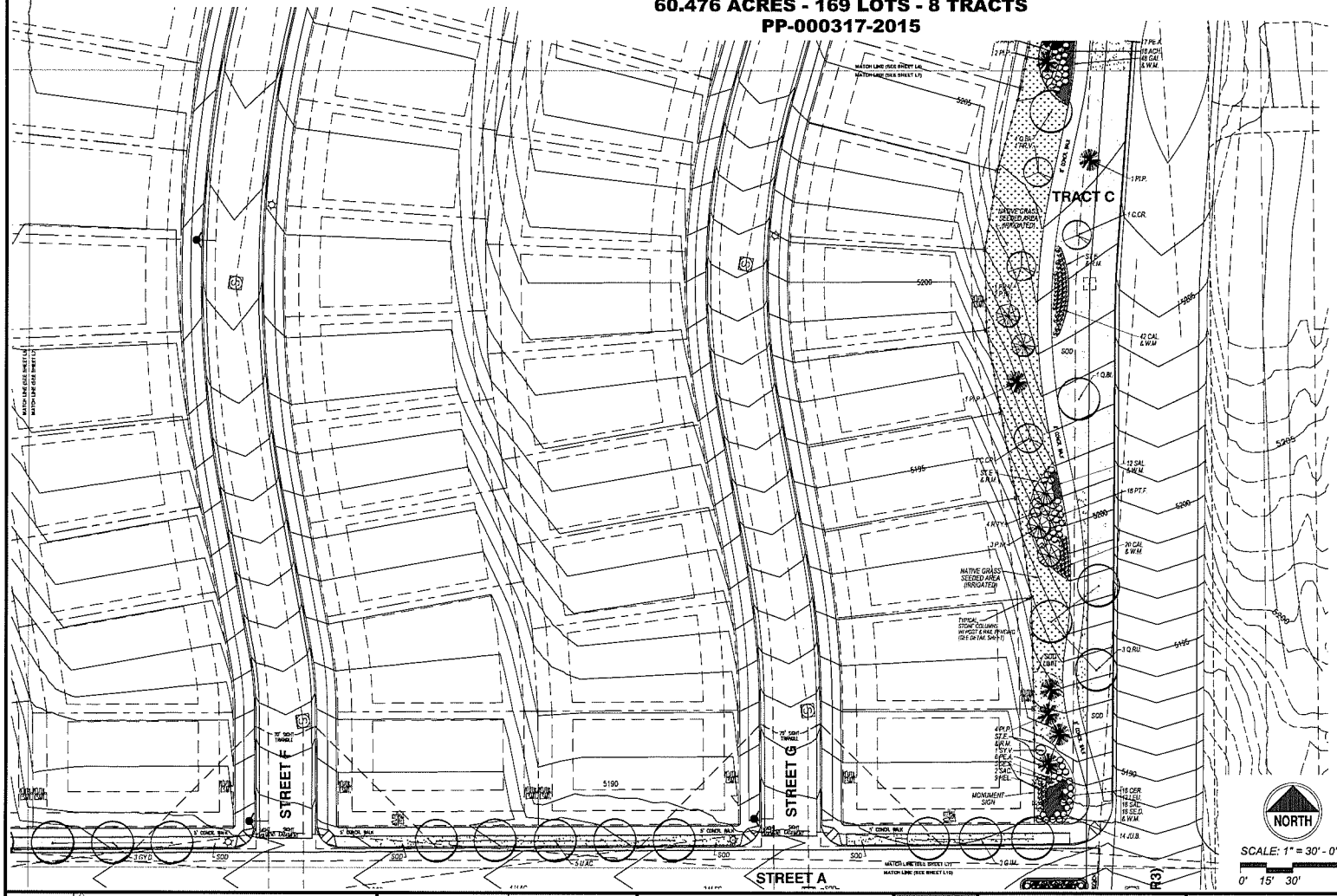
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L6** 16 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
3427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 — STATE OF COLORADO — LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9990 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

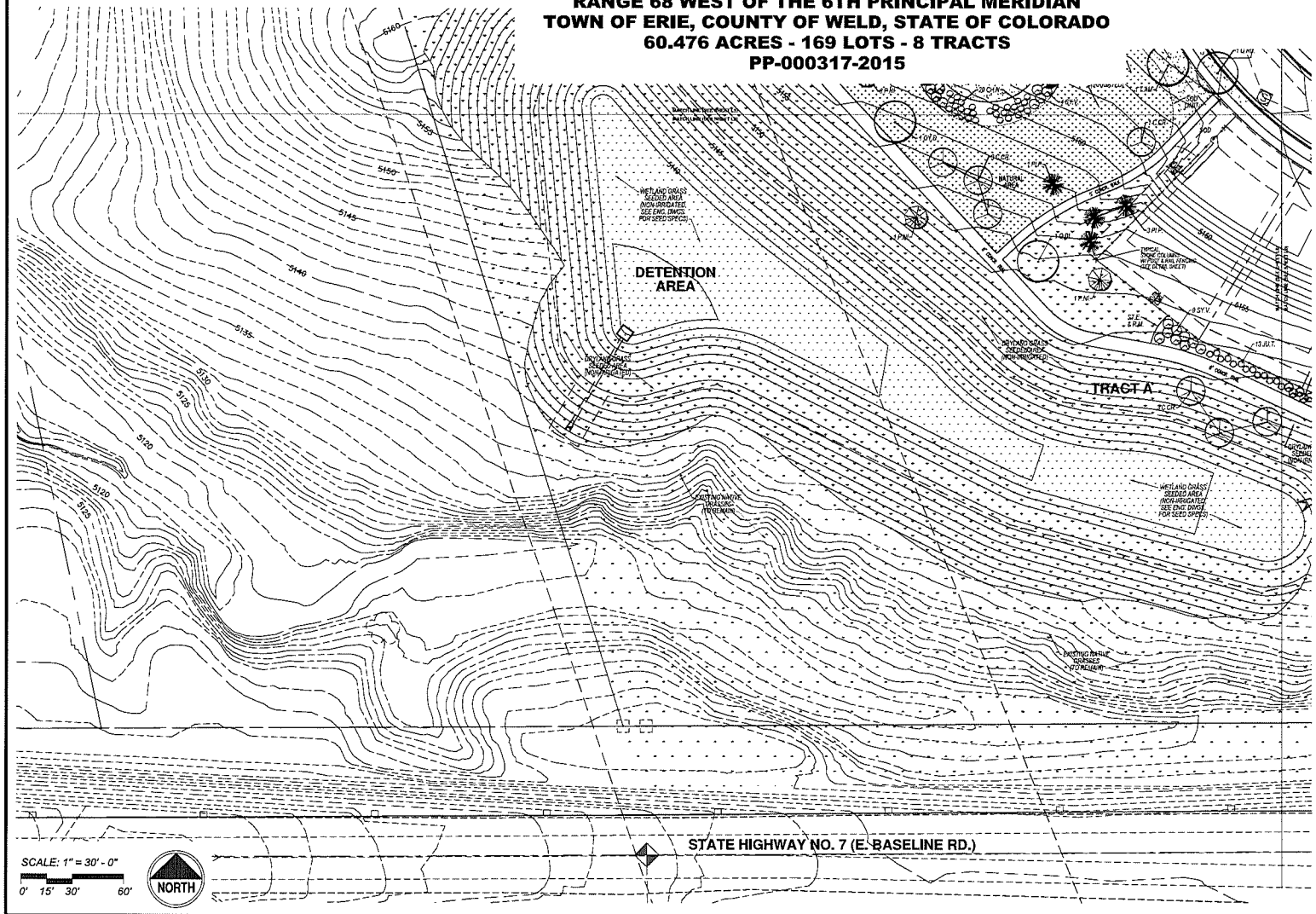
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L7** 17 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



SCALE: 1" = 30' - 0"
0' 15' 30' 60'
NORTH

LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

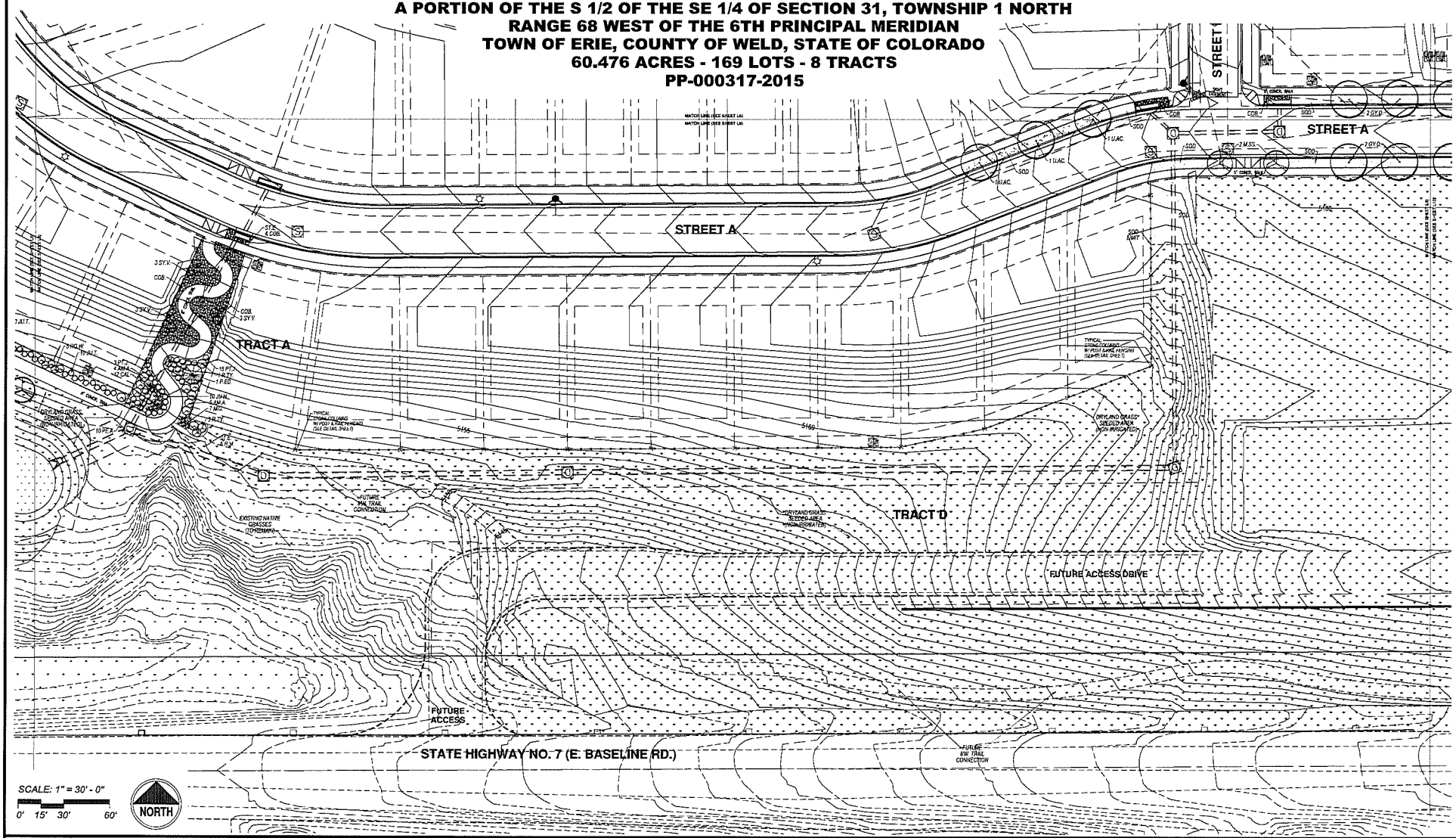
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L8** 18 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name	MLS_Land.dwg		
Job Number	OREAD SIERRA VISTA		
Prepared For	HIGHWAY 7 & BONANZA, LLC	Designer MLS	Drafter MLS / Checked MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/24/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

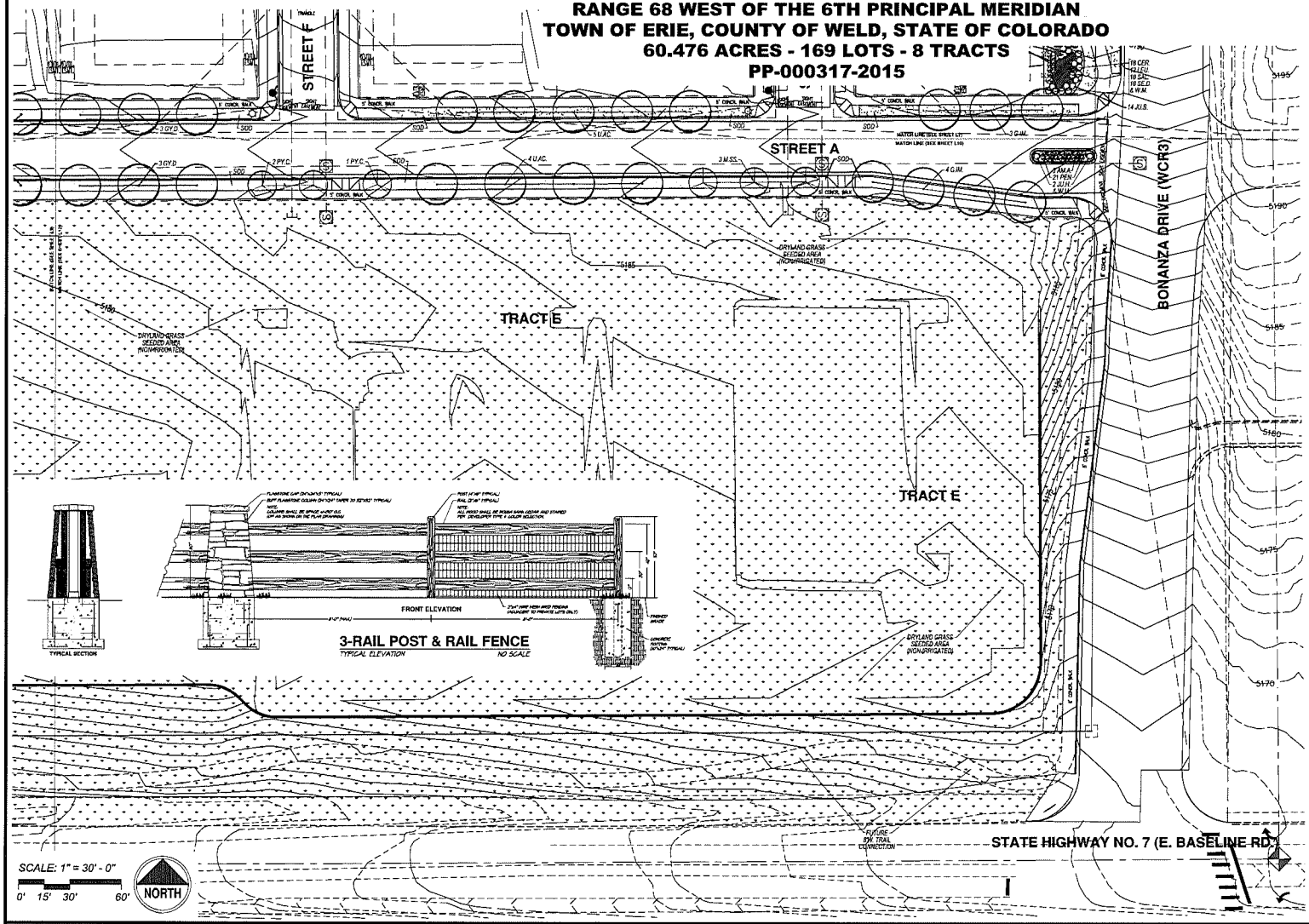
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L9** 19 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION

Drawing Name	Job Number	Prepared For	Designer	Drafter	Checked
MLS_Land.dwg	OREAD SIERRA VISTA	HIGHWAY 7 & BONANZA, LLC	MLS	MLS	MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

Calibre
Calibre Engineering, Inc.
9000 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L10** 20 of 21

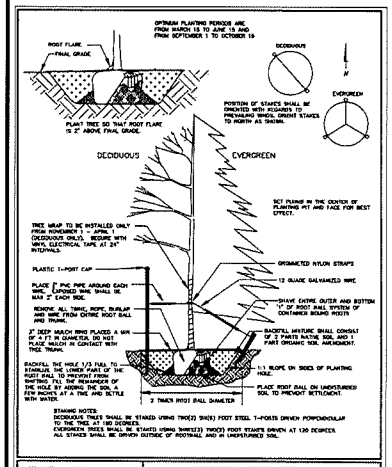
Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

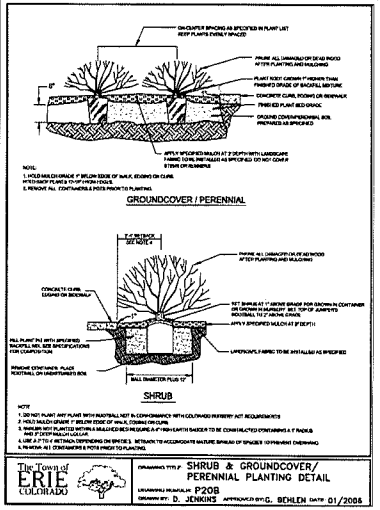
A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

60.476 ACRES - 169 LOTS - 8 TRACTS

PP-000317-2015



The Town of ERIE COLORADO — DRAWING TITLE: TREE PLANTING DETAIL — DRAWING NUMBER: P20A — DRAWN BY: D. JENKINS — APPROVED BY: J. WAIT — DATE: 01/2010



The Town of ERIE COLORADO — DRAWING TITLE: SHRUB & GROUNDCOVER/ PERENNIAL PLANTING DETAIL — DRAWING NUMBER: P20B — DRAWN BY: D. JENKINS — APPROVED BY: G. BEHLER — DATE: 01/2006

LANDSCAPE SPECIFICATIONS:

1) AREAS TO BE SODDED SHALL BE GRADED TO A SUITABLE GRADE (+/-.10). AREAS SHALL BE TILLED TO A 6" DEPTH INCORPORATING 5 CYDS./1000 SF. OF "CLASS 1" COMPOST UNIFORMLY INTO THE SOIL. AREAS SHALL BE SETTLED, LEVELED, AND RAKED TO A FINISHED GRADE. DEBRIS, VEGETATION, ROCKS, ETC. NOT PASSING THROUGH A HAND RAKE SHALL BE REMOVED FROM THE SURFACE. SURFACE SHALL BE FINE GRADED SMOOTH AND FIRM (NON-COMPACTED) PRIOR TO SODDING, LEAVING NO DEPRESSIONS WHERE WATER MAY COLLECT. AREAS SHALL RECEIVE A BOOSTER FERTILIZER WITH A CHEMICAL ANALYSIS OF NITROGEN-18, PHOSPHORUS-12, POTASH-4, 4% IRON AND 8% SULFUR AT THE RATE OF 5 LBS./1000 SF. IMMEDIATELY PRIOR TO SODDING. AREAS SHALL BE PROTECTED FROM COMPACTION PRIOR TO SODDING.

2) SOD SHALL BE A DROUGHT TOLERANT (TOWN OF ERIE APPROVED) BLUEGRASS SOD (4 VARIETY) BLEND. SOD SHALL BE FREE FROM WEEDS AND OBJECTIONABLE GRASSES. SOD SHALL BE PROTECTED IN TRANSIT AND ON SITE FROM DRYING OUT. SOD SHALL BE LAID OVER FIRM (NON-COMPACTED), PRE-MOISTENED, PREPPED SURFACE. SOD STRIPS SHALL BE LAID TIGHT WITH STAGGERED JOINTS, NO VOIDS OCCURRING BETWEEN STRIPS. SOD SHALL BE LAID NO CLOSER THAN 24" FROM THE CENTER OF SHRUB PLANTINGS AND NO CLOSER THAN 24" FROM THE CENTER OF TREE TRUNKS. SOD SURFACE SHALL BE 1" BELOW ADJACENT EDGING. IMMEDIATELY UPON INSTALLATION, SOD SHALL BE WATERED TO A 4" DEPTH. WHEN MOISTURE CONTENT OF THE SOIL IS PROPER, SOD SHALL BE ROLLED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING OF SOD UNTIL ACCEPTANCE OF WORK.

3) AT THE TIME OF THE FIRST MOWING, THE CONTRACTOR SHALL APPLY A COMMERCIAL FERTILIZER WITH A CHEMICAL ANALYSIS OF NITROGEN-20, PHOSPHOROUS-5, POTASH-10, PLUS 2 % IRON AT THE RATE OF 5 LBS./1000 SF. CARE SHALL BE TAKEN TO PREVENT BURNING. ANY AREAS DISTURBED OR DAMAGED BY THE CONTRACTOR DURING FERTILIZING OPERATIONS SHALL BE REPAIRED IN ACCORDANCE WITH TOWN OF ERIE STANDARDS & SPECIFICATIONS (AT THE CONTRACTOR'S EXPENSE).

4) AREAS TO BE PLANTED IN GROUND COVERS, PERENNIALS, ETC. SHALL BE GRADED TO A SUITABLE GRADE (+/-.10). AREAS SHALL BE TILLED TO A DEPTH OF 12" INCORPORATING 3 CYDS. OF "CLASS 1" COMPOST PER 1000 SF. UNIFORMLY INTO THE SOIL. UPON COMPLETION OF SOIL PREPARATION AREAS SHALL BE FINE GRADED TO PROPER GRADE.

5) PLANT MATERIAL QUALITY SHALL COMPLY WITH CURRENT AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS FOR #1 GRADE NURSERY STOCK. PLANTS SHALL MEET OR EXCEED SPECIFIED SIZES. TREES SHALL HAVE WELL BRANCHED TOPS WITH REASONABLY STRAIGHT, WELL DEVELOPED SINGLE LEADERS (UNLESS OTHERWISE NOTED). THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT PLANTS OF INFERIOR QUALITY. NO PLANTS SHALL BE PLANTED DURING INCLEMENT WEATHER OR INTO FROZEN GROUND (UNLESS SPECIFICALLY ALLOWED WITH WRITTEN APPROVAL FROM THE DEVELOPER'S REPRESENTATIVE).

6) PLANTING PIT DIAMETERS SHALL BE DUG WITH TWICE THE DIAMETER OF THE ROOT BALL. PITS SHALL BE DUG DEEP ENOUGH SO THAT THE TOP OF THE ROOT BALL IS 1" ABOVE GRADE FOR ALL PLANTS, EXCEPT FOR JUNIPERS WHICH SHALL BE 2" ABOVE GRADE. PITS SHALL BE BACKFILLED WITH UNIFORM MIXTURE OF 75 % EXCAVATED SOIL AND 25% "CLASS 1" COMPOST. PRIOR TO BACK FILLING PLANTING PITS, CONTRACTOR SHALL REMOVE ALL WIRE BASKETS AND OTHER PROTECTIVE MATERIALS (E.G. BURLAP) FROM THE ROOT BALLS. ALL FLAGS, TAGS, ETC. SHALL BE REMOVED FROM ALL PLANTS. ACER AND QUERCUS TREE SPECIES SHALL HAVE

7) ADDITIONAL pH LOWERING FERTILIZER TABLETS ADDED TO THEIR PLANTING PITS AS RECOMMENDED.

8) TREES SHALL BE GUYED AND STAKED ACCORDING TO THE TOWN OF ERIE TREE PLANTING DETAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GUY WIRES ADJUSTMENTS DURING THE GUARANTEE PERIOD, AND REMOVAL OF STAKES AND WIRES UPON COMPLETION OF THE GUARANTEE PERIOD.

9) TRUNKS OF FALL PLANTED DECIDUOUS TREES SHALL BE WRAPPED ACCORDING TO THE TOWN OF ERIE TREE PLANTING DETAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENT TO WRAPPING DURING THE GUARANTEE PERIOD AND SHALL REMOVE WRAPPING UPON COMPLETION OF THE GUARANTEE PERIOD.

10) PLANT MATERIAL SHALL BE FULLY (100 %) GUARANTEED FOR A PERIOD OF TWO (2) YEARS FROM DATE OF WORK ACCEPTANCE. REPLACED PLANT MATERIAL SHALL BE FULLY (100 %) GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF REPLACEMENT. DURING THE GUARANTEE PERIOD, THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING OF ANY MAINTENANCE DEFICIENCIES.

11) SHRUB PLANTING BED AREAS NOTED 'R.M.' SHALL BE ROCK MULCHED. ROCK MULCH SHALL BE 1.5" DIA. WASHED RIVER ROCK PLACED IN A UNIFORM 3" LAYER OVER A LAYER OF APPROVED GEOTEXTILE WEED BARRIER FABRIC (E.G. "TYPAR #3401" OR EQUAL). ROCK MULCH SHALL KEPT AWAY FROM THE CENTER OF PLANTS (12" DIA. MIN.). PLANT CENTERS SHALL BE WOOD MULCHED WITH A 3" THICK LAYER OF SHREDDED CEDAR WOOD MULCH. AREAS SHALL BE FINE GRADED PRIOR TO PLACEMENT OF FABRIC AND MULCH. COURSES OF FABRIC SHALL OVERLAP 12" AT THE SEAMS AND OMITTED AROUND BASE OF PLANTS (FROM AN AREA EQUAL TO THE SIZE OF THE PLANTING PIT).

12) SHRUB PLANTING BED AREAS NOTED 'W.M.' SHALL BE WOOD MULCHED. WOOD MULCH SHALL BE SHREDDED CEDAR WOOD MULCH PLACED IN A UNIFORM 3" LAYER. AREAS SHALL BE FINE GRADED PRIOR TO PLACEMENT OF MULCH.

13) CONTINUOUS GROUND COVER AREAS TO BE WOOD MULCHED SHALL BE TREATED WITH "TREFLAN" GRANULAR PRE-EMERGENT HERBICIDE ACCORDING TO MFR. SPECIFICATIONS. AREAS SHALL BE FINE GRADED PRIOR TO HERBICIDE APPLICATION, REMOVING ALL DEBRIS, ROCKS, ETC. OVER 1" DIAMETER. EVEN DISTRIBUTION OF HERBICIDE IS IMPERATIVE.

14) ALL PLANTING PITS (LOCATED WITHIN SOD AND ROCK MULCH AREAS) SHALL BE MULCHED WITH SHREDDED CEDAR WOOD MULCH (3" MAX. SIZE). MULCH SHALL BE PLACED IN A UNIFORM 3" THICK LAYER OVER AN AREA EQUAL TO THE SIZE OF THE PLANTING PIT.

15) STEEL EDGING SHALL BE 3/16"X8" SIZED PIECES OF GREEN PAINTED STEEL EDGING. STEEL SHALL BE INSTALLED VERTICALLY AND STAKED. TOP OF STEEL SHALL BE EVEN WITH THE SOD (OR MULCH) GRADE. STEEL EDGING SHALL BE INSTALLED WHEREVER NECESSARY (OR SHOWN ON PLAN DRAWINGS) TO SEPARATE TURF AREAS FROM MULCHED AREAS.

SEEDING SPECIFICATIONS:

1) AREAS TO BE SEEDED WITH NATIVE GRASSES SHALL BE GRADED TO A SUITABLE FINISHED GRADE (+/-.10). AREAS SHALL BE SCARIFIED TO A DEPTH OF 6" (MIN.) INCORPORATING 800 LBS. OF "BIOSOL FORTE" PER ACRE (PER S&S 1022.03 PRIOR TO HYDRO-MULCHING) IN THE PROCESS. AREAS SHALL BE SETTLED AND FINE GRADED TO A SMOOTH, UNIFORM, FIRM (UNCOMPACTED) SURFACE LEAVING NO DEPRESSIONS WHERE WATER MAY COLLECT. ALL DEBRIS, ROCKS VEGETATION, ETC. OVER 1.5" DIA. SHALL BE REMOVED FROM THE SURFACE PRIOR TO SEEDING. AREAS SHALL BE SEEDED WITH A UNIFORM MIXTURE OF THE FOLLOWING NATIVE GRASS MIX (AREAS SHALL BE PROTECTED FROM COMPACTION PRIOR TO SEEDING):

SEED1 MIX: MIXED GRASS PRAIRIE NATIVE SEED MIX. (TO BE USED WITHIN NON-IRRIGATED SEEDED AREAS)
DRILLED & HYDRO-MULCHED; IRRIGATED; OCCASIONALLY MOWED

COMMON NAME:	SCIENTIFIC NAME:	VARIETY	OZ./ACRE	LB./ACRE
BUFFALOGRASS	BUCHLOE DACTYLOIDES	NATIVE		3.0
SIDE OATS GRAMA	BOUTELOUA CURTIPENDULA	BUTTE		5.0
PRAIRIE SANDREED	CALAMOVILFA LONGIFOLIA	GODHEN		1.0
BLUE GRAMA	BOUTELOUA GRACILIS	LOVINGTON		3.0
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	ARRIBA		5.0
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPAARIUM	PASTURA		4.0
ALKALI SACATON	SPOROBOLUS AIROIDES	COMMON		1.0
SWITCHGRASS	PANICUM VIRGATUM	BLACKWELL		5.0
FRINGED SAGE	ARTEMISIA FRIGIDA	COMMON	1.0	
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	COMMON	6.0	
BLANKET FLOWER	GAILARDIA ARISTATA	COMMON	6.0	
GAYFEATHER	LIATRIS PUNCIATA	COMMON	4.0	
BLUE FLAX	LINUM PERENNE	COMMON	3.0	
TANSY ASTER	MACHAERANTHERA TANACETIFOLIA	COMMON	3.0	
PRAIRIE CONEFLOWER	RATIBIDA COLUMNIFERA	COMMON	3.0	
TOTAL OUNCES		26.0	1.625	
TOTAL				29.625 LB./AC.

SEED2 MIX. SHORTGRASS PRAIRIE NATIVE SEED MIX: (TO BE USED WITHIN IRRIGATED SEEDED AREAS)
DRILLED & HYDRO-MULCHED; IRRIGATED, OCCASIONALLY MOWED

COMMON NAME:	SCIENTIFIC NAME:	VARIETY	OZ./ACRE	LB./ACRE
BUFFALOGRASS	BUCHLOE DACTYLOIDES	NATIVE		14.0
BLUE GRAMA	BOUTELOUA GRACILIS	LOVINGTON		12.0
PRAIRIE SANDREED	CALAMOVILFA LONGIFOLIA	GODHEN		4.0
FRINGED SAGE	ARTEMISIA FRIGIDA	COMMON	1.0	
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	COMMON	4.0	
GAYFEATHER	LIATRIS PUNCIATA	COMMON	4.0	
TANSY ASTER	MACHAERANTHERA TANACETIFOLIA	COMMON	3.0	
TOTAL OUNCES			12.0	0.75
TOTAL				30.75 LB./AC.

2) NATIVE GRASS SEED SHALL BE DISTRIBUTED EVENLY AT THE SPECIFIED RATE OF PURE LIVE SEED (PLS) PER ACRE. SEED SHALL BE DRILLED WITH DRILL EQUIPMENT EQUIPPED WITH A SATISFACTORY FEEDING MECHANISM, AN AGITATOR, DOUBLE DISC FURROW OPENERS, DEPTH BANDS AND PACKER WHEELS (E.G. "BRILLION" SEEDER, OR EQUAL). AREAS INACCESSIBLE TO DRILL EQUIPMENT CAN BE SUBSTITUTED WITH AN ALTERNATIVE BROADCAST METHOD (E.G. HAND BROADCAST, ETC.). IF THE ALTERNATIVE METHOD IS USED, THE SEEDING RATE MUST BE DOUBLED, AND THE AREA MUST BE DRAGGED (OR RAKED) AFTER SEEDING FOLLOWED BY HYDRO-MULCHING.

3) SEEDED AREAS SHALL BE HYDRO-MULCHED WITH 2500 LBS./ACRE OF HYDRO-MULCH (100 % VIRGIN WOOD CELLULOSE FIBER), AND 150 LBS./ACRE ORGANIC TACKIFIER. SOIL COVERAGE SHALL BE 100 %. AREAS WHERE SOIL IS VISIBLE SHALL BE HYDROMULCHED UNTIL COVERAGE IS SATISFACTORY (AT THE CONTRACTOR'S EXPENSE). IF WEATHER CONDITIONS DETERIORATE, WORK SHALL BE DELAYED UNTIL WEATHER CONDITIONS ARE FAVORABLE. MULCH SHALL BE APPLIED IN A SEPARATE OPERATION, ON THE SAME DAY AS SEEDING. NO HAY IS PERMITTED ON THE CONSTRUCTION SITE, FOR ANY PURPOSE.

PLANT LIST

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES	MATURE SIZE	SPACING
SHADE TREES							
4	A.RU	ACER RUBRUM 'RED SUNSET'	RED SUNSET MAPLE	2.0" CAL.	B.&B.	40'-50'HT.x30'-40'SPR.	25' MIN.
11	G.IM.	GLEDITSIA X 'IMPERIAL'	IMPERIAL HONEYLOCUST	2.0" CAL.	B.&B.	40'-60'HT.x40'-50'SPR.	25' MIN.
15	GY.D.	GYMNOCLADUS DIOICA	KENTUCKY COFFEETREE	2.0" CAL.	B.&B.	50'-60'HT.x40'-50'SPR.	25' MIN.
11	QB.I.	QUERCUS BICOLOR	SWAMP WHITE OAK	2.0" CAL.	B.&B.	40'-60'HT.x40'-60'SPR.	25' MIN.
10	Q.RU.	QUERCUS RUBRA	NORTHERN RED OAK	2.0" CAL.	B.&B.	40'-60'HT.x40'-60'SPR.	25' MIN.
4	T.AM.	TILIA AMERICANA	AMERICAN LINDEN	2.0" CAL.	B.&B.	40'-60'HT.x30'-40'SPR.	25' MIN.
12	U.AC.	ULMUS X 'ACCOLADE'	ACCOLADE ELM	2.0" CAL.	B.&B.	40'-60'HT.x30'-40'SPR.	25' MIN.
ORNAMENTAL TREES							
10	C.CR.	CRATAEGUS CRUS-G. 'CRUESADER'	CRUESADER HAWTHORN	1.5" CAL.	B.&B.	15'-20'HT.x15'-20'SPR.	12' MIN.
3	M.RA.	MALUS X 'RADIANT'	RADIANT CRABAPPLE	1.5" CAL.	B.&B.	15'-20'HT.x15'-20'SPR.	12' MIN.
6	M.SS.	MALUS X 'SPRING SNOW'	SPRING SNOW CRABAPPLE	1.5" CAL.	B.&B.	15'-20'HT.x15'-20'SPR.	12' MIN.
8	PR.V.	PRUNUS VIRGINIANA	CANADA RED CHERRY	1.5" CAL.	B.&B.	25'-30'HT.x20'-30'SPR.	12' MIN.
10	PY.C.	PYRUS CALLERYANA	CHANTICLEER PEAR	1.5" CAL.	B.&B.	20'-35'HT.x15'-30'SPR.	12' MIN.
EVERGREEN TREES							
25	PI.P.	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	6'-12' HT.	B.&B.	40'-60'HT.x20'-30'SPR.	15' MIN.
6	P.ED.	PINUS EDULIS	PINON PINE	6' HT.	B.&B.	20'-30'HT.x10'-20'SPR.	15' MIN.
16	P.NI.	PINUS NIGRA	AUSTRIAN PINE	6'-12' HT.	B.&B.	40'-60'HT.x30'-40'SPR.	15' MIN.
153	=	TOTAL TREES					
DECIDUOUS SHRUBS							
23	AM.A.	AMELANCHER ALNIFOLIA	SASKATOON SERVICEBERRY	#5 CONT.	3'-4'HT.	6'-20'HT.x6'-12'SPR.	+/-4' O.C.
51	CH.N.	CHRYSOTHANAMNUS NAUSEOSIS	DWARF BLUE RABBITBRUSH	#5 CONT.	16"-24" HT.	1'-4'HT.x1'-4'SPR.	+/-3' O.C.
59	PE.A.	PEROVSKIA ATRIPLICIFOLIA 'L.S.'	LITTLE SPIRE RUSSIAN SAGE	#5 CONT.	16"-24" HT.	3'-4'HT.x3'-4'SPR.	+/-3' O.C.
22	PT.F.	POTENTILLA FR. DAV. 'PRAIRIE SNOW'	WHITE FLOWER CINQUEFOIL	#5 CONT.	16"-24" SPR.	2'-3'HT.x3'-5'SPR.	+/-3' O.C.
23	PT.J.	POTENTILLA FRUTICOSA 'JACKMANII'	JACKMAN POTENTILLA	#5 CONT.	16"-24" HT.	2'-3'HT.x3'-4'SPR.	+/-3' O.C.
21	R.TR.	RHUS TRILOBATA	THREE-LEAF SUMAC	#5 CONT.	3'-4' HT.	10'-15'HT.x10'-15'SPR.	+/-5' O.C.
32	R.TY.	RHUS TYPHINA	STAGHORN SUMAC	#5 CONT.	3'-4' HT.	10'-15'HT.x10'-15'SPR.	+/-5' O.C.
8	RO.W.	ROSA WOODSII	NATIVE SHRUB ROSE	#5 CONT.	24"-30" HT.	4'HT.x4'-6'SPR.	+/-5' O.C.
42	SY.V.	SYRINGA VULGARIS	COMMON PURPLE LILAC	#5 CONT.	3'-4' HT.	8'-12'HT.x6'-8'SPR.	+/-4' O.C.
EVERGREEN SHRUBS							
34	JU.B.	JUNIPERUS HORIZONTALIS 'BUFF.'	BUFFALO JUNIPER	#3 CONT.	18"-24" SPR.	1'-2'HT.x5'-8'SPR.	+/-4' O.C.
19	JU.H.	JUNIPERUS HORIZONTALIS 'HUGH.'	HUGHES JUNIPER	#5 CONT.	18"-24" SPR.	1'-2'HT.x5'-8'SPR.	+/-4' O.C.
50	JU.T.	JUNIPERUS SABINA 'TAMARISC.'	TAMMY JUNIPER	#5 CONT.	18"-24" SPR.	1'-2'HT.x5'-8'SPR.	+/-4' O.C.
394	=	TOTAL SHRUBS					
ORNAMENTAL GRASSES							
134	CAL.	CALAMAGROSTIS ACUTIFLORA 'K.F.'	'K. FOERSTER FEATHER REED	#1 CONT.	12" HT.	4'-6'HT.x1'-2'SPR.	+/-30" O.C.
9	HEL.	HELICHTOTRICHON SEMPERVIRENS	BLUE AVENA GRASS	#1 CONT.	6" HT.	2'-3'HT.x2'-3'SPR.	+/-30" O.C.
23	MIS.	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	#1 CONT.	6" HT.	4'-5'HT.x3'-4'SPR.	+/-36" O.C.
58	PEN.	PENNISETUM ALOPECUROID. 'HAMELN'	DWARF FOUNTAIN GRASS	#1 CONT.	12" HT.	1'-2'HT.x1'-2'SPR.	+/-18" O.C.
2	SAC.	SACCHARUM RAVANNAE	PLUME GRASS	#1 CONT.	12" HT.	8'-12'HT.x3'-4'SPR.	+/-48" O.C.
226	=	TOTAL ORNAMENTAL GRASSES					
GROUND COVERS, PERENNIALS, ORNAMENTAL GRASSES, VINES, ETC.							
36	ACH.	ACHILLEA MILLIFOLIUM	COMMON YELLOW YARROW	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
45	CER.	CERASTIUM TOMENTOSUM	SNOW-IN-SUMMER	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
48	GAI.	GAILARDIA X GRANDIFLORA	BLANKET FLOWER	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
62	LEU.	LEUCANTHEMUM X SUPERBUM	SHASTA DAISY	#1 CONT.	6" HT.	2'-3'HT.x1'-2'SPR.	+/-24" O.C.
60	RUD.	RUDBECKIA FULGIDA 'GOLDSTURM'	BLACK-EYED SUSAN	#1 CONT.	12" HT.	2'-3'HT.x1'-2'SPR.	+/-24" O.C.
60	SAL.	SALVIA NEMOROSA 'BLUE QUEEN'	BLUE SALVIA	#1 CONT.	6" HT.	1'-2'HT.x1'-2'SPR.	+/-24" O.C.
5	SE.S.	SEDUM X 'AUTUMN JOY'	AUTUMN JOY STONECROP	#1 CONT.	12" HT.	2'-3'HT.x1'-2'SPR.	+/-18" O.C.
36	SE.D.	SEDUM SPURIUM 'D.B.'	DRACONS BLOOD SEDUM	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
352	=	TOTAL GROUND COVERS, PERENNIALS, ETC.					

NOTES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANT QUANTITIES SHOWN AND NOTED ON THE PLAN WHICH SHALL TAKE PRECEDENCE OVER PLANT QUANTITIES LISTED IN THE PLANT LIST. PLANT SPACING DIMENSIONS ARE GENERAL PLANTING GUIDELINES ONLY, ACTUAL PLANT LOCATIONS SHOWN ON THE PLAN SHALL TAKE PRECEDENCE IN THE EVENT OF CONFLICTING INFORMATION.

LANDSCAPE MATERIALS		
-	COB.	COBBLED AREA - 6" DIA. GRAY COLORED WASHED RIVER ROCK OVER WEED BARRIER FABRIC.
-	R.M.	ROCK MULCH AREA - 3" LAYER OF 1.5" DIA. RIVER ROCK OVER WEED BARRIER FABRIC.
-	SEED1	NATIVE GRASS AREA - NATIVE GRASS SEEDED AREA, NON- IRRIGATED (SEE SPECS).
-	SEED2	NATIVE GRASS AREA - NATIVE GRASS SEEDED AREA, IRRIGATED (SEE SPECS).
-	SOD	SOD AREA - APPROVED BLUEGRASS BLEND (4 VARIETIES), INCL. PREP. & FINE GRADING.
-	ST.E.	STEEL EDGING - 6"X3/16"X08' SIZED GREEN PAINTED STEEL EDGER.
-	W.M.	WOOD MULCH AREA - 3" THICK LAYER OF SHREDDED CEDAR WOOD MULCH.

LAYOUT AND APPROVAL

1) ALL WORK SHALL COMPLY WITH THE TOWN OF ERIE "STANDARDS AND SPECIFICATIONS".

2) ALL TREES SHALL BE PLACED A MINIMUM OF 8' FROM ALL BUILDINGS, WALLS, STRUCTURES, FENCES, ETC. ALL CONIFEROUS TREES SHALL BE PLANTED A MINIMUM OF 10' FROM ALL HARDSCAPES, AND ALL OTHER TREES SHALL BE PLANTED A MINIMUM OF 5' FROM ALL HARDSCAPES.

3) ALL TREES SHALL BE PLANTED A MINIMUM OF TEN (10') FEET AWAY FROM ALL PUBLIC AND PRIVATE UNDERGROUND UTILITIES.

4) THE CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING ALL TREE LOCATIONS PRIOR TO PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT. THE TOWN OF ERIE SHALL APPROVE AREAS IT WILL MAINTAIN, (E.G. ERIE PARKWAY MEDIAN LANDSCAPING).

5) THE LANDSCAPE ARCHITECT SHALL APPROVE THE FINE GRADING OF ALL LAWN, TURF AND PLANTING BED AREAS PRIOR TO INSTALLATION OF SOD, NATIVE GRASS, TEMPORARY IRRIGATION OR PLANTS.

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name			
MLS_Land.dwg			
Job Number			
OREAD SIERRA VISTA			
Prepared For	Designer	Drafter	Checked
HIGHWAY 7 & BONANZA, LLC	MLS	MLS	MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL — LANDSCAPE ARCHITECT — STATE OF COLORADO

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0404
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet L11 of 21

Date SEPTEMBER 14, 2015

ATTACHMENT B

Print Form

TOWN OF ERIE
Community Development Department – Planning Division
645 Holbrook Street – PO Box 750 – Erie, CO 80516
Tel: 303.926.2770 – Fax: 303.926.2706 – Web: www.erieco.gov

LAND USE APPLICATION

Please fill in this form completely. Incomplete applications will not be processed.

STAFF USE ONLY

FILE NAME: Sierra Vista

FILE NO: PP-000317-2015 DATE SUBMITTED: 3/5/15 FEES PAID: $9,920-

PROJECT/BUSINESS NAME: Sierra Vista

PROJECT ADDRESS: Northwest corner of State Highway 7 and Bonanza Drive

PROJECT DESCRIPTION: Single family residential development.

LEGAL DESCRIPTION *(attach legal description if Metes & Bounds)*

Subdivision Name: Sierra Vista

Filing #: Lot #: Block #: Section: 31 Township: 1 North Range: 68 West

OWNER *(attach separate sheets if multiple)*

Name/Company: Highway 7 and Bonanza, LLC
Contact Person: Jeff Handlin
Address: 9033 E. Easter Place, Suite 110
City/State/Zip: Centennial, CO 80112
Phone: 303.604.5448 Fax:
E-mail: jeff.handlin@oreadcapital.com

AUTHORIZED REPRESENTATIVE

Company/Firm: Calibre Engineering, Inc
Contact Person: Todd A. Johnson
Address: 9090 S. Ridgeline Blvd., Suite 105
City/State/Zip: Highlands Ranch, CO 80129
Phone: 303-339-5409 Fax: 303-730-1139
E-mail: taj@calibre.us.com

MINERAL RIGHTS OWNER *(attach separate sheets if multiple)*

Name/Company: None
Address:
City/State/Zip:

MINERAL LEASE HOLDER *(attach separate sheets if multiple)*

Name/Company:
Address:
City/State/Zip:

LAND-USE & SUMMARY INFORMATION

Present Zoning: LR & CC
Proposed Zoning:
Gross Acreage: 60.476

Gross Site Density (du/ac): TBD
Lots/Units Proposed: Maximum 10 DU/AC 198
Gross Floor Area:

SERVICE PROVIDERS

Electric: Xcel Energy
Metro District: TBD
Water *(if other than Town)*: Town of Erie

Gas: Xcel Energy
Fire District: Mountain View Fire Protection District
Sewer *(if other than Town)*: Town of Erie

PAGE TWO MUST BE SIGNED AND NOTARIZED

DEVELOPMENT REVIEW FEES			
ANNEXATION		**SUBDIVISION**	
☐ Major (10+ acres)	$ 4000.00	☐ Sketch Plan	$ 1000.00 + 10.00 per lot
☐ Minor (less than 10 acres)	$ 2000.00	☑ Preliminary Plat	$ 2000.00 + 40.00 per lot
☐ Deannexation	$ 1000.00	☐ Final Plat	$ 2000.00 + 20.00 per lot
COMPREHENSIVE PLAN AMENDMENT		☐ Minor Subdivision Plat	$ 2000.00
☐ Major	$ 3000.00	☐ Minor Amendment Plat	$ 1000.00 + 10.00 per lot
☐ Minor	$ 1200.00	☐ Road Vacation (constructed)	$ 1000.00
ZONING/REZONING		☐ Road Vacation (paper)	$ 100.00
☐ Rezoning	$ 1700.00 + 10.00 per acre	**SITE PLAN**	
☐ PUD Rezoning	$ 1700.00 + 10.00 per acre	☐ Residential	$ 1400.00 + 10.00 per unit
☐ PUD Amendment	$ 1700.00 + 10.00 per acre	☐ Non-Resi. (>10,000 sq. ft.)	$ 2200.00
☐ Major PD Amendment	$ 3700.00 + 10.00 per acre	☐ Non-Resi. (>2,000 sq. ft.)	$ 1000.00
☐ Minor PD Amendment	$ 500.00	☐ Non-Resi. (<2,000 sq. ft.)	$ 200.00
SPECIAL REVIEW USE		☐ Amendment (major)	$ 1100.00
☐ Major	$ 1000.00	☐ Amendment (minor)	$ 350.00
☐ Minor	$ 400.00	**VARIANCE**	$ 600.00
☐ Oil & Gas	$ 1200.00	**SERVICE PLAN**	$ 10,000.00

*All fees **include** both Town of Erie Planning & Engineering review. These fees **do not include** referral agency review fees, outside consultant review fees, or review fees incurred by consultants acting on behalf of staff. See Town of Erie Municipal Code, Title 2-10-5 for all COMMUNITY DEVELOPMENT FEES.*

$9920

The undersigned is fully aware of the request/proposal being made and the actions being initiated on the referenced property. The undersigned understand that the application must be found to be complete by the Town of Erie before the request can officially be accepted and the development review process initiated. The undersigned is aware that the applicant is fully responsible for all reasonable costs associated with the review of the application/request being made to the Town of Erie. Pursuant to Chapter 7 (Section 7.2.B.5) of the Unified Development Code (UDC) of the Town of Erie, applicants shall pay all costs billed by the Town for legal, engineering and planning costs incurred by staff, including consultants acting on behalf of staff, necessary for project review. By this acknowledgement, the undersigned hereby certify that the above information is true and correct.

Owner: _____ Date: 2/3/15

JEFF HANDLIN AS AUTHORIZED SIGNATORY OF HIGHWAY 7 AND BONANZA, LLC

Owner: _____ Date: _____

Applicant: _____ Date: 2-3-15

STATE OF COLORADO)
) ss.
County of Arapahoe)

The foregoing instrument was acknowledged before me this 3rd day of February, 2015, by Jeff Handlin & Todd Johnson.

AMBER BETTENHAUSEN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20124079126
MY COMMISSION EXPIRES 12/11/2016

My commission expires: 12/11/2016.
Witness my hand and official seal.

_____
Notary Public

September 14, 2015

Todd Bjerkaas
Community Development Department
645 Holbrook Street
Erie, CO 80516

Re: Sierra Vista – Preliminary Plat – Written Narrative

Dear Todd,

A. Project Concept and Purpose of Request

The site is bounded on the east by Bonanza Drive, on the north by Rural Residential (RR), on the west by Airport (AP), and on the south by State Highway 7 and the Anthem residential development.

The land is currently vacant with native grasses and insignificant tree species. The Applicant respectively seeks a staff report in support of the preliminary plat application with a decision by the Town Board as soon as practical.

The preliminary plat application subdivides the parcel into single family lots and a commercial lot.

Since the Applicant's first preliminary plat submission, the Applicant has worked continuously with the Town to adjust the site plan in order to accommodate the following issues: (a) Erie Airport's and Federal Aviation Administration's comments; (b) U.S. Federal Aviation Regulations Section 77.25 Civil Airport Imaginary Surfaces requirements; and (c) open space requests and requirements.

The resulting site plan changed the following: (a) moved all development eastward of previously submitted plans; (b) reduced the lot count by 30 lots (from 199 to 169), (c) expanded the open space areas, located adjacent to other Town of Erie open spaces; and (d) relocated the park westward, adjacent to the expanded open space, in order to allow interaction between the park, the open space, and integrated trail system. The Town of Erie Open Space & Trails Advisory Board reviewed the revised site plan and supported the changes.

The revised site plan resulted in a loss of single family detached lots, larger buffer to airport operations in order to adhere to the imaginary surfaces requirements of FAR 77.25, an open space conforming to the requests of the Town and OSTAB and a relocation of the park to the western edge to better engage the newly created larger open space.

Housing Type: Per the Town's Uniform Development Code, Sections 10.2.2.E.2.a and 10.6.7.D.1.b.ii, only one housing type is required if a Development Parcel does not exceed 40 acres, but requires either two housing types, or alternatively, one housing type and one housing variation, if a Development Parcel is between 41 and 80 acres in size. The Applicant is hereby requesting relief from the requirement found in Section 10.6.7.D.1.b.ii to provide either two

housing types, or, alternatively, to provide one housing type and one housing variation for the following reasons:

1. All of Applicant's former and current site plans have only showed Single Family Detached (one housing type) with no housing type variations; this was certainly true for the site plan that received favorable guidance from the Planning Commission and the Board of Trustees during multiple sketch plan hearings. Further, the previous developer's site plan shown during its annexation and zoning process showed only one housing type (apartments).
2. The site plan changes described above reduce the overall residential developable parcel to approximately 40 acres. While the overall project remains larger than 40 acres, the overall project includes commercial and expansive open space parcels, and therefore the developable residential acreage is approximately 40 acres, which meets the spirit of Section 10.6.7.D.
3. The project currently has two lot sizes that will provide for potential building widths ranging from 35 to 45 feet. The Applicant anticipates there will be a minimum of two different series of single family detached homes within Sierra Vista, differing in width, overall square footage and features corresponding to the different lot sizes. This diversity and differentiation will also result in different price points.

A letter outlining the request for Alternative Equivalent Compliance as it relates to housing types and variations, found in UDC Sections 10.2.2.E.2.a and 10.6.7.D.1.b.ii, has been sent to the Town under separate cover.

Proximity of Residents to Pocket Park: Applicant, at the Town's Board of Trustees' request, has agreed to construct a 2-acre expansive pocket park, despite the UDC requiring only approximately a 1/4-acre park. Within a 169-lot community, in order to accommodate a 2-acre park, along with 12+ acres of Open Space (the Sierra Vista Metropolitan District will maintain both the park and open space), there are few locations where such a park would both function from a grading/engineering perspective and allow interaction between the aforementioned open space, trail system, and park. The Applicant's proposed pocket park meets or exceeds all applicable sections of the UDC, save for one requirement, found in Section 10.6.3.B.4.a, which section requires pocket parks to be constructed within 1/4 mile of the residences those pocket parks are intended to serve. The proposed Sierra Vista pocket park is within ¼ mile of all but 22 of the residences (87% of the total residences), and of the 22 residences, 19 residences are outside of the ¼ mile radius by 200 feet, and 3 residences exceed the ¼ mile radius by more than 200 feet. The Applicant is hereby requesting relief from the requirement found in Section 10.6.3.B.4.a for the following reasons:

1. As mentioned above, the expanded Sierra Vista pocket park exceeds the required acreage by a factor of 7-8 times. The UDC provides that for larger parks (e.g. Neighborhood Parks) a larger 'service radius' is acceptable (1/2 mile for Neighborhood Parks vs. ¼ mile for Pocket Parks). Given that this park is larger than typical Pocket Parks, it will likely serve a greater number of Erie residents, and therefore, a minor variation in the ¼-mile proximity requirement appears appropriate.
2. Not only does the proposed Sierra Vista pocket park exceed size requirements in the UDC, it also exceeds the 'Standards and Specifications for Design and Construction of Public Improvements' found in the Town's Parks, Recreation, Open Space, and Trails Master Plan.

The park will provide more features and amenities than most pocket parks within the Town of Erie, and exceeds both the UDC and Parks, Recreation, Open Space, and Trails Master Plan requirements.

The Town has indicated to Applicant that is was unnecessary to submit a separate letter requesting Alternative Equivalent Compliance (pursuant to Section 10.6.1(C)(5) of the UDC) as it relates to the ¼-mile radius requirement in Section 10.6.3.B.4.a. That being said, the Applicant believes it has met the criteria within Section 10.6.1(C)(5) for the following reasons: (a) the "proposed alternative achieves the intent of the subject design standard to the same or better degree than the subject standard" by virtue of the expanded size and scope/features of the proposed park and the close proximity of those few residents outside of the ¼-mile radius; (b) the "proposed alternative substantially achieves the goals and policies of the Town's Comprehensive Master Plan to the same or better degree than the subject standard" because all residents will be within 1,520 feet of an expansive park (compared to being within 1,320 feet, or ¼ mile, of a smaller park with fewer features and less recreational utility), thereby ensuring the Town's goal and policy of resident access to parks and open space is still substantially achieved; and lastly, (c) "the proposed alternative results in benefits to the community that are equivalent to or better than compliance with the subject design standard" because the location of the proposed Sierra Vista pocket park allows the park to interact and connect with the expansive adjacent open space and trail system, whereas strictly maintaining the ¼-mile radius would result in the park being located elsewhere, in a location non-contiguous to the open space and to the main body of the trail system.

B. Land Area

The total land area to be subdivided is 60.48 acres. The residential portion is 26.89 acres. The open space area is 13.92 acres. The proposed right-of-way is 10.38 acres. The commercial area is 6.00 acres (5.37 acres net of Right-of-Way). The site will have one park consisting of roughly 2.13 acres.

C. Lot Summary

The current plan has 106 – 50' wide lots and 63 – 55' wide lots, totaling 169 lots. The residential density is 2.79 lots/acre. There will be a disclosure note on the Final Plat regarding the 9 lots nearest to the possible future commercial access along Highway No. 7, disclosing the possible future presence of a nearby commercial access road. Further, there will be a similar disclosure included in the conveyance deed for those 9 lots.

D. Commercial Area

The commercial area is zoned for 6.00 acres of which 5.37 acres is developable and 0.63 acres is right of way. The floor area will be determined at the time of the final site plan.

E. Open Space

Public and private open space will be provided per the Towns criteria and is 13.92 acres.

F. Phasing

Site specific phasing will be determined during the platting process.

G. Existing Infrastructure

The site will have water supplied from an existing 12-inch waterline within Bonanza Drive and an existing 12-inch waterline from the residential property to the north. The existing 14-inch asbestos concrete pipe along the north property line will be replaced with a new line per the Town's master plan and the site's requirements. The existing 14-inch will be abandoned in place and appropriate water looping will be provided through the local streets within the site.

The sanitary sewer from this filing will connect into an 8-inch line proposed in the South Coal Creek Sanitary Sewer capital improvement project, currently designed by the Town. The Applicant understands from the Town Staff that the Town will authorize bidding the capital improvement project on the same day of a preliminary plat approval, and thereafter, the Town will authorize awarding the contract for the capital improvement project on the same day of a final plat approval. The Applicant is unclear whether these activities will be manifested by a Town Resolution or otherwise. Clarification on these logistics would be helpful. At this time there are no other considerations for sanitary sewer. The proposed extension has been designed to accept flows from this development. There will not be any improvements made to the existing sanitary sewer infrastructure. The Owner will contribute reimbursements for the sewer capital improvement project per the annexation agreement and/or as defined within the project development agreement. Dry utility companies such as Comcast, Century Link and Public Service Company have agreed to provide service to this development. The major transmission lines along Highway 7 will remain.

The site is within the boundaries of Weld County School District. Fire protection will be provided by Mountain View Fire Rescue. Dry utility services will be provided by Xcel Energy, Comcast and CenturyLink.

The access points for the residential and commercial portions of the development will be from Bonanza Drive. The commercial development may also have an access point from State Highway 7 in the future, concurrent with the development of the commercial area. We will work with the Town of Erie and Colorado Department of Transportation (CDOT) when locating the access points for the commercial area. An additional lane within Bonanza Drive at State Highway 7 will be added when the commercial site develops.

H. Ownership/Maintenance of Open Space

The tract of land designated as Tract A is dedicated for open space and will be owned and maintained by the Metro District. The tracts of land labeled as Tracts B, C, F & H are dedicated for open space and will be owned and maintained by the Sierra Vista Metropolitan District (Applicant has submitted an application for Service Plan approval under separate cover). Amenities in the private park will be owned and maintained by the District as well. There are no public parks projected within this project.

The construction of the park within Tract B fulfills any fees in lieu of park land dedications within the development. During sketch plan hearings, the Town's Board of Trustees requested the Applicant build a larger pocket park than the Code required (~2.0-acre Park requested vs. 0.23-acre Park required by Section 10.6.3 of the Code). In response, the Applicant worked with the Town to arrive at a mutually acceptable arrangement: (a) the Applicant would construct a

larger park, and the Sierra Vista Metropolitan District would own and manage the larger park; and (b) in return, the Town would not charge any fees in-lieu for Neighborhood Parks or Community Parks. The Board of Trustees agreed that the arrangement was acceptable, and instructed the Applicant to proceed.

This arrangement is consistent with the Town's Uniform Development Code, Section 10.6.3. Section 10.6.3.B.1 provides that although Section 10.6.3 is intended to "provide lands or in-lieu fees for park demand generated by new residential subdivisions", "where no suitable land is available based on Section 10.6.3.B.4 below, fees in lieu of land or the equivalent monetary value may be substituted at the Town's discretion." Section 10.6.3.B.4, in turn, provides that Neighborhood Parks must be a minimum of 7 acres, and that Community Parks must be a minimum of 20 acres; however, Sierra Vista would be required to dedicate only (or pay the equivalent fee in lieu for) 1.46 acres for its Neighborhood Park and 2.43 acres for its Community Park. Since the required dedications are less than the Code minimums for Neighborhood Parks and Community Parks, either fees in-lieu or 'equivalent monetary value' would be the only dedication choices under the Code for the collective 3.89 acres of Neighborhood Park (1.46-acre) and Community Park (2.43-acre) dedications. The Applicant's costs to construct the incremental portion of the larger Sierra Vista park beyond Code requirements (currently estimated at approximately $400,000) far exceeds the monetary value of the fees in-lieu Applicant would otherwise be required to pay for its collective Neighborhood Park and Community Park dedications (currently estimated at less than $200,000). As a result, Applicant is requesting, concurrently with the preliminary plat hearing, the prior arrangement be approved via Town Resolution utilizing language similar to the following: the Town of Erie and Developer acknowledge and agree, pursuant to Section 10.6.3.B of the Town of Erie Unified Development Code (UDC), that the Developer will not be required to pay fees in lieu of park land dedications, as equivalent monetary value was substituted in the form of construction of the Sierra Vista pocket park, which is substantially larger than the UDC requires.

I. Covenants

This development will adopt the covenants as described in the Development Agreement.

Enclosed with this letter are copies of the Preliminary Plat and development reports as required.

Please accept this request on behalf of Highway 7 and Bonanza, LLC and we look forward to working with the Town of Erie's staff on this project.

Sincerely,
CALIBRE ENGINEERING, INC.

Todd A. Johnson, P.E.
Vice President
Director of Professional Services

Land Title
GUARANTEE COMPANY
Since 1967

Customer Distribution

Our Order Number: ABC25121785.1-2

Date: 03-20-2015

Property Address: VACANT LAND WELD ERIE

For Closing Assistance
Tom Blake
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6237 (phone)
303-393-4959 (fax)
tblake@ltgc.com

Closer's Assistant
ALEX GRISANTI
3033 E 1ST AVE #600
DENVER, CO 80206
303-331-6213 (phone)
303-393-4725 (fax)
agrisanti@ltgc.com

For Title Assistance
SCOTT BENNETTS
5975 GREENWOOD PLAZA BLVD
GREENWOOD VILLAGE, CO 80111
303-850-4175 (phone)
303-393-4842 (fax)
sbennetts@ltgc.com

Buyer/Borrower
OREAD CAPTIAL & DEVELOPMENT, LLC
9033 E EASTER PL #110
ENGLEWOOD, CO 80112
813-787-9000 (home)
303-604-5448 (work)
jeff.handlin@oreadcapital.com
Delivered via: Electronic Mail

CALIBRE ENGINEERING
Attention: TODD JOHNSON
tjohnson@calibre-engineering.com
Delivered via: Electronic Mail

Buyer/Borrower
OREAD CAPTIAL & DEVELOPMENT
Attention: CARL NELSON
9033 E EASTER PL #110
ENGLEWOOD, CO 80112
303-604-5448 (work)
carl.nelson@oreadcapital.com
Delivered via: Electronic Mail

Land Title
GUARANTEE COMPANY
Since 1967

Wire Instructions

Bank:	FIRSTBANK OF COLORADO
Address:	10403 W COLFAX AVENUE LAKEWOOD, CO 80215
Phone:	303-237-5000
Credit:	LAND TITLE GUARANTEE COMPANY
ABA No:	107005047
Account:	2160521825
Attention:	Tom Blake
Reference	ABC25121785.1-2

*If any of the above information is missing, the wire will be returned to sender.

*If you have questions or concerns, please contact your closer.

*Please remit funds in the form of a cashiers check or wire

*****NOTE: Land Title can not accept buyer funds in the form of personal checks, and buyer funds delivered using ACH payment systems may result in the delay or cancellation of your closing.**

Land Title Guarantee Company

Estimate of Title Fees

Order Number: ABC25121785.1-2 Date: 03-20-2015

Property Address: VACANT LAND WELD ERIE

Buyer/Borrower: OREAD CAPITAL AND DEVELOPMENT, LLC, A COLORADO LIMITED LIABILITY COMPANY

Seller: KAREN K. KRAMER AND PRATT PROPERTIES, LP, A COLORADO LIMITED PARTNERSHIP AND BC LAND, LLC, A COLORADO LIMITED LIABILITY COMPANY

Visit Land Title's website at www.ltgc.com for directions to any of our offices.

Estimate of Title Insurance Fees	
ALTA Owners Policy 06-17-06	$0.00
If Land Title Guarantee Company will be closing this transaction, the fees listed above will be collected at closing.	
Total	$0.00
THANK YOU FOR YOUR ORDER!	

ALTA COMMITMENT
Old Republic National Title Insurance Company
Schedule A

Order Number: ABC25121785.1-2

Customer Ref-Loan No.:

Property Address:

VACANT LAND WELD ERIE

1. Effective Date:

03-13-2015 at 05:00PM

2. Policy to be Issued and Proposed Insured:

"ALTA" Owner's Policy 06-17-06 $0.00
Proposed Insured:
OREAD CAPITAL AND DEVELOPMENT, LLC, A
COLORADO LIMITED LIABILITY COMPANY

3. The estate or interest in the land described or referred to in this Commitment and covered herein is:

A FEE SIMPLE

4. Title to the estate or interest covered herein is at the effective date hereof vested in:

KAREN K. KRAMER AND PRATT PROPERTIES, LP, A COLORADO LIMITED PARTNERSHIP AND BC LAND, LLC, A COLORADO LIMITED LIABILITY COMPANY

5. The Land referred to in this Commitment is described as follows:

A PART OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SE CORNER OF SAID SE 1/4 OF SECTION 31; THENCE N 00° 15' 14" E ALONG THE EAST LINE OF SAID SE 1/4, A DISTANCE OF 75.31 FEET; THENCE N 89° 44' 46" W, A DISTANCE OF 109.21 FEET TO THE WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1631 AT RECEPTION NO. 2572958, SAID POINT ALSO BEING THE NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 2170911 AND THE POINT OF BEGINNING;

THENCE ALONG SAID NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7, ALONG A LINE 75.00 FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SE 1/4 THE FOLLOWING 2 COURSES; 1) THENCE N 89° 34' 53" W, A DISTANCE OF 1896.40 FEET; 2) THENCE N 89° 32' 45" W, A DISTANCE OF 13.43 FEET TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 2225423; THENCE ALONG SAID EASTERLY LINE THE FOLLOWING 2 COURSES:

1) THENCE N 16° 31' 20" W, A DISTANCE OF 1176.48 FEET; 2) THENCE N 12° 14' 16" W, A DISTANCE OF 123.38 FEET TO THE NORTH LINE OF SAID S 1/2 OF THE SE 1/4 OF SECTION 31; THENCE S 89° 35' 08" E ALONG SAID NORTH LINE, A DISTANCE OF 2330.26 FEET TO SAID WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS DESCRIBED IN BOOK 1631 AT RECEPTION NO. 2572958; THENCE ALONG SAID WESTERLY RIGHT OF WAY THE FOLLOWING 2 COURSES:

1) THENCE S 04° 46' 24" W, A DISTANCE OF 564.23 FEET; 2) THENCE S 01° 04' 07" W, A DISTANCE OF 683.43 FEET TO THE POINT OF BEGINNING.

ALTA COMMITMENT
Old Republic National Title Insurance Company
Schedule A

Order Number: ABC25121785.1-2

Customer Ref-Loan No.:

Copyright 2006-2015 American Land Title Association. All Rights Reserved

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.

ALTA COMMITMENT
Old Republic National Title Insurance Company
Schedule B-1

(Requirements)

Order Number: ABC25121785.1-2

The following are the requirements to be complied with:

Payment to or for the account of the grantors or mortgagors of the full consideration for the estate or interest to be insured.

Proper instrument(s) creating the estate or interest to be insured must be executed and duly filed for record, to-wit:

1. RELEASE OF DEED OF TRUST DATED AUGUST 03, 2012 FROM HWY 7 EQUITIES, LLC TO THE PUBLIC TRUSTEE OF WELD COUNTY FOR THE USE OF PEAK VENTURES LIMITED PARTNERSHIP TO SECURE THE SUM OF $670,000.00 RECORDED AUGUST 07, 2012, UNDER RECEPTION NO. 3864329.

2. DULY EXECUTED AND ACKNOWLEDGED STATEMENT OF AUTHORITY SETTING FORTH THE NAME OF OREAD CAPITAL AND DEVELOPMENT, LLC, A COLORADO LIMITED LIABILITY COMPANY AS A LLC. THE STATEMENT OF AUTHORITY MUST STATE UNDER WHICH LAWS THE ENTITY WAS CREATED, THE MAILING ADDRESS OF THE ENTITY, AND THE NAME AND POSITION OF THE PERSON(S) AUTHORIZED TO EXECUTE INSTRUMENTS CONVEYING, ENCUMBERING, OR OTHERWISE AFFECTING TITLE TO REAL PROPERTY ON BEHALF OF THE ENTITY AND OTHERWISE COMPLYING WITH THE PROVISIONS OF SECTION 38-30-172, CRS.

   NOTE: THE STATEMENT OF AUTHORITY MUST BE RECORDED WITH THE CLERK AND RECORDER.

3. A FULL COPY OF THE FULLY EXECUTED LIMITED PARTNERSHIP AGREEMENT AND ANY AND ALL AMENDMENTS THERETO FOR PRATT PROPERTIES LP MUST BE FURNISHED TO LAND TITLE GUARANTEE COMPANY. SAID AGREEMENT MUST DISCLOSE WHO MAY CONVEY, ACQUIRE, ENCUMBER, LEASE OR OTHERWISE DEAL WITH INTERESTS IN REAL PROPERTY FOR SAID ENTITY.

   NOTE: ADDITIONAL REQUIREMENTS MAY BE NECESSARY UPON REVIEW OF THIS DOCUMENTATION.

4. WRITTEN CONFIRMATION THAT THE INFORMATION CONTAINED IN STATEMENT OF AUTHORITY FOR PRATT PROPERTIES LP RECORDED MARCH 16, 2007 AT RECEPTION NO. 3462401 IS CURRENT.

   NOTE: SAID INSTRUMENT DISCLOSES SUSAN M PRATT AS THE MANAGING PARTNER AUTHORIZED TO EXECUTE INSTRUMENTS CONVEYING, ENCUMBERING OR OTHERWISE AFFECTING TITLE TO REAL PROPERTY ON BEHALF OF SAID ENTITY. IF THIS INFORMATION IS NOT ACCURATE, A CURRENT STATEMENT OF AUTHORITY MUST BE RECORDED.

5. A FULL COPY OF THE FULLY EXECUTED OPERATING AGREEMENT AND ANY AND ALL AMENDMENTS THERETO FOR BC LAND, LLC, A COLORADO LIMITED LIABILITY COMPANY MUST BE FURNISHED TO LAND TITLE GUARANTEE COMPANY. SAID AGREEMENT MUST DISCLOSE WHO MAY CONVEY, ACQUIRE, ENCUMBER, LEASE OR OTHERWISE DEAL WITH INTERESTS IN REAL PROPERTY FOR SAID ENTITY.

   NOTE: ADDITIONAL REQUIREMENTS MAY BE NECESSARY UPON REVIEW OF THIS DOCUMENTATION.

6. DULY EXECUTED AND ACKNOWLEDGED STATEMENT OF AUTHORITY SETTING FORTH THE NAME OF BC LAND, LLC AS A COLORADO LIMITED LIABILITY COMPANY. THE STATEMENT OF AUTHORITY MUST STATE UNDER WHICH LAWS THE ENTITY WAS CREATED, THE MAILING ADDRESS OF THE ENTITY, AND THE NAME AND POSITION OF THE PERSON(S) AUTHORIZED TO EXECUTE INSTRUMENTS CONVEYING, ENCUMBERING, OR OTHERWISE AFFECTING TITLE TO REAL PROPERTY ON BEHALF

ALTA COMMITMENT
Old Republic National Title Insurance Company
Schedule B-1

(Requirements)

Order Number: ABC25121785.1-2

The following are the requirements to be complied with:

OF THE ENTITY AND OTHERWISE COMPLYING WITH THE PROVISIONS OF SECTION 38-30-172, CRS.

NOTE: THE STATEMENT OF AUTHORITY MUST BE RECORDED WITH THE CLERK AND RECORDER.

7. WARRANTY DEED FROM KAREN K. KRAMER AND PRATT PROPERTIES, LP, A COLORADO LIMITED PARTNERSHIP AND BC LAND, LLC, A COLORADO LIMITED LIABILITY COMPANY TO OREAD CAPITAL AND DEVELOPMENT, LLC, A COLORADO LIMITED LIABILITY COMPANY CONVEYING SUBJECT PROPERTY.

Old Republic National Title Insurance Company
Schedule B-2

(Exceptions)

Order Number: ABC25121785.1-2

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

1. **Any facts, rights, interests, or claims thereof, not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.**

2. **Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.**

3. **Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.**

4. **Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the Public Records.**

5. **Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date of the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.**

6. **(a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.**

7. **(a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water.**

8. EXISTING LEASES OR TENANCIES.

9. RESERVATIONS BY THE UNION PACIFIC RAILROAD COMPANY COMPANY OF:
(1) ALL OIL, COAL AND OTHER MINERALS UNDERLYING SUBJECT PROPERTY,
(2) THE EXCLUSIVE RIGHT TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, AND
(3) THE RIGHT OF INGRESS AND EGRESS AND REGRESS TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, (4) THE RIGHT TO MAINTAIN AND OPERATE ITS RAILROAD IN ITS PRESENT FORM OF CONSTRUCTION, AND TO MAKE ANY CHANGE IN THE FORM OF CONSTRUCTION OR METHOD OF OPERATION OF SAID RAILROAD, ALL AS CONTAINED IN DEED RECORDED DECEMBER 31, 1908, IN BOOK 233 AT PAGE 187.

10. OIL AND GAS LEASE RECORDED NOVEMBER 30, 1972 UNDER RECEPTION NO. 1602713 IN BOOK 681 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN.

11. TERMS, CONDITIONS AND PROVISIONS OF RECIPROCAL GRANT OF EASEMENT AND AGREEMENT RECORDED NOVEMBER 21, 1984 AT RECEPTION NO. 1989356 IN BOOK 1050 AND RECORDED AUGUST 30, 1990 AT RECEPTION NO. 2225425 IN BOOK 1274.

12. TERMS, CONDITIONS AND PROVISIONS OF NOTICE RECORDED JANUARY 24, 1991 AT RECEPTION NO. 2239296.

13. TERMS, CONDITIONS AND PROVISIONS OF GRANT OF EASEMENT & AGREEMENT RECORDED JUNE 25, 1991 AT RECEPTION NO. 2254297 AND RE-RECORDED NOVEMBER 8, 1991 AT RECEPTION

Old Republic National Title Insurance Company
Schedule B-2

(Exceptions)

Order Number: ABC25121785.1-2

The policy or policies to be issued will contain exceptions to the following unless the same are disposed of to the satisfaction of the Company:

NO. 2268776.

14. TERMS, CONDITIONS AND PROVISIONS OF REQUEST FOR NOTIFICATION RECORDED APRIL 15, 2002 AT RECEPTION NO. 2942784.

15. TERMS, CONDITIONS AND PROVISIONS OF REQUEST FOR NOTIFICATION RECORDED MAY 28, 2002 AT RECEPTION NO. 2954454.

16. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF AGREEMENT RECORDED MARCH 19, 2007 AT RECEPTION NO. 3462781.

17. TERMS, CONDITIONS AND PROVISIONS OF REQUEST FOR NOTIFICATION RECORDED DECEMBER 21, 2007 AT RECEPTION NO. 3525268.

18. TERMS, CONDITIONS AND PROVISIONS OF NOTICE OF RIGHT TO USE SURFACE OF LAND RECORDED APRIL 28, 2010 AT RECEPTION NO. 3689545.

19. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 21, 2012 AT RECEPTION NO. 3867540.

20. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 21, 2012 AT RECEPTION NO. 3867541.

21. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION AGREEMENT RECORDED AUGUST 21, 2012 AT RECEPTION NO. 3867544.

JOINT NOTICE OF PRIVACY POLICY OF

LAND TITLE GUARANTEE COMPANY,
LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION,
LAND TITLE INSURANCE CORPORATION AND
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

This Statement is provided to you as a customer of Land Title Guarantee Company and Meridian Land Title, LLC, as agents for Land Title Insurance Corporation and Old Republic National Title Insurance Company.

We want you to know that we recognize and respect your privacy expectations and the requirements of federal and state privacy laws. Information security is one of our highest priorities. We recognize that maintaining your trust and confidence is the bedrock of our business. We maintain and regularly review internal and external safeguards against unauthorized access to non-public personal information ("Personal Information").

In the course of our business, we may collect Personal Information about you from:

- applications or other forms we receive from you, including communications sent through TMX, our web-based transaction management system;
- your transactions with, or from the services being performed by, us, our affiliates, or others;
- a consumer reporting agency, if such information is provided to us in connection with your transaction;

  and
- the public records maintained by governmental entities that we either obtain directly from those entities, or from our affiliates and non-affiliates.

Our policies regarding the protection of the confidentiality and security of your Personal Information are as follows:

- We restrict access to all Personal Information about you to those employees who need to know that information in order to provide products and services to you.
- We maintain physical, electronic and procedural safeguards that comply with federal standards to protect your Personal Information from unauthorized access or intrusion.
- Employees who violate our strict policies and procedures regarding privacy are subject to disciplinary action.
- We regularly access security standards and procedures to protect against unauthorized access to Personal Information.

WE DO NOT DISCLOSE ANY PERSONAL INFORMATION ABOUT YOU WITH ANYONE FOR ANY PURPOSE THAT IS NOT PERMITTED BY LAW.

Consistent with applicable privacy laws, there are some situations in which Personal Information may be disclosed. We may disclose your Personal Information when you direct or give us permission; when we are required by law to do so, for example, if we are served a subpoena; or when we suspect fraudulent or criminal activities. We also may disclose your Personal Information when otherwise permitted by applicable privacy laws such as, for example, when disclosure is needed to enforce our rights arising out of any agreement, transaction or relationship with you.

Our policy regarding dispute resolution is as follows. Any controversy or claim arising out of or relating to our privacy policy, or the breach thereof, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

LAND TITLE GUARANTEE COMPANY

LAND TITLE GUARANTEE COMPANY - GRAND JUNCTION

DISCLOSURE STATEMENTS

Note: Pursuant to CRS 10-11-122, notice is hereby given that:

A) The Subject real property may be located in a special taxing district.
B) A certificate of taxes due listing each taxing jurisdiction will be obtained from the county treasurer of the county in which the real property is located or that county treasurer's authorized agent unless the proposed insured provides written instructions to the contrary. (for an Owner's Policy of Title Insurance pertaining to a sale of residential real property)
C) The information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder, or the County Assessor.

Note: Effective September 1, 1997, CRS 30-10-406 requires that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right and bottom margin of at least one half of an inch. The clerk and recorder may refuse to record or file any document that does not conform, except that, the requirement for the top margin shall not apply to documents using forms on which space is provided for recording or filing information at the top margin of the document.

Note: Colorado Division of Insurance Regulations 3-5-1, Paragraph C of Article VII requires that "Every title entity shall be responsible for all matters which appear of record prior to the time of recording whenever the title entity conducts the closing and is responsible for recording or filing of legal documents resulting from the transaction which was closed". Provided that Land Title Guarantee Company conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception number 5 will not appear on the Owner's Title Policy and the Lenders Policy when issued.

Note: Affirmative mechanic's lien protection for the Owner may be available (typically by deletion of Exception no. 4 of Schedule B-2 of the Commitment from the Owner's Policy to be issued) upon compliance with the following conditions:

A) The land described in Schedule A of this commitment must be a single family residence which includes a condominium or townhouse unit.
B) No labor or materials have been furnished by mechanics or material-men for purposes of construction on the land described in Schedule A of this Commitment within the past 6 months.
C) The Company must receive an appropriate affidavit indemnifying the Company against un-filed mechanic's and material-men's liens.
D) The Company must receive payment of the appropriate premium.
E) If there has been construction, improvements or major repairs undertaken on the property to be purchased within six months prior to the Date of the Commitment, the requirements to obtain coverage for unrecorded liens will include: disclosure of certain construction information; financial information as to the seller, the builder and or the contractor; payment of the appropriate premium fully executed Indemnity Agreements satisfactory to the company, and, any additional requirements as may be necessary after an examination of the aforesaid information by the Company.

No coverage will be given under any circumstances for labor or material for which the insured has contracted for or agreed to pay.

Note: Pursuant to CRS 10-11-123, notice is hereby given:

This notice applies to owner's policy commitments disclosing that a mineral estate has been severed from the surface estate, in Schedule B-2.

A) That there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and
B) That such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Pursuant to CRS 10-1-128(6)(a), It is unlawful to knowingly provide false, incomplete, or misleading facts or information to an insurance company for the purpose of defrauding or attempting to defraud the company. Penalties may include imprisonment, fines, denial of insurance, and civil damages. Any insurance company or agent of an insurance company who knowingly provides false, incomplete, or misleading facts or information to a policyholder or claimant for the purpose of defrauding or attempting to defraud the policyholder or claimant with regard to a settlement or award payable from insurance proceeds shall be reported to the Colorado Division of Insurance within the Department of Regulatory Agencies.

ALTA Commitment - 2006 Rev.

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, a Minnesota corporation, (Company) for a valuable consideration, commits to issue its policy or policies of title insurance, as identified in Schedule A, in favor of the Proposed Insured named in Schedule A, as owner or mortgagee of the estate or interest in the land described or referred to in Schedule A, upon payment of the premiums and charges and compliance with the requirements; all subject to the provisions of Schedule A and B and to the Conditions of this Commitment.

This Commitment shall be effective only when the identity of the Proposed Insured and the amount of the policy or policies committed for have been inserted in Schedule A by the Company. All liability and obligation under this commitment shall cease and terminate six months after the Effective Date or when the policy or policies committed for shall issue, whichever first occurs, provided that the failure to issue such policy or policies is not the fault of the Company.

CONDITIONS AND STIPULATIONS

1. The term "mortgage", when used herein, shall include deed of trust, trust deed, or other security instrument.
2. If the proposed Insured has or acquires actual knowledge of any defect, lien, encumbrance, adverse claim or other matter affecting the estate or interest or mortgage thereon covered by this Commitment other than those shown in Schedule B hereof, and shall fail to disclose such knowledge to Company in writing, the Company shall be relieved from liability for any loss or damage resulting from any act of reliance hereon to the extent the Company is prejudiced by failure to so disclose such knowledge. If the proposed Insured shall disclose such knowledge to the Company, or if the Company otherwise acquires actual knowledge of any such defect, lien, encumbrance, adverse claim or other matter, the Company at its option may amend Schedule B of this Commitment accordingly, but such amendment shall not relieve the Company from liability previously incurred pursuant to paragraph 3 of these Conditions and Stipulations.
3. Liability of the Company under this Commitment shall be only to the named proposed Insured and such parties included under the definition of Insured in the form of policy or policies committed for and only for actual loss incurred in reliance hereon in undertaking in good faith (a) to comply with the requirements hereof or (b) to eliminate exceptions shown in Schedule B, or (c) to acquire or create the estate or interest or mortgage thereon covered by this Commitment. In no event shall such liability exceed the amount stated in Schedule A for the policy or policies committed for and such liability is subject to the insuring provisions and the Conditions and Stipulations and the Exclusions from Coverage of the form of policy or policies committed for in favor of the proposed Insured which are hereby incorporated by reference and are made a part of this Commitment except as expressly modified herein.
4. This commitment is a contract to issue one or more title insurance policies and is not an abstract of title or a report of the condition of title. Any action or actions or rights of action that the proposed Insured may have or may bring against the Company arising out of the status of the title to the estate or interest or the status of the mortgage thereon covered by this Commitment must be based on and are subject to the provisions of this Commitment.
5. The policy to be issued contains an arbitration clause. All arbitrable matters when the Amount of Insurance is $2,000,000 or less shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. You may review a copy of the arbitration rules at www.alta.org.

STANDARD EXCEPTIONS

In addition to the matters contained in the Conditions and Stipulations and Exclusions from Coverage above referred to, this Commitment is also subject to the following:

1. Rights or claims of parties in possession not shown by the Public Records.
2. Easements, or claims of easements, not shown by the Public Records.
3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts which a correct survey or inspection of the Land would disclose and which are not shown by the Public Records.
4. Any lien, or right to a lien, for services, labor or material theretofore or hereafter furnished, imposed by law and not shown by the Public Records.
5. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the Public Records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.

IN WITNESS WHEREOF, Old Republic National Title Insurance Company has caused its corporate name and seal to be affixed by its duly authorized officers on the date shown in Schedule A to be valid when countersigned by a validating officer or other authorized signatory.

Issued by:
Land Title Guarantee Company
3033 East First Avenue
Suite 600
Denver, Colorado 80206
303-321-1880

John E. Freyer
President

Authorized Officer or Agent

OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

Old Republic National Title Insurance Company
a Stock Company
400 Second Avenue South
Minneapolis, Minnesota 55401
(612)371-1111

Mark Bilbrey
President

Rande Yeager
Secretary

AMERICAN LAND TITLE ASSOCIATION

3979116 11/20/2013 10:11 AM
Total Pages: 2 Rec Fee: $16.00
Steve Moreno - Clerk and Recorder, Weld County, CO

CONFIRMATION DEED

(CRS §38-38-502)

Public Trustee's Foreclosure Sale No. 13-0088

THIS DEED is made November 19, 2013 between Susie Velasquez as the Public Trustee in and for the County of Weld, State of Colorado, grantor and Karen K. Kramer and Pratt Properties, LP, a Colorado limited partnership, grantee, the holder of the certificate of purchase whose legal address is P.O. Box 1937, Longmont, CO 80502.

WHEREAS, the Grantor(s) described below did convey to the public trustee, in trust, the property hereinafter described to secure the payment of the indebtedness provided in said deed of trust:

Original Grantor(s)	Hwy 7 Equities, LLC, a Colorado limited liability company and BMC Holdings, LLC, a Colorado limited liability company
Original Beneficiary(ies)	Karen K. Kramer and Pratt Properties, LP, a Colorado limited partnership
Current Holder of Evidence of Debt	Karen K. Kramer and Pratt Properties, LP, a Colorado limited partnership
Date of Deed of Trust	August 03, 2012
County of Recording	Weld
Recording Date of Deed of Trust	August 06, 2012
Recording Information (Reception Number)	3864050

WHEREAS, a violation was made in certain of the terms and covenants of said deed of trust as shown by the notice of election and demand for sale filed with the Public Trustee; the said property was advertised for public sale at the place and in the manner provided by law and by said deed of trust; combined notice of sale and right to cure and redeem was given as required by law; said property was sold according to said combined notice; and a certificate of purchase thereof was made and recorded in the office of said county Clerk and Recorder; and

WHEREAS, all periods of redemption have expired.

NOW, THEREFORE, the Public Trustee, pursuant to the power and authority vested by law and by the said deed of trust, confirms the foreclosure sale and sells and conveys to grantee the following described property located in the County of Weld, State of Colorado, to wit:

As described on Exhibit "A" attached hereto

Also known by street and number as:

THE PROPERTY DESCRIBED HEREIN IS ALL OF THE PROPERTY CURRENTLY ENCUMBERED BY THE LIEN OF THE DEED OF TRUST.

To have and to hold the same, with all appurtenances, forever.

Executed on: November 19, 2013

Susie Velasquez, Public Trustee in and for the County of Weld, State of Colorado

Jeanette Haro

By: Jeanette Haro, Deputy for Public Trustee

Susie Velasquez
Public Trustee

When Recorded Return to: Weld County Public Trustee

© Public Trustees' Association of Colorado Revised 6/2011

EXHIBIT A

A part of the South Half of the Southeast Quarter of Section 31, Township 1 North, Range 68 West of the Sixth Principal Meridian, County of Weld, State of Colorado, more particularly described as follows:

Commencing at the Southeast Corner of said Southeast Quarter of Section 31;

Thence North 00°15'14" East along the East line of said Southeast Quarter, a distance of 75.31 feet;

Thence North 89°44'46" West, a distance of 109.21 feet to the Westerly Right-of-Way of County Road No. 3 as recorded in the office of the Weld County Clerk and Recorder in Book 1631 at Reception No. 2572958, said point also being on the Northerly Right-of-Way of State Highway No. 7 as described in the office of the Weld County Clerk and Recorder in Book 1224 at Reception No. 02170911 and the Point of Beginning:

Thence along said Northerly Right-of-Way of State Highway No. 7, along a line seventy-five (75.00) feet Northerly distant and parallel, when measured at right angles, with the South line of said Southeast Quarter the following two (2) courses;

1. Thence North 89°34'53" West, a distance of 1896.40 feet;
2. Thence North 89°32'45" West, a distance of 13.43 feet to the Easterly line of that parcel of land as recorded in the office of the Weld County Clerk and Recorder in Book 1274 at Reception No. 02225423;

Thence along said Easterly line the following two (2) courses:

1. Thence North 16°31'20" West, a distance of 1176.48 feet;
2. Thence North 12°14'16" West, a distance of 123.38 feet to the North line of said South half of the Southeast Quarter of Section 31;

Thence South 89°35'08" East along said North line, a distance of 2330.26 feet to said Westerly Right-of-Way of County Road No. 3 as described in Book 1631 at Reception No. 2572958;

Thence along said Westerly Right-of-Way the following two (2) courses:

1. Thence South 04°46'24" West, a distance of 564.23 feet;
2. Thence South 01°04'07" West, a distance of 683.43 feet to the Point of Beginning,

County of Weld, State of Colorado,

Except:

A part of the South half of the Southeast Quarter of Section 31, Township 1 North, Range 68 West of the Sixth Principal Meridian, County of Weld, State of Colorado, more particularly described as follows:

Commencing at the Southeast corner of said Southeast Quarter of Section 31, and considering the West line of the South half of said Southeast Quarter of Section 31 to bear North 00°45'47" East, with all bearings hereon relative thereto;

Thence North 83°36'10" East a distance of 628.67 feet to a point on the Northerly Right-of-Way of State Highway No. 7 as described in the office of the Weld County Clerk and Recorder in Book 1224 at Reception No. 02170911 and the Point of Beginning;

Thence North 16°31'20" West a distance of 540.23 feet;
Thence South 89°34'53" East a distance of 837.42 feet;
Thence South 00°25'07" West a distance of 516.80 feet to a point on said Northerly Right-of-Way;
Thence North 89°34'53" West along said Northerly Right-of-Way a distance of 666.57 feet;
Thence North 89°32'45" West a distance of 13.43 feet to the Point of Beginning;

Said parcel contains an area of 392,100 square feet, or 9.001 acres, more or less.

3864329 08/07/2012 09:59 AM
Total Pages: 11 Rec Fee: $61.00
Steve Moreno - Clerk and Recorder, Weld County, CO

DEED OF TRUST

THIS DEED OF TRUST is made August 3, 2012, between Hwy 7 Equities, LLC, a Colorado limited liability company, whose address is Attn: Blake Carlson, 10261 Arapahoe Rd., Lafayette, CO 80026 (Borrower); and the Public Trustee of the County in which the Property (see § 1) is situated (Trustee); for the benefit of PEAK VENTURES LIMITED PARTNERSHIP (Lender), whose address is 3225 MCLEOD DRIVE, SUITE 110, LAS VEGAS, NEVADA 89121.

Borrower and Lender covenant and agree as follows:

1. Property in Trust. Borrower, in consideration of the indebtedness herein recited and the trust herein created, hereby grants and conveys to Trustee in trust, with power of sale, the following legally described property located in the County of Weld, State of Colorado:

As described on Exhibit "A" attached hereto

known as No. _____(Property Address),
Street Address City State Zip

together with all its appurtenances (Property).

2. Note: Other Obligations Secured. This Deed of Trust is given to secure to Lender:

2.1 the repayment of the indebtedness evidenced by Borrower's note (Note) dated August 3, 2012 in the principal sum of $670,000.00, with interest on the unpaid principal balance from the date of the Note until paid, at the rate of 12 percent per annum, with principal and interest payable at 3225 MCLEOD DRIVE, SUITE 110, LAS VEGAS, NEVADA 89121, or such other place as Lender may designate, payable in full on or before December 31, 2012; and Borrower is to pay to Lender a late charge of 5% of any payment not received by Lender within ten days after payment is due; and Borrower has the right to prepay the principal amount outstanding under said Note, in whole or in part, at any time without penalty.

2.2 the payment of all other sums, with interest thereon at 18% per annum, disbursed by Lender in accordance with this Deed of Trust to protect the security of this Deed of Trust; and

2.3 the performance of the covenants and agreements of Borrower herein contained.

3. Title. Borrower covenants that Borrower owns and has the right to grant and convey the Property, and warrants title to the same, subject to general real estate taxes for the current year, easements of record or in existence, and recorded declarations, restrictions, reservations and covenants, if any, as of this date; and subject to no others.

4. Payment of Principal and Interest. Borrower shall promptly pay when due the principal of and interest on the indebtedness evidenced by the Note, and late charges as provided in the Note and shall perform all of Borrower's other covenants contained in the Note.

Accomodation

5. **Application of Payments**. All payments received by Lender under the terms hereof shall be applied by Lender first in payment of amounts due pursuant to § 23 (Escrow Funds for Taxes and Insurance), then to amounts disbursed by Lender pursuant to § 9 (Protection of Lender's Security), and the balance in accordance with the terms and conditions of the Note.

6. **Prior Mortgages and Deeds of Trust; Charges; Liens**. Borrower shall perform all of Borrower's obligations under any prior deed of trust and any other prior liens. Borrower shall pay all taxes, assessments and other charges, fines and impositions attributable to the Property which may have or attain a priority over this Deed of Trust, and leasehold payments or ground rents, if any, in the manner set out in § 23 (Escrow Funds for Taxes and Insurance) or, if not required to be paid in such manner, by Borrower making payment when due, directly to the payee thereof. Despite the foregoing, Borrower shall not be required to make payments otherwise required by this section if Borrower, after notice to Lender, shall in good faith contest such obligation by, or defend enforcement of such obligation in, legal proceedings which operate to prevent the enforcement of the obligation or forfeiture of the Property or any part thereof, only upon Borrower making all such contested payments and other payments as ordered by the court to the registry of the court in which such proceedings are filed.

7. **Property Insurance**. Borrower shall keep the improvements now existing or hereafter erected on the Property insured against loss by fire or hazards included within the term "extended coverage" in an amount at least equal to the lesser of (a) the insurable value of the Property or (b) an amount sufficient to pay the sums secured by this Deed of Trust as well as any prior encumbrances on the Property. All of the foregoing shall be known as "Property Insurance."

The insurance carrier providing the insurance shall be qualified to write Property Insurance in Colorado and shall be chosen by Borrower subject to Lender's right to reject the chosen carrier for reasonable cause. All insurance policies and renewals thereof shall include a standard mortgage clause in favor of Lender, and shall provide that the insurance carrier shall notify Lender at least ten (10) days before cancellation, termination or any material change of coverage. Insurance policies shall be furnished to Lender at or before closing. Lender shall have the right to hold the policies and renewals thereof.

In the event of loss, Borrower shall give prompt notice to the insurance carrier and Lender. Lender may make proof of loss if not made promptly by Borrower.

Insurance proceeds shall be applied to restoration or repair of the Property damaged, provided said restoration or repair is economically feasible and the security of this Deed of Trust is not thereby impaired. If such restoration or repair is not economically feasible or if the security of this Deed of Trust would be impaired, the insurance proceeds shall be applied to the sums secured by this Deed of Trust, with the excess, if any, paid to Borrower. If the Property is abandoned by Borrower, or if Borrower fails to respond to Lender within 30 days from the date notice is given in accordance with § 16 (Notice) by Lender to Borrower that the insurance carrier offers to settle a claim for insurance benefits, Lender is authorized to collect and apply the insurance proceeds, at Lender's option, either to restoration or repair of the Property or to the sums secured by this Deed of Trust.

Any such application of proceeds to principal shall not extend or postpone the due date of the installments referred to in §§ 4 (Payment of Principal and Interest) and 23 (Escrow Funds for Taxes and Insurance) or change the amount of such installments. Notwithstanding anything herein to the contrary, if under § 18 (Acceleration; Foreclosure; Other Remedies) the Property is acquired by Lender, all right, title and interest of Borrower in and to any insurance policies and in and to the proceeds thereof resulting from damage to the Property prior to the sale or acquisition shall pass to Lender to the extent of the sums secured by this Deed of Trust immediately prior to such sale or acquisition.

All of the rights of Borrower and Lender hereunder with respect to insurance carriers, insurance policies and insurance proceeds are subject to the rights of any holder of a prior deed of trust with respect to said insurance carriers, policies and proceeds.

8. Preservation and Maintenance of Property. Borrower shall keep the Property in good repair and shall not commit waste or permit impairment or deterioration of the Property and shall comply with the provisions of any lease if this Deed of Trust is on a leasehold. Borrower shall perform all of Borrower's obligations under any declarations, covenants, by-laws, rules, or other documents governing the use, ownership or occupancy of the Property.

9. Protection of Lender's Security. Except when Borrower has exercised Borrower's rights under § 6 above, if Borrower fails to perform the covenants and agreements contained in this Deed of Trust, or if a default occurs in a prior lien, or if any action or proceeding is commenced which materially affects Lender's interest in the Property, then Lender, at Lender's option, with notice to Borrower if required by law, may make such appearances, disburse such sums and take such action as is necessary to protect Lender's interest, including, but not limited to:

9.1 any general or special taxes or ditch or water assessments levied or accruing against the Property;

9.2 the premiums on any insurance necessary to protect any improvements comprising a part of the Property;

9.3 sums due on any prior lien or encumbrance on the Property;

9.4 if the Property is a leasehold or is subject to a lease, all sums due under such lease;

9.5 the reasonable costs and expenses of defending, protecting, and maintaining the Property and Lender's interest in the Property, including repair and maintenance costs and expenses, costs and expenses of protecting and securing the Property, receiver's fees and expenses, inspection fees, appraisal fees, court costs, attorney fees and costs, and fees and costs of an attorney in the employment of Lender or holder of the certificate of purchase;

9.6 all other costs and expenses allowable by the evidence of debt or this Deed of Trust; and

9.7 such other costs and expenses which may be authorized by a court of competent jurisdiction.

Borrower hereby assigns to Lender any right Borrower may have by reason of any prior encumbrance on the Property or by law or otherwise to cure any default under said prior encumbrance.

Any amounts disbursed by Lender pursuant to this § 9, with interest thereon, shall become additional indebtedness of Borrower secured by this Deed of Trust. Such amounts shall be payable upon notice from Lender to Borrower requesting payment thereof, and Lender may bring suit to collect any amounts so disbursed plus interest specified in § 2.2 (Note: Other Obligations Secured). Nothing contained in this § 9 shall require Lender to incur any expense or take any action hereunder.

10. Inspection. Lender may make or cause to be made reasonable entries upon and inspection of the Property, provided that Lender shall give Borrower notice prior to any such inspection specifying reasonable cause therefore related to Lender's interest in the Property.

11. Condemnation. The proceeds of any award or claim for damages, direct or consequential, in connection with any condemnation or other taking of the Property, or part thereof, or for conveyance in lieu of condemnation, are hereby assigned and shall be paid to Lender as herein provided. However, all of the rights of Borrower and Lender hereunder with respect to such proceeds are subject to the rights of any holder of a prior deed of trust.

In the event of a total taking of the Property, the proceeds shall be applied to the sums secured by this Deed of Trust, with the excess, if any, paid to Borrower. In the event of a partial taking of the Property, the proceeds remaining after taking out any part of the award due any prior lien holder (net award) shall be divided between Lender and Borrower, in the same ratio as the amount of the sums secured by this Deed of Trust immediately prior to the date of taking bears to Borrower's equity in the Property immediately prior to the date of taking. Borrower's equity in the Property means the fair market value of the Property less the amount of sums secured by both this Deed of Trust and all prior liens (except taxes) that are to receive any of the award, all at the value immediately prior to the date of taking.

If the Property is abandoned by Borrower or if, after notice by Lender to Borrower that the condemnor offers to make an award or settle a claim for damages, Borrower fails to respond to Lender within 30 days after the date such notice is given, Lender is authorized to collect and apply the proceeds, at Lender's option, either to restoration or repair of the Property or to the sums secured by this Deed of Trust.

Any such application of proceeds to principal shall not extend or postpone the due date of the installments referred to in §§ 4 (Payment of Principal and Interest) and 23 (Escrow Funds for Taxes and Insurance) nor change the amount of such installments.

12. Borrower not Released. Extension of the time for payment or modification of amortization of the sums secured by this Deed of Trust granted by Lender to any successor in interest of Borrower shall not operate to release, in any manner, the liability of the original Borrower, nor Borrower's successors in interest, from the original terms of this Deed of Trust.

Lender shall not be required to commence proceedings against such successor or refuse to extend time for payment or otherwise modify amortization of the sums secured by this Deed of Trust by reason of any demand made by the original Borrower nor Borrower's successors in interest.

13. Forbearance by Lender Not a Waiver. Any forbearance by Lender in exercising any right or remedy hereunder, or otherwise afforded by law, shall not be a waiver or preclude the exercise of any such right or remedy.

14. Remedies Cumulative. Each remedy provided in the Note and this Deed of Trust is distinct from and cumulative to all other rights or remedies under the Note and this Deed of Trust or afforded by law or equity, and may be exercised concurrently, independently or successively.

15. Successors and Assigns Bound; Joint and Several Liability; Captions. The covenants and agreements herein contained shall bind, and the rights hereunder shall inure to, the respective successors and assigns of Lender and Borrower, subject to the provisions of § 24 (Transfer of the Property; Assumption). All covenants and agreements of Borrower shall be joint and several. The captions and headings of the sections in this Deed of Trust are for convenience only and are not to be used to interpret or define the provisions hereof.

16. Notice. Except for any notice required by law to be given in another manner, (a) any notice to Borrower provided for in this Deed of Trust shall be in writing and shall be given and be effective upon (1) delivery to Borrower or (2) mailing such notice by first class U.S. mail, addressed to Borrower at Borrower's address stated herein or at such other address as Borrower may designate by notice to Lender as provided herein, and (b) any notice to Lender shall be in writing and shall be given and be effective upon (1) delivery to Lender or (2) mailing such notice by first class U.S. mail, to Lender's address stated herein or to such other address as Lender may designate by notice to Borrower as provided herein. Any notice provided for in this Deed of Trust shall be deemed to have been given to Borrower or Lender when given in any manner designated herein.

17. Governing Law; Severability. The Note and this Deed of Trust shall be governed by the law of Colorado. In the event that any provision or clause of this Deed of Trust or the Note conflicts with the law, such conflict shall not affect other provisions of this Deed of Trust or the Note which can be given effect without the conflicting provision, and to this end the provisions of the Deed of Trust and Note are declared to be severable.

18. Acceleration; Foreclosure; Other Remedies. Except as provided in § 24 (Transfer of the Property; Assumption), upon Borrower's breach of any covenant or agreement of Borrower in this Deed of Trust, or upon any default in a prior lien upon the Property, (unless Borrower has exercised Borrower's rights under § 6 above), at Lender's option, all of the sums secured by this Deed of Trust shall be immediately due and payable (Acceleration). To exercise this option, Lender may invoke the power of sale and any other remedies permitted by law. Lender shall be entitled to collect all reasonable costs and expenses incurred in pursuing the remedies provided in this Deed of Trust, including, but not limited to, reasonable attorney's fees.

If Lender invokes the power of sale, Lender shall give written notice to Trustee of such election. Trustee shall give such notice to Borrower of Borrower's rights as is provided by law. Trustee shall record a copy of such notice and shall cause publication of the legal notice as required by law in a legal newspaper of general circulation in each county in which the Property is situated, and shall mail copies of such notice of sale to Borrower and other persons as prescribed by law. After the lapse of such time as may be required by law, Trustee, without demand on Borrower, shall sell the Property at public auction to the highest bidder for cash at the time and place (which may be on the Property or any part thereof as permitted by law) in one or more parcels as Trustee may think best and in such order as Trustee may determine. Lender or Lender's designee may purchase the Property at any sale. It shall not be obligatory upon the purchaser at any such sale to see to the application of the purchase money.

Trustee shall apply the proceeds of the sale in the following order: (a) to all reasonable costs and expenses of the sale, including, but not limited to, reasonable Trustee's and attorney's fees and costs of title evidence; (b) to all sums secured by this Deed of Trust; and (c) the excess, if any, to the person or persons legally entitled thereto.

19. Borrower's Right to Cure Default. Whenever foreclosure is commenced for nonpayment of any sums due hereunder, the owners of the Property or parties liable hereon shall be entitled to cure said defaults by paying all delinquent principal and interest payments due as of the date of cure, costs, expenses, late charges, attorney's fees and other fees all in the manner provided by law. Upon such payment, this Deed of Trust and the obligations secured hereby shall remain in full force and effect as though no Acceleration had occurred, and the foreclosure proceedings shall be discontinued.

20. Assignment of Rents; Appointment of Receiver; Lender in Possession. As additional security hereunder, Borrower hereby assigns to Lender the rents of the Property; however, Borrower shall, prior to Acceleration under § 18 (Acceleration; Foreclosure; Other Remedies) or abandonment of the Property, have the right to collect and retain such rents as they become due and payable.

Lender or the holder of the Trustee's certificate of purchase shall be entitled to a receiver for the Property after Acceleration under § 18 (Acceleration; Foreclosure; Other Remedies), and shall also be so entitled during the time covered by foreclosure proceedings and the period of redemption, if any; and shall be entitled thereto as a matter of right without regard to the solvency or insolvency of Borrower or of the then owner of the Property, and without regard to the value thereof. Such receiver may be appointed by any Court of competent jurisdiction upon ex parte application and without notice; notice being hereby expressly waived.

Upon Acceleration under § 18 (Acceleration; Foreclosure; Other Remedies) or abandonment of the Property, Lender, in person, by agent or by judicially-appointed receiver, shall be entitled to enter upon, take possession of and manage the Property and to collect the rents of the Property including those past due. All rents collected by Lender or the receiver shall be applied, first to payment of the costs of preservation and management of the Property, second to payments due upon prior liens, and then to the sums secured by this Deed of Trust. Lender and the receiver shall be liable to account only for those rents actually received.

21. Release. Upon payment of all sums secured by this Deed of Trust, Lender shall cause Trustee to release this Deed of Trust and shall produce for Trustee the Note. Borrower shall pay all costs of recordation and shall pay the statutory Trustee's fees. If Lender shall not produce the Note as aforesaid, then Lender, upon notice in accordance with § 16 (Notice) from Borrower to Lender, shall obtain, at Lender's expense, and file any lost instrument bond required by Trustee or pay the cost thereof to effect the release of this Deed of Trust.

22. Waiver of Exemptions. Borrower hereby waives all right of homestead and any other exemption in the Property under state or federal law presently existing or hereafter enacted.

23. Escrow Funds for Taxes and Insurance. This § 23 is not applicable if Funds, as define d below, are being paid pursuant to a prior encumbrance. Subject to applicable law, Borrower shall pay to Lender, on each day installments of principal and interest are payable under the Note, until the Note is paid in full, a sum (herein referred to as "Funds") equal to __N/A__ of the yearly taxes and assessments which may attain priority over this Deed of Trust, plus __N/A__ of yearly premium installments for Property Insurance, all as reasonably estimated initially and from time to time by Lender on the basis of assessments and bills and reasonable estimates thereof, taking into account any excess Funds not used or shortages.

The principal of the Funds shall be held in a separate account by Lender in trust for the benefit of Borrower and deposited in an institution, the deposits or accounts of which are insured or guaranteed by a federal or state agency. Lender shall apply the Funds to pay said taxes, assessments and insurance premiums. Lender may not charge for so holding and applying the Funds, analyzing said account or verifying and compiling said assessments and bills. Lender shall not be required to pay Borrower any interest or earnings on the Funds. Lender shall give to Borrower, without charge, an annual accounting of the Funds showing credits and debits to the Funds and the purpose for which each debit to the Funds was made. The Funds are pledged as additional security for the sums secured by this Deed of Trust.

If the amount of the Funds held by Lender shall not be sufficient to pay taxes, assessments and insurance premiums as they fall due, Borrower shall pay to Lender any amount necessary to make up the deficiency within 30 days from the date notice is given in accordance with § 16 (Notice) by Lender to Borrower requesting payment thereof. Provided however, if the loan secured by this Deed of Trust is subject to RESPA or other laws regulating Escrow Accounts, such deficiency, surplus or any other required adjustment shall be paid, credited or adjusted in compliance with such applicable laws.

Upon payment in full of all sums secured by this Deed of Trust, Lender shall simultaneously refund to Borrower any Funds held by Lender. If under § 18 (Acceleration; Foreclosure; Other Remedies) the Property is sold or the Property is otherwise acquired by Lender, Lender shall apply, no later than immediately prior to the sale of the Property or its acquisition by Lender, whichever occurs first, any Funds held by Lender at the time of application as a credit against the sums secured by this Deed of Trust.

24. Transfer of the Property; Assumption. The following events shall be referred to herein as a "Transfer": (i) a transfer or conveyance of title (or any portion thereof, legal or equitable) of the Property (or any part thereof or interest therein); (ii) the execution of a contract

or agreement creating a right to title (or any portion thereof, legal or equitable) in the Property (or any part thereof or interest therein); (iii) or an agreement granting a possessory right in the Property (or any portion thereof), in excess of 3 years; (iv) a sale or transfer of, or the execution of a contract or agreement creating a right to acquire or receive, more than fifty percent (50%) of the controlling interest or more than fifty percent (50%) of the beneficial interest in either of the entities designated as Borrower hereunder and (v) the reorganization, liquidation or dissolution of Borrower. Not to be included as a Transfer are (x) the creation of a lien or encumbrance subordinate to this Deed of Trust; (y) the creation of a purchase money security interest for household appliances; or (z) a transfer by devise, descent or by operation of the law upon the death of a joint tenant. At the election of Lender, in the event of each and every Transfer:

24.1 All sums secured by this Deed of Trust shall become immediately due and payable (Acceleration).

24.2 If a Transfer occurs and should Lender not exercise Lender's option pursuant to this § 24 to Accelerate, Transferee shall be deemed to have assumed all of the obligations of Borrower under this Deed of Trust including all sums secured hereby whether or not the instrument evidencing such conveyance, contract or grant expressly so provides. This covenant shall run with the Property and remain in full force and effect until said sums are paid in full. Lender may without notice to Borrower deal with Transferee in the same manner as with Borrower with reference to said sums including the payment or credit to Transferee of undisbursed reserve Funds on payment in full of said sums, without in any way altering or discharging Borrower's liability hereunder for the obligations hereby secured.

24.3 Should Lender not elect to Accelerate upon the occurrence of such Transfer then, subject to § 24.2 above, the mere fact of a lapse of time or the acceptance of payment subsequent to any of such events, whether or not Lender had actual or constructive notice of such Transfer, shall not be deemed a waiver of Lender's right to make such election nor shall Lender be estopped therefrom by virtue thereof. The issuance on behalf of Lender of a routine statement showing the status of the loan, whether or not Lender had actual or constructive notice of such Transfer, shall not be a waiver or estoppel of Lender's said rights.

25. Borrower's Copy. Borrower acknowledges receipt of a copy of the Note and this Deed of Trust.

[*Remainder of page intentionally left blank*]

EXECUTED BY BORROWER.

Hwy 7 Equities, LLC,
a Colorado limited liability company

By _____
Blake Carlson, Manager

STATE OF COLORADO)
) :ss
COUNTY OF Adams)

The foregoing instrument was acknowledged before me this 3 day of August, 2012, by Blake Carlson, as Manager of Hwy 7 Equities, LLC, a Colorado limited liability company.

_____
Notary Public

My Commission expires: 8/18/2013

JOAN KAY SCHAEFER
NOTARY PUBLIC
STATE OF COLORADO
My Commission Expires August 18, 2013

EXHIBIT A

LEGAL DESCRIPTION
SHEET 1 OF 2

A PART OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 31, AND CONSIDERING THE WEST LINE OF THE SOUTH HALF OF SAID SOUTHEAST QUARTER OF SECTION 31 TO BEAR NORTH 00°45'47" EAST, WITH ALL BEARINGS HEREON RELATIVE THERETO;

THENCE NORTH 83°36'10" EAST A DISTANCE OF 628.67 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 02170911 AND THE **POINT OF BEGINNING**;

THENCE NORTH 16°31'20" WEST A DISTANCE OF 540.23 FEET;
THENCE SOUTH 89°34'53" EAST A DISTANCE OF 837.42 FEET;
THENCE SOUTH 00°25'07" WEST A DISTANCE OF 516.80 FEET TO A POINT ON SAID NORTHERLY RIGHT-OF-WAY;
THENCE NORTH 89°34'53" WEST ALONG SAID NORTHERLY RIGHT-OF-WAY A DISTANCE OF 666.57 FEET;
THENCE NORTH 89°32'45" WEST A DISTANCE OF 13.43 FEET TO THE **POINT OF BEGINNING**;

SAID PARCEL CONTAINS AN AREA OF 392,100 SQUARE FEET, OR 9.001 ACRES, MORE OR LESS.

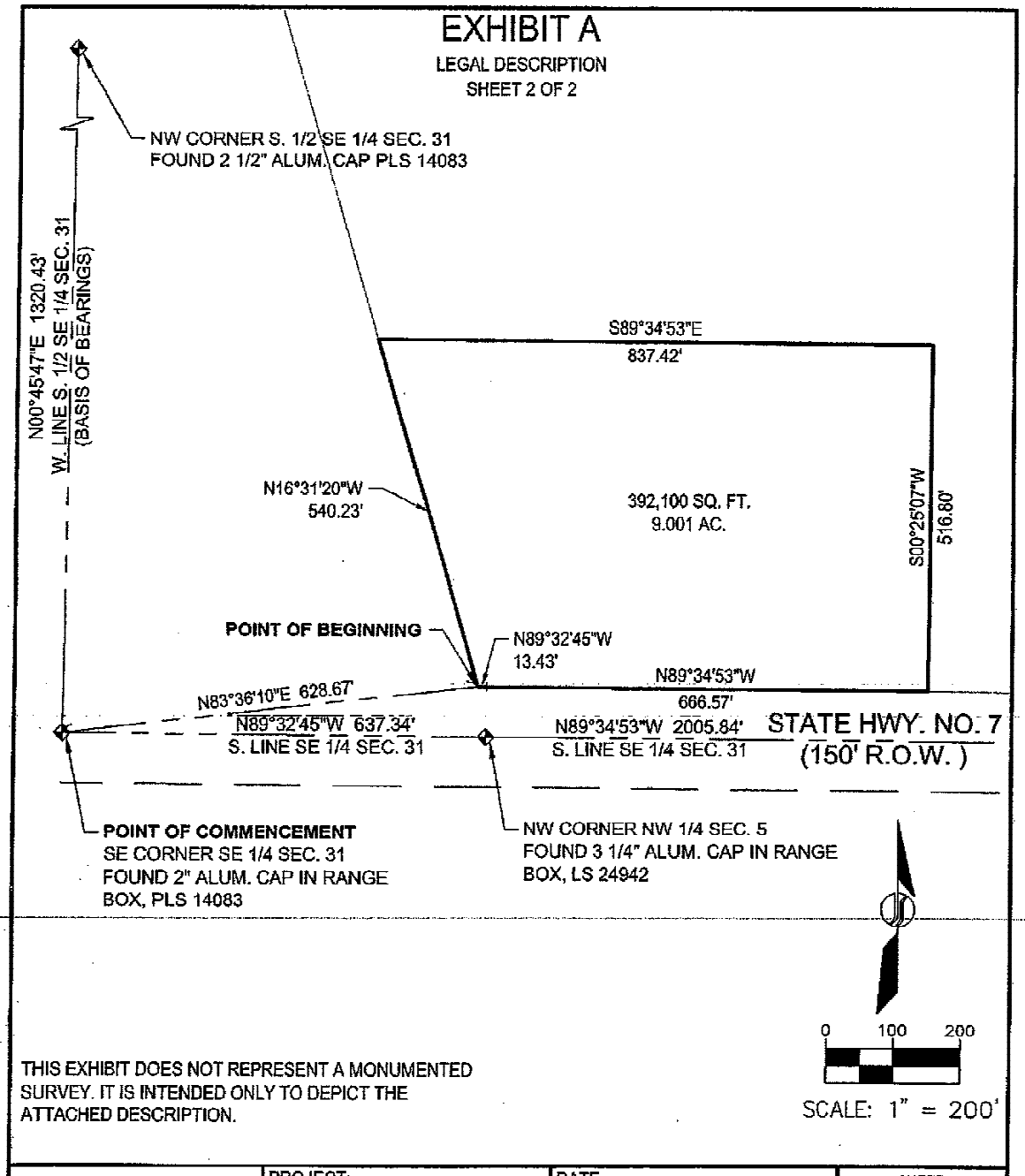
I, THOMAS D. STAAB, A SURVEYOR LICENSED IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE ABOVE LEGAL DESCRIPTION AND ATTACHED EXHIBIT WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CHECKING.

THOMAS D. STAAB, P.L.S. 25965
FOR AND ON BEHALF OF
JANSEN STRAWN CONSULTING ENGINEERS, INC.

JANSEN STRAWN CONSULTING ENGINEERS 45 WEST 45 AVENUE DENVER, CO 80223 P.303.544.2033 F.303.531.3139	PROJECT: SIERRA VISTA	DATE: JULY 28, 2012	SHEET 1 OF 2
	JOB NO.: 12012	SCALE: N/A	

EXHIBIT A

LEGAL DESCRIPTION
SHEET 2 OF 2



THIS EXHIBIT DOES NOT REPRESENT A MONUMENTED SURVEY. IT IS INTENDED ONLY TO DEPICT THE ATTACHED DESCRIPTION.

JANSEN STRAWN CONSULTING ENGINEERS 45 WEST 45 AVENUE DENVER, CO 80216 P.303.561.3333 F.303.561.3336	PROJECT: SIERRA VISTA	DATE: JULY 28, 2012	SHEET
	JOB NO.: 12012	SCALE: 1" = 200'	2 OF 2

401

3462401 03/16/2007 10:38A Weld County, CO
1 of 1 R 6.00 D 0.00 Steve Moreno Clerk & Recorder

Statement of Authority
(Section 38-30-172, C.R.S.)

1. This Statement of Authority Relates to an entity named

   PRATT PROPERTIES LIMITED PARTNERSHIP

2. The type of entity is a LIMITED PARTNERSHIP

3. The entity is formed under the laws of COLORADO

4. The mailing address of the entity is:

   105 S. SUNSET STREET SUITE H LONGMONT, CO 80501

5. The name and position of each person authorized to execute instruments conveying, encumbering, or otherwise affecting title to real property on behalf of the entity is:

   SUSAN M. PRATT ~~GENERAL~~ Managing PARTNER

6. The authority of the foregoing person (s) to bind the entity is limited as follows:

   NONE

7. This Statement of Authority is executed on behalf of the entity pursuant to the provisions of S 38-30-172, C.R.S.

8. This Statement of Authority amends and supersedes in all respects any prior Statement of Authority executed on behalf of the entity.

Executed this 15TH day of MARCH, 2007 .

Name: _____
SUSAN M. PRATT

Name: _____

STATE OF COLORADO)
) ss.
COUNTY OF BOULDER)

The Foregoing instrument was acknowledged before me this day of MARCH, 2007
by SUSAN M. PRATT

Witness my hand and official seal.

My commission expires: _____
Notary Public

KELLEY M. ABERNATHY
NOTARY PUBLIC
STATE OF COLORADO

MY COMMISSION EXPIRES 7/28/2008

UNION PACIFIC RAILROAD COMPANY.

Contract No. 1316 A
Deed No. 2502

Know all Men by these Presents, That UNION PACIFIC RAILROAD COMPANY, a corporation existing under and by virtue of the laws of the State of Utah, in consideration of the sum of Fourteen Thousand three hundred and twenty eight and 11/100 ($14328.11) Dollars, to it paid, the receipt of which is hereby acknowledged, doth, subject however to the exceptions, reservations and conditions hereinafter written, hereby grant, bargain, sell and convey unto John Ewbank, of the County of Kimball in the State of Nebraska the following described real estate, situate, lying and being in the County of Weld and in the State of Colorado, to-wit: [illegible handwritten land description] of Section No. Twenty three (23) in Township No. Eleven (11) North of Range No. Fifty-nine (59) West of the Sixth Principal Meridian, containing, according to the United States survey thereof Ten thousand two hundred and twenty five [illegible] acres, more or less, ~~subject, however, to a right-of-way of lawful width for any and all county roads heretofore established over, upon and across the premises herein described~~

Excepting and Reserving to said Union Pacific Railroad Company, ~~its successors and assigns:~~ and reserving the right to maintain and operate its railroad in its present form of construction, and to make change in the form of construction or method of operation of said railroad.

~~All ... coal and other minerals within or underlying said lands.~~
~~The exclusive right to prospect in and upon said land for ... coal and other minerals therein, or which may be supposed to be therein, and to mine for and remove, from said land, all ... coal and other minerals which may be found thereon by anyone.~~
~~The right of ingress, egress and regress upon said land to prospect for, mine and remove any and all such ... coal or other minerals, and the right to use so much of said land as may be convenient or necessary for the right-of-way to and from such prospect places or mines, and for the convenient and proper operation of such prospect places, mines, and for roads and approaches thereto or for removal therefrom of ... coal, mineral, machinery or other material.~~
~~The right to said Union Pacific Railroad Company to maintain and operate its railroad in its present form of construction, and to make any change in the form of construction or method of operation of said railroad~~

To Have and to Hold, subject to the said exceptions, reservations and covenant and conditions, the said premises with all the rights and appurtenances thereunto belonging, unto the said John Ewbank grantee, his heirs and assigns forever, and the said Union Pacific Railroad Company doth hereby covenant with the said grantee that at the making of this instrument it is well seized of the said premises as of a good and indefeasible estate in fee, and hath good right to sell and convey the same, and that it will warrant and defend the title to said premises unto the said grantee, his heirs and assigns forever against the lawful claims of all persons whomsoever.

Excepting as against all taxes and assessments levied upon said premises for the year 1901 and subsequent years, and excepting against any rights, liens or incumbrances created or permitted, by any other person than the said grantor, since the Thirty-first day of December 1900.

And Whereas, said Union Pacific Railroad Company did, on the first day of July, 1897, execute and deliver to The Mercantile Trust Company of New York a certain mortgage deed wherein said Railroad Company conveyed to the said The Mercantile Trust Company of New York, as Trustee, for the uses and purposes therein mentioned, amongst other things, the lands hereinbefore described; and,

Whereas, said Union Pacific Railroad Company, with the consent of the said The Mercantile Trust Company of New York, Trustee under the mortgage aforesaid, has sold and conveyed, as above set forth, the real estate, hereinbefore described, unto the said grantee for and in consideration of the sum paid as aforesaid to Union Pacific Railroad Company by said grantee, which sum of money has been paid to said The Mercantile Trust Company of New York in its capacity as Trustee, or has been otherwise properly paid or accounted for under said mortgage, for the uses and purposes mentioned in said mortgage deed:

Now, Therefore, Know all Men by these presents, that said The Mercantile Trust Company of New York, Trustee of the aforesaid mortgage deed, in consideration of the premises and of the payment as aforesaid of said sum so paid by said Railroad Company to said Trust Company, for the uses and purposes aforesaid, doth hereby REMISE, RELEASE AND FOREVER QUIT CLAIM, subject to the exceptions, reservations and conditions above written, unto the said John Ewbank the real estate described aforesaid, to be held by the said grantee free and exempt from all liens, incumbrances and charges of said mortgage deed of the first day of July, 1897. The twenty-fifth line from the top was erased before the execution and delivery of these presents.

In Witness Whereof, the said grantor, Union Pacific Railroad Company, has caused these presents to be sealed with its corporate seal, and to be signed by its President, attested by its Secretary, and countersigned by its Land Commissioner and its ~~General Auditor or Assistant General~~ Auditor, and said The Mercantile Trust Company of New York, under said mortgage deed of July 1st, 1897, has caused these presents to be sealed with its corporate seal, signed by its Vice-President, who is thereunto duly authorized and empowered by the by-laws of the Company and by resolution of its Board of Directors, this 1st day of December A. D. 1908.

In presence of: L. Elwell, Arthur A. Mitchell

Attest: Jos Millar, Asst. Secretary.

UNION PACIFIC RAILROAD COMPANY,
By E. H. Harriman, President.

Countersigned: [illegible] Land Commissioner. H. J. Stirling, General Auditor.

In presence of: [illegible], [illegible]

THE MERCANTILE TRUST COMPANY, TRUSTEE,
By H. C. Deming, Vice-President.

Attest: Guy Richards, Secretary.

STATE OF NEW YORK, COUNTY OF NEW YORK, ss.

Be it Remembered, That on this 1st day of December A. D. 1908, before me, a Notary Public in and for said County, appeared the UNION PACIFIC RAILROAD COMPANY, by E. H. Harriman its President, who is personally known to me to be the identical person whose name is subscribed to the foregoing instrument as said President, and then and there acknowledged the execution and sealing of said instrument to be his voluntary act and deed, and the voluntary act and deed of said Company.

In Witness Whereof, I have hereunto set my hand and official seal this 1st day of December A. D. 1908, at the City of New York, in said County and State. My commission expires March 30, 1909.
L. Elwell, Notary Public.

STATE OF NEW YORK, COUNTY OF NEW YORK, ss.

Be it Remembered, That on this 8th day of December A. D. 1908, before me, a Notary Public in and for said County, appeared THE MERCANTILE TRUST COMPANY, by H. C. Deming its Vice-President, who is personally known to me to be the identical person whose name is subscribed to the foregoing instrument as said Vice-President, and then and there acknowledged the execution and sealing of said instrument to be his voluntary act and deed, and the voluntary act and deed of said Company.

In Witness Whereof, I have hereunto set my hand and official seal this 8th day of December A. D. 1908, at the City of New York, in said County and State. My commission expires March 30th, 1910.
L. Michaels, Notary Public.

No. 135229

RECEIVED for Record, the 23 day of Dec A. D. 1908 at 9 o'clock A M., and recorded in Book 233 of Deeds, Page 186.
Chas Davis, Recorder.
By Annie Davis, Deputy.

UNION PACIFIC RAILROAD COMPANY.

Contract No. 35511-A
Deed No. 2345

Know all Men by these Presents, That UNION PACIFIC RAILROAD COMPANY, a corporation existing under and by virtue of the laws of the State of Utah, in consideration of the sum of One hundred and twenty and 00/100 ($120.00) Dollars, to it paid, the receipt of which is hereby acknowledged, doth, subject however to the exceptions, reservations and conditions hereinafter written, hereby grant, bargain, sell and convey unto David H. Wherry of the County of Weld in the State of Colorado of the County of Weld and in the State of Colorado the following described real estate, situate, lying and being in the County of ... The South East Quarter of the South East Quarter (SE¼ of SE¼) of Section No. Thirty-one (31) in Township No. One (1) North of Range No. Sixty-eight (68) West of the Sixth Principal Meridian, containing, according to the United States survey thereof Forty (40) acres, more or less, subject, however, to a right-of-way of lawful width for any and all county roads heretofore established over, upon and across the premises herein described.

Excepting and Reserving to said Union Pacific Railroad Company, its successors and assigns:

First. All oil coal and other minerals within or underlying said lands.
Second. The exclusive right to prospect in and upon said land for oil coal and other minerals therein, or which may be supposed to be therein, and to mine for and remove, from said land, all oil coal and other minerals which may be found thereon by anyone.
Third. The right of ingress, egress and regress upon said land to prospect for, mine and remove any and all such oil coal or other minerals, and the right to use so much of said land as may be convenient or necessary for the right-of-way to and from such prospect places or mines, and for the convenient and proper operation of such prospect places, mines, and for roads and approaches thereto or for removal therefrom of oil coal, mineral, machinery or other material.
Fourth. The right to said Union Pacific Railroad Company to maintain and operate its railroad in its present form of construction, and to make any change in the form of construction or method of operation of said railroad.

To Have and to Hold, subject to the said exceptions, reservations and conditions, the said premises with all the rights and appurtenances thereunto belonging, unto the said David H. Wherry grantee, his heirs and assigns forever, and the said Union Pacific Railroad Company doth hereby covenant with the said grantee that at the making of this instrument it is well seized of the said premises as of a good and indefeasible estate in fee, and hath good right to sell and convey the same, and that it will warrant and defend the title to said premises unto the said grantee, his heirs and assigns forever against the lawful claims of all persons whomsoever.

Excepting as against all taxes and assessments levied upon said premises for the year 1906 and subsequent years, and excepting against any rights, liens or incumbrances created or permitted, by any other person than the said grantor, since the Twenty-second day of March 1906.

And Whereas, said Union Pacific Railroad Company did, on the first day of July, 1897, execute and deliver to The Mercantile Trust Company of New York a certain mortgage deed wherein said Railroad Company conveyed to the said The Mercantile Trust Company of New York, as Trustee, for the uses and purposes therein mentioned, amongst other things, the lands hereinbefore described; and,

Whereas, said Union Pacific Railroad Company, with the consent of the said The Mercantile Trust Company of New York, Trustee under the mortgage aforesaid, has sold and conveyed, as above set forth, the real estate, hereinbefore described, unto the said grantee for and in consideration of the sum paid as aforesaid to Union Pacific Railroad Company by said grantee, which sum of money has been paid to said The Mercantile Trust Company of New York in its capacity as Trustee, or has been otherwise properly paid or accounted for under said mortgage, for the uses and purposes mentioned in said mortgage deed:

Now, Therefore, Know all Men by these presents, that said The Mercantile Trust Company of New York, Trustee of the aforesaid mortgage deed, in consideration of the premises and of the payment as aforesaid of said sum so paid by said Railroad Company to said Trust Company, for the uses and purposes aforesaid, doth hereby REMISE, RELEASE AND FOREVER QUIT CLAIM, subject to the exceptions, reservations and conditions above written, unto the said David H. Wherry the real estate described aforesaid, to be held by the said grantee free and exempt from all liens, incumbrances and charges of said mortgage deed of the first day of July, 1897.

In Witness Whereof, the said grantor, Union Pacific Railroad Company, has caused these presents to be sealed with its corporate seal, and to be signed by its President, attested by its Secretary, and countersigned by its Land Commissioner and its ~~General Auditor or Assistant General~~ Auditor, and said The Mercantile Trust Company of New York, under said mortgage deed of July 1st, 1897, has caused these presents to be sealed with its corporate seal, signed by its Vice-President, who is thereunto duly authorized and empowered by the by-laws of the Company and by resolution of its Board of Directors, this 30th day of April A. D. 1908.

In presence of: L. Elwell, [illegible]

Attest: Jos Millar, Asst. Secretary.

UNION PACIFIC RAILROAD COMPANY,
By E. H. Harriman, President.

Countersigned: C. J. McAllaster, Land Commissioner. H. J. Stirling, Auditor.

In presence of: L. Michaels, [illegible]

THE MERCANTILE TRUST COMPANY, TRUSTEE,
By H. C. Deming, Vice-President.

Attest: Guy Richards, Secretary.

STATE OF NEW YORK, COUNTY OF NEW YORK, ss.

Be it Remembered, That on this 30th day of April A. D. 1908, before me, a Notary Public in and for said County, appeared the UNION PACIFIC RAILROAD COMPANY, by E. H. Harriman its President, who is personally known to me to be the identical person whose name is subscribed to the foregoing instrument as said President, and then and there acknowledged the execution and sealing of said instrument to be his voluntary act and deed, and the voluntary act and deed of said Company.

In Witness Whereof, I have hereunto set my hand and official seal this 30th day of April A. D. 1908, at the City of New York, in said County and State. My commission expires March 30, 1909.
L. Elwell, Notary Public.

STATE OF NEW YORK, COUNTY OF NEW YORK, ss.

Be it Remembered, That on this 6th day of May A. D. 1908, before me, a Notary Public in and for said County, appeared THE MERCANTILE TRUST COMPANY, by H. C. Deming its Vice-President, who is personally known to me to be the identical person whose name is subscribed to the foregoing instrument as said Vice-President, and then and there acknowledged the execution and sealing of said instrument to be his voluntary act and deed, and the voluntary act and deed of said Company.

In Witness Whereof, I have hereunto set my hand and official seal this 6th day of May A. D. 1908, at the City of New York, in the said County and State. My commission expires March 30th, 1910.
L. Michaels, Notary Public.

No. 135513

RECEIVED for Record, the 31 day of Dec. A. D. 1908 at 9 o'clock A M., and recorded in Book 233 of Deeds, Page 187.
Chas Davis, Recorder.
By Annie Davis, Deputy.

Recorded at 2 11 o'clock P. M. NOV 30 1972

Rec. No. 1602713 Ann Spomer, Recorder

4-1

BOOK 681

OIL AND GAS LEASE

THIS AGREEMENT made this 16th day of October 19 72, between CHAMPLIN PETROLEUM COMPANY, a Delaware Corporation, authorized to do business in the State of Colorado, Lessor, and AMOCO PRODUCTION COMPANY, a Delaware Corporation, authorized to do business in said State, Lessee:

WITNESSETH:

(a) that certain Quitclaim Deed dated as of April 1, 1971, from Union Pacific Railroad Company to Union Pacific Land Resources Corporation, recorded on April 14, 1971, on film, Reception Number 972843 in the office of the County Clerk and Recorder of Boulder County, Colorado, a

(b) that certain Quitclaim Deed dated as of April 1, 1971, from Union Pacific Railroad Company to Union Pacific Land Resources Corporation, recorded on April 14, 1971, in Book 644, Reception Nos 1565712, and 1565713 in the office of the County Clerk and Recorder of Weld County, Colorado, and

(c) those certain Mineral Deeds dated September 19, 1972 from Union Pacific Land Resources Corporation to Lessor,

BOOK 681

1. Subject to the exceptions and reservations set forth in

~~(a) that certain Quitclaim Deed dated as of April 1, 1971, from Union Pacific Railroad Company to Union Pacific Land Resources Corporation~~ filed for record ______________, 1971, and appearing in Book ______ at ~~1602713~~ in the Office of the County Clerk and Recorder of ______________ County, ______________, and 4-2

(b) that certain ~~Mineral Deed dated~~ ______________, 19____, from Union Pacific Land Resources Corporation ~~to Lessor~~

Lessor, for a good and valuable consideration, receipt of which is hereby acknowledged and in consideration of the royalties herein provided, and of the agreement of Lessee herein contained, hereby grants, leases and lets exclusively unto Lessee for the purpose of investigating, exploring, prospecting, drilling and mining for and producing oil and gas (gas for all purposes being defined without limitation, to include dry gas, casinghead gas, distillate, condensate, helium and all other gaseous substances), and associated liquid hydrocarbons, and, subject to the provisions of Sections 14, 15 and 16 hereof, laying pipe lines, building tanks, power stations, telephone lines and other structures thereon to produce, save, take care of, treat, transport and own said products, and housing its employees, the following described land in Weld & Boulder ~~County~~, Counties, Colorado, to-wit:

See Exhibit "A" attached hereto

MAY 30, 1972 9158 2601602713 9 — 5.00N

In addition to the land above described, Lessor hereby grants, leases and lets exclusively unto Lessee to the same extent as if specifically described herein all of its interest in the oil, gas and associated liquid hydrocarbons underlying lakes, rivers, streams, roads, easements and rights-of-way which traverse or adjoin any of said lands. For rental payment purposes, the land included within this lease shall be deemed to contain 5,844.08 acres, whether it actually comprises more or less.

2. Subject to the other provisions herein contained, this lease shall be for a term of 5 years from its date (called "primary term") and as long thereafter as oil, gas or associated liquid hydrocarbons or any of them are produced from said land hereunder, or drilling or reworking operations are conducted thereon.

3. Lessee, within three months from the date of this lease, shall commence the actual drilling of a test well on the leased premises; and thereafter shall prosecute the drilling of said well diligently, without unnecessary delay and in a workmanlike manner. If the actual drilling of said well is not commenced within the time prescribed, this lease will automatically terminate.

4. The royalties to be paid by Lessee are: (a) on oil and on associated liquid hydrocarbons, 15% of that produced and saved from said land, the same to be delivered free of cost at the wells, or to the credit of Lessor into the pipe line to which the wells may be connected; (b) on gas produced from said land and sold or used off the premises or in the manufacture of gasoline or other products therefrom, the market value at the well of 15% of the gas so sold or used; provided that on gas sold at the wells the royalty shall be 15% of the amount realized from such sale. Lessee shall have free use of oil, gas and water from said land, except water from Lessor's wells, for all operations hereunder, and the royalty on oil and gas shall be computed after deducting any so used.

While there is a well on the leased premises or on acreage pooled therewith capable of producing only gas, but from which well production is not being sold or used, and in the absence of oil or other production from said premises, this lease shall be extended for a period of 90 days from the date such well is shut-in, and Lessee may tender or pay annually as royalty a sum equal to the amount of annual rentals which would be payable during the primary term to defer drilling operations on the leased premises then subject to this lease; payment or tender of such royalty to be made as provided in Section 5 hereof, with the first payment to be made on or before 90 days from and after the date on which such well is shut-in and a similar payment to be made annually thereafter on or before the anniversary date on which such well is shut-in. If such payments are so made, it shall be considered that gas is being produced in paying quantities from the leased premises under all the terms and provisions of this lease.

If any portion of the leased premises is included in a pooled unit, the amount of the shut-in royalty applicable to the Lessor's interest therein shall be reduced in the proportion that the amount of Lessor's net mineral acres included in any such pooled unit upon which such gas well is situated bears to the total acreage contained in such pooled unit as provided in Section 7 hereof.

Lessee shall use reasonable diligence to market gas capable of being produced in paying quantities from a shut-in well, but shall be under no obligation to market same under terms, conditions or circumstances which, in Lessee's good faith judgment, are unreasonable or unsatisfactory.

Lessee may from time to time purchase any royalty portion of oil or associated liquid hydrocarbons in its possession, paying the market price therefor prevailing in the field where produced on the date of purchase; provided, however, that if Lessor shall so elect, Lessee shall deliver to Lessor in kind its royalty share of oil and associated liquid hydrocarbons. In the event of such election, Lessor shall give to Lessee not less than 60 days' notice of its election and shall take said royalty share in kind for a period of not less than six (6) months following the termination of said sixty (60) day period. Any such deliveries are to be made from the facilities of Lessee, which shall have been installed for its own convenience at times and in amounts which equitably adjust deliveries of both parties.

5. If the well provided for in Section 3 hereof is drilled and completed as a dry hole and if operations for drilling are not commenced on said land as hereinafter provided on or before one year from this date, the lease shall then terminate as to both parties, unless on or before such anniversary date Lessee shall pay or tender to Lessor, at P. O. Box 552, Enid, Oklahoma 73701, the sum of Fifty Eight Hundred Forty Four and 08/100-- Dollars ($5,844.08), (herein called rental), which shall cover the privilege of deferring commencement of operations for drilling for a period of twelve (12) months. In like manner and upon like payments or tenders annually the commencement of operations for drilling may be further deferred for successive periods of twelve (12) months each during the primary term. The payment or tender of rental herein referred to may be made in currency, draft or check at the option of the Lessee; and the depositing of such currency, draft, or check in any post office, properly addressed to the Lessor, on or before the rental paying date, shall be deemed payment as herein provided. Lessee may at any time execute and place of record a release or releases covering any portion or portions of the above described premises, furnishing a copy thereof to Lessor, and thereby surrender this lease as to such portion or portions and be relieved of all obligations as to the acreage surrendered, and thereafter the rentals payable hereunder shall be reduced in the proportion that the acreage covered hereby is reduced by said release or releases.

If Lessee shall, on or before any rental date, make a bona fide attempt to pay rental to Lessor and if such payment shall be in an incorrect amount, Lessee shall be unconditionally obligated to pay to Lessor the rental properly payable for the rental period involved, but this lease shall be maintained in the same manner as if such erroneous rental payment had been properly made, provided that the erroneous rental payment be corrected within thirty (30) days after receipt by Lessee of written notice from such Lessor of such error accompanied by any documents and other evidence necessary to enable Lessee to make proper payment.

6. Should any well drilled on the above described land during the primary term before production is obtained be a dry hole, or should production be obtained during the primary term and thereafter cease, then and in either event, if operations for drilling an additional well are not commenced or operations for reworking an old well are not pursued on said land on or before the first rental paying date next succeeding the cessation of production or drilling or reworking on said well or wells, then this lease shall terminate unless Lessee, on or before said date shall resume the payment of rentals. Upon resumption of the payment of rentals, Section 5 governing the payment of rentals, shall continue in force just as though there had been no interruption in the rental payments. If during the last year of the primary term and prior to the discovery of oil, gas or associated liquid hydrocarbons on said land Lessee should drill a dry hole thereon, or if after discovery of oil, gas or associated liquid hydrocarbons before or during the last year of the primary term the production thereof should cease during the last year of said term from any cause, no rental payment or operations are necessary in order to keep the lease in force during the remainder of the primary term. If, at the expiration of the primary term, Lessee is conducting operations for drilling a new well or reworking an old well, this lease nevertheless shall continue in force as long as such drilling or reworking operations continue, or if, after the expiration of the primary term, production on this lease shall cease, this lease nevertheless shall continue in force if drilling or reworking operations are commenced within sixty (60) days after such cessation of production; if production is restored or additional production is discovered as a result of any such drilling or reworking operations, conducted without cessation of more than sixty (60) days, this lease shall continue as long thereafter as oil, gas or associated liquid hydrocarbons are produced and as long as additional drilling or reworking operations are had without cessation of such drilling or reworking operations for more than sixty (60) consecutive days.

7. Lessee, at its option, is hereby given the right and power to pool or combine the land covered by this lease, or any portion thereof, as to oil and gas, or either of them, with any other land, lease or leases when in Lessee's judgment it is necessary or advisable to do so in order to properly develop and operate said premises, such pooling to be into a well unit or units not exceeding forty (40) acres, plus an acreage tolerance of ten per cent (10%) of forty (40) acres, for oil, and not exceeding six hundred and forty (640) acres, plus an acreage tolerance of ten per cent (10%) of six hundred and forty (640) acres, for gas, except that larger units may be created to conform to any spacing or well unit pattern that may be prescribed by governmental authorities having jurisdiction. Lessee may pool or combine acreage covered by this lease, or any portion thereof, as above provided, as to oil or gas in any one or more strata, and units so formed need not conform in size or area with the unit or units into which the lease is pooled or combined as to any other stratum or strata, and oil units need not conform as to area with gas units. The pooling in one or more instances shall not exhaust the rights of the Lessee hereunder to pool this lease or portions thereof into other units. Lessee shall execute in writing and place of record an instrument or instruments identifying and describing the pooled acreage. The entire acreage so pooled into a unit shall be treated for all purposes, except the payment of royalties, as if it were included in this lease, and drilling or reworking operations thereon or production of oil or gas therefrom, or the completion thereon of a well as a shut-in gas well, shall be considered for all purposes, except the payment of royalties, as if such operations were on or such production were from or such completion were on the land covered by this lease, whether or not the well or wells be located on the premises covered by this lease. In lieu of the royalties elsewhere herein specified, Lessor shall receive from a unit so formed, only such portion of the royalty stipulated herein as the amount of its net mineral acres placed in the unit bears to the total acreage so pooled in the particular unit involved. Should any unit as originally created hereunder contain less than the maximum number of acres hereinabove specified, then Lessee may at any time thereafter, whether before or after production is obtained on the unit, enlarge such unit by adding additional acreage thereto, but the enlarged unit shall in no event exceed the acreage content hereinabove specified. In the event an existing unit is so enlarged, Lessee shall execute and place of record a supplemental declaration of unitization identifying and describing the land added to the existing unit; provided, that if such supplemental declaration of unitization is not filed until after production is obtained on the unit as originally created, then and in such event the supplemental declaration of unitization shall not become effective until the first day of the calendar month next following the filing thereof. In the absence of production Lessee may terminate any unitized area by filing of record notice of termination.

This Section 7 shall not affect the provisions of Section 3.

8. Lessee shall have the right at any time without Lessor's consent to surrender all or any portion of the leased premises and be relieved of all obligations as to the acreage surrendered arising subsequent to the date of surrender. Lessee shall have the right at any time during or within one year after the expiration of this lease to remove all property and fixtures placed by Lessee on said land, including the right to draw and remove all casing.

9. The rights of either party hereunder may be assigned, in whole or in part, and the provisions hereof shall extend to the successors and assigns of the parties hereto, but no change or division in ownership of the land, rentals or royalties, however accomplished, shall operate to enlarge the obligations or diminish the rights of Lessee. No change in the ownership of the land, or any interest therein, shall be binding on Lessee until Lessee shall be furnished with a certified copy of all recorded instruments, all court proceedings and all other necessary evidence of any transfer, inheritance, or sale of said rights. In event of the assign-

ment of this lease as to a segregated portion of said land, the rentals payable hereunder shall be apportionable among the several leasehold owners ratably according to the surface area of each, and default in rental payment by one shall not affect the rights of other leasehold owners hereunder. In case Lessee assigns this lease, in whole or in part, Lessee shall be relieved of all obligations with respect to the assigned portion or portions arising subsequent to the date of assignment.

10. All express or implied covenants of this lease shall be subject to all Federal and State Laws, Executive Orders, Rules or Regulations, and this lease shall not be terminated, in whole or in part, nor Lessee held liable in damages, for failure to comply therewith, if compliance is prevented by, or if such failure is the result of, any such Law, Order, Rule or Regulation, or if prevented by an act of God, of the public enemy, labor disputes, inability to obtain material, failure of transportation, or other cause beyond the control of Lessee other than financial.

If, during the term of this lease, oil or gas or associated liquid hydrocarbons are discovered upon the leased premises, but Lessee is prevented from producing the same by reason of any of the causes set out in this Section, this lease shall nevertheless be considered as producing and shall continue in full force and effect until Lessee is permitted to produce the oil, gas or associated liquid hydrocarbons, and as long thereafter as such production continues in paying quantities or drilling or reworking operations are continued as elsewhere herei provided.

11. Lessee at its option may discharge any tax, mortgage or other lien upon said land, either in whole or in part, and in event Lessee does so, it shall be subrogated to such lien with the right to enforce same and apply rentals and royalties accruing hereunder toward satisfying same. If Lessor owns an interest in said land less than the entire fee simple estate in and to oil, gas and associated liquid hydrocarbons, then the royalties and rentals to be paid Lessor shall be reduced proportionately.

12. This lease does not cover oil shale.

13. The rights granted under this lease are granted without covenants of title or to give possession or for quiet enjoyment.

14. Lessee recognizes that among the exceptions and reservations set forth in the deeds referred in Section 1 of this Oil and Gas Lease are the rights of Lessor's predecessors in interest to use such portions of the leased premises as may not be required for the proper conduct of oil and gas operations for all purposes not inconsistent with such operations. Lessee shall so conduct its operations as not to interfere unreasonably with such use; provided, nevertheless, that such other use of the leased premises shall not unreasonably interfere with the operations of the Lessee.

15. Without the prior written consent of the owner thereof, Lessee shall not make any entry upon or under any portion of any railroad right-of-way or station grounds for any of the purposes of this lease, and shall not drill any well or maintain any structures within two hundred feet (200') (a) of any railroad tracks or buildings on such right-of-way or station grounds, or (b) of any buildings upon the leased premises.

16. Notwithstanding anything to the contrary in this lease contained, no well shall be drilled upon or into and no facilities shall be installed upon any lands in which Lessor owns the mineral rights only, until the consents of the surface owners have been obtained under written instruments satisfactory to Lessor. Lessor will endeavor to obtain such consents and the Lessee agrees to cooperate. Any payments which the Lessor elects to pay to the surface owners shall be paid by Lessor out of its royalty.

Lessee shall pay for all damage to surface owners' lands, buildings and growing crops caused by construction, operations or maintenance of facilities, shall bury all pipe lines below plow depth where they cross cultivated lands, shall construct gates where necessary for crossing fenced lands and keep the gates in repair and closed, and shall indemnify Lessor with respect to such obligations.

17. Lessee agrees to hold Lessor harmless from and to indemnify it against any and all claims, demands, actions and causes of action for injury to or loss or destruction of property, and for injury to or death of any person, arising out of or in connection with operations hereunder.

Lessee shall not permit or suffer any lien or other encumbrance to be filed or to remain against the leased premises as a result of its operations hereunder, and Lessee agrees to hold Lessor harmless from and to indemnify it against any and all claims, demands, actions and causes of action which may result from the filing of any such lien or encumbrance.

All of the provisions of this lease shall inure to the benefit of and be binding upon the parties hereto, their successors and assigns.

IN WITNESS WHEREOF, this instrument is executed on the date first above written.

CHAMPLIN PETROLEUM COMPANY

By J. A. Redeker
Its Attorney in Fact

STATE OF Colorado
COUNTY OF Arapahoe } ss.

Colorado-Wyoming Acknowledgment

The foregoing instrument was acknowledged before me by J. A. Redeker, as Attorney in Fact for CHAMPLIN PETROLEUM COMPANY, this 23rd day of October, 19 75.

WITNESS my hand and official seal.

Shirley Anne Mott
Notary Public

My Commission expires My Commission expires Feb. 10, 1978

STATE OF
COUNTY OF } ss.

Utah-Nebraska Acknowledgment

On the ..... day of ....., 19....., personally appeared before me, a Notary Public in and for said County, ... personally known to me, who, being by me duly sworn did say that he is the Attorney in Fact of CHAMPLIN PETROLEUM COMPANY and that said instrument was signed as his voluntary act as Attorney in Fact for and in behalf of said corporation by authority and said ..... acknowledged to me that he, as such Attorney in Fact, executed the same.

WITNESS my hand and notarial seal the date last aforesaid.

Notary Public

My Commission expires

No.

OIL AND GAS LEASE

FROM
CHAMPLIN PETROLEUM COMPANY
TO
AMOCO PRODUCTION COMPANY

Dated ....., 19.
Section ..... Township ..... Range.....
No. of Acres ..... County, ...

STATE OF } ss.
COUNTY OF

This instrument was filed for record on the ..... day of ....., 19..... at ..... o'clock ..... M., and duly recorded in book ..... page ..... of the records of this office.

By

When Recorded Return to

EXHIBIT "A"

Lease No. 600085

Weld County, Colorado

Township 1 North, Range 68 West

Section 4: Lot 2 (78.16), $S\frac{1}{2}NW\frac{1}{4}$, $S\frac{1}{2}$
Section 5: Lot 2 (82.75), $S\frac{1}{2}NW\frac{1}{4}$, $SW\frac{1}{4}$, $SW\frac{1}{4}SE\frac{1}{4}$
Section 7: $E\frac{1}{2}SW\frac{1}{4}$, $SW\frac{1}{4}SE\frac{1}{4}$
Section 8: $NW\frac{1}{4}$, $SW\frac{1}{4}NE\frac{1}{4}$, $SE\frac{1}{4}$
Section 9: $NW\frac{1}{4}$, $S\frac{1}{2}$
Section 17: $NW\frac{1}{4}$, $S\frac{1}{2}$
Section 18: $E\frac{1}{2}W\frac{1}{2}$, $SW\frac{1}{4}NE\frac{1}{4}$, $SE\frac{1}{4}$
Section 19: Lot 1 (76.96), $E\frac{1}{2}W\frac{1}{2}$, $W\frac{1}{2}SW\frac{1}{4}NE\frac{1}{4}$, $SE\frac{1}{4}$
Section 20: $NW\frac{1}{4}SW\frac{1}{4}$, $S\frac{1}{2}NE\frac{1}{4}SW\frac{1}{4}$
Section 21: $NW\frac{1}{4}$, $S\frac{1}{2}$ (except approx. 7.10 ac. ROW to Community Ditch and Reservoir Co.)
Section 31: $W\frac{1}{2}SE\frac{1}{4}SE\frac{1}{4}$, $SE\frac{1}{4}SE\frac{1}{4}SE\frac{1}{4}$
Section 33: $NW\frac{1}{4}$, $S\frac{1}{2}$ (except approx. 8.60 ac ROW to Community Ditch and Reservoir Co.)

Township 2 North, Range 68 West
Section 29: $SW\frac{1}{4}NE\frac{1}{4}SW\frac{1}{4}$, $S\frac{1}{2}SW\frac{1}{4}$
Section 33: $W\frac{1}{2}NE\frac{1}{4}$, $SE\frac{1}{4}$

Boulder County, Colorado

Township 1 North, Range 69 West

Section 5: Lot 2 (77.61), $S\frac{1}{2}NW\frac{1}{4}$, $S\frac{1}{2}$
Section 7: Lot 1 (79.30), $E\frac{1}{2}NW\frac{1}{4}$, $S\frac{1}{2}NE\frac{1}{4}$
Section 13: $W\frac{1}{2}SE\frac{1}{4}$, $W\frac{1}{2}SW\frac{1}{4}NE\frac{1}{4}SE\frac{1}{4}$, $SE\frac{1}{4}SE\frac{1}{4}$ less southeasterly 20 acres
Section 25: $W\frac{1}{2}NW\frac{1}{4}$, $SW\frac{1}{4}$

Township 1 North, Range 70 West

Section 1: $SW\frac{1}{4}NE\frac{1}{4}$, $S\frac{1}{2}$

Containing 5,844.08 acres, more or less

1-10

B 1050 REC 01989356 11/21/84 14:45 $30.00 1/010
F 0454 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

AR1989356

RECIPROCAL GRANT OF EASEMENT AND AGREEMENT

KNOW ALL MEN BY THESE PRESENTS, that Skies Unlimited of Colorado, Inc., a Colorado corporation, hereinafter referred to as "Skies", for and in consideration of Ten Dollars and other valuable consideration, receipt and sufficiency of which is hereby acknowledged, by these presents do hereby give, grant and convey unto Anna M. Pratt, Kenneth E. Pratt, and Karen K. Landers, hereinafter referred to as "Pratt":

84 6455

I. A non-exclusive perpetual easement to construct, maintain, and repair such pipelines as Pratt shall from time to time elect for use as water pipelines, ingress and egress and access to and use of such location on the property described below:

> A parcel of land located in the NE1/4SE1/4 Section 31, Township 1 North, Range 68 West of 6th P.M., County of Weld, State of Colorado, more particularly described as follows:
>
> Beginning at the SE Corner NE1/4SE1/4 Section 31, Township 1 North, Range 68 West thence West along the South line of the North half of the SE1/4 of Section 31 a distance of 705.93 feet to the Southwest corner of Tract C Erie Air Park Subdivision, Weld County, Colorado to the TRUE POINT OF BEGINNING; thence along the West line of Tract C, N 0°46'31" E a distance of 20 feet; thence

B 1050 REC 01989356 11/21/84 14:45 $30.00 2/010
F 0455 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

parallel to the South line, N1/2SE1/4 Section 31, S 89°35'08" a distance of 30 feet; thence parallel to the West line of Tract C a distance of 20 feet to a point on the South line N1/2SE1/4 Section 31; thence West along said South line N1/2SE1/4 Section 31, S 89°35'08" a distance of 30 feet to the TRUE POINT OF BEGINNING.

This easement shall be solely for the purpose of permitting Pratt to connect a water line of similar capacity design and construction to the water line of Skies located within the above described property. Pratt by this grant shall not acquire any interest of any nature whatsoever in any water, water stock or water rights of Skies. But, to the contrary, Pratt must solely at its own expense acquire any water, water stock or water rights which any governmental agency may require as a prerequisite to connecting a water line on the above described property to the water distribution system of the Erie Air Park Subdivision, Weld County, Colorado which may be situated thereon. Under no circumstances shall Pratt exercise this easement to the detriment or in such a manner that the water supply to all or any portion of the Erie Air Park Subdivision is in quantity or quality diminished in any way whatsoever.

Pratt shall bear any cost necessary to connect a water line as described herein to the Erie Air Park Subdivision water supply and shall bear the cost of any repairs or maintenance of said water line, the restoration of Skies

B 1050 REC 01989356 11/21/84 14:45 $30.00 3/010
F 0456 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

real property and the repair, replacement, restoration and maintenance of Erie Air Park Subdivision's water system caused by Pratt's connection of a water line thereto.

II. Skies also gives, grants, and conveys to Pratt a non-exclusive perpetual easement for ingress, egress and access to and use of the runways, taxiways and facilities located on the property described below. Pratt's use and access to such runways, taxiways and facilities shall be on the terms and conditions assessed against all other users of such facilities and runways, including, but not limited to, payment of any and all asphalt maintenance assessments, or similar assessments, now or hereafter applicable to the subject real property, in accordance with the terms and conditions thereof.

This easement granted to Pratt shall be for the benefit of, appurtenant to, on, along, over and across the following described real property, to-wit:

> Tract H, Erie Air Park Subdivision, Erie, Colorado, being a part of Section 30 and part of Section 31, Township 1 North, Range 68 West of the 6th P.M., County of Weld, State of Colorado.

This easement is for the benefit of and appurtenant to that real property, or any portion thereof described as:

> South 1/2 (S-1/2) of the Southeast 1/4 (SE-1/4), Section 31, Township 1 North, Range 68 West of the 6th P.M., County of Weld, State of Colorado except that property described as:

B 1050 REC 01989356 11/21/84 14:45 $30.00 4/010
F 0457 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

A parcel of land located in the S-1/2, SE-1/4, Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, County of Weld, State of Colorado, being more particlarly described as follows:

Commencing at the South quarter corner of Section 31, Township 1 North, Range 68 West thence N 0°46'25" E, along the West line of the S-1/2, SE-1/4, of said Section 31, a distance of 75.00 feet to the TRUE POINT OF BEGINNING, which point is the SE corner of Tract D, ERIE AIR PARK SUBDIVION; thence continuing N 0°46'25" E, along said West line and along the East line of said Tract D, a distance of 1,245.57 feet to the NW corner of said S-1/2, SE-1/4; thence S 89°35'08" E, along the North line of said S-1/2, SE-1/4, a distance of 60.00 feet to the SW corner of Block 4 of ERIE AIR PARK SUBDIVISION: thence S 12°19'26" E, along the W line of said Block 4 (extended Southerly), a distance of 1,277.00 feet to a point on the N right-of-way line of State Highway No. 7 as recorded in Book 1148 at Page 512, of the Weld County Clerk and Recorder's records, which point is 75.00 feet N of the S line of said S-1/2, SE-1/4; thence N 89°34'50" W, along said N right-of-way line, and parallel with the S line of said S-1/2, SE-1/4, a distance of 349.38 feet to the TRUE POINT OF BEGINNING.

Pratt, for and in consideration of Ten Dollars and other valuable consideration, receipt and sufficiency of which is hereby acknowledged by these presents, does hereby give, grant and convey to Skies a non-exclusive perpetual easement for ingress, egress, access to and use as a taxiway or roadway of the real property described as follows:

B 1050 REC 01989356 11/21/84 14:45 $30.00 5/010
F 0458 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

A parcel of land located in the S1/2, SE1/4 Section 31, Township 1 North, Range 68 West, 6th P.M., County of Weld, State of Colorado, more specifically described as BEGINNING at the SW corner N1/2, SE1/4, Section 31 thence proceeding East along the South line, N1/2, SE1/4, Section 31, S 89o35'08" E, a distance of 1925.96 feet; thence South on a line parallel to the West line of the SW 1/4 Section 31 a distance of 30 feet; thence West on a line parallel to the South line, N1/2 SE1/4, Section 31, North 89o35'08" W, a distance of 1925.96 feet to a point on the West line SW 1/4, Section 31; thence North along said West line SW 1/4, Section 31, a distance of 30 feet, to the BEGINNING.

III. Skies may grade, and in its discretion improve, the described property with the installation of a dirt, gravel, concrete, blacktop or similar aircraft and motor vehicle taxiway or roadway for the movement of aircraft or motor vehicles over and across said easement to Tract H Erie Air Park Subdivision, Weld County, Colorado. The cost of installation and maintenance of this taxiway or roadway shall be totally the obligation of Skies, except, Pratt shall be obligated for their proportionate share of the runway maintenance assessment attributable thereto. Further, Pratt agrees to pay for the costs of repair, maintenance or restoration incurred by Skies as a result of Pratt's use of any easement rights granted herein.

All parties hereto agree to indemnify and hold each other harmless from any claims brought by anyone for

B 1050 REC 01989356 11/21/84 14:45 $30.00 6/010
F 0459 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

personal injury, property damage or mechanic's lien which allegedly arose from one of the parties' exercise of its rights pursuant to the easements granted herein. Further, all parties agree they shall promptly pay all costs incurred in the exercise of their rights under the easements granted herein, and shall permit no liens to be filed therefor against the real property described herein.

Any party hereto may enforce this instrument by appropriate legal action and the party prevailing in said action shall in addition to any other relief be entitled to recover reasonable attorneys' fees.

Any notices shall be deemed received upon delivery to the addresses of the parties set forth below their signatures hereon.

All of the foregoing easements and agreements and the terms and conditions herein shall be perpetual non-exclusive, run with the land and shall inure to and be binding upon the parties and their heirs, successors and assigns.

7-10

B 1050 REC 01989356 11/21/84 14:45 $30.00 7/010
F 0460 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

IN WITNESS WHEREOF the parties have executed this instrument those dates set forth below.

SKIES UNLIMITED OF COLORADO, INC.

By: Caralee J. Pierce President
CARALEE J. PIERCE, President

Attest: Thomas Lee Pierce
THOMAS LEE PIERCE,
Secretary

Executed November 16, 1984

Address: 2380 Cessna Drive
Erie, Colorado 80516

PRATT:

Anna M Pratt
ANNA M. PRATT

Kenneth E. Pratt
KENNETH E. PRATT

Karen K. Landers
KAREN K. LANDERS

Executed November 16, 1984

Address: 1960 Industrial Circle
Longmont, Colorado 80501

B 1050 REC 01989356 11/21/84 14:45 $30.00 8/010
F 0461 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 16th day of November, 1984, by ANNA M. PRATT.

Witness my hand and official seal.

My commission expires: January 31, 1986

SUSAN H. PRATT NOTARY PUBLIC STATE OF COLORADO

Anna M. Pratt
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co.

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 16th day of November, 1984, by KENNETH PRATT.

Witness my hand and official seal.

My commission expires: January 31, 1986

SUSAN H. PRATT NOTARY PUBLIC STATE OF COLORADO

Anna M. Pratt
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co.

9-10

B 1050 REC 01989356 11/21/84 14:45 $30.00 9/010
F 0462 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 16th day of November, 1984, by KAREN K. LANDERS.

Witness my hand and official seal.

My commission expires: January 31, 1986

SUSAN H. PRATT NOTARY PUBLIC STATE OF COLORADO

Susan H. Pratt
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co.

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 16th day of November, 1984, by CARALEE J. PIERCE.

Witness my hand and official seal.

My commission expires: January 31, 1986

SUSAN H. PRATT NOTARY PUBLIC STATE OF COLORADO

Susan H. Pratt
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co.

10-10

B 1050 REC 01989356 11/21/84 14:45 $30.00 10/010
F 0463 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 16th day of November, 19 84, by THOMAS LEE PIERCE.

Witness my hand and official seal.

My commission expires: January 31, 1986

SUSAN H. PRATT NOTARY PUBLIC STATE OF COLORADO

Susan H. Pratt
Notary Public

Address of Notary:

1960 Industrial
Longmont, Co.

AR2225425 B 1274 REC 02225425 08/30/90 11:44 $35.00 1/007
F 1821 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

RECIPROCAL GRANT OF EASEMENT AND AGREEMENT

KNOW ALL ME BY THESE PRESENTS,that Skies Unlimited of Colorado, Inc., a Colorado corporation, hereinafter referred to as "Skies", for and in consideration of Ten Dollars and other valuable consideration, receipt and sufficiency of which is hereby acknowledged, by these presents do hereby give, grant and convey unto Anna M. Pratt, Kenneth L. Pratt and Karen K. Landers, hereinafter referred to as "Pratt":

I. A non-exclusive perpetual easement to construct, maintain and repair such pipelines as Pratt shall from time to time elect for use as water pipelines, ingress and egress and access to and use of such location on the property described below:

> A parcel of land located in the NE 1/4 SE 1/4 Section 31, Township 1 North, Range 68 West of 6th P.M., County of Weld, State of Colorado, more particularly described as follows:
>
> Beginning at the SE Corner NE 1/4 SE 1/4 Section 31, Township 1 North, Range 68 West thence West along the South line of the North half of the SE 1/4 of Section 31 a distance of 705.93 feet to the Southwest corner of Tract C Erie Air Park Subdivision, Weld County, Colorado to the TRUE POINT OF BEGINNING;, thence along the West line of Tract C, N 0°46'31" E a distance of 20 feet; thence parallel to the South line, N 1/2,SE 1/4 Section 31, S 89°35'08" a distance of 30 feet, thence parallel to the West line of Tract C a distance of 20 feet to a point on the South line N 1/2 SE 1/4 Section 31; thence West along said South line N 1/2 SE 1/4 Section 31, S 89°35'08" a distance of 30 feet to the TRUE POINT OF BEGINNING.

This easement shall be solely for the purpose of permitting Pratt to connect a water line of similar capacity design and construction to the water line of Skies located within the above described property. Pratt by this grant shall not acquire any interest of any nature whatsoever in any water, water stock or water rights of Skies. But, to the contrary, Pratt must solely at its own expense acquire any water, water stock or water rights which any governmental agency may require as a prerequisite to connecting a water line on the above described property to the water distribution system of the Erie Air Park Subdivision, Weld County, Colorado which may be situated thereon. Under no circumstances shall Pratt exercise this easement to the detriment or in such a manner that the water supply to all

90-6435

or any portion of the Erie Air Park Subdivision is in quantity or quality in any way whatsoever.

Pratt shall bear any cost necessary to connect a water line as described herein to the Erie Air Park Subdivision water supply and shall bear the cost of any repairs or maintenance of said water line, the restoration of Skies real property and the repair, replacement, restoration and maintenance of Erie Air Park Subdivision's water system caused by Pratt's connection of a water line thereto.

II. Skies also gives, grants, and conveys to Pratt a non-exclusive perpetual easement for ingress, egress and access to and use of the runways, taxiways and facilities located on the property described below. Pratt's use and access to such runways, taxiways, and facilities shall be on the terms and conditions accessed against all other users of such facilities and runways, including, but not limited to, payment of any and all asphalt maintenance assessments, or similar assessments, now or hereafter applicable to the subject real property, in accordance with the terms and conditions thereof.

This easement granted to Pratt shall be for the benefit of, appurtenant to, on, along, over and across the following described real property, to-wit:

Tract H, Erie Air Park Subdivision, Erie, Colorado, being a part of Section 30 and part of Section 31, Township 1 North, Range 68 West of the 6th P.M., County of Weld, State of Colorado.

This easement is for the benefit of and appurtenant to that real property, or any portion thereof described as:

South 1/2 (S-1/2) of the Southeast 1/4 (SE-1/4), Section 31, Township 1 North,Range 68 West of the 6th P.M., County of Weld, State of Colorado except those properties described as:

Parcel I
A parcel of land located in the S-1/2, SE-1/4, Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, County of Weld, State of Colorado, being more particularly described as follows:

Commencing at the South quarter corner of Section 31, Township 1 North, Range 68 West thence N 0°46'25" E, along the West line of the S-1/2, SE-1/4, of said Section 31, a distance of 75.00 feet to the TRUE POINT OF BEGINNING, which point is the SE corner of Tract D, ERIE AIR PARK SUBDIVISION, thence continuing N 0°46'25" E, along said West line and along the East line of said Tract D, a

distance of 1,245.57 feet to the NW corner of said S-1/2, SE-1/4, thence S 89°35'08" E, along the North line of said S-1/2, SE-1/4, a distance of 60.00 feet to the SW corner of Block 4 of ERIE AIR PARK SUBDIVISION: thence S 12°19'26" E, along the W line of said Block 4 (extended Southerly), a distance of 1,277.00 feet to a point on the N right-of-way line of State Highway No. 7 as recorded in Book 1148 at Page 512, of the Weld County Clerk and Recorder's records, which point is 75.00 feet N of the S line of said S-1/2, SE-1/4; thence N 89°34'50" W, along said N right-of-way line, and parallel with the S line of said S-1/2, SE-1/4, a distance of 349.38 feet to the TRUE POINT OF BEGINNING.

Parcel II

A TRACT OF LAND located in the S1/2 of the SE1/4 of Section 31, T.1N, R.68W. of the 6th P.M. Weld County, Colorado, described as follows:

Commencing at the South 1/4 corner of Section 31, T.1N., R.68W. of the 6th P.M.;

THENCE, N. 00°46'25'E. 1,320.57 feet, along the West line of the S1/2 of the SE1/4 of said Section 31. to the NW corner of the said S1/2 of the SE1/4;

THENCE, S. 89°35'08"E. 60.00 feet along the north line of said S1/2 of the SE1/4,.to the SW corner of Block 4 of the Erie Air.Park Subdivision being the northeasterly corner of that tract of land described in Weld County Clerk and Recorder records at Reception No. 01989354 and the TRUE POINT OF BEGINNING;

THENCE, continuing S. 89°35'08'E. 186.46 feet along the north line of the said S1/2 of the SE1/4 and the south line of said Block 4;

THENCE S 12°13'52'E. 123.38 feet;

THENCE S.16°31'13"E. 1,176.22 feet to the north right-of-way line of State Highway No. 7, as recorded in Book 1148 at Page 512 of the Weld County Clerk and Recorder's records, which point is 75.00 feet north of the south line of said S1/2 of the SE1/4;

THENCE, N. 89°34'50"W. 274.53 feet along said north right-of way-line and parallel to the south line of said S1/2 of the SE1/4 to the southeast corner of that tract of land described in Weld County Clerk and Recorder's records at Reception No.01989354

THENCE, N. 12°19'26"W. 1,277.00 feet along the east line of said tract recorded in Reception No. 01989354, to the TRUE POINT OF BEGINNING, containing 6.467 acres more or less, except Seller reserves all rights, title and interest in and to all oil, gas,

petroleum, and other minerals in and under the property to be transferred herein.

Pratt, for and in consideration of Ten Dollars and other valuable consideration, receipt and sufficiency of which is hereby acknowledged by these presents, does hereby give, grant and convey to Skies a non-exclusive perpetual easement for ingress, egress, access to and use as a taxiway or roadway of the real property described as follows:

A parcel of land located in the S 1/2, SE 1/4 Section 31, Township 1 North, Range 68 West, 6th P.M.,County of Weld, State of Colorado, more specifically described as BEGINNING at the SW corner N 1/2, SE 1/4, Section 31 thence proceeding East along the South line, N 1/2, SE 1/4, Section 31, 89°35'08" E, a distance of 1925.96 feet; thence South on a line parallel to the West line of the SW 1/4 Section 31 a distance of 30 feet; thence West on a line parallel to the South line, N 1/2 SE 1/4, Section 31, North 89°35'08" W, a distance of 1925.96 feet to a point on the West line SW 1/4, Section 31, thence North along said West line SW 1/4, Section 31, a distance of 30 feet, to the BEGINNING.

III. Skies may grade, and in its discretion improve, the described property with the installation of a dirt, gravel, concrete, blacktop or similar aircraft and motor vehicle taxiway or roadway for the movement of aircraft and motor vehicles over and across said easement to Tract H Erie Air Park Subdivision, Weld County, Colorado.The cost of installation and maintenance of this taxiway or roadway shall be totally the obligation of Skies, except, Pratt shall be obligated for their proportionate share of the runway maintenance assessment attributable thereto. Further, Pratt agrees to pay for the costs of repair, maintenance or restoration incurred by Skies as a result of Pratt's use of any easement rights granted herein.

All parties hereto agree to indemnify and hold each other harmless from any claims brought by anyone for personal injury, property damage or mechanic's lien which allegedly arose from one of the parties' exercise of its rights pursuant to the easements granted herein.Further, all parties agree they shall promptly pay all costs incurred in the exercise of their rights under the easements granted herein, and shall permit no liens to be filed therefor against the real property described herein.

Any party hereto may enforce this instrument by appropriate legal action and the party prevailing in said action shall in addition to any other relief be entitled to recover reasonable attorneys fees.

7-5

Any notices shall be deemed received upon delivery to the addresses of the parties set forth below their signatures hereon.

All of the foregoing easements and agreements and the terms and conditions herein shall be perpetual non-exclusive, run with the land and shall inure to and be binding upon the parties and their heirs, successors and assigns.

IN WITNESS WHEREOF the parties have executed this instrument those dates set forth below.

SKIES UNLIMITED OF COLORADO,INC.

By:_____
THOMAS LEE PIERCE

Executed 8-8-90,1990

Address: ~~2380 Cessna Drive~~ 350 Baron Ct.
Erie, Colorado 80516

PRATT:

Anna M. Pratt
ANNA M. PRATT

KENNETH E. PRATT

Karen K. Landers
KAREN K. LANDERS

Executed August 8,,1990

Address: 1960 Industrial Circle
Longmont, Colorado 80501

B 1274 REC 02225425 08/30/90 11:44 $35.00 6/007
F 1826 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

7-6

PIERCE:

THOMAS LEE PIERCE

Executed 8-8-90, 1990

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 8th day of August, 1990 by ANNA M.PRATT.

My commission expires: December 8, 1990

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Address: 1960 Industrial Circle
Longmont, CO 80501

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 8th day of August, 1990 by KENNETH E. PRATT.

My commission expires: December 8, 1990

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Address: 1960 Industrial Circle

B 1274 REC 02225425 08/30/90 11:44 $35.00 7/007
F 1827 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

Longmont, CO 80501

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 8th day of August, 1990 by KAREN K. LANDERS.

My commission expires: December 8, 1990

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Address: 1960 Industrial Circle
Longmont, CO 80501

STATE OF COLORADO)
)ss
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 8th day of August, 1990 by THOMAS LEE PIERCE.

My commission expires: December 8, 1990

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Address: 1960 Industrial Circle
Longmont, CO 80501

AR2239296 B 1288 REC 02239296 01/24/91 10:16 $10.00 1/002
F 0506 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO.

NOTICE PURSUANT TO §9-1.5-103, C.R.S., CONCERNING UNDERGROUND FACILITIES OF UNITED POWER, INC.

Pursuant to §9-1.5-103, C.R.S., United Power, Inc., formerly Union Rural Electric Association, Inc., hereby gives notice of the following information. This Notice amends and supersedes the Notice filed by Union Rural Electric Association, Inc., on October 5, 1981, in Book 949, Reception No. 1871004, Weld County records.

1. United Power, Inc., owns and maintains underground facilities within Weld County, Colorado, for the purposes of transmission and distribution of electricity.

2. The general description of the area served by United Power, Inc., within Weld County, Colorado, is as follows, to wit:

> All Sections of Townships 1 North and 2 North, Range 63 West of the 6th P.M.; all Sections of Townships 1 North, 2 North and 3 North, Range 64 West of the 6th P.M.; all Sections of Townships 1 North, 2 North and 3 North, Range 65 West of the 6th P.M.; all Sections of Townships 1 North, 2 North and 3 North, Range 66 West of the 6th P.M.; all Sections of Townships 1 North, 2 North, 3 North and 4 North, Range 67 West of the 6th P.M.; and all Sections of Townships 1 North, 2 North, 3 North and 4 North, Range 68 West of the 6th P.M.
>
> A map showing the general service area is attached as Exhibit A.

3. Notice is given that United Power, Inc., may have underground facilities or may place underground facilities in the future anywhere within its general service area described in paragraph 2. above.

4. Anyone concerned with the location of the underground facilities of United Power, Inc., within Weld County, Colorado, may obtain necessary information regarding the same from the following person or persons:

Name: Monica L. Hansen

Job Title: Right-of-Way Specialist

Address: 18551 East 160th Avenue, Brighton, CO 80601

Telephone No.: (303) 659-0551 1-800-468-8809

Notice is further given that in the event said individuals are no longer so employed or retained, contact should be made with the Engineering Department at United Power, Inc., at the same address and telephone number.

SIGNED AND SEALED this 21st day of January, 1991.

UNITED POWER, INC.

By: [signature]
David I. Dunnell, General Manager

STATE OF COLORADO)
) ss.
COUNTY OF ADAMS)

The foregoing instrument was acknowledged before me this 21st day of January, 1991, by David I. Dunnell, General Manager of United Power, Inc.

WITNESS my hand and official seal.

[signature]
Notary Public

My commission expires 1-27-94.

B 1288 REC 02239296 01/24/91 10:16 $10.00 2/002
F 0507 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

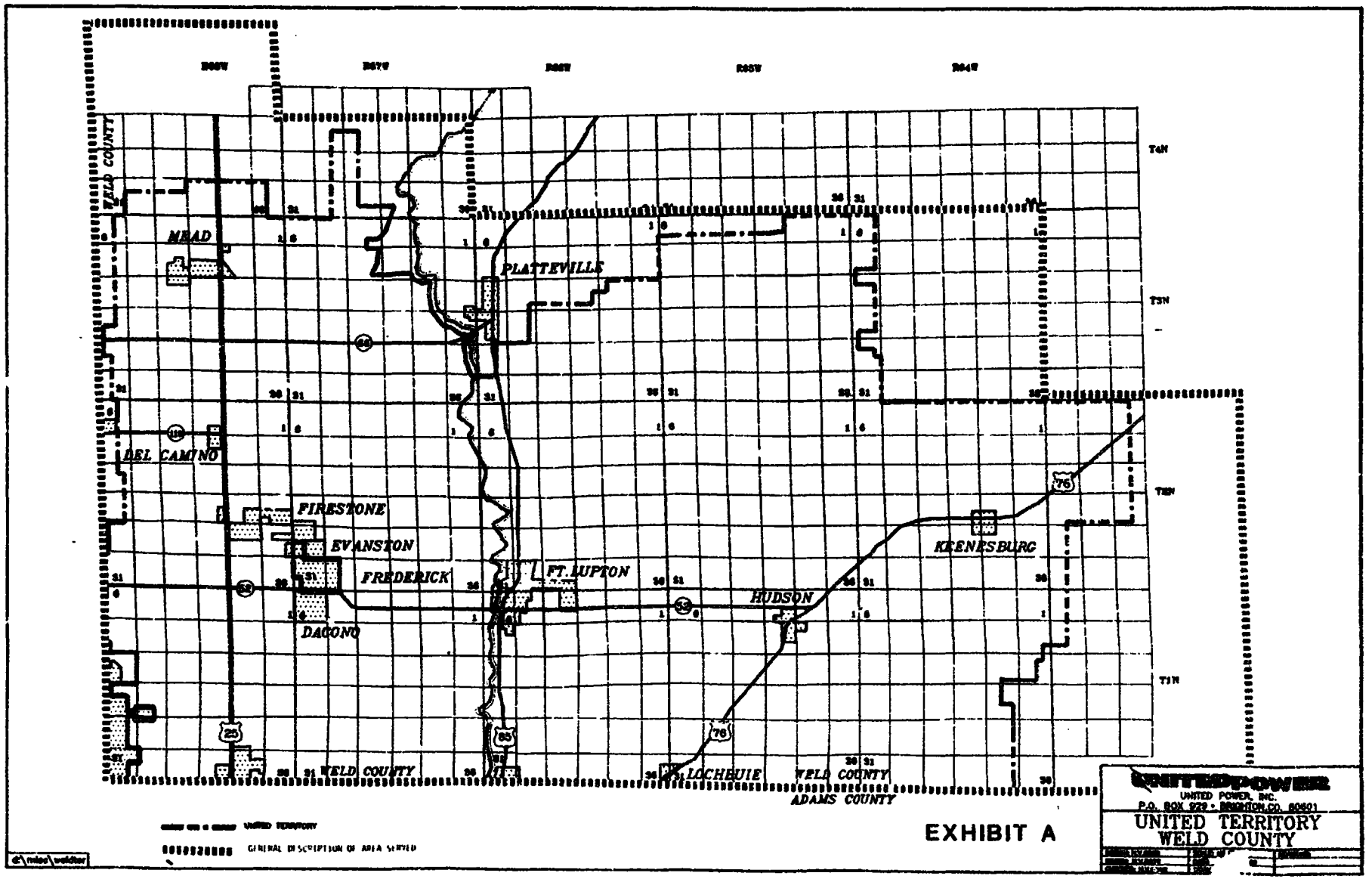


EXHIBIT A

AR2254297

B 1302 REC 02254297 06/25/91 10:41 $45.00 1/009
F 1673 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

JUN 07 1991

GRANT OF EASEMENT & AGREEMENT

Reference is made to that certain agreement dated November 16, 1984 and recorded November 21, 1984 in the Weld County, Colorado Clerk and Recorder's office in Book 1050 as Reception No. 1989356 and an amended agreement dated August 8, 1990 and recorded August 30, 1990 in Book 1274 as Reception No. 2225425. Said agreements are by and between Skies Unlimited of Colorado, Inc., a Colorado Corporation referred to as "Skies" and Anna M. Pratt, Kenneth E. Pratt and Karen K. Landers, collectively referred to as "Pratt."

Specifically, in Articles II and III of said agreements, a 30 foot access right-of-way was created along the South line of the N 1/2 of the SE 1/4 of Section 31, Township 1 North, Range 68 West, 6th P.M., Weld County, Colorado on land owned by Pratt. As a reciprocal part of the agreement, access over Tract H, Erie Air Park Subdivision and two additional parcels described as Parcel I and Parcel II was granted by Skies Unlimited as owners of the Tri-County Airport. The purpose of the reciprocal easement was to provide a taxiway for the transport of aircraft from properties on both sides of the easement to runway 33/15 on Tri-County Airport.

Lowell W. Bridwell is the owner of Lot 7, Block 5, Erie Air Park Subdivision, Weld County, Town of Erie, Colorado. Said lot is adjacent to the existing aforementioned 30 foot easement. Bridwell requires the documented right to use said easement and airport access for the purpose of moving aircraft to and from his

property. However, the 30 foot easement is insufficient in width for the wing clearance of his aircraft. Therefore, Bridwell requires an additional strip 10 feet in width for this purpose. The easement is for air rights only which will allow for aircraft wings to pass over the land unobstructed when the aircraft is being transported to and from his property.

Therefore, for $10.00 and other good and valuable considerations, the receipt of which is hereby acknowledged, Bridwell, his heirs and assigns are hereby granted a perpetual, nonexclusive right to use the aforementioned 30 foot easement and access through Tract H, Parcels I & II to the runway for the purpose of moving aircraft to and from the runway and his property (Lot 7, Block 5).

The existing easements contained in said agreements are as follows:

1. Skies Unlimited

Tract H, Erie Air Park Subdivision, Erie, Colorado, being a part of Section 30 and part of Section 31, Township 1 North, Range 68 West of the 6th P.M., County of Weld, State of Colorado.

Parcel I
A parcel of land located in the S-1/2, SE-1/4, Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, County of Weld, State of Colorado, being more particularly described as follows:

Commencing at the South quarter corner of Section 31, Township 1 North, Range 68 West thence N 0°46'25" E, along the West line of the S-1/2, SE-1/4, of said Section 31, a distance of 75.00 feet to the TRUE POINT OF BEGINNING, which point is the SE corner of Tract D, ERIE AIR PARK SUBDIVISION, thence continuing N 0°46'25" E, along said West line and along the East line of said Tract D, a

distance of 1,245.57 feet to the NW corner of said S-1/2, SE-1/4, thence S 89°35'08" E, along the North line of said S-1/2, SE-1/4, a distance of 60.00 feet to the SW corner of Block 4 of ERIE AIR PARK SUBDIVISION: thence S 12°19'26" E, along the W line of said Block 4 (extended Southerly), a distance of 1,277.00 feet to a point on the N right-of-way line of State Highway No. 7 as recorded in Book 1148 at Page 512, of the Weld County Clerk and Recorder's records, which point is 75.00 feet N of the S line of said S-1/2, SE-1/4; thence N 89°34'50" W, along said N right-of-way line, and parallel with the S line of said S-1/2, SE-1/4, a distance of 349.38 feet to the TRUE POINT OF BEGINNING.

Parcel II

A TRACT OF LAND located in the S1/2 of the SE1/4 of Section 31, T.1N, R.68W. of the 6th P.M. Weld County, Colorado, described as follows:

Commencing at the South 1/4 corner of Section 31, T.1N., R.68W. of the 6th P.M.;

THENCE, N. 00°46'25'E. 1,320.57 feet, along the West line of the S1/2 of the SE1/4 of said Section 31. to the NW corner of the said S1/2 of the SE1/4;

THENCE, S. 89°35'08"E. 60.00 feet along the north line of said S1/2 of the SE1/4,.to the SW corner of Block 4 of the Erie Air.Park Subdivision being the northeasterly corner of that tract of land described in Weld County Clerk and Recorder records at Reception No. 01989354 and the TRUE POINT OF BEGINNING;

THENCE, continuing S. 89°35'08'E. 186.46 feet along the north line of the said S1/2 of the SE1/4 and the south line of said Block 4;

THENCE S 12°13'52'E. 123.38 feet;

THENCE S.16°31'13"E. 1,176.22 feet to the north right-of-way line of State Highway No. 7, as recorded in Book 1148 at Page 512 of the Weld County Clerk and Recorder's records, which point is 75.00 feet north of the south line of said S1/2 of the SE1/4;

THENCE, N. 89°34'50"W. 274.53 feet along said north right-of way-line and parallel to the south line of said S1/2 of the SE1/4 to the southeast corner of that tract of land described in Weld County Clerk and Recorder's records at Reception No.01989354

THENCE, N. 12°19'26"W. 1,277.00 feet along the east line of said tract recorded in Reception No. 01989354, to the TRUE POINT OF BEGINNING, containing 6.467 acres more or less, except Seller reserves all rights, title and interest in and to all oil, gas, petroleum, and other minerals in and under the property to be transferred herein.

2. Pratt

> A parcel of land located in the S 1/2, SE 1/4, Section 31, Township 1 North, Range 68 West, 6th P.M., County of Weld, State of Colorado, more specifically described as BEGINNING at the SW corner of N 1/2, SE 1/4, Section 31 thence proceeding East along the South line, N 1/2, SE 1/4, Section 31, S 89°35'08" E, a distance of 1925.96 feet; thence South on a line parallel to the West line of the SW 1/4, Section 31 a distance of 40 feet; thence West on a line parallel to the South line, N 1/2, SE 1/4, Section 31; N 89°35'08" W, a distance of 1925.96 feet to a point on the West line SW 1/4, Section 31, thence North along said West line SW 1/4, Section 31, a distance of 30 feet, to the BEGINNING.

In addition, Pratt grants Bridwell, his heirs and assigns, the perpetual nonexclusive air rights over the following described property.

> A parcel of land located in the S 1/2, SE 1/4, Section 31, Township 1 North, Range 68 West, 6th P.M., County of Weld, State of Colorado, more specifically described as BEGINNING at the SW corner of N 1/2, SE 1/4, Section 31 thence S 89°35'08" E along the South line of the N 1/2, SE 1/4, Section 31, a distance of 246.46 ft to a point; thence S 12°13'52" E a distance of 30 feet to the TRUE POINT OF BEGINNING, thence S 89°35'08" E and parallel to the South line, N 1/2, SE 1/4, Section 31 a distance of 700 feet, thence S 12°13'52" E a distance of 10 feet, thence West on a line parallel to the South line, N 1/2, SE 1/4, Section 31, N 89°35'08" W a distance of 700 feet, thence N 12°13'52" E a distance of 10 feet to the TRUE POINT OF BEGINNING.

Bridwell's right to the foregoing easements are subject to the terms and conditions contained in the original agreements dated November 16, 1984 and August 8, 1990.

Such right gives Bridwell permission to construct and maintain a taxiway between the runway and his property at his expense. At such time as others participate in the use of the taxiway,

Bridwell will participate on a pro rata basis in the reasonable cost of the maintenance and upkeep of the taxiway.

All parties hereto agree to indemnify and hold each other harmless from any claims brought by anyone for personal injury, property damage or mechanic's lien which allegedly arose from one of the parties' exercise of its rights pursuant to the easements granted herein. Further, all parties agree they shall promptly pay all costs incurred in the exercise of their rights under the easements granted herein, and shall permit no liens to be filed therefor against the real property described herein.

Any party hereto may enforce this instrument by appropriate legal action and the party prevailing in said action shall in addition to any other relief be entitled to recover reasonable attorney's fees.

Any notices shall be deemed received upon delivery to the addresses of the parties set forth below their signatures hereon.

All of the foregoing easements and agreements and the terms and conditions herein shall be perpetual nonexclusive, run with the land and shall inure to and be binding upon the parties and their heirs, successors and assigns.

In WITNESS THEREOF the parties have executed this instrument those dates set forth below.

B 1302 REC 02254297 06/25/91 10:41 $45.00 6/009
F 1678 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

PRATT:

Anna M. Pratt
ANNA M. PRATT

Kenneth E. Pratt
KENNETH E. PRATT

Karen K. Landers
KAREN K. LANDERS

Executed: June 20, 1991

Address: 1960 Industrial Circle
Longmont, Colorado 80501

BRIDWELL:

LOWELL W. BRIDWELL

Executed: June 6, 1991

Address: 8520 W. 120th Avenue
Broomfield, Colorado 80020

B 1302 REC 02254297 06/25/91 10:41 $45.00 7/009
F 1679 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 20th day of June, 1991, by ANNA M. PRATT.

Witness my hand and official seal.

My commission expires: December 8, 1994

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co 80501

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 20th day of June, 1991, by KENNETH E. PRATT.

Witness my hand and official seal.

My commission expires: December 8, 1994

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co 80501

B 1302 REC 02254297 06/25/91 10:41 $45.00 8/009
F 1680 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 20th day of June, 1991, by KAREN K. LANDERS.

Witness my hand and official seal.

My commission expires: December 8, 1994

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W. Mitchiner
Notary Public

Address of Notary:
1960 Industrial Circle
Longmont, Co

STATE OF COLORADO)
) ss.
COUNTY OF Jefferson)

The foregoing instrument was acknowledged before me this 6th day of June, 1991, by LOWELL W. BRIDWELL.

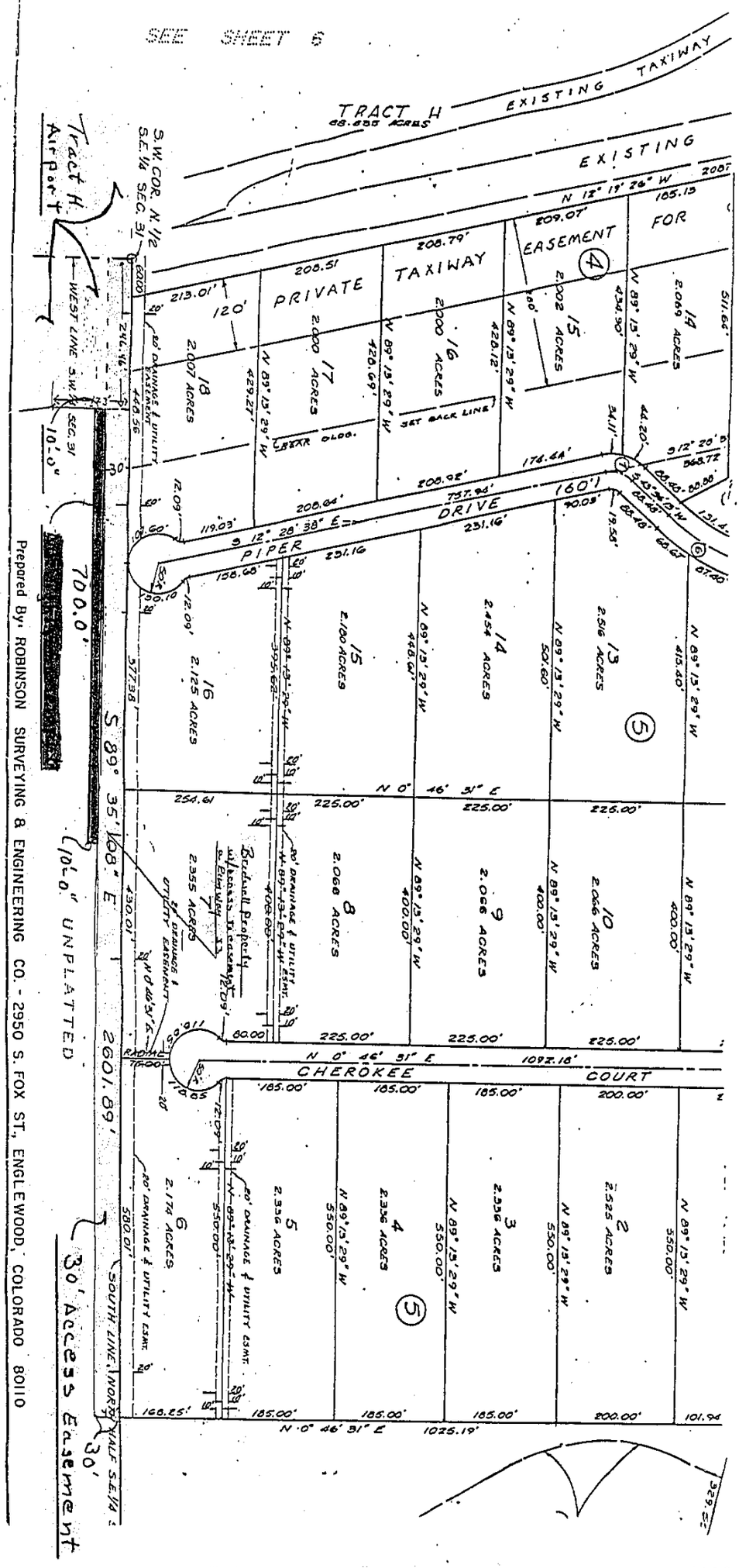
Witness my hand and official seal.

My commission expires: 6/21/92

RENATA BURGESS NOTARY PUBLIC STATE OF COLORADO

Renata Burgess
Notary Public

Address of Notary:
5440 Ward Rd #212
Arvada, Co 80002



Prepared By: ROBINSON SURVEYING & ENGINEERING CO. - 2950 S. FOX ST., ENGLEWOOD, COLORADO 80110

B 1302 REC 02254297 06/25/91 10:41 $45.00 9/009
F 1681 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

This agreement replaces GRANT OF EASMENT AGREEMENT recorded June 25, 1991, Book 1302, Reception #2254297

JUN 07 1991

AR2268776

GRANT OF EASEMENT & AGREEMENT

Reference is made to that certain agreement dated November 16, 1984 and recorded November 21, 1984 in the Weld County, Colorado Clerk and Recorder's office in Book 1050 as Reception No. 1989356 and an amended agreement dated August 8, 1990 and recorded August 30, 1990 in Book 1274 as Reception No. 2225425. Said agreements are by and between Skies Unlimited of Colorado, Inc., a Colorado Corporation referred to as "Skies" and Anna M. Pratt, Kenneth E. Pratt and Karen K. Landers, collectively referred to as "Pratt."

Specifically, in Articles II and III of said agreements, a 30 foot access right-of-way was created along the South line of the N 1/2 of the SE 1/4 of Section 31, Township 1 North, Range 68 West, 6th P.M., Weld County, Colorado on land owned by Pratt. As a reciprocal part of the agreement, access over Tract H, Erie Air Park Subdivision and two additional parcels described as Parcel I and Parcel II was granted by Skies Unlimited as owners of the Tri-County Airport. The purpose of the reciprocal easement was to provide a taxiway for the transport of aircraft from properties on both sides of the easement to runway 33/15 on Tri-County Airport.

Lowell W. Bridwell is the owner of Lot 7, Block 5, Erie Air Park Subdivision, Weld County, Town of Erie, Colorado. Said lot is adjacent to the existing aforementioned 30 foot easement. Bridwell requires the documented right to use said easement and airport access for the purpose of moving aircraft to and from his

B 1316 REC 02268776 11/08/91 12:32 $45.00 1/009
F 1973 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

86359

property. However, the 30 foot easement is insufficient in width for the wing clearance of his aircraft. Therefore, Bridwell requires an additional strip 10 feet in width for this purpose. The easement is for air rights only which will allow for aircraft wings to pass over the land unobstructed when the aircraft is being transported to and from his property.

Therefore, for $10.00 and other good and valuable considerations, the receipt of which is hereby acknowledged, Bridwell, his heirs and assigns are hereby granted a perpetual, nonexclusive right to use the aforementioned 30 foot easement and access through Tract H, Parcels I & II to the runway for the purpose of moving aircraft to and from the runway and his property (Lot 7, Block 5).

The existing easements contained in said agreements are as follows:

1. Skies Unlimited

Tract H, Erie Air Park Subdivision, Erie, Colorado, being a part of Section 30 and part of Section 31, Township 1 North, Range 68 West of the 6th P.M., County of Weld, State of Colorado.

Parcel I
A parcel of land located in the S-1/2, SE-1/4, Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, County of Weld, State of Colorado, being more particularly described as follows:

Commencing at the South quarter corner of Section 31, Township 1 North, Range 68 West thence N 0°46'25" E, along the West line of the S-1/2, SE-1/4, of said Section 31, a distance of 75.00 feet to the TRUE POINT OF BEGINNING, which point is the SE corner of Tract D, ERIE AIR PARK SUBDIVISION, thence continuing N 0°46'25" E, along said West line and along the East line of said Tract D, a

distance of 1,245.57 feet to the NW corner of said S-1/2, SE-1/4, thence S 89°35'08" E, along the North line of said S-1/2, SE-1/4, a distance of 60.00 feet to the SW corner of Block 4 of ERIE AIR PARK SUBDIVISION: thence S 12°19'26" E, along the W line of said Block 4 (extended Southerly); a distance of 1,277.00 feet to a point on the N right-of-way line of State Highway No. 7 as recorded in Book 1148 at Page 512, of the Weld County Clerk and Recorder's records, which point is 75.00 feet N of the S line of said S-1/2, SE-1/4; thence N 89°34'50" W, along said N right-of-way line, and parallel with the S line of said S-1/2, SE-1/4, a distance of 349.38 feet to the TRUE POINT OF BEGINNING.

Parcel II

A TRACT OF LAND locatеu in the S1/2 of the SE1/4 of Section 31, T.1N, R.68W. of the 6th P.M. Weld County, Colorado, described as follows:

Commencing at the South 1/4 corner of Section 31, T.1N., R.68W. of the 6th P.M.;

THENCE, N. 00°46'25"E. 1,320.57 feet, along the West line of the S1/2 of the SE1/4 of said Section 31. to the NW corner of the said S1/2 of the SE1/4;

THENCE, S. 89°35'08"E. 60.00 feet along the north line of said S1/2 of the SE1/4,.to the SW corner of Block 4 of the Erie Air.Park Subdivision being the northeasterly corner of that tract of land described in Weld County Clerk and Recorder records at Reception No. 01989354 and the TRUE POINT OF BEGINNING;

THENCE, continuing S. 89°35'08"E. 186.46 feet along the north line of the said S1/2 of the SE1/4 and the south line of said Block 4;

THENCE S 12°13'52"E. 123.38 feet;

THENCE S.16°31'13"E. 1,176.22 feet to the north right-of-way line of State Highway No. 7, as recorded in Book 1148 at Page 512 of the Weld County Clerk and Recorder's records, which point is 75.00 feet north of the south line of said S1/2 of the SE1/4;

THENCE, N. 89°34'50"W. 274.53 feet along said north right-of way-line and parallel to the south line of said S1/2 of the SE1/4 to the southeast corner of that tract of land described in Weld County Clerk and Recorder's records at Reception No.01989354

THENCE, N. 12°19'26"W. 1,277.00 feet along the east line of said tract recorded in Reception No. 01989354, to the TRUE POINT OF BEGINNING, containing 6.467 acres more or less, except Seller reserves all rights, title and interest in and to all oil, gas, petroleum, and other minerals in and under the property to be transferred herein.

B 1316 REC 02268776 11/08/91 12:32 $45.00 4/009
F 1976 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

2. Pratt

A parcel of land located in the S 1/2, SE 1/4, Section 31, Township 1 North, Range 68 West, 6th P.M., County of Weld, State of Colorado, more specifically described as BEGINNING at the SW corner of N 1/2, SE 1/4, Section 31 thence proceeding East along the South line, N 1/2, SE 1/4, Section 31, S 89°35'08" E, a distance of 1925.96 feet; thence South on a line parallel to the West line of the SW 1/4, Section 31 a distance of 40 feet; thence West on a line parallel to the South line, N 1/2, SE 1/4, Section 31; N 89°35'08" W, a distance of 1925.96 feet to a point on the West line SW 1/4, Section 31, thence North along said West line SW 1/4, Section 31, a distance of 30 feet, to the BEGINNING.

In addition, Pratt grants Bridwell, his heirs and assigns, the perpetual nonexclusive air rights over the following described property.

A parcel of land located in the S 1/2, SE 1/4, Section 31, Township 1 North, Range 68 West, 6th P.M., County of Weld, State of Colorado, more specifically described as BEGINNING at the SW corner of N 1/2, SE 1/4, Section 31 thence S 89°35'08" E along the South line of the N 1/2, SE 1/4, Section 31, a distance of 246.46 ft to a point; thence S 12°13'52" E a distance of 30 feet to the TRUE POINT OF BEGINNING, thence S 89°35'08" E and parallel to the South line, N 1/2, SE 1/4, Section 31 a distance of 700 feet, thence S 12°13'52" E a distance of 10 feet, thence West on a line parallel to the South line, N 1/2, SE 1/4, Section 31, N 89°35'08" W a distance of 700 feet, thence N 12°13'52" E a distance of 10 feet to the TRUE POINT OF BEGINNING.

Bridwell's right to the foregoing easements are subject to the terms and conditions contained in the original agreements dated November 16, 1984 and August 8, 1990.

Such right gives Bridwell permission to construct and maintain a taxiway between the runway and his property at his expense. At such time as others participate in the use of the taxiway,

B 1316 REC 02268776 11/08/91 12:32 $45.00 5/009
F 1977 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

Bridwell will participate on a pro rata basis in the reasonable cost of the maintenance and upkeep of the taxiway.

It is hereby understood and agreed to by Bridwell that as an additional consideration Pratt is hereby granted useage of taxiway on easement.

All parties hereto agree to indemnify and hold each other harmless from any claims brought by anyone for personal injury, property damage or mechanic's lien which allegedly arose from one of the parties' exercise of its rights pursuant to the easements granted herein. Further, all parties agree they shall promptly pay all costs incurred in the exercise of their rights under the easements granted herein, and shall permit no liens to be filed therefor against the real property described herein.

Any party hereto may enforce this instrument by appropriate legal action and the party prevailing in said action shall in addition to any other relief be entitled to recover reasonable attorney's fees.

Any notice shall be deemed received upon delivery to the addresses of the parties set forth below their signatures hereon.

All of the foregoing easements and agreements and the terms and conditions herein shall be perpetual nonexclusive, run with the land and shall inure to and be binding upon the parties and their heirs, successors and assigns.

In WITNESS THEREOF the parties have executed this instrument those dates set forth below.

B 1316 REC 02268776 11/08/91 12:32 $45.00 6/009
F 1978 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

PRATT:

~~ANNA M. PRATT~~ KENNETH E. PRATT

~~KENNETH E. PRATT~~ ANNA M. PRATT

KAREN K. LANDERS

Executed: June 20, 1991

Address: 1960 Industrial Circle
Longmont, Colorado 80501

BRIDWELL:

LOWELL W. BRIDWELL

Executed: June 6, 1991

Address: 8520 W. 120th Avenue
Broomfield, Colorado 80020

B 1316 REC 02268776 11/08/91 12:32 $45.00 7/009
F 1979 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 20th day of June, 1991, by ANNA M. PRATT.

Witness my hand and official seal.

My commission expires: December 8, 1994

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 20th day of June, 1991, by KENNETH E. PRATT.

Witness my hand and official seal.

My commission expires: December 8, 1994

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W Mitchiner
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co 80501

9-8

B 1316 REC 02268776 11/08/91 12:32 $45.00 8/009
F 1980 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 20th day of June, 1991, by KAREN K. LANDERS.

Witness my hand and official seal.

My commission expires: December 8, 1994

Ethel W. Mitchiner NOTARY PUBLIC STATE OF COLORADO

Ethel W. Mitchiner
Notary Public

Address of Notary:
1960 Industrial
Longmont, Co 80501

STATE OF COLORADO)
) ss.
COUNTY OF Jefferson)

The foregoing instrument was acknowledged before me this 6th day of June, 1991, by LOWELL W. BRIDWELL.

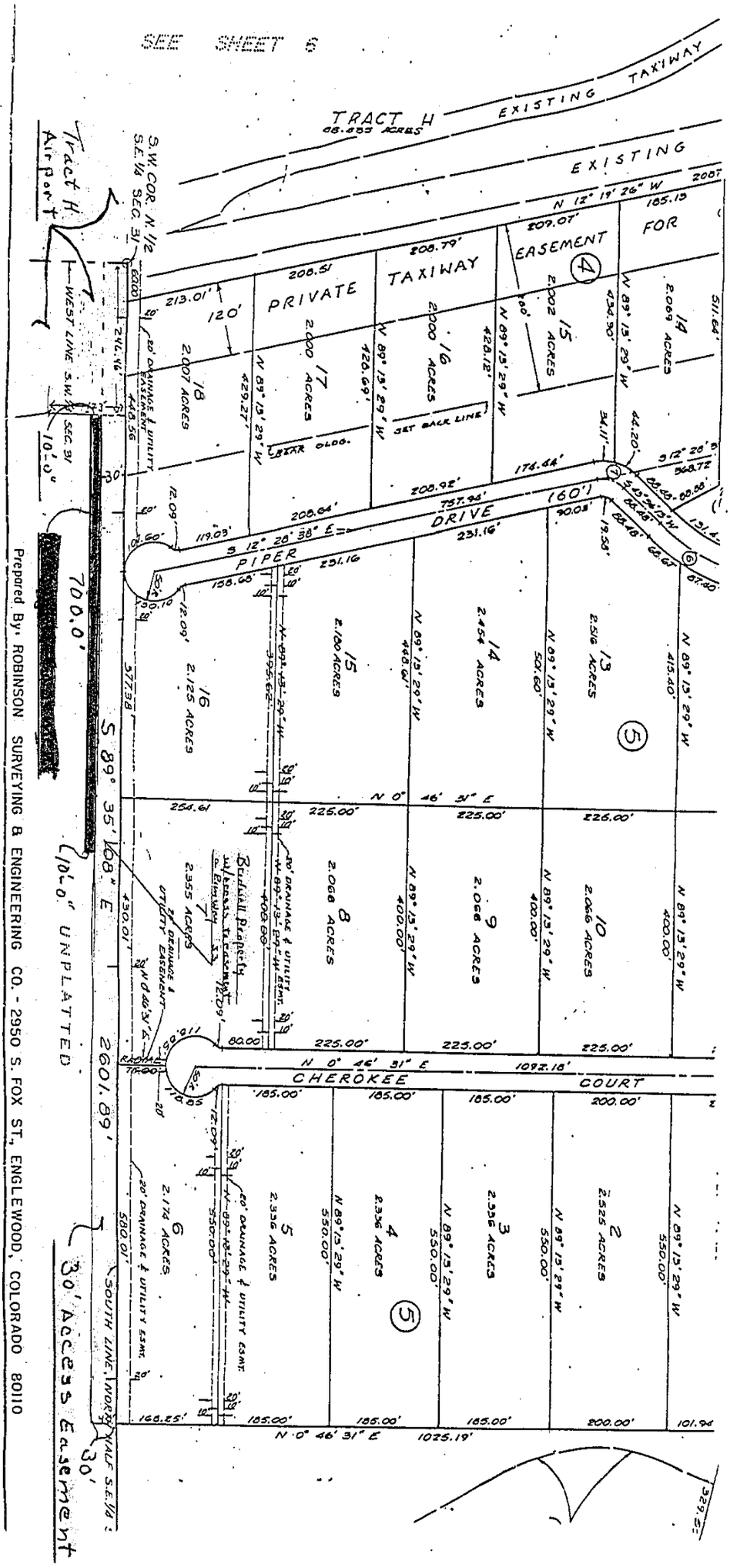
Witness my hand and official seal.

My commission expires: 6/21/92

RENATA BURGESS NOTARY PUBLIC STATE OF COLORADO

Renata Burgess
Notary Public

Address of Notary:
5440 Ward Rd #212
Arvada, Co 80002



Prepared By: ROBINSON SURVEYING & ENGINEERING CO. - 2950 S. FOX ST., ENGLEWOOD, COLORADO 80110

B 1316 REC 02268776 11/08/91 12:32 $45.00 9/009
F 1981 MARY ANN FEUERSTEIN CLERK & RECORDER WELD CO, CO

784

2942784 04/15/2002 10:59A JA Suki Tsukamoto
1 of 4 R 20.00 D 0.00 Weld County CO

REQUEST FOR NOTIFICATION

Pursuant to Colorado revised statute 24-65.5-103(3), a mineral estate owner may file in the office of the County Clerk and Recorder of the county in which the real estate is located a request for notification form that identifies the mineral owner's mineral estate and the corresponding surface estate by parcel number and by section, township, and range numbers.

In accordance with Article 65.5 of Title 24 of the Colorado Revised Statutes,

Kerr-McGee Rocky Mountain Corporation
formerly HS Resources, Inc.
1999 Broadway, Suite 3600
Denver, Colorado 80202

Requests notice of all initial public hearings by a local government on any Application for Development affecting the real property described as follows:

Township 1 North, Range 68 West, 6th P.M.
Section 31: SE/4SE/4
Weld County, Colorado

and more specifically described on the attached Exhibits "A" and "B". "Application for Development" is defined in Colorado revised statute 24-65.5-102(2) as an application for a preliminary or final plat for a subdivision, a planned unit development, or any other similar land use determination that is used by a local government, including applications for zoning, rezoning, general development plans, and special use permits where such applications are in anticipation of new surface development.

Also attached hereto is Exhibit "C" which is a plat of the above described lands showing the allowable locations under Colorado Oil and Gas Conservation Commission Rule 318A and indicates potential drillsite locations where oil and gas drilling operations may occur.

This request for notification form shall be filed in the real estate records for the county and the clerk shall also keep an index of all request for notification forms as required by Colorado revised statute 24-65.5-103(3).

Executed this 3rd day of April, 2002.

James P. Wason
Attorney-in-Fact

STATE OF COLORADO)
) ss
CITY AND COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 3rd day of April, 2002, by James P. Wason as Attorney-in-Fact for Kerr-McGee Rocky Mountain Corporation, a Delaware corporation.

WITNESS my hand and official seal.

Notary Public

My Commission Expires

CHERYL LIGHT NOTARY PUBLIC STATE OF COLORADO
My Commission Expires 03/24/2004

EXHIBIT "A" - MINERAL ESTATE
ATTACHED TO AND MADE A PART OF REQUEST FOR NOTIFICATION
T1N-R68W
SEC. 31: SE/4SE/4
WELD COUNTY, COLORADO

LEASE/ CONTRACT NO.	LESSOR/PARTY	LESSEE/PARTY	LEASE/ CONTRACT DATE	BOOK	REC.NO.	TWNSP	RANGE	SECTION	DESCRIPTION
CO-002801-000	CHAMPLIN PETROLEUM COMPANY	AMOCO PRODUCTION COMPANY	10/16/72	681	1602713	3N	68W	31	W/2SE/4SE/4, SE/4SE/4SE/4

2942784 04/15/2002 10:59A JA Suki Tsukamoto
2 of 4 R 20.00 D 0.00 Weld County CO

EXHIBIT "B" - SURFACE ESTATE
ATTACHED TO AND MADE A PART OF REQUEST FOR NOTIFICATION
T1N-R68W
SECTION 31: SE/4SE/4
WELD COUNTY, COLORADO

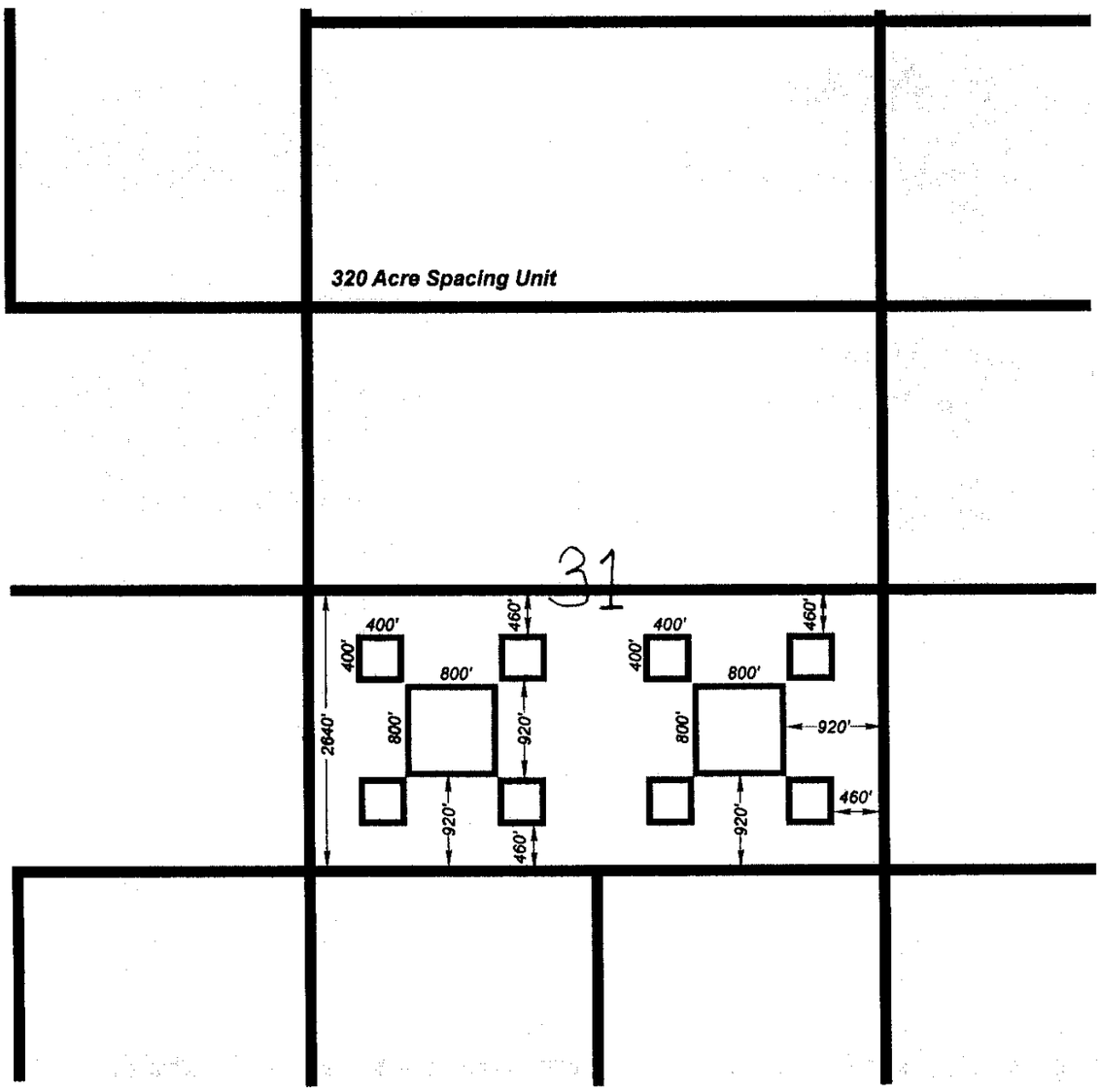
Parcel Number	Legal Description
146731000031	25005 S2SE4 31 1 68 EXC COMM S4 COR OF SEC THENCE N0D46'E 75' TO TRUE POB CONT N0D46'E 1245.57' TO NW COR OF S2SE4 S89D35'E 60' THENCE S12D19'E 1277' TO A PT ON N R/W LN OF STATE HWY #7 THENCE N89D34'W 349.38' TO TRUE POB EXC BEG S4 COR SEC N0D46'E

2942784 04/15/2002 10:59A JA Suki Tsukamoto
3 of 4 R 20.00 D 0.00 Weld County CO

2942784 04/15/2002 10:59A JA Suki Tsukamoto
4 of 4 R 20.00 D 0.00 Weld County CO

EXHIBIT C

Colorado Oil and Gas Conservation Commission
GREATER WATTENBERG AREA
Special Well Location Rule
318 A



400' x 400'

800' x 800'

Sec. 31 - T 1 N - R 68 W

1000 Ft
Scale

318a_e.cdr

2954454 05/28/2002 02:06P Weld County CO
1 of 1 R 5.00 D 0.00 J.A. "Suki" Tsukamoto

454

REQUEST FOR NOTIFICATION OF SURFACE DEVELOPMENT

STATE OF COLORADO }
COUNTY OF WELD }

RME PETROLEUM COMPANY (formerly known as Union Pacific Resources Company) and/or **RME LAND CORP.** (formerly known as Union Pacific Land Resources Corporation) (collectively referred to herein as "**RME**") are Mineral Estate Owners (as defined in C.R.S. Section 24-65.5-102(5)) underlying the following described lands located in WELD County, Colorado (the "Subject Lands"), to-wit:

Township T1N, Range R68W
Section Sec 31: SESE
Parcel Nos.: All surface parcels associated with the referenced legal description

Pursuant to C.R.S. Section 24-65.5-103(3), RME hereby requests written notification of any and all Applications for Development (as defined in C.R.S. Section 24-65.5-102(2)) and all other proposed surface development activities on the Subject Lands in accordance with the terms of Article 24-65.5, C.R.S. Such notices should be sent to the following addresses:

RME Petroleum Company
c/o Anadarko Petroleum Corporation
P.O. Box 9149
The Woodlands, Texas 77387-9147
Attn: Manager Land, Western Division

AND

RME Land Corp.
c/o Anadarko Petroleum Corporation
P.O. Box 9149
The Woodlands, Texas 77387-9147
Attn: Manager Property and Rights-of-Way

EXECUTED this 24th day of April, 2002.

RME PETROLEUM COMPANY and RME LAND CORP.
(f/k/a Union Pacific Resources Company and Union Pacific Land Resources)

By: _____
James L. Newcomb
Attorney-in-Fact for RME PETROLEUM COMPANY and RME LAND CORP.

STATE OF TEXAS }
COUNTY OF MONTGOMERY }

The foregoing instrument was acknowledged before me this 24th day of April, 2002 by James L. Newcomb, as Attorney-in-Fact for RME Petroleum Company, a Delaware corporation and RME Land Corp., a Nebraska corporation, on behalf of said corporations.

Witness my hand and official seal.

_____
NOTARY PUBLIC, State of Texas

MARJORIE J. HAWTHORNE
MY COMMISSION EXPIRES
January 11, 2005

3462781 03/19/2007 01:48P Weld County, CO
1 of 7 R 36.00 D 0.00 Steve Moreno Clerk & Recorder

781

MEMORANDUM OF AGREEMENT

THIS MEMORANDUM OF AGREEMENT is effective this 8th day of March, 2007, by and among ANADARKO LAND CORP. ("Anadarko Land"), formerly known as Union Pacific Land Resources Corporation; ANADARKO E&P COMPANY LP ("Anadarko E&P"), formerly known as Union Pacific Resources Company, both with an address for business of Post Office Box 1330, Houston, Texas 77251-1330 and KERR-McGEE OIL & GAS ONSHORE LP, a wholly owned subsidiary of Anadarko Petroleum Corporation ("Kerr-McGee"), with an address for business of 1999 Broadway, Suite 3700, Denver, Colorado 80202 (Anadarko Land, Anadarko E&P and Kerr-McGee are collectively referred to hereinafter as the "Anadarko Entities") and COLORADO INVESTMENT GRP, LLC, a Colorado limited liability company ("Surface Developer"), with an address of 6850 S. Yosemite Court, Suite 2128, Centennial, Colorado 80112.

A. Surface Developer either owns or has a contract to purchase the surface estate for approximately forty (40) acres located in the SE/4SE/4 of Section 31, Township 1 North, Range 68 West, Weld County, Colorado ("Property"), which Surface Developer proposes to develop for residential or commercial uses and which is more specifically described in the attached Exhibit A.

B. Anadarko Land and Anadarko E&P together own the oil, gas, associated liquid hydrocarbons, coal and other minerals that underlie the Property, such minerals are hereinafter referred to as the "Minerals," and Kerr-McGee owns certain oil and gas leasehold interests in the Property, such oil and gas leasehold rights being hereinafter referred to as the "Leasehold Rights."

C. The Anadarko Entities and Surface Developer have entered into an agreement that provides for the sale by the Anadarko Entities to Surface Developer of certain surface rights associated with the Minerals and Leasehold Rights that is entitled "Agreement Concerning Mineral Rights" ("Agreement").

D. The parties desire, through the execution and recording of this Memorandum, to reaffirm and give notice of the Agreement and the rights and interests created thereby.

NOW, THEREFORE, in consideration of the covenants and mutual promises set forth in the Agreement and this Memorandum of Agreement, including in the recitals, the parties agree as follows:

1. The Anadarko Entities have granted to Surface Developer the right to purchase a relinquishment and quitclaim of surface rights for the Minerals and Leasehold Rights that the Anadarko Entities own in the Property, under the terms, provisions and conditions set forth in the Agreement.

2. This Memorandum is not a complete summary of the Agreement and shall not be used in interpreting the provisions of the Agreement, nor in any way or manner does it amend, modify or affect the terms, provisions, conditions and exceptions of the Agreement, and the

Agreement shall govern and control in all respects, the duties, obligations, covenants, warranties and agreements of the parties.

3. Exhibit A is incorporated into this Memorandum by this reference.

4. This Memorandum shall be recorded in the Office of the Clerk and Recorder of Weld County.

5. This Memorandum may be executed in counterparts, each of which shall be deemed an original, but together of which shall constitute one and the same instrument.

6. The recording of a Relinquishment and Quitclaim document from the Anadarko Entities to Surface Developer with respect to all or a portion of the Property shall automatically effect a release of this Memorandum with respect to the real property described in the particular Relinquishment and Quitclaim document.

IN WITNESS WHEREOF, the parties hereto have executed this instrument on the dates set forth in the acknowledgements, but to be effective on the date first above written.

KERR-McGEE OIL & GAS ONSHORE LP

By: _____
Name: Joseph H. Lorenzo
Title: Attorney-in-Fact

ANADARKO LAND CORP.

By: _____
Name: Mark R. Petry, Attorney-in-Fact
Title: _____

COLORADO INVESTMENT GRP, LLC

By: _____
Name: _____
Title: _____

ANADARKO E&P COMPANY LP

By: _____
Name: Mark R. Petry, Attorney-in-Fact
Title: _____

3462781 03/19/2007 01:48P Weld County, CO
3 of 7 R 36.00 D 0.00 Steve Moreno Clerk & Recorder

ACKNOWLEDGMENTS

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 13th day of March, 2007 by Mark R. Petry as Attorney-in-Fact for ANADARKO LAND CORP.

My Commission expires: 9-22-08

Witness my hand and official seal.

KATHLEEN LOHMANN
NOTARY PUBLIC
STATE OF COLORADO
My Commission Expires 09/22/2008

Kathleen Lohman
Notary Public

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 13th day of March, 2007 by Mark R. Petry as Attorney-in-Fact for ANADARKO E&P COMPANY LP.

My Commission expires: 9-22-08

Witness my hand and official seal.

KATHLEEN LOHMANN
NOTARY PUBLIC
STATE OF COLORADO
My Commission Expires 09/22/2008

Kathleen Lohman
Notary Public

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 13th day of March, 2007 by Joseph H. Lorenzo as Attorney-in-Fact for KERR-McGEE OIL & GAS ONSHORE LP.

My Commission Expires: 3-15-2008

LISA M. WILLIAMS NOTARY PUBLIC STATE OF COLORADO
My Commission Expires 03/15/2008

Witness my hand and official seal.

Lisa M. Williams
Notary Public

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 2007 by _____ as _____ for COLORADO INVESTMENT GRP, LLC.

My Commission expires: _____

Witness my hand and official seal.

_____
Notary Public

Agreement shall govern and control in all respects, the duties, obligations, covenants, warranties and agreements of the parties.

3. Exhibit A is incorporated into this Memorandum by this reference.

4. This Memorandum shall be recorded in the Office of the Clerk and Recorder of Weld County.

5. This Memorandum may be executed in counterparts, each of which shall be deemed an original, but together of which shall constitute one and the same instrument.

6. The recording of a Relinquishment and Quitclaim document from the Anadarko Entities to Surface Developer with respect to all or a portion of the Property shall automatically effect a release of this Memorandum with respect to the real property described in the particular Relinquishment and Quitclaim document.

IN WITNESS WHEREOF, the parties hereto have executed this instrument on the dates set forth in the acknowledgements, but to be effective on the date first above written.

KERR-McGEE OIL & GAS ONSHORE LP

By: _____
Name: _____
Title: _____

ANADARKO LAND CORP.

By: _____
Name: _____
Title: _____

COLORADO INVESTMENT GRP, LLC

By: _____
Name: _____
Title: _____

ANADARKO E&P COMPANY LP

By: _____
Name: _____
Title: _____

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this _____ day of _____, 2007 by _____ as _____ for KERR-McGEE OIL & GAS ONSHORE LP.

My Commission expires: _____

Witness my hand and official seal.

_____
Notary Public

STATE OF CALIFORNIA)
) ss.
COUNTY OF Santa Clara)

The foregoing instrument was acknowledged before me this 8 day of March, 2007 by Ronald Buckholz as Manager for COLORADO INVESTMENT GRP, LLC.

My Commission expires: 11/8/09

Witness my hand and official seal.

Notary Public

ROBERT SKOVMAND
COMM. #1619926
Notary Public - California
Santa Clara County
My Comm. Expires Nov. 8, 2009
NRO1 NRO1

3462781 03/19/2007 01:48P Weld County, CO
7 of 7 R 36.00 D 0.00 Steve Moreno Clerk & Recorder

EXHIBIT A

to

Memorandum of Agreement
effective March 8, 2007
among Anadarko Land Corp., Anadarko E&P Company LP,
Kerr-McGee Oil & Gas Onshore LP and Colorado Investment Grp, LLC

Legal Description

Township 1 North, Range 68 West
Section 31: SE/4SE/4
Weld County, Colorado

3525268 12/21/2007 01:50P Weld County, CO
1 of 14 R 71.00 D 0.00 Steve Moreno Clerk & Recorder

REQUEST FOR NOTIFICATION (Mineral Estate Owner)

Pursuant to C.R.S. Section 24-65.5-101, et seq., as amended, (hereinafter referred to as the "Statute") this Request for Notification shall serve to identify the undersigned, Kerr-McGee Oil & Gas Onshore LP, its successors and assigns, (hereinafter referred to as "Kerr-McGee") as a Mineral Estate Owner, underlying the lands (Surface Estate) described on the attached Exhibit A.

Pursuant to the provisions of the Statute, an Applicant who submits an Application for Development to a local government shall send notice thereof to the Mineral Estate Owner. Such notice must comply with and be sent in accordance with the provisions of the Statute.

All notices shall be sent to:

Kerr-McGee Oil & Gas Onshore LP
1099 18th Street, #1500
Denver, CO 80202
Attn: Land Manager/Wattenberg

or such other address as Kerr-McGee may indicate by filing of record with the clerk a notification of change of address form or an amendment to the request for notification.

Failure by the Applicant to comply with the Statute shall entitle the Mineral Estate Owner to the damages and remedies, both legal and equitable, as provided for in the Statute, or otherwise permitted by the law, including an award of reasonable attorney fees.

All terms used herein, including but not limited to Mineral Estate Owner, Applicant, and Application for Development shall have the meaning provided for in the statute.

Kerr-McGee Oil & Gas Onshore LP

By: _____
Joseph H. Lorenzo, Attorney-in-Fact

STATE OF COLORADO)
CITY AND
COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 29 day of Nov 2007, by Joseph H. Lorenzo, attorney-in-fact of **Kerr-McGee Oil & Gas Onshore LP**, a Delaware limited partnership, on behalf of the partnership.

Witness my hand and official seal.

JUDY L. LUNA NOTARY SEAL PUBLIC STATE OF COLORADO

Signature

Judy L. Luna
Name (Print)
My commission expires

My Commission Expires 01/19/2011

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	1N	63W	5	W/2
WELD	1N	63W	11	SE
WELD	1N	63W	12	ALL
WELD	1N	63W	13	ALL
WELD	1N	63W	23	NW, S/2
WELD	1N	63W	24	ALL
WELD	1N	63W	31	NW, SE
WELD	1N	64W	24	SE
WELD	1N	64W	29	SE
WELD	1N	64W	30	ALL
WELD	1N	64W	33	W/2
WELD	1N	64W	35	S/2
WELD	1N	65W	3	NE
WELD	1N	65W	5	ALL
WELD	1N	65W	6	ALL
WELD	1N	65W	7	W/2
WELD	1N	65W	18	ALL
WELD	1N	65W	20	W/2
WELD	1N	65W	24	NE
WELD	1N	65W	29	N/2
WELD	1N	65W	35	S/2
WELD	1N	66W	1	S/2
WELD	1N	66W	2	ALL
WELD	1N	66W	3	ALL
WELD	1N	66W	4	ALL
WELD	1N	66W	5	ALL
WELD	1N	66W	6	ALL
WELD	1N	66W	7	N/2
WELD	1N	66W	8	ALL
WELD	1N	66W	10	ALL
WELD	1N	66W	11	S/2, NW
WELD	1N	66W	13	W/2
WELD	1N	66W	15	N/2
WELD	1N	66W	16	ALL
WELD	1N	66W	17	ALL
WELD	1N	66W	18	ALL
WELD	1N	66W	19	ALL
WELD	1N	66W	20	E/2, NW
WELD	1N	66W	21	N/2
WELD	1N	66W	22	ALL
WELD	1N	66W	28	W/2, NE
WELD	1N	66W	29	ALL
WELD	1N	66W	33	N/2
WELD	1N	66W	35	ALL
WELD	1N	66W	36	SW
WELD	1N	67W	1	ALL
WELD	1N	67W	2	ALL
WELD	1N	67W	3	W/2
WELD	1N	67W	4	ALL
WELD	1N	67W	5	ALL
WELD	1N	67W	7	ALL

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	1N	67W	8	ALL
WELD	1N	67W	9	ALL
WELD	1N	67W	10	ALL
WELD	1N	67W	11	ALL
WELD	1N	67W	12	ALL
WELD	1N	67W	13	ALL
WELD	1N	67W	14	ALL
WELD	1N	67W	15	W/2
WELD	1N	67W	17	ALL
WELD	1N	67W	19	ALL
WELD	1N	67W	20	ALL
WELD	1N	67W	21	ALL
WELD	1N	67W	22	ALL
WELD	1N	67W	23	ALL
WELD	1N	67W	24	ALL
WELD	1N	67W	25	S/2
WELD	1N	67W	26	ALL
WELD	1N	67W	27	ALL
WELD	1N	67W	28	ALL
WELD	1N	67W	29	S/2, NW
WELD	1N	67W	30	ALL
WELD	1N	67W	31	ALL
WELD	1N	67W	32	N/2
WELD	1N	67W	33	ALL
WELD	1N	67W	34	ALL
WELD	1N	67W	35	ALL
WELD	1N	67W	36	NE, SW
WELD	1N	68W	1	ALL
WELD	1N	68W	2	ALL
WELD	1N	68W	3	ALL
WELD	1N	68W	4	W/2
WELD	1N	68W	5	S/2
WELD	1N	68W	6	E/2
WELD	1N	68W	7	S/2
WELD	1N	68W	8	E/2, NW
WELD	1N	68W	9	W/2, NE
WELD	1N	68W	10	ALL
WELD	1N	68W	11	ALL
WELD	1N	68W	12	ALL
WELD	1N	68W	13	ALL
WELD	1N	68W	14	ALL
WELD	1N	68W	15	ALL
WELD	1N	68W	16	ALL
WELD	1N	68W	17	ALL
WELD	1N	68W	18	ALL
WELD	1N	68W	19	N/2
WELD	1N	68W	20	N/2, SW
WELD	1N	68W	21	ALL
WELD	1N	68W	22	W/2
WELD	1N	68W	23	ALL
WELD	1N	68W	25	ALL
WELD	1N	68W	27	S/2, NW
WELD	1N	68W	31	S/2

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	1N	68W	33	E/2
WELD	1N	68W	34	NE
WELD	1N	68W	35	ALL
WELD	1N	68W	36	ALL
WELD	2N	63W	5	S/2, NW
WELD	2N	63W	6	W/2
WELD	2N	63W	7	ALL
WELD	2N	63W	8	S/2
WELD	2N	63W	18	W/2
WELD	2N	63W	19	S/2
WELD	2N	63W	20	W/2
WELD	2N	63W	30	N/2
WELD	2N	64W	1	ALL
WELD	2N	64W	4	N/2, SW
WELD	2N	64W	6	W/2
WELD	2N	64W	7	ALL
WELD	2N	64W	18	W/2
WELD	2N	64W	19	ALL
WELD	2N	64W	21	W/2
WELD	2N	64W	24	NE
WELD	2N	64W	26	SE
WELD	2N	64W	27	S/2
WELD	2N	64W	29	S/2
WELD	2N	64W	31	SE
WELD	2N	65W	1	S/2
WELD	2N	65W	2	ALL
WELD	2N	65W	3	ALL
WELD	2N	65W	4	ALL
WELD	2N	65W	5	ALL
WELD	2N	65W	6	E/2
WELD	2N	65W	7	SW
WELD	2N	65W	8	ALL
WELD	2N	65W	9	ALL
WELD	2N	65W	10	ALL
WELD	2N	65W	11	ALL
WELD	2N	65W	12	ALL
WELD	2N	65W	13	S/2
WELD	2N	65W	14	ALL
WELD	2N	65W	15	ALL
WELD	2N	65W	16	ALL
WELD	2N	65W	17	NW
WELD	2N	65W	18	ALL
WELD	2N	65W	19	S/2
WELD	2N	65W	20	ALL
WELD	2N	65W	21	W/2
WELD	2N	65W	22	ALL
WELD	2N	65W	23	ALL
WELD	2N	65W	24	ALL
WELD	2N	65W	25	S/2
WELD	2N	65W	26	W/2,SE
WELD	2N	65W	27	SW
WELD	2N	65W	28	ALL

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	2N	65W	29	SW
WELD	2N	65W	30	NE
WELD	2N	65W	31	ALL
WELD	2N	65W	32	ALL
WELD	2N	65W	33	N/2, SW
WELD	2N	65W	34	ALL
WELD	2N	65W	35	ALL
WELD	2N	66W	1	ALL
WELD	2N	66W	3	ALL
WELD	2N	66W	4	N/2
WELD	2N	66W	5	NE, SW
WELD	2N	66W	6	ALL
WELD	2N	66W	7	ALL
WELD	2N	66W	8	W/2
WELD	2N	66W	9	S/2
WELD	2N	66W	10	W/2
WELD	2N	66W	11	ALL
WELD	2N	66W	12	ALL
WELD	2N	66W	13	N/2
WELD	2N	66W	14	ALL
WELD	2N	66W	15	W/2, SE
WELD	2N	66W	16	ALL
WELD	2N	66W	17	S/2,NE
WELD	2N	66W	18	ALL
WELD	2N	66W	20	N/2
WELD	2N	66W	21	ALL
WELD	2N	66W	22	ALL
WELD	2N	66W	23	S/2
WELD	2N	66W	25	SW
WELD	2N	66W	26	E/2
WELD	2N	66W	27	ALL
WELD	2N	66W	28	E/2
WELD	2N	66W	30	S/2
WELD	2N	66W	31	S/2
WELD	2N	66W	32	E/2
WELD	2N	66W	33	NE,W/2
WELD	2N	66W	35	S/2
WELD	2N	67W	1	ALL
WELD	2N	67W	2	E/2
WELD	2N	67W	3	ALL
WELD	2N	67W	4	N/2
WELD	2N	67W	5	ALL
WELD	2N	67W	6	ALL
WELD	2N	67W	8	N/2, SW
WELD	2N	67W	9	E/2
WELD	2N	67W	10	ALL
WELD	2N	67W	11	ALL
WELD	2N	67W	12	ALL
WELD	2N	67W	13	ALL
WELD	2N	67W	14	ALL
WELD	2N	67W	15	ALL
WELD	2N	67W	16	E/2

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	2N	67W	17	S/2
WELD	2N	67W	18	S/2
WELD	2N	67W	19	ALL
WELD	2N	67W	20	ALL
WELD	2N	67W	21	N/2
WELD	2N	67W	22	ALL
WELD	2N	67W	23	ALL
WELD	2N	67W	24	ALL
WELD	2N	67W	25	ALL
WELD	2N	67W	26	ALL
WELD	2N	67W	27	ALL
WELD	2N	67W	28	ALL
WELD	2N	67W	29	W/2
WELD	2N	67W	30	ALL
WELD	2N	67W	31	ALL
WELD	2N	67W	32	E/2
WELD	2N	67W	33	ALL
WELD	2N	67W	34	ALL
WELD	2N	67W	35	ALL
WELD	2N	67W	36	ALL
WELD	2N	68W	1	ALL
WELD	2N	68W	2	ALL
WELD	2N	68W	3	ALL
WELD	2N	68W	4	N/2
WELD	2N	68W	9	SW
WELD	2N	68W	10	ALL
WELD	2N	68W	13	E/2
WELD	2N	68W	14	W/2
WELD	2N	68W	15	ALL
WELD	2N	68W	16	W/2, SE
WELD	2N	68W	17	NE
WELD	2N	68W	19	E/2
WELD	2N	68W	20	ALL
WELD	2N	68W	21	W/2, NE
WELD	2N	68W	22	W/2, SE
WELD	2N	68W	23	E/2
WELD	2N	68W	24	N/2
WELD	2N	68W	25	ALL
WELD	2N	68W	26	ALL
WELD	2N	68W	27	S/2
WELD	2N	68W	28	N/2, SE
WELD	2N	68W	29	ALL
WELD	2N	68W	30	ALL
WELD	2N	68W	31	ALL
WELD	2N	68W	32	N/2
WELD	2N	68W	33	N/2, SE
WELD	2N	68W	34	ALL
WELD	2N	68W	35	ALL
WELD	2N	68W	36	ALL
WELD	3N	62W	18	ALL
WELD	3N	62W	19	ALL

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	3N	62W	20	S/2
WELD	3N	62W	29	ALL
WELD	3N	63W	19	W/2
WELD	3N	63W	21	W/2, SE
WELD	3N	63W	29	W/2
WELD	3N	63W	31	W/2
WELD	3N	64W	1	W/2, SE
WELD	3N	64W	2	NE
WELD	3N	64W	7	NW
WELD	3N	64W	8	ALL
WELD	3N	64W	9	NW
WELD	3N	64W	10	NW
WELD	3N	64W	11	ALL
WELD	3N	64W	13	SW
WELD	3N	64W	14	N/2
WELD	3N	64W	15	NW
WELD	3N	64W	17	NW,SE
WELD	3N	64W	18	W/2
WELD	3N	64W	19	NW
WELD	3N	64W	20	E/2, SW
WELD	3N	64W	21	NW
WELD	3N	64W	22	W/2
WELD	3N	64W	23	SW
WELD	3N	64W	24	E/2
WELD	3N	64W	25	NE
WELD	3N	64W	26	S/2, NW
WELD	3N	64W	27	S/2
WELD	3N	64W	28	E/2
WELD	3N	64W	29	SE
WELD	3N	64W	30	S/2
WELD	3N	64W	33	S/2, NW
WELD	3N	64W	34	ALL
WELD	3N	65W	1	S/2, NW
WELD	3N	65W	2	ALL
WELD	3N	65W	3	NE
WELD	3N	65W	5	ALL
WELD	3N	65W	6	ALL
WELD	3N	65W	7	N/2, SW
WELD	3N	65W	9	E/2
WELD	3N	65W	10	S/2
WELD	3N	65W	11	W/2, SE
WELD	3N	65W	13	NE
WELD	3N	65W	14	N/2
WELD	3N	65W	15	ALL
WELD	3N	65W	17	ALL
WELD	3N	65W	18	W/2
WELD	3N	65W	19	E/2
WELD	3N	65W	20	W/2, SE
WELD	3N	65W	21	N/2
WELD	3N	65W	22	ALL
WELD	3N	65W	23	ALL
WELD	3N	65W	24	ALL

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	3N	65W	25	N/2
WELD	3N	65W	26	N/2
WELD	3N	65W	27	ALL
WELD	3N	65W	28	ALL
WELD	3N	65W	29	ALL
WELD	3N	65W	30	ALL
WELD	3N	65W	31	ALL
WELD	3N	65W	32	E/2
WELD	3N	65W	33	ALL
WELD	3N	65W	34	ALL
WELD	3N	65W	35	N/2
WELD	3N	65W	36	E/2
WELD	3N	66W	1	ALL
WELD	3N	66W	2	ALL
WELD	3N	66W	3	E/2, SW
WELD	3N	66W	4	ALL
WELD	3N	66W	5	ALL
WELD	3N	66W	6	ALL
WELD	3N	66W	7	ALL
WELD	3N	66W	8	ALL
WELD	3N	66W	9	ALL
WELD	3N	66W	10	ALL
WELD	3N	66W	11	S/2, NE
WELD	3N	66W	13	ALL
WELD	3N	66W	14	ALL
WELD	3N	66W	15	ALL
WELD	3N	66W	16	ALL
WELD	3N	66W	17	ALL
WELD	3N	66W	18	ALL
WELD	3N	66W	19	ALL
WELD	3N	66W	20	N/2
WELD	3N	66W	21	ALL
WELD	3N	66W	22	ALL
WELD	3N	66W	23	ALL
WELD	3N	66W	24	N/2
WELD	3N	66W	25	N/2
WELD	3N	66W	26	ALL
WELD	3N	66W	27	ALL
WELD	3N	66W	28	ALL
WELD	3N	66W	29	N/2, SW
WELD	3N	66W	30	E/2, SW
WELD	3N	66W	31	ALL
WELD	3N	66W	32	E/2
WELD	3N	66W	33	ALL
WELD	3N	66W	34	W/2
WELD	3N	66W	35	ALL
WELD	3N	66W	36	ALL
WELD	3N	67W	1	ALL
WELD	3N	67W	2	ALL
WELD	3N	67W	3	ALL
WELD	3N	67W	4	ALL
WELD	3N	67W	5	W/2

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	3N	67W	7	ALL
WELD	3N	67W	8	ALL
WELD	3N	68W	1	ALL
WELD	3N	68W	7	NW
WELD	3N	68W	12	SE
WELD	3N	68W	13	ALL
WELD	3N	68W	14	W/2
WELD	3N	68W	21	NE
WELD	3N	68W	22	ALL
WELD	3N	68W	23	ALL
WELD	3N	68W	24	ALL
WELD	3N	68W	25	ALL
WELD	3N	68W	26	ALL
WELD	3N	68W	27	ALL
WELD	3N	68W	28	SW
WELD	3N	68W	33	ALL
WELD	3N	68W	34	ALL
WELD	3N	68W	35	ALL
WELD	3N	68W	36	ALL
WELD	4N	61W	31	SW
WELD	4N	62W	27	SW
WELD	4N	62W	28	ALL
WELD	4N	62W	30	ALL
WELD	4N	62W	32	ALL
WELD	4N	62W	33	S/2, NW
WELD	4N	62W	35	ALL
WELD	4N	63W	6	NW
WELD	4N	63W	7	S/2, NE
WELD	4N	63W	8	ALL
WELD	4N	63W	9	SW
WELD	4N	63W	16	ALL
WELD	4N	63W	29	NW
WELD	4N	64W	1	NE
WELD	4N	64W	2	NE
WELD	4N	64W	3	NE
WELD	4N	64W	7	SE
WELD	4N	64W	9	W/2
WELD	4N	64W	11	W/2
WELD	4N	64W	14	SW
WELD	4N	64W	17	S/2
WELD	4N	64W	19	ALL
WELD	4N	64W	20	SW
WELD	4N	64W	25	S/2
WELD	4N	64W	29	W/2, SE
WELD	4N	64W	30	SW
WELD	4N	64W	32	ALL
WELD	4N	64W	35	S/2
WELD	4N	65W	2	ALL
WELD	4N	65W	3	ALL
WELD	4N	65W	4	SW
WELD	4N	65W	5	E/2

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	4N	65W	7	NW, S/2
WELD	4N	65W	9	E/2, SW
WELD	4N	65W	10	N/2, SW
WELD	4N	65W	12	NE, SW
WELD	4N	65W	13	S/2
WELD	4N	65W	14	N/2, SW
WELD	4N	65W	15	ALL
WELD	4N	65W	16	NE, SW
WELD	4N	65W	17	NW, S/2
WELD	4N	65W	18	ALL
WELD	4N	65W	19	ALL
WELD	4N	65W	20	ALL
WELD	4N	65W	21	W/2, SE
WELD	4N	65W	22	S/2
WELD	4N	65W	23	N/2, SE
WELD	4N	65W	24	SW
WELD	4N	65W	25	NW, SE
WELD	4N	65W	27	N/2, SW
WELD	4N	65W	28	N/2, SW
WELD	4N	65W	29	ALL
WELD	4N	65W	30	ALL
WELD	4N	65W	31	ALL
WELD	4N	65W	32	ALL
WELD	4N	65W	33	S/2
WELD	4N	65W	34	ALL
WELD	4N	65W	35	NW, S/2
WELD	4N	66W	2	SE
WELD	4N	66W	3	S/2
WELD	4N	66W	4	NW
WELD	4N	66W	5	N/2
WELD	4N	66W	6	E/2, SW
WELD	4N	66W	7	N/2
WELD	4N	66W	9	NW, S/2
WELD	4N	66W	10	NW, S/2
WELD	4N	66W	11	ALL
WELD	4N	66W	12	ALL
WELD	4N	66W	13	ALL
WELD	4N	66W	14	ALL
WELD	4N	66W	15	E/2
WELD	4N	66W	16	E/2
WELD	4N	66W	17	SE
WELD	4N	66W	18	N/2, SW
WELD	4N	66W	19	W/2, NE
WELD	4N	66W	20	S/2
WELD	4N	66W	21	N/2, SW
WELD	4N	66W	22	N/2
WELD	4N	66W	23	ALL
WELD	4N	66W	24	SE
WELD	4N	66W	25	ALL
WELD	4N	66W	26	ALL
WELD	4N	66W	27	ALL

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	4N	66W	28	S/2
WELD	4N	66W	30	NW, SE
WELD	4N	66W	31	N/2, SW
WELD	4N	66W	32	N/2, SW
WELD	4N	66W	33	ALL
WELD	4N	66W	34	ALL
WELD	4N	66W	35	ALL
WELD	4N	66W	36	ALL
WELD	4N	67W	1	N/2
WELD	4N	67W	3	E/2
WELD	4N	67W	4	SE
WELD	4N	67W	5	S/2
WELD	4N	67W	6	ALL
WELD	4N	67W	7	NE, SW
WELD	4N	67W	8	W/2
WELD	4N	67W	9	SE
WELD	4N	67W	10	E/2
WELD	4N	67W	11	SW
WELD	4N	67W	12	N/2, SE
WELD	4N	67W	13	ALL
WELD	4N	67W	14	NW
WELD	4N	67W	15	NE, S/2
WELD	4N	67W	16	N/2
WELD	4N	67W	17	E/2
WELD	4N	67W	18	W/2
WELD	4N	67W	19	N/2, SW
WELD	4N	67W	21	NE
WELD	4N	67W	22	NE
WELD	4N	67W	23	N/2, SE
WELD	4N	67W	24	NE, S/2
WELD	4N	67W	25	ALL
WELD	4N	67W	26	ALL
WELD	4N	67W	28	SE
WELD	4N	67W	31	NE, S/2
WELD	4N	67W	33	S/2
WELD	4N	67W	34	ALL
WELD	4N	67W	35	ALL
WELD	4N	67W	36	ALL
WELD	4N	68W	1	E/2
WELD	4N	68W	8	NW
WELD	4N	68W	10	S/2
WELD	4N	68W	11	ALL
WELD	4N	68W	12	NW, S/2
WELD	4N	68W	12	N/2, SE
WELD	4N	68W	13	N/2, SE
WELD	4N	68W	14	W/2
WELD	4N	68W	15	S/2
WELD	4N	68W	22	E/2
WELD	4N	68W	23	W/2
WELD	4N	68W	24	NW, SE
WELD	4N	68W	30	E/2
WELD	4N	68W	21	NE

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	5N	61W	2	SE
WELD	5N	62W	18	NE
WELD	5N	62W	20	E/2
WELD	5N	63W	13	SW
WELD	5N	63W	14	N/2
WELD	5N	63W	18	SE
WELD	5N	63W	19	NE
WELD	5N	63W	24	E/2
WELD	5N	63W	29	NW
WELD	5N	63W	31	NE
WELD	5N	64W	3	N/2
WELD	5N	64W	7	NW
WELD	5N	64W	9	SW
WELD	5N	64W	14	NE
WELD	5N	64W	15	N/2
WELD	5N	64W	21	N/2
WELD	5N	64W	22	SE
WELD	5N	64W	23	NW, S/2
WELD	5N	64W	24	NW, S/2
WELD	5N	64W	29	SE
WELD	5N	64W	31	SE
WELD	5N	64W	32	NW, S/2
WELD	5N	64W	35	SW
WELD	5N	65W	1	S/2, NE
WELD	5N	65W	2	E/2
WELD	5N	65W	3	W/2
WELD	5N	65W	4	NE
WELD	5N	65W	11	ALL
WELD	5N	65W	12	W/2
WELD	5N	65W	13	S/2, NW
WELD	5N	65W	14	ALL
WELD	5N	65W	15	NW, S/2
WELD	5N	65W	21	N/2, SE
WELD	5N	65W	22	W/2
WELD	5N	65W	23	ALL
WELD	5N	65W	24	N/2, SW
WELD	5N	65W	25	ALL
WELD	5N	65W	26	NE, SW
WELD	5N	65W	27	N/2, SE
WELD	5N	65W	29	SW
WELD	5N	65W	30	W/2
WELD	5N	65W	32	SW
WELD	5N	65W	33	NE
WELD	5N	65W	34	N/2
WELD	5N	65W	35	ALL
WELD	5N	66W	1	NE, SW
WELD	5N	66W	3	NW, S/2
WELD	5N	66W	5	W/2, SE
WELD	5N	66W	6	NE
WELD	5N	66W	7	W/2
WELD	5N	66W	9	SE
WELD	5N	66W	17	NW

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	5N	66W	19	E/2
WELD	5N	66W	20	ALL
WELD	5N	66W	21	S/2
WELD	5N	66W	23	N/2
WELD	5N	66W	24	N/2, SW
WELD	5N	66W	25	ALL
WELD	5N	66W	27	W/2, SE
WELD	5N	66W	28	NE, SW
WELD	5N	66W	29	E/2
WELD	5N	66W	30	NE
WELD	5N	66W	31	W/2, NE
WELD	5N	66W	32	ALL
WELD	5N	66W	33	S/2
WELD	5N	66W	34	ALL
WELD	5N	66W	35	N/2, SE
WELD	5N	66W	36	ALL
WELD	5N	67W	1	NE, SW
WELD	5N	67W	2	W/2
WELD	5N	67W	3	NW, S/2
WELD	5N	67W	5	W/2, SE
WELD	5N	67W	6	SE
WELD	5N	67W	7	SE
WELD	5N	67W	8	SW
WELD	5N	67W	11	W/2, SE
WELD	5N	67W	12	E/2
WELD	5N	67W	13	SE
WELD	5N	67W	15	S/2
WELD	5N	67W	20	ALL
WELD	5N	67W	21	NE
WELD	5N	67W	23	NW
WELD	5N	67W	25	NW, S/2
WELD	5N	67W	26	S/2
WELD	5N	67W	27	NE, W/2
WELD	5N	67W	28	E/2
WELD	5N	67W	29	SE
WELD	5N	67W	31	W/2, SE
WELD	5N	67W	32	E/2, NW
WELD	5N	67W	33	NW, S/2
WELD	5N	67W	34	NE
WELD	5N	67W	35	N/2, SE
WELD	5N	67W	36	ALL
WELD	6N	61W	24	SE
WELD	6N	61W	25	N/2
WELD	6N	64W	16	SW
WELD	6N	64W	18	N/2, SW
WELD	6N	64W	19	ALL
WELD	6N	64W	20	SE
WELD	6N	64W	28	E/2
WELD	6N	64W	29	S/2
WELD	6N	64W	30	E/2, SW
WELD	6N	64W	32	S/2
WELD	6N	64W	33	S/2

Attached to and made a part of that certain
REQUEST FOR NOTIFICATION (Mineral Estate Owner)

EXHIBIT A

COUNTY	TOWNSHIP	RANGE	SECTION	DESCRIPTION
WELD	6N	65W	14	SW
WELD	6N	65W	15	S/2, NW
WELD	6N	65W	17	E/2, SW
WELD	6N	65W	18	SW
WELD	6N	65W	22	SW
WELD	6N	65W	28	SE
WELD	6N	65W	31	W/2
WELD	6N	65W	32	ALL
WELD	6N	65W	33	ALL
WELD	6N	65W	34	SW
WELD	6N	66W	14	SW
WELD	6N	66W	28	SE
WELD	6N	66W	33	NE
WELD	6N	66W	35	SE
WELD	6N	66W	36	SE
WELD	6N	67W	14	NW
WELD	6N	67W	15	S/2
WELD	6N	67W	20	SE
WELD	6N	67W	35	SE
WELD	7N	60W	14	SW
WELD	7N	60W	16	ALL
WELD	7N	66W	19	SW
WELD	9N	58W	3	W/2
WELD	9N	58W	4	E/2
WELD	9N	58W	5	SE
WELD	9N	58W	9	ALL
WELD	9N	58W	10	NW
WELD	10N	58W	32	S/2, NE
WELD	10N	58W	33	W/2, SE

3689545 04/28/2010 11:04A Weld County, CO
1 of 4 R 21.00 D 0.00 Steve Moreno Clerk & Recorder

NOTICE OF RIGHT TO USE SURFACE OF LAND

The undersigned, on behalf of Anadarko Land Corp., formerly known as Union Pacific Land Resources Corporation, and Anadarko E&P Company LP, formerly known as Union Pacific Resources Company (together the "Anadarko Entities"), both with an address of c/o Anadarko Petroleum Corporation, Post Office Box 1330, Houston, Texas 77251-1330, and Kerr-McGee Oil & Gas Onshore LP ("Kerr-McGee") with an address of 1099 18th Street, Suite 1800, Denver, Colorado 80202, being first duly sworn, avers and states as follows:

1. The Anadarko Entities own the minerals, including the oil and gas, in the lands identified in Exhibit A ("Property") pursuant to that certain Deed dated April 30, 1908 from Union Pacific Railroad Company ("Railroad") to David G. Wherry recorded December 31, 1908 in Book 233 at Page 187 ("Deed") and that certain Quitclaim Deed dated April 1, 1971 from the Railroad to Union Pacific Land Resources Corporation recorded on April 14, 1971 in Book 644 at Reception No. 1565712 ("Quitclaim Deed"), both recorded in the Office of the Clerk and Recorder of Weld County, Colorado ("Clerk and Recorder").

2. By assignment of the pertinent portion of that certain oil and gas lease dated October 16, 1972 recorded November 30, 1972 in the Office of the Clerk and Recorder of Weld County in Book 681 at Reception No. 1602713, from Champlin Petroleum Company to Amoco Production Company ("Lease"), Kerr-McGee acquired certain oil and gas leasehold rights in the Property in the SE/4SE/4SE/4 and the W/2SE/4SE/4 of Section 31 ("Leasehold Rights").

3. Pursuant to the Mineral Deed and Quitclaim Deed, the Anadarko Entities own the minerals for the Property, and, pursuant to the Lease, Kerr-McGee owns the Leasehold Rights for portions of the Property, and the Anadarko Entities and Kerr-McGee and their agents, employees, designees, co-owners, lessees, successors and assigns may own certain rights related to the minerals and Leasehold Rights, including but not limited to, the exclusive right to prospect in and upon said land for the minerals and to explore and mine for and remove the minerals.

4. The purpose of this Notice is to provide notice to all interested parties, including the apparent surface owners of all or part of the Property, or the party with whom the owners have a contract to purchase the Property, that the Anadarko Entities and Kerr-McGee assert their ongoing rights to use the surface of the Property for these and all other uses allowed by the Deed and Quitclaim Deed or the Lease, as the case may be, for existing and future activities related to the minerals. This Notice is intended to remain in force so long as the Anadarko Entities or Kerr-McGee, their agents, employees, designees, co-owners, lessees, successors or assigns own or hold rights to all or any part of the minerals.

5. Nothing in this Notice shall be construed to limit the rights or enlarge the obligations of the Anadarko Entities or Kerr-McGee or any of their agents, employees, designees, lessees, co-owners, successors or assigns to develop the property for the minerals.

Further, this Notice shall not be construed to modify or disclaim any interest of the Anadarko Entities or Kerr-McGee or any other party in the minerals or any other interest in the Property, whether or not such interest is described in this Notice. This Notice is not intended to enlarge, diminish or in any other way modify the respective rights, interests or title of any party owning an interest in the Property, but is to be construed as only giving notice of the lawful rights of the Anadarko Entities and Kerr-McGee under the title documents described in paragraphs 1 and 2 and the laws of the State of Colorado.

Executed this 20th day of April, 2010.

ANDARKO LAND CORP.

By: Jane Ann Byroad
Name: Jane Ann Byroad
Its: Agent + Attorney-in-Fact

ANADARKO E&P COMPANY LP

By: Jane Ann Byroad
Name: Jane Ann Byroad
Its: Agent + Attorney-in-Fact

KERR-McGEE OIL & GAS ONSHORE LP

By: Jane Ann Byroad
Name: Jane Ann Byroad
Its: Agent + Attorney-in-Fact

ACKNOWLEDGMENTS

STATE OF Texas)
) ss.
COUNTY OF Montgomery)

The foregoing instrument was acknowledged before me this 20 day of April, 2010 by Jane Ann Byroad as Agent + Attorney-in-Fact for ANADARKO LAND CORP.

Witness my hand and official seal.

My Commission expires: 11/6/2012

Jeanine Palmer
Notary Public

JEANINE PALMER
My Commission Expires
November 06, 2012

STATE OF Texas)
) ss.
COUNTY OF Montgomery)

The foregoing instrument was acknowledged before me this 20 day of April, 2010 by Jane Ann Byrd as Agent & Attorney-in-fact for ANADARKO E&P COMPANY LP.

Witness my hand and official seal.

My Commission expires: 11/6/2012

JEANINE PALMER
My Commission Expires
November 06, 2012

Jeanine Palmer
Notary Public

STATE OF Texas)
) ss.
COUNTY OF Montgomery)

The foregoing instrument was acknowledged before me this 20 day of April, 2010 by Jane Ann Byrd as Agent, Attorney in fact for KERR-McGEE OIL & GAS ONSHORE LP.

Witness my hand and official seal.

My Commission expires: 11/6/2012

Jeanine Palmer
Notary Public

JEANINE PALMER
My Commission Expires
November 06, 2012

3689545 04/28/2010 11:04A Weld County, CO
4 of 4 R 21.00 D 0.00 Steve Moreno Clerk & Recorder

EXHIBIT A
to
Notice of Right to Use Surface of Land
for Anadarko Land Corp., Anadarko E&P Company LP and Kerr-McGee Oil & Gas Onshore LP

Legal Description of Property

Township 1 North, Range 68 West
Section 31: SE/4SE/4
Weld County, Colorado

3867540 Pages: 1 of 3
08/21/2012 10:10 AM R Fee:$21.00
Steve Moreno, Clerk and Recorder, Weld County, CO

ORDINANCE NO. 15-2012

Series of 2012

AN ORDINANCE ANNEXING THE SIERRA VISTA PROPERTY, PURSUANT TO THE PETITION OF THE OWNERS THEREOF, TO BE KNOWN AS THE SIERRA VISTA ANNEXATION TO THE TOWN OF ERIE, COLORADO; PROVIDING FOR THE EFFECTIVE DATE OF THIS ORDINANCE; AND, SETTING FORTH DETAILS IN RELATION THERETO.

WHEREAS, a Petition for Annexation ("Petition") has been filed by Pratt Properties Limited Partnership, a Colorado limited partnership, 105 South Sunset Street, Suite H, Longmont, Colorado 80501, and Karen K. Kramer, 8000 Fox Hill Drive, Longmont, Colorado, 80501, and Highway 7 Equities, LLC, a Colorado limited liability company, PO Box 247, Eastlake, Colorado, 80614, and BMC Holdings, LLC, a Colorado limited liability company, 14095 Brighton Road, Brighton, Colorado, 80601, and the Town of Erie, a Colorado municipal corporation, PO Box 750, Erie, Colorado, 80516, for the annexation to the Town of the following described real property ("Property"); to wit:

See "Exhibit A," attached hereto and incorporated herein by this reference.

WHEREAS, a public hearing was held on said Petition pursuant to statute on June 26, 2012; and

WHEREAS, the Board of Trustees by Resolution determined that the applicable parts of C.R.S. 31-12-104 and 31-12-105 have been met, that an election is not required under C.R.S. 31-12-107(2), and that no additional terms and conditions are to be imposed; and

WHEREAS, it is the opinion of the Board of Trustees that it is desirable and necessary that the described Property be annexed to the Town of Erie, Colorado, and that such a project is necessary for the preservation of the public property, health, safety, and welfare of the Town and for the financial wellbeing of the Town; and

NOW THEREFORE, BE IT ORDAINED by the Board of Trustees of the Town of Erie, Colorado; that;

Section 1. The above described Property is hereby annexed to and included within the town limits of the Town of Erie.

Section 2. The proposed annexation is consistent with the Town of Erie Three Mile Annexation Plan.

Section 3. The Annexation Agreement to be entered into with Pratt Properties Limited Partnership, Karen K. Kramer, Highway 7 Equities, LLC, and BMC Holdings,

LLC and is hereby adopted and approved and the Mayor is hereby directed and authorized to sign and bind the Town to said Annexation Agreement.

Section 4. The Mayor and Town Clerk are authorized and directed to complete all the necessary procedures and sign all necessary documents required for annexation of said Property to the Town including filing the required certified copies of the annexation ordinance and a map of the area to be annexed containing a legal description of such area with the Weld County Clerk and Recorder.

Section 5. Zoning of the Property. Requested zoning for the property is 'CC' – Community Commercial, 'HR' – High Density Residential, and 'AP' – Airport. Zoning shall be accomplished by separate ordinance whose effective date shall not be sooner than the effective date of this annexation ordinance.

Section 6. Severance Clause. If any part, section, subsection, sentence, clause or phrase of this ordinance is for any reason held to be invalid, such invalidity shall not affect the validity of the remaining sections of the Ordinance. The Board of Trustees hereby declares that it would have passed the ordinance including each part, section, subsection, sentence, clause or phrase thereof, irrespective of the fact that one or more parts, sections, subsections, sentence, clauses or phrases be declared invalid.

Section 7. Repeal. All other ordinances, or parts of any ordinances or other Code provisions in conflict herewith are hereby repealed. The repeal established herein shall not be construed to revive any ordinance Code provision or part thereof that had been previously repealed by any ordinance which is repealed by this Ordinance.

Section 8. Effective Date. This ordinance shall take effect thirty (30) days after publication following final passage.

INTRODUCED, PASSED, ADOPTED AND APPROVED AND ORDERED PUBLISHED IN FULL BY THE BOARD OF TRUSTEES OF THE TOWN OF ERIE THIS 24TH DAY OF JULY, 2012.

PUBLISHED IN FULL ON THE 1st DAY OF August, 2012.

TOWN OF ERIE, COLORADO, a
Colorado municipal corporation

By: _____
Joseph A. Wilson, Mayor

TOWN OF ERIE CORPORATE SEAL COLORADO

ATTEST:

By: _____
Nancy J. Parker, Town Clerk

EXHIBIT A

LEGAL DESCRIPTION

ALL OF THAT PARCEL OF LAND SITUATED IN THE SOUTHEAST ONE QUARTER OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN LOCATED IN THE COUNTY OF WELD, STATE OF COLORADO, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 7 AND THE WESTERLY RIGHT-OF-WAY LINE OF BONANZA DRIVE, WHENCE THE SOUTHEAST CORNER OF SECTION 31 BEARS S55°04'07"E 132.37 FEET;

THENCE ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID HIGHWAY 7 N89°34'44"W 2,533.85 FEET TO THE SOUTHEAST CORNER OF TRACT D, ERIE AIR PARK SUBDIVISION;

THENCE N00°46'40"W 1,245.87 FEET TO THE NORTHEAST CORNER OF SAID TRACT D;

THENCE ALONG THE SOUTH LINE OF TRACT H, LOT 18, BLOCK 4, LOTS 16, 7 AND 6, BLOCK 5 AND TRACT C, ALL OF THE ERIE AIR PARK SUBDIVISION, S89°34'58"E 2,576.73 FEET TO THE WESTERLY RIGHT-OF-WAY LINE OF BONANZA DRIVE;

THENCE ALONG THE WESTERLY RIGHT-OF-WAY LINE OF BONANZA DRIVE FOR THIS AND THE NEXT COURSE, S04°46'10"W 564.29 FEET;

THENCE S01°04'47"W 683.39 FEET TO THE POINT OF BEGINNING.

CONTAINING 72.803 ACRES.

3867541 Pages: 1 of 6
08/21/2012 10:10 AM R Fee:$36.00
Steve Moreno, Clerk and Recorder, Weld County, CO

ORDINANCE NO. 16-2012

Series of 2012

AN ORDINANCE ZONING THE SIERRA VISTA PROPERTY, PURSUANT TO THE PETITION OF THE OWNERS THEREOF, TO CC – COMMUNITY COMMERCIAL, HR – HIGH DENSITY RESIDENTIAL, AND AP – AIRPORT; PROVIDING FOR THE EFFECTIVE DATE OF THIS ORDINANCE; AND, SETTING FORTH DETAILS IN RELATION THERETO.

WHEREAS, a request for initial zoning has been filed by Pratt Properties Limited Partnership, a Colorado limited partnership, 105 South Sunset Street, Suite H, Longmont, Colorado 80501, and Karen K. Kramer, 8000 Fox Hill Drive, Longmont, Colorado, 80501, and Highway 7 Equities, LLC, a Colorado limited liability company, PO Box 247, Eastlake, Colorado, 80614, and BMC Holdings, LLC, a Colorado limited liability company, 14095 Brighton Road, Brighton, Colorado, 80601, and the Town of Erie, a Colorado municipal corporation, PO Box 750, Erie, Colorado, 80516, for the zoning of the following described real property ("Property") simultaneously with the annexation of the Property to the Town, to wit:

See "Exhibit A," attached hereto and incorporated herein by this reference.

WHEREAS, the initial zoning of land while annexation is underway is authorized by C.R.S. 31-12-115; and

WHEREAS, a public hearing was held on said request in combination with the requested annexation of the property on June 26, 2012; and

WHEREAS, it is the opinion of the Board of Trustees that it is desirable and necessary that the described Property be zoned CC – Community Commercial, HR – High Density Residential, and AP – Airport in accordance with application for initial zoning and Title 10 of the Municipal Code of the Town of Erie, Colorado;

NOW THEREFORE, BE IT ORDAINED by the Board of Trustees of the Town of Erie, Colorado; that;

Section 1. The above described Property is hereby zoned CC – Community Commercial, HR – High Density Residential, and AP – Airport. All activities conducted on the Property shall be in conformance with the applied zoning as identified in Title 10 of the Municipal Code of the Town of Erie, Colorado.

Section 2. The official zone district map of the Town of Erie, dated January 12, 2012, shall be amended by the designation of the above described Property as CC – Community Commercial, HR – High Density Residential, and AP – Airport.

Section 3. Effective Date. This ordinance shall take effect thirty (30) days after publication following final passage.

Section 4. Validity. If any part, section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be invalid, such invalidity shall not affect the validity of the remaining sections of the Ordinance. The Board of Trustees hereby declares that it would have passed the Ordinance including each part, section, subsection, sentence, clause or phrase thereof, irrespective of the fact that one or more parts, sections, subsections, sentence, clauses or phrases be declared invalid

INTRODUCED, PASSED, ADOPTED AND APPROVED AND ORDERED PUBLISHED IN FULL BY THE BOARD OF TRUSTEES OF THE TOWN OF ERIE THIS 24TH DAY OF JULY, 2012.

PUBLISHED IN FULL ON THE 1st **DAY OF** August**, 2012.**

TOWN OF ERIE, COLORADO, a
Colorado municipal corporation

By: _____
Joseph A. Wilson, Mayor

TOWN OF ERIE CORPORATE SEAL COLORADO

ATTEST:

By: _____
Nancy Parker, Town Clerk

EXHIBIT A
ZONING MAP

3867541 Pages: 3 of 6
08/21/2012 10:10 AM R Fee:$36.00
Steve Moreno, Clerk and Recorder, Weld County, CO

EXHIBIT A
ZONING MAP

3867541 Pages: 4 of 6
08/21/2012 10:10 AM R Fee:$36.00
Steve Moreno, Clerk and Recorder, Weld County, CO

SIERRA VISTA ZONING MAP

A PART OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31,
TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
72 79 ACRES
ZR08-001

LEGAL DESCRIPTION CC ZONING PARCEL:
A PART OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 31;
THENCE NORTH 00°15'14" EAST ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 75.31 FEET;
THENCE NORTH 89°44'46" WEST, A DISTANCE OF 100.21 FEET TO THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD NO. 3 AS RECORDED IN THE OFFICE OF WELD COUNTY CLERK AND RECORDER IN BOOK 1631 AT RECEPTION NO. 2372956, SAID POINT
ALSO BEING ON THE NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 02170911 AND THE POINT OF BEGINNING;

THENCE NORTH 89°34'53"WEST ALONG SAID NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7, ALONG A LINE SEVENTY-FIVE (75.00) FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 1248.93 FEET;

THENCE NORTH 01°04'07"EAST, A DISTANCE OF 700.00 FEET;

THENCE SOUTH 89°34'53" EAST, A DISTANCE OF 1250.00 FEET TO SAID WESTERLY RIGHT-OF-WAY OF COUNTY ROAD NO 3;

THENCE ALONG SAID WESTERLY RIGHT-OF-WAY THE FOLLOWING TWO (2) COURSES:
1. THENCE SOUTH 04°46'24" WEST, A DISTANCE OF 15.82 FEET;
2. THENCE SOUTH 01°04'07" WEST, A DISTANCE OF 663.43 FEET TO THE POINT OF BEGINNING

SAID PARCEL CONTAINS 20.07 ACRES, MORE OR LESS

LEGAL DESCRIPTION HR ZONING PARCEL:
A PART OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 31;
THENCE NORTH 00°15'14" EAST ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 75.31 FEET;

THENCE NORTH 89°44'46" WEST, A DISTANCE OF 100.21 FEET TO THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD NO. 3 AS RECORDED IN THE OFFICE OF WELD COUNTY CLERK AND RECORDER IN BOOK 1631 AT RECEPTION NO. 2372956, SAID POINT ALSO BEING ON THE NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 02170911;

THENCE NORTH 89°34'53"WEST ALONG SAID NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7, ALONG A LINE SEVENTY-FIVE (75.00) FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 1248.93 FEET TO THE POINT OF BEGINNING;

THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY THE FOLLOWING TWO (2) COURSES:

1. THENCE NORTH 89°34'53"WEST, A DISTANCE OF 647.47 FEET;
2. THENCE NORTH 88°32'45" WEST, A DISTANCE OF 13.43 FEET TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 02223423;

THENCE ALONG SAID EASTERLY LINE THE FOLLOWING TWO (2) COURSES:
1. THENCE NORTH 16°31'20" WEST, A DISTANCE OF 1176.48 FEET;
2. THENCE NORTH 12°41'16" WEST, A DISTANCE OF 123.36 FEET TO THE NORTH LINE OF SAID SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31;

THENCE SOUTH 89°35'08" EAST ALONG SAID NORTH LINE, A DISTANCE OF 2330.26 FEET TO SAID WESTERLY RIGHT-OF-WAY OF COUNTY ROAD NO. 3;

THENCE SOUTH 04°46'24" WEST ALONG SAID WESTERLY RIGHT-OF-WAY A DISTANCE OF 547.81 FEET;

THENCE DEPARTING SAID WEST RIGHT-OF-WAY NORTH 89°34'53"WEST, A DISTANCE OF 1250.00 FEET;

THENCE SOUTH 01°04'07" WEST, A DISTANCE OF 700.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 40.41 ACRES, MORE OR LESS

LEGAL DESCRIPTION AP ZONING PARCEL:
A PART OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 31;
THENCE NORTH 00°15'14" EAST ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 75.31 FEET;

THENCE NORTH 89°44'46" WEST, A DISTANCE OF 100.21 FEET TO THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD NO. 3 AS RECORDED IN THE OFFICE OF WELD COUNTY CLERK AND RECORDER IN BOOK 1631 AT RECEPTION NO. 2372956, SAID POINT ALSO BEING ON THE NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 02170911;

THENCE NORTH 89°34'53"WEST ALONG SAID NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7, ALONG A LINE SEVENTY-FIVE (75.00) FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 1896.40 FEET;

THENCE NORTH 88°32'45" WEST, CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY, A DISTANCE OF 13.43 FEET TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 02223423 AND THE POINT OF BEGINNING;

THENCE NORTH 88°32'45" WEST, CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY, A DISTANCE OF 623.77 FEET TO THE WEST LINE OF SAID SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31;

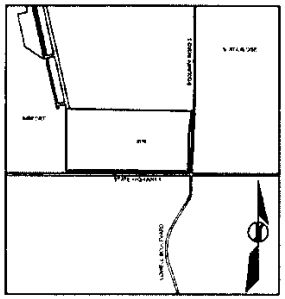
THENCE NORTH 00°45'47" WEST, ALONG SAID WEST LINE, A DISTANCE OF 1320.43 FEET TO THE NORTH LINE OF SAID SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31;

THENCE SOUTH 89°35'08" EAST ALONG SAID NORTH LINE, A DISTANCE OF 246.45 TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 02223423;

THENCE SOUTH 12°41'16" EAST ALONG SAID EASTERLY LINE, A DISTANCE OF 123.36 FEET;

THENCE SOUTH 16°31'20" EAST, A DISTANCE OF 1176.48 FEET TO THE POINT OF BEGINNING

SAID PARCEL CONTAINS 12.32 ACRES, MORE OR LESS



VICINITY MAP
SCALE 1"=1000'

NOTES:

1. BASIS OF BEARINGS: BEARINGS SHOWN HEREON ARE BASED ON THE EAST LINE OF THE SOUTHEAST QUARTER OF SECTION 31, T1N, R68W OF THE 6TH P.M., WHICH WAS ASSUMED TO BEAR NORTH 00°15'14" EAST.

2. NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON

3. THIS MAP WAS PREPARED WITHOUT BENEFIT OF A CURRENT TITLE COMMITMENT AND DOES NOT CONSTITUTE A TITLE SEARCH BY JANSEN STRAWN CONSULTING ENGINEERS TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS ON OTHER MATTERS OF PUBLIC RECORD

PLANNING COMMISSION CERTIFICATE

THIS ZONING MAP, ZR08-001, WAS REVIEWED BY THE PLANNING COMMISSION ON THE _____ DAY OF _____, 20__, A.D.

_____
CHAIRMAN OF ERIE PLANNING COMMISSION

BOARD OF TRUSTEES APPROVAL CERTIFICATE

THIS ZONING MAP IS TO BE KNOWN AS THE "SIERRA VISTA ZONING MAP" AND IS APPROVED AND ACCEPTED BY ORDINANCE NO. _____ PASSED AND ADOPTED AT THE REGULAR (SPECIAL) MEETING OF THE BOARD OF TRUSTEES OF ERIE, COLORADO, HELD ON _____ _____, 20__

_____
MAYOR

ATTEST _____
TOWN CLERK

SURVEYOR'S CERTIFICATE

I, THOMAS D. STAAB, A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS ZONING MAP TRULY AND CORRECTLY REPRESENTS THE ABOVE DESCRIBED LEGAL DESCRIPTIONS FOR EACH ZONE DISTRICT AND WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CHECKING.

_____ _____
THOMAS D. STAAB, P.L.S. 25965 DATE
FOR AND ON BEHALF OF
JANSEN STRAWN CONSULTING ENGINEERS, INC.

CLERK & RECORDER CERTIFICATE

STATE OF COLORADO)
) §
COUNTY OF WELD)

I HEREBY CERTIFY THAT THIS ZONING MAP WAS FILED IN MY OFFICE THIS _____ DAY OF _____, 20__, A.D. AND WAS RECORDED AT RECEPTION NUMBER _____

_____
SIGNATURE
WELD COUNTY CLERK & RECORDER

JANSEN STRAWN CONSULTING ENGINEERS
FORT COLLINS, COLORADO

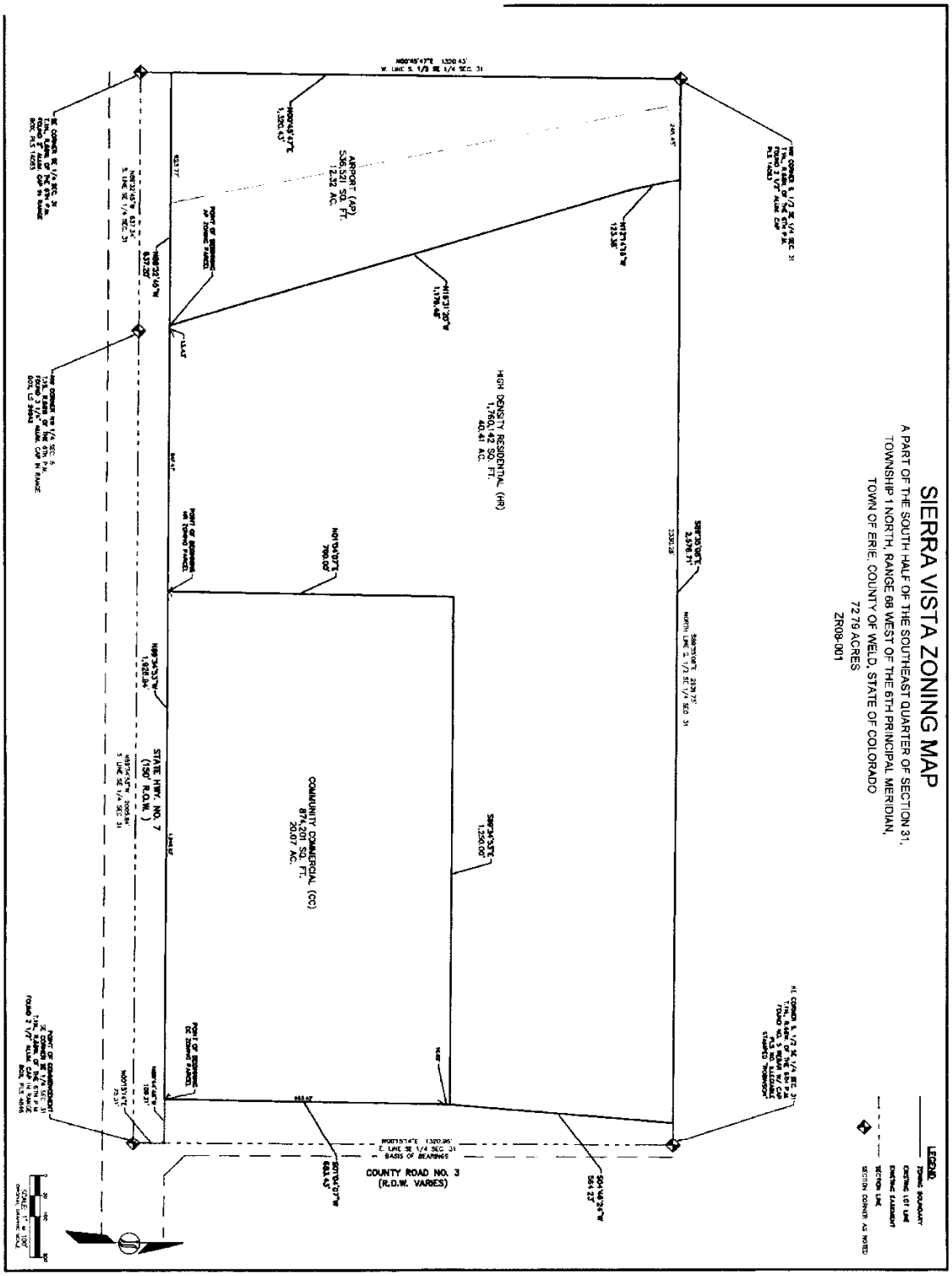
811
CALL 2 WORKING DAYS BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER FACILITIES

SIERRA VISTA ZONING MAP

Date: MAY 1, 2012

1

3867541 Pages: 5 of 6
08/21/2012 10:10 AM R Fee:$36.00
Steve Moreno, Clerk and Recorder, Weld County, CO



SIERRA VISTA ZONING MAP

2

JANSEN STRAWN
CONSULTING ENGINEERS

3867544 Pages: 1 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

SIERRA VISTA
ANNEXATION AGREEMENT

THIS ANNEXATION AGREEMENT ("Agreement") is made and entered into this 25th day of June, 2012, by and among Pratt Properties Limited Partnership, a Colorado limited partnership, 105 South Sunset Street, Suite H, Longmont, Colorado 80501, and Karen K. Kramer, 8000 Fox Hill Drive, Longmont, Colorado, 80501, hereinafter and collectively referred to as the "Owner," and the Town of Erie, a municipal corporation of the State of Colorado, hereinafter referred to as "Erie" or "Town."

WITNESSETH:

WHEREAS, the Owner desires to annex to Erie the property more particularly described on "Exhibit A," which is attached hereto, incorporated herein, and made a part hereof (such property is hereinafter referred to as "the Property"); and

WHEREAS, Owner has executed a petition to annex the Property, a copy of which petition is attached hereto as "Exhibit B," and incorporated herein and made a part hereof; and

WHEREAS, it is to the mutual benefit of the parties hereto to enter into the following Agreement; and

WHEREAS, Owner acknowledges that upon annexation, the Property will be subject to all ordinances, resolutions, and other regulations of the Town, as they may be amended from time to time; and

WHEREAS, Owner acknowledges that the need for conveyances and dedication of certain property, including but not limited to property for streets, rights-of-way and easements, parks and open space, utility facilities and improvements, to Erie as contemplated in this Agreement are directly related to and generated by the development intended to occur within the Property and that no taking thereby will occur requiring any compensation.

NOW, THEREFORE, in consideration of the above premises and the covenants as hereinafter set forth, it is agreed by and between the parties as follows:

I. ANNEXATION AND ZONING.

A. **Annexation.** The annexation of the Property shall be in conformance with the Colorado Municipal Annexation Act of 1965, as amended, and with the Town of Erie Municipal Code ("Code") and with applicable Town regulations.

B. **Zoning.** The Owner desires Community Commercial (CC) and High Density Residential (HR) zoning for the Property, as authorized by Title 10 of the Code. Owner acknowledges and accepts that no warranty, guarantee or promise is made on the part of the Town to so zone the Property as CC and HR. Owner acknowledges and understands that the Town Board of Trustees determines what is an appropriate zoning for the Property, and the desired zoning as set forth herein does not in any way bind the Town Board of Trustees to adopt the zoning for the Property. The

Owner states that granting of such zoning by the Town is a condition to annex the Property. Owner shall take all action necessary to permit zoning by the Town of the annexed area within the time prescribed by state statutes. In the event the requested zoning noted herein by the Owner is not granted by the Town, the application for annexation may be withdrawn by Owner unless otherwise agreed to by Owner in writing and the Property shall be de-annexed.

C. **Vested Property Rights**. The Owner and Town acknowledge and agree that neither the annexation of the Property, nor the approval of the zoning constitute the creation of a vested property right for the Property, as vested rights are defined by the Colorado Revised Statutes and the Code, and that any such vested right for the Property, if any, must be created in accordance with the applicable provisions of the Colorado Revised Statutes and the Code. The Owner represents to the Town that there are no vested rights to the Property from the County of Weld or any other governmental entity and the Owner hereby waives and releases any rights which may have been so granted.

D. **Land Use.** All residential and non-residential construction will be subject to the types and intensities of land use permitted pursuant to the Town of Erie Municipal Code in effect on the date hereof, or in effect on the date when building permit applications are filed.

II. **ANNEXATION MAP.** The Annexation Map incorporated and adopted as a portion of the ordinance annexing the Property and attached hereto as "Exhibit C" complies with the requirements of C.R.S. 31-12-105 (1)(e).

III. **LAND DEDICATION.** The dedication of parks and open space, public easements for utilities, rights-of-way for streets and other public ways and dedications for other public purposes shall be by Special Warranty Deed or via a subdivision plat. All such dedications shall be free and clear of all monetary liens and encumbrances, and free and clear of all non-monetary liens and encumbrances except those set forth on that certain Title Commitment No. NCS-523031-CO dated February 2, 2012 ("Title Commitment") prepared by First American Title Insurance Company, and shall be provided along with title insurance in an amount reasonably determined by the Town and Owner. Erie hereby approves all matters identified on Schedule B-2 of the Title Commitment. If any update to the Title Commitment or new title commitment for the Property that is issued after the date of this Agreement discloses any matter that was not identified on the Title Commitment and that was not caused by, through or under Erie, then Erie shall have seven (7) days following the receipt of such updated commitment to review and approve or disapprove of any such new matter, which approval shall not be unreasonably withheld, conditioned or delayed. Such dedications as may be required by the Town shall occur immediately upon request of the Town except that internal rights-of-way shall be dedicated at the time of subdivision platting, unless the Town specifies another time. The Town and the Owner agree that such dedications are directly related to and generated by development intended to occur within the Property and that no taking thereby will occur requiring any compensation.

A. **Roads And Utility Easements.** The Owner shall dedicate right-of-way for all roads and utility easements to Erie. All utility easements, dedicated to Erie, shall be for the use and the benefit of the various entities furnishing utility services, i.e., electrical, telephone, gas, TV cable, water and sewer. ALL UTILITIES WILL BE PLACED UNDERGROUND, EXCEPT FOR REQUIRED ABOVE – GROUND STRUCTURES FOR SERVICE.

IV. **AVAILABILITY OF SERVICES.** Erie agrees to make available to the Property all of the usual municipal services in accordance with the ordinances and policies of the Town which services include, but are not limited to, police protection and water and sewer services. Owner acknowledges that Town services do not include, as of the date of the execution of this Agreement, fire protection or emergency medical services, but the Property is presently included within the boundaries of and is entitled to receive such services from the Mountain View Fire Protection District.

Any and all obligations of the Town for water, sewer, and drainage improvements shall be the sole obligation of the Town's water and sewer enterprises and as such, shall not constitute a multiple fiscal year direct or indirect debt or other financial obligation of the Town within the meaning of any constitutional or statutory limitation. Any and all obligations of the Town for public improvements other than water, sewer, and storm drainage improvements shall be subject to annual appropriation by the Town.

V. **WATER SERVICE.** Water service to the Property shall be provided by the Town. If the Property is not already in the Northern Colorado Water Conservancy District and/or the Municipal Subdistrict, the Owner agrees to include the Property in said District(s) and to the payment of any fees and taxes levied by the District(s) as a condition of said inclusion prior to receiving water service from Erie. In addition, the Owner shall exclude the Property from the Left Hand Water District if the Property is currently within said District prior to receiving water service from Erie. Owner hereby acknowledges its receipt of a copy of the Code, Titles 2 and 8, as amended, concerning Town policy with respect to obtaining water service from the Town, the dedication of water rights to the Town in connection with annexations and the extension of water lines and pumping facilities to the Property. Owner agrees to comply with said Code, Titles 2 and 8, and with any amendments thereto, including any applicable amendments adopted subsequent to the annexation of the Property. The Town and the Owner agree that such dedications are directly related to and generated by development intended to occur within the Property and that no taking thereby will occur requiring any compensation.

A. **Extension of Water Services.** The extension of water mains or trunk lines shall be in accordance with the Code, Section 8-1-16. Owner shall install at its sole cost and expense, all the water mains, trunk lines, pumping facilities and appurtenances necessary to provide service from the Town's system to the Property. These extensions may include the over sizing of lines and pumping facilities for future development of adjacent property. Owner shall install at its sole cost and expense, all the water lines, fire hydrants and appurtenances within the Property. Water lines lying within the dedicated right-of-way shall be

dedicated to Erie after construction. Any reimbursements to the Owner for over sizing of water lines will be subject to a separate development agreement.

B. **Water Service Availability.** Erie does not warrant the availability of water service to the Owner for any phase of development. A determination of water service availability by Erie shall be made by a water system analysis at the time the Owner requests water taps. In the event that the Town determines that it has insufficient water service availability, no water taps shall be issued until such time as there is water service availability.

C. **Raw Water Fees.** Raw water fees shall be the existing Town raw water fees at the time a water tap is requested or required. Raw water fees shall be paid when (a) a building permit for a structure is issued; (b) upon issuance of a landscape irrigation tap; or (c) as outlined in a subsequent development agreement.

D. **Water Tap Fees.** Water tap fees shall be the existing Town water tap fees at the time a water tap fee is requested or required. Water tap fees shall be paid when a building permit for a structure or landscape irrigation is requested from the Town.

E. **Water Rights Dedication.** Owner represents to the Town, to the current knowledge of Owner, that the tributary and non-tributary water rights listed on "Exhibit D," attached hereto and incorporated herein by this reference, constitute all of the water rights appurtenant to the subject property. In accordance with the Code, Title 8, as amended, and existing Town policy, the Town shall have the right to purchase historical surface water rights from the land at fair market value.

VI. **SEWER SERVICE.** Sewer service to the Property shall be provided by the Town. Owner hereby acknowledges receipt of a copy of the Code, Title 8, concerning Town policy with respect to obtaining sewer service from the Town and the extension of sewer lines to the Property. Owner agrees to comply with the Code, Title 8 and with any amendments thereto, including any applicable amendments adopted subsequent to the annexation of the subject Property. The Town and the Owner agree that dedications required by the Code, Title 8 are directly related to and generated by development intended to occur within the Property and that no taking thereby will occur requiring any compensation.

A. **Extension of Sewer Services.** The extension of sewer mains or trunk lines shall be in accordance with the Code, Title 8. Owner shall install at its sole cost and expense, all the sewer mains, trunk lines, sewer lift stations, and appurtenant facilities necessary to connect to the Town's system. These line extensions may include the oversizing of lines for future development of adjacent property. Owner shall install at its sole cost and expense, all the sewer lines and appurtenances within the Property. Sewer lines lying within the dedicated right-of-way shall be dedicated to Erie after construction. Any reimbursements to the Owner for over sizing of sewer lines, sewer lift stations and appurtenant facilities will be subject to a separate development agreement.

B. **Sewer Service Availability.** Erie does not warrant the availability of sewer service to the Owner for any phase of development. A determination of sewer service availability by Erie shall be made by a sewer system analysis at the time the Owner requests sewer taps. In the event that the Town determines that it has insufficient sewer service availability, no sewer taps shall be issued until such time as there is sewer service availability.

C. **Sewer Tap Fees.** Sewer tap fees shall be the existing Town fees at the time which a sewer tap is requested or required. Sewer tap fees shall be paid when a building permit for a structure is requested from the Town.

VII. **ROADS, TRAILS AND PUBLIC RIGHTS-OF-WAY.** All public roads shall be constructed to the Town's "Standards and Specifications for Design and Construction of Public Improvements" ("Standards and Specifications"). Trails shall be constructed as an integral feature of the development, in accordance with the Standards and Specifications. All public roads, trails and right-of-ways shall be dedicated to Erie as provided herein. The Owner will install, at Owner's, expense, street name signs, striping, stop signs, speed limit and other signs on all streets, in accordance with the Model Traffic Code, as from time to time amended, and other applicable legal requirements. The total cost of street light installation shall be the Owner's obligation. Owner shall provide a two (2) year guarantee for all improvements from the time of final acceptance to Erie. In the event that any public roads, trails and right-of-ways serve other properties (the "Trails Benefited Properties"), the Town agrees to enter into one or more reimbursement agreements with the owners of such Trails Benefited Properties causing such owners to reimburse any incremental costs to the Owner prior to recordation of a final plat or approval of a site plan for development of the Trails Benefited Properties. The reimbursements shall be required to be paid by the Trails Benefited Property owners at such time as the first final plat is approved for the benefit of the Trails Benefited Property. Nothing contained in this Agreement shall operate to create an obligation on the part of Erie to pay or reimburse any costs to Owner in the event such costs are not recovered by Erie as contemplated herein, for any reason, from the properties or property Benefited Properties or Benefited Property owners.

VIII. **CONFORMANCE WITH TOWN REGULATIONS.** Owner agrees that the design, improvement, construction, development, and use of the Property shall be in conformance with all Town ordinances and resolutions, the Standards and Specifications, and the Code, including, without limitation, those pertaining to subdivision, zoning, streets, storm drainage, utilities, and flood control.

IX. **PUBLIC IMPROVEMENTS.** Owner agrees to design, construct and install in accordance with Town approved plans, certain public improvements, including, but not limited to streets, curb, gutter, sidewalks, storm sewer lines, storm drainage improvements, sanitary sewers, water lines, trails and park improvements within or adjacent to the Property. Owner agrees to guarantee construction of all required improvements for a period not to exceed two (2) years from and after the date of final acceptance from Erie, and, if requested by Erie, to dedicate to Erie any or all other required improvements. Owner agrees to enter into a development agreement pertaining

to such improvements and other matters prior to any development of the Property. The construction of public improvements may be subject to any reimbursement which may be provided for in the development agreement and/or any urban renewal authority documents.

X. **EXCLUSIVITY OF ANNEXATION PETITION.** Owner agrees to not sign any other petition for annexation of the Property or any petition for an annexation election relating to the Property, except upon request of Erie.

XI. **SPECIAL PROVISIONS.**

A. **Density.** Owner acknowledges that the maximum number of multi-family dwelling units that may be constructed on the Property is five hundred (500) units, which shall be platted and constructed on the Property in accordance with Title 10 of the Code.

B. **Town Property Site Grading.** The Town and Owner agree to work cooperatively for mutually beneficial grading operations on the Town owned property located due west and immediately adjacent to the Property. The grading operations may include cutting and filling of dirt to comply with Federal Aviation Administration ("FAA") regulations. All grading operations will be at the sole cost of the Owner. Nothing contained in this Agreement shall create an obligation on the part of Erie to pay or reimburse any costs to Owner, related to grading.

C. **Waterline Installation and Oversizing.** In the event that any water lines or facilities are oversized to serve other properties (the "Benefited Properties"), the Town agrees to enter into one or more reimbursement agreements with the owners of such Benefited Properties causing such owners to reimburse any incremental costs to the Owner prior to recordation of a final plat or approval of a site plan for development of the Benefited Properties. The reimbursements shall be required to be paid by the Benefited Property owners at such time as the first final plat is approved for the benefit of the Benefited Property. "Oversizing" shall mean any requirement by the Town to install a waterline, which is greater than twelve inches or required by the development. "Incremental Costs" shall mean the cost difference of pipe and any related water system improvements. Nothing contained in this Agreement shall operate to create an obligation on the part of Erie to pay or reimburse any costs to Owner in the event such costs are not recovered by Erie as contemplated herein, for any reason, from the properties or property Benefited Properties or Benefited Property owners.

1. **Installation Obligations.** Owner shall install, at its sole cost and expense, all waterlines, pump stations, fire hydrants and other related facilities within the Property subject to the oversizing and reimbursement contributions as provided for herein. Waterlines lying within the dedicated rights-of-way or Town accepted easements shall be dedicated to the Town upon the Town's construction acceptance thereof.

2. **Off-Site.** Owner shall replace the existing 14-inch asbestos concrete pipe along the north property line from the new 12-inch line west of Bonanza to the abandoned valve west of the runway with the first phase of development. The replacement of this 14-inch asbestos concrete pipe shall be with an 18-inch pipe, as shown in the Town of Erie Water and Wastewater Master Plan. Owner shall also install a 12-inch water line loop around the property as show in the Town of Erie Water and Wastewater Master Plan.

D. **Sewer Installation and Oversizing.** In the event that any sewer lines or facilities within the Property are oversized to serve other properties (the "Sewer Benefited Properties"), the Town agrees to enter into one or more reimbursement agreements with the owners of such Sewer Benefited Properties causing such owners to reimburse any incremental costs to Owner prior to recording a final plat or approval of a site plan for development of the Sewer Benefited Properties. The reimbursement shall be required to be paid by the Sewer Benefited Properties owners at such time as the first final plat is approved for the benefit of the Sewer Benefited Properties. "Oversizing" shall mean any requirement by the Town to install a sewer line which is greater than that which would otherwise be required to serve only the Property. "Incremental Costs" shall mean the cost difference of pipe and related facility oversizing. Nothing contained in this Agreement shall operate to create an obligation on the part of Erie to pay or reimburse any costs to Owner in the event such costs are not recovered by Erie as contemplated herein, for any reason, from the Sewer Benefited Properties or Sewer Benefited Property owners.

1. **Installation Obligations.** Owner shall install, at its sole cost and expense, all sewer lines and appurtenances located with the boundaries of the Property subject to the oversizing and reimbursement contributions as provided for herein. Sewer lines lying within the dedicated rights-of-way or Town accepted easements shall be dedicated to the Town upon the Town's construction acceptance thereof.

2. **Off-Site.** The sewer lines will be sized to provide service to the sewer basin. The Town agrees to enter into one or more reimbursement and service agreements with Owner and the owners of other Sewer Benefited Properties in the basin causing such owners to reimburse any incremental costs to Owner or such other entity as may construct the sewer line serving all such Sewer Benefited Properties. Based on sewer capacity, any reimbursement payments described above shall be made at the time of construction of the sewer line or at such time as the first connection is made to the sewer line if such connection is made after the sewer line has been constructed.

a. **Airpark Interceptor Extension ("Interceptor Extension").** Owner recognizes that the Interceptor Extension benefits this property and other properties, and that the Property is close to the

end of the Interceptor Extension. The Owner agrees to reimburse the Town for their proportional share of the design and construction of the Interceptor Extension for the multi-family tract. The proportional share of the multi-family tract is 33 percent of the overall cost of the Interceptor Extension.

The reimbursement due to the Town for connection of the multi-family tract to the Interceptor Extension shall be on a cost per unit basis. The cost per unit shall be determined on the value of the awarded contract to construct the Interceptor Extension and the number of multi-family dwelling units approved on a Site Plan. The actual per unit costs shall be outlined in a future development agreement. Said reimbursement to the Town shall occur with the issuance of each multi-family building permit. **The following is an example of how the cost per unit shall be determined and paid.**

- Awarded Construction Contract: $2,150,000.00
- Multi-family proportional share (33%): $709,500.00
- 480 multi-family units/Site Plan: $1,480.00 per unit
- Building Permit for one 24 unit building: $35,520.00 due with the issuance of the building permit.

The Owner will notify the Town in writing a minimum of 6 months prior to requiring the Interceptor Extension. The Town will design the Interceptor Extension, competitively bid the project, and provide the bid results to the Owner. The Town will obtain all easements for the Interceptor Extension within a timely manner, however if easements cannot be obtained to meet the construction schedule of the Owner, or the easement requires condemnation, the Town will not be held libel for any costs due to delay.

b. Coal Creek Interceptor Reimbursement.

i. **Town Reimbursement.** Owner shall reimburse the Town for connection to the existing 30-inch sewer line in Coal Creek at the rate of $54.21 per single family equivalent. Said reimbursement to the Town shall occur with the issuance of building permits for non-residential structures; and prior to the recordation of a final plat and/or site plan approvals allowing residential structures.

ii. **Vista Ridge Metropolitan District Reimbursement.** Owner shall reimburse the Vista Ridge Metropolitan District for connection to the existing 30-inch sewer line in Coal Creek at the rate of $182.87 per acre for commercial and/or $222.12 per single family equivalent. Said

reimbursement to the district shall occur with the issuance of building permits for non-residential structures; and prior to the recordation of a final plat and/or site plan approvals allowing residential structures.

E. Storm Drainage Improvements.

1. **Criteria and Standards.** Owner shall meet all Town design criteria for drainage improvements within the Property, and as noted in the Town of Erie's Weld County OSP, which improvements shall be set forth in a Phase II Drainage Report and Plan to be submitted and approved with the preliminary plat and/or site plan.

2. **On Site.** In the event that constructed drainage facilities are oversized to benefit other properties during development of the Property by Owner, the Town agrees to enter into one or more reimbursement agreements with the owners of other properties benefiting from such oversizing, which shall allow Owner to be reimbursed for the incremental oversizing costs paid by Owner. "Oversizing" for drainage purposes shall mean any requirement by the Town for any channel or other drainage facility within the Property to be a size greater than the size required to serve the Property. The Town will not include in the reimbursement the cost to convey historic flows through the Property.

3. **Drainage Facilities.** Subject to the Town's approval, the Property will contain several water quality and stormwater detention areas. This detention will ultimately release into the regional drainage basins in the area. Owner agrees to that it will incorporate open, grass-lined channels where appropriate in place of concrete channels or underground piping, where cost appropriate and technically feasible. In the event the Town requires Owner to oversize any drainage improvements to accommodate development of other properties, the Town shall enter into reimbursement agreements for such other properties requiring that they reimburse Owner for their pro-rata share of such oversizing costs. The Town will not include in the reimbursement the cost to convey historic flows through the Property.

4. **Off-Site Drainage Improvements.** The Owner shall release drainage from the Property at historic rates which shall be mitigated prior to release from the Property. The Owner will provide a solution acceptable to the Town to return all discharges (all events, flood peaks, and volumes) to mimic existing hydrologic conditions or to safely channel flows to Coal Creek, such that all drainage meets historic rates.

5. **Drainage Liability.** Unless caused by the negligent Standards and Specifications of Erie and/or anyone acting by, through or under Erie, the Owner shall indemnify and hold harmless the Town for any liability the

Town may have on account of any change in the nature, direction, quantity and/or quality of historical drainage flow resulting from the development of this Property or from the construction of streets or storm sewers therein. In addition, the Owner agrees to reimburse the Town for any and all costs including, but not limited to, reasonable attorney's fees, which the Town incurs in acquiring or condemning rights-of-way or easements which the Town is required to acquire or condemn or which the Town is held to have acquired or condemned, for drainage as a result of the development of the Property.

6. **Maintenance.** The Owner shall be responsible for maintaining all drainage facilities on the Property. At the Owners' discretion, a metropolitan district or business association may assume the maintenance responsibilities of the drainage facilities.

F. **Off-Site Easements and Right-of Ways.** In the event Owner is unable to obtain off-site easements and right-of-ways which are necessary for the installation of water mains, sanitary sewer mains, storm drainage outfalls and roadways to serve the Property, the Town agrees to assist Owner in obtaining such easements and right-of-ways. If required, the Town will support condemnation. Any assistance the Town provides will be at no cost to the Town.

G. **Roadway Improvements.**

1. **Colorado State Highway 7 ("SH 7").**

a. **Improvements.** Owner shall be responsible for constructing any acceleration, deceleration, turn lanes and medians required by the Town of Erie or the Colorado Department of Transportation ("CDOT") for the Property on SH 7. Timing of said improvements shall be determined at the time of subdivision and/or site plan approvals.

b. **Traffic Signalization.** Owner shall be responsible for modifications to the existing traffic signal at SH 7 and Bonanza Drive (Weld County Road 3) required by CDOT caused by development of the Property. Owner shall be responsible for design, construction, funding and installation of any additional traffic signals permitted and/or required by CDOT adjacent to SH 7.

2. **Bonanza Drive (Weld County Road 3).**

a. **Improvements.** Owner shall be responsible for constructing any acceleration, deceleration and turn lanes required by the Town for the Property on Bonanza Drive. Timing of said improvements

shall be determined at the time of subdivision and/or site plan approvals.

b. **Traffic Mitigation.** Owner shall be responsible for constructing and participating in reimbursement of any traffic mitigation, including lighting, sidewalks, medians, or other traffic mitigation items as required by the Town of Erie.

c. **Traffic Signalization.** Owner shall be responsible for design, construction, funding and installation of any traffic signals permitted and/or required by Town adjacent to Bonanza Drive. The Town will require the other property owners adjacent to such intersection to reimburse fifty-percent (50%) of the total costs for these signals to Owner. Nothing contained in this Agreement shall operate to create an obligation on the part of Erie to pay or reimburse any costs to Owner in the event such costs are not recovered by Erie as contemplated herein, for any reason, from the properties or property owners responsible for payments toward such signals.

H. **Schools.** The Owner acknowledges and agrees to comply with the Intergovernmental Agreement dated June 8, 2011 between the Town of Erie and St. Vrain Valley School District ("SVVSD"), as the same may be amended from time to time.

I. **Public and Private Land Provisions.**

1. **Public Parks and Open Space.** The public park and open space land dedications required by Title 10 of the Code will be met by Owner based on the number of residential units approved at the time of subdivision and/or site plan approvals.

2. **Private Amenity Facilities.** Owner may construct one or more private amenity facilities on the Property. These facilities may include pools, clubhouses, a recreation center, parking lots, landscaping, etc., to be determined at the Owner's discretion at the time of subdivision and/or site plan approval. Owner shall cause such facilities to be maintained according to customary and reasonable standards for similarly situated facilities. Town shall have no maintenance responsibilities for such facilities.

J. **Land Use Vesting.**

1. **Vested Rights.** Notwithstanding anything in this Agreement to the contrary, the Town acknowledges that the development of the Property, as contemplated by this Agreement, shall require the investment of substantial funds by Owner over a long period of time and that, due to the

uncertainties of future market conditions and cycles, the full development of the Property might not be completed for many years. Further, the Town acknowledges that as an inducement to Owner to agree to annex the Property to Erie, the Town has agreed to provide vested property rights to the fullest extent permitted by Colorado law. This Annexation Agreement is a "development agreement" pursuant to C.R.S. 24-68-104(2), and as authorized by Title 9, Chapter 3 of the Town of Erie Municipal Code. In accordance with and pursuant to C.R.S. 24-68-105, the Town agrees not to take any zoning or land use action, by action of the Town or through initiative measure which would alter, impair, prevent, diminish, impose a moratorium on development, or otherwise delay the development or use of the Property as set forth in this Annexation Agreement and on the Zoning Map. Vested rights are hereby established with respect to the zoning, land use and other terms of this Agreement to the fullest extent permitted by C.R.S. 24-68-101, *et seq.* The Property shall be vested for a period of ten (10) years or any extension thereof, beginning with the recordation of the Annexation Agreement. However, the period of vested rights shall be extended for an equal period of time for any period of time during which the Town is unable to supply water taps, sewer taps and/or building permits due to insufficient availability of any of these. Due to the scale of the development, the magnitude of the development costs and the possible duration of the development process, such property rights are vested from the date of the adoption of said ordinance. At such time as any portion of the Property receives final development plan or final plat approval, the Town agrees to include the vested rights granted herein in such final development plan or final plat. The provisions of this Section XI.K.1 shall also be incorporated in any development agreement with the Town pertaining to the Property.

2. **Enforcement.** The Town agrees that the foregoing vested rights provision may be specifically enforced. The Town acknowledges that, due to the substantial financial investment which Owner must make toward the development of the Property, the damages allowed under C.R.S. 24-68-105(1)(c) may be inadequate in the event Owner is unable to enforce this provision. Accordingly, Owner shall have the ability to waive its right to receive compensation pursuant to C.R.S. 24-68-105(1)(c) or any similar future statutory provision and to enforce the provisions of XI.K.1 above by obtaining relief in the form of specific performance, injunction or other appropriate declaratory or equitable relief.

3. **Processing.** The Town shall permit the development of the Property upon the submission of the proper plans, applications, plats and the payment of fees required by the Town ordinances and regulations. The Town agrees not to unduly delay or hinder the development of the Property (such as refusing to timely process, review and act upon development applications), nor shall the Town unreasonably withhold its consent to or approval of a development request or permit made in substantial

compliance with the Annexation and Zoning Maps, Municipal Code, Title 10 and this Agreement. The Town agrees to coordinate with Owner any filings or applications before other governmental or quasi-governmental entities necessary for Owner to fulfill its obligations under this Agreement or to permit development of the Property.

If the Town does not have adequate staff for the timely review and processing of Owner's applications, the Town may contract for such services, and the Town shall charge Owner for the actual costs related thereto.

K. **Unique Development Issues.** During the site planning and/or subdivision process, Owner shall address certain unique development issues that occur within certain parts of Erie with respect to the Property, including landfill disclosure issues and proximity to airports. Owner shall, at the Town's discretion and determination, perform such additional investigations as needed and create such disclosures that may be required.

XII. MISCELLANEOUS PROVISIONS.

A. **Interpretation.** Nothing in this Agreement shall constitute or be interpreted as a repeal of the Town's ordinances or resolutions, or as a waiver of the Town's legislative, governmental, or police powers to promote and protect the health, safety, and welfare of the Town and its inhabitants, nor shall this Agreement prohibit the enactment or increase by the Town of any tax or fee.

B. **Severability.** If any part, section, subsection, sentence, clause or phrase of this Agreement is for any reason held to be invalid, such invalidity shall not affect the validity of the remaining sections of the Agreement. The parties hereby declare that they would have agreed to the Agreement including each part, section, subsection, sentence, clause or phrase thereof, irrespective of the fact that one or more parts, sections, subsections, sentence, clauses or phrases be declared invalid.

C. **Amendments to the Agreement.** This Agreement may be amended, at anytime, upon agreement of the parties hereto. Such amendments shall be in writing, shall be recorded with the County Clerk & Recorder of Weld County, Colorado, shall be covenants running with the land, and shall be binding upon all persons or entities having an interest in the Property subject to the amendment unless otherwise specified in the amendment.

In addition, this Agreement may be amended by the Town and any Owner without the consent of any other Owner as long as such amendment affects only that amending Owner's portion of the Property. Such amendments shall be in writing, shall be recorded with the County Clerk & Recorder of Weld County, Colorado, shall be covenants running with the land, and shall be binding upon all persons or entities having an interest in the Property subject to the amendment unless otherwise specified in the amendment.

D. **Binding Effect.** This Agreement shall be binding upon and inure to the benefit of the parties, their successors in interest, or their legal representatives, including all developers, purchasers and subsequent owners of any lots or parcels within the Property, and shall constitute covenants running with the land. This Agreement shall be recorded with the County Clerk & Recorder of Weld County, Colorado, at Owner's expense. Subject to the conditions precedent herein, this Agreement may be enforced in any court of competent jurisdiction.

E. **Indemnification.** Owner agrees to indemnify and hold harmless the Town and the Town's officers, employees, agents, and contractors, from and against all liability, claims, and demands, including attorney's fees and court costs, which arise specifically out of Erie's act of annexing the Property pursuant to this Agreement or connected to Town's enforcement of this Agreement. Owner further agrees to investigate, handle, respond to, and to provide defense for and defend against or at the Town's option to pay the attorney's fees for defense counsel of the Town's choice for, any such liability, claims, or demands.

F. **Termination.** If the annexation of the Property is, for any reason, not completed then this Agreement shall be null and void and of no force and effect whatsoever.

G. **No Right or Remedy of Disconnection.** No right or remedy of disconnection of the Property from the Town shall accrue from this Agreement, other than provided by applicable state laws. In the event the Property or any portion thereof is disconnected at Owner's request, the Town of Erie shall have no obligation to serve the disconnected property or portion thereof and this Agreement shall be void and of no further force and effect as to such property or portion thereof.

H. **Annexation and Zoning Subject to Legislative Discretion.** The Owner acknowledges that the annexation and subsequent zoning of the Property are subject to the legislative discretion of the Board of Trustees of the Town of Erie. No assurances of annexation or zoning have been made or relied upon by the Owner. In the event that the Town of Erie Board of Trustees, in the exercise of it's legislative discretion, does not take any action with respect to the Property herein contemplated, then the sole and exclusive remedy for the breach hereof accompanied by the exercise of such discretion shall be the withdrawal of the petition for annexation by the Owner, or disconnection from the Town in accordance with state law, as may be appropriate.

I. **Legal Discretion in the Case of Challenge.** The Town of Erie reserves the right to not defend any legal challenge to this annexation. In the event such a challenge occurs prior to any expiration of any statute of limitation, Erie may, at its discretion, choose to legally fight the challenge or allow the challenge to proceed without defense. This does not restrict the Owner from engaging the Town's legal representatives in such a defense, at no cost to the Town.

J. **Application of Town Policies.** Upon annexation, all subsequent development of the Property shall be subject to and bound by the applicable provisions of Erie ordinances, as amended, including public land dedications, provided however, that changes or amendments to the code, after the date of this Agreement shall in no way limit or impair Erie's obligations or covenants hereunder, except as specifically set forth in this Agreement.

K. **Amendments to Governing Ordinances, Resolutions and Policies.** As used in this Agreement, unless otherwise specifically provided herein, any reference to any provision of any Town ordinance, resolution, or policy is intended to refer to any subsequent amendments or revisions to such ordinance, resolution, or policy, and the parties agree that such amendments or revisions shall be binding upon Owner, provided however, that changes or amendments to the code, after the date of this Agreement shall in no way limit or impair Erie's obligations or covenants hereunder, except as specifically set forth in this Agreement.

L. **Remedies.** In the event of default by either party hereunder, the non-defaulting party shall have all remedies available in law or in equity, including but not limited to specific performance and damages.

M. **Legal Fees.** In the event that either party finds it necessary to retain an attorney in connection with a default by the other as to any of the provisions contained in this Agreement, the defaulting party shall pay the other's reasonable attorneys' fees and costs incurred in enforcing the provisions of this Agreement.

N. **Reimbursement for Other Costs.** The Owner shall reimburse the Town for any third party costs necessary for the orderly and proper development of the Property, including but not limited to consultant's fees for planning and engineering, and attorney's fees for legal services beyond the normal document review, which is directly linked to the Property.

O. **Avigation Easements.** Owner agrees to provide the Town with an executed avigation easement (which avigation easement shall not be recorded until the Property is annexed to Erie) upon mayor's signature to this Annexation Agreement, which provides the Town an easement for the operation of aircraft to and from the Erie Municipal Airport, within the airspace of the Owner's property. In the event the annexation of the Property is, for any reason, not completed then such unrecorded avigation easement shall be deemed to be null and void and shall be immediately returned to Owner.

P. **Cooperation.** The parties agree that they will cooperate with one another in accomplishing the terms, conditions, and provisions of the Agreement, and will execute such additional documents as necessary to effectuate the same.

Q. **Timely Submittal of Materials.** Owner agrees to provide legal documents, surveys, engineering work, newspaper publication, maps, reports and other

documents necessary to accomplish the annexation of the Property and the other provisions of this Agreement.

R. **Compliance with State Law.** The Owner and the Town shall comply with all applicable State law and regulations.

S. **Recording of Agreement.** This Agreement shall be recorded in the records of the Weld County Clerk and Recorder.

XIII. **COMPLETE AGREEMENT.** This instrument embodies the whole agreement of the parties. There are no promises, terms, conditions, or obligations other than those contained herein; and this Agreement shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties hereto. Except as provided herein there shall be no modifications of this Agreement except in writing, executed with the same formalities as this instrument. Subject to the conditions precedent herein this Agreement may be enforced in any court of competent jurisdiction.

By this acknowledgment, the undersigned hereby certify that the above Agreement is complete and true and entered into of his/her/its/their own free will and volition.

OWNER:
Pratt Properties Limited Partnership, a Colorado limited partnership

_____ 6-25-12
Date

Karen K Kramer

Karen K. Kramer 6-25-12
Date

STATE OF COLORADO)
) SS.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 25th day of June, 2012 by Susan M. Pratt as owner, Pratt Properties Limited Partnership, a Colorado limited partnership.

My commission expires: 4/2/15
Witness My hand and official seal.

WINNAFRED F KLING
Notary Public
State of Colorado
My Commission Expires April 02, 2015

Notary Public

STATE OF COLORADO)
) SS.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 25th day of June, 2012 by Karen K. Kramer.

My commission expires: 4/2/15
Witness My hand and official seal.

WINNAFRED F KLING
Notary Public
State of Colorado
My Commission Expires April 02, 2015

Notary Public

TOWN:
TOWN OF ERIE, a Colorado municipal corporation

Joseph A. Wilson, Mayor — July 24, 2012 Date

ATTEST:

Nancy J. Parker, Town Clerk — July 24, 2012 Date

STATE OF COLORADO)
) SS.
COUNTY OF Weld)

The foregoing instrument was acknowledged before me this 24th day of July, 2012 by Joseph A. Wilson and Nancy J. Parker, Mayor and Town Clerk, respectively, of the Town of Erie, a Colorado municipal corporation.

My commission expires: March 7, 2016
Witness My hand and official seal.

Notary Public

MELINDA R. HELMER NOTARY PUBLIC STATE OF COLORADO

EXHIBITS LIST

Exhibit A	Property Legal Description
Exhibit B	Annexation Petition
Exhibit C	Annexation Map
Exhibit D	Tributary and Non-Tributary Water Rights

3867544 Pages: 20 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

"Exhibit A"

Legal Description

A part of the South Half of the Southeast Quarter of Section 31, Township 1 North, Range 68 West of the Sixth Principal Meridian, County of Weld, State of Colorado, more particularly described as follows:

Commencing at the Southeast Corner of said Southeast Quarter of Section 31;

Thence North 00°15'14" East along the East line of said Southeast Quarter, a distance of 75.31 feet;

Thence North 89°44'46" West, a distance of 109.21 feet to the Westerly Right-of-Way of County Road No. 3 as recorded in the office of the Weld County Clerk and Recorder in Book 1631 at Reception No. 2572958, said point also being on the Northerly Right-of-Way of State Highway No. 7 as described in the office of the Weld County Clerk and Recorder in Book 1224 at Reception No. 02170911 and the Point of Beginning;

Thence along said Northerly Right-of-Way of State Highway No. 7, along a line seventy-five (75.00) feet Northerly distant and parallel, when measured at right angles, with the South line of said Southeast Quarter the following two (2) courses;

1. Thence North 89°34'53" West, a distance of 1896.40 feet;

2. Thence North 89°32'45" West, a distance of 13.43 feet to the Easterly line of that parcel of land as recorded in the office of the Weld County Clerk and Recorder in Book 1274 at Reception No. 02225423;

Thence along said Easterly line the following two (2) courses:

1. Thence North 16°31'20" West, a distance of 1176.48 feet;

2. Thence North 12°14'16" West, a distance of 123.38 feet to the North line of said South Half of the Southeast Quarter of Section 31;

Thence South 89°35'08" East along said North line, a distance of 2330.26 feet to said Westerly Right-of-Way of County Road No. 3 as described in Book 1631 at Reception No. 2572958;

Thence along said Westerly Right-of-Way the following two (2) courses:

1. Thence South 04°46'24" West, a distance of 564.23 feet;

2. Thence South 01°04'07" West, a distance of 683.43 feet to the Point of Beginning,

County of Weld,
State of Colorado.

3867544 Pages: 21 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

"Exhibit B"

(Annexation Petition)

3867544 Pages: 22 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

TO: THE BOARD OF TRUSTEES OF THE TOWN OF ERIE, COLORADO.

RE: Sierra Vista Annexation

DATE: MAY 2, 2012

We, Pratt Properties, LP and Karen K. Kramer and the Town of Erie, the undersigned landowners, in accordance with Colorado law, hereby petition the Town of Erie and its Board of Trustees for annexation to the Town of Erie of the following described unincorporated territory located in the County of Boulder and State of Colorado, to-wit:

See Attached Legal Description "Exhibit A"

As part of this petition, your petitioner further states to the Board of Trustees of Erie, Colorado, that:

1. It is desirable and necessary that the territory described above be annexed to the Town of Erie.

2. The requirements of C.R.S. sections 31-12-104 and 31-12-105, as amended, exist or have been met in that:

   a. Not less than one-sixth of the perimeter of the area proposed to be annexed is contiguous with the Town of Erie or will be contiguous with the Town of Erie within such time as required by 31-12-104.

   b. A community of interest exists between the area proposed to be annexed and the Town of Erie.

   c. The area proposed to be annexed is urban or will be urbanized in the near future.

   d. The area proposed to be annexed is integrated with or is capable of being integrated with the Town of Erie.

   e. No land within the boundary of the territory proposed to be annexed which is held in identical ownership, whether consisting of one tract or parcel of real estate or two or more contiguous tracts or parcels of real estate, has been divided into separate parts or parcels without the written consent of the landowner or landowners thereof, unless such tracts or parcels were separated by a dedicated street, road or other public way.

   f. No land within the boundary of the area proposed to be annexed which is held in identical ownership, comprises twenty acres or more, and which, together with the buildings and improvements situated thereon has an assessed value in excess of two hundred thousand dollars ($200,000.00) for ad valorem tax purposes for the year next preceding the annexation, has been

included within the area proposed to be annexed without the written consent of the landowner or landowners.

g. No annexation proceedings have been commenced for any portion of the territory proposed to be annexed for the annexation of such territory to another municipality.

h. The annexation of the territory proposed to be annexed will not result in the detachment of area from any school district.

i. The annexation of the territory proposed to be annexed will not have the effect of extending the boundary of the Town of Erie more than three miles in any direction from any point of the boundary of the Town of Erie in any one year.

j. Prior to completion of the annexation of the territory proposed to be annexed, the Town of Erie will have in place a plan for that area, which generally describes the proposed: Location, character, and extent of streets, subways, bridges, waterways, waterfronts, parkways, playgrounds, squares, parks, aviation fields, other public ways, grounds, open spaces, public utilities, and terminals for water, light, sanitation, transportation, and power to be provided by the Town of Erie; and the proposed land uses for the area; such plan to be updated at least once annually.

k. In establishing the boundary of the territory proposed to be annexed, if a portion of a platted street or alley is to be annexed, the entire width of the street or alley has been included within the territory to be annexed. The Town of Erie will not deny reasonable access to any landowners, owners of any easement, or the owners of any franchise adjoining any platted street or alley which is to be annexed to the Town of Erie but is not bounded on both sides by the Town of Erie.

3. The owners of more than fifty percent of the area proposed to be annexed, exclusive of dedicated streets and alleys, have signed this petition and hereby petition for annexation of such territory.

4. Accompanying this petition are four copies of an annexation map containing the following information:

a. A written legal description of the boundaries of the area proposed to be annexed;

b. A map showing the boundary or the area proposed to be annexed, said map prepared and containing the seal of a registered engineer;

c. Within the annexation boundary map, a showing of the location of each ownership tract in unplatted land and, if part or all of the area is platted, the boundaries and the plat numbers of plots or of lots and blocks;

d. Next to the boundary of the area proposed to be annexed, a drawing of the contiguous boundary of the Town of Erie and the contiguous boundary of any other municipality abutting the area proposed to be annexed, and a showing of the dimensions of such contiguous boundaries.

5. Upon the Annexation Ordinance becoming effective, all lands within the area proposed to be annexed will become subject to all ordinances, rules and regulations of the Town of Erie, except for general property taxes of the Town of Erie which shall become effective as the January 1 next ensuing.

6. This petition is conditioned upon the zoning classification for the area proposed to annexed being approved for CC/HR/AP and approval by the petitioner of an annexation agreement acceptable to the petitioner.

WHEREFORE, the following petitioner respectfully requests that the Town of Erie, acting through its Board of Trustees, approve the annexation of the area proposed to be annexed. By this acknowledgment, the undersigned hereby certify that the above information is complete and true.

Owner: _____ Date: 4-30-12
Pratt Properties, LP, Susan Pratt, General Manager

Owner: Karen K. Kramer Date: 4-30-12
Karen K. Kramer

Owner: _____ Date: 5-2/12
Town of Erie, A.J. Krieger, Town Administrator

Applicant: _____ Date: 5-1-12
Hwy 7 Equities, LLC, Ryan Carlson, Manager

Applicant: _____ Date: 5-2-12
BMC Holdings, LLC, Craig Carlson, Authorized Agent

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 30th day of April, 2012 by Susan M. Pratt, General Manager, Pratt Properties, LP.

My commission expires: 8/20/12
Witness My hand and official seal.

Robin A. Engen
Notary Public

ROBIN A ENGEN
NOTARY PUBLIC
STATE OF COLORADO
My Commission Expires 08/20/2012

STATE OF COLORADO)
) ss.
COUNTY OF Boulder)

The foregoing instrument was acknowledged before me this 30th day of April, 2012 by Karen K. Kramer.

My commission expires: 8/20/12
Witness My hand and official seal.

Robin A. Engen
Notary Public

ROBIN A ENGEN
NOTARY PUBLIC
STATE OF COLORADO
My Commission Expires 08/20/2012

STATE OF COLORADO)
) ss.
COUNTY OF Weld)

The foregoing instrument was acknowledged before me this 2nd day of May, 2012 by A.J. Krieger, Town Administrator, Town of Erie.

My commission expires: 01-03-2015
Witness My hand and official seal.

Hallie Sawyer
Notary Public

NOTARY PUBLIC
HALLIE SAWYER
STATE OF COLORADO

STATE OF COLORADO)
) ss.
COUNTY OF Adams)

The foregoing instrument was acknowledged before me this 2nd day of May, 2012 by Ryan Carlson, Manager, Hwy 7 Equities, LLC.

My commission expires: 02/09/2016
Witness My hand and official seal.

Jenny L Moore
Notary Public

JENNY L MOORE
Notary Public
State of Colorado
My Commission Expires February 09, 2016

STATE OF COLORADO)
) ss.
COUNTY OF Weld)

The foregoing instrument was acknowledged before me this 2nd day of May, 2012 by Craig Carlson, Authorized Agent, BCM Holdings, LLC.

My commission expires: 01-03-2015
Witness My hand and official seal.

Hallie Sawyer
Notary Public

NOTARY PUBLIC
HALLIE SAWYER
STATE OF COLORADO

RECORD OF
LAND OWNERSHIP AND DATE SIGNED

Landowner/Petitioner Mailing Address	Date Signed	Legal Description of Land Owned
Pratt Properties, LP C/O Susan Pratt PO Box 1937 Longmont, CO 80502	4-30-12	See "Exhibit A"
Karen K. Kramer 8000 Fox Hill Drive Longmont, CO 80501	4-30-12	
Town of Erie C/O A.J. Krieger 645 Holbrook Street PO Box 750 Erie, CO 80516	5-2-12	
Hwy 7 Equities, LLC C/O Ryan Carlson PO Box 247 Eastlake, Co. 80614	5-1-12	
BMC Holdings, LLC C/O Craig Carlson 14095 Brighton Rd. Brighton, Colorado 80601	5-2-12	

3867544 Pages: 27 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

AFFIDAVIT OF CIRCULATOR

STATE OF COLORADO)
) ss.
COUNTY OF Adams)

Ryan Carlson, being first duly sworn upon oath, deposes and says that he ~~was the~~ circulator of this Petition for Annexation of lands to the Town of Erie, Colorado, consisting of 7 pages including this page and that each signature hereon was witnessed by your affiant and is the signature of the person whose name it ~~purports to~~ be.

Circulator

STATE OF COLORADO)
) ss.
COUNTY OF Adams)

The foregoing instrument was acknowledged before me this 2nd day of May, 2012 by Ryan Carlson.

My commission expires: 02/09/2016
Witness My hand and official seal.

Notary Public

JENNY L MOORE
Notary Public
State of Colorado
My Commission Expires February 09, 2016

"EXHIBIT A"

LEGAL DESCRIPTION: SUBJECT PROPERTY

ALL OF THAT PARCEL OF LAND SITUATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN LOCATED IN THE COUNTY OF WELD, STATE OF COLORADO, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHERLY RIGHT-OF-WAY LINE OF STATE HIGHWAY 7 AND THE WESTERLY RIGHT-OF-WAY LINE OF BONANZA DRIVE, WHENCE THE SOUTHEAST CORNER OF SECTION 31 BEARS S55°04'07"E 132.37 FEET;

THENCE ALONG THE NORTH RIGHT-OF-WAY LINE OF SAID HIGHWAY 7 N89°34'44"W 2533.85 FEET TO THE SOUTHEAST CORNER OF TRACT D, ERIE AIR PARK SUBDIVISION;

THENCE N00°46'40"W 1245.87 FEET TO THE NORTHEAST CORNER OF SAID TRACT D;

THENCE ALONG THE SOUTH LINE OF TRACT H, LOT 18, BLOCK 4, LOTS 16, 7 AND 6, BLOCK 5 AND TRACT C, ALL OF THE ERIE AIR PARK SUBDIVISION, S89°34'58"E 2576.73 FEET TO THE WESTERLY RIGHT-OF-WAY LINE OF BONANZA DRIVE;

THENCE ALONG THE WESTERLY RIGHT-OF-WAY LINE OF BONANZA DRIVE FOR THIS AND THE NEXT COURSE, S04°46'10"W 564.29 FEET;

THENCE S01°04'47"W 683.39 FEET TO THE POINT OF BEGINNING.

CONTAINING 72.803 ACRES.

May 5, 2008

Prepared by: Accurate Engisurv, LLC
350 Interlocken Boulevard Suite 160
Broomfield, Co. 80021 303-665-5005

3867544 Pages: 29 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

"Exhibit C"

(Annexation Map)

3867544 Pages: 30 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

SIERRA VISTA ANNEXATION MAP TO THE TOWN OF ERIE

A PART OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31,
TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
72.79 ACRES
AN08-001

LEGEND

- ZONING BOUNDARY
- EXISTING LOT LINE
- EXISTING EASEMENT
- SECTION LINE
- SECTION CORNER AS NOTED
- CURRENT TOWN LIMITS OF THE TOWN OF ERIE

LEGAL DESCRIPTION:

A PART OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, COUNTY OF WELD, STATE OF COLORADO; MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER OF SECTION 31; THENCE NORTH 00°15'14" EAST ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER, A DISTANCE OF 75.31 FEET;
THENCE NORTH 88°44'48" WEST, A DISTANCE OF 109.21 FEET TO THE WESTERLY RIGHT-OF-WAY OF COUNTY ROAD NO. 3 AS RECORDED IN THE OFFICE OF WELD COUNTY CLERK AND RECORDER IN BOOK 1831 AT RECEPTION NO. 2372956, SAID POINT ALSO BEING ON THE NORTHERLY RIGHT-OF-WAY OF STATE HIGHWAY NO. 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 02170611 AND THE POINT OF BEGINNING;

THENCE NORTH 89°34'53" WEST, ALONG SAID NORTHERLY RIGHT-OF-WAY, A DISTANCE OF 1,995.40 FEET;

THENCE NORTH 89°32'45" WEST, A DISTANCE OF 637.20 FEET TO THE WEST LINE OF SAID SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31 AND THE TOWN LIMITS OF THE TOWN OF ERIE;

THENCE NORTH 00°45'47" WEST ALONG SAID WEST LINE, A DISTANCE OF 1320.43 FEET TO THE NORTH LINE OF SAID SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 31 AND THE TOWN LIMITS OF THE TOWN OF ERIE ACCORDING TO THE ANNEXATION MAP RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 818 AT RECEPTION NO. 1739855;

THENCE SOUTH 89°35'08" EAST ALONG SAID NORTH LINE AND SAID TOWN LIMITS OF THE TOWN OF ERIE, A DISTANCE OF 2576.71 FEET TO SAID WESTERLY RIGHT-OF-WAY OF COUNTY ROAD NO. 3, AND THE TOWN LIMITS OF THE TOWN OF ERIE ACCORDING TO THE ANNEXATION MAP RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER AT RECEPTION NO. 2706379;

THENCE ALONG SAID WESTERLY RIGHT-OF-WAY AND SAID TOWN LIMITS ACCORDING TO THE ANNEXATION MAP RECORDED AT RECEPTION NO. 2709279 THE FOLLOWING TWO (2) COURSES:
1. THENCE SOUTH 04°46'24" WEST, A DISTANCE OF 564.23 FEET;
2. THENCE SOUTH 01°04'07" WEST, A DISTANCE OF 663.43 FEET TO THE POINT OF BEGINNING.

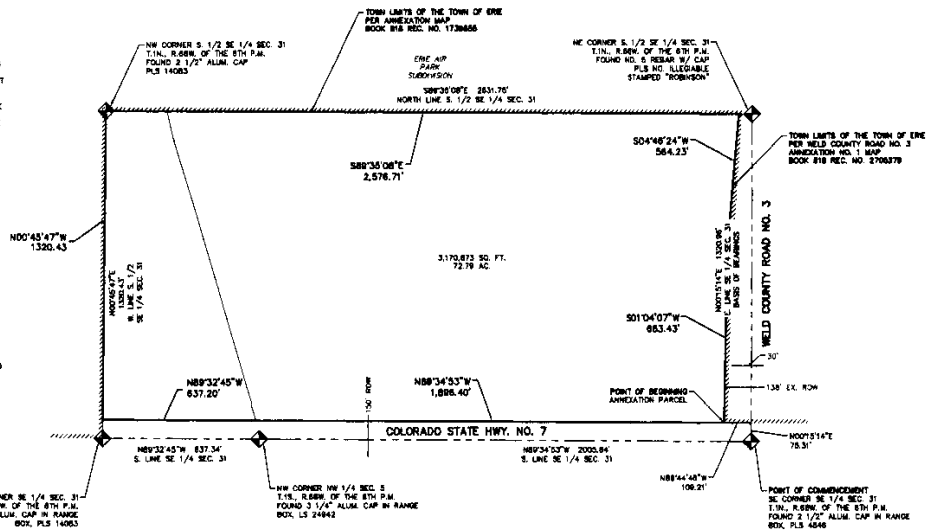
SAID PARCEL CONTAINS 72.79 ACRES, MORE OR LESS.

NOTES:

1. BASIS OF BEARINGS: BEARINGS SHOWN HEREON ARE BASED ON THE EAST LINE OF THE SOUTHEAST QUARTER OF SECTION 31, T1N, R68W OF THE 6TH P.M., WHICH WAS ASSUMED TO BEAR NORTH 00°15'14" EAST.

2. NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

3. THIS MAP WAS PREPARED WITHOUT BENEFIT OF A CURRENT TITLE COMMITMENT AND DOES NOT CONSTITUTE A TITLE SEARCH BY JANSEN STRAWN CONSULTING ENGINEERS TO DETERMINE OWNERSHIP, RIGHTS-OF-WAY, EASEMENTS OR OTHER MATTERS OF PUBLIC RECORD.



CONTIGUITY:

TOTAL PERIMETER:	6,787.61 FEET
REQUIRED 1/6 CONTIGUITY:	1,131.27 FEET
PERIMETER CONTIGUOUS WITH EXISTING TOWN LIMITS:	3,577.92 FEET

BOARD OF TRUSTEES APPROVAL CERTIFICATE

THIS ANNEXATION MAP IS TO BE KNOWN AS THE "SIERRA VISTA ANNEXATION MAP" TO THE TOWN OF ERIE AND IS APPROVED AND ACCEPTED BY ORDINANCE NO. _____ PASSED AND ADOPTED AT THE REGULAR (SPECIAL) MEETING OF THE BOARD OF TRUSTEES OF ERIE, COLORADO, HELD ON _____ 201__.

_____
MAYOR

ATTEST _____
TOWN CLERK

SURVEYOR'S CERTIFICATE

I, THOMAS D. STAAB, A DULY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS ANNEXATION SHOWN HEREON TRULY AND CORRECTLY REPRESENTS THE ABOVE DESCRIBED PARCEL(S) OF LAND AND THAT AT LEAST ONE-SIXTH (1/6) OF THE PERIPHERAL BOUNDARY OF SAID PARCEL(S) IS CONTIGUOUS TO THE PRESENT BOUNDARY OF THE TOWN OF ERIE.

I ATTEST THE ABOVE ON THIS ___ DAY OF _____ 20__.

_____
THOMAS D. STAAB, PLS
COLORADO PLS #20845
FOR AND ON BEHALF OF
JANSEN STRAWN CONSULTING ENGINEERS, INC.

CLERK & RECORDER CERTIFICATE

STATE OF COLORADO)
) ss
COUNTY OF WELD)

I HEREBY CERTIFY THAT THIS ANNEXATION MAP WAS FILED IN MY OFFICE THIS _____ DAY OF _____, 201__ A.D. AND WAS RECORDED AT RECEPTION NUMBER _____.

_____
SIGNATURE

WELD COUNTY CLERK & RECORDER

0 100 200 400
SCALE: 1" = 200'
ORIGINAL GRAPHIC SCALE

JANSEN STRAWN
CONSULTING ENGINEERS

3867544 Pages: 31 of 31
08/21/2012 10:10 AM R Fee:$161.00
Steve Moreno, Clerk and Recorder, Weld County, CO

"Exhibit D"

Water Rights Appurtenant to Property.
(Listing of all tributary and non-tributary water rights
attached to the property)

Water Rights (Ditch Company, groundwater, etc.)	Number of Shares	Certificate Number(s)	Yield (cfs or acre/ft)

August 13, 2015

Highway 7 & Bonanza, LLC
9033 E. Easter Place, Suite 110
Centennial, CO 80112

Town of Erie
Attn: Martin Ostholthoff, Director of Community Development [VIA EMAIL]
645 Holbrook Street
P.O. Box 750
Erie, CO 80516

Re: **Sierra Vista - Alternative Equivalent Compliance Request**

Mr. Otholthoff:

As we previously discussed, Section 10.6.1(C) of the Town of Erie's Uniform Development Code (UDC) provides that if certain provisions within 10.6.7 of the UDC are not technically satisfied, yet the design-related provisions' intent and purpose are nonetheless consistent with the UDC, an Applicant may request a site-specific Alternative Equivalent Compliance Request. Highway 7 & Bonanza, LLC, the Applicant for a preliminary plat approval for Sierra Vista (application recently submitted), hereby requests site-specific alternative compliance be granted simultaneously with the Sierra Vista preliminary plat hearing.

Per the UDC, Sections 10.2.2 (E)(2)(a) and 10.6.7(D)(1)(b)(ii), only one housing type is required if a Development Parcel does not exceed 40 acres, but requires either two housing types, or alternatively, one housing type and one housing variation, if a Development Parcel is between 41 and 80 acres in size. The Applicant is hereby requesting relief from the requirement found in Section 10.6.7(D)(1)(b)(ii) to provide either two housing types, or, alternatively, to provide one housing type and one housing variation for the following reasons:

1. All of Applicant's former and current Sierra Vista site plans have only showed Single Family Detached (one housing type) with no housing type variations; this was certainly true for the site plan that received favorable guidance from the Planning Commission and the Board of Trustees during multiple sketch plan hearings. Further, the previous developer's site plan, shown during its successful annexation and zoning hearings, showed only one housing type (apartments).
2. The site plan changes described above reduce the overall residential developable parcel to approximately 40 acres. While the overall project remains larger than 40 acres, the overall project includes commercial and expansive open space parcels, and therefore the developable residential acreage is approximately 40 acres, which meets the spirit of Section 10.6.7(D).
3. The project currently has two lot sizes that will provide for potential building widths ranging from 35 to 45 feet. The Applicant anticipates there will be a minimum of two different series of single family detached homes within Sierra Vista, differing in width, overall square footage and architectural features corresponding to the different lot sizes. This house-design diversity and differentiation will also result in different price points.

Section 10.6.1(C)(5) of the UDC provides the following criteria:

(a) "The proposed alternative achieves the intent of the subject design standard to the same or better degree than the subject standard." **We believe the size of the residential portion of the Sierra Vista site (approximately 40 acres) substantially meets the intent of Sections 10.2.2 (E)(2)(a) and 10.6.7(D)(1)(b)(ii). Note that the original residential portion of the site was substantially larger than**

40 acres in Applicant's previous applications, but was moved eastward and reduced in size in response to comments by Town Staff and referral agencies.

(b) "The proposed alternative substantially achieves the goals and policies of the Town's Comprehensive Master Plan to the same or better degree than the subject standard." **Since the size of the site is substantially consistent with the relevant provisions within the UDC, and the site planning provides housing-design diversity and differentiation, the goals and policies of the UDC have been substantially achieved.**

(c) "The proposed alternative result's in benefits to the community that are equivalent to or better than compliance with the subject design standard." **(i) The technical design realities of this particular site do not lend themselves to provide another housing type, in particular, attached for-sale homes or apartments. The developable envelope within the site is constrained vertically due to avigational easements and U.S. Federal Aviation Regulations Section 77.25 Civil Airport Imaginary Surfaces requirements, and therefore taller structures typical of such housing types are not feasible; (ii) The neighboring property owners, who opposed the prior developer's attempt to develop a large commercial center and 480 apartment units (which would have ultimately been infeasible upon application of FAR Section 77.25 as mentioned above), have supported the Applicant's efforts to develop single family detached homes; however, their support is subject to the development of low-density single family detached homes; (iii) providing housing variations (a substantive amount of the lots above 10,000 sq ft in size, below 5,000 sq ft in size, or alley-loaded) are infeasible in such a small site and may be effectively prevented, or at the very least frustrated, by the site's Low Density Residential zoning (e.g. minimum lot widths, etc.) and topography; and (iv) given the 6-acre commercial area in the southwest corner of the site, the expanded open space, trail corridors and the large Sierra Vista park proposed by Applicant, all of which features have been included in the site layout in direct response to comments from the Town Staff, Board of Trustees, and referral agencies, the Town has effectively shaped the site layout to its preferences over a 16-month process, and as such, the site's benefits are at least equivalent, if not better, than strict compliance with Sections 10.2.2 (E)(2)(a) and 10.6.7(D)(1)(b)(ii) of the UDC.**

Thank you for your consideration to this matter.

Sincerely yours,

Jeff Handlin
Highway 7 & Bonanza, LLC

SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015

LEGAL DESCRIPTION□

A PART OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SE CORNER OF SAID SE 1/4 OF SECTION 31;

THENCE N00°29'47"W ALONG THE EAST LINE OF SAID SE 1/4, A DISTANCE OF 75.31 FEET;

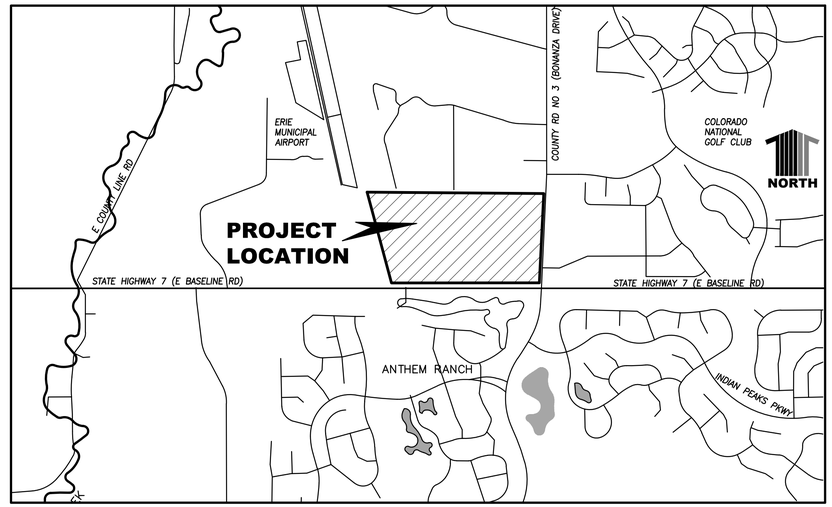
THENCE S89°30'13"W, A DISTANCE OF 109.21 FEET TO THE WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1631 AT RECEPTION NO. 2572958, SAID POINT ALSO BEING THE NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 2170911 AND THE POINT OF BEGINNING;

THENCE ALONG SAID NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7, ALONG A LINE 75.00 FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SE 1/4 THE FOLLOWING 2 COURSES;
1) THENCE S89°40'06"W, A DISTANCE OF 1896.40 FEET;
2) THENCE S89°42'14"W, A DISTANCE OF 13.43 FEET TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 2225423;

THENCE ALONG SAID EASTERLY LINE THE FOLLOWING 2 COURSES:
1) THENCE N17°16'21"W, A DISTANCE OF 1176.48 FEET;
2) THENCE N12°59'17"W, A DISTANCE OF 123.38 FEET TO THE NORTH LINE OF SAID S 1/2 OF THE SE 1/4 OF SECTION 31;

THENCE N89°39'51"E ALONG SAID NORTH LINE, A DISTANCE OF 2330.26 FEET TO SAID WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS DESCRIBED IN BOOK 1631 AT RECEPTION NO. 2572958; THENCE ALONG SAID WESTERLY RIGHT OF WAY THE FOLLOWING 2 COURSES:
1) THENCE S04°01'23"W, A DISTANCE OF 564.23 FEET;
2) THENCE S00°19'04"W, A DISTANCE OF 683.43 FEET TO THE POINT OF BEGINNING.

CONTAINING AN AREA OF 60.476 ACRES, MORE OR LESS.



VICINITY MAP
1" = 1000'

SHEET INDEX

T1	1	TITLE SHEET
SP1	2	PRELIMINARY PLAT OVERALL
SP2–SP5	3–6	PRELIMINARY PLAT ENLARGEMENTS
EC1	7	EXISTING CONDITIONS
OU1	8	OVERALL UTILITY PLAN
GR1–GR2	9–10	GRADING PLANS
L1–L11	11–21	LANDSCAPE PLANS
TOTAL	21	

GENERAL NOTES□

1. THERE ARE NO MAPPED 100–YEAR FLOODPLAINS FOR THE SITE.
2. ALL POCKET PARKS SHALL HAVE A PUBLIC ACCESS EASEMENT.
3. AN 8' UTILITY EASEMENT WILL OCCUR ALONG FRONT AND REAR PROPERTY LINES ON INDIVIDUAL LOTS AND AN 8' UTILITY EASEMENT WILL BE DEDICATED ALONG INTERNAL R.O.W. FRONTAGE.

LAND USE SUMMARY

TYPE	AREA (AC)	REQUIRED	% OF TOTAL AREA
RESIDENTIAL LOTS	26.89	N/A	44.46
PUBLIC ROW	10.38	N/A	17.16
POCKET PARK	2.13	0.24	3.52
OPEN SPACE*	13.92	8.25	23.02
COMMERCIAL	5.37	N/A	8.88
FUTURE DEVELOPMENT	1.79	N/A	2.96
TOTALS	60.48	N/A	100

* TRACT A (10.96 ACRES) DEDICATED TO MEET OPEN SPACE REQUIREMENTS

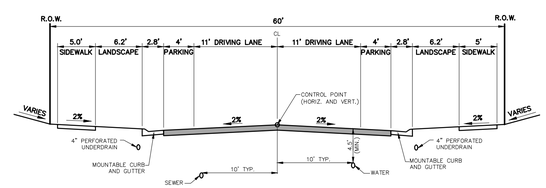
TRACT SUMMARY CHART

TRACT	AREA (AC)	USE	OWNERSHIP	MAINTENANCE
TRACT A	10.963	OPEN SPACE/DRAINAGE	TOWN OF ERIE	SVMD*
TRACT B	2.128	PARK	SVMD	SVMD
TRACT C	0.633	OPEN SPACE	SVMD	SVMD
TRACT D	1.787	ACCESS	OWNER	OWNER
TRACT E	5.369	FUTURE DEVELOPMENT	OWNER	OWNER
TRACT F	0.167	OPEN SPACE	SVMD	SVMD
TRACT G	0.010	OPEN SPACE	DEVELOPER	DEVELOPER
TRACT H	2.152	OPEN SPACE	SVMD	SVMD

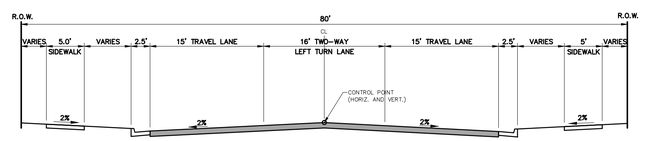
* SIERRA VISTA METROPOLITAN DISTRICT

PARKS □ OPEN SPACE SUMMARY CHART

TYPE	REQUIRED	PROVIDED
POCKET PARK	0.24	2.13
NEIGHBORHOOD PARK	1.42	0
CITY PARK	2.36	0
OPEN SPACE	8.02	10.96



60' R.O.W. LOCAL
N.T.S.



BONANZA DRIVE (80' R.O.W)
N.T.S.

PRO□ECT BASIS O□ BEARINGS□

BEARINGS ARE BASED ON THE NORTH RIGHT OF WAY LINE OF STATE HIGHWAY NO. 7. SAID LINE IS ASSUMED TO BEAR N89°40'06"E, AND IS MONUMENTED ON THE WEST WITH A #4 REBAR WITH CAP L.S. #10855, ON THE EAST WITH A #4 REBAR WITH CAP L.S. #10855.

DEVELOPER□
HIGHWAY 7 AND BONANZA, LLC
9033 EAST EASTER PLACE, SUITE 110
CENTENNIAL, CO 80112
(303) 604–5448
CONTACT: JEFF HANDLIN

TOWN O□ ERIE□
645 HOLBROOK ST.
ERIE, COLORADO 80516
(303) 926–2700
CONTACT: TODD BJERKAAS

ENGINEER SURVEYOR□
CALIBRE ENGINEERING, INC.
9090 SOUTH RIDGELINE BLVD., SUITE 105
HIGHLANDS RANCH, CO 80129
(303) 730–0434
CONTACT: TODD A. JOHNSON

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: T1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 □ BONAN□A, LLC
Designer: B□M | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

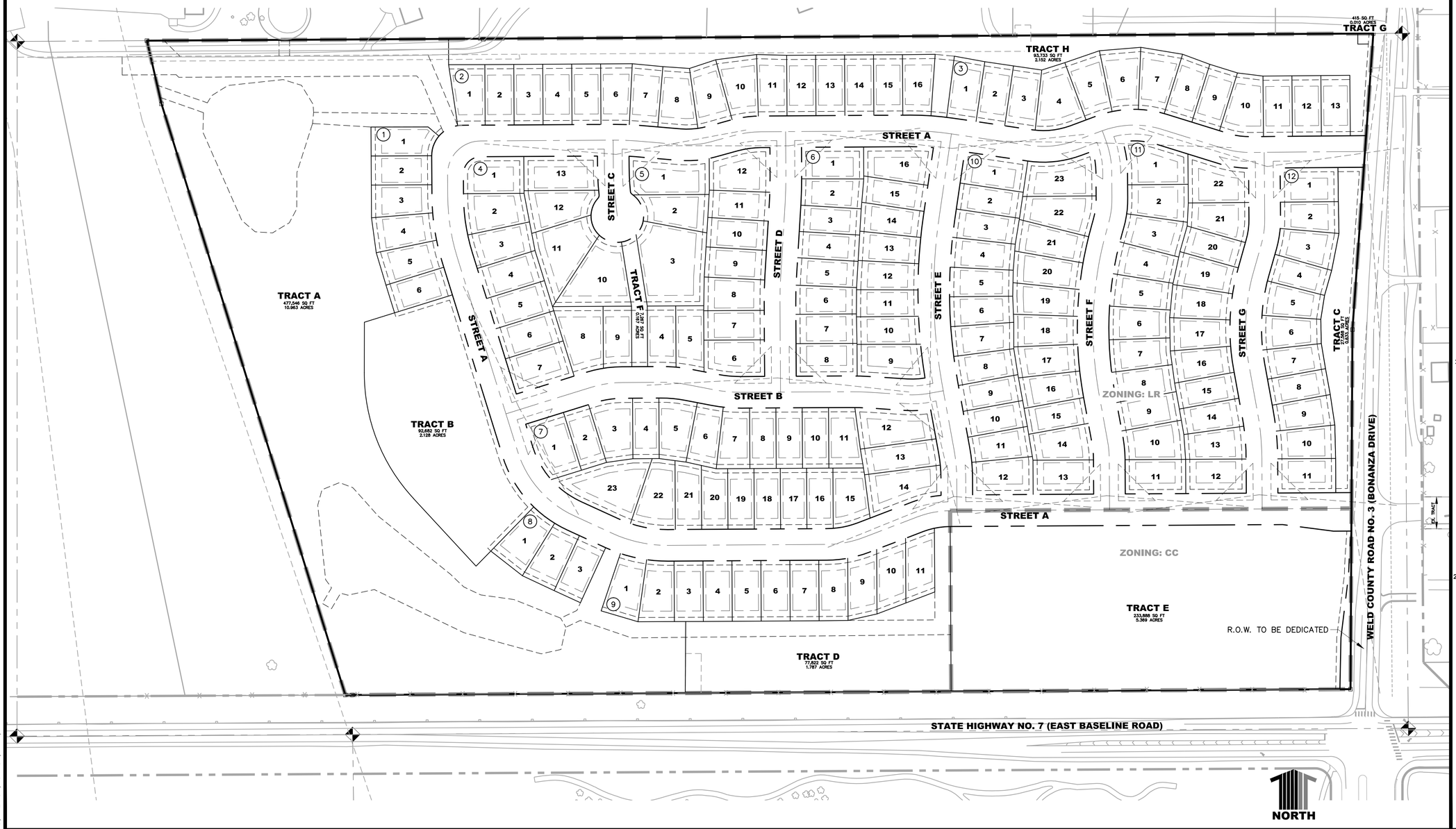
SIERRA VISTA
PRELIMINARY PLAT
TITLE SHEET

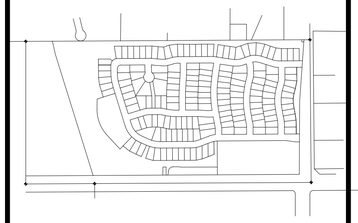
Sheet **T1** 1 of 21
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\T1.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 10:30 AM
XREFS: W-Typical Road Sections, w-Vicinitymap, 21TB,

SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH
RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN
TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO
□0.47□ ACRES - 1□□ LOTS - □ TRACTS
PP-000□17-2015





NORTH

KEYMAP

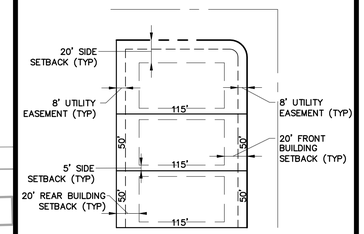
CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

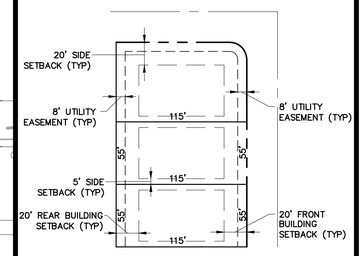
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT
LOTS – 50' X 115'



TYPICAL LOT
LOTS – 55' X 115'

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: SP1.dwg	0 50 100 200 — 1 inch = 100 ft. Horizontal		
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 □ BONAN□A, LLC	Designer: B□M	Drafter: RJL	Checked: TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
OVERALL

Sheet **SP1** 2 of 21

Date SEPTEMBER 14, 2015

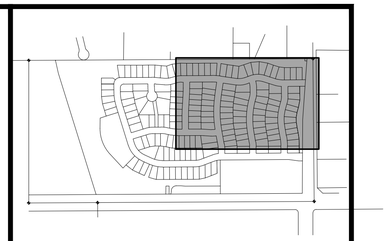
PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\SP1.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:55 AM
XREFS: 20EPN, 21ANNO, 21, MSP, 20BASE, 21TB,

SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015



NORTH

KEYMAP

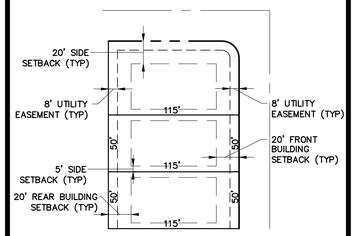
CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

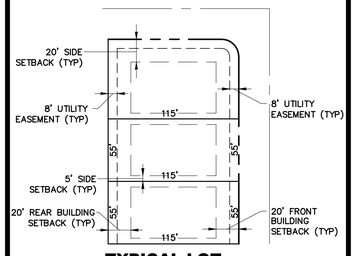
LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT

LOTS – 50' X 115'



TYPICAL LOT

LOTS – 55' X 115'

UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987

Utility Notification Center of Colorado

DATE		REVISION DESCRIPTION
	6	
	5	
	4	
	3	
	2	
	1	

Drawing Name: SP2.dwg	0 25 50 100 — 1 inch = 50 ft. Horizontal		
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 □ BONAN□A, LLC	Designer: B□M	Drafter: RJL	Checked: TAJ

Calibre

Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

Sheet **SP2** 3 of 21

Date SEPTEMBER 14, 2015

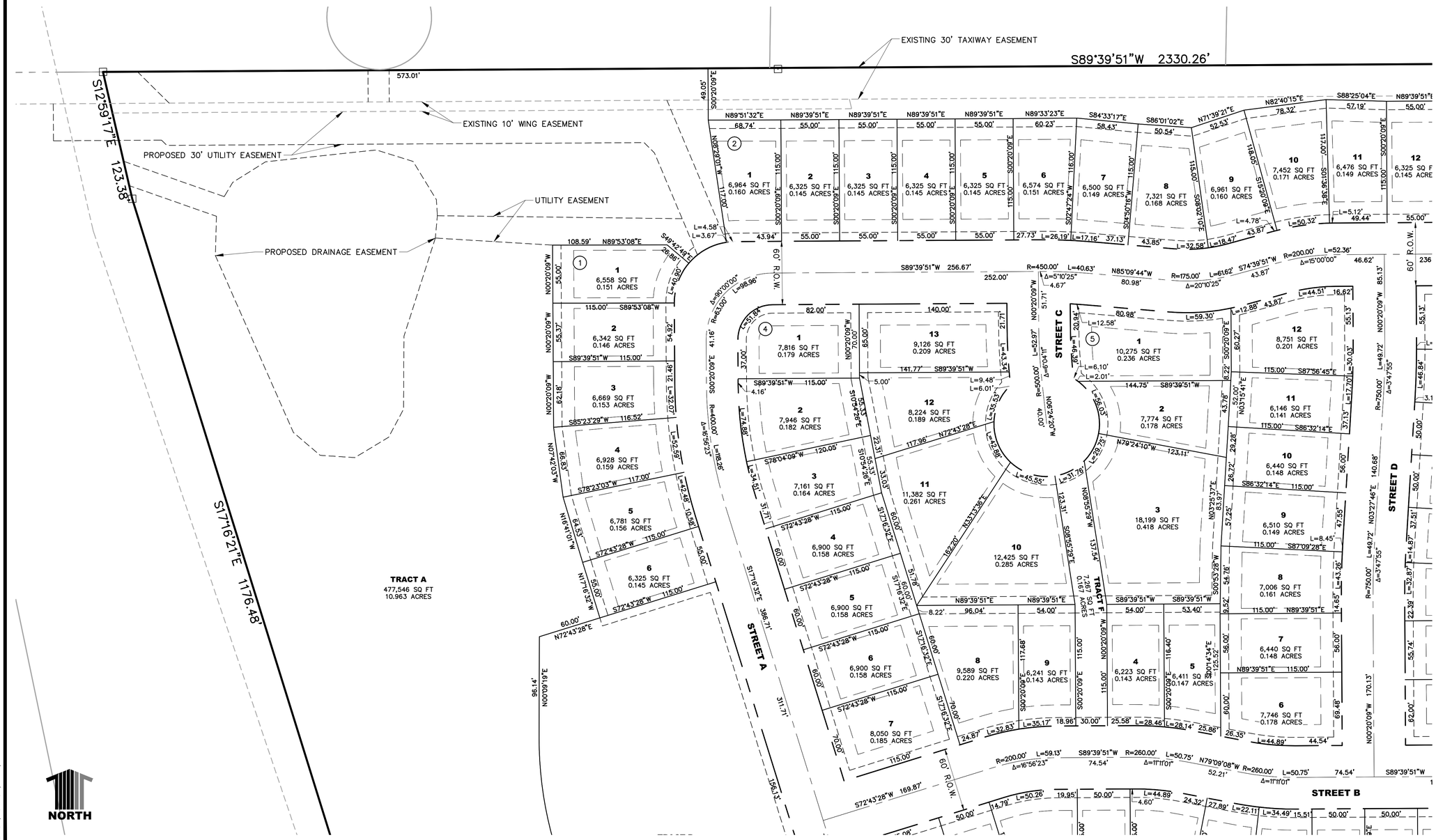
PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\SP2.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:59 AM
XREFS: 20EPN, 21ANNO, 21_MSP, 20BASE, 21TB,

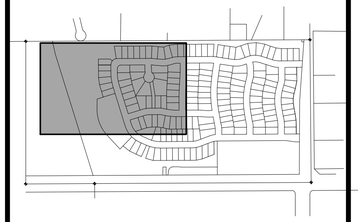
SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015





NORTH

KEYMAP

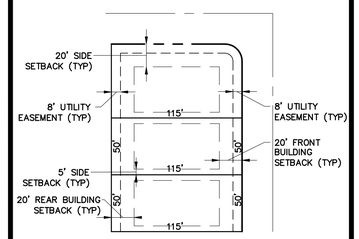
CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

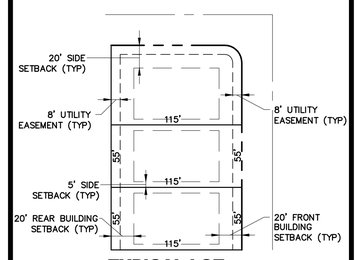
LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT

LOTS – 50' X 115'



TYPICAL LOT

LOTS – 55' X 115'

UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987

Utility Notification Center of Colorado

PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\SP2.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:55 AM
XREFS: 20EPN, 21ANNO, 21_MSP, 20BASE, 21TB,

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name	SP2.dwg
Job Number	OREAD SIERRA VISTA
Prepared For	HIGHWAY 7 □ BONAN□A, LLC
Scale	0 25 50 100 — 1 inch = 50 ft. Horizontal
Designer	B□M
Drafter	RJL
Checked	TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

Sheet SP□ 4 of 21

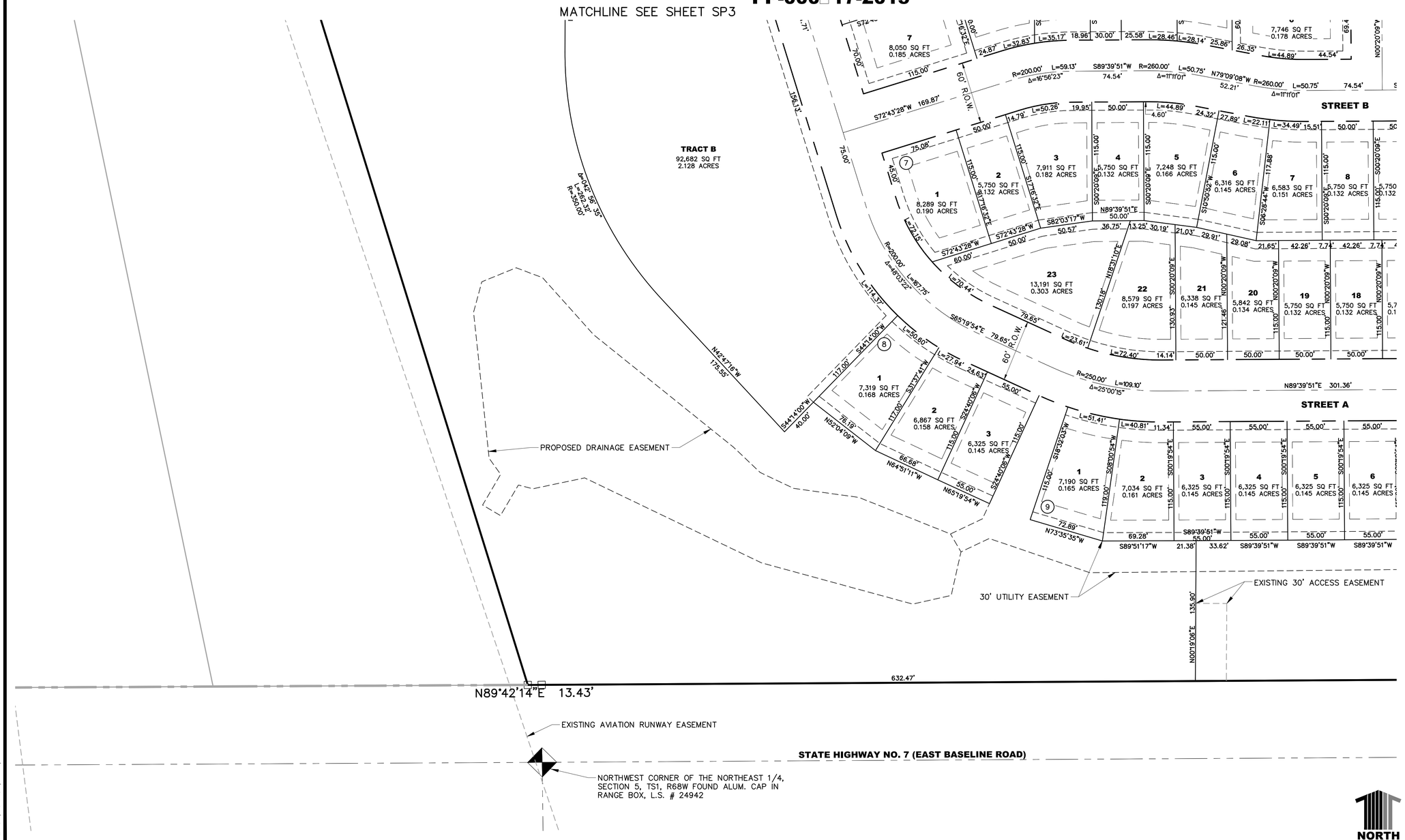
Date SEPTEMBER 14, 2015

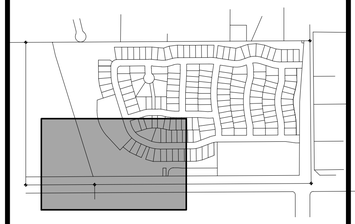
SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015





NORTH

KEYMAP

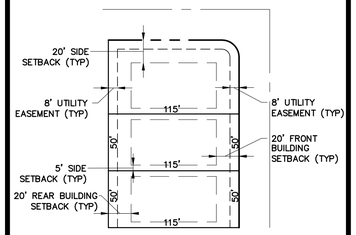
CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

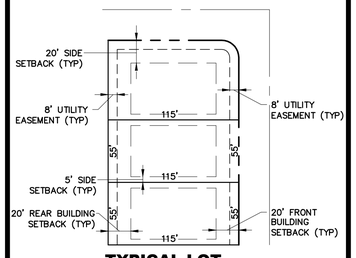
LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT

LOTS – 50' X 115'



TYPICAL LOT

LOTS – 55' X 115'

UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987

Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name	SP2.dwg
Job Number	OREAD SIERRA VISTA
Prepared For	HIGHWAY 7 □ BONAN□A, LLC
Designer	B□M
Drafter	RJL
Checked	TAJ

0 25 50 100
1 inch = 50 ft. Horizontal

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

Sheet **SP4** 5 of 21

Date SEPTEMBER 14, 2015

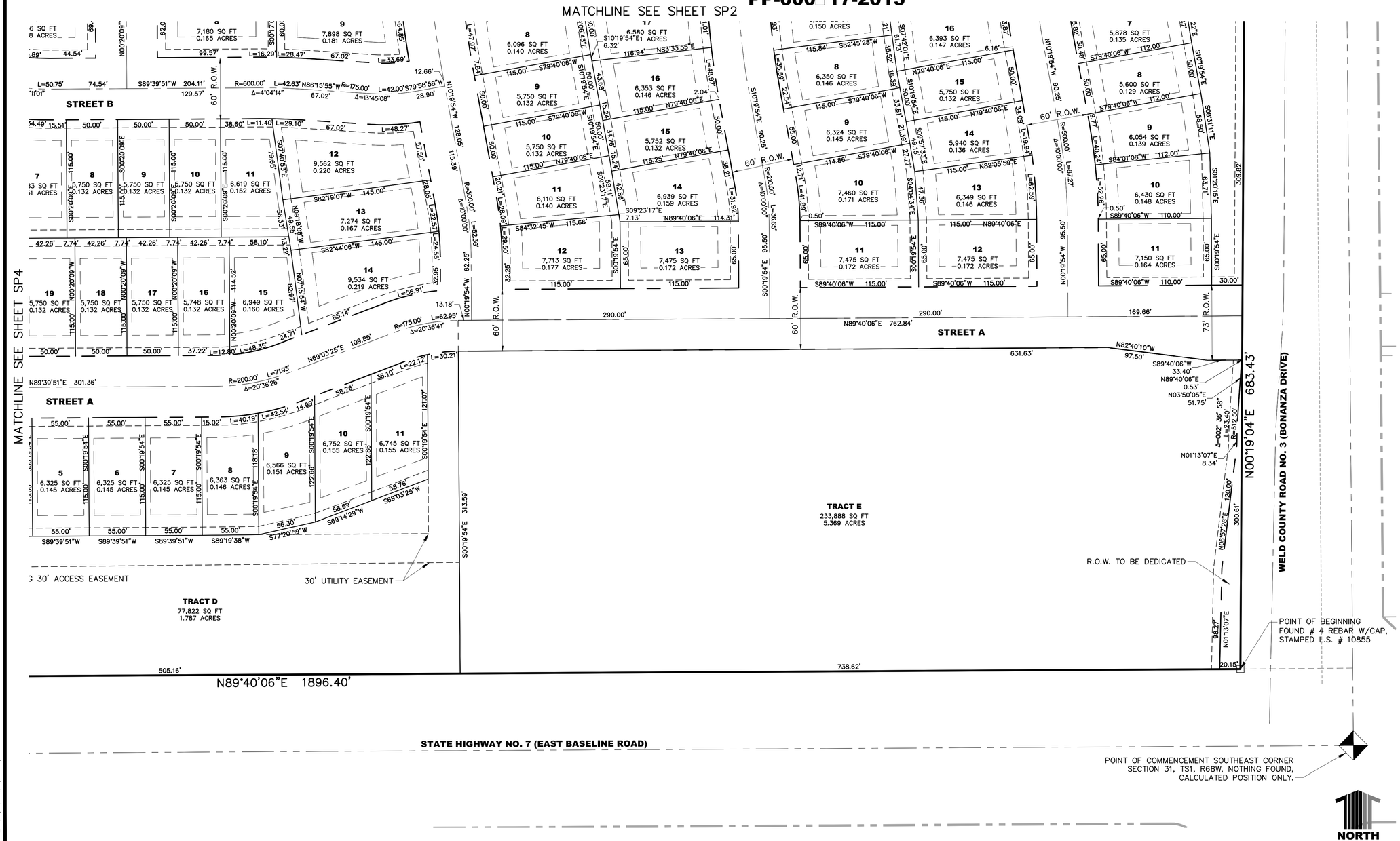
PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\SP2.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:55 AM
XREFS: 20EPN, 21ANNO, 21 MSP, 20BASE, 21TB,

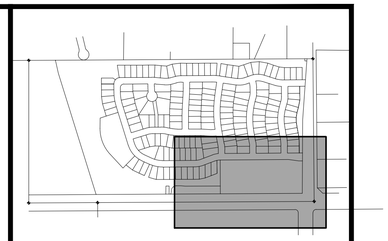
SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015





NORTH

KEYMAP

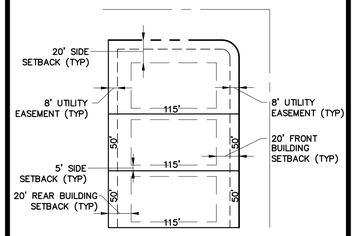
CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

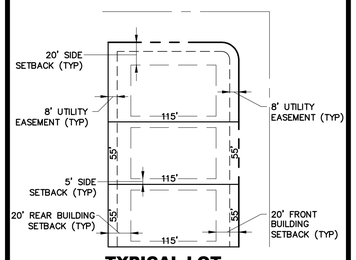
LEGEND

- CENTERLINE
- RIGHT OF WAY
- DRY UTILITY EASEMENT
- BUILDING SETBACK
- PROPERTY LINE
- BOUNDARY
- ZONING BOUNDARY



TYPICAL LOT

LOTS – 50' X 115'



TYPICAL LOT

LOTS – 55' X 115'

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name	SP2.dwg
Job Number	OREAD SIERRA VISTA
Prepared For	HIGHWAY 7 □ BONAN□A, LLC
Designer	B□M
Drafter	RJL
Checked	TAJ

0 25 50 100
1 inch = 50 ft. Horizontal

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
ENLARGEMENT

Sheet **SP5** □ of 21

Date SEPTEMBER 14, 2015

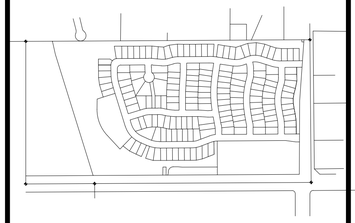
PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\SP2.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:5 AM
XREFS: 20EPN, 21ANNO, 21 MSP, 20BASE, 21TB,

SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015



NORTH

KEYMAP

CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

LEGEND

- 5130 — EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- G — EXISTING GAS LINE
- RW — EXISTING RAW WATER LINE
- X — EXISTING FENCE
- EXISTING WELL

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\EC1.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:5 AM
XREFS: 20EUT, 20EPN, 21 MEC, 20BASE, 21TB,

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name	EC1.dwg
Job Number	OREAD SIERRA VISTA
Prepared For	HIGHWAY 7 □ BONAN□A, LLC
Designer	B□M
Drafter	RJL
Checked	TAJ

0 50 100 200
1 inch = 100 ft. Horizontal

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
EXISTING CONDITIONS

Sheet **EC1** 7 of 21

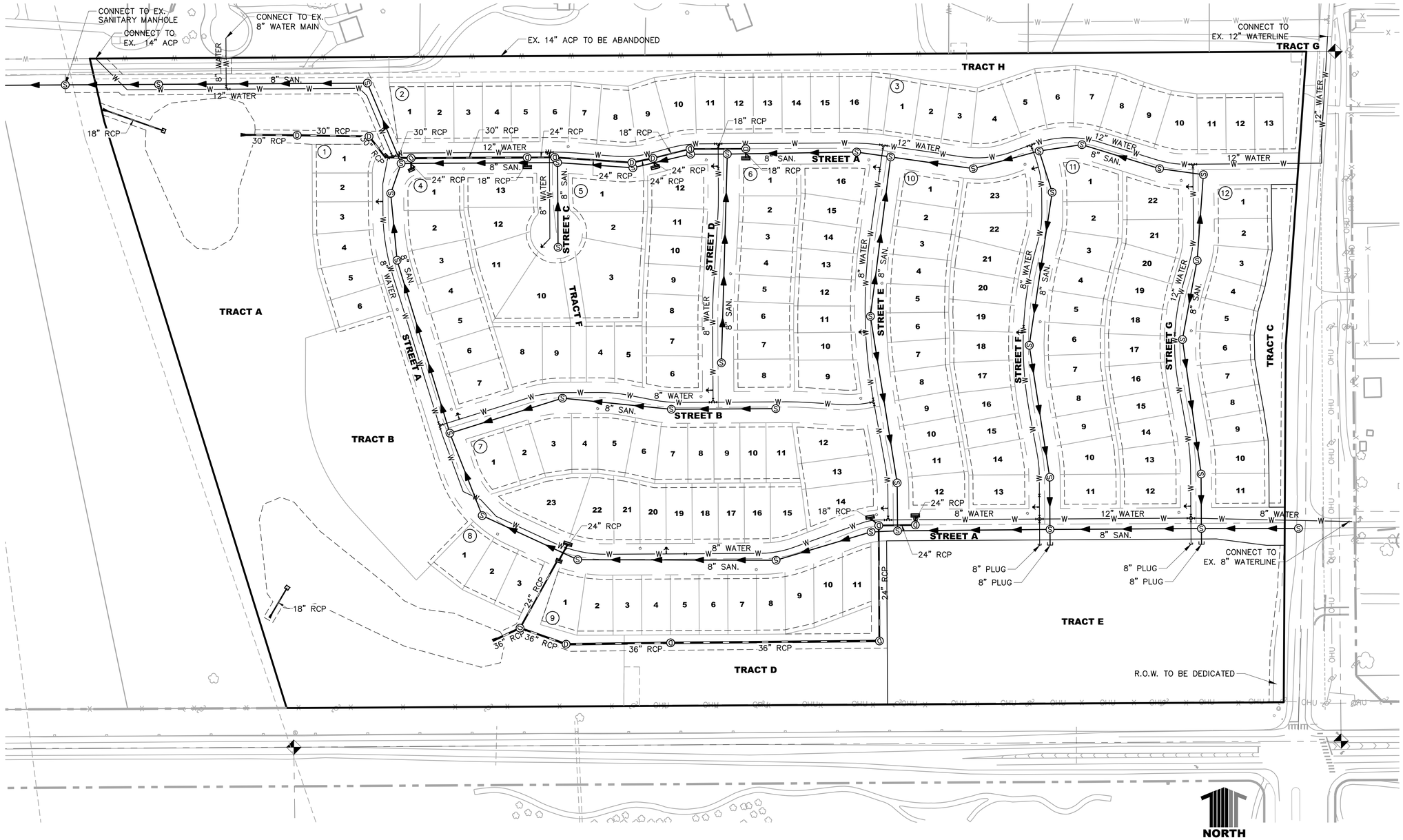
Date SEPTEMBER 14, 2015

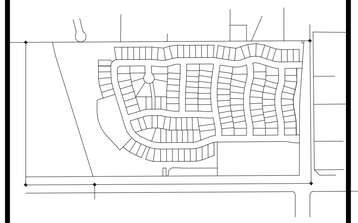
SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015





KEYMAP

NORTH

CONSTRUCTION NOTES:

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.

LEGEND

- WATER MAIN
- SANITARY SEWER MAIN
- STORM DRAINAGE MAIN
- STORM DRAINAGE INLET
- FIRE HYDRANT
- WATER VALVE
- EXISTING STORM DRAINAGE
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING GAS
- EXISTING TELEPHONE
- EXISTING ELECTRIC
- EXISTING FIBER OPTIC
- EXISTING OVERHEAD ELECTRIC
- EXISTING RAW WATER

UNCC CALL BEFORE YOU DIG 811 OR 1-800-922-1987

Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: OU1.dwg

Job Number: OREAD SIERRA VISTA

Prepared For: HIGHWAY 7 □ BONAN□A, LLC

0 50 100 200 — 1 inch = 100 ft. Horizontal

Designer	Drafter	Checked
B□M	RJL	TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA

PRELIMINARY PLAT

OVERALL UTILITY PLAN

Sheet OU1 8 of 21

Date SEPTEMBER 14, 2015

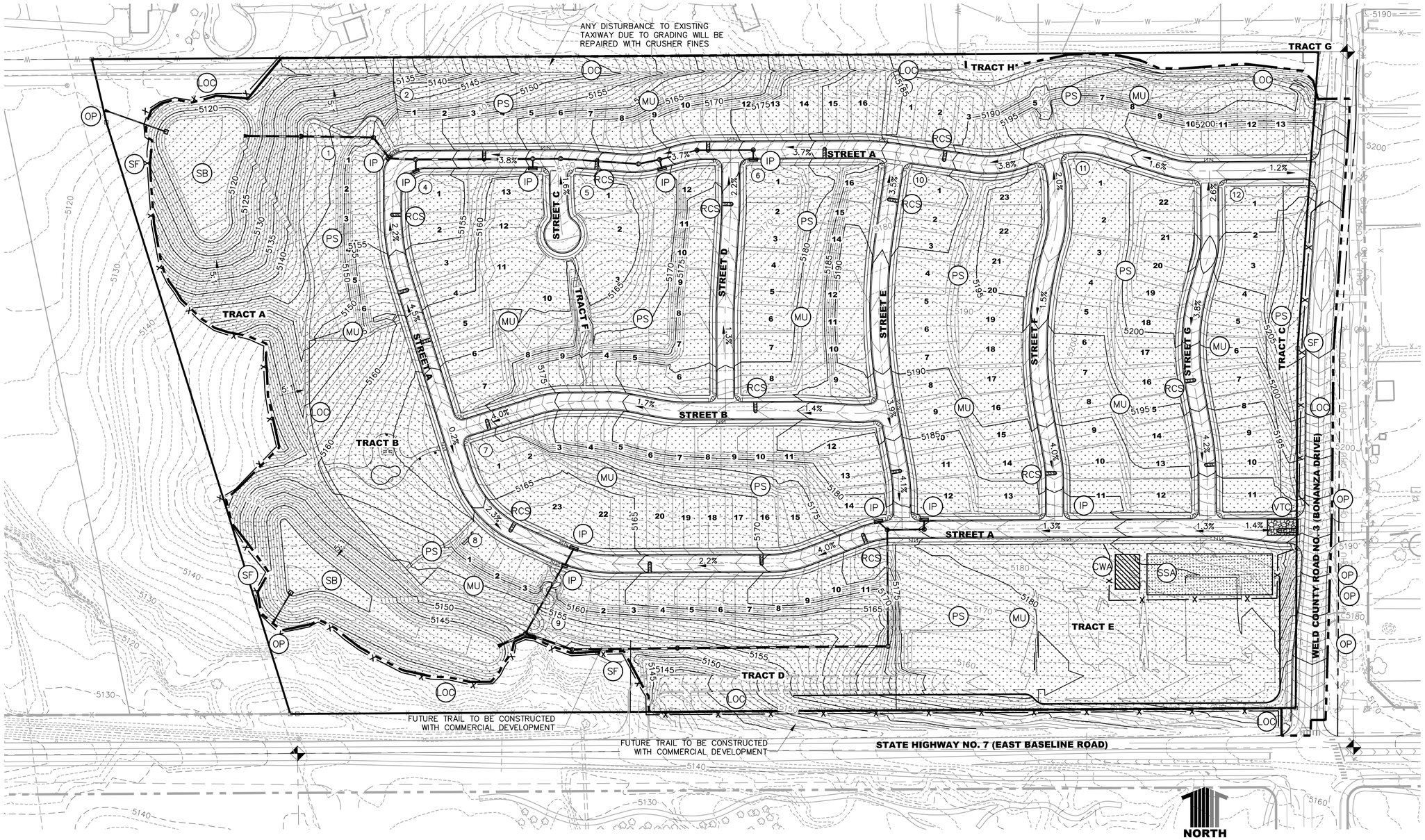
PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\OU1.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:57 AM
XREFS: 21ANNO, 20EUT, 20EPN, 20PUT, 21□MOU, 20BASE, 21TB,

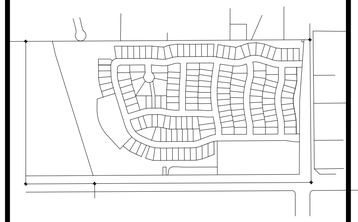
SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015





NORTH

KEYMAP

CONSTRUCTION NOTES:
EROSION CONTROL

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND:

- SF — SILT FENCE EROSION BARRIER
- VTC — TRACKING CONTROL PAD
- RCS — ROUGH CUT STREET CONTROL
- SSA — STAGE STORAGE AREA
- SB — SEDIMENT BASIN
- OP — OUTLET PROTECTION
- IP — INLET PROTECTION
- MU — MULCHING
- PS — PERMANENT SEEDING (PER TOWN REQUIREMENTS)
- LOC — LIMITS OF CONSTRUCTION
- CWA — CONCRETE WASHOUT AREA PER DETAIL ON DT SHEETS.
- PROPOSED CONTOURS — 4925
- EXISTING CONTOURS — 4925
- PROPOSED STORM DRAIN MANHOLE — D
- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM END SECTION
- FLOW ARROW
- SWALE

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: GR1.dwg	0 50 100 200 — 1 inch = 100 ft. Horizontal		
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 □ BONAN□A, LLC	Designer: B□M	Drafter: RJL	Checked: TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
GRADING AND EROSION CONTROL PLAN

Sheet GR1 9 of 21

Date SEPTEMBER 14, 2015

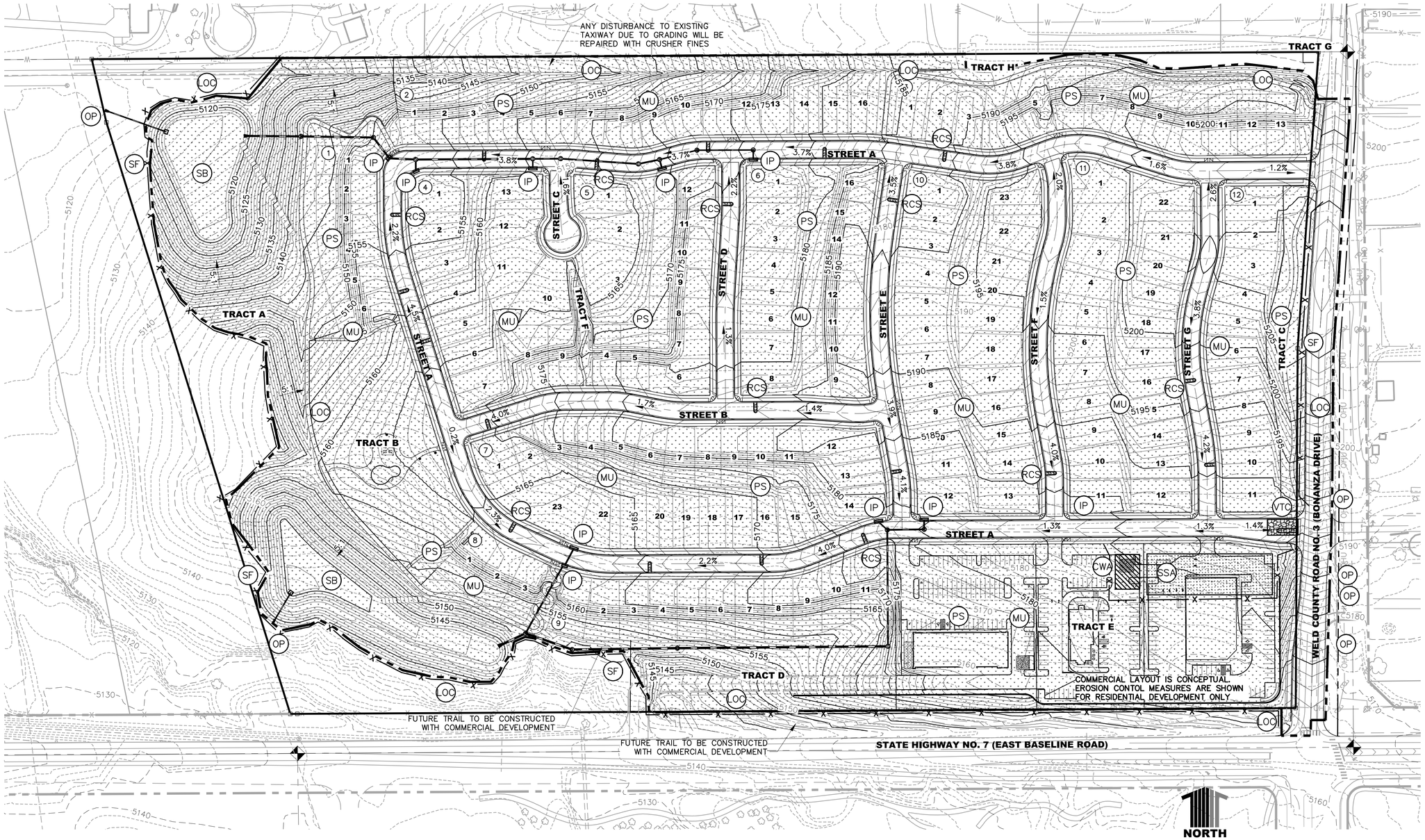
PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\GR1.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:58 AM
XREFS: W-Commercial Opt.5, 20EUT, 20EPN, 21ANNO, 20PPN, 21 MGR, 20BASE, 21TB,

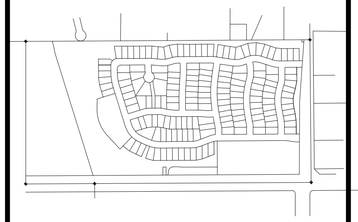
SIERRA VISTA PRELIMINARY PLAT

A PORTION O□ THE S 1□2 O□ THE SE 1□4 O□ SECTION □1□TOWNSHIP 1 NORTH RANGE □□ WEST O□ THE □TH PRINCIPAL MERIDIAN TOWN O□ ERIE□COUNTY O□ WELD□STATE O□ COLORADO

□0.47□ ACRES - 1□□ LOTS - □ TRACTS

PP-000□17-2015





NORTH

KEYMAP

CONSTRUCTION NOTES:
EROSION CONTROL

1. THE LOT, STREET, AND UTILITY LAYOUTS ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING THE FINAL PLAT PROCESS.
2. SLOPE GRADING DOES NOT EXCEED 4:1 UNLESS NOTED.

LEGEND:

- SF — SILT FENCE EROSION BARRIER
- VTC — TRACKING CONTROL PAD
- RCS — ROUGH CUT STREET CONTROL
- SSA — STAGE STORAGE AREA
- SB — SEDIMENT BASIN
- OP — OUTLET PROTECTION
- IP — INLET PROTECTION
- MU — MULCHING
- PS — PERMANENT SEEDING (PER TOWN REQUIREMENTS)
- LOC — LIMITS OF CONSTRUCTION
- CWA — CONCRETE WASHOUT AREA PER DETAIL ON DT SHEETS.
- PROPOSED CONTOURS — 4925
- EXISTING CONTOURS — 4925
- PROPOSED STORM DRAIN MANHOLE — D
- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM END SECTION
- FLOW ARROW
- SWALE

UNCC
CALL BEFORE YOU DIG
811
OR
1-800-922-1987
Utility Notification Center of Colorado

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: GR1.dwg	0 50 100 200 — 1 inch = 100 ft. Horizontal		
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 □ BONAN□A, LLC	Designer: B□M	Drafter: RJL	Checked: TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
CONCEPTUAL □INAL GRADING PLAN

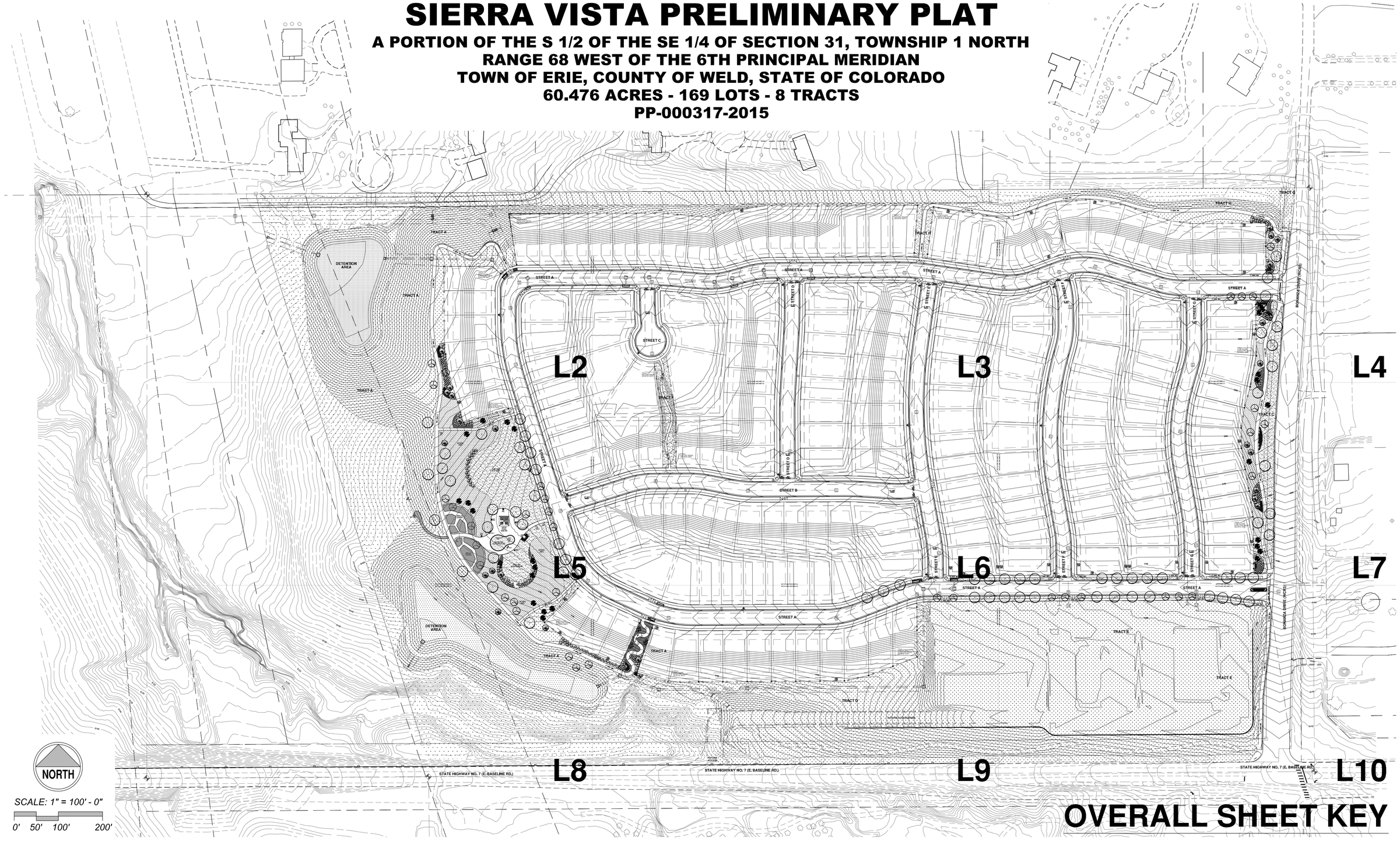
Sheet GR2 — 10 of 21

Date: SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\CIVIL\21-PRELIMINARY PLAT\GR1.DWG
PLOTTED BY: Ryan Loftus PLOT DATE: 9/14/2015 8:58 AM
XREFS: W-Commercial Opt.5, 20EUT, 20EPN, 21ANNO, 20PPN, 21 MGR, 20BASE, 21TB,

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L1** 11 of 21

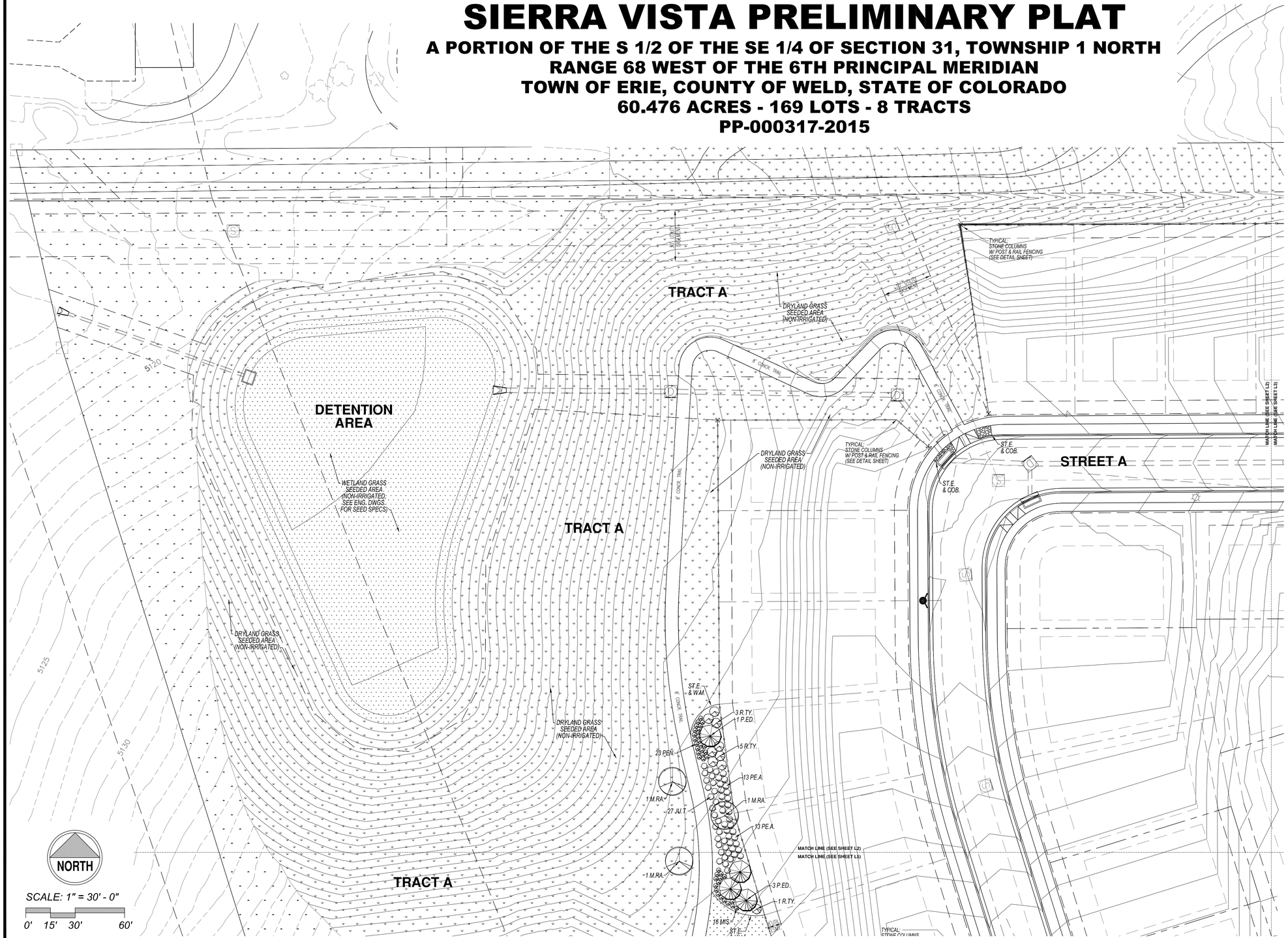
Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

60.476 ACRES - 169 LOTS - 8 TRACTS

PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

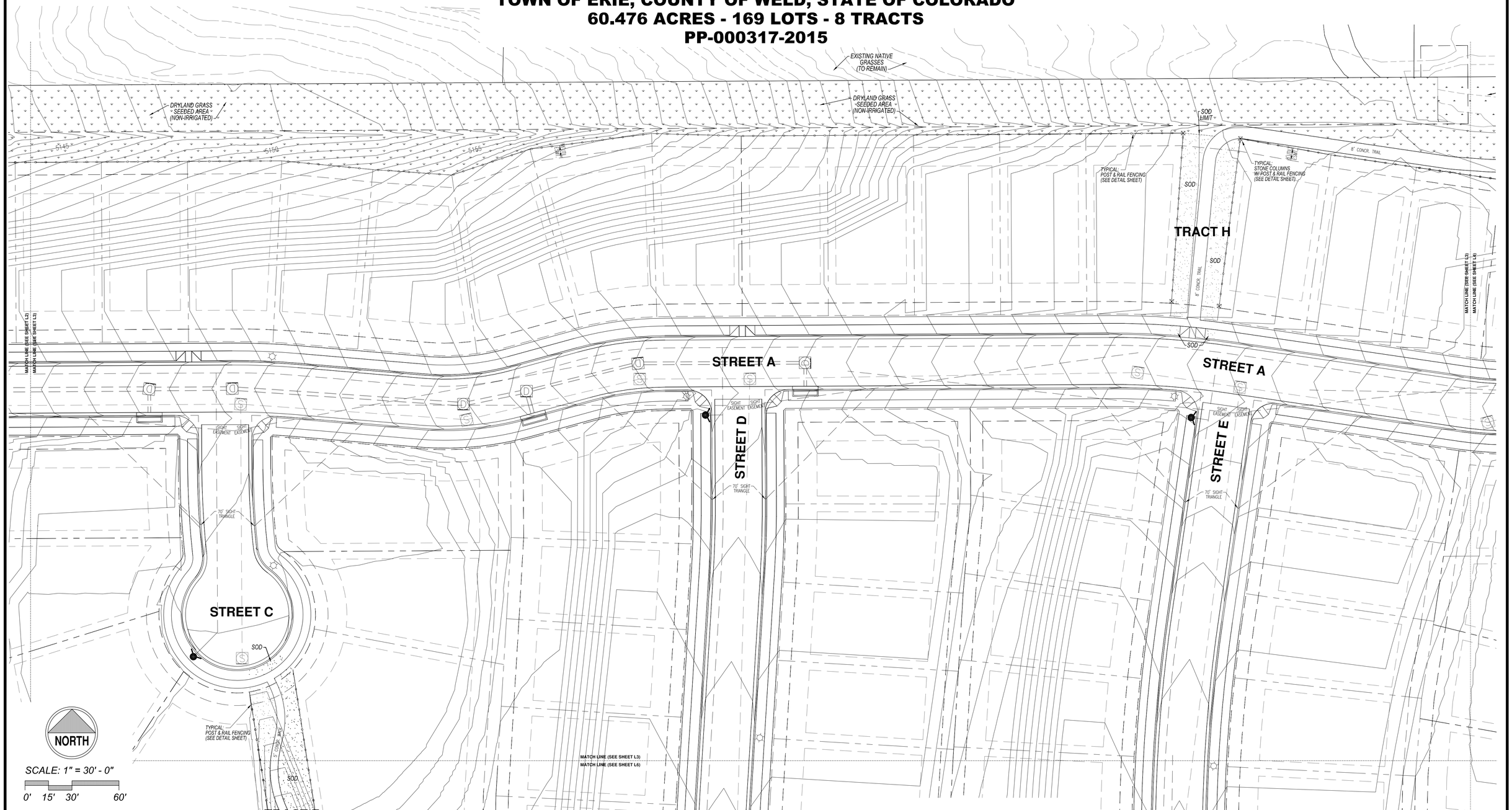
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L2** 12 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L3** 13 of 21

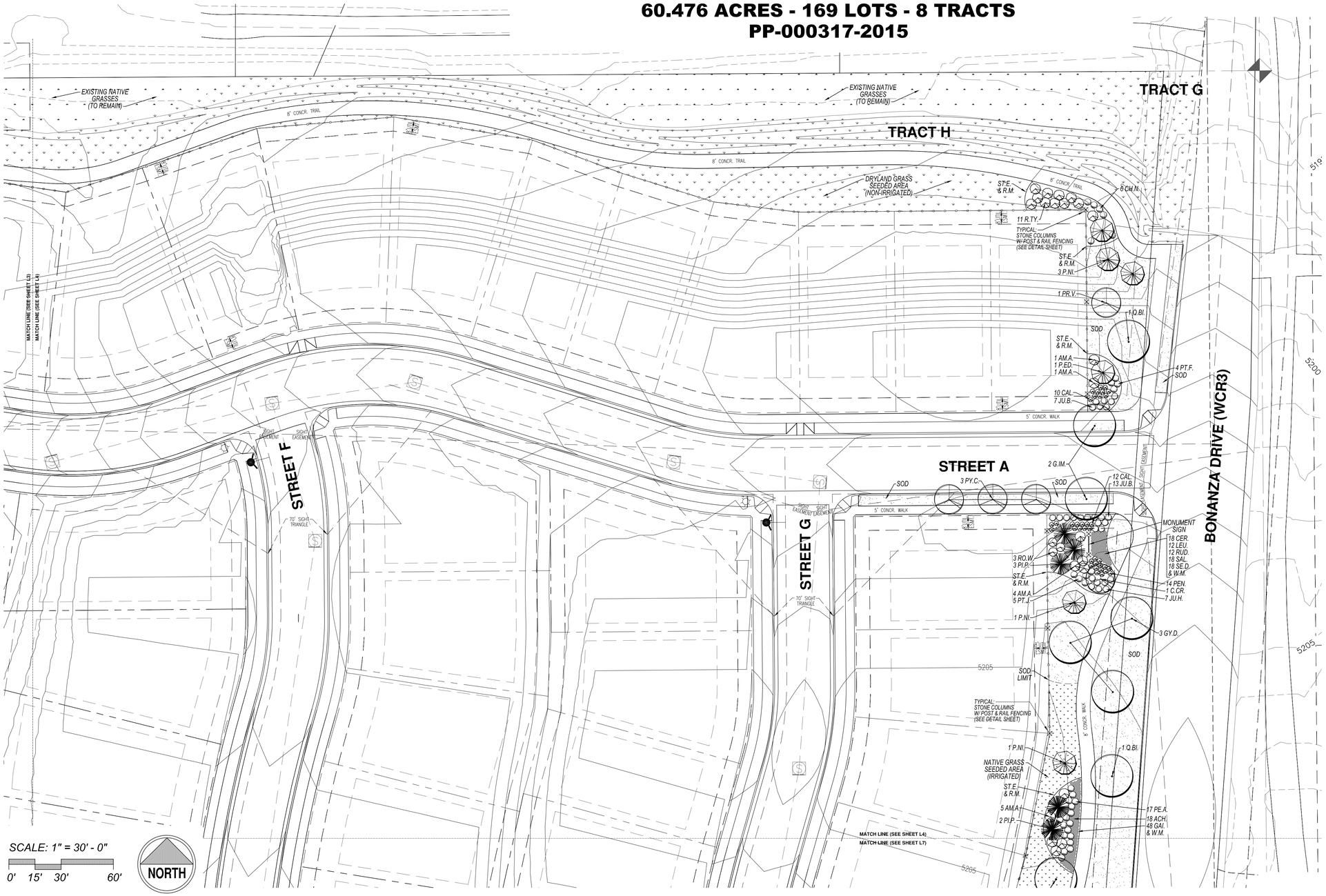
Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

60.476 ACRES - 169 LOTS - 8 TRACTS

PP-000317-2015



SCALE: 1" = 30' - 0"

0' 15' 30' 60'

NORTH

LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

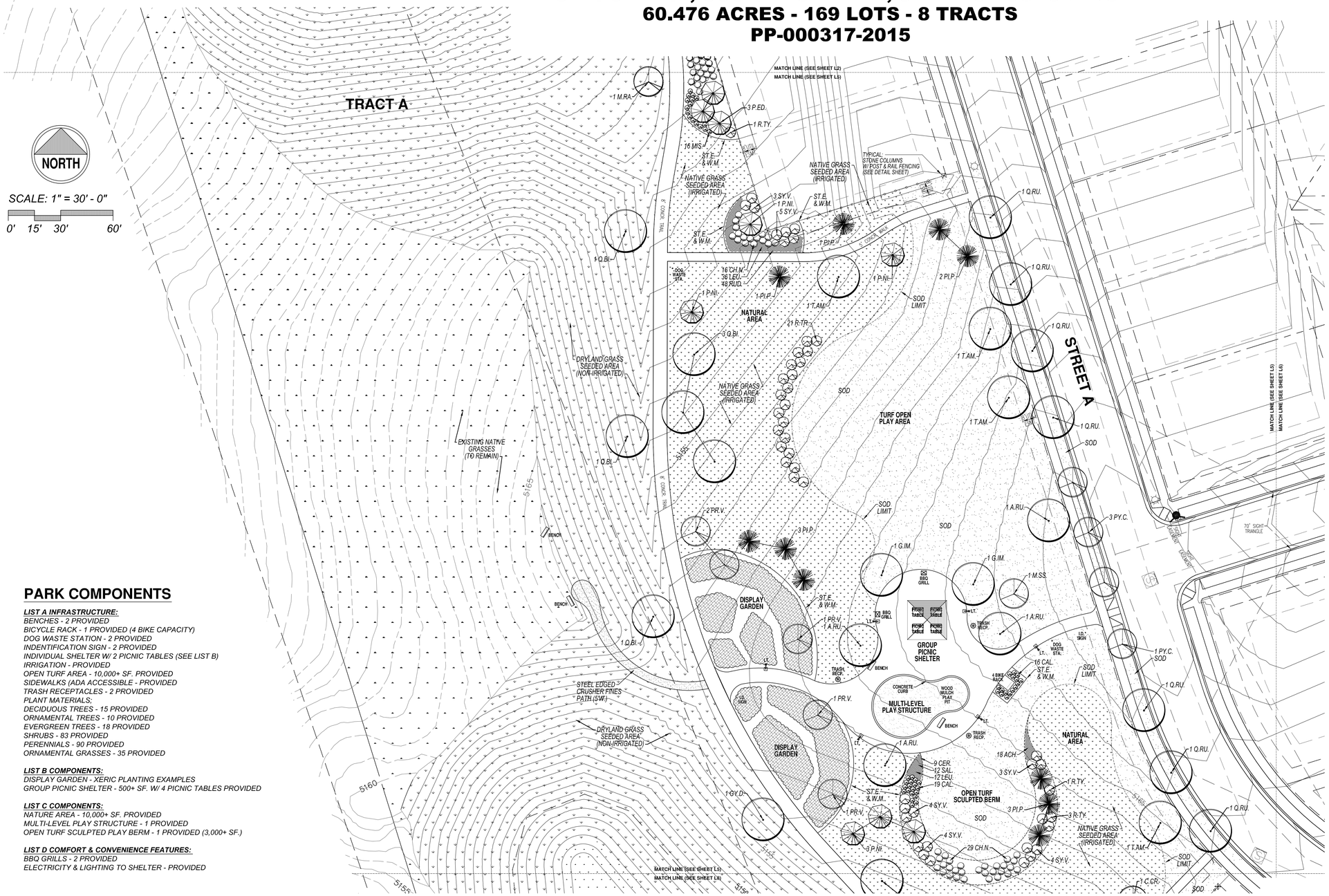
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L4** 14 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

PARK COMPONENTS

LIST A INFRASTRUCTURE:
BENCHES - 2 PROVIDED
BICYCLE RACK - 1 PROVIDED (4 BIKE CAPACITY)
DOG WASTE STATION - 2 PROVIDED
INDENTIFICATION SIGN - 2 PROVIDED
INDIVIDUAL SHELTER W/ 2 PICNIC TABLES (SEE LIST B)
IRRIGATION - PROVIDED
OPEN TURF AREA - 10,000+ SF. PROVIDED
SIDEWALKS (ADA ACCESSIBLE - PROVIDED
TRASH RECEPTACLES - 2 PROVIDED
PLANT MATERIALS;
DECIDUOUS TREES - 15 PROVIDED
ORNAMENTAL TREES - 10 PROVIDED
EVERGREEN TREES - 18 PROVIDED
SHRUBS - 83 PROVIDED
PERENNIALS - 90 PROVIDED
ORNAMENTAL GRASSES - 35 PROVIDED

LIST B COMPONENTS:
DISPLAY GARDEN - XERIC PLANTING EXAMPLES
GROUP PICNIC SHELTER - 500+ SF. W/ 4 PICNIC TABLES PROVIDED

LIST C COMPONENTS:
NATURE AREA - 10,000+ SF. PROVIDED
MULTI-LEVEL PLAY STRUCTURE - 1 PROVIDED
OPEN TURF SCULPTED PLAY BERM - 1 PROVIDED (3,000+ SF.)

LIST D COMFORT & CONVENIENCE FEATURES:
BBQ GRILLS - 2 PROVIDED
ELECTRICITY & LIGHTING TO SHELTER - PROVIDED

GENERAL NOTES:

1.) *SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.*

2.) *SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.*

3.) *STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).*

4.) *LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.*

5.) *AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.*

6.) *THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.*

7.) *THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.*

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name			
MLS_Land.dwg			
Job Number			
OREAD SIERRA VISTA			
Prepared For	Designer	Drafter	Checked
HIGHWAY 7 & BONANZA, LLC	MLS	MLS	MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 — Original Date of Licensure 01/29/2008 — STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

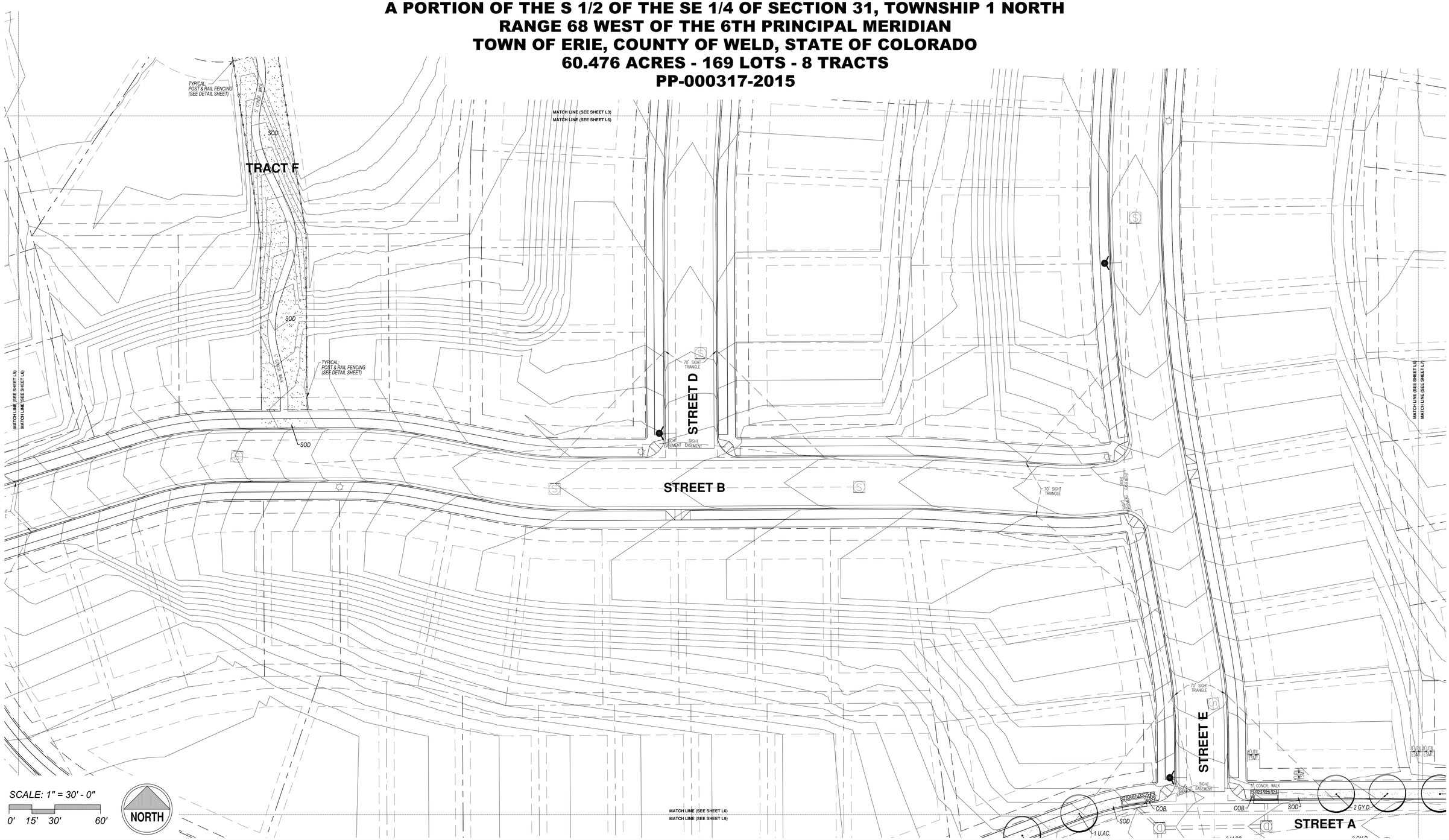
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L5** 15 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

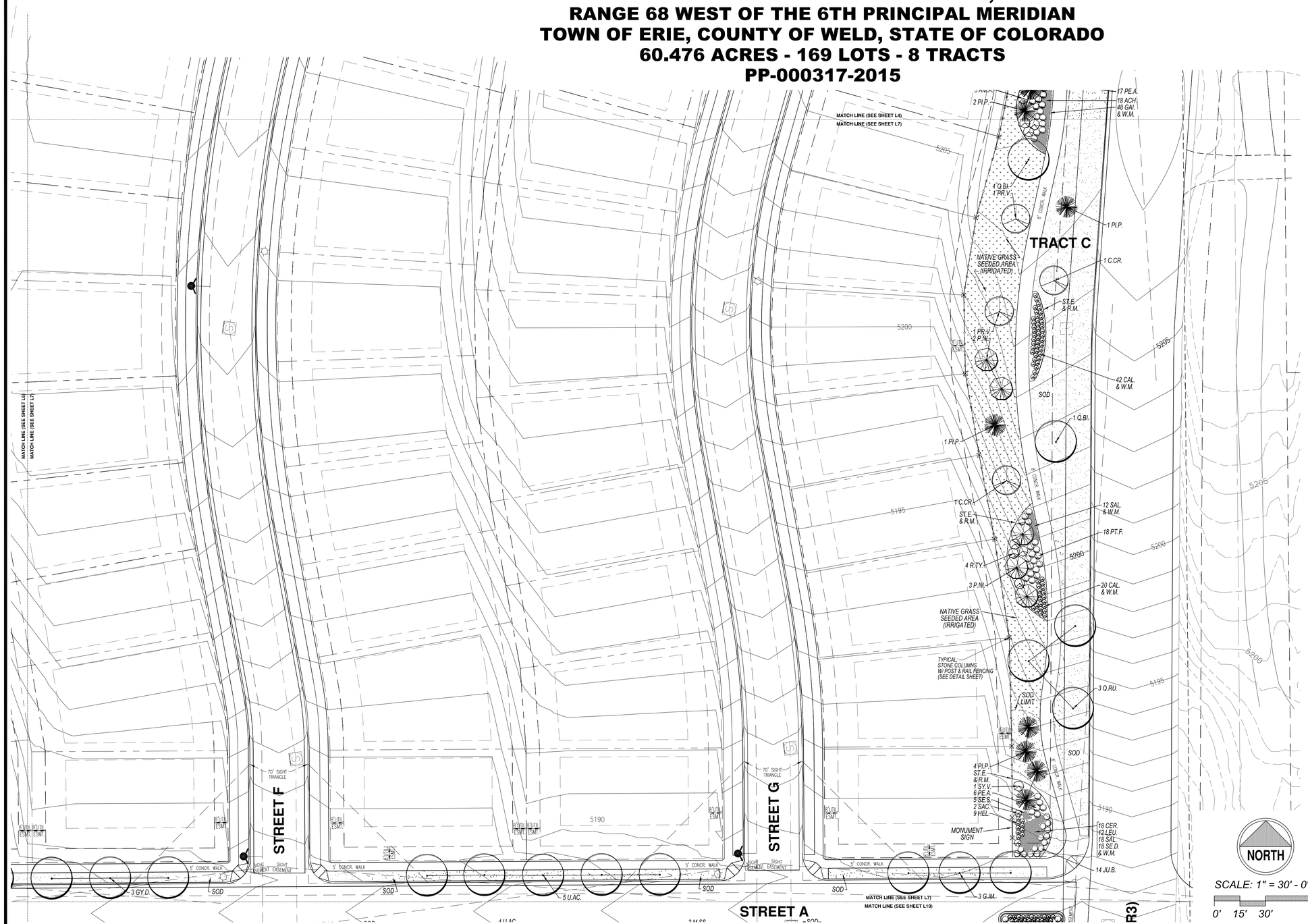
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L6** 16 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name			
MLS_Land.dwg			
Job Number			
OREAD SIERRA VISTA			
Prepared For	Designer	Drafter	Checked
HIGHWAY 7 & BONANZA, LLC	MLS	MLS	MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L7** 17 of 21

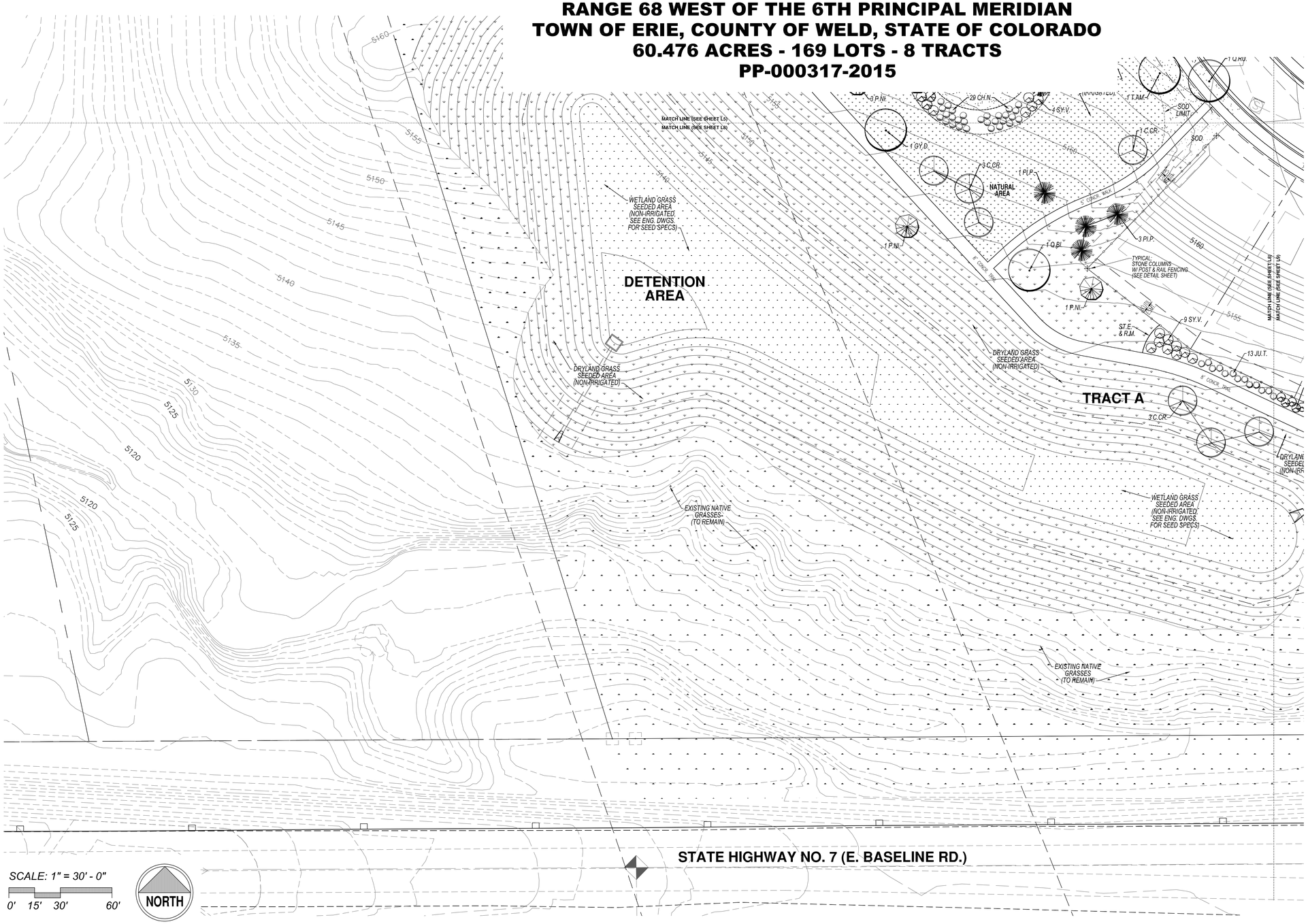
Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

60.476 ACRES - 169 LOTS - 8 TRACTS

PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

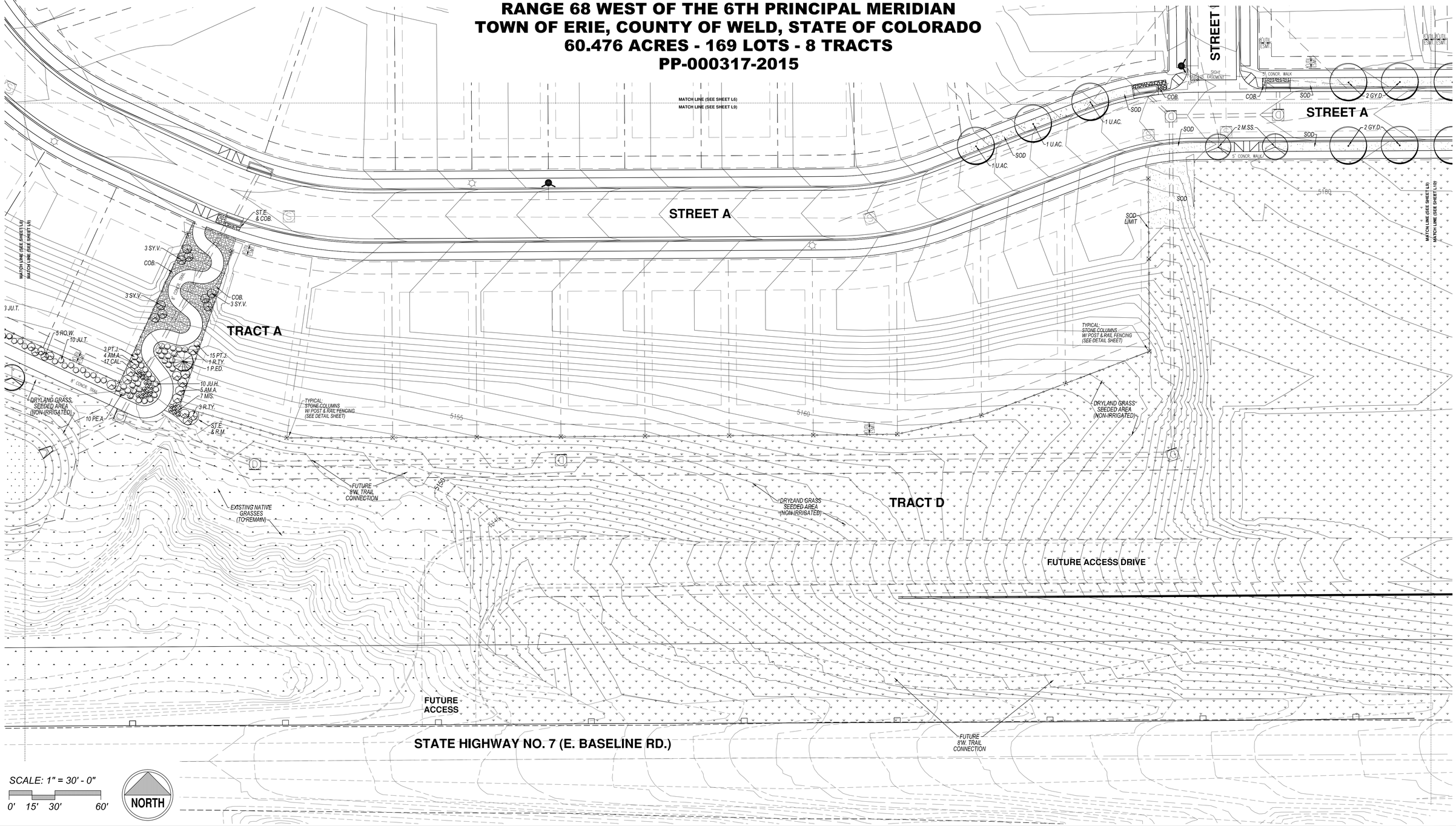
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L8** 18 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



DATE	REVISION DESCRIPTION	Drawing Name: MLS_Land.dwg			
		Job Number: OREAD SIERRA VISTA			
		Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

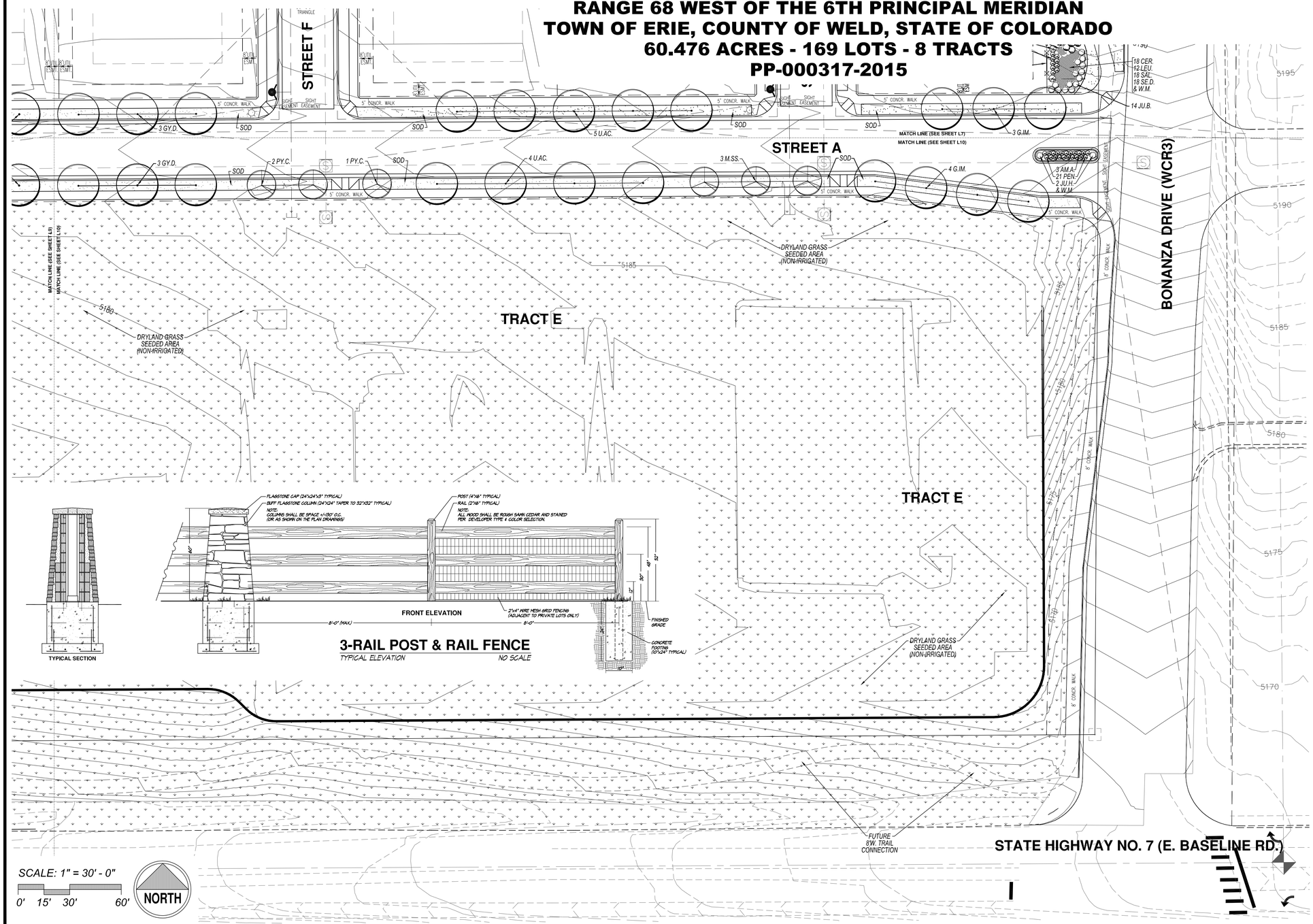
SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L9** 19 of 21

Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH
RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
60.476 ACRES - 169 LOTS - 8 TRACTS
PP-000317-2015



LEGEND

- EVERGREEN TREE
- SHADE TREE
- ORNAMENTAL TREE
- SHRUB PLANTINGS
- ORNAMENTAL GRASS
- GROUND COVERS, PERENNIALS, ETC.
- (SOD) BLUEGRASS SOD
- (SEED1) SEEDED GRASS AREA (NON-IRRIGATED)
- (SEED2) SEEDED GRASS AREA (IRRIGATED)
- (ENG.) SEEDED DETENTION GRASS AREA (NON-IRRIGATED)
- (EXIST.) EXISTING DRYLAND GRASS AREA (TO REMAIN UNDISTURBED)
- (COB.) COBBLE AREA
- (R.M.) ROCK MULCH AREA
- (W.M.) WOOD MULCH AREA
- (ST.E.) STEEL EDGING
- STONE COLUMN
- POST & RAIL FENCING
- 8' CONCR. TRAIL — CONCRETE TRAIL - 8' WIDE

GENERAL NOTES:

1.) SHEET L1 IS AN OVERALL LANDSCAPE PLAN SHOWING THE ENTIRE DEVELOPMENT LANDSCAPE LIMITS. SEE ADDITIONAL LANDSCAPE PLAN SHEETS FOR ADDITIONAL LANDSCAPE CONSTRUCTION INFORMATION.

2.) SEE THE CIVIL ENGINEER PLAN SHEETS FOR ADDITIONAL SITE CONSTRUCTION AND GRADING INFORMATION.

3.) STREET TREES SHALL BE PLANTED WITHIN THE TREE LAWN AREAS BY THE INDIVIDUAL LOT BUILDERS PER THE TOWN OF ERIE UNIFIED DEVELOPMENT CODE (10.6.4.E.1.a).

4.) LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A NEAT, CLEAN AND HEALTHY CONDITION BY THE DEVELOPER, SUCCESSOR OR ASSIGNS. MAINTENANCE SHALL INCLUDE PRUNING, MOWING, WEEDING, REMOVAL OF LITTER AND THE REGULAR WATERING OF PLANTINGS. SHOULD ANY PLANT MATERIAL DIE, THE DEVELOPER, SUCCESSOR OR ASSIGNS SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DEAD (OR UNACCEPTABLE) PLANTS WITHIN ONE PLANTING SEASON. THE SIZE OF THE REPLACEMENT OF PLANT MATERIALS SHALL REFLECT THE REASONABLE GROWTH OF THE PLANT MATERIALS BEING REPLACED HAD THE PLANT MATERIALS REMAINED HEALTHY.

5.) AN AUTOMATIC IRRIGATION SYSTEM, MEETING THE TOWN OF ERIE REQUIREMENTS, SHALL BE DESIGNED AND INSTALLED PROVIDING ADEQUATE IRRIGATION COVERAGE TO PROPOSED LANDSCAPED AREAS. THE SYSTEM SHALL CONSIST OF POP-UP SPRAY OR ROTOR HEADS COVERING TURF AREAS, AND DRIP IRRIGATION FOR MULCHED PLANTING AREAS. DRIP IRRIGATION SHALL ALSO BE PROVIDED TO ALL TREES WITHIN SEEDED AREAS (IRRIGATED AND NON-IRRIGATED). IRRIGATION ZONING AND CONTROLLER SELECTION SHALL SEPARATE MULCH AREAS FROM TURF AREAS.

6.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING DIMENSIONS, GRADES SITE CONDITIONS, ETC. PRIOR TO BIDDING. PLAN DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER.

7.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING MATERIALS, LABOR, EQUIPMENT, AND SERVICES (INCLUDING PERMITS, TAXES, ETC.) NECESSARY AND REASONABLE INCIDENTAL TO CARRY OUT SPECIFIED WORK.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg			
Job Number: OREAD SIERRA VISTA			
Prepared For: HIGHWAY 7 & BONANZA, LLC	Designer: MLS	Drafter: MLS	Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet **L10** 20 of 21

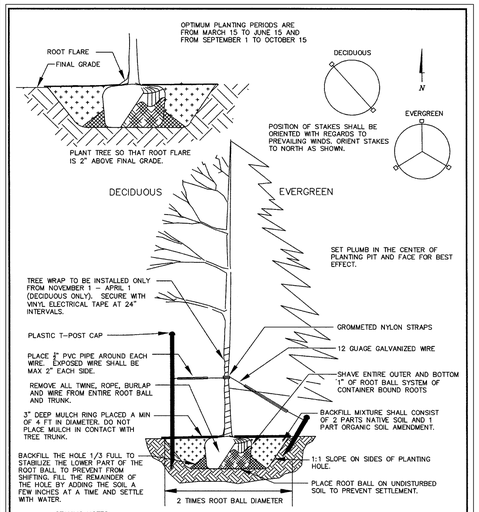
Date SEPTEMBER 14, 2015

SIERRA VISTA PRELIMINARY PLAT

A PORTION OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH RANGE 68 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

60.476 ACRES - 169 LOTS - 8 TRACTS

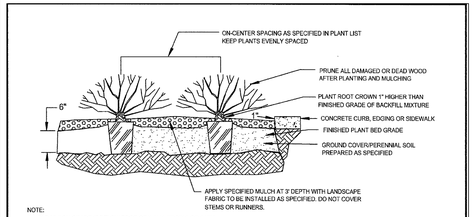
PP-000317-2015



STAKING NOTES:
DECIDUOUS TREES SHALL BE STAKED USING TWO(2) SIX(6) FOOT STEEL T-POSTS DRIVEN PERPENDICULAR TO THE TREE AT 180 DEGREES.
EVERGREEN TREES SHALL BE STAKED USING THREE(3) TWO(2) FOOT STAKES DRIVEN AT 120 DEGREES. ALL STAKES SHALL BE DRIVEN OUTSIDE OF ROOTBALL AND IN UNDISTURBED SOIL.

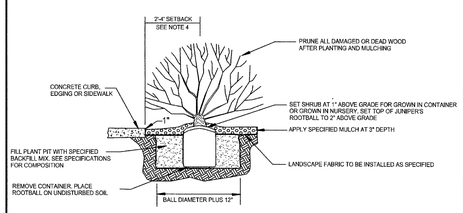
The Town of ERIE COLORADO

DRAWING TITLE: TREE PLANTING DETAIL
DRAWING NUMBER: P20A
DRAWN BY: D. JENKINS APPROVED BY: J. WAIT DATE: 01/2010



NOTE:
1. HOLD MULCH GRADE 1" BELOW EDGE OF WALK, EDGING OR CURB. HOLD BACK PLANTS 12-18" FROM EDGES.
2. REMOVE ALL CONTAINERS & POTS PRIOR TO PLANTING.

GROUNDCOVER / PERENNIAL



SHRUB

NOTE:
1. DO NOT PLANT ANY PLANT WITH ROOTBALL NOT IN CONFORMANCE WITH COLORADO NURSERY ACT REQUIREMENTS
2. HOLD MULCH GRADE 1" BELOW EDGE OF WALK, EDGING OR CURB
3. SHRUBS NOT PLANTED WITHIN A MULCHED BED REQUIRE A 4" HIGH EARTH SAUCER TO BE CONSTRUCTED CONTAINING A 1' RADIUS AND 3" DEEP MULCH COLLAR.
4. USE A 2' TO 4' SETBACK DEPENDING ON SPECIES. SETBACK TO ACCOMODATE MATURE SPREAD OF SPECIES TO PREVENT OVERHANG.
5. REMOVE ALL CONTAINERS & POTS PRIOR TO PLANTING.

The Town of ERIE COLORADO

DRAWING TITLE: SHRUB & GROUNDCOVER/ PERENNIAL PLANTING DETAIL
DRAWING NUMBER: P20B
DRAWN BY: D. JENKINS APPROVED BY: G. BEHLEN DATE: 01/2006

LANDSCAPE SPECIFICATIONS:

1.) AREAS TO BE SODDED SHALL BE GRADED TO A SUITABLE GRADE (+/-.10'). AREAS SHALL BE TILLED TO A 6" DEPTH INCORPORATING 5 CYDS./1000 SF. OF "CLASS 1" COMPOST UNIFORMLY INTO THE SOIL. AREAS SHALL BE SETTLED, LEVELED, AND RAKED TO A FINISHED GRADE. DEBRIS, VEGETATION, ROCKS, ETC. NOT PASSING THROUGH A HAND RAKE SHALL BE REMOVED FROM THE SURFACE. SURFACE SHALL BE FINE GRADED SMOOTH AND FIRM (NON-COMPACTED) PRIOR TO SODDING, LEAVING NO DEPRESSIONS WHERE WATER MAY COLLECT. AREAS SHALL RECEIVE A BOOSTER FERTILIZER WITH A CHEMICAL ANALYSIS OF NITROGEN-18, PHOSPHORUS-12, POTASH-4, 4% IRON AND 8% SULFUR AT THE RATE OF 5 LBS./1000 SF. IMMEDIATELY PRIOR TO SODDING. AREAS SHALL BE PROTECTED FROM COMPACTION PRIOR TO SODDING.

2.) SOD SHALL BE A DROUGHT TOLERANT (TOWN OF ERIE APPROVED) BLUEGRASS SOD (4 VARIETY) BLEND. SOD SHALL BE FREE FROM WEEDS AND OBJECTIONABLE GRASSES. SOD SHALL BE PROTECTED IN TRANSIT AND ON SITE FROM DRYING OUT. SOD SHALL BE LAID OVER FIRM (NON-COMPACTED), PRE-MOISTENED, PREPPED SURFACE. SOD STRIPS SHALL BE LAID TIGHT WITH STAGGERED JOINTS, NO VOIDS OCCURRING BETWEEN STRIPS. SOD SHALL BE LAID NO CLOSER THAN 24" FROM THE CENTER OF SHRUB PLANTINGS AND NO CLOSER THAN 24" FROM THE CENTER OF TREE TRUNKS. SOD SURFACE SHALL BE 1" BELOW ADJACENT EDGING. IMMEDIATELY UPON INSTALLATION, SOD SHALL BE WATERED TO A 4" DEPTH. WHEN MOISTURE CONTENT OF THE SOIL IS PROPER, SOD SHALL BE ROLLED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING OF SOD UNTIL ACCEPTANCE OF WORK.

3.) AT THE TIME OF THE FIRST MOWING, THE CONTRACTOR SHALL APPLY A COMMERCIAL FERTILIZER WITH A CHEMICAL ANALYSIS OF NITROGEN-20, PHOSPHOROUS-5, POTASH-10, PLUS 2 % IRON AT THE RATE OF 5 LBS./1000 SF. CARE SHALL BE TAKEN TO PREVENT BURNING. ANY AREAS DISTURBED OR DAMAGED BY THE CONTRACTOR DURING FERTILIZING OPERATIONS SHALL BE REPAIRED IN ACCORDANCE WITH TOWN OF ERIE STANDARDS & SPECIFICATIONS (AT THE CONTRACTOR'S EXPENSE).

4.) AREAS TO BE PLANTED IN GROUND COVERS, PERENNIALS, ETC. SHALL BE GRADED TO A SUITABLE GRADE (+/-.10'). AREAS SHALL BE TILLED TO A DEPTH OF 12" INCORPORATING 3 CYDS. OF "CLASS 1" COMPOST PER 1000 SF. UNIFORMLY INTO THE SOIL. UPON COMPLETION OF SOIL PREPARATION AREAS SHALL BE FINE GRADED TO PROPER GRADE.

5.) PLANT MATERIAL QUALITY SHALL COMPLY WITH CURRENT AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS FOR #1 GRADE NURSERY STOCK. PLANTS SHALL MEET OR EXCEED SPECIFIED SIZES. TREES SHALL HAVE WELL BRANCHED TOPS WITH REASONABLY STRAIGHT, WELL DEVELOPED SINGLE LEADERS (UNLESS OTHERWISE NOTED). THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT PLANTS OF INFERIOR QUALITY. NO PLANTS SHALL BE PLANTED DURING INCLEMENT WEATHER OR INTO FROZEN GROUND (UNLESS SPECIFICALLY ALLOWED WITH WRITTEN APPROVAL FROM THE DEVELOPER'S REPRESENTATIVE).

6.) PLANTING PIT DIAMETERS SHALL BE DUG WITH TWICE THE DIAMETER OF THE ROOT BALL. PITS SHALL BE DUG DEEP ENOUGH SO THAT THE TOP OF THE ROOT BALL IS 1" ABOVE GRADE FOR ALL PLANTS, EXCEPT FOR JUNIPERS WHICH SHALL BE 2" ABOVE GRADE. PITS SHALL BE BACKFILLED WITH UNIFORM MIXTURE OF 75 % EXCAVATED SOIL AND 25 % "CLASS 1" COMPOST. PRIOR TO BACK FILLING PLANTING PITS, CONTRACTOR SHALL REMOVE ALL WIRE BASKETS AND OTHER PROTECTIVE MATERIALS (E.G. BURLAP) FROM THE ROOT BALLS. ALL FLAGS, TAGS, ETC. SHALL BE REMOVED FROM ALL PLANTS. ACER AND QUERCUS TREE SPECIES SHALL HAVE

7.) ADDITIONAL pH LOWERING FERTILIZER TABLETS ADDED TO THEIR PLANTING PITS AS RECOMMENDED.

8.) TREES SHALL BE GUYED AND STAKED ACCORDING TO THE TOWN OF ERIE TREE PLANTING DETAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GUY WIRES ADJUSTMENTS DURING THE GUARANTEE PERIOD, AND REMOVAL OF STAKES AND WIRES UPON COMPLETION OF THE GUARANTEE PERIOD.

9.) TRUNKS OF FALL PLANTED DECIDUOUS TREES SHALL BE WRAPPED ACCORDING TO THE TOWN OF ERIE TREE PLANTING DETAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENT TO WRAPPING DURING THE GUARANTEE PERIOD AND SHALL REMOVE WRAPPING UPON COMPLETION OF THE GUARANTEE PERIOD.

10.) PLANT MATERIAL SHALL BE FULLY (100 %) GUARANTEED FOR A PERIOD OF TWO (2) YEARS FROM DATE OF WORK ACCEPTANCE. REPLACED PLANT MATERIAL SHALL BE FULLY (100 %) GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF REPLACEMENT. DURING THE GUARANTEE PERIOD, THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING OF ANY MAINTENANCE DEFICIENCIES.

11.) SHRUB PLANTING BED AREAS NOTED 'R.M.' SHALL BE ROCK MULCHED. ROCK MULCH SHALL BE 1.5" DIA. WASHED RIVER ROCK PLACED IN A UNIFORM 3" LAYER OVER A LAYER OF APPROVED GEOTEXTILE WEED BARRIER FABRIC (E.G. "TYPAR #3401" OR EQUAL). ROCK MULCH SHALL KEPT AWAY FROM THE CENTER OF PLANTS (12" DIA. MIN.). PLANT CENTERS SHALL BE WOOD MULCHED WITH A 3" THICK LAYER OF SHREDDED CEDAR WOOD MULCH. AREAS SHALL BE FINE GRADED PRIOR TO PLACEMENT OF FABRIC AND MULCH. COURSES OF FABRIC SHALL OVERLAP 12" AT THE SEAMS AND OMITTED AROUND BASE OF PLANTS (FROM AN AREA EQUAL TO THE SIZE OF THE PLANTING PIT).

SHRUB PLANTING BED AREAS NOTED 'W.M.' SHALL BE WOOD MULCHED. WOOD MULCH SHALL BE SHREDDED CEDAR WOOD MULCH PLACED IN A UNIFORM 3" LAYER. AREAS SHALL BE FINE GRADED PRIOR TO PLACEMENT OF MULCH.

12.) CONTINUOUS GROUND COVER AREAS TO BE WOOD MULCHED SHALL BE TREATED WITH "TREFLAN" GRANULAR PRE-EMERGENT HERBICIDE ACCORDING TO MFR. SPECIFICATIONS. AREAS SHALL BE FINE GRADED PRIOR TO HERBICIDE APPLICATION, REMOVING ALL DEBRIS, ROCKS, ETC. OVER 1" DIAMETER. EVEN DISTRIBUTION OF HERBICIDE IS IMPERATIVE.

13.) ALL PLANTING PITS (LOCATED WITHIN SOD AND ROCK MULCH AREAS) SHALL BE MULCHED WITH SHREDDED CEDAR WOOD MULCH (3" MAX. SIZE). MULCH SHALL BE PLACED IN A UNIFORM 3" THICK LAYER OVER AN AREA EQUAL TO THE SIZE OF THE PLANTING PIT.

14.) STEEL EDGING SHALL BE 3/16"X6" SIZED PIECES OF GREEN PAINTED STEEL EDGING. STEEL SHALL BE INSTALLED VERTICALLY AND STAKED. TOP OF STEEL SHALL BE EVEN WITH THE SOD (OR MULCH) GRADE. STEEL EDGING SHALL BE INSTALLED WHEREVER NECESSARY (OR SHOWN ON PLAN DRAWINGS) TO SEPARATE TURF AREAS FROM MULCHED AREAS.

SEEDING SPECIFICATIONS:

1.) AREAS TO BE SEEDED WITH NATIVE GRASSES SHALL BE GRADED TO A SUITABLE FINISHED GRADE (+/-10'). AREAS SHALL BE SCARIFIED TO A DEPTH OF 6" (MIN.) INCORPORATING 800 LBS. OF "BIOSOL FORTE" PER ACRE (PER S&S 1022.03 PRIOR TO HYDRO-MULCHING) IN THE PROCESS. AREAS SHALL BE SETTLED AND FINE GRADED TO A SMOOTH, UNIFORM, FIRM (UNCOMPACTED) SURFACE LEAVING NO DEPRESSIONS WHERE WATER MAY COLLECT. ALL DEBRIS, ROCKS VEGETATION, ETC. OVER 1.5" DIA. SHALL BE REMOVED FROM THE SURFACE PRIOR TO SEEDING. AREAS SHALL BE SEEDED WITH A UNIFORM MIXTURE OF THE FOLLOWING NATIVE GRASS MIX (AREAS SHALL BE PROTECTED FROM COMPACTION PRIOR TO SEEDING):

SEED1 MIX: MIXED GRASS PRAIRIE NATIVE SEED MIX: (TO BE USED WITHIN NON-IRRIGATED SEEDED AREAS)
DRILLED & HYDRO-MULCHED; IRRIGATED; OCCASIONALLY MOWED

COMMON NAME:	SCIENTIFIC NAME:	VARIETY	OZ./ACRE	LB./ACRE
BUFFALOGRASS	BUCHLOE DACTYLOIDES	NATIVE		3.0
SIDE OATS GRAMA	BOUTELOUA CURTIPENDULA	BUTTE		5.0
PRAIRIE SANDREED	CALAMOVILFA LONGIFOLIA	GOSHEN		1.0
BLUE GRAMA	BOUTELOUA GRACILIS	LOVINGTON		3.0
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	ARRIBA		5.0
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPAARIUM	PASTURA		4.0
ALKALI SACATON	SPOROBOLUS AIROIDES	COMMON		1.0
SWITCHGRASS	PANICUM VIRGATUM	BLACKWELL		5.0
FRINGED SAGE	ARTEMISIA FRIGIDA	COMMON	1.0	
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	COMMON	6.0	
BLANKET FLOWER	GAILARDIA ARISTATA	COMMON	6.0	
GAYFEATHER	LIATRIS PUNCIATA	COMMON	4.0	
BLUE FLAX	LINUM PERENNE	COMMON	3.0	
TANSY ASTER	MACHAERANTHERA TANACETIFOLIA	COMMON	3.0	
PRAIRIE CONEFLOWER	RATIBIDA COLUMNIFERA	COMMON	3.0	
TOTAL OUNCES			26.0	1.625
TOTAL				29.625 LB./AC.

SEED2 MIX: SHORTGRASS PRAIRIE NATIVE SEED MIX: (TO BE USED WITHIN IRRIGATED SEEDED AREAS)
DRILLED & HYDRO-MULCHED; IRRIGATED; OCCASIONALLY MOWED

COMMON NAME:	SCIENTIFIC NAME:	VARIETY	OZ./ACRE	LB./ACRE
BUFFALOGRASS	BUCHLOE DACTYLOIDES	NATIVE		14.0
BLUE GRAMA	BOUTELOUA GRACILIS	LOVINGTON		12.0
PRAIRIE SANDREED	CALAMOVILFA LONGIFOLIA	GOSHEN		4.0
FRINGED SAGE	ARTEMISIA FRIGIDA	COMMON	1.0	
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	COMMON	4.0	
GAYFEATHER	LIATRIS PUNCIATA	COMMON	4.0	
TANSY ASTER	MACHAERANTHERA TANACETIFOLIA	COMMON	3.0	
TOTAL OUNCES			12.0	0.75
TOTAL				30.75 LB./AC.

2.) NATIVE GRASS SEED SHALL BE DISTRIBUTED EVENLY AT THE SPECIFIED RATE OF PURE LIVE SEED (PLS) PER ACRE. SEED SHALL BE DRILLED WITH DRILL EQUIPMENT EQUIPPED WITH A SATISFACTORY FEEDING MECHANISM, AN AGITATOR, DOUBLE DISC FURROW OPENERS, DEPTH BANDS AND PACKER WHEELS (E.G. "BRILLION" SEEDER, OR EQUAL). AREAS INACCESSIBLE TO DRILL EQUIPMENT CAN BE SUBSTITUTED WITH AN ALTERNATIVE BROADCAST METHOD (E.G. HAND BROADCAST, ETC.). IF THE ALTERNATIVE METHOD IS USED, THE SEEDING RATE MUST BE DOUBLED, AND THE AREA MUST BE DRAGGED (OR RAKED) AFTER SEEDING FOLLOWED BY HYDRO-MULCHING.

3.) SEEDED AREAS SHALL BE HYDRO-MULCHED WITH 2500 LBS./ACRE OF HYDRO-MULCH (100 % VIRGIN WOOD CELLULOSE FIBER), AND 150 LBS./ACRE ORGANIC TACKIFIER. SOIL COVERAGE SHALL BE 100 %. AREAS WHERE SOIL IS VISIBLE SHALL BE HYDROMULCHED UNTIL COVERAGE IS SATISFACTORY (AT THE CONTRACTOR'S EXPENSE). IF WEATHER CONDITIONS DETERIORATE, WORK SHALL BE DELAYED UNTIL WEATHER CONDITIONS ARE FAVORABLE. MULCH SHALL BE APPLIED IN A SEPARATE OPERATION, ON THE SAME DAY AS SEEDING. NO HAY IS PERMITTED ON THE CONSTRUCTION SITE, FOR ANY PURPOSE.

PLANT LIST

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES	MATURE SIZE	SPACING
SHADE TREES							
4	A.RU.	ACER RUBRUM 'RED SUNSET'	RED SUNSET MAPLE	2.0" CAL.	B.&B.	40'-50'HT.x30'-40'SPR.	25' MIN.
11	G.IM.	GLEDITSIA X 'IMPERIAL'	IMPERIAL HONEYLOCUST	2.0" CAL.	B.&B.	40'-60'HT.x40'-50'SPR.	25' MIN.
15	GY.D.	GYMNOCLADUS DIOICA	KENTUCKY COFFEETREE	2.0" CAL.	B.&B.	50'-60'HT.x40'-50'SPR.	25' MIN.
11	Q.BI.	QUERCUS BICOLOR	SWAMP WHITE OAK	2.0" CAL.	B.&B.	40'-60'HT.x40'-60'SPR.	25' MIN.
10	Q.RU.	QUERCUS RUBRA	NORTHERN RED OAK	2.0" CAL.	B.&B.	40'-60'HT.x40'-60'SPR.	25' MIN.
4	T.AM.	TILIA AMERICANA	AMERICAN LINDEN	2.0" CAL.	B.&B.	40'-60'HT.x30'-40'SPR.	25' MIN.
12	U.AC.	ULMUS X 'ACCOLADE'	ACCOLADE ELM	2.0" CAL.	B.&B.	40'-60'HT.x30'-40'SPR.	25' MIN.
ORNAMENTAL TREES							
10	C.CR.	CRATAEGUS CRUS-G. 'CRUESADER'	CRUESADER HAWTHORN	1.5" CAL.	B.&B.	15'-20'HT.x15'-20'SPR.	12' MIN.
3	M.RA.	MALUS X 'RADIANT'	RADIANT CRABAPPLE	1.5" CAL.	B.&B.	15'-20'HT.x15'-20'SPR.	12' MIN.
6	M.SS.	MALUS X 'SPRING SNOW'	SPRING SNOW CRABAPPLE	1.5" CAL.	B.&B.	15'-20'HT.x15'-20'SPR.	12' MIN.
8	PR.V.	PRUNUS VIRGINIANA	CANADA RED CHERRY	1.5" CAL.	B.&B.	25'-30'HT.x20'-30'SPR.	12' MIN.
10	PY.C.	PYRUS CALLERYANA	CHANTICLEER PEAR	1.5" CAL.	B.&B.	20'-35'HT.x15'-30'SPR.	12' MIN.
EVERGREEN TREES							
25	PI.P.	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	8'-12' HT.	B.&B.	40'-60'HT.x20'-30'SPR.	15' MIN.
6	P.ED.	PINUS EDULIS	PINON PINE	6' HT.	B.&B.	20'-30'HT.x10'-20'SPR.	15' MIN.
18	P.NI.	PINUS NIGRA	AUSTRIAN PINE	8'-12' HT.	B.&B.	40'-60'HT.x30'-40'SPR.	15' MIN.
153	=	TOTAL TREES					
DECIDUOUS SHRUBS							
23	AM.A.	AMELANCHIER ALNIFOLIA	SASKATOON SERVICEBERRY	#5 CONT.	3'-4' HT.	6'-20'HT.x6'-12'SPR.	+/-4' O.C.
51	CH.N.	CHRYSOTHANMNUS NAUSEOSIS	DWARF BLUE RABBITBRUSH	#5 CONT.	18"-24" HT.	1'-4'HT.x1'-4'SPR.	+/-3' O.C.
59	PE.A.	PEROVSKIA ATRIPLICIFOLIA 'L.S.'	LITTLE SPIRE RUSSIAN SAGE	#5 CONT.	18"-24" HT.	3'-4'HT.x3'-4'SPR.	+/-3' O.C.
22	PT.F.	POTENTILLA FR. DAV. 'PRAIRIE SNOW'	WHITE FLOWER CINQUEFOIL	#5 CONT.	18"-24" SPR.	2'-3'HT.x3'-5'SPR.	+/-3' O.C.
23	PT.J.	POTENTILLA FRUTICOSA 'JACKMANII'	JACKMAN POTENTILLA	#5 CONT.	18"-24" HT.	2'-3'HT.x3'-4'SPR.	+/-3' O.C.
21	R.TR.	RHUS TRILOBATA	THREE-LEAF SUMAC	#5 CONT.	3'-4' HT.	10'-15'HT.x10'-15'SPR.	+/-5' O.C.
32	R.TY.	RHUS TYPHINA	STAGHORN SUMAC	#5 CONT.	3'-4' HT.	10'-15'HT.x10'-15'SPR.	+/-5' O.C.
8	RO.W.	ROSA WOODSII	NATIVE SHRUB ROSE	#5 CONT.	24"-30" HT.	4'HT.x4'-6'SPR.	+/-5' O.C.
42	SY.V.	SYRINGA VULGARIS	COMMON PURPLE LILAC	#5 CONT.	3'-4' HT.	8'-12'HT.x6'-8'SPR.	+/-4' O.C.
EVERGREEN SHRUBS							
34	JU.B.	JUNIPERUS HORIZONTALIS 'BUFF.'	BUFFALO JUNIPER	#5 CONT.	18"-24" SPR.	1'-2'HT.x5'-8'SPR.	+/-4' O.C.
19	JU.H.	JUNIPERUS HORIZONTALIS 'HUGH.'	HUGHES JUNIPER	#5 CONT.	18"-24" SPR.	1'-2'HT.x5'-8'SPR.	+/-4' O.C.
50	JU.T.	JUNIPERUS SABINA 'TAMARISC.'	TAMMY JUNIPER	#5 CONT.	18"-24" SPR.	1'-2'HT.x5'-8'SPR.	+/-4' O.C.
384	=	TOTAL SHRUBS					
ORNAMENTAL GRASSES							
134	CAL.	CALAMAGROSTIS ACUTIFLORA 'K.F.'	K. FOERSTER FEATHER REED	#1 CONT.	12" HT.	4'-5'HT.x1'-2'SPR.	+/-30" O.C.
9	HEL.	HELICHTOTRICHON SEMPERVIRENS	BLUE AVENA GRASS	#1 CONT.	6" HT.	2'-3'HT.x2'-3'SPR.	+/-30" O.C.
23	MIS.	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	#1 CONT.	6" HT.	4'-5'HT.x3'-4'SPR.	+/-36" O.C.
58	PEN.	PENNISETUM ALOPECUROID. 'HAMELN'	DWARF FOUNTAIN GRASS	#1 CONT.	12" HT.	1'-2'HT.x1'-2'SPR.	+/-18" O.C.
2	SAC.	SACCHARUM RAVANNAE	PLUME GRASS	#1 CONT.	12" HT.	8'-12'HT.x3'-4'SPR.	+/-48" O.C.
226	=	TOTAL ORNAMENTAL GRASSES					
GROUND COVERS, PERENNIALS, ORNAMENTAL GRASSES, VINES, ETC.							
36	ACH.	ACHILLEA MILLIFOLIUM	COMMON YELLOW YARROW	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
45	CER.	CERASTIUM TOMENTOSUM	SNOW-IN-SUMMER	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
48	GAI.	GAILARDIA X GRANDIFLORA	BLANKET FLOWER	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
62	LEU.	LEUCANTHEMUM X SUPERBUM	SHASTA DAISY	#1 CONT.	6" HT.	2'-3'HT.x1'-2'SPR.	+/-24" O.C.
60	RUD.	RUDBECKIA FULGIDA 'GOLDSTURM'	BLACK-EYED SUSAN	#1 CONT.	12" HT.	2'-3'HT.x1'-2'SPR.	+/-24" O.C.
60	SAL.	SALVIA NEMOROSA 'BLUE QUEEN'	BLUE SALVIA	#1 CONT.	6" HT.	1'-2'HT.x1'-2'SPR.	+/-24" O.C.
5	SE.S.	SEDUM X 'AUTUMN JOY'	AUTUMN JOY STONECROP	#1 CONT.	12" HT.	2'-3'HT.x1'-2'SPR.	+/-18" O.C.
36	SE.D.	SEDUM SPURIUM 'D.B.'	DRAGON'S BLOOD SEDUM	#1 CONT.	6" SPR.	1'HT.x1'-2'SPR.	+/-18" O.C.
352	=	TOTAL GROUND COVERS, PERENNIALS, ETC.					

NOTES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANT QUANTITIES SHOWN AND NOTED ON THE PLAN WHICH SHALL TAKE PRECEDENCE OVER PLANT QUANTITIES LISTED IN THE PLANT LIST. PLANT SPACING DIMENSIONS ARE GENERAL PLANTING GUIDELINES ONLY, ACTUAL PLANT LOCATIONS SHOWN ON THE PLAN SHALL TAKE PRECEDENCE IN THE EVENT OF CONFLICTING INFORMATION.

LANDSCAPE MATERIALS		
-	COB.	COBBLED AREA - 6" DIA. GRAY COLORED WASHED RIVER ROCK OVER WEED BARRIER FABRIC.
-	R.M.	ROCK MULCH AREA - 3" LAYER OF 1.5" DIA. RIVER ROCK OVER WEED BARRIER FABRIC.
-	SEED1	NATIVE GRASS AREA - NATIVE GRASS SEEDED AREA, NON- IRRIGATED (SEE SPECS).
-	SEED2	NATIVE GRASS AREA - NATIVE GRASS SEEDED AREA, IRRIGATED (SEE SPECS).
-	SOD	SOD AREA - APPROVED BLUEGRASS BLEND (4 VARIETIES), INCL. PREP. & FINE GRADING.
-	ST.E.	STEEL EDGING - 6"X3/16"X20' SIZED GREEN PAINTED STEEL EDGER.
-	W.M.	WOOD MULCH AREA - 3" THICK LAYER OF SHREDDED CEDAR WOOD MULCH.

LAYOUT AND APPROVAL

1.) ALL WORK SHALL COMPLY WITH THE TOWN OF ERIE "STANDARDS AND SPECIFICATIONS".

2.) ALL TREES SHALL BE PLACED A MINIMUM OF 8' FROM ALL BUILDINGS, WALLS, STRUCTURES, FENCES, ETC. ALL CONIFEROUS TREES SHALL BE PLANTED A MINIMUM OF 10' FROM ALL HARDSCAPES, AND ALL OTHER TREES SHALL BE PLANTED A MINIMUM OF 5' FROM ALL HARDSCAPES.

3.) ALL TREES SHALL BE PLANTED A MINIMUM OF TEN (10') FEET AWAY FROM ALL PUBLIC AND PRIVATE UNDERGROUND UTILITIES.

4.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING ALL TREE LOCATIONS PRIOR TO PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT. THE TOWN OF ERIE SHALL APPROVE AREAS IT WILL MAINTAIN, (E.G. ERIE PARKWAY MEDIAN LANDSCAPING).

5.) THE LANDSCAPE ARCHITECT SHALL APPROVE THE FINE GRADING OF ALL LAWN, TURF AND PLANTING BED AREAS PRIOR TO INSTALLATION OF SOD, NATIVE GRASS, TEMPORARY IRRIGATION OR PLANTS.

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: MLS_Land.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 & BONANZA, LLC
Designer: MLS | Drafter: MLS | Checked: MLS

MICHAEL L. STAHL, INC.
LANDSCAPE ARCHITECT
8427 Brambleridge Dr., Castle Pines, CO 80108
Ph.: 303-779-6601
E-mail: mlstahl1@aol.com

MICHAEL L. STAHL 332 01/29/2008 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PRELIMINARY PLAT
LANDSCAPE PLAN

Sheet L11 of 21

Date SEPTEMBER 14, 2015

ALTA/ACSM LAND TITLE SURVEY

LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 31
TOWNSHIP 1 NORTH, RANGE 68 WEST, 6TH P.M.
COUNTY OF WELD, STATE OF COLORADO
SHEET 1 OF 2

LEGAL DESCRIPTION:

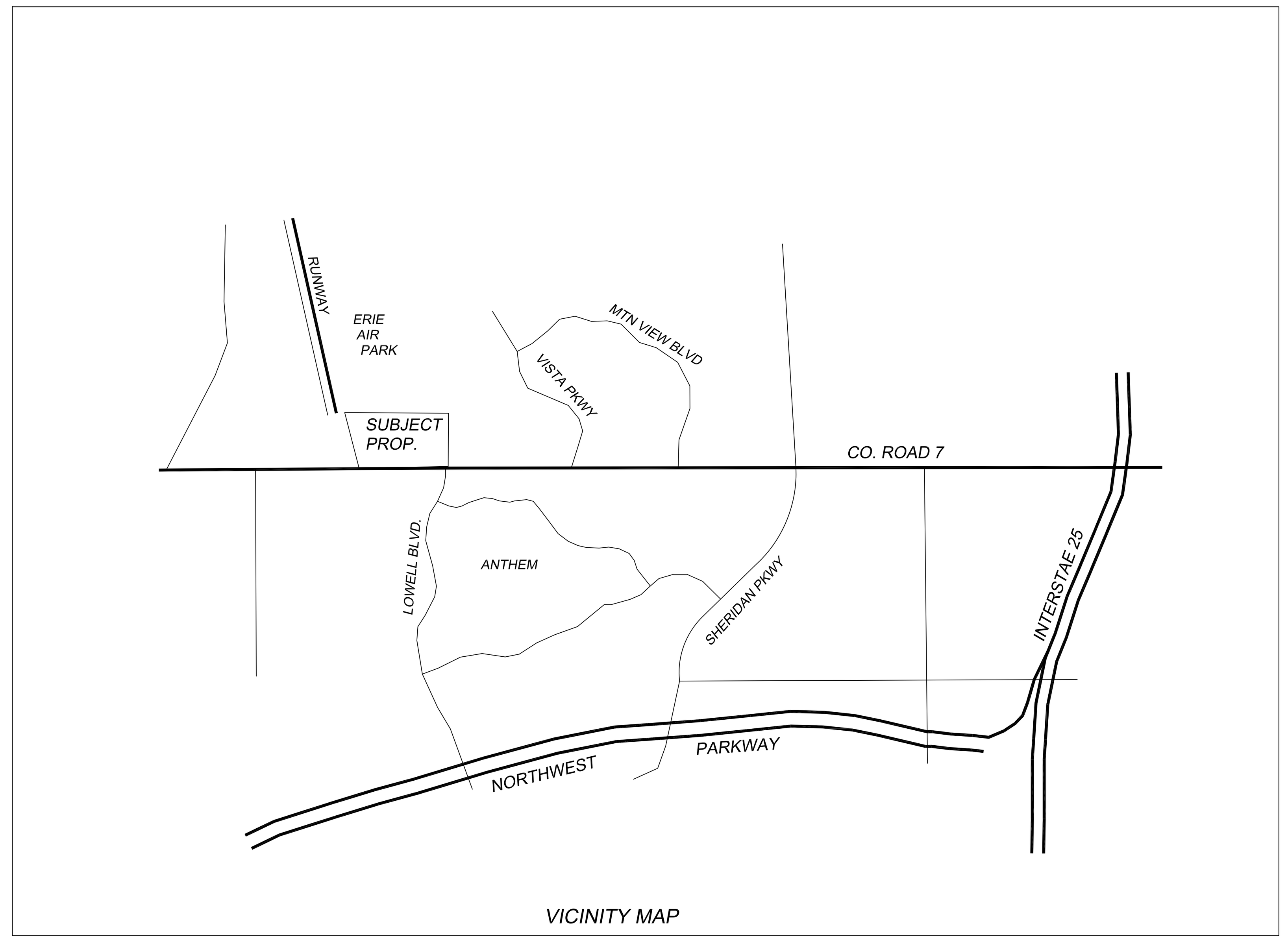
CURRENT RECORD DESCRIPTION:
(LAND TITLE GUARANTEE CO. ORDER NO. ABC25121785.1-2)

A PART OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:
COMMENCING AT THE SE CORNER OF SAID SE 1/4 OF SECTION 31; THENCE N 00° 15' 14" E ALONG THE EAST LINE OF SAID SE 1/4, A DISTANCE OF 75.31 FEET; THENCE N 89° 44' 46" W, A DISTANCE OF 109.21 FEET TO THE WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1631 AT RECEPTION NO. 2572958, SAID POINT ALSO BEING THE NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 2170911 AND THE POINT OF BEGINNING;
THENCE ALONG SAID NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7, ALONG A LINE 75.00 FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SE 1/4 THE FOLLOWING 2 COURSES; 1) THENCE N 89° 34' 53" W, A DISTANCE OF 1896.40 FEET; 2) THENCE N 89° 32' 45" W, A DISTANCE OF 13.43 FEET TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 2225423; THENCE ALONG SAID EASTERLY LINE THE FOLLOWING 2 COURSES:
1) THENCE N 16° 31' 20" W, A DISTANCE OF 1176.48 FEET; 2) THENCE N 12° 14' 16" W, A DISTANCE OF 123.38 FEET TO THE NORTH LINE OF SAID S 1/2 OF THE SE 1/4 OF SECTION 31; THENCE S 89° 35' 08" E ALONG SAID NORTH LINE, A DISTANCE OF 2330.26 FEET TO SAID WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS DESCRIBED IN BOOK 1631 AT RECEPTION NO. 2572958; THENCE ALONG SAID WESTERLY RIGHT OF WAY THE FOLLOWING 2 COURSES:
1) THENCE S 04° 46' 24" W, A DISTANCE OF 564.23 FEET; 2) THENCE S 01° 04' 07" W, A DISTANCE OF 683.43 FEET TO THE POINT OF BEGINNING.

LEGAL DESCRIPTION DERIVED FROM THIS SURVEY:

A PART OF THE S 1/2 OF THE SE 1/4 OF SECTION 31, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH P.M., COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:
COMMENCING AT THE SE CORNER OF SAID SE 1/4 OF SECTION 31; THENCE N 00° 16' 52" E ALONG THE EAST LINE OF SAID SE 1/4, A DISTANCE OF 75.28 FEET; THENCE N 89° 43' 08" W, A DISTANCE OF 110.43 FEET TO THE WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1631, PAGE 123, RECEPTION NO. 2572958, SAID POINT ALSO BEING THE NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7 AS DESCRIBED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1224 AT RECEPTION NO. 2170911 AND THE POINT OF BEGINNING;
THENCE ALONG SAID NORTHERLY RIGHT OF WAY OF STATE HIGHWAY NO 7, ALONG A LINE 75.00 FEET NORTHERLY DISTANT AND PARALLEL, WHEN MEASURED AT RIGHT ANGLES, WITH THE SOUTH LINE OF SAID SE 1/4 THE FOLLOWING 2 COURSES; 1) THENCE N 89° 34' 53" W, A DISTANCE OF 1895.02 FEET; 2) THENCE N 89° 25' 59" W, A DISTANCE OF 13.44 FEET TO THE EASTERLY LINE OF THAT PARCEL OF LAND AS RECORDED IN THE OFFICE OF THE WELD COUNTY CLERK AND RECORDER IN BOOK 1274 AT RECEPTION NO. 2225423; THENCE ALONG SAID EASTERLY LINE THE FOLLOWING 2 COURSES:
1) THENCE N 16° 28' 29" W, A DISTANCE OF 1176.86 FEET; 2) THENCE N 12° 11' 08" W, A DISTANCE OF 123.57 FEET TO THE NORTH LINE OF SAID S 1/2 OF THE SE 1/4 OF SECTION 31; THENCE S 89° 33' 30" E ALONG SAID NORTH LINE, A DISTANCE OF 2307.64 FEET TO SAID WESTERLY RIGHT OF WAY OF COUNTY ROAD NO 3 AS DESCRIBED IN BOOK 1631, PAGE 123, RECEPTION NO. 2572958; THENCE ALONG SAID WESTERLY RIGHT OF WAY THE FOLLOWING 2 COURSES:
1) THENCE S 03° 49' 07" W, A DISTANCE OF 565.14 FEET; 2) THENCE S 00° 08' 32" W, A DISTANCE OF 681.64 FEET TO THE POINT OF BEGINNING.

CONTAINING 2,620,136 SQUARE FEET OR 60.150 ACRES OF LAND, MORE OR LESS.



1" = 2500' APPROX.

SCHEDULE B-2 NOTES:

1. ANY FACTS, RIGHTS, INTERESTS, OR CLAIMS THEREOF, NOT SHOWN BY THE PUBLIC RECORDS BUT THAT COULD BE ASCERTAINED BY AN INSPECTION OF THE LAND OR THAT MAY BE ASSERTED BY PERSONS IN POSSESSION OF THE LAND. ***(NOT ADDRESSED BY THIS SURVEY)***
2. EASEMENTS, LIENS OR ENCUMBRANCES, OR CLAIMS THEREOF, NOT SHOWN BY THE PUBLIC RECORDS. ***(NOT ADDRESSED BY THIS SURVEY)***
3. ANY ENCROACHMENT, ENCUMBRANCE, VIOLATION, VARIATION, OR ADVERSE CIRCUMSTANCE AFFECTING THE TITLE THAT WOULD BE DISCLOSED BY AN ACCURATE AND COMPLETE LAND SURVEY OF THE LAND AND NOT SHOWN BY THE PUBLIC RECORDS. ***(SHOWN AND DESCRIBED HEREON)***
4. ANY LIEN, OR RIGHT TO A LIEN, FOR SERVICES, LABOR OR MATERIAL HERETOFORE OR HEREAFTER FURNISHED, IMPOSED BY LAW AND NOT SHOWN BY THE PUBLIC RECORDS. ***(NOT ADDRESSED BY THIS SURVEY)***
5. DEFECTS, LIENS, ENCUMBRANCES, ADVERSE CLAIMS OR OTHER MATTERS, IF ANY, CREATED, FIRST APPEARING IN THE PUBLIC RECORDS OR ATTACHING SUBSEQUENT TO THE EFFECTIVE DATE HEREOF BUT PRIOR TO THE DATE OF THE PROPOSED INSURED ACQUIRES OF RECORD FOR VALUE THE ESTATE OR INTEREST OR MORTGAGE THEREON COVERED BY THIS COMMITMENT. ***(NOT ADDRESSED BY THIS SURVEY)***
6. (A) TAXES OR ASSESSMENTS THAT ARE NOT SHOWN AS EXISTING LIENS BY THE RECORDS OF ANY TAXING AUTHORITY THAT LEVIES TAXES OR ASSESSMENTS ON REAL PROPERTY OR BY THE PUBLIC RECORDS; (B) PROCEEDINGS BY A PUBLIC AGENCY THAT MAY RESULT IN TAXES OR ASSESSMENTS, OR NOTICES OF SUCH PROCEEDINGS, WHETHER OR NOT SHOWN BY THE RECORDS OF SUCH AGENCY OR BY THE PUBLIC RECORDS. ***(NOT ADDRESSED BY THIS SURVEY)***
7. (A) UNPATENTED MINING CLAIMS; (B) RESERVATIONS OR EXCEPTIONS IN PATENTS OR IN ACTS AUTHORIZING THE ISSUANCE THEREOF; (C) WATER RIGHTS, CLAIMS OR TITLE TO WATER. ***(NOT ADDRESSED BY THIS SURVEY)***
8. EXISTING LEASES OR TENANCIES. ***(NOT ADDRESSED BY THIS SURVEY)***
9. RESERVATIONS BY THE UNION PACIFIC RAILROAD COMPANY COMPANY OF:
(1) ALL OIL, COAL AND OTHER MINERALS UNDERLYING SUBJECT PROPERTY,
(2) THE EXCLUSIVE RIGHT TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, AND
(3) THE RIGHT OF INGRESS AND EGRESS AND REGRESS TO PROSPECT FOR, MINE AND REMOVE OIL, COAL AND OTHER MINERALS, (4) THE RIGHT TO MAINTAIN AND OPERATE ITS RAILROAD IN ITS PRESENT FORM OF CONSTRUCTION, AND TO MAKE ANY CHANGE IN THE FORM OF CONSTRUCTION OR METHOD OF OPERATION OF SAID RAILROAD, ALL AS CONTAINED IN DEED RECORDED DECEMBER 31, 1908, IN BOOK 233 AT PAGE 187. ***(SHOWN HEREON, AFFECTS E 1/2 OF PARCEL)***
10. OIL AND GAS LEASE RECORDED NOVEMBER 30, 1972 UNDER RECEPTION NO. 1602713 IN BOOK 681 AND ANY AND ALL ASSIGNMENTS THEREOF, OR INTEREST THEREIN. ***(BLANKET IN NATURE, AFFECTS ENTIRE PARCEL)***
11. TERMS, CONDITIONS AND PROVISIONS OF RECIPROCAL GRANT OF EASEMENT AND AGREEMENT RECORDED NOVEMBER 21, 1984 AT RECEPTION NO. 1989356 IN BOOK 1050 AND RECORDED AUGUST 30, 1990 AT RECEPTION NO. 2225425 IN BOOK 1274. ***(SHOWN HEREON, LIES OFFSITE FROM SUBJECT PROPERTY))***
12. TERMS, CONDITIONS AND PROVISIONS OF NOTICE RECORDED JANUARY 24, 1991 AT RECEPTION NO. 2239296. ***(BLANKET IN NATURE, AFFECTS ENTIRE PARCEL)***
13. TERMS, CONDITIONS AND PROVISIONS OF GRANT OF EASEMENT & AGREEMENT RECORDED JUNE 25, 1991 AT RECEPTION NO. 2254297 AND RE-RECORDED NOVEMBER 8, 1991 AT RECEPTION NO. 2268776. ***(SHOWN HEREON)***
14. TERMS, CONDITIONS AND PROVISIONS OF REQUEST FOR NOTIFICATION RECORDED APRIL 15, 2002 AT RECEPTION NO. 2942784. ***(SHOWN HEREON - EXHIBIT A AND B DO NOT AFFECT SUBJECT PROPERTY)***
15. TERMS, CONDITIONS AND PROVISIONS OF REQUEST FOR NOTIFICATION RECORDED MAY 28, 2002 AT RECEPTION NO. 2954454. ***(SHOWN HEREON, AFFECTS E 1/2 OF PARCEL)***
16. TERMS, CONDITIONS AND PROVISIONS OF MEMORANDUM OF AGREEMENT RECORDED MARCH 19, 2007 AT RECEPTION NO. 3462781. ***(SHOWN HEREON, AFFECTS E 1/2 OF PARCEL)***
17. TERMS, CONDITIONS AND PROVISIONS OF REQUEST FOR NOTIFICATION RECORDED DECEMBER 21, 2007 AT RECEPTION NO. 3525268. ***(BLANKET IN NATURE, AFFECTS ENTIRE PARCEL)***
18. TERMS, CONDITIONS AND PROVISIONS OF NOTICE OF RIGHT TO USE SURFACE OF LAND RECORDED APRIL 28, 2010 AT RECEPTION NO. 3689545. ***(SHOWN HEREON, AFFECTS E 1/2 OF PARCEL)***
19. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 21, 2012 AT RECEPTION NO. 3867540. ***(BLANKET IN NATURE, AFFECTS ENTIRE PARCEL)***
20. TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE RECORDED AUGUST 21, 2012 AT RECEPTION NO. 3867541. ***(SHOWN HEREON))***
21. TERMS, CONDITIONS AND PROVISIONS OF ANNEXATION AGREEMENT RECORDED AUGUST 21, 2012 AT RECEPTION NO. 3867544. ***(BLANKET IN NATURE, AFFECTS ENTIRE PARCEL)***

SURVEY NOTES:

1. GENERAL SURVEY DESCRIPTION: FIELD SURVEY DONE AUGUST 25, 2015, WITH MONUMENTS SET/REHABILITATED ON 9/2/15. AS SHOWN HEREON, THE LEGAL DESCRIPTION OF RECORD IS NOT SUPPORTED BY EXISTING PLSS MONUMENTS FOUND NOR BY PROPERTY CORNERS FOUND IN PLACE. THE LEGAL DESCRIPTION IN THE TITLE COMMITMENT CONTAINS CALLS FOR A) THE NORTHERLY R.O.W. LINE OF CO. STATE HIGHWAY 7, B) THE PARCEL OF LAND DESCRIBED AT RECEPTION NO. 2225423, C) THE NORTH LINE OF THE S 1/2, SE 1/4 AND D) THE THE LAND DESCRIBED AT RECEPTION NO. 2572958. THESE CALLS, ALONG WITH ACCEPTABLE MONUMENTS, WERE HONORED IN THE CONSTRUCTION OF THIS SURVEY.
2. AN EXAMINATION OF THE LEGAL DESCRIPTION FOUND IN A QUIT CLAIM DEED TO THE COUNTY OF WELD RECORDED 10/7/1997 AT RECEPTION NO. 2572958 (SAME AS CALLED FOR IN THE RECORD DESCRIPTION) REVEALS A MATHEMATICALLY CLOSED FIGURE TIED TO THE SE COR. S 1/2, SE 1/4 (SE SECTION CORNER) AND THE 1/16 COR LYING TO THE NORTH. PLOTTING THIS FIGURE YIELDS A LINE THAT LIES WESTERLY OF THE RECORD DESCRIPTION AND IS IN CONFLICT WITH 2 REBARS AND CAPS (PLS 10855) FOUND DURING THE COURSE OF THE SURVEY. THESE REBARS/CAPS APPEAR TO BE ROTATED APPROXIMATELY 1° CLOCKWISE FROM THE EAST LINE OF THE S 1/2 OF THE SE 1/4. WOODEN STAKES MARKED "ROW" WERE FOUND APPROXIMATELY ON THE PLOTTED LINE. THE ORIGIN OF THESE STAKES IS UNKNOWN, BUT THEY ARE IN GENERAL CONFORMANCE WITH THE LEGAL DESCRIPTION FOUND AT REC. NO. 2572958.
3. ACCORDING TO FLOOD INSURANCE RATE MAP 0802660970D, EFFECTIVE 9/28/1990, SUBJECT PROPERTY LIES IN ZONE C "AREAS OF MINIMAL FLOODING UNSHADED.
4. NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS FROM WHEN YOU FIRST DISCOVER SUCH DEFECT, IN NO EVENT MAY ANY LEGAL ACTION BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION HEREON.
5. THIS SURVEY IS CERTIFIED EXCLUSIVELY TO THE PARTIES NAMED IN THE CERTIFICATE HEREON. IT DOES NOT EXTEND TO HEIRS, SUCCESSOR'S OR ASSIGNS AND USE OR RELIANCE BY ANY OTHER PARTY IS STRICTLY AT YOUR OWN RISK.
6. BEARINGS ARE BASED UPON THE THE SOUTH LINE OF THE SE 1/4 OF SECTION 31, T.1N, R.68W, ASSUMED TO BEAR N89°34'53"W BETWEEN THE MONUMENTS SHOWN AND DESCRIBED HEREON.

TO: OREAD CAPITAL AND DEVELOPMENT, LLC, A COLORADO LIMITED LIABILITY COMPANY, KAREN K. KRAMER, PRATT PROPERTIES, LP, A COLORADO LIMITED PARTNERSHIP, BC LAND, LLC, A COLORADO LIMITED LIABILITY COMPANY AND LAND TITLE GUARANTEE COMPANY;

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 3, 4, 8, 11(A), 16, AND 18 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON SEPTEMBER 2, 2015.

DATE OF PLAT: 9/2/2015

JOHN E. KRATZ
PLS 20142

7865 W. ONTARIO PLACE
LITTLETON, CO 80128
(303) 994-6300
WWW.REDROCKLANDSURVEYS.COM

SCALE VERIFICATION
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REUSE OF DOCUMENT
THIS PLAT IS CERTIFIED ONLY TO THE PARTIES NAMED HEREON AND REMAINS THE PROPERTY OF RED ROCK LAND SURVEYS, LLC. RED ROCK LAND SURVEYS RETAINS THE RIGHT TO REVISE THIS PLAT SHOULD NEW OR UNDISCOVERED FACTS EMERGE. USE OF THIS PLAT BY OTHER THAN CERTIFICATE HOLDER IS AT YOUR OWN RISK.

REVISIONS

NO.	DATE	BY
1		

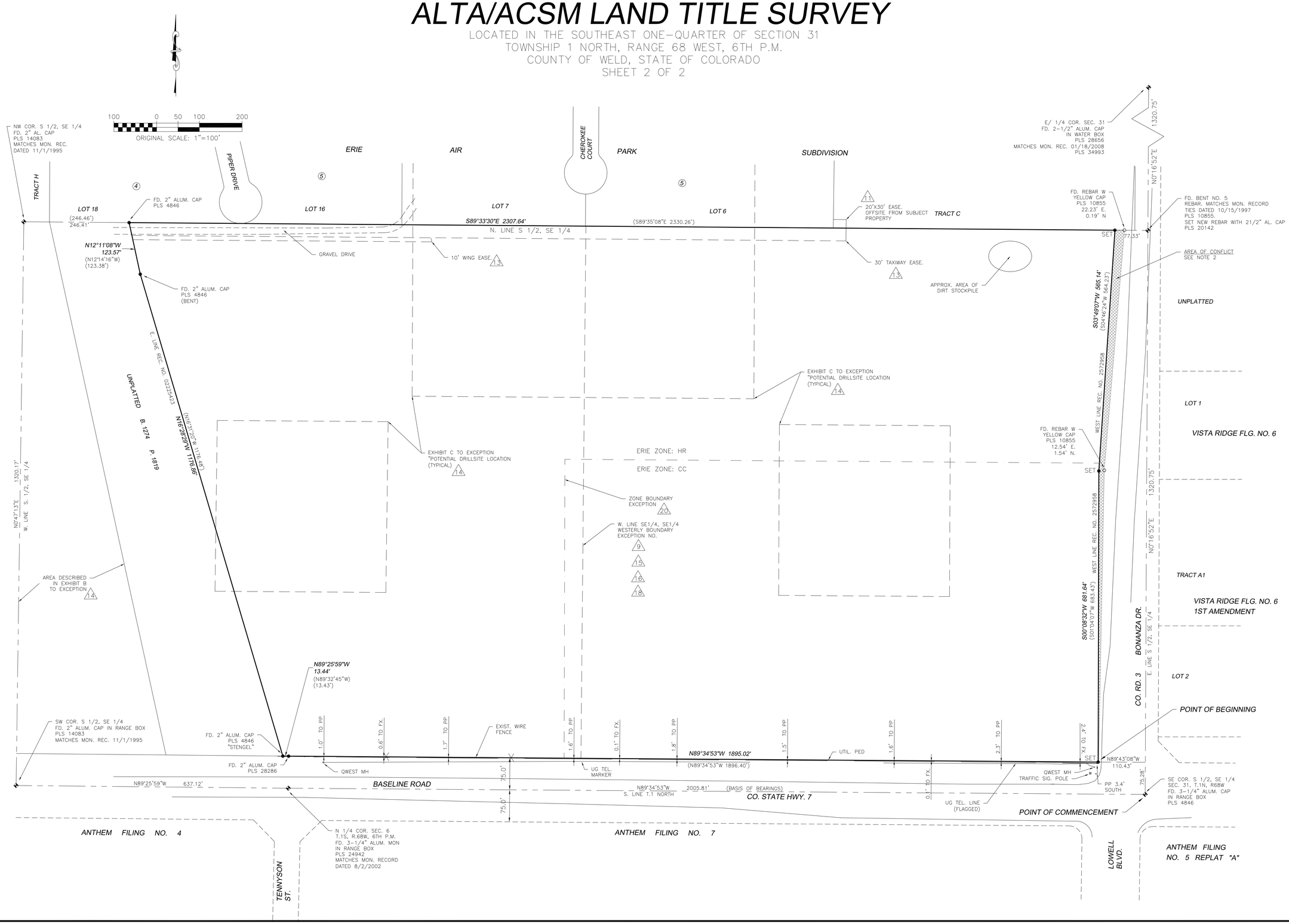
DRAWN BY:
CHECKED BY:
APPROVED BY:

PREPARED FOR: CALIBRE ENGINEERING

SIERRA VISTA
A PART OF THE SOUTH 1/2 OF THE SE 1/4,
SECTION 31, T.1N, R.68W, 6TH P.M.
WELD COUNTY, COLORADO

ALTA/ACSM LAND TITLE SURVEY

LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 31
TOWNSHIP 1 NORTH, RANGE 68 WEST, 6TH P.M.
COUNTY OF WELD, STATE OF COLORADO
SHEET 2 OF 2



7865 W. ONTARIO PLACE
LITTLETON, CO 80128
(303) 994-6300
WWW.REDROCKLANDSURVEYS.COM

SCALE VERIFICATION
BAR IS 1 INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET,
ADJUST SCALES ACCORDINGLY

REUSE OF DOCUMENT
THIS PLAT IS CERTIFIED ONLY TO THE PARTIES NAMED HEREON AND
BEARING THE SURVEYOR'S ORIGINAL SEAL AND SIGNATURE. RED
ROCK LAND SURVEYS, INC. RETAINS THE RIGHT TO REVISE THIS PLAT
SHOULD NEW OR UNDISCOVERED FACTS EMERGE. USE OF THIS PLAT
BY OTHER THAN CERTIFICATE HOLDER IS AT YOUR OWN RISK.

REVISIONS

NO.	DATE	BY
1		

DRAWN BY:
CHECKED BY:
APPROVED BY:

PREPARED FOR: CALIBRE ENGINEERING

SIERRA VISTA
A PART OF THE SOUTH 1/2 OF THE SE 1/4,
SECTION 31, T.1N, R.68W, 6TH P.M.
WELD COUNTY, COLORADO

June 5, 2014

Martin Ostholthoff
Town of Erie
Community Development Department
645 Holbrook Street
P.O. Box 750
Erie, Colorado 80516

Re: Sierra Vista Minerals

To Martin Ostholthoff:

As you are aware Highway 7 and Bonanza, LLC (H7B) has become the contract purchaser for the Sierra Vista project from Pratt Properties, LP. We have been in contact with the immediate preceding owner in title (Ryan Carlson) to discuss the existing Memorandum of Agreement regarding surface rights recorded under reception number 34627821 in Weld County. We also have discussed the proposed changes which were negotiated previously with mineral owners. We additionally contacted Travis Book with Anadarko E&P Company, LP (Anadarko) to discuss and verify our understanding of the basis for the agreement regarding the minerals and surface use. We understand the basis of the agreement is to terminate surface use at this site and to relinquish or provide lease rights for the remaining mineral interests which are associated at the property.

Essentially, Anadarko has rights to approximately 40acres of minerals at this site, while H7B are under contract to purchase the remaining minerals. H7B will assign lease rights or convey mineral interests for their prospective interests to control surface rights at the project. We have just begun this process, but will memorialize this agreement contractually as we continue through the entitlement process in Erie.

If you have any further questions, please give me a call at (303) 947-0744.

Thank You,

Carl Nelson
Highway 7 and Bonanza, LLC

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: X-AvigationEsmt-Instrument.dwg

Job Number: OREAD SIERRA VISTA

Prepared For: OREAD

0 50 100 200

1 inch = 100 ft. Horizontal

Designer	Drafter	Checked
LMA	LMA	BJM

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

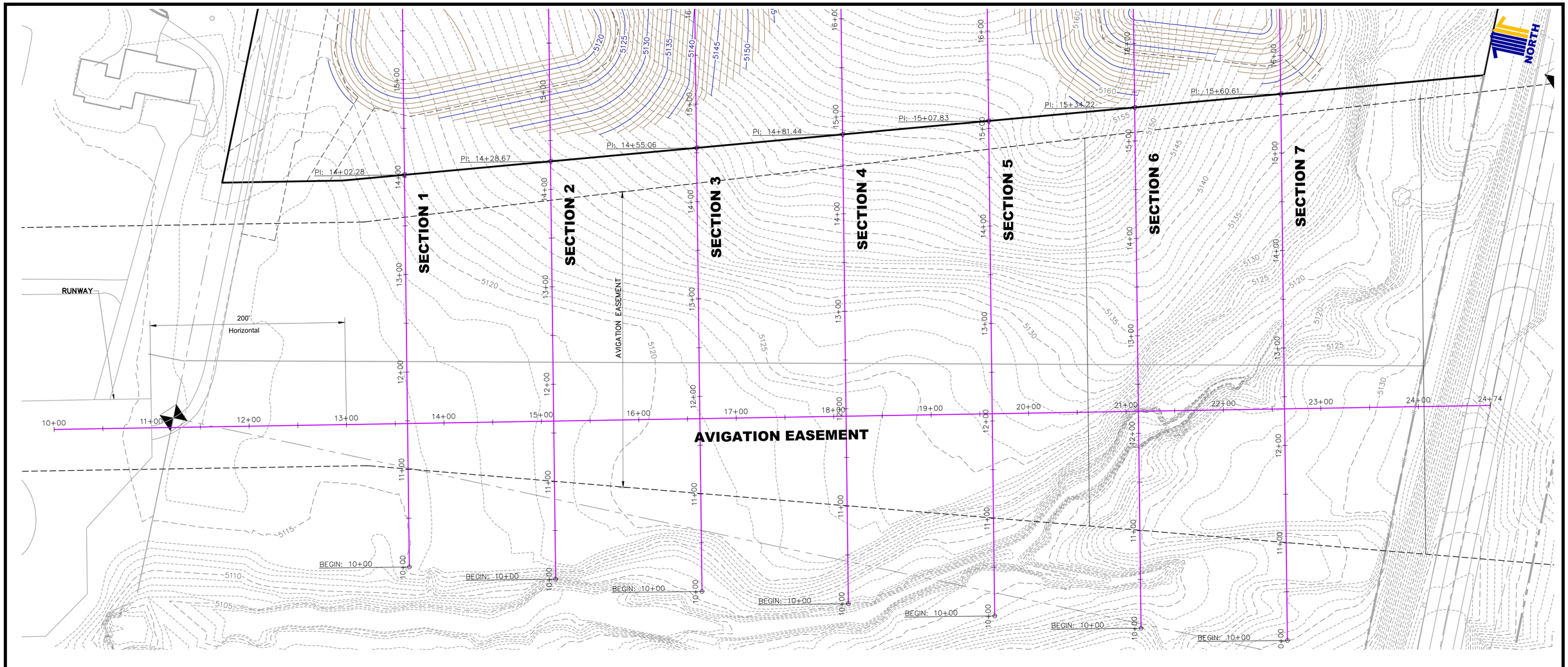
SIERRA VISTA
AVIGATION EASEMENT
NON-PRECISION INSTRUMENT RUNWAY

Sheet X1 — 1 of 1

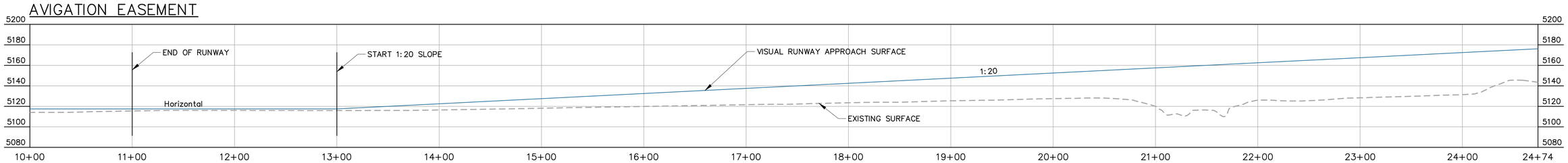
Date SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\EXHIBITS\X-AVIGATIONESMT-INSTRUMENT.DWG
PLOTTED BY: Lorraine Aiff PLOT DATE: 9/14/2015 10:34 AM
XREFS:

P:\OREAD SIERRA VISTA\CADD\EXHIBITS\X-AvigationEsmt-Instrument.dwg, 9/14/2015 10:34:48 AM, LAIFF, 1:1



AVIGATION EASEMENT



DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: X-Avigation Easement-XS.dwg
Job Number: SIERRA VISTA
Prepared For: OREAD

0 25 50 100
1 inch = 50 ft. Horizontal
1 inch = 50 ft Vertical

Designer	Drafter	Checked
LMA	LMA	TAJ

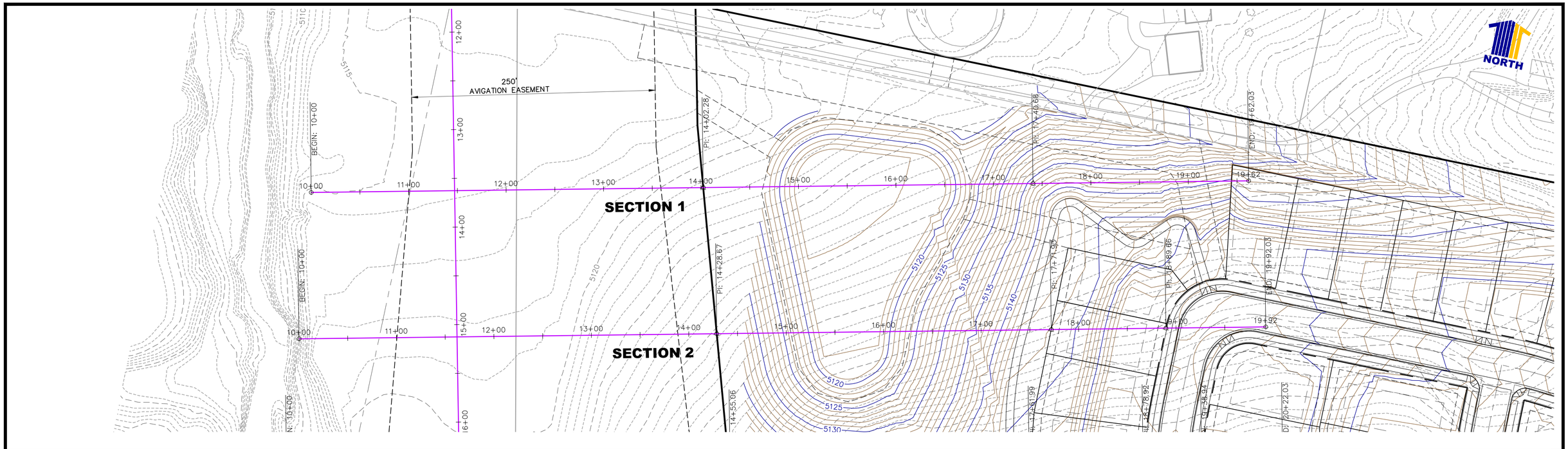
Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
AVIGATION EASEMENT
AVIGATION EASEMENT PROFILE

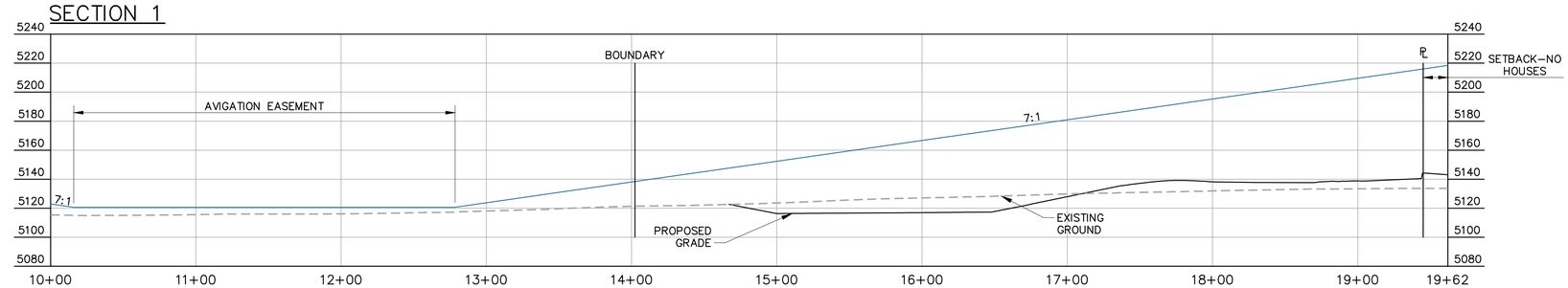
Sheet X1 — 1 of 5

Date: SEPTEMBER 14, 2015

PATH: P:\OREAD SIERRA VISTA\CADD\EXHIBITS\X-AVIGATION EASEMENT-XS.DWG
PLOTTED BY: Lorraine Aiff PLOT DATE: 9/14/2015 9:31 AM
XREFS: 20EPN, 20PPN, 20BASE,



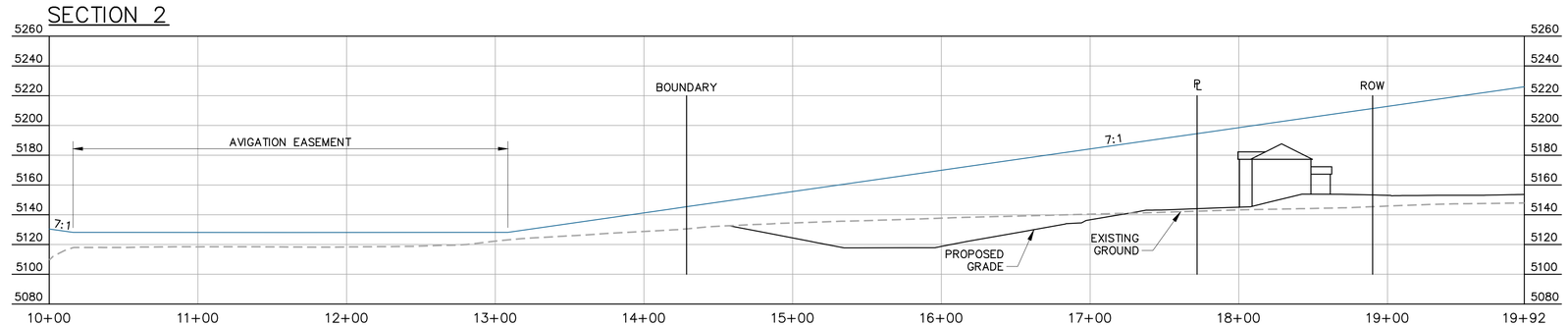
SECTION 1



LEGEND

VISUAL RUNWAY SURFACE

SECTION 2



PATH: P:\OREAD SIERRA VISTA\CADD\EXHIBITS\X-AVIGATION EASEMENT-XS.DWG
PLOTTED BY: Lorraine Aiff PLOT DATE: 9/14/2015 9:31 AM
XREFS: 20EPN, 20PPN, 20BASE,

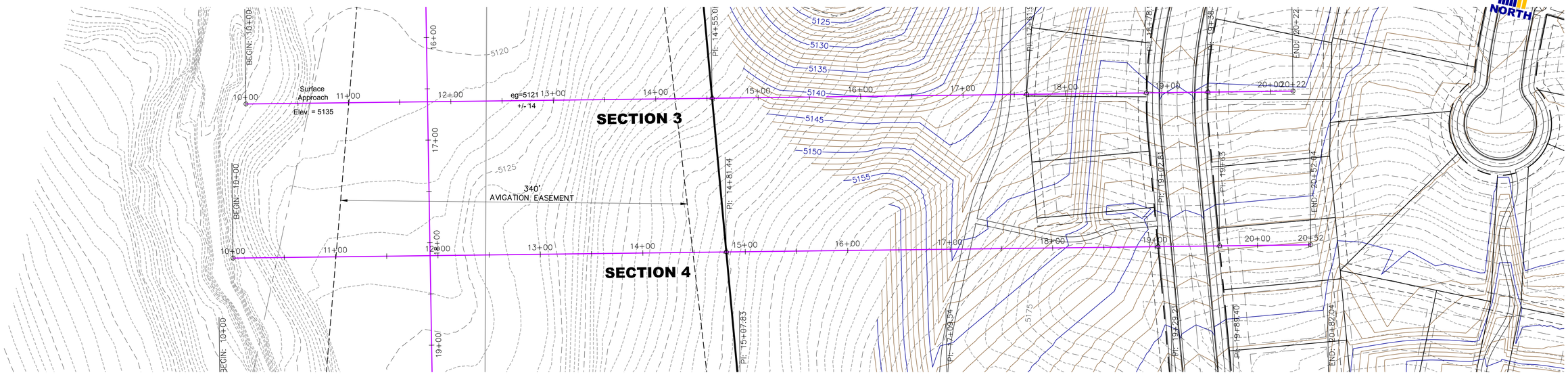
DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: X-Avigation Easement-XS.dwg
Job Number: SIERRA VISTA
Prepared For: OREAD
Designer: LMA | Drafter: LMA | Checked: TAJ
0 25 50 100
1 inch = 50 ft. Horizontal
1 inch = 50 ft Vertical

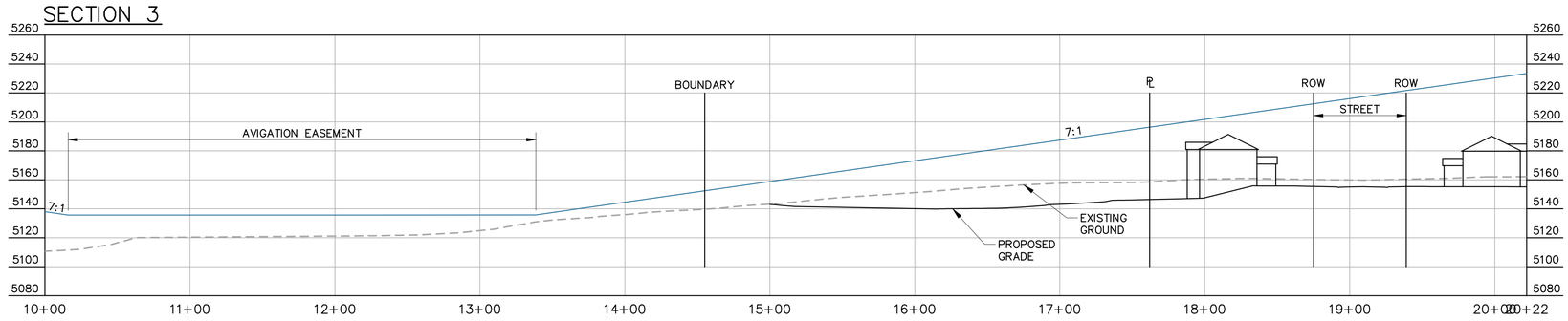
Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
AVIGATION EASEMENT
SECTIONS

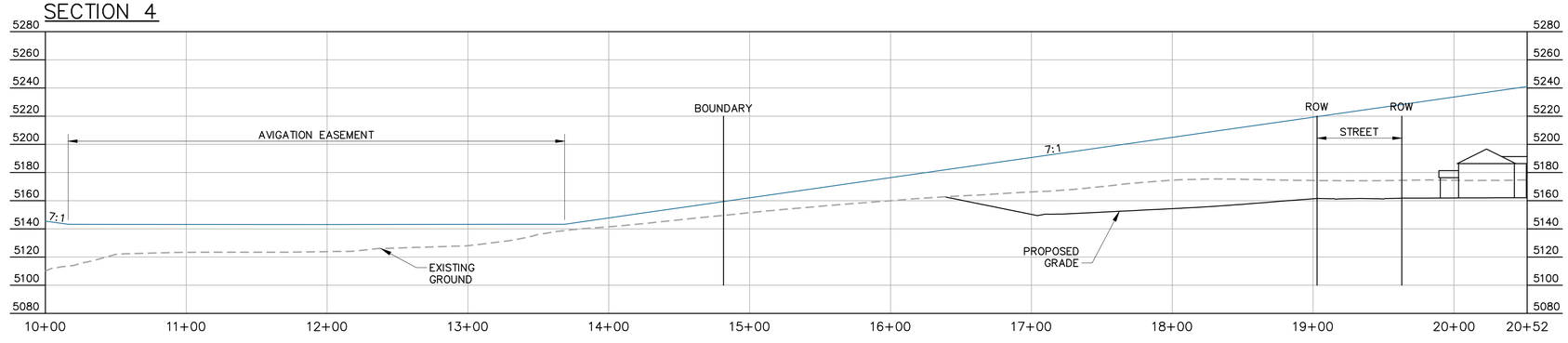
Sheet X2 — 2 of 5
Date: SEPTEMBER 14, 2015



SECTION 3



SECTION 4



LEGEND

VISUAL RUNWAY SURFACE

PATH: P:\OREAD SIERRA VISTA\CAD\EXHIBITS\X-AVIGATION EASEMENT-XS.DWG
PLOTTED BY: Lorraine Aiff PLOT DATE: 9/14/2015 9:31 AM
XREFS: 20EPN, 20PPN, 20BASE,

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: X-Avigation Easement-XS.dwg
Job Number: SIERRA VISTA
Prepared For: OREAD

0 25 50 100
1 inch = 50 ft. Horizontal
1 inch = 50 ft Vertical

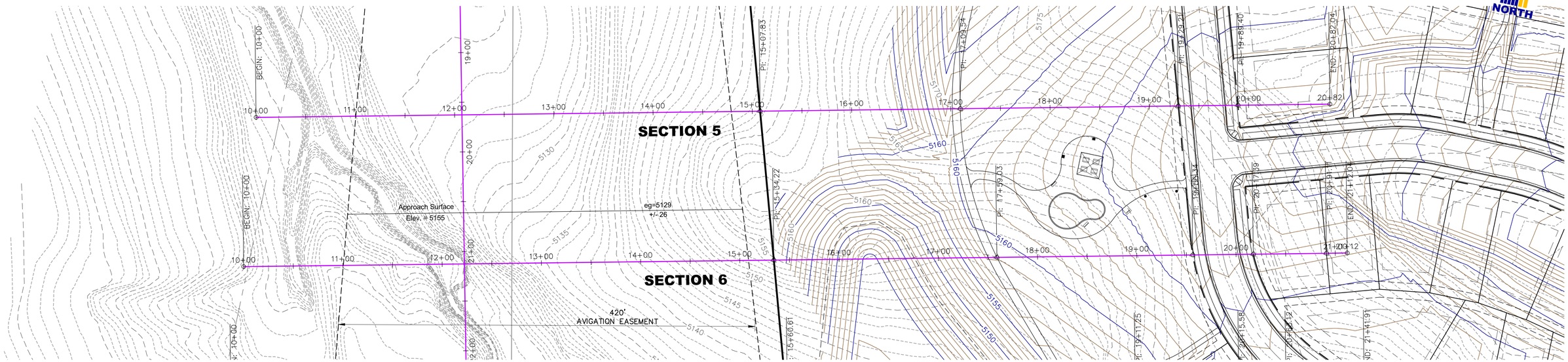
Designer	Drafter	Checked
LMA	LMA	TAJ

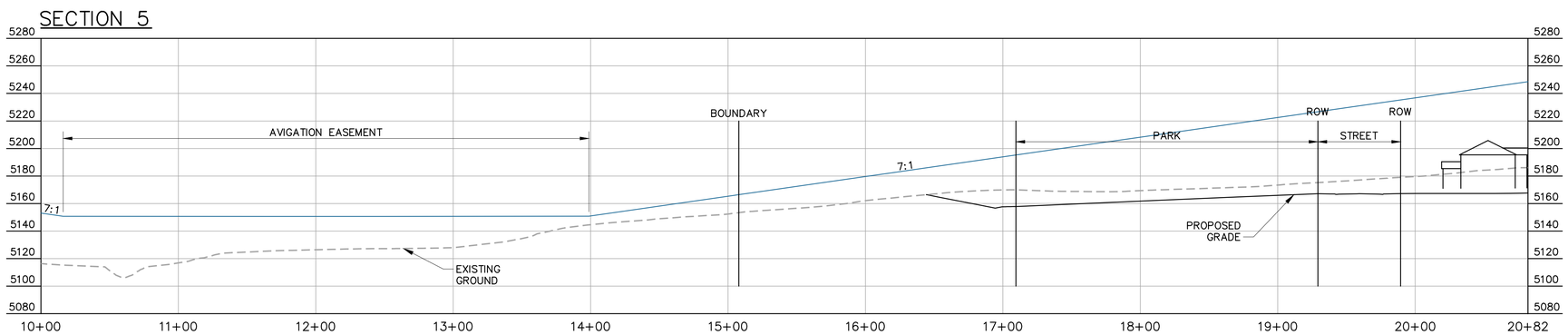
Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
AVIGATION EASEMENT
SECTIONS

Sheet X
3 of 5

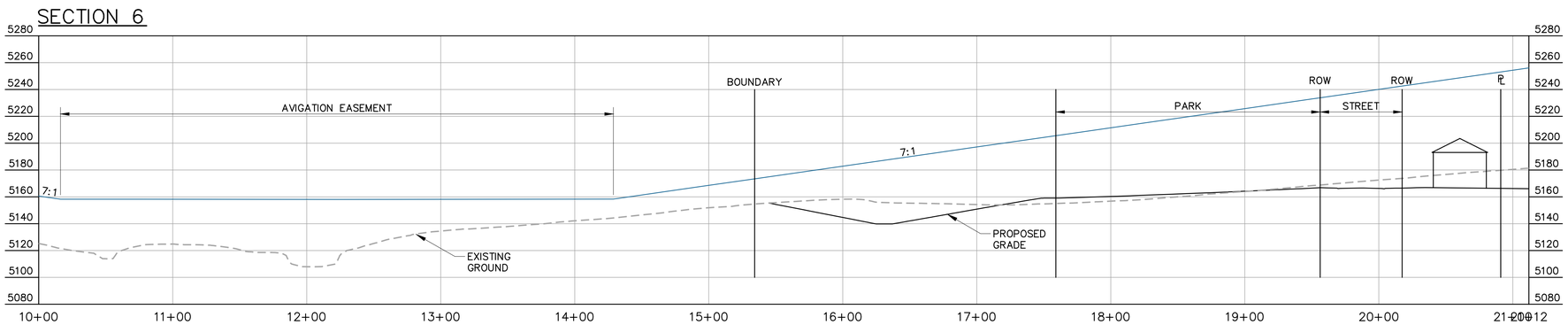
Date SEPTEMBER 14, 2015





LEGEND

VISUAL RUNWAY SURFACE



PATH: P:\OREAD SIERRA VISTA\CADD\EXHIBITS\X-AVIGATION EASEMENT-XS.DWG
PLOTTED BY: Lorraine Aiff PLOT DATE: 9/14/2015 9:31 AM
XREFS: 20EPN, 20PPN, 20BASE,

DATE		REVISION DESCRIPTION
	6	
	5	
	4	
	3	
	2	
	1	

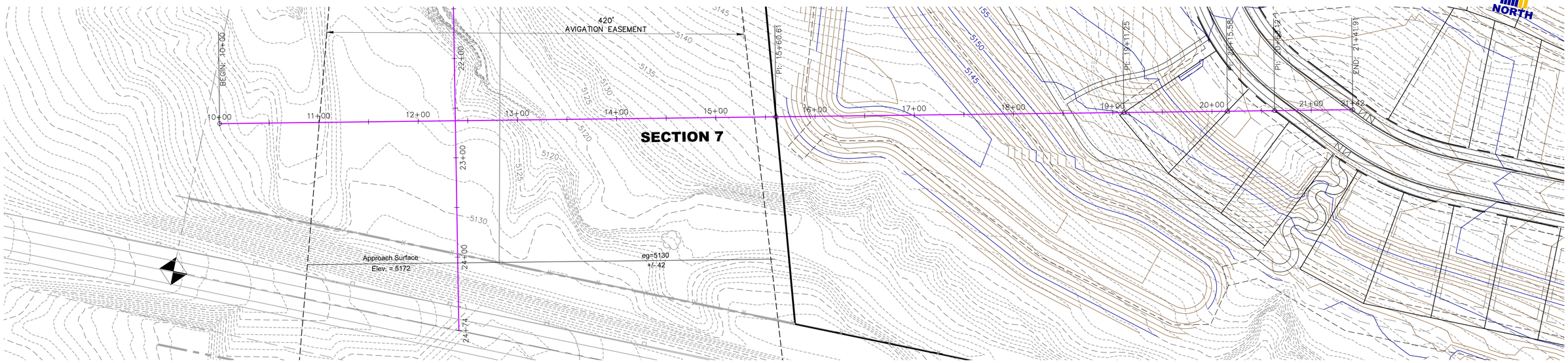
Drawing Name: X-Avigation Easement-XS.dwg	0 25 50 100 1 inch = 50 ft. Horizontal 1 inch = 50 ft Vertical		
Job Number: SIERRA VISTA			
Prepared For: OREAD	Designer: LMA	Drafter: LMA	Checked: TAJ

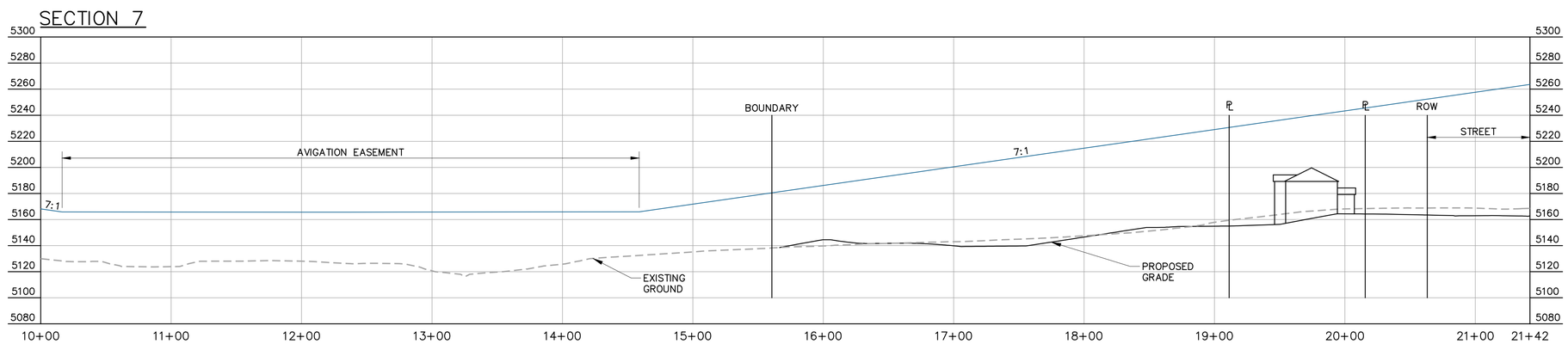
Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
AVIGATION EASEMENT
SECTIONS

Sheet **X4** 4 of 5

Date SEPTEMBER 14, 2015





LEGEND

VISUAL RUNWAY SURFACE

PATH: P:\OREAD SIERRA VISTA\CADD\EXHIBITS\X-AVIGATION EASEMENT-XS.DWG
PLOTTED BY: Lorraine Aiff PLOT DATE: 9/14/2015 9:31 AM
XREFS: 20EPN, 20PPN, 20BASE,

DATE	REVISION DESCRIPTION
6	
5	
4	
3	
2	
1	

Drawing Name: X-Avigation Easement-XS.dwg
Job Number: SIERRA VISTA
Prepared For: OREAD

0 25 50 100
1 inch = 50 ft. Horizontal
1 inch = 50 ft Vertical

Designer	Drafter	Checked
LMA	LMA	TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
AVIGATION EASEMENT
SECTIONS

Sheet X5 5 of 5
Date SEPTEMBER 14, 2015

SIERRA VISTA

PHASE II DRAINAGE REPORT

SEPTEMBER 2015

For:

Hig way and onan a, C
0 ast aster P ace, uite 110
ng ewood, CO 0112

ENGINEER'S STATEMENT:

I hereby certify that this Phase II Drainage Report for the design of Sierra Vista was prepared by me (or under my direct supervision) in accordance with the provisions of the *Town of Erie Standards and Specifications for Design and Construction* for the owners thereof. I understand that the Town of Erie does not and will not assume liability for drainage facilities designed by others, including the designs presented in this report.

_____

Todd A. Johnson, P.E. Date
State of Colorado No. 37660
For and on behalf of Calibre Engineering, Inc.

TABLE OF CONTENTS

SCOPE 1

I. INTRODUCTION 1

A. Location 1

B. Description of Property 1

II. DRAINAGE BASINS 1

A. Major Basin Description 1

B. Sub-Basin Description 2

III. DRAINAGE FACILITY DESIGN 2

A. General Concept 2

B. Drainage Design Criteria 2

C. Specific Details 3

D. Adaptions of Criteria 3

IV. SUMMARY 3

A. Compliance with Standards 3

B. Summary of Concept 3

V. LIST OF REFERENCES 5

APPENDICES

A. Maps and Exhibits

B. Hydrologic Computations

C. Hydraulic Computations

D. Pond Calculations

E. Copies of Graphs, Tables and References

SCOPE

This report discusses the historic and proposed design for the Sierra Vista drainage improvements. The intent of this report is to present the design details for the drainage facilities within the project site. This report includes hydrologic calculations, tables and graphs and exhibits showing drainage basins, routing, and proposed storm improvements.

I. INTRODUCTION

A. Location

1. The Sierra Vista site is north of State Highway No. 7 (E. Baseline Road) and west of County Road No. 3 (Bonanza Drive).
2. The site is located in the Southeast quarter of Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, Town of Erie, County of Weld, State of Colorado.
3. The Tri-County Airport Drainage Ditch runs west of the site into an existing storm drainage conveyance that eventually enters into Coal Creek. Coal Creek is approximately 3,500 feet west of the site.
4. The site is bound on the west and northwest by the Erie Municipal Airport, the south by State Highway No. 7, the east by County Road No. 3, and the north by rural residential homes.

B. Description of Property

1. Sierra Vista is approximately 60.5 acres in size. The southeast portion of the site is zoned for future commercial use. This area will provide its own detention at the time of development.
2. The site is currently undeveloped land with native grasses. According to the *Natural Resources Conservation Service Web Soil Survey* for Weld County, the site is primarily Hydrologic Soil Group D as Midway-Shingle complex, and some Group C soils as Ulm clay loam.
3. The site is split by a ridge running east to west with slopes ranging from approximately 7-12%.
4. The development will consist of single family and commercial uses.
5. There are no known delineated wetlands onsite.
6. An avigation easement for the Erie Municipal Airport abuts the western property line of the subject property.

II. DRAINAGE BASINS

A. Major Basin Description

1. A FEMA Flood Insurance Rate Map (FIRM) is in Appendix A, shown on Community Panel No 080181 0018E. No mapped 100 year flood plains are shown for the site.
2. The site is within the Coal Creek watershed and drains northwest to Coal Creek via the Tri-County Airport Drainage Ditch.
3. There are currently no detention facilities on the site.

4. There are no lakes or ponds which either influence or may be influenced by the local drainage. There are no dams under the State Engineer's Office jurisdiction on site.

B. Sub-Basin Description

1. Detention facilities will need to be constructed on the site to attenuate outflow from the site during the 100 year flood event.
2. Currently, the entire site drains to the Tri-County Airport Drainage Ditch.
3. The increase in storm runoff due to the proposed development will be detained in detention pond(s), and released per Town of Erie criteria. The proposed development will not increase historic runoff and therefore downstream properties should not be adversely affected by the development of the proposed site.

III. DRAINAGE FACILITY DESIGN

A. General Concept

1. The onsite drainage will be, in general, captured by proposed curb and gutter and storm sewer. The minor storm event will be conveyed by inlets and storm pipes. The major storm event will be conveyed by streets and result in a pressurized storm sewer system.
2. The proposed drainage patterns will follow existing drainage patterns as closely as possible. Runoff will generally flow from east to west, by the streets or the proposed storm sewer system.
3. All storm runoff will flow to the onsite detention and water quality facilities.

B. Drainage Design Criteria

1. Criteria used in the development of this Phase II Drainage Report include:
   - The *Town of Erie Standards and Specifications Storm Criteria*.
   - The Urban Drainage and Flood Control District's Urban Storm Drainage Criteria Manual was also used as a reference and guide for criteria.
2. Hydrologic criteria to be used in the development calculations include:
   - The Rational Method will be used for all hydrologic calculations.
   - The minor event is the 2-year storm with a one hour design rainfall depth of 1.01 inches per hour.
   - The major event is the 100-year storm with a one hour design rainfall depth of 2.70 inches per hour.
   - Runoff coefficients, C, were derived from Tables RO-3 and RO-5 of the USDCM and based on the density from a conceptual site plan.
3. Hydraulic Criteria to be used in the development calculations include:
   - Per *Town of Erie Standards and Specifications Storm Criteria*, Tables 800-7 and 800-8, allowable flow depths within the streets are:
     - Flow may not overtop the curb for the minor storm event.
     - Residential dwellings should be no less than 12 inches above the 100-year flood at the ground line or lowest water entry of the building. The depth of water over the gutter flow line will not exceed 18 inches for the major storm. For purposes

of this report, depth of water shall not exceed 12 inches over the gutter flow line for the major storm event.

- Urban Drainage Spreadsheets for inlet and detention pond design will be used to size inlets, calculate street capacity and design the detention facilities.
- Detention storage will be calculated using the UDFCD's full spectrum design analysis spreadsheet. The storage volume will be for the 100 year storm event including Water Quality Capture Volume.
- The maximum allowable release rate shall be 1 cfs per acre detained.
- The emergency overflow shall be designed to allow for 2 times the release rate of the detention pond.

C. Specific Details

1. The proposed development will be comprised of drainage basins that are divided by the existing ridge that runs east to west across the site.
   - Two proposed detention basins will be provided on the western portion of the site.
   - The northwestern detention basin (Pond 1) will provide detention for all drainage basins labeled with an "A" (ex. Basin A-2) as seen on the Developed Drainage Conditions Plan (DR-1) at the rear of this report. These areas consist of the majority of the northern portion of the proposed residential development along with some off-site area north of the subject property. The off-site flows will be handled via a swale on the northern edge of the property.
   - The southwestern basin (Pond 2) will provide detention for all drainage basins labeled with a "B" (ex. Basin B-5) as seen on the Developed Drainage Conditions Plan at the rear of this report. These areas consist of the majority of the southern portion of the proposed residential development, including the commercial area, and the western side of the Bonanza Drive improvements. Although basins B-8 and B-9 bypass Pond 2 via an existing swale on the north side of E. Baseline Road and directly into the Tri-County Airport Drainage Ditch, compensatory storage has been provided within Pond 2.
2. The proposed site improvements include constructed roadways that will become a part of the Town of Erie network. The storm drainage from this site will be detained in proposed detention pond(s) and be released in the major storm event at 1 cfs per acre detained.

D. Adaptions of Criteria

1. No deviation from criteria is requested for this drainage design at this time.

IV. SUMMARY

A. Compliance with Standards

1. This drainage report is in general compliance with the Town of Erie, *Standards and Specifications for Design and Construction of Public Improvements*.
2. The Urban Drainage and Flood Control District's *Urban Storm Drainage Criteria Manual* was also used as a reference and guide for criteria.

B. Summary of Concept

1. Onsite flow will be conveyed per Town criteria in storm systems designed for the minor storm event.

2. Onsite detention facilities will provide adequate on-site drainage, attenuation and control for stormwater.
3. The proposed development will not increase historic runoff and therefore downstream properties should not be adversely affected by the development of the proposed site.

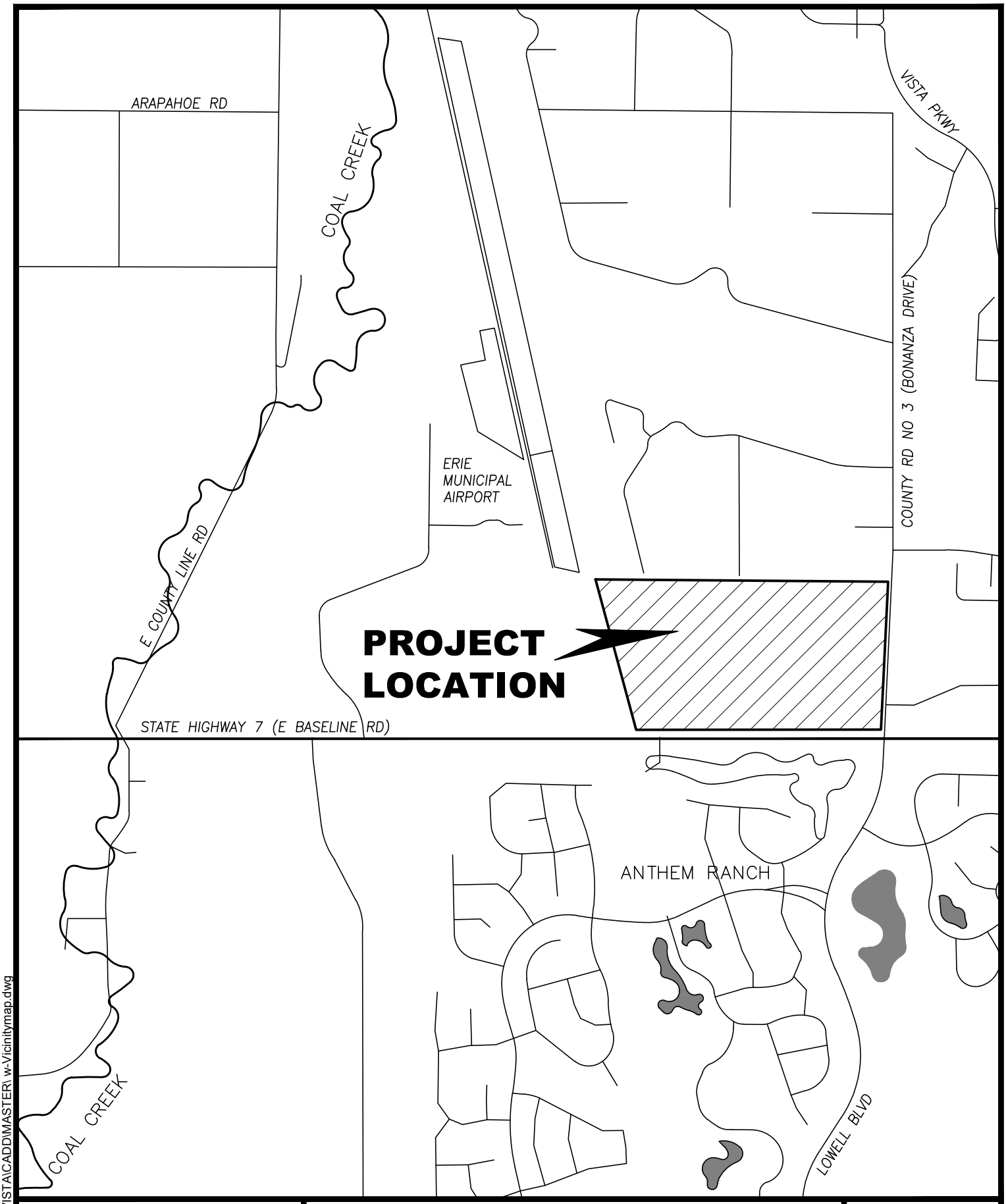
V. LIST OF REFERENCES

All criteria and technical information used

1. The Town of Erie, *Standards and Specifications for Design and Construction of Public Improvements, Section 800, Storm Drainage Facilities*, 2012 Edition.
2. *Urban Storm Drainage Criteria Manuals*, Urban Drainage Flood Control District, Jan 2007.
3. *Flood Insurance Rate Map*, Map Number 0801810018E, Effective Date December 2, 2004, Federal Emergency Management Agency.
4. Hydrologic Group Rating for Weld County, CO, USDA Natural Resources Conservation Service.

APPENDIX A

MAPS AND EXHIBITS



Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
VICINITY MAP
PHASE II DRAINAGE

SHEET
VM

SCALE: 1"=1000

DATE:
SEPTEMBER, 2015

P:\OREAD SIERRA VISTA\CADD\MASTER\w-Vicinitymap.dwg, 7/10/2015 3:37:39 PM, RLoftus, 1:1.00741
P:\OREAD SIERRA VISTA\CADD\MASTER\ w-Vicinitymap.dwg

National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0018E

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
ERIE,
COLORADO

BOULDER AND WELD COUNTIES

PANEL 18 OF 50

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ERIE, TOWN OF	080181	0018	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

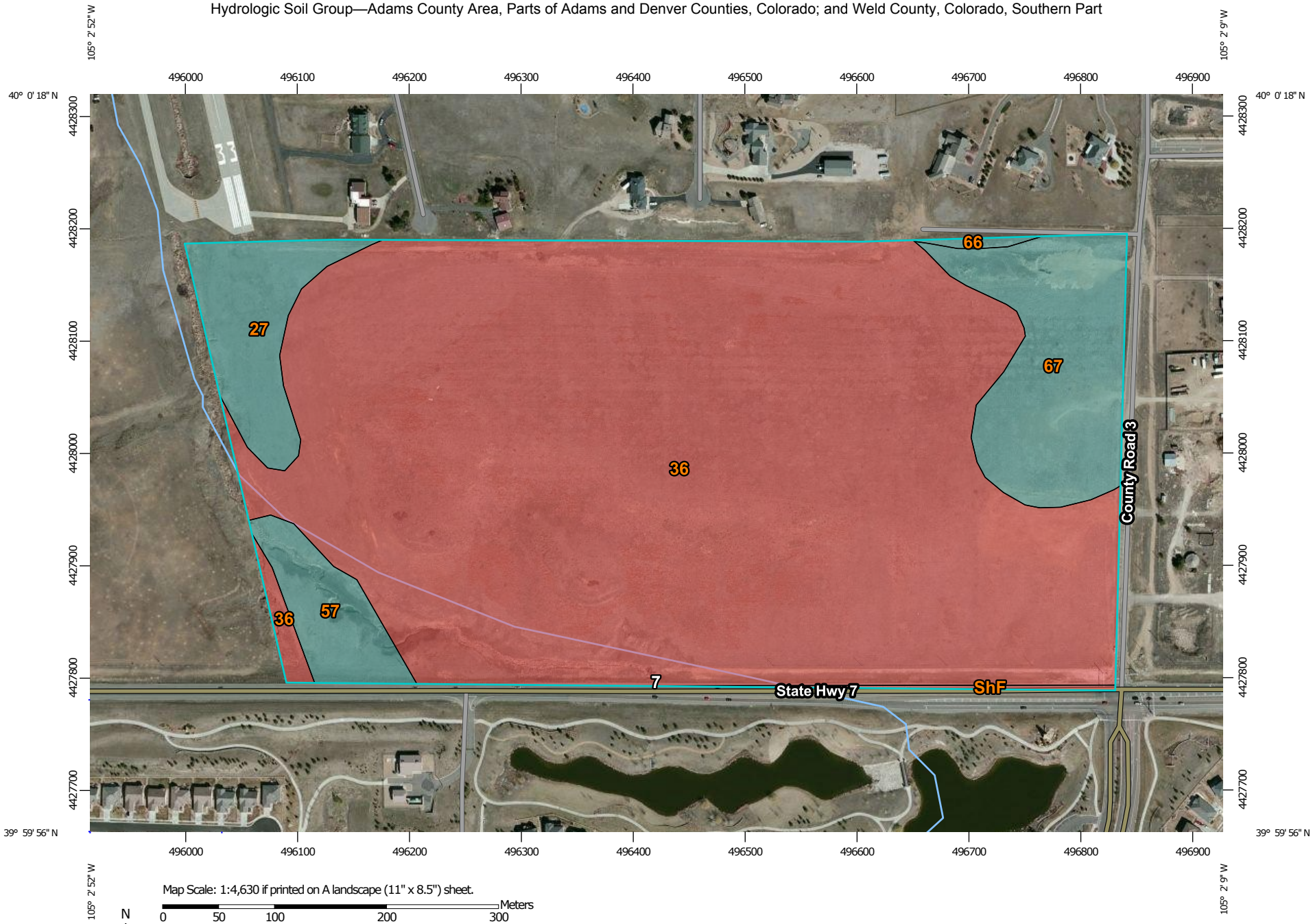
MAP NUMBER
0801810018E

MAP REVISED:
DECEMBER 2, 2004

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Hydrologic Soil Group—Adams County Area, Parts of Adams and Denver Counties, Colorado; and Weld County, Colorado, Southern Part



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Adams County Area, Parts of Adams and Denver Counties, Colorado
Survey Area Data: Version 10, Dec 24, 2013

Soil Survey Area: Weld County, Colorado, Southern Part
Survey Area Data: Version 12, Jan 3, 2014

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 22, 2011—Apr 13, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Adams County Area, Parts of Adams and Denver Counties, Colorado (CO001)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
ShF	Samsil-Shingle complex, 3 to 35 percent slopes	D	0.3	0.3%
Subtotals for Soil Survey Area			**0.3**	**0.3%**
Totals for Area of Interest			**78.1**	**100.0%**

Hydrologic Soil Group— Summary by Map Unit — Weld County, Colorado, Southern Part (CO618)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
27	Heldt silty clay, 1 to 3 percent slopes	C	3.8	4.9%
36	Midway-Shingle complex, 5 to 20 percent slopes	D	64.1	82.2%
57	Renohill clay loam, 3 to 9 percent slopes	C	2.6	3.3%
66	Ulm clay loam, 0 to 3 percent slopes	C	0.2	0.2%
67	Ulm clay loam, 3 to 5 percent slopes	C	7.1	9.1%
Subtotals for Soil Survey Area			**77.8**	**99.7%**
Totals for Area of Interest			**78.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

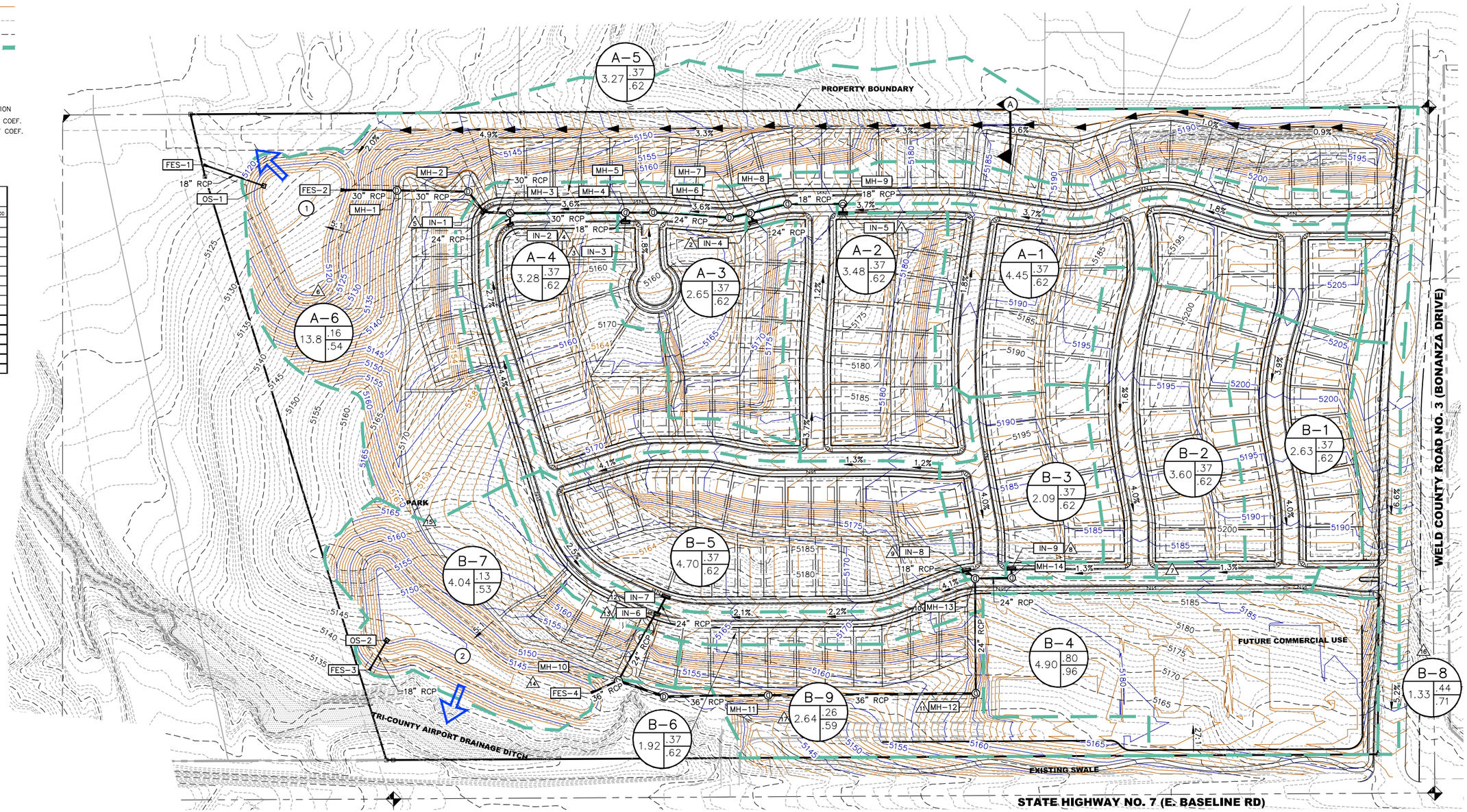
*SEE APPENDIX C FOR SWALE A PROFILE

LEGEND

- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN INLET
- PROPERTY LINE
- FLOW ARROW
- PROPOSED MAJOR CONTOUR (5') — 5250
- PROPOSED MINOR CONTOUR (1')
- EXISTING MINOR CONTOUR (2')
- EXISTING MAJOR CONTOUR (10') — 5250
- PROPOSED BASIN LINE
- DESIGN POINT (26)
- PROPOSED POND NUMBER (2)
- PROPOSED BASIN LABEL
  - C-6 — BASIN DESIGNATION
  - AREA (AC.) 1.00 — .40 MINOR RUNOFF COEF. — .60 MAJOR RUNOFF COEF.
- EMERGENCY OVERFLOW ARROW

SUMMARY RUNOFF TABLE

DESIGN PT.	TOTAL AREA (ACRES)	TOTAL Q_5 (CFS)	TOTAL Q_{100} (CFS)
1	4.45	3.8	16.9
2	3.48	3.2	17.7
3	2.65	2.6	16.1
4	3.28	3.0	17.4
5	17.13	15.3	68.4
6	13.76	4.3	38.4
7	2.63	2.3	10.1
8	6.23	5.3	23.5
9	2.09	1.9	16.6
11	4.90	19.7	68.0
12	4.70	4.5	24.1
13	6.62	6.0	31.0
15	4.04	1.3	15.1
16	1.33	1.1	5.0
17	3.34	2.2	13.9



PATH: P:\OREAD SIERRA VISTA\CADD\MASTERW\-PR DRAINAGEMAP PHASEII.DWG
PLOTTED BY: Megan Sawyer PLOT DATE: 9/11/2015 10:55 AM
XREFS: 20PPN, 20PUT, 20BASE,

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: w-PR DrainageMap PhaseII.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 □ BONAN□A LLC
0 50 100 200
1 inch = 100 ft. Horizontal

Designer	Drafter	Checked
RJL	RJL	TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PHASE II DRAINAGE REPORT
DEVELOPED DRAINAGE CONDITIONS PLAN

Sheet DR 1 of 1
Date SEPTEMBER 14, 2015

APPENDIX B

HYDROLOGIC COMPUTATIONS

Calibre

COMPOSITE 'C' FACTORS

LOCATION: OREAD - SIERRA VISTA | CITY OF: TOWN OF ERIE | DATE : 9/11/2015

BASIN	AREAS (ACRES)							SOIL	UNDEV			PAVED			LAWNS			SINGLE FAMILY			COMM			PARK			COMP. C FACTOR		
DESIGNATION	UNDEV	PAVED	LAWNS	SINGLE FAMILY	COMM	PARK	TOTAL	TYPE	%I	2YR	100 YR	%I	2YR	100 YR	%I	2YR	100 YR	%I	2YR	100 YR	%I	2YR	100 YR	%I	2YR	100 YR	%I	2YR	100 YR
DEVELOPED																													
A-1	0.00	0.00	0.00	4.45	0.00	0.00	4.45	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
A-2	0.00	0.00	0.00	3.48	0.00	0.00	3.48	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
A-3	0.00	0.00	0.00	2.65	0.00	0.00	2.65	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
A-4	0.00	0.00	0.00	3.28	0.00	0.00	3.28	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
A-5	0.00	0.00	0.00	3.27	0.00	0.00	3.27	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
A-6	2.22	0.22	6.98	4.21	0.00	0.13	13.76	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	18.79	0.16	0.54
TOTAL A	2.22	0.22	6.98	21.34	0.00	0.13	30.89	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	38.87	0.28	0.59
B-1	0.00	0.00	0.00	2.63	0.00	0.00	2.63	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
B-2	0.00	0.00	0.00	3.60	0.00	0.00	3.60	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
B-3	0.00	0.00	0.00	2.09	0.00	0.00	2.09	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
B-4	0.00	0.00	0.00	0.00	4.90	0.00	4.90	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	95.00	0.80	0.96
B-5	0.00	0.00	0.00	4.70	0.00	0.00	4.70	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
B-6	0.00	0.00	0.00	1.92	0.00	0.00	1.92	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	55.00	0.37	0.62
B-7	0.00	0.00	1.92	0.85	0.00	1.27	4.04	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	13.15	0.13	0.53
B-8	0.00	0.61	0.72	0.00	0.00	0.00	1.33	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	45.86	0.44	0.71
B-9	0.00	0.41	1.86	1.07	0.00	0.00	3.34	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	29.90	0.26	0.59
TOTAL B	0.00	1.02	4.50	19.24	4.90	1.27	28.55	C/D	2	0.05	0.50	100	0.89	0.96	0	0.05	0.50	55	0.37	0.62	95	0.80	0.96	5	0.08	0.52	57.17	0.43	0.72

Calibre

TIME OF CONCENTRATION

LOCATION: OREAD - SIERRA VISTA PHASE II BY: RJL DATE: 9/11/2015

BASIN DATA			INIT./OVERLAND TIME (Ti)			TRAVEL TIME (Tt)										TOTAL	Tc Check		FINAL Tc
DESIGNATION	C5	AREA (AC)	LENGTH (FT)	SLOPE %	Ti (Min.)*	GRASS/ PAVED	LENGTH (FT)	SLOPE %	VEL. (FPS)**	Tt(Min.)	GRASS/ PAVED	LENGTH (FT)	SLOPE %	VEL. (FPS)**	Tt(Min.)	Ti+Tt(Min.)	LENGTH (FT)	Urbanized Basins Tc = (L/180) + 10	(minutes)
DEVELOPED																			
A-1	0.43	4.45	230	2.2	14.3	PAVED	660	3.4	3.7	3.0						17.3	890.00	14.9	15
A-2	0.43	3.48	220	5.9	10.1	PAVED	520	5.2	4.6	1.9						12.0	740.00	14.1	12
A-3	0.43	2.65	240	6.7	10.1	PAVED	220	1.8	2.7	1.4						11.5	460.00	12.6	11
A-4	0.43	3.28	50	1.0	8.7	PAVED	810	3.3	3.6	3.7						12.4	860.00	14.8	12
A-5	0.43	3.27	50	1.0	8.7	PAVED	1650	3.1	3.5	7.8						16.5	1700.00	19.4	16
A-6	0.25	13.76	110	5.5	9.3	GRASS	2040	3.5	2.8	12.1						21.4	2150.00	21.9	21
B-1	0.43	2.63	120	1.3	12.3	PAVED	730	2.7	3.3	3.7						16.0	850.00	14.7	15
B-2	0.43	3.60	180	3.1	11.3	PAVED	770	2.2	3.0	4.3						15.6	950.00	15.3	15
B-3	0.43	2.09	200	1.4	15.5	PAVED	370	3.3	3.6	1.7						17.2	570.00	13.2	13
B-4	0.90	4.90	100	2.4	2.7	PAVED	680	2.4	3.1	3.7						6.4	780.00	14.3	6
B-5	0.43	4.70	220	7.1	9.5	PAVED	380	2.0	2.8	2.2						11.7	600.00	13.3	12
B-6	0.43	1.92	100	1.0	12.3	PAVED	1150	2.0	2.8	6.8						19.1	1250.00	16.9	17
B-7	0.22	4.04	110	4.5	10.3	GRASS	160	5.6	3.5	0.8						11.0	270.00	11.5	11
B-8	0.49	1.33	50	2.0	6.2	PAVED	800	4.8	4.4	3.0	GRASS	1250	1.60	1.9	11.0	20.3	2100.00	21.7	20
B-9	0.33	3.34	140	13.5	7.0	GRASS	400	1.2	1.6	4.1						11.1	540.00	13.0	11

REMARKS

FORMULAS:

* Ti = 0.395 (1.1-C5)L^0.5/S^1/3

** V=Cv(Sw^1/2)
where Cv=15 for grassed waterways and 20 for paved areas

Calibre

STORM DRAINAGE SYSTEM DESIGN

(RATIONAL METHOD PROCEDURE)

DESIGN STORM: 2-YEAR DEVELOPED

Calc. by: RJL
Chk'd by: TAJ
Date: 9/11/2015

LOCATION: OREAD - SIERRA VISTA PHASE II TOWN OF ERIE

		DIRECT RUNOFF							TOTAL RUNOFF								n	DITCH					PIPE				TRAVEL TIME			REMARKS
STRUCTURE	DESIGN POINT	BASIN	AREA (AC)	COEFF. (C)	Tc (Min.)	C*A	I (in./ hr.)	Q (cfs)	SUM AREA	SUM Tc (min.)	I (in./hr.)	SUM CA	TOTAL Q (cfs)	FLOW IN PIPE	FLOW IN STREET	DITCH OR PIPE	ROUGHNESS	SLOPE %	FLOW (CFS)	FRONT SLOPE	BOTTOM WIDTH	BACK SLOPE	FLOW (CFS)	SLOPE %	PRELIM. SIZE	PIPE SIZE	LENGTH (FT)	VEL. (FPS)	TRAVEL TIME Tt	
		DEVELOPED																												
IN-5	1	A-1	4.45	0.37	15	1.65	2.30	3.8					3.8	3.8	0.0	P	0.013						3.8	3.70%	10.69	18	198	8.6	0.4	
IN-4	2	A-2	3.48	0.37	12	1.29	2.54	3.3					3.2	3.2	0.0	P	0.013						3.2	3.00%	10.43	18	17	7.6	0.0	
MH-7								7.0	7.93	14.9	6.14	2.93	7.0	7.0	0.0	P	0.013						7.0	3.70%	13.44	24	242	10.0	0.4	A-1 & A-2
IN-3	3	A-3	2.65	0.37	11	0.98	2.59	2.5					2.6	2.6	0.0	P	0.013						2.6	3.00%	9.65	18	17	7.3	0.0	
MH-4								9.6	10.58	14.9	6.14	3.91	9.6	9.6	0.0	P	0.013						9.6	3.60%	15.21	30	223	10.7	0.3	A-1, A-2, & A-3
IN-2	4	A-4	3.28	0.37	12	1.21	2.50	3.0					3.0	3.0	0.0	P	0.013						3.0	3.70%	9.78	24	17	7.9	0.0	
MH-3								12.6	13.86	14.9	6.14	5.13	12.6	12.6	0.0	P	0.013						12.6	3.50%	16.93	30	49	11.3	0.1	A-1, A-2, A-3 & A-4
IN-1	5	A-5	3.27	0.37	16	1.21	2.19	2.7	17.13	16.5	5.86	6.34	15.3	15.3	0.0	P	0.013						15.3	5.00%	17.04	30	303	13.8	0.4	A-1 THROUGH A-5
OVER	6	A-6	13.76	0.16	21	2.22	1.92	4.3					4.3			D	0.030	3.50%	4.3	4	2	4					313	1.0	5.2	Swale
-	7	B-1	2.63	0.37	15	0.97	2.31	2.3					2.3																	
IN-9	8	B-2	3.60	0.37	15	1.33	2.27	3.0	6.23	15.3	6.08	2.31	5.3	5.3	0.0	P	0.013						5.3	2.00%	13.59	24	86	7.5	0.2	B-1 & B-2
IN-8	9	B-3	2.09	0.37	13	0.77	2.43	1.9					1.9	1.9	0.0	P	0.013						1.9	2.50%	8.87	18	18	6.2	0.0	
MH-13	10												7.1	7.1	0.0	P	0.013						7.1	4.00%	13.32	24	222	10.4	0.4	B-1, B-2 & B-3
MH-12	11	B-4	4.90	0.80	6	3.92	3.19	12.5					19.7	19.7	0.0	P	0.013						19.7	2.00%	22.24	36	685	10.5	1.1	B-1, B-2, B-3 & B-4
IN-7	12	B-5	4.70	0.37	12	1.74	2.56	4.5					4.5	4.5	0.0	P	0.013						4.5	2.00%	12.78	24	36	7.1	0.1	B-5 & IN-8 OVERFLOW
IN-6	13	B-6	1.92	0.37	17	0.71	2.16	1.5	6.62	16.9	5.78	2.45	6.0	6.0	0.0	P	0.013						6.0	4.00%	12.53	24	171	10.0	0.3	B-5 & B-6
MH-10	14												25.7	25.7	0.0	P	0.013						25.7	4.00%	21.58	36	80	14.5	0.1	B-5, B-6, & MH 12
OVER	15	B-7	4.04	0.13	11	0.51	2.63	1.3																						
BYPASS	16	B-8	1.33	0.44	20	0.58	1.97	1.1																						
BYPASS	17	B-9	3.34	0.26	11	0.85	2.62	2.2																						

Calibre

STORM DRAINAGE SYSTEM DESIGN

(RATIONAL METHOD PROCEDURE)

DESIGN STORM: 100-YEAR DEVELOPED

Calc. by: RJL
Chk'd by: TAJ
Date: 9/11/2015

LOCATION: OREAD - SIERRA VISTA PHASE II TOWN OF ERIE

		DIRECT RUNOFF							TOTAL RUNOFF								n	DITCH					PIPE				TRAVEL TIME			REMARKS
STRUCTURE	DESIGN POINT	BASIN	AREA (AC)	COEFF. (C)	Tc (Min.)	C*A	I (in./ hr.)	Q (cfs)	SUM AREA	SUM Tc (min.)	I (in./hr.)	SUM CA	Total Q (cfs)	FLOW IN PIPE	FLOW IN STREET	DITCH OR PIPE	ROUGHNESS	SLOPE %	FLOW (CFS)	FRONT SLOPE	BOTTOM WIDTH	BACK SLOPE	FLOW (CFS)	SLOPE %	PRELIM. SIZE	PIPE SIZE	LENGTH (FT)	VEL. (FPS)	TRAVEL TIME Tt	
		DEVELOPED																												
IN-5	1	A-1	4.45	0.62	15	2.76	6.14	16.9					16.9	13.8	3.1	P	0.013						13.8	3.70%	17.34	18	198	12.3	0.3	
IN-4	2	A-2	3.48	0.62	12	2.16	6.78	14.6					17.8	13.0	4.7	P	0.013						13.0	3.00%	17.64	18	17	11.2	0.0	
MH-7								31.6	7.93	14.9	6.14	4.92	31.6	26.8	4.7	P	0.013						26.8	3.70%	22.24	24	242	14.5	0.3	A-1 & A-2
IN-3	3	A-3	2.65	0.62	11	1.64	6.91	11.4					16.1	12.3	3.8	P	0.013						12.3	3.00%	17.27	18	17	11.0	0.0	
MH-4								42.9	10.58	14.9	6.14	6.56	42.9	39.1	3.8	P	0.013						39.1	3.60%	25.76	30	223	15.8	0.2	A-1, A-2, & A-3
IN-2	4	A-4	3.28	0.62	12	2.03	6.68	13.6					17.4	17.4	0.0	P	0.013						17.4	3.70%	18.92	24	17	13.0	0.0	
MH-3								56.5	13.86	14.9	6.14	8.59	56.5	56.5	0.0	P	0.013						56.5	3.50%	29.73	30	49	17.1	0.0	A-1, A-2, A-3 & A-4
IN-1	5	A-5	3.27	0.62	16	2.03	5.86	11.9	17.13	16.5	5.86	10.62	68.4	68.4	0.0	P	0.013						68.4	5.00%	29.87	30	303	20.4	0.2	A-1 THROUGH A-5
OVER	6	A-6	13.76	0.54	21	7.49	5.12	38.4					38.4			D	0.030	3.50%	38.4	4.0	2.0	4.0					2000	1.0	33.3	SWALE
-	7	B-1	2.63	0.62	15	1.63	6.18	10.1					10.1																	
IN-9	8	B-2	3.60	0.62	15	2.23	6.08	13.6	6.23	15.3	6.08	3.86	23.5	15.3	8.2	P	0.013						15.3	2.00%	20.23	24	86	10.1	0.1	B-1 & B-2
IN-8	9	B-3	2.09	0.62	13	1.30	6.51	8.4					16.6	12.5	4.1	P	0.013						12.5	2.50%	17.98	18	18	10.3	0.0	
MH-13	10							32.1					32.1	27.8	0.0	P	0.013						27.8	4.00%	22.22	24	222	15.1	0.2	B-1, B-2 & B-3
MH-12	11	B-4	4.90	0.96	6	4.70	8.54	40.2					72.2	68.0	0.0	P	0.013						68.0	2.00%	35.39	36	685	14.5	0.8	B-1, B-2, B-3 & B-4
IN-7	12	B-5	4.70	0.62	12	2.91	6.85	20.0					24.1	24.1	0.0	P	0.013						24.1	2.00%	23.99	24	36	11.2	0.1	B-5 & IN-8 OVERFLOW
IN-6	13	B-6	1.92	0.62	17	1.19	5.78	6.9	6.62	16.9	5.78	4.10	23.7	31.0	0.0	P	0.013						31.0	4.00%	23.14	24	171	15.5	0.2	B-5 & B-6
MH-10	14							99.0					99.0	99.0	0.0	P	0.013						99.0	4.00%	35.78	36	80	20.6	0.1	B-5, B-6, & MH 12
OVER	15	B-7	4.04	0.53	11	2.15	7.02	15.1																						
BYPASS	16	B-8	1.33	0.71	20	0.95	5.28	5.0																						
BYPASS	17	B-9	3.34	0.59	11	1.99	7.02	13.9																						

APPENDIX C

HYDRAULIC CALCULATIONS

STORM DRAINAGE SYSTEM DESIGN

INLET DESIGN INFORMATION

Calc. by: RJL
Chk'd by: TAJ
Date: 9/11/2015

LOCATION: OREAD - SIERRA VISTA CITY OF: TOWN OF ERIE

					MINOR STORM EVENT (2YR)				MAJOR STORM EVENT (100YR)								
Design Point	Basin	Allowable Street Capacities Slope (%)	Q_2 (CFS)	Q_{100} (CFS)	Q_2 (cfs)	Q_2 + CO (cfs)	Captured Q_2 (cfs)	Q_2 Flow CO (cfs)	Q_{100} (cfs)	Q_{100} + CO (cfs)	Captured Q_{100} (cfs)	Q_{100} Flow CO (cfs)	Structure Label	Inlet Size (ft)	Inlet Type	Design Event	Comments
1	A-1	3.70	6.4	25.7	3.8	3.8	3.8	-	16.9	16.9	13.8	3.1	IN-5	15'	Type R		
2	A-2	3.60	6.3	25.9	3.3	3.3	3.3	-	14.6	17.7	13.0	4.7	IN-4	15'	Type R		
3	A-3	3.60	6.3	25.9	2.5	2.5	2.5	-	11.4	16.1	12.3	3.8	IN-3	15'	Type R		
4	A-4	SUMP			3.0	3.0	3.0	-	13.6	17.4	17.4	-	IN-2	10'	Type R		
5	A-5	SUMP			2.7	2.7	2.7	-	11.9	11.9	11.9	-	IN-1	10'	Type R		
6	A-6	OVER			4.3			-	38.4				OVER				OVERLAND TO POND 1
7	B-1	1.30	12.4	25.7	2.3	2.3	0.0	2.3	10.1	10.1	0.0	10.1	-				
8	B-2	1.30	12.4	25.7	3.0	5.3	5.3	-	13.6	23.7	15.2	8.5	IN-9	15'	Type R		
9	B-3	3.40	6.1	26.4	1.9	1.9	1.9	-	8.4	16.9	12.5	4.4	IN-8	15'	Type R		
11	B-4				12.5	4.5	4.5	-	40.2	40.2	40.2	-	MH-12				COMMERCIAL TIE IN
12	B-5	SUMP			4.5	4.5	4.5	-	20.0	24.3	24.3	-	IN-7	15'	Type R		
13	B-6	SUMP			1.5	1.5	1.5	-	6.9	6.9	6.9	-	IN-8	10"	Type R		
15	B-7	OVER			1.3				15.1			-	OVER				OVERLAND TO POND 2
16	B-8	OVER			1.1			-	5.0			-	BYPASS				DIRECT FLOW TO DITCH*
17	B-9	OVER			2.2			-	13.9			-	BYPASS				DIRECT FLOW TO DITCH*

Notes:

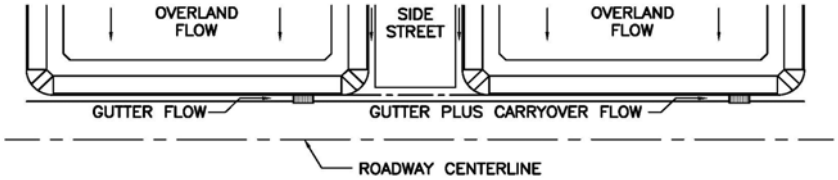
1. Allowable flow depth based on curb height for the minor event and 12" above curb height for major event.
2. Street capacities were calculated with UDFCDs UD-Inlet.
3. Street capacities are shown upstream of design points where warping begins at intersections.

* Although flow directly enters the Tri-County drainage ditch, the ponds have been sized to handle the compensatory storage

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: **ierra ista**
In et ID: **A 1 I**



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street OR grass-lined channel):

	Minor Storm	Major Storm	
nown		1	cfs

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

<---
FILL IN THIS SECTION OR...
FILL IN THE SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

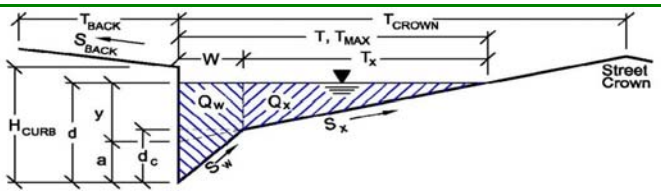
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$			**cfs**
Tota Design Pea F ow,		1	**cfs**

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **ierra ista**

In et ID: **A 1 I**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.018	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.037	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	10.3	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	7.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

I OR TOR A owab e Capacity is based on pread Criterion

A OR TOR A owab e Capacity is based on Dept Criterion

		Minor Storm	Major Storm	
	a ow	4	2	cfs

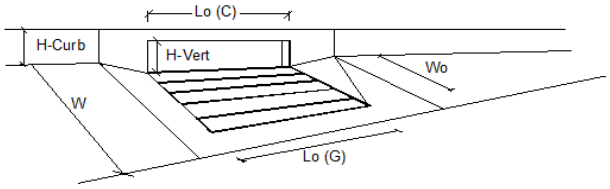
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **ierra ista**

In et ID: **A 1 I**



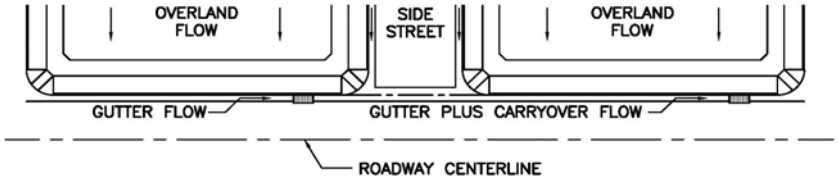
Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	5.0	5.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		**0**	**1 2**	**cfs**
Tota In et Carry O er F ow f ow bypassing in et	b	**0 0**	**1**	**cfs**
Capture Percentage a/ o	**C**	**100**	**2**	

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: ierra ista
In et ID: A 2 I 4



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street OR grass-lined channel):

	Minor Storm	Major Storm	
nown		14	cfs

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

<---
FILL IN THIS SECTION OR...
FILL IN THE SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

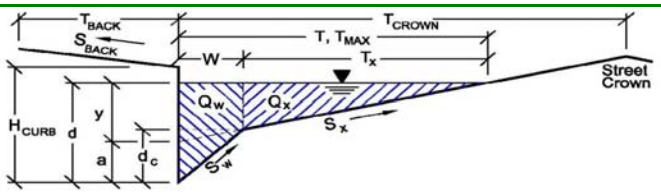
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$	0 0	1	cfs
Tota Design Pea F ow,		1	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **ierra ista**

In et ID: **A 2 I 4**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.018	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.036	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	10.3	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	7.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

I OR TOR A owab e Capacity is based on pread Criterion

A OR TOR A owab e Capacity is based on Dept Criterion

		Minor Storm	Major Storm	
	a ow		2	cfs

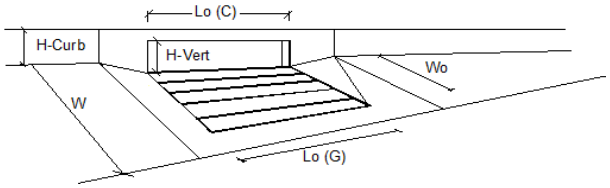
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **ierra ista**

In et ID: **A 2 I 4**



	Design Infor ation Input		MINOR	MAJOR	
	Type of Inlet	Type =	CDOT Type R Curb Opening		
arning 1	Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
	Total Number of Units in the Inlet (Grate or Curb Opening)	No =	3	3	
	Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
	Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
	Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
	Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

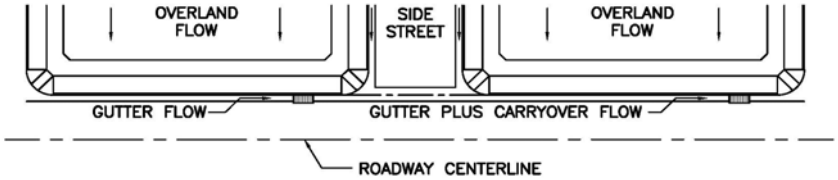
treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		**0**	**12**	**cfs**
Tota In et Carry O er F ow f ow bypassing in et	b	**0 0**	**4**	**cfs**
Capture Percentage a/ o	**C**	**100**		

arning 1: Di ension entered is not a typica di ension for in et type specified

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: **ierra ista**
In et ID: **A I**



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 street OR grass-lined channel):

	Minor Storm	Major Storm	
nown	2	11 4	cfs

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

<---
FILL IN THIS SECTION OR...
FILL IN THE SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

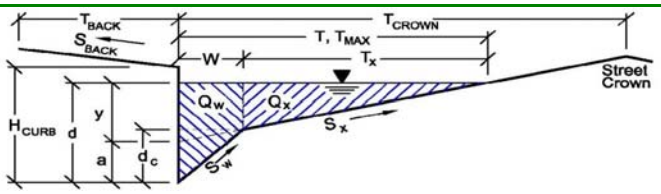
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$	0 0	4	cfs
Tota Design Pea F ow,	2	1 1	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **ierra ista**

In et ID: **A I**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.018	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.036	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	10.3	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	7.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

I OR TOR A owab e Capacity is based on pread Criterion

A OR TOR A owab e Capacity is based on Dept Criterion

	Minor Storm	Major Storm	
a ow		2	cfs

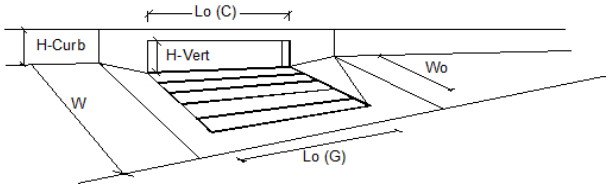
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **ierra ista**

In et ID: **A I**



	Design Infor ation Input		MINOR	MAJOR	
	Type of Inlet	Type =	CDOT Type R Curb Opening		
arning 1	Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
	Total Number of Units in the Inlet (Grate or Curb Opening)	No =	3	3	
	Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
	Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
	Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
	Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

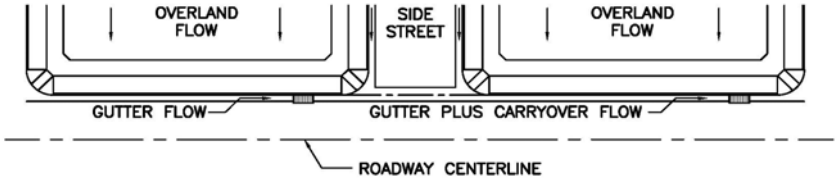
treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		**2 0**	**12 4**	**cfs**
Tota In et Carry O er F ow f ow bypassing in et	b	**0 0**		**cfs**
Capture Percentage a/ o	**C**	**100**		

arning 1: Di ension entered is not a typica di ension for in et type specified

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: **ierra ista**
In et ID: **A 4 I 2**



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street OR grass-lined channel):

	Minor Storm	Major Storm	
nown	0	1	cfs

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

<---
FILL IN THIS SECTION OR...
FILL IN THE SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

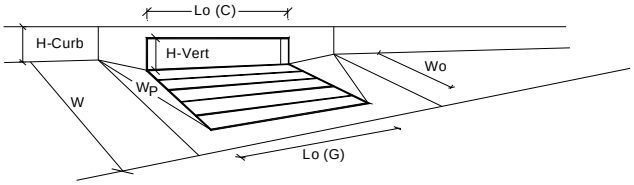
Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$	0 0		cfs
Tota Design Pea F ow,	0	1 4	cfs

I TI A P OR A OCATIO

Pro ect **ierra ista**

In et ID **A 4 I 2**

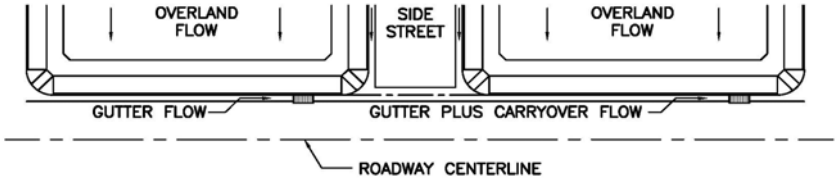


Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	5.00	5.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.0	7.0	inches
				☑ Override Depths
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	a	**4 1**	**21**	**cfs**
In et Capacity I OOD for inor and a or tor s P A	$Q_{PEAK\ REQUIRED}$ =	3.0	17.4	cfs

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: **ierra ista**
In et ID: **A I 1**



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street OR grass-lined channel):

	Minor Storm	Major Storm	
nown	2	11	cfs

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

<---
FILL IN THIS SECTION OR...
FILL IN THE SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

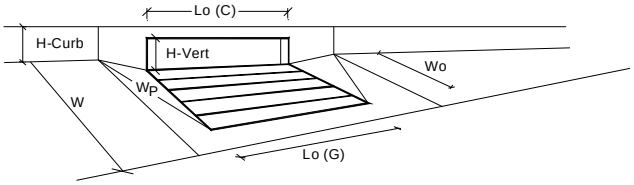
Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$	0 0	0 0	cfs
Tota Design Pea F ow,	2	11	cfs

I TI A P OR A OCATIO

Pro ect **ierra ista**

In et ID **A I 1**

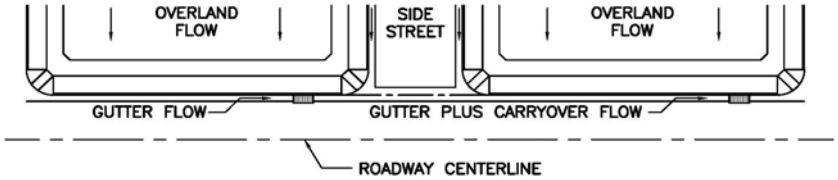


Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	5.00	5.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.0	7.0	inches
				☑ Override Depths
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	a	**4 1**	**21**	**cfs**
In et Capacity I OOD for inor and a or tor s P A	$Q_{PEAK\ REQUIRED}$ =	2.7	11.9	cfs

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: **ierra ista**
In et ID: **1 2 I**



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street OR grass-lined channel):

	Minor Storm	Major Storm	
nown	2	2	cfs

<---
FILL IN THIS SECTION OR...

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

eograp ic Infor ation: (Enter data in the blue cells):

FILL IN THE SECTIONS BELOW.
<---

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

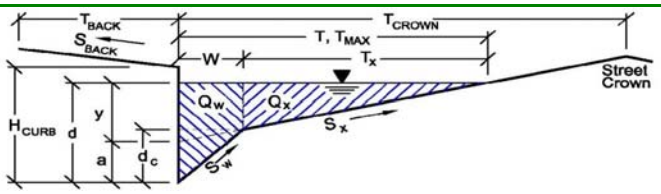
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$		0 0	cfs
Tota Design Pea F ow,	2	2	cfs

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **ierra ista**

In et ID: **2**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.018	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.013	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	7.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

I OR TOR A owab e Capacity is based on pread Criterion

		Minor Storm	Major Storm	
A OR TOR A owab e Capacity is based on Dept Criterion	a ow	**12 4**	**2**	**cfs**

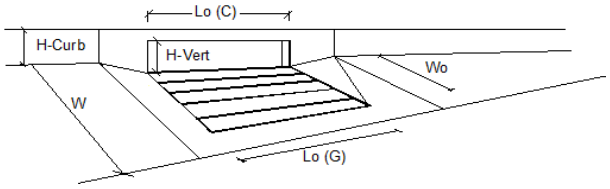
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: **ierra ista**

In et ID: **1 2 I**



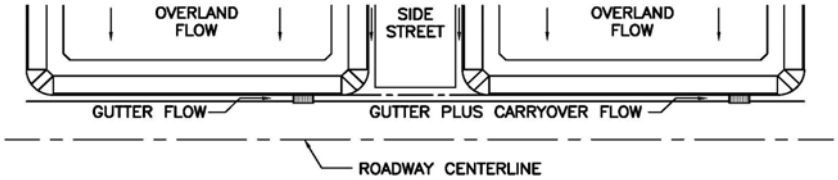
Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	3	3	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		**20**	**1 2**	**cfs**
Tota In et Carry O er F ow f ow bypassing in et	b	**0 0**	**4**	**cfs**
Capture Percentage a/ o	**C**	**100**	**4**	

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: ierra ista
In et ID: I



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street OR grass-lined channel):

	Minor Storm	Major Storm	
nown	1	4	cfs

<---
FILL IN THIS SECTION OR...

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

eograp ic Infor ation: (Enter data in the blue cells):

FILL IN THE SECTIONS BELOW.
<---

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

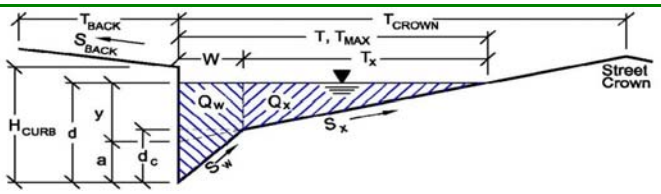
	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$		4	**cfs**
Tota Design Pea F ow,	1	1	**cfs**

A O A CAPACIT FOR O HA F OF TR T inor a or tor

ased on Regu ated Criteria for a i u A owab e F ow Dept and pread

Pro ect: **ierra ista**

In et ID: **I**



utter eo etry nter data in t e b ue ce s

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.018	
Height of Curb at Gutter Flow Line	H_{CURB} =	4.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.034	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	10.3	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	4.0	7.0	inches
Allow Flow Depth at Street Crown (leave blank for no)		☐	☑	check = yes

I OR TOR A owab e Capacity is based on pread Criterion

A OR TOR A owab e Capacity is based on Dept Criterion

		Minor Storm	Major Storm	
	a ow	1	2 4	cfs

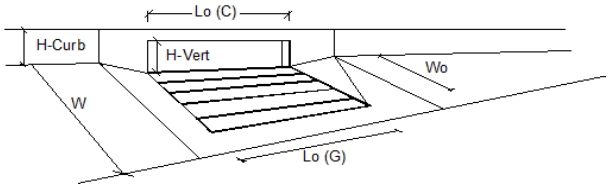
inor stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

a or stor a a owab e capacity OOD greater t an f ow gi en on s eet Pea

I TO ACO TI O RAD

Pro ect: ierra ista

In et ID: I



	Design Infor ation Input		MINOR	MAJOR	
	Type of Inlet	Type =	CDOT Type R Curb Opening		
arning 1	Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{LOCAL} =	3.0	3.0	inches
	Total Number of Units in the Inlet (Grate or Curb Opening)	No =	3	3	
	Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	5.00	5.00	ft
	Width of a Unit Grate (cannot be greater than W from Q-Allow)	W_o =	N/A	N/A	ft
	Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f-G =	N/A	N/A	
	Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f-C =	0.10	0.10	

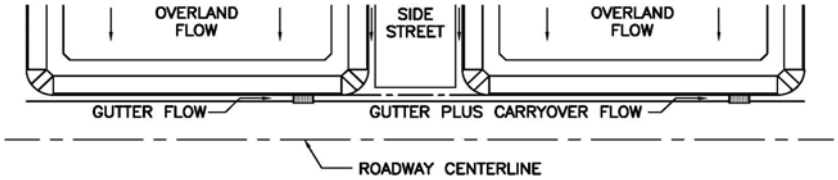
treet Hydrau ics: O a i u a owab e fro s eet A ow		MINOR	MAJOR	
Tota In et Interception Capacity		**1 0**	**12 2**	**cfs**
Tota In et Carry O er F ow f ow bypassing in et	b	**0 0**	**4**	**cfs**
Capture Percentage a/ o	**C**	**100**		

arning 1: Di ension entered is not a typica di ension for in et type specified

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: **ierra ista**
In et ID: **I**



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 of street OR grass-lined channel):

	Minor Storm	Major Storm	
nown	4	20 0	cfs

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

<---
FILL IN THIS SECTION OR...
FILL IN THE SECTIONS BELOW.
<---

eograp ic Infor ation: (Enter data in the blue cells):

Subcatchment Area = Acres
Percent Imperviousness = %
NRCS Soil Type = A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

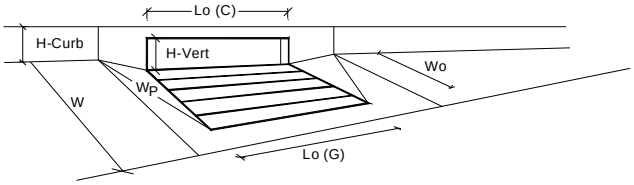
Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$		4	cfs
Tota Design Pea F ow,	4	24	cfs

I TI A P OR A OCATIO

Pro ect **ierra ista**

In et ID **I**

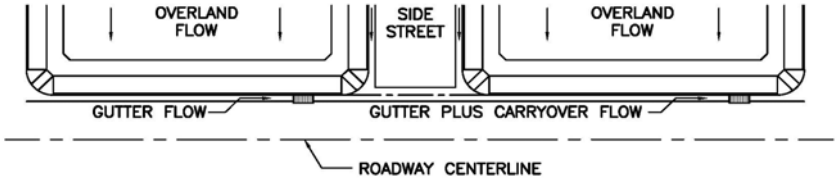


Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	5.00	5.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	3	3	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.0	5.6	inches
				☐ Override Depths
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	15.00	15.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	a		**24**	**cfs**
In et Capacity I OOD for inor and a or tor s P A	$Q_{PEAK\ REQUIRED}$ =	4.5	24.3	cfs

Worksheet Protected

D I P A F O FOR O HA F OF TR T
OR RA I D CHA TH RATIO A THOD

Pro ect: ierra ista
In et ID: I



Show Details

Design F ow: ONLY if already determined through other methods:
(local peak flow for 1/2 street OR grass-lined channel):

	Minor Storm	Major Storm	
nown	1		cfs

<---
FILL IN THIS SECTION OR...

If you enter a ues in Row 14, s ip t e rest of t is s eet and proceed to s eet A ow or Area In et

eograp ic Infor ation: (Enter data in the blue cells):

FILL IN THE SECTIONS BELOW.
<---

Subcatchment Area =		Acres
Percent Imperviousness =		%
NRCS Soil Type =		A, B, C, or D

Site Type:
- Site is Urban
- Site is Non-Urban

Flows Developed For:
- Street Inlets
- Area Inlets in a Median

	Slope (ft/ft)	Length (ft)
Overland Flow =		
Channel Flow =		

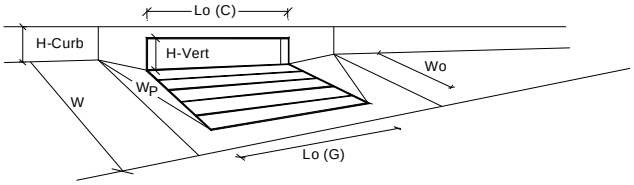
Rainfa Infor ation: Intensity I (inch/hr) = $C_1 * P_1 / (C_2 + T_c) ^ C_3$

	Minor Storm	Major Storm	
Design Storm Return Period, T_r =			years
Return Period One-Hour Precipitation, P_1 =			inches
C_1 =			
C_2 =			
C_3 =			
User-Defined Storm Runoff Coefficient (leave this blank to accept a calculated value), C =			
User-Defined 5-yr. Runoff Coefficient (leave this blank to accept a calculated value), C_5 =			
ypass Carry O er F ow fro upstrea ubcatc ents, $_b$	0 0	0 0	cfs
Tota Design Pea F ow,	1		cfs

I TI A P OR A OCATIO

Pro ect **ierra ista**

In et ID **I**



Design Infor ation Input		MINOR	MAJOR	
Type of Inlet	Inlet Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from 'Q-Allow')	a_{local} =	5.00	5.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	2	2	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	4.0	5.6	inches
				☐ Override Depths
rate Infor ation		MINOR	MAJOR	
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Infor ation		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
		MINOR	MAJOR	
Tota In et Interception Capacity assu es c ogged condition	**a**	**4 1**	**11**	**cfs**
In et Capacity I OOD for inor and a or tor s P A	$Q_{PEAK\ REQUIRED}$ =	1.5	6.9	cfs

Swale (Section A) for 2 Year Event

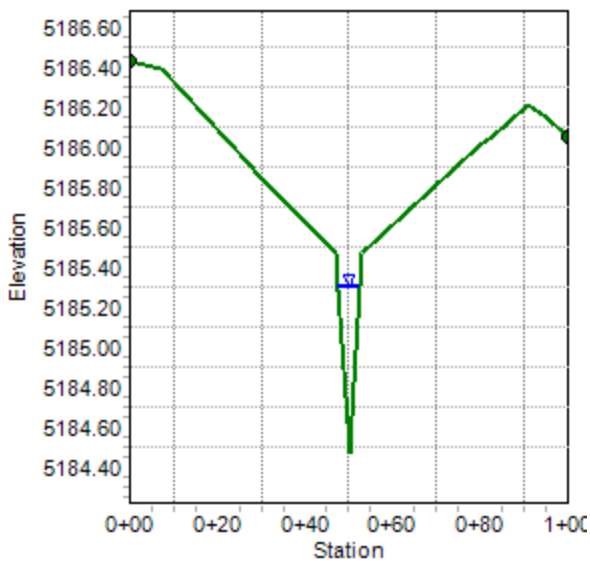
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00600	ft/ft
Normal Depth	0.83	ft
Discharge	4.30	ft³/s

Cross Section Image



Swale (Section A) for 100 Year Event

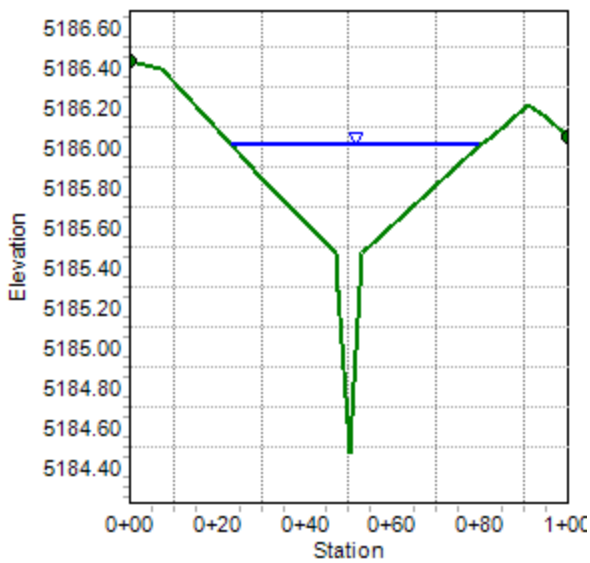
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.00600	ft/ft
Normal Depth	1.54	ft
Discharge	38.40	ft³/s

Cross Section Image



APPENDIX D

POND CALCULATIONS

D T TIO O TH F P CTR THOD

Pro ect: ierra ista

asin ID: Pond 1

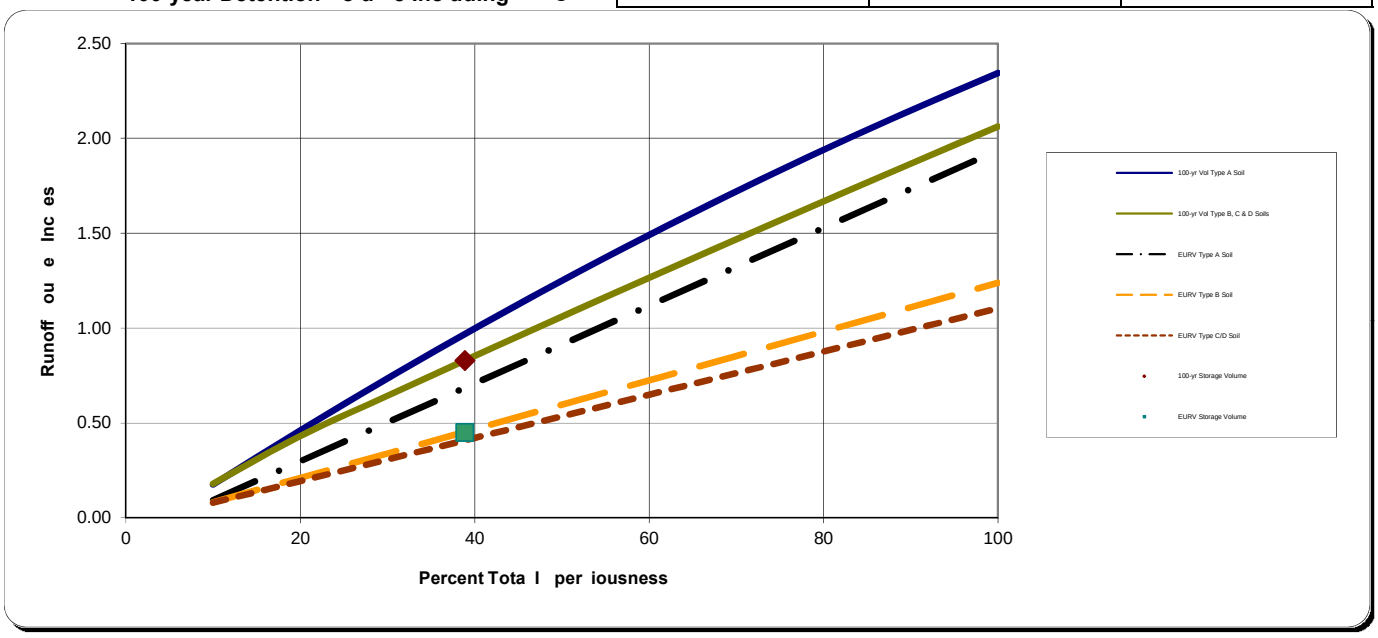
* User input data shown in blue.

Area of aters ed acres	30.89	
ubwaters ed l per iousness	38.9%	
e e of ini i ing Direct y Connected l per ious Area DCIA	0	0
ffecti e l per iousness[1]	38.9%	

Hydro ogic oi Type	**Percentage of Area**	**Area acres**
Type A		0.0
Type		0.0
Type C or D	100.0%	30.9

Reco ended Horton s uation Para eters for C HP		
Infi tration inc es per our		**Decay**
Initia f_i	**Fina fo**	**Coefficient α**
3	0.5	0.0018

	Detention o u es[2,]		**a i u A owab e**
	waters ed inc es	**acre feet**	**Re ease Rate, cfs**
cess rban Runoff o u e[4]	0.45	1.16	Design Oulet to Empty EURV in 72 Hours
100 year Detention o u e Inc uding C	0.83	2.14	30.89



otes:

1) Effective imperviousness is based on Figure ND-1 of the Urban Storm Drainage Criteria Manual (USDCM).

2) Results shown reflect runoff reduction from Level 1 or 2 MDCIA and are plotted at the watershed's total imperviousness value; the impact of MDCIA is reflected by the results being below the curves.

3) Maximum allowable release rates for 100-year event are based on Table SO-1. Outlet for the Excess Urban Runoff Volume (EURV) to be designed to empty out the EURV in 72 hours. Outlet design is similar to one for the WQCV outlet of an extended detention basin (i.e., perforated plate with a micro-pool) and extends to top of EURV water surface elevation.

4) EURV approximates the difference between developed and pre-developed runoff volume.

5) 100-yr detention volume includes EURV. No need to add more volume for WQCV or EURV

D T TIO O TH F P CTR THOD

Pro ect: ierra ista

asin ID: Pond 2

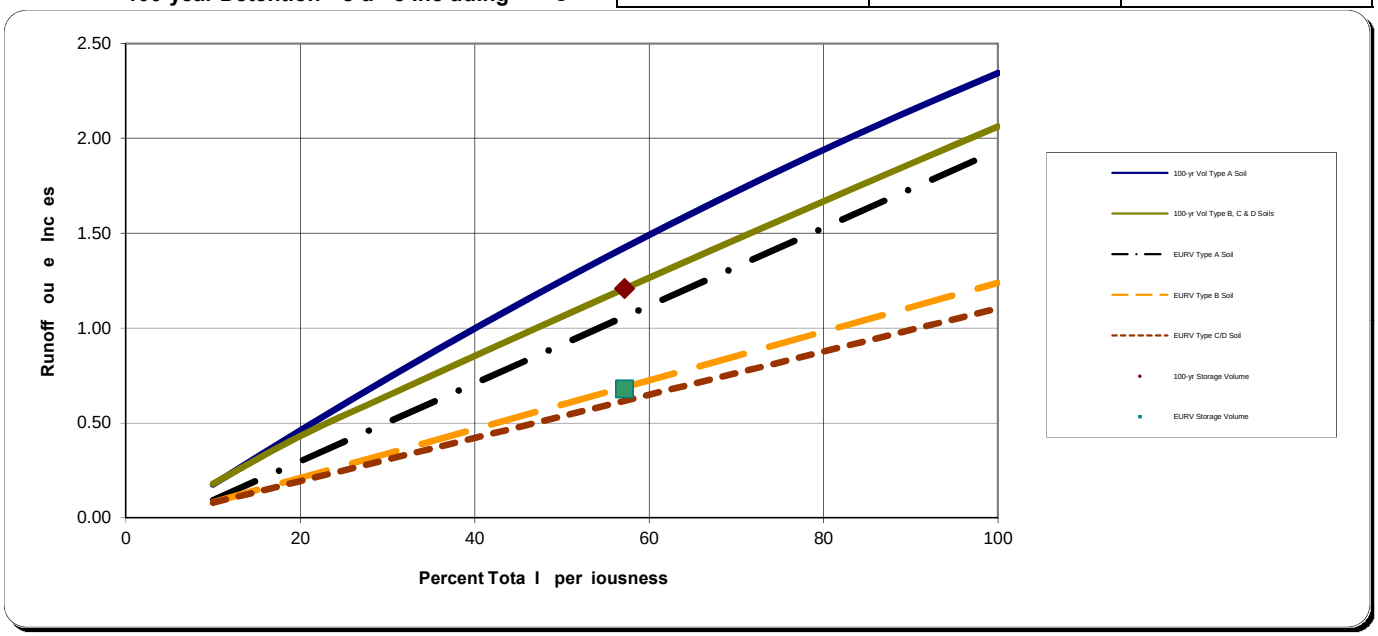
* User input data shown in blue.

Area of aters ed acres	28.55	
ubwaters ed I per iousness	57.2%	
e e of ini i ing Direct y Connected I per ious Area DCIA	0	0
ffecti e I per iousness[1]	57.2%	

Hydro ogic oi Type	**Percentage of Area**	**Area acres**
Type A		0.0
Type		0.0
Type C or D	100.0%	28.6

Reco ended Horton s uation Para eters for C HP		
Infi tration inc es per our		**Decay Coefficient α**
Initia f_i	**Fina f_o**	
3	0.5	0.0018

	Detention o u es[2,]		**a i u A owab e Re ease Rate, cfs**
	waters ed inc es	**acre feet**	
cess rban Runoff o u e[4]	0.68	1.61	Design Oulet to Empty EURV in 72 Hours
100 year Detention o u e Inc uding C	1.21	2.87	28.55



otes:

1) Effective imperviousness is based on Figure ND-1 of the Urban Storm Drainage Criteria Manual (USDCM).

2) Results shown reflect runoff reduction from Level 1 or 2 MDCIA and are plotted at the watershed's total imperviousness value; the impact of MDCIA is reflected by the results being below the curves.

3) Maximum allowable release rates for 100-year event are based on Table SO-1. Outlet for the Excess Urban Runoff Volume (EURV) to be designed to empty out the EURV in 72 hours. Outlet design is similar to one for the WQCV outlet of an extended detention basin (i.e., perforated plate with a micro-pool) and extends to top of EURV water surface elevation.

4) EURV approximates the difference between developed and pre-developed runoff volume.

5) 100-yr detention volume includes EURV. No need to add more volume for WQCV or EURV

APPENDIX E

COPIES OF GRAPHS, TABLES AND REFERENCES

Tab e RO Reco ended Percentage l per iousness a ues

Land Use or Surface Characteristics	Percentage Imperviousness
Business:	
Commercial areas	95
Neighborhood areas	85
Residential:	
Single-family	*
Multi-unit (detached)	60
Multi-unit (attached)	75
Half-acre lot or larger	*
Apartments	80
Industrial:	
Light areas	80
Heavy areas	90
Parks, cemeteries	5
Playgrounds	10
Schools	50
Railroad yard areas	15
Undeveloped Areas:	
Historic flow analysis	2
Greenbelts, agricultural	2
Off-site flow analysis (when land use not defined)	45
Streets:	
Paved	100
Gravel (packed)	40
Drive and walks	90
Roofs	90
Lawns, sandy soil	0
Lawns, clayey soil	0

* See Figures RO-3 through RO-5 for percentage imperviousness.

$$C_A = K_A + \left(1.31i^3 - 1.44i^2 + 1.135i - 0.12\right) \text{ for } C_A \geq 0\text{, otherwise } C_A = 0 \qquad \text{(RO-6)}$$

$$C_{CD} = K_{CD} + \left(0.858i^3 - 0.786i^2 + 0.774i + 0.04\right) \qquad \text{(RO-7)}$$

$$C_B = \left(\mathrm{C_A} + C_{CD}\right)/2$$

Tab e RO Runoff Coefficients, *C*

Percentage Imperviousness	Type C and D NRCS Hydrologic Soil Groups					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
0%	0.04	0.15	0.25	0.37	0.44	0.50
5%	0.08	0.18	0.28	0.39	0.46	0.52
10%	0.11	0.21	0.30	0.41	0.47	0.53
15%	0.14	0.24	0.32	0.43	0.49	0.54
20%	0.17	0.26	0.34	0.44	0.50	0.55
25%	0.20	0.28	0.36	0.46	0.51	0.56
30%	0.22	0.30	0.38	0.47	0.52	0.57
35%	0.25	0.33	0.40	0.48	0.53	0.57
40%	0.28	0.35	0.42	0.50	0.54	0.58
45%	0.31	0.37	0.44	0.51	0.55	0.59
50%	0.34	0.40	0.46	0.53	0.57	0.60
55%	0.37	0.43	0.48	0.55	0.58	0.62
60%	0.41	0.46	0.51	0.57	0.60	0.63
65%	0.45	0.49	0.54	0.59	0.62	0.65
70%	0.49	0.53	0.57	0.62	0.65	0.68
75%	0.54	0.58	0.62	0.66	0.68	0.71
80%	0.60	0.63	0.66	0.70	0.72	0.74
85%	0.66	0.68	0.71	0.75	0.77	0.79
90%	0.73	0.75	0.77	0.80	0.82	0.83
95%	0.80	0.82	0.84	0.87	0.88	0.89
100%	0.89	0.90	0.92	0.94	0.95	0.96
	T P RC H DRO O IC OI RO P					
0%	0.02	0.08	0.15	0.25	0.30	0.35
5%	0.04	0.10	0.19	0.28	0.33	0.38
10%	0.06	0.14	0.22	0.31	0.36	0.40
15%	0.08	0.17	0.25	0.33	0.38	0.42
20%	0.12	0.20	0.27	0.35	0.40	0.44
25%	0.15	0.22	0.30	0.37	0.41	0.46
30%	0.18	0.25	0.32	0.39	0.43	0.47
35%	0.20	0.27	0.34	0.41	0.44	0.48
40%	0.23	0.30	0.36	0.42	0.46	0.50
45%	0.26	0.32	0.38	0.44	0.48	0.51
50%	0.29	0.35	0.40	0.46	0.49	0.52
55%	0.33	0.38	0.43	0.48	0.51	0.54
60%	0.37	0.41	0.46	0.51	0.54	0.56
65%	0.41	0.45	0.49	0.54	0.57	0.59
70%	0.45	0.49	0.53	0.58	0.60	0.62
75%	0.51	0.54	0.58	0.62	0.64	0.66
80%	0.57	0.59	0.63	0.66	0.68	0.70
85%	0.63	0.66	0.69	0.72	0.73	0.75
90%	0.71	0.73	0.75	0.78	0.80	0.81
95%	0.79	0.81	0.83	0.85	0.87	0.88
100%	0.89	0.90	0.92	0.94	0.95	0.96

TA RO Continued Runoff Coefficients, *C*

Percentage Imperviousness	Type A NRCS Hydrologic Soils Group					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
0%	0.00	0.00	0.05	0.12	0.16	0.20
5%	0.00	0.02	0.10	0.16	0.20	0.24
10%	0.00	0.06	0.14	0.20	0.24	0.28
15%	0.02	0.10	0.17	0.23	0.27	0.30
20%	0.06	0.13	0.20	0.26	0.30	0.33
25%	0.09	0.16	0.23	0.29	0.32	0.35
30%	0.13	0.19	0.25	0.31	0.34	0.37
35%	0.16	0.22	0.28	0.33	0.36	0.39
40%	0.19	0.25	0.30	0.35	0.38	0.41
45%	0.22	0.27	0.33	0.37	0.40	0.43
50%	0.25	0.30	0.35	0.40	0.42	0.45
55%	0.29	0.33	0.38	0.42	0.45	0.47
60%	0.33	0.37	0.41	0.45	0.47	0.50
65%	0.37	0.41	0.45	0.49	0.51	0.53
70%	0.42	0.45	0.49	0.53	0.54	0.56
75%	0.47	0.50	0.54	0.57	0.59	0.61
80%	0.54	0.56	0.60	0.63	0.64	0.66
85%	0.61	0.63	0.66	0.69	0.70	0.72
90%	0.69	0.71	0.73	0.76	0.77	0.79
95%	0.78	0.80	0.82	0.84	0.85	0.86
100%	0.89	0.90	0.92	0.94	0.95	0.96

*SEE APPENDIX C FOR SWALE A PROFILE

LEGEND

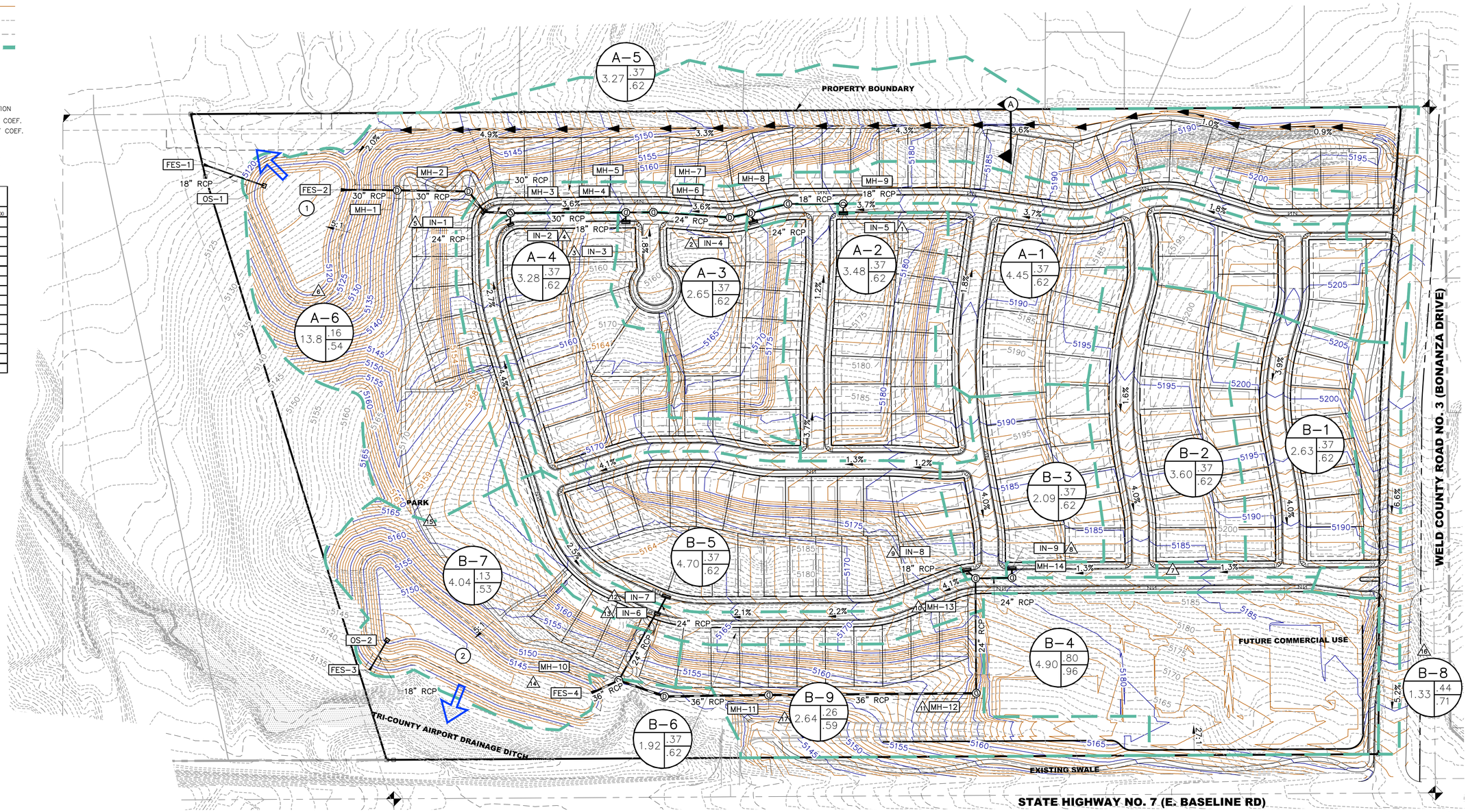
- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN INLET
- PROPERTY LINE
- FLOW ARROW
- PROPOSED MAJOR CONTOUR (5') — 5250
- PROPOSED MINOR CONTOUR (1')
- EXISTING MINOR CONTOUR (2')
- EXISTING MAJOR CONTOUR (10') — 5250
- PROPOSED BASIN LINE
- DESIGN POINT
- PROPOSED POND NUMBER
- PROPOSED BASIN LABEL

C-6 — BASIN DESIGNATION
AREA (AC.) 1.00 — .40 MINOR RUNOFF COEF. — .60 MAJOR RUNOFF COEF.

EMERGENCY OVERFLOW ARROW

SUMMARY RUNOFF TABLE

DESIGN PT.	TOTAL AREA (ACRES)	TOTAL Q_2 (CFS)	TOTAL Q_{100} (CFS)
1	4.45	3.8	16.9
2	3.48	3.2	17.7
3	2.65	2.6	16.1
4	3.28	3.0	17.4
5	17.13	15.3	68.4
6	13.76	4.3	38.4
7	2.63	2.3	10.1
8	6.23	5.3	23.5
9	2.09	1.9	16.6
11	4.90	19.7	68.0
12	4.70	4.5	24.1
13	6.62	6.0	31.0
15	4.04	1.3	15.1
16	1.33	1.1	5.0
17	3.34	2.2	13.9



PATH: P:\OREAD SIERRA VISTA\CADD\MASTER\W-PR DRAINAGEMAP PHASEII.DWG
PLOTTED BY: Megan Sawyer PLOT DATE: 9/11/2015 10:55 AM
XREFS: 20PPN, 20PUT, 20BASE,

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: w-PR DrainageMap PhaseII.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 □ BONAN□A LLC
0 50 100 200
1 inch = 100 ft. Horizontal
Designer: RJL | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
PHASE II DRAINAGE REPORT
DEVELOPED DRAINAGE CONDITIONS PLAN

Sheet DR 1 of 1
Date SEPTEMBER 14, 2015

ERO Resources Corp.

July 28, 2015

Acting Supervisor
U.S. Fish and Wildlife Service
Colorado Field Office
Denver Federal Center (MS 65412)
PO Box 25486
Denver, Colorado 80225

RE: Threatened and Endangered Species Habitat Assessment – Pratt Property, Weld County, Colorado

Dear Acting Supervisor:

On behalf of Highway 7 & Bonanza LLC., ERO Resources Corporation (ERO) is requesting Technical Assistance regarding threatened and endangered species for a 60.476-acre parcel in Weld County. A residential development is proposed in Weld County, Colorado in Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian. The project area is an undeveloped parcel consisting primarily of upland grasslands that contain no suitable habitat for federally listed species. The proposed project would not likely impact Ute ladies'-tresses orchid or Colorado butterfly plant because:

- Project Area does not fall within Survey Guidelines
- Lack of Suitable Habitat
- Lack of Associated Indicator Species

Additionally, the proposed project would not likely impact Preble's meadow jumping mouse habitat because:

- Lack of Suitable Habitat
- Habitat Fragmentation
- Isolated from Nearby Populations
- Project Area is not Identified as Important to Species Recovery (Critical Habitat)

The attached Habitat Assessment includes a description of the proposed project, along with figures and photos of the site.

If you have any questions or need further information, please do not hesitate to call. I look forward to hearing from you.

Sincerely,

CMSwenson

Courtney Swenson
Biologist

Attachments

cc via email: Matt Deibel - Highway 7 & Bonanza LLC.

Denver
1842 Clarkson St.
Denver, CO 80218
303.830.1188

Durango
1015 ½ Main Avenue
Durango, CO 81301
970.422.2136

Hotchkiss
P.O. Box 932
161 South 2nd St.
Hotchkiss, CO 81419
970.872.3020

Idaho
4001 East Main Street
Emmett, ID 83617
208.365.7684

www.eroresources.com

ERO Resources Corp.

July 28, 2015

Acting Supervisor
U.S. Fish and Wildlife Service
Colorado Field Office
Denver Federal Center (MS 65412)
PO Box 25486
Denver, Colorado 80225

Re: Threatened and Endangered Species Habitat Assessment – Pratt Property, Weld County, Colorado

Dear Acting Supervisor:

ERO Resources Corporation (ERO) is requesting Technical Assistance regarding threatened and endangered species for a 60.476-acre parcel in Weld County. Highway 7 & Bonanza LLC. (Client) retained ERO to provide environmental services on the Pratt property northwest of Highway 7 and Weld County Road 3 (WCR 3) in Weld County, Colorado (project area; Figure 1). The Client retained ERO as part of due diligence activities associated with development of the project area. ERO is submitting this habitat assessment to the U.S. Fish and Wildlife Service (Service) because the project area is within the potential ranges of federally listed threatened and endangered species.

Federal Nexus

Currently, no known federal nexus is associated with the project.

The Client retained ERO to assess the project area for the presence of habitat suitable for federally listed threatened, endangered, and candidate species and to assist with environmental permitting for the project.

Project Location

The project area is in Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian in Weld County, Colorado (Figure 1). The UTM coordinates of the approximate center of the project area are NAD 496513mE, 4427982mN, Zone 13. The latitude/longitude of the project area is 40.002125°N/105.040935°W. The elevation of the project area averages 5,200 feet above sea level.

Project Description

The proposed development consists of creating a subdivision of 174 lots and 9 tracts.

Site Description

The project area is a 60.476-acre parcel northwest of the intersection of Highway 7 and WCR 3 in Erie, Colorado (Figure 2). The project area is bounded by residential development to the north and south, a storage yard and residential development to the east, and undeveloped land to the west. The Tri-County Airport is northwest of the project area. The topography of the project area consists of a low ridge that runs through the center of the project area from west to east and is covered by a mixture of

Denver
1842 Clarkson St.
Denver, CO 80218
303.830.1188

Durango
1015 ½ Main Avenue
Durango, CO 81301
970.422.2136

Hotchkiss
P.O. Box 932
161 South 2nd St.
Hotchkiss, CO 81419
970.872.3020

Idaho
4001 East Main Street
Emmett, ID 83617
208.365.7684

www.eroresources.com

native and introduced grassland vegetation (Photos 1 and 2). The vegetation within the project area consists of common prairie and pasture grasses including blue grama (*Bouteloua gracilis*), sideoats grama (*Bouteloua curtipendula*), crested wheatgrass (*Agropyron desertorum*), cheatgrass (*Bromus tectorum*), western wheatgrass (*Pascopyrum smithii*), slender wheatgrass (*Elymus trachycaulus*), switchgrass (*Panicum virgatum*), diffuse knapweed (*Acosta diffusa*), and field bindweed (*Convolvulus arvensis*). Yucca (*Yucca glauca*), rabbitbrush (*Chrysothamnus* sp.), and prickly pear (*Opuntia* sp.) are also prevalent at in the project area. An active prairie dog colony is located west, outside of the project area. No prairie dog burrows have encroached within the project area. A small tributary to Coal Creek crosses the southwest corner of the project area and has a 2- to 3-foot-wide channel of open water with wetlands throughout the majority of its reach. The wetlands range from 5 to 20 feet wide within the project area and are dominated by broadleaf cattail (*Typha latifolia*) with some patches of sandbar willow (*Salix exigua*) (Photos 3 and 4). The tributary to Coal Creek contains a large amount of weedy vegetation, dominated by Canada thistle (*Cirsium arvense*), and has steep and eroded banks. Intermittent patches of western snowberry (*Symphoricarpos occidentalis*) occur along the banks above the channel. Upstream and downstream of the project area, the tributary is interrupted by several road crossings, where the channel is confined within culverts.

Endangered Species Act Compliance

On March 18, 2015, Hidde Snieder with ERO assessed the project area (2015 site visit) for suitable habitat for threatened, endangered, and candidate species listed under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). The project area does not fall within U.S. Fish and Wildlife Service (Service) habitat or survey guidelines for the majority of the species listed by the Service as potentially being present in Weld County (Table 1).

Table 1. Federally threatened, endangered, and candidate species potentially found in Weld County or potentially impacted by projects in Weld County.

Common Name	*Scientific Name*	Listing Status[1]	Habitat	Suitable Habitat Present or Potential to be Impacted by Project?
Birds				
Interior least tern[2]	*Sterna antillarum athalassos*	E	Sandy/pebble beaches on lakes, reservoirs, and rivers	No habitat, no potential to impact
Mexican spotted owl[3]	*Strix occidentalis lucida*	T	Closed canopy forests in steep canyons	No
Piping plover[2]	*Charadrius melodus*	T	Sandy lakeshore beaches and river sandbars	No habitat, no potential to impact
Whooping crane[2]	*Grus americana*	E	Mudflats around reservoirs and in agricultural areas	No habitat, no potential to impact
Mammals				
Preble's meadow jumping mouse (Preble's)	*Zapus hudsonius preblei*	T	Shrub riparian/wet meadows	Potential
Fish				
Pallid sturgeon[2]	*Scaphirhynchus albus*	E	Large, turbid, free-flowing rivers with a strong current and gravelly or sandy substrate	No habitat, no potential to impact
Insects				

Common Name	*Scientific Name*	Listing Status[1]	Habitat	Suitable Habitat Present or Potential to be Impacted by Project?
Pawnee montane skipper	*Hesperia leonardus montana*	T	Pikes Peak granite formation within the upper South Platte River drainage system	No
Plants				
Colorado butterfly plant (CBP)	*Gaura neomexicana* spp. *coloradensis*	T	Wetlands and wet meadows along floodplains	No
Ute ladies'-tresses orchid (ULTO)	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 6,500 feet in elevation	No
Western prairie-fringed orchid[2]	*Platanthera praeclara*	T	Mesic and wet prairies, sedge meadows	No habitat, no potential to impact

*T = Federally Threatened Species, E = Federally Endangered Species.
**Water depletions in the South Platte River may impact the species and/or critical habitat in downstream reaches in other counties or states.
Source: Service 2015.

The proposed project would not impact the Mexican spotted owl or Pawnee montane skipper because of the lack of suitable habitat within the project area. The interior least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid are species that are impacted by continued or ongoing water depletions to the Platte River system. If the project includes activities that deplete water in the South Platte River, such as diverting water from a stream or developing new water supplies, these species could be impacted by the project and consultation with the Service may be required if there is a federal nexus with the project such as Section 404 authorization.

Because of the association of Preble's, ULTO, and CBP to wetland/riparian habitat along the Colorado Front Range, ERO evaluated the potential for these species to occur in the project area.

Rationale for Excluding the Project Area as Potential Preble's Habitat

ERO assessed the project area for potential Preble's habitat. The proposed project would not likely impact Preble's habitat because:

- **Lack of Suitable Habitat**: The tributary to Coal Creek has low-quality habitat that contains a large amount of weedy vegetation and has steep and eroded banks. The project area also lacks structured tree and shrub or wetland habitat typically associated with Preble's habitat.
- **Habitat Fragmentation:** The project area is isolated from suitable habitat by housing developments and an airport. Preble's is unlikely to find a passageway into the project area because of the lack of connections to other riparian corridors along creeks or streams.
- **Isolated from Nearby Populations**: The tributary to Coal Creek is isolated from known populations of Preble's. The closest known population is 9 miles away on Coal Creek in Lafayette (Beane, R. 1999a, 1999b, 1999c, 1999d). The

project area was evaluated in 1998 with negative results (ERO 1998a, 1998b). In addition, the project area is located immediately adjacent to an area designated by the Service as the Preble's Denver metro block clearance zone, within which Preble's is assumed to be absent.

- **Project Area is Not Identified as Important to Species Recovery (Critical Habitat):** Although there is no federal nexus for this project at this time, ERO reviewed critical habitat designations as an indicator of areas identified as important to the recovery of the species. The project area contains no designated critical habitat and the nearest Preble's critical habitat is more than 9 miles west of the project area along South Boulder Creek.

Given the above information, it is unlikely the project area supports a population of Preble's. ERO recommends that the proposed project be allowed to proceed without a trapping survey.

Rationale for Excluding the Project Area as Potential ULTO Habitat

ERO determined that the project area is not conducive to the establishment of ULTO and differs from the criteria of the Service's November 1992 (Service 1992) *Interim Survey Requirements for Spiranthes diluvialis* for the following reasons:

- **Project Area Does Not Fall within Survey Guidelines:** A perennial tributary to the South Platte River does not occur in the project area and the project area is within Weld County; therefore, the site does not fall within the Service's guidelines for ULTO surveys.
- **Lack of Suitable Habitat:** The wetlands within the project area contain dense stands of cattails and other vegetation, which are likely too dense to allow establishment of ULTO. The remainder of the project area consists of dry uplands, dominated by a mixture of native and introduced species, with an abrupt transition from wetlands to uplands.
- **Lack of Associated Indicator Species:** The wetlands within the project area do not contain species usually associated with ULTO. The wetlands in the project area are dominated mostly by dense cattail stands.

Rationale for Excluding the Project Area as Potential CBP Habitat

The Service has not established formal survey guidelines for CBP, but has indicated that areas similar to, and slightly drier than, ULTO habitat should be assessed. ERO determined that habitat for CBP does not occur in the project area for the same reasons as described for ULTO.

Other Sensitive Species

In addition to species listed as threatened, endangered, or candidate, ERO assessed the project area for potential habitat and the presence of species protected under the Migratory Bird Treaty Act (MBTA). Migratory birds, as well as their eggs and active nests, are protected under the MBTA. Migratory bird habitat typically includes trees and shrubs, but upland grasslands also are used for nesting. No active nests were observed in the project area during the 2015 site visit. The Client would comply with the MBTA by clearing any vegetation during the fall and winter months or conducting a migratory bird survey prior to starting the project.

Conclusions

There is no suitable habitat for threatened or endangered species in the project area. Therefore, the proposed project would likely have no impact on federally listed species potentially present in Weld County. Based on this habitat assessment, ERO, on behalf of the Client, requests that the Service confirm that it has no concerns related to threatened and endangered species and that no further consultation under the ESA is required. Attached are photos and figures of the project area. After you review this information, ERO would appreciate a written determination of this request.

Please call if you need additional information or have any questions. I look forward to hearing from you.

Sincerely,

Courtney Swenson
Biologist

Attachments

References

Beane, R. 1999a, 1999b, 1999c, 1999d. Evaluation survey results submitted to U.S. Fish and Wildlife Service at Willow Springs Development. Reference provided by U.S. Fish and Wildlife Service (2014).

ERO Resources Corporation. 1998a, 1998b. Evaluation survey results submitted to U.S. Fish and Wildlife Service at Willow Springs Development. Reference provided by U.S. Fish and Wildlife Service (2014).

U.S. Department of Agriculture, Natural Resource Conservation Service. 2015. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Last accessed: July 6, 2015.

U.S. Fish and Wildlife Service (Service). 1992. Interim Survey Requirements for *Spiranthes diluvialis*.

U.S. Fish and Wildlife Service (Service). 2014. Preble's meadow jumping mouse (*Zapus hudsonius preblei*) trapping database for scientific collection activities conducted under Section 10 of the Endangered Species Act. Colorado Ecological Services Field Office. Denver.

U.S. Fish and Wildlife Service (Service). 2015. Endangered, Threatened, Proposed and Candidate Species. Available at: http://ecos.fws.gov/ipac/. Last accessed: July 6, 2015.

Site Information

Location: Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian in Weld County, Colorado

Elevation: The elevation of the project area is about 5,200 feet above sea level

Latitude/Longitude: 40.002125°N/105.040935°W

UTM Coordinates: 496513mE, 4427982mN, Zone 13 North

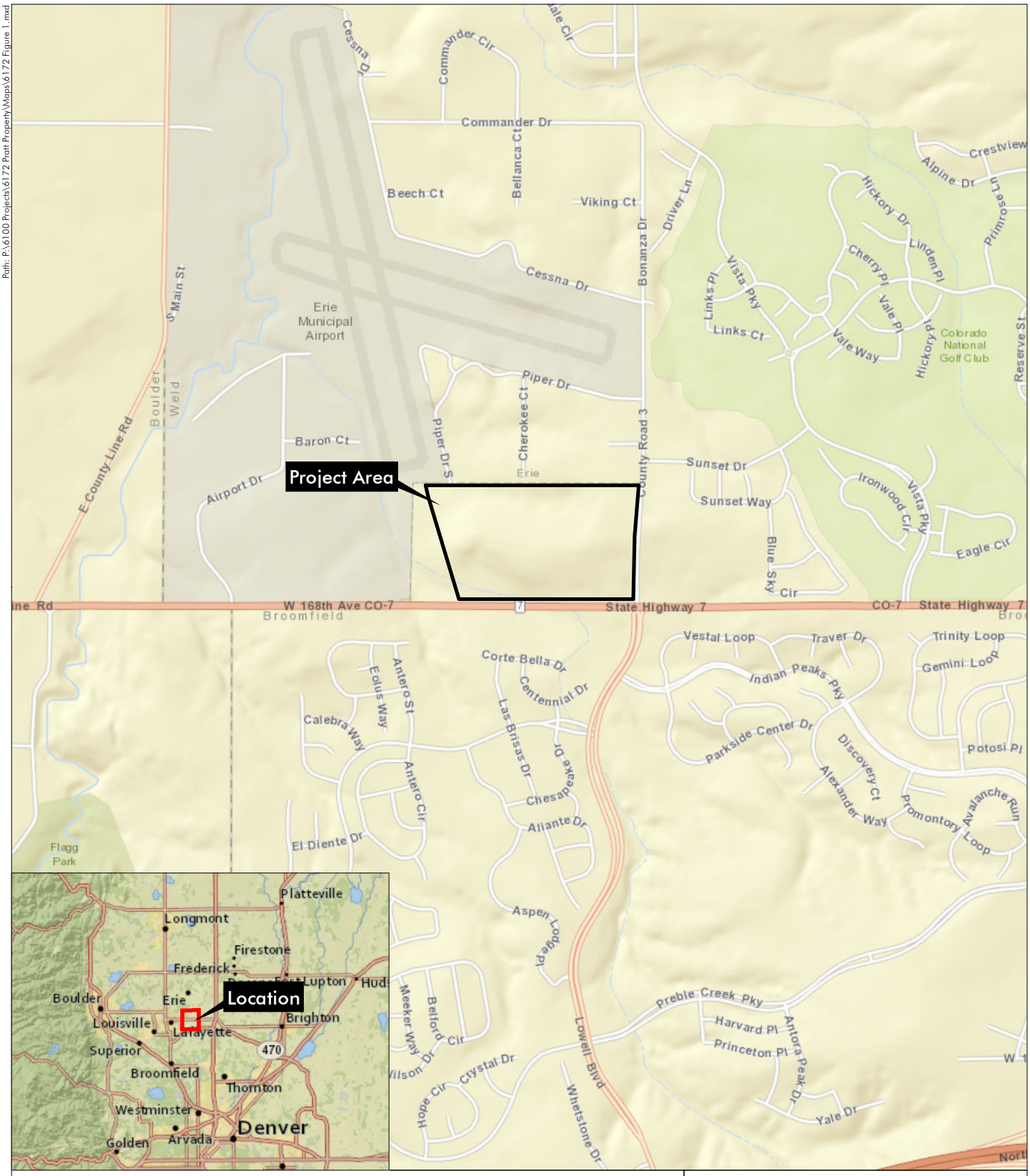
Soils: Midway-Shingle complex on 5 to 20 percent slopes

Site Hydrology: Tributary to Coal Creek, intermittent stream

Qualifications of Surveyors

Qualifications of Courtney Swenson are available upon request. Courtney Swenson has a B.S. in biology from the University of Colorado at Boulder. Courtney has more than two years of experience performing Preble's habitat assessments. Courtney is familiar with Preble's survey guidelines and has been trained in Preble's identification. Courtney also has more than three years' experience conducting biological inventories and biographical mapping. Courtney is familiar with *Spiranthes diluvialis* survey guidelines and has viewed *Spiranthes* in the field.

Path: P:\6100 Projects\6172 Pratt Property\Maps\6172 Figure 1.mxd



Pratt Property

Section 31, T1N, R68W; 6th PM

UTM NAD 83: Zone 13N; 496513mE, 4427982mN

Latitude, Longitude: 40.002125°N, 105.040935°W

USGS Erie, CO Quadrangle

Weld County, Colorado

0 750 1,500 Feet

N

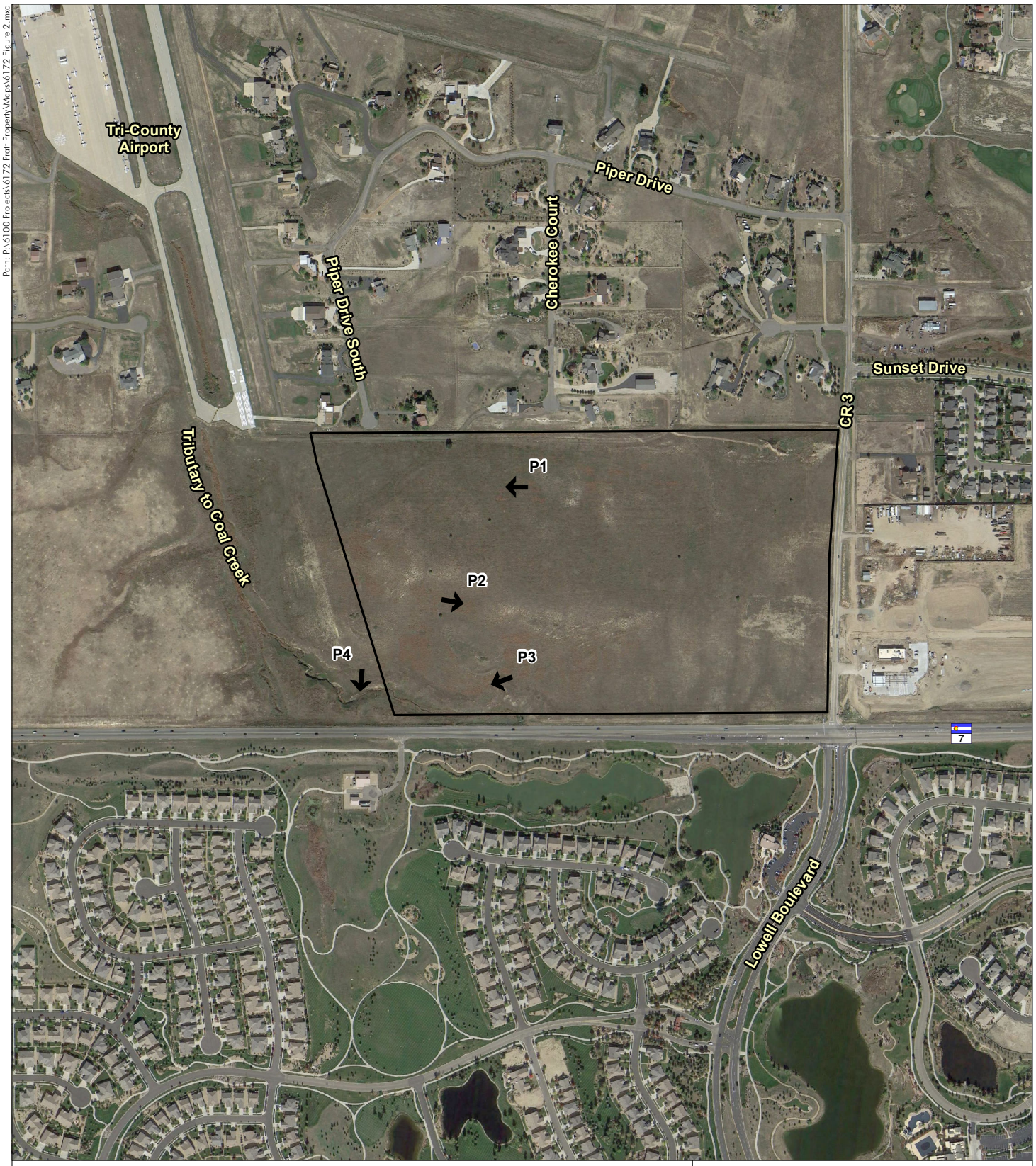
Figure 1
Vicinity Map

Prepared for: RDB Development
File: 6172 Figure 1.mxd (GS)
July 28, 2015

ERO Resources Corp.

Portions of this document include intellectual property of ESRI and its licensors and are used herein under license. Copyright © 2014 ESRI and its licensors. All rights reserved.

Path: P:\6100 Projects\6172 Pratt Property\Maps\6172 Figure 2.mxd



Pratt Property

Photo Point

Project Area Boundary

Image Source: Google Earth©, October 2014

0 300 600 Feet

N

Figure 2
Site Conditions

Prepared for: RDB Development
File: 6172 Figure 2.mxd (GS)
July 28, 2015

ERO
ERO Resources Corp.

Photo Log
Pratt Property
Weld County, Colorado
March 18, 2015

Photo 1 - Overview of the project area uplands comprised of a mixture of native and introduced grassland vegetation. View is to the west.

Photo 2 - Overview of the project area comprised primarily of upland grasslands. View is to the southeast.

Photo 3 - Cattail wetlands within the Coal Creek tributary in the southwestern corner of the project area. View is to the west.

Photo 4 - Overview of the vegetation along the Coal Creek tributary comprised of cattails, sandbar willow, and snowberry. View is to the southwest.

WCRM
Western Cultural Resource Management, Inc.

March 19, 2015

Mr. Matt Deibel
Highway 7 & Bonanza, LLC
9033 E. Easter Place, Suite 110
Centennial, CO 80112

Dear Mr. Deibel:

In 1998, WCRM conducted a Class I file search and Class III cultural resource survey (Chambellan and Mehls 1999) of 70 acres along Highway 7 in Weld County, Colorado for Pratt Management Company, LLC; the legal location is in the SE ¼ of T1N, R68W, Section 31. The pedestrian survey recorded one historic site, the Parkdale Mine (5WL2951) and one historic isolated find (5WL2950); both resources were officially determine not eligible for inclusion in the National Register of Historic Places (NRHP).

Subsequently, in 2007, as part of a rezoning action, Tom Davidson of RDB Development requested a Class I cultural resource file search of the same 70 acres as part of the Vista Plaza Annexation Study. In the memo report sent by Tom Lennon of WCRM, the township was erroneously identified as T1S due to a typo; the legal location searched for the Class I was T1N, R68W, Section 31. WCRM completed the records review of this location and determined that "The 1998 WCRM, Inc. survey is the only study that has been conducted in the project area" (Lennon 2007:1).

If the proposed Sierra Vista Development comprises the same 70 acres addressed by the previous WCRM Class I and Class III studies (Chambellan and Mehls 1999; Lennon 2007), then the area has been officially surveyed and the known and visible cultural resources within it have been documented, evaluated, and reviewed by the required federal and state agencies under Section 106 of the National Historic Preservation Act (NHPA).

If you require any further information, please do not hesitate to contact me at (303) 449-1151.

Sincerely,

Collette Chambellan

Collette C. Chambellan
Cultural Resource Manager

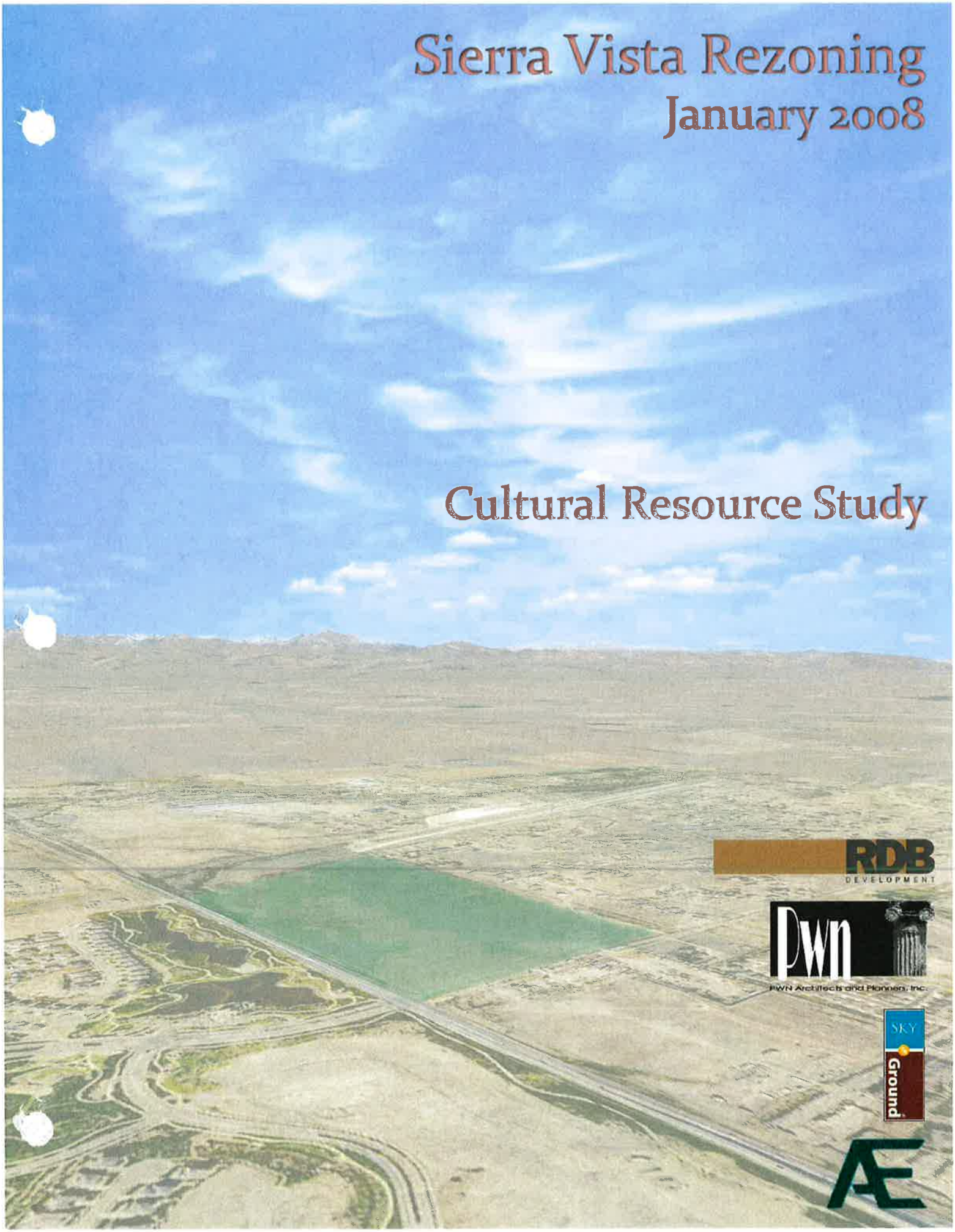
cc: Tom Lennon, WCRM

COLORADO P.O. Box 2326, Boulder, CO 80306 · Phone 303-449-1151 Fax 303-530-7716
NEW MEXICO 2603 W. Main St., Suite B, Farmington, NM 87401 · Phone 505-326-7420 Fax 505-324-1107
NEVADA 890 E. Greg Street, Sparks, NV 89431 · Phone 775-358-9003 Fax 775-358-1387
ARIZONA 3014 N. Hayden Rd., Suite 118, Scottsdale, AZ 85251 · Phone 480-423-6837 Fax 480-874-4719

Sierra Vista Rezoning

January 2008

Cultural Resource Study



W C R M

WESTERN CULTURAL RESOURCE MANAGEMENT, INC.

November 7, 2007

Mr. Tom Davidson
RDB Development
6860 S. Yosemite Ct., Suite 2128
Centennial, CO 80112

RE: Vista Plaza Annexation, Cultural Resource Review

Dear Tom,

WCRM has completed the review of cultural resource records for the Vista Plaza Annexation Study and our report is attached. There have been no additional studies within the project area and our previous study of the property appears to cover all of the required details. The additional information we acquired comes from studies close to Vista Plaza and provides a summary of the status of cultural resource studies near your project.

Please review our report and let me know if you have any questions.

Thank you.

Sincerely,

Tom Lennon

Thomas J. Lennon, Ph.D., RPA
President

COLORADO 7765 DURHAM CIRCLE, P.O. BOX 2326, BOULDER, CO 80306 303 449-1151 FAX 303 530-7716
NEW MEXICO 2603 W. MAIN ST., SUITE B, FARMINGTON, NM 87401 505 326-7420 FAX 505 324-1107
NEVADA 50 FREEPORT BLVD., SUITE 15, P.O. BOX 6130, SPARKS, NV 89432 775 358-9003 FAX 775 358-1387

COLORADO 7765 DURHAM CIRCLE, P.O. BOX 2326, BOULDER, CO 80306 303 449-1151 FAX 303 530-7716
NEW MEXICO 2603 W. MAIN ST., SUITE B, FARMINGTON, NM 87401 505 326-7420 FAX 505 324-1107
NEVADA 50 FREEPORT BLVD., SUITE 15, P.O. BOX 6130, SPARKS, NV 89432 775 358-9003 FAX 775 358-1387

W C R M
WESTERN CULTURAL RESOURCE MANAGEMENT, INC.

TO: Tom Davidson, RDB Development

FROM: Tom Lennon, WCRM, Inc

RE: Vista Plaza Cultural Resource Study

DATE: November 7, 2007

Introduction

Western Cultural Resource Management, Inc (WCRM) was contracted by RDB Development to conduct a literature file search at the Colorado Office of Archaeology and Historic Preservation (OAHP). The study area consists of approximately 70 acres of land located in the southwestern corner of Weld County, three miles south of Erie. The legal location of the project area is Township 1 S, Range 68 W, Section 31 (Figure 1, from WCRM 1999 report).

Results

WCRM, Inc archaeologist Amie Gray conducted a literature file search of OAHP records on October 31, 2007. All surveys conducted and cultural resources located within one mile of the project area were identified. Twelve cultural resource surveys have been performed identifying a total of 27 resources located within one mile of the project area (Table 1). Two of these resources (5WL2950 and 5WL2951) are located in the project area and were originally recorded by WCRM, Inc. during the 1998 class III cultural resource survey of the project area for Pratt Management Company, LLC. The 1998 WCRM, Inc. survey is the only study that has been conducted in the project area. 5WL2950 is an isolated find, which are not eligible for inclusion in the National Register of Historic Places (NRHP). Site 5WL2951 is the Parkdale Mine, and it is officially not eligible for the NRHP. The remaining resources are located outside

COLORADO 7765 DURHAM CIRCLE, P.O. BOX 2326, BOULDER, CO 80306 303 449-1151 FAX 303 530-7716
NEW MEXICO 2603 W. MAIN ST., SUITE B, FARMINGTON, NM 87401 505 326-7420 FAX 505 324-1107
NEVADA 50 FREEPORT BLVD., SUITE 15, P.O. BOX 6130, SPARKS, NV 89432 775 358-9003 FAX 775 358-1387

the current project boundaries. Three resources (5BF189, 5BF56, and 5BF77) are located in former Adams County and were reassigned new numbers when Broomfield County was created.

Table 1. Updated OAHP File Search for Vista Plaza Annexation Study

Site Number	Site Name	Site Type	NRHP Eligibility	In Project Area/1-Mile Buffer
5BF189 (formerly 5AM707)	Parkdale, Blue Ribbon, and Baker Coal Mines	Historic Mine	Field Not Eligible	1-Mile Buffer
5BF56 (formerly 5AM710)	Unnamed	Historic Isolated Find	Officially Not Eligible	1-Mile Buffer
5BF65	Unnamed	Historic Dump	Officially Not Eligible	1-Mile Buffer
5BF66	Unnamed	Historic Dump	Officially Not Eligible	1-Mile Buffer
5BF77 (formerly AM709)	Unnamed	Historic Dump	Officially Not Eligible	1-Mile Buffer
5BL10348	Parkdale, Blue Ribbon, and Baker Coal Mines	Historic Mine	Field Not Eligible	1-Mile Buffer
5BL1589	Haywood Mine	Historic Mine	Field Not Eligible	1-Mile Buffer
5BL2263	Unnamed	Prehistoric Isolated Find	Officially Not Eligible	1-Mile Buffer
5BL2731	Godhue #1 Ditch	Historic Irrigation Ditch	Officially Not Eligible	1-Mile Buffer
5BL374	Burlington Northern RR	Historic RR	Officially Eligible	1-Mile Buffer
5BL374.7	Burlington Northern RR	Historic RR	Field Not Eligible	1-Mile Buffer
5WL1043.7	Burlington Northern RR	Historic RR	Officially Not Eligible	1-Mile Buffer
5WL1423.8	Burlington & Missouri River RR	Historic RR	Officially Not Eligible	1-Mile Buffer
5WL1969.2*	Retired site number			
5WL2142.1	Unnamed	Historic RR	Officially Not Eligible	1-Mile Buffer
5WL2143.1	Unnamed	Historic Trail/Road	Officially Not Eligible	1-Mile Buffer
5WL2144	Unnamed	Historic Dump	Officially Not Eligible	1-Mile Buffer
5WL2950	Unnamed	Historic Isolated Find	Officially Not Eligible	In Project Area
5WL2951	Parkdale Mine	Historic Mine	Officially Not Eligible	In Project Area
5WL3359	Unnamed	Historic Isolated Find	Officially Not Eligible	1-Mile Buffer
5WL3360	Unnamed	Prehistoric Isolated Find	Officially Not Eligible	1-Mile Buffer

COLORADO 7765 DURHAM CIRCLE, P.O. BOX 2326, BOULDER, CO 80306 303 449-1151 FAX 303 530-7716
NEW MEXICO 2603 W. MAIN ST., SUITE B, FARMINGTON, NM 87401 505 326-7420 FAX 505 324-1107
NEVADA 50 FREEPORT BLVD., SUITE 15, P.O. BOX 6130, SPARKS, NV 89432 775 358-9003 FAX 775 358-1387

Table 1. Updated OAHP File Search for Vista Plaza Annexation Study				
Site Number	**Site Name**	**Site Type**	**NRHP Eligibility**	**In Project Area/1-Mile Buffer**
5WL3361	Unnamed	Historic Isolated Find	Officially Not Eligible	1-Mile Buffer
5WL3362	Unnamed	Prehistoric Isolated Find	Officially Not Eligible	1-Mile Buffer
5WL3363	Unnamed	Historic Isolated Find	Officially Not Eligible	1-Mile Buffer
5WL3366	Unnamed	Historic Isolated Find	Officially Not Eligible	1-Mile Buffer
5WL397	Unnamed	Isolated Feature/Skeletal Remains	Needs Data	1-Mile Buffer
5WL4058	Unnamed	Historic Isolated Feature	Officially Not Eligible	1-Mile Buffer
5WL4072	Unnamed	Prehistoric Open Camp	Officially Not Eligible	1-Mile Buffer

* Site number was identified in 1998 OAHP file search, and has since been retired according to Heather Peterson, OAHP (personal communication, November 5, 2007).

Recommendations

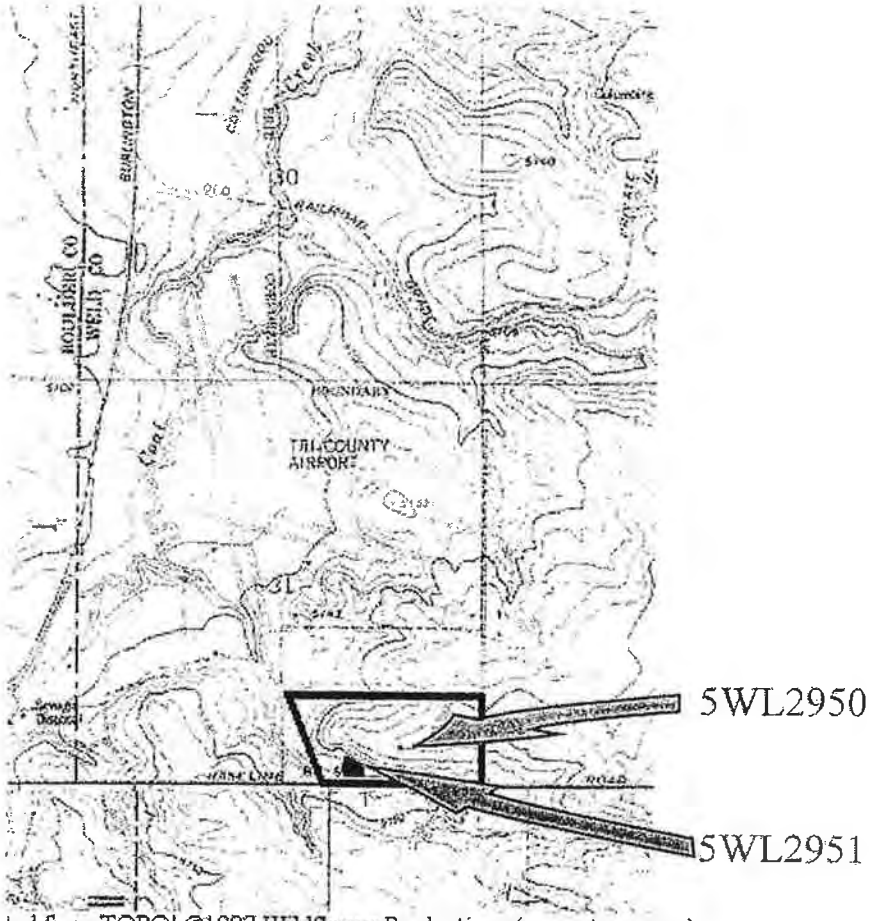
One historic site (5WL2951), the Parkdale Mine, and one isolated find (5WL2950) are located in the project area. The site has been officially determined not eligible for inclusion in the NRHP. As a result, no further work is required in regards to this resource. Isolated finds are not considered eligible for inclusion in the NRHP; therefore, no further work is required for 5WL2950.

COLORADO 7765 DURHAM CIRCLE, P.O. BOX 2326, BOULDER, CO 80306 303 449-1151 FAX 303 530-7716
NEW MEXICO 2603 W. MAIN ST., SUITE B, FARMINGTON, NM 87401 505 326-7420 FAX 505 324-1107
NEVADA 50 FREEPORT BLVD., SUITE 15, P.O. BOX 6130, SPARKS, NV 89432 775 358-9003 FAX 775 358-1387

Figure 1 Previously Recorded Resources

Erie Class III Survey

Site and Isolated Find Location Map



Printed from TOPO! ©1997 Wildflower Productions (www.topo.com)

U.S.G.S. Erie 7.5' Quadrangle

—— = Study Area Boundary

N

COLORADO 7765 DURHAM CIRCLE, P.O. BOX 2326, BOULDER, CO 80306 303 449-1151 FAX 303 530-7716
NEW MEXICO 2603 W. MAIN ST., SUITE B, FARMINGTON, NM 87401 505 326-7420 FAX 505 324-1107
NEVADA 50 FREEPORT BLVD., SUITE 15, P.O. BOX 6130, SPARKS, NV 89432 775 358-9003 FAX 775 358-1387

References Cited

Chambellan, Collette C., and Steven F. Mehls
1999 *Cultural Resource Inventory of the Vista Plaza Annexation, Weld County, Colorado.* Prepared by Western Cultural Resource Management, Inc. for Pratt Development Company, LLC. Unpublished report on file with the Office of Archaeology and Historic Preservation, Denver.

Lennon, Thomas J.
2007 *Vista Plaza Cultural Resource Study.* Prepared by Western Cultural Resource Management, Inc. for RDB Development. Unpublished report on file with the Office of Archaeology and Historic Preservation, Denver.

ERO Resources Corp.

September 22, 2015

To: Todd Bjerkass, Town of Erie

CC: Matt Deibel, Highway 7 and Bonanza, LLC

From: Denise Larson, ERO Resources Corporation

Re: Native and Specimen Tree and Vegetation Survey – Sierra Vista Property, Weld County, Colorado

Background

Highway 7 and Bonanza, LLC retained ERO Resources Corporation (ERO) to conduct a native and specimen tree and vegetation survey (survey) for a parcel northwest of Highway 7 and Weld County Road 3 in Weld County, Colorado (project area; Figure 1). This survey follows the requirements of *Chapter 6, Section 10.6.2 Natural and Scenic Resource Protection in the Unified Development Code* (Unified Development Code, Town of Erie 2015). On September 9, 2015, Hidde Snieder with ERO surveyed the project area for native and specimen trees and vegetation (2015 site visit) including the following information:

I. The range of height, and caliper of the trees on the site;

II. The predominant species within an area;

III. The general appearance of the trees with regard to health;

IV. Identification and location of individual trees that are healthy and have a diameter at breast height (dbh) of 4 inches or greater for deciduous trees, 3 inches or greater for ornamental trees, and 8 feet high or greater for evergreen trees or that are otherwise noteworthy because of species, age, size, or rarity;

V. The species, size, and health of shrubs; and

VI. Areas of native and specimen trees and vegetation.

General Description of Project Area

Project Area Location

The project area is in Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian in Weld County, Colorado (Figure 1). The UTM coordinates of the approximate center of the project area are NAD 83; 496513mE, 4427982mN, Zone 13N. The latitude/longitude of the project area is 40.002125°N/105.040935°W. The elevation of the project area is about 5,200 feet.

Denver
1842 Clarkson St.
Denver, CO 80218
303.830.1188

Durango
1015 ½ Main Avenue
Durango, CO 81301
970.422.2136

Hotchkiss
P.O. Box 932
161 South 2nd St.
Hotchkiss, CO 81419
970.872.3020

Idaho
4001 East Main Street
Emmett, ID 83617
208.365.7684

www.eroresources.com

Site Description

The project area is bounded by residential development to the north and south, a storage yard and residential development to the east, and undeveloped land to the west. The Tri-County Airport is northwest of the project area.

The vegetation within the project area consists of common native prairie and nonnative pasture grasses including blue grama (*Bouteloua gracilis*), sideoats grama (*Bouteloua curtipendula*), crested wheatgrass (*Agropyron desertorum*), cheatgrass (*Bromus tectorum*), western wheatgrass (*Pascopyrum smithii*), slender wheatgrass (*Elymus trachycaulus*), and switchgrass (*Panicum virgatum*). The noxious weeds diffuse knapweed (*Acosta diffusa*) and field bindweed (*Convolvulus arvensis*) are also present. Several species of shrubs including Yucca (*Yucca glauca*), rubber rabbitbrush (*Ericameria nauseosa*), and prickly pear (*Opuntia* sp.) are scattered throughout the project area. Additionally two 10 to 15 foot wide clusters of three leaf sumac (*Rhus trilobata*), were observed in the project area. All shrubs appeared healthy during the 2015 site visit.

Nine healthy Siberian elms (*Ulmus pumila*), an invasive tree species, are located in the project area (Figure 2). The Siberian elm trees range from 12 to 35 feet high, the caliper ranges from 5.25 to 20.70 inches, and the dbh ranges from 4.78 to 18.79 inches. One healthy peachleaf willow (plw; *Salix amygdaloides*) is located outside the project area in a tributary to Coal Creek (Figure 2). The peachleaf willow is approximately 21 feet tall with a caliper of 10.83 inches and dbh of 7.64 inches. Table 1 lists specifications of all trees found within the project area.

Table 1. Riparian/wetland enhancement plantings (including volunteers).

Species Name	Common Name	Figure 2 Name	dbh (inches)	Caliper (inches)	Height (feet)	Native/ Introduced	Impact	Replacement Ratio[1]
Ulmus pumila	Siberian elm	Siberian elm 1	7.72	8.60	14	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 2	5.97	7.40	12	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 3	6.85	7.48	17	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 4	5.57	6.29	14	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 5	4.78	5.25	13	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 6	18.79	20.70	35	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 7	5.81	6.53	14	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 8	5.18	6.05	10	Introduced	Removed	N/A
Ulmus pumila	Siberian elm	Siberian elm 9	5.65	6.61	12	Introduced	Removed	N/A
Salix amygdaloides	Peachleaf willow	plw	7.64	10.83	21	Native	Protected	N/A

[1]No replacement ratios are provided because all trees that will be removed are invasive species.

Recommendations

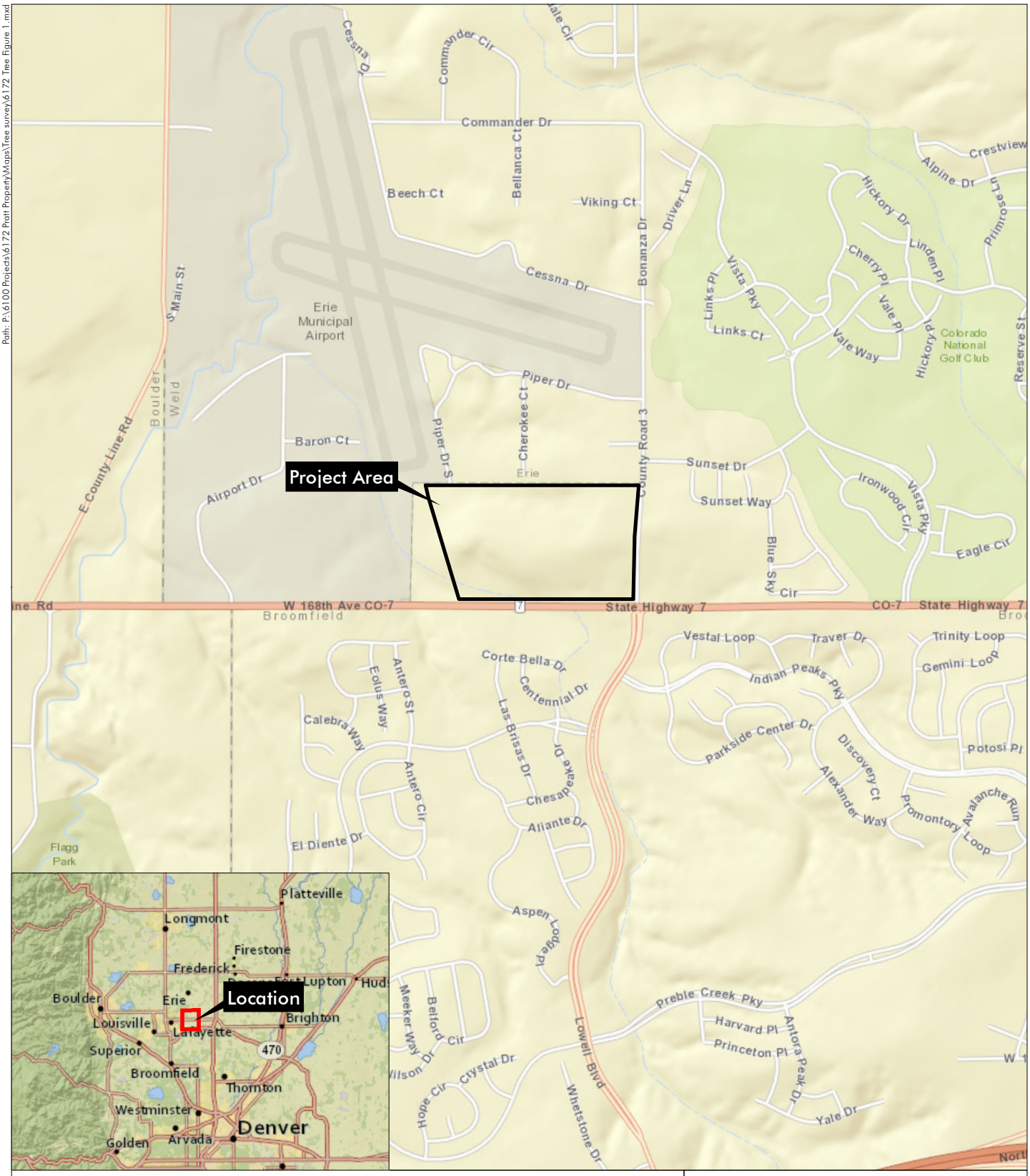
As required under 10.6.2.C.4.6 of the Unified Development Code (Town of Erie 2015), native and specimen trees must be replaced. However, the only trees to be removed for this project are the nine Siberian elm trees. ERO believes the removal of the Siberian elms is exempt under 10.6.2.C.3.d. "removal of invasive or noxious species of trees and vegetation" (Town of Erie 2015). The peachleaf willow would not be impacted by the development and best management practices, such as protective fencing, would be used to prevent impacts on the peachleaf willow. Because no native trees would be removed as part of the proposed development project, ERO believes no replacement trees are required.

References

Town of Erie. 2015. Unified Development Code. Available at: https://www.erieco.gov/DocumentCenter/View/351. Last accessed: September 21, 2015. June.

Attachments

Path: P:\6100 Projects\6172 Pratt Property\Maps\Tree survey\6172 Tree Figure 1.mxd



Siera Vista Property

Section 31, T1N, R68W; 6th PM

UTM NAD 83: Zone 13N; 496513mE, 4427982mN

Latitude, Longitude: 40.002125°N, 105.040935°W

USGS Erie, CO Quadrangle

Weld County, Colorado

0 750 1,500 Feet

N

Figure 1
Vicinity Map

Prepared for: Town of Erie

File: 6172 Tree Figure 1.mxd (GS)

September 22, 2015

ERO Resources Corp.

Portions of this document include intellectual property of ESRI and its licensors and are used herein under license. Copyright © 2014 ESRI and its licensors. All rights reserved.

Path: P:\6100 Projects\6172 Pratt Property\Maps\Tree survey\6172 Tree Figure 2.mxd

Siera Vista Property

Tree

Project Area Boundary

Image Source: Google Earth©, October 2014

0 300 600 Feet

N

Figure 2
Tree Locations

Prepared for: Town of Erie
File: 6172 Tree Figure 2.mxd (GS)
September 21, 2015

ERO
ERO Resources Corp.

ERO Resources Corp.

March 24, 2015

To: Matt Deibel, Highway 7 & Bonanza LLC

From: Moneka Worah, ERO Resources Corporation

Re: Natural Resource Assessment Update – Pratt Property, Weld County, Colorado

Background

Highway 7 & Bonanza LLC. (Client) retained ERO Resources Corporation (ERO) to provide a natural resources assessment update of the Pratt property located northwest of Highway 7 and County Road 3 in Weld County, Colorado (project area). ERO previously conducted a natural resources assessment on the project area on March 25, 2002 and revisited the project area on November 8, 2007. On March 19, 2015, Hidde Snieder, a biologist with ERO, visited the project area to review natural resources.

During the 2015 site visit ERO determined the upland grassland community dominating the project area is composed of the same species as it was in 2007. The tributary to Coal Creek would be considered potential habitat for Preble's meadow jumping mouse (Preble's), a federally threatened species; however, the project area is isolated from known Preble's populations and does not contain suitable habitat. The prairie dog colony west of the project area has not encroached into the project area since 2007. Additionally, ERO did not observe any migratory bird nests within the project area.

During the 2015 visit the tributary to Coal Creek located in the southwest corner of the project area had a 2 to 3 feet wide channel of open water with wetlands throughout the majority of its reach. The wetlands range from 5 to 20 feet in width within the project area and are dominated by broadleaf cattail (*Typha latifolia*) with some patches of sandbar willow (*Salix exigua*). The banks above the channel are vegetated by western snowberry (*Symphoricarpos occidentalis*) and Canada thistle (*Cirsium arvense*). Based on the 2007 report ERO determined that wetlands have expanded along the tributary since the 2007 visit.

Recommendations

No material changes to the property with respect to the vegetation or wildlife communities were identified in 2015 compared with the original 2007 Natural Resources Assessment.

ERO recommends submitting a habitat assessment to the U.S. Fish and Wildlife Service requesting concurrence that the project area does not contain suitable habitat for Preble's. If any work is planned within the tributary to Coal Creek, a jurisdictional

Denver
1842 Clarkson St.
Denver, CO 80218
303.830.1188

Durango
1015 ½ Main Avenue
Durango, CO 81301
970.422.2136

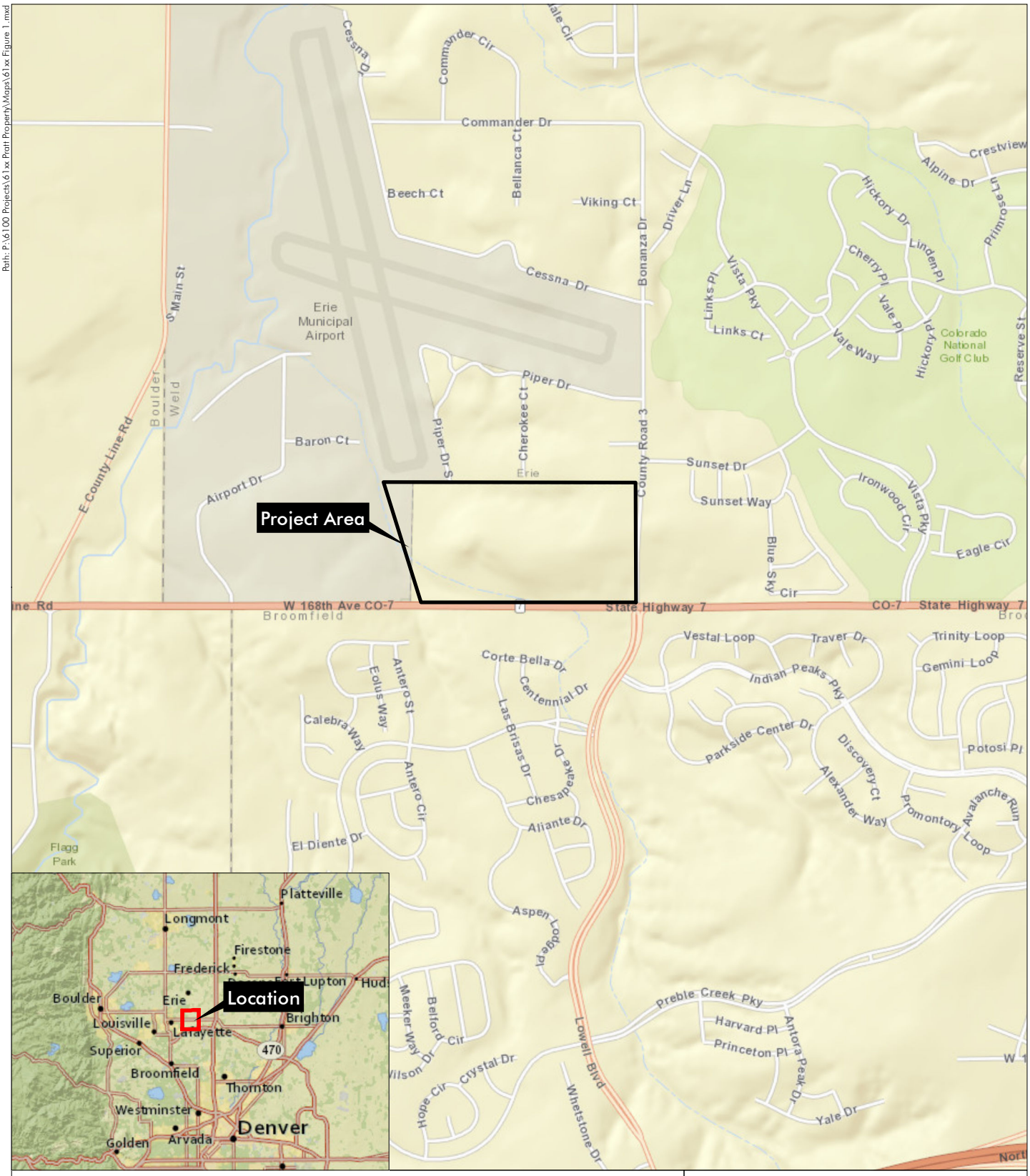
Hotchkiss
P.O. Box 932
161 South 2nd St.
Hotchkiss, CO 81419
970.872.3020

Idaho
4001 East Main Street
Emmett, ID 83617
208.365.7684

www.eroresources.com

determination should be requested from the Corps. If this area is considered jurisdictional, a wetland delineation should be conducted and a Section 404 permit would be required for the placement of fill or dredged material within wetlands or below the ordinary high water mark. If the tributary to Coal Creek is determined nonjurisdictional, or if no work is planned within the tributary or its abutting wetlands, no action would be necessary.

Path: P:\6100 Projects\61xx Pratt Property\Maps\61xx Figure 1.mxd



Pratt Property

Section 31, T1N, R68W; 6th PM

UTM NAD 83: Zone 13N; 496513mE, 4427982mN

Latitude, Longitude: 40.002125°N, 105.040935°W

USGS Erie, CO Quadrangle

Weld County, Colorado

0 750 1,500 Feet

N

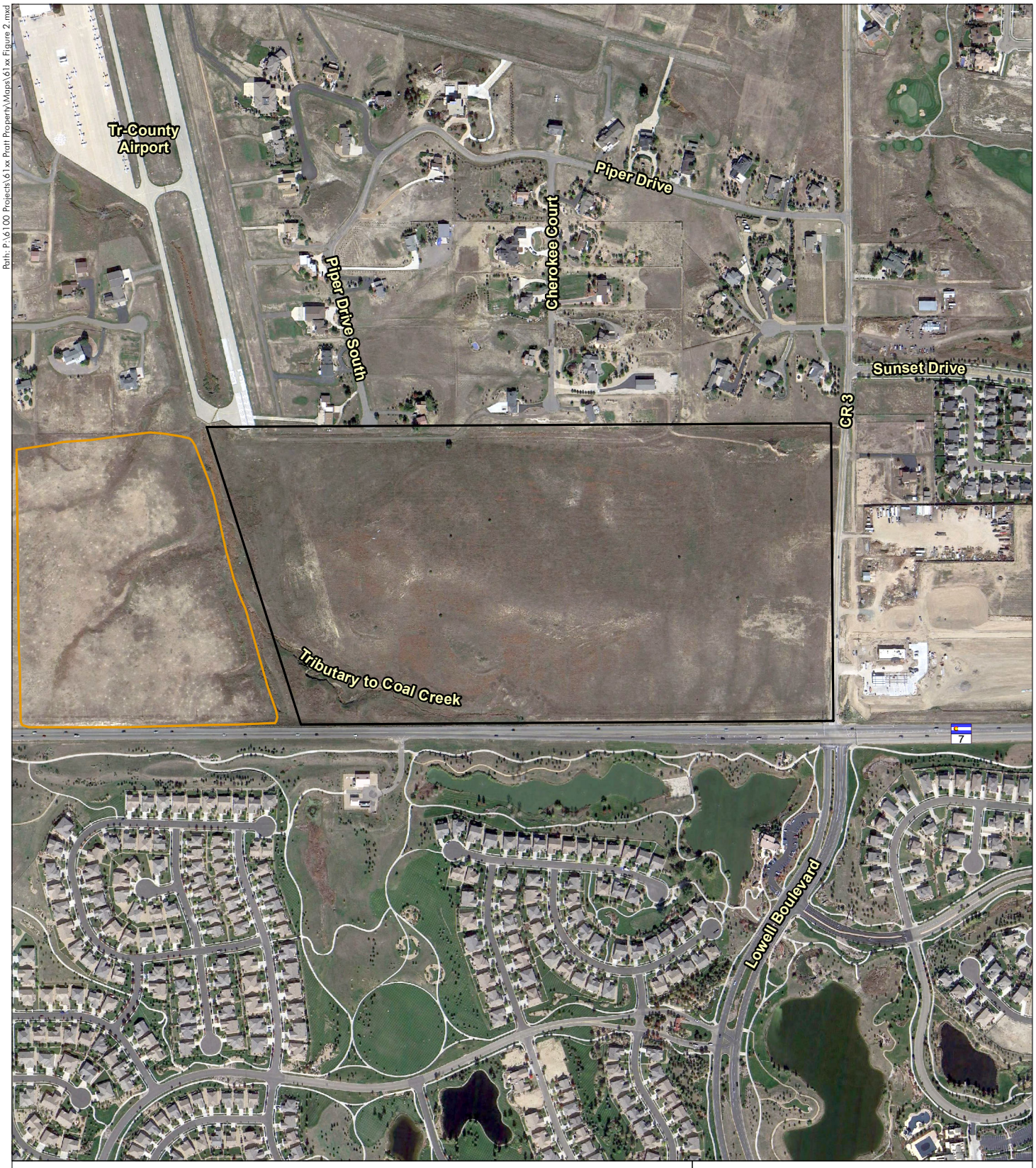
Figure 1
Vicinity Map

Prepared for: RDB Development
File: 61xx Figure 1.mxd (GS)
March 20, 2015

ERO
ERO Resources Corp.

Portions of this document include intellectual property of ESRI and its licensors and are used herein under license. Copyright © 2014 ESRI and its licensors. All rights reserved.

Path: P:\6100 Projects\61xx Pratt Property\Maps\61xx Figure 2.mxd



Pratt Property

Prairie Dog Colony

Project Area Boundary

Image Source: Google Earth©, October 2014

0 300 600 Feet

N

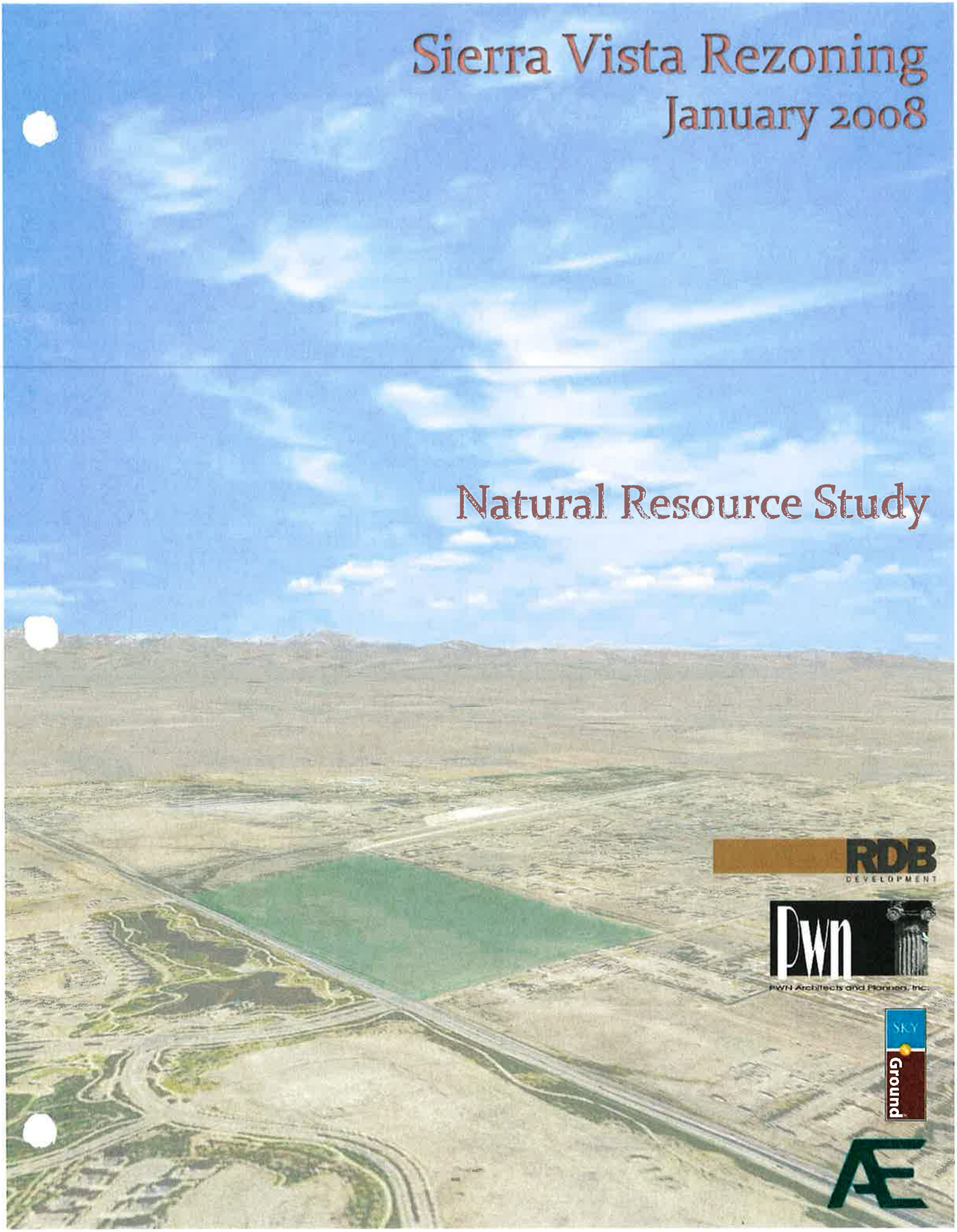
Figure 2
Existing Conditions

Prepared for: RDB Development
File: 61xx Figure 2.mxd (GS)
March 20, 2015

ERO
ERO Resources Corp.

Sierra Vista Rezoning
January 2008

Natural Resource Study



RDB DEVELOPMENT

PWN Architects and Planners, Inc.

SKY Ground

AE

Consultants in natural resources and the environment

Denver • Boise • Durango

NATURAL RESOURCES ASSESSMENT UPDATE
PRATT PROPERTY
WELD COUNTY, COLORADO

Prepared for—

RDB Development
6860 S. Yosemite Ct., #2122
Centennial, Colorado 80012

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188

ERO Project #4060

November 14, 2007

ERO

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199
www.eroresources.com
ero@eroresources.com

ERO Resources Corporation

CONTENTS

Introduction 1

Site Description 1

Wetlands and Waters of the U.S. 2
- Background 2
- Site Conditions and Regulations 3
- Floodplain Management 4
  - Section 404 Permitting 5

Threatened, Endangered, and Candidate Species 5
- Preble's Meadow Jumping Mouse 6
  - Species Background 6
  - Potential Habitat and Possible Effects 8
- Colorado Butterfly Plant 8
  - Species Background 8
  - Potential Habitat and Possible Effects 9
- Ute Ladies'-Tresses Orchid 9
  - Species Background 9
  - Potential Habitat and Possible Effects 10

Other Species of Concern 10
- Black-Tailed Prairie Dog 10
  - Species Background 10
  - Potential Habitat and Possible Effects 11
- Western Burrowing Owl 11
  - Species Background 11
  - Potential Habitat and Possible Effects 12
- Raptors and Migratory Birds 12
- Other Wildlife 13

Regulations and Recommendations 14

References 15

TABLES

Table 1. Federally threatened, endangered, and candidate species potentially found in Weld County or potentially affected by projects in Weld County 5

FIGURES

Figure 1. Site Location

Figure 2. Site Plan

PHOTOS

Photo Log

NATURAL RESOURCES ASSESSMENT UPDATE
PRATT PROPERTY
WELD COUNTY, COLORADO

NOVEMBER 14, 2007

Introduction

RDB Development retained ERO Resources Corporation (ERO) to provide a natural resources assessment update for the Pratt Property located in Weld County, Colorado (Figure 1). ERO previously conducted a natural resource assessment on the property on March 25, 2002. This report is an update to the 2002 Natural Resource Assessment report. On November 8, 2007, Moneka Worah, a natural resource specialist with ERO, visited the property to review natural resources. During this assessment, activities included a review of potential wetlands, identification of potential federally threatened and endangered species habitat, and identification of other natural resources that might affect development of the property. Jurisdictional wetland delineations were not conducted during this assessment. This report provides information on existing site conditions and resources, as well as current regulatory guidelines related to those resources. It is assumed that the landowner or developer is responsible for obtaining proper federal, state, or local permits for development of the project area.

Site Description

The project area is located within the Southeast ¼ of Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, in Weld County, Colorado (Figure 1). The UTM coordinates of the approximate center of the project area are 496513mE and 4427982mN, Zone 13.

The Pratt Property is located northwest of the intersection of Highway 7 and Weld County Road 3 in Erie, Colorado (Figure 2). The topography of the Pratt Property consists of a low ridge that runs through the center of the property from west to east and is covered by a mixture of native and introduced grassland vegetation (Photo 1). Vegetation within the study area consists of common prairie and pasture grasses including blue grama (*Chondrosum gracile*), sideoats grama (*Bouteloua curtipendula*), crested wheatgrass (*Agropyron desertorum*), cheatgrass (*Anisantha tectorum*), western

wheatgrass (*Pascopyrum smithii*), slender wheatgrass (*Elymus trachycaulus*), switchgrass (*Panicum virgatum*), diffuse knapweed (*Acosta diffusa*), and bindweed (*Convolvulus arvensis*). Yucca (*Yucca glauca*), rabbitbrush (*Chrysothamnus* spp.), and prickly pear (*Opuntia* sp.) are also common at the site. A small tributary to Coal Creek crosses the southwestern corner of the property (Photos 2 and 3). Vegetation along the small tributary includes cheatgrass, Canada thistle (*Breea arvense*), musk thistle (*Carduus nutans*), kochia (*Bassia sieversiana*), catnip (*Nepeta cataria*), and snowberry (*Symphoricarpos occidentalis*). A small area has been excavated in the northeastern corner of the project area, and a dirt road occurs to the south of it (Photo 4). The property is bounded by residential development to the north and south, a storage yard and residential development to the east, and undeveloped land to the west. The Tri-County Airport is located to the northwest of the property.

Wetlands and Waters of the U.S.

Background

The Clean Water Act (CWA) was passed by the U.S. Congress in 1977 to protect the physical, biological, and chemical quality of waters of the U.S. The U.S. Army Corps of Engineers' (Corps) Regulatory Program administers and enforces Section 404 of the CWA. Under Section 404, a Corps' permit is required for the discharge of dredged or fill material into wetlands and waters of the U.S. The Corps defines waters of the U.S. as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. Because of court challenges to the Corps' jurisdiction over wetlands and waters of the U.S., the Corps' regulatory guidance is in a state of flux. As a result of the 2001 ruling by the Supreme Court in the matter of *Solid Waste Agency of Northern Cook County vs. U.S. Army Corps of Engineers*, 531 U.S. 159 (S. Ct. 2001), the Corps' regulatory jurisdiction over isolated, nonnavigable, intrastate waters has been eliminated if the sole nexus to interstate commerce was use of the waters by migratory birds. On June 19, 2006, the Supreme Court ruled in the consolidated cases of *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers*, which questioned the scope of the Corps' jurisdiction over wetlands associated with ephemeral and intermittent drainages, and man-made

ditches and canals. On June 5, 2007, the Corps issued guidance on the Supreme Court ruling stating that the Corps would consider traditionally navigable waters (TNWs), wetlands adjacent to a TNW, and tributaries to TNWs that are relatively permanent waters (RPWs) and their abutting wetlands to be jurisdictional waters. Other wetlands and waters would require a determination that the wetland or tributary would have an effect that is more than speculative or insubstantial on the chemical, physical, or biological integrity of a TNW to be jurisdictional (significant nexus determination).

Site Conditions and Regulations

The project area was assessed for potential isolated wetlands, jurisdictional wetlands, and other waters of the U.S. A tributary to Coal Creek is located within the southwestern portion of the project area and is shown as an intermittent stream on the USGS Erie topographic quadrangle (Figure 1). A tributary to Coal Creek appears to have increased since 2002, and the tributary currently has a small channel approximately 2 to 3 feet wide. Patches of wetlands are present along portions of the drainage and are dominated by cattails (*Typha latifolia*) (Photo 2). Portions of the banks along the tributary are steep and highly eroded, with little to no vegetation (Photo 3). Most of the banks along the tributary are disturbed and dominated by invasive species such as kochia, musk thistle, Canada thistle, and diffuse knapweed, with some western wheatgrass and snowberry present. The tributary flows through the southwestern portion of the property and continues northwest until it reaches a culvert at the Tri-County Airport. The tributary to Coal Creek is shown on the USGS Erie topographic quadrangle as connecting to Coal Creek approximately ¼ mile northwest of the project area; however, this connection was not verified during the site visit.

The tributary to Coal Creek would most likely be under the Corps' jurisdiction due to the recent Supreme Court decisions and the increase of flows along the tributary. If any work is planned within the tributary to Coal Creek, a jurisdictional determination should be requested from the Corps. If the Corps determines the tributary to Coal Creek to be subject to its jurisdiction, and work is planned within the tributary to Coal Creek, a wetland delineation should be conducted and a report should be submitted to the Corps for its review and approval. Authorization from the Corps for the placement of dredged

or fill material within wetlands or below the ordinary high water mark would be required if the tributary to Coal Creek is determined jurisdictional. If the tributary to Coal Creek is determined nonjurisdictional or if no work is planned within the tributary to Coal Creek, no action would be necessary. No other wetlands or waters of the U.S. occur within the project area.

Floodplain Management

The Corps is required to make significant efforts to avoid authorizing developments within floodplains pursuant to 33 CFR Part 320.4(l), *Floodplain Management*, which implements Executive Order 11988. Floodplain protection has always been one of the many issues considered as part of the Corps' public interest review for Individual Permits, and some Nationwide Permits have restrictions on the discharge of fill into floodplains. Due to growth along the Colorado Front Range and an associated loss and shrinkage of natural drainages and floodplains, the Denver Regulatory Office of the Corps is now emphasizing floodplain protection.

Addressing floodplain management issues with the Corps would only be required if the activity otherwise involves the discharge of fill material in waters of the U.S., including wetlands, requiring authorization from the Corps (i.e., there is no requirement to address floodplain issues with the Corps for activities not requiring Corps' authorization). Because the Corps is now considering avoidance of impacts to mapped 100-year floodplains as part of its review of activities involving a discharge of fill into jurisdictional waters of the U.S., project proponents should not expect to receive 404 permits for developments that significantly alter channels or place fill within the 100-year floodplain, particularly for the purposes of increasing developable land. If a practicable alternative exists for construction of a project outside of the mapped 100-year floodplain, this is the alternative for which a permit should be sought.

The Denver Regulatory Office of the Corps is also placing greater emphasis on avoidance and minimization of indirect effects to the aquatic ecosystem. The Corps is asking that project proponents avoid and minimize indirect effects to the aquatic ecosystem by establishing setbacks (50 feet minimum recommended) from waters and wetlands for protection from construction and long-term disturbances.

Section 404 Permitting

The recent emphasis on floodplain management as part of the permit process is particularly important to those involved in subdivision plan development, review, and approval. Because the Corps continues to develop its guidance for the Section 404 regulatory program, if modifications to jurisdictional waters may occur as part of the proposed project, ERO recommends meeting with the Corps early in the site layout and planning process to fully understand the Corps' requirements and concerns before significant resources are invested in the project.

Threatened, Endangered, and Candidate Species

The project area was assessed for potential habitat for threatened, endangered, and candidate species under the Endangered Species Act (ESA). Federally threatened and endangered species are protected under the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). Significant adverse effects to a federally listed species or its habitat require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 or 10 of the ESA. The Service lists several threatened and endangered species with potential habitat in Weld County, or potentially affected by projects in Weld County (Table 1).

Table 1. Federally threatened, endangered, and candidate species potentially found in Weld County or potentially affected by projects in Weld County.

Common Name	Scientific Name	Status*	Habitat	Suitable Habitat Present
Mammals				
Black-footed ferret	*Mustela nigripes*	E	Active prairie dog towns greater than 80 acres	No
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	T	Shrub riparian/wet meadows	No
Birds				
Interior least tern**	*Sterna antillarum athalassos*	E	Sandy/pebble beaches on lakes, reservoirs, and rivers	No
Mexican spotted owl	*Strix occidentalis*	T	Closed canopy forests in steep canyons	No
Piping plover**	*Charadrius melodus*	T	Sandy lakeshore beaches, river sandbars	No
Whooping crane**	*Grus americana*	E	Mudflats around reservoirs and in agricultural areas	No

Common Name	Scientific Name	Status*	Habitat	Suitable Habitat Present
Fish				
Pallid sturgeon**	*Scaphirhynchus albus*	E	Large, turbid, free-flowing rivers with a strong current and gravel or sandy substrate	No
Plants				
Colorado butterfly plant	*Gaura neomexicana* ssp. *coloradensis*	T	Subirrigated, alluvial soils on level floodplains and drainage bottoms between 5,000 and 6,000 feet	No
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 6,500 feet	No

*T = Federally Threatened Species, E = Federally Endangered Species.

**Water depletions in the South Platte River may affect the species and/or critical habitat in downstream reaches in other counties or states.

Source: Service 2006. (Although the Bald Eagle (*Haliaeetus leucocephalus*) is on the Weld County list, it was removed from the Federal Threatened and Endangered Species list on August 8, 2007.)

The proposed project would not directly affect the black-footed ferret or Mexican spotted owl because of the lack of potentially suitable habitat in the project area. The interior least tern, piping plover, whooping crane, and pallid sturgeon are species that are affected by water depletions from the South Platte River. If the project includes activities that deplete water in the South Platte River, such as diverting water from a stream, these species could be affected by the project and a consultation with the Service may be required.

Potential habitat for the Preble's meadow jumping mouse, Colorado butterfly plant, and Ute ladies'-tresses orchid is more prevalent within development sites across the Front Range. Because these species are more likely to be addressed by counties and regulatory agencies such as the Corps, a more detailed discussion is provided below.

Preble's Meadow Jumping Mouse

Species Background

Preble's meadow jumping mouse (Preble's) was listed as a threatened species on May 13, 1998 under the ESA (see Federal Register Vol. 63, No 232:66777-66784 12/3/98).

Under existing regulations, either a habitat assessment or a full presence/absence survey for Preble's is required for any habitat-disturbing activity within areas determined to be potential Preble's habitat (generally stream and riparian habitats along the Colorado Front Range and southeastern Wyoming). Typically, Preble's occurs below 7,600 feet in elevation, generally in lowlands with medium to high moisture along permanent or intermittent streams and canals (Meaney et al. 1997). Preble's occurs in low undergrowth consisting of grasses and forbs, in open wet meadows, riparian corridors near forests, or where tall shrubs and low trees provide adequate cover (Service 1999; Meaney et al. 1997). Preble's typically inhabits areas characterized by well-developed plains riparian vegetation with relatively undisturbed grassland and a water source nearby.

Recent studies have suggested that Preble's is not a distinct subspecies (*Zapus hudsonius preblei*) but is actually a disjunct population of two wider-ranging subspecies; one known as the Bear Lodge jumping mouse (*Z. h. campestris*) is native to Montana and the Dakotas, and the other (*Z. h. intermedius*) occurs in the upper Midwest (Ramey et al. 2005). The Service reviewed this study and historical data and proposed to remove Preble's from the ESA listing as a threatened species in 2005. A subsequent study conducted by the U.S. Geological Survey (King et al. 2006) concluded that not only is Preble's a taxonomically valid subspecies, but the evidence suggests that there are two genetically distinct populations (distinct population segments) of Preble's.

After reviewing the studies and the best scientific and commercial data available, the Service concluded that (1) the Preble's meadow jumping mouse is a valid subspecies and should not be delisted based upon taxonomic revision; (2) the subspecies is not threatened throughout all of its range; and (3) the portion of the current range of the subspecies located in Colorado represents a significant portion of the current range where Preble's is likely to become endangered within the foreseeable future, and the subspecies in that portion of its range should retain its threatened status.

On November 1, 2007, the Service proposed to remove Preble's populations in Wyoming from the list of species protected under the ESA (Service 2007). The Service

also proposed to amend the listing for Preble's to indicate the subspecies remains threatened in the Colorado portion of its range. Currently, the amendment to the Preble's listing is only a proposal and Preble's remains protected throughout its range until a positive, final decision to amend the listing is made. A final decision is anticipated in mid-2008. Since it is not yet certain that a final decision will remove existing protection within any portion of Preble's range, activities done between now and a final determination need to comply with the ESA.

Potential Habitat and Possible Effects

The project area was assessed for potential Preble's habitat. The Service would view the tributary to Coal Creek as potential habitat for Preble's until an assessment of the site is made. Current guidelines call for a 300-foot setback from the 100-year floodplain on drainages that are potential Preble's habitat; and for projects within the 300-foot setback, a habitat assessment of the site should be conducted and submitted to the Service for its approval. ERO recommends submitting a habitat assessment to the Service requesting that the site be excluded from a presence/absence survey for the following reasons:

- The tributary to Coal Creek is isolated from known populations of Preble's. The closest known population is over 9.5 stream miles away on Coal Creek in Lafayette.
- The tributary to Coal Creek has low quality habitat and contains a large amount of weedy vegetation and has steep and eroded banks.
- The tributary to Coal Creek lacks the structured tree and shrub or wetland habitat typically associated with Preble's habitat.
- Preble's were not captured during previous trapping surveys in better habitat along Coal Creek upstream and downstream of the project area.

If no development is planned within the 300-foot setback from the 100-year floodplain, a habitat assessment submitted to the Service would not be necessary.

Colorado Butterfly Plant

Species Background

The Colorado butterfly plant (CBP) is a short-lived perennial herb found in moist areas of floodplains. It occurs on subirrigated, alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations 5,000 to 6,400 feet. Colonies are often

found in low depressions or along bends in wide, active, meandering stream channels that are periodically disturbed. Historically, the main cause of disturbance was probably flooding (Service 2004). The CBP flowers from June to September and produces fruit from July to October (Spackman et al. 1997). This species is federally listed as threatened under the ESA and is found within a small area in southeastern Wyoming, western Nebraska, and north-central Colorado (NatureServe 2006).

Potential Habitat and Possible Effects

The Service has not established official survey guidelines for the CBP; however, no suitable habitat is present within the project area. Only patches of cattail-dominated wetlands are present along the tributary to Coal Creek. In addition, the tributary to Coal Creek has steep banks, little to no riparian vegetation, and is lined by densely growing weedy species. Because of these characteristics, habitat within the project area is not suitable for CBP. No action is necessary regarding CBP.

Ute Ladies'-Tresses Orchid

Species Background

The Ute ladies'-tresses orchid (ULTO) is federally listed as threatened. ULTO occurs at elevations below 6,500 feet in moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes where the soil is seasonally saturated within 18 inches of the surface. Generally, the species occurs where the vegetative cover is relatively open and not overly dense or overgrazed. Once thought to be fairly common in low elevation riparian areas in the interior western United States, ULTO is now rare (Service 1992a).

The main reason for the decline of this species appears to be drastic modification of riparian habitat by urbanization and stream channelization. Because of this decline, the Service listed this species as threatened under the ESA in 1992 (Service 1992b). When listing occurred, ULTO was found only in Colorado, Utah, and Nevada. Since then the species has been found in Wyoming, Montana, Nebraska, and Idaho. The largest known population occurs in Colorado. Other historic populations in Utah, Colorado, and Nevada are presumed to be extirpated (NatureServe 2006).

In Colorado, the Service requires surveys in areas of suitable habitat on the 100-year floodplain of the South Platte River, Fountain Creek, and Yampa River and their perennial tributaries, or in any area with suitable habitat in Boulder and Jefferson counties. ULTO does not bloom until late July to early September (depending on the year) and timing of surveys must be synchronized with blooming (Service 1992a).

Potential Habitat and Possible Effects

The project area was assessed for potential ULTO habitat. Because a perennial tributary to the South Platte River does not occur in the project area and the project area is within Weld County, the site does not fall within the Service's guidelines for ULTO surveys. No action is necessary regarding ULTO.

Other Species of Concern

Black-Tailed Prairie Dog

Species Background

The black-tailed prairie dog is a Colorado Species of Special Concern (CDOW 2007). Black-tailed prairie dogs are important components of the short and mesic grasslands systems. Threats to this species include habitat loss and degradation, habitat fragmentation, disease (sylvatic plague), and lethal control activities (NatureServe 2006). Typically, areas occupied by prairie dogs have greater cover and abundance of perennial grasses and annual forbs compared to nonoccupied sites (Whicker and Detling 1988; Witmer et al. 2002).

Black-tailed prairie dogs are commonly considered a "keystone" species because their activities (burrowing and intense grazing) provide food and shelter for many other grassland species, and have a large effect on community structure and ecosystem function (Power et al. 1996). Prairie dogs can contribute to overall landscape heterogeneity, affect nutrient cycling, and provide nest sites and shelter for wildlife (Whicker and Detling 1988). Species such as black-footed ferret, burrowing owl, prairie rattlesnake, and mountain plover are closely linked to prairie dog burrow systems for food and/or cover. Prairie dogs also provide an important prey resource for numerous predators including American badger, coyote, red fox, bald eagle, golden eagle, ferruginous hawk, and other

raptors. Prairie dogs also can denude the surface by clipping above-ground vegetation and contributing to exposed bare ground by digging up roots (Kuford 1958; Smith 1967).

Potential Habitat and Possible Effects

No black-tailed prairie dogs were observed within the project area. Although no black-tailed prairie dogs were observed within the project area, prairie grassland is a potential niche for dispersing prairie dogs from surrounding areas. Prairie dog burrows are shown on the USGS 2005 Aerial on Figure 2 within the adjacent property to the west, and prairie dogs from surrounding areas could potentially spread into the project area if the site is left undeveloped for a significant amount of time. If prairie dog removal becomes necessary, it should be conducted as humanely as possible by removing them prior to any earthwork. A prairie dog colony should be surveyed for burrowing owls if it is disturbed between March 1 and October 31, the time when burrowing owls are in Colorado (see Western Burrowing Owl section).

Western Burrowing Owl

Species Background

The western burrowing owl (burrowing owl) is a small migrant owl listed by the State of Colorado as a threatened species and federally protected under the Migratory Bird Treaty Act (MBTA). The U.S. Forest Service Region 2 considers the burrowing owl to be a regional sensitive species (McDonald et al. 2004). Primary threats to the burrowing owl include habitat loss and fragmentation, anthropogenic sources of mortality such as vehicular collisions, and loss of wintering grounds, largely in Mexico (McDonald et al. 2004).

In general, burrowing owls are found in grasslands with vegetation less than 4 inches high and a relatively large proportion of bare ground (Gillihan and Hutchings 2000). In Colorado, burrowing owls are usually associated with black-tailed prairie dog colonies (Kingery 1998; Andrews and Righter 1992). Over 70 percent of sightings reported by Colorado Breeding Bird Atlasers were in prairie dog colonies (Kingery 1998).

Burrowing owls are opportunistic predators, feeding on insects, small rodents, amphibians, reptiles, and occasionally small birds (Haug et al. 1993). In general, more

vertebrates are taken in winter and more invertebrates during the summer (Haug et al. 1993). Burrowing owls will forage in a wide variety of grasslands and agricultural areas but avoid vegetation greater than 3 feet in height (Haug and Oliphant 1990).

Burrowing owls usually arrive on their breeding grounds around mid-March to early April and remain until September (Haug and Oliphant 1990). Burrowing owls could be present in Colorado between March 1 and October 31, with breeding from mid-April to early/mid-August (Andrews and Righter 1992; Kingery 1998). The Colorado Division of Wildlife (CDOW) suggests conducting burrowing owl clearance surveys in prairie dog towns that are subject to poisoning and/or construction projects during the period from March 1 through October 31.

Potential Habitat and Possible Effects

Prairie dog burrows within the adjacent property to the west are potential habitat for burrowing owls. Inadvertent killing of burrowing owls could occur during prairie dog poisoning, construction, or earth-moving projects during the breeding period. CDOW has a recommended setback of 225 feet from burrows being used by burrowing owls (Craig 2002). Activities that could harm or cause the burrowing owls to abandon their nests should be restricted within the setback when burrowing owls are present.

As a precaution, CDOW suggests surveying for burrowing owls if prairie dog towns will be affected by development activities during the breeding season, or if activities would occur within the 225-foot setback. If burrowing owls are found within a prairie dog town, the recommended CDOW setback for construction activities (225 feet) should be applied to avoid violation of the MBTA. If construction would occur within 225 feet of a burrow occupied by a burrowing owl, CDOW suggests waiting until after the burrowing owls have left the area before initiating construction.

Raptors and Migratory Birds

Migratory birds, as well as their eggs and nests, are protected under the Migratory Bird Treaty Act. The MBTA does not contain any prohibition that applies to the destruction of a bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. While destruction of a nest by itself is not prohibited under

the MBTA, nest destruction that results in the unpermitted take of migratory birds or their eggs is illegal and fully prosecutable under the MBTA (Migratory Bird Permit Memorandum, U.S. Fish and Wildlife April 15, 2003). The regulatory definition of a take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

Under the MBTA, the Service may issue nest depredation permits, which allow a permittee to remove an active nest. The Service, however, issues few permits and only under specific circumstances, usually related to human health and safety. Obtaining a nest depredation permit is unlikely and involves a process that takes from 4 to 8 weeks. The best way to avoid a violation of the MBTA is to remove vegetation outside of the active breeding season, which typically falls between March and August, depending on the species. Public awareness of the MBTA has grown in recent years, and most MBTA enforcement actions are the result of a concerned member of the community reporting a violation.

No nests were observed within the project area, but nests on the ground are harder to detect. It is recommended that all vegetation be removed from the site outside of the breeding season to avoid destroying any potential nests. If an active nest is identified within or near the project area, activities that would directly impact the nest, or that would encroach close enough to cause adult birds to abandon the nest during the breeding season, should be restricted.

Other Wildlife

As with any human development, including residential development, wildlife species sensitive to human disturbance are likely to decline in abundance or abandon the area, while other wildlife species adapted to urban development are likely to increase in abundance. Species likely to decline would include some raptors and possibly coyotes. Species likely to increase would include red fox, raccoon, and great horned owl. Overall, surrounding and continuing development contributes to a decline in the number and diversity of wildlife species nearby and to a change in species composition to favor species that adapt better to human disturbance.

Regulations and Recommendations

- **Wetlands and Waters of the U.S.** A tributary to Coal Creek is located along the western border of the project area. If any work is planned within the tributary to Coal Creek, a jurisdictional determination should be requested from the Corps. If the tributary to Coal Creek is considered jurisdictional, a Section 404 permit would be required for the placement of fill or dredged material within wetlands or waters of the U.S. The Corps would unlikely issue a permit if fill material would be placed in the 100-year floodplain to increase developable land. If the tributary to Coal Creek is determined nonjurisdictional, or if no work is planned within the tributary to Coal Creek, no action would be necessary.
- **Preble's Meadow Jumping Mouse.** If activities within the tributary to Coal Creek or within the 300-foot setback from the 100-year floodplain are planned, a Preble's meadow jumping mouse habitat assessment should be submitted to the Service. If development is not planned within the 300-foot setback from the 100-year floodplain, no action is necessary.
- **Colorado butterfly plant.** Suitable habitat for the CBP is not present within the project area because the tributary to Coal Creek is an incised channel that lacks vegetation usually associated with CBP. No action is necessary.
- **Ute Ladies'-tresses Orchid.** The site does not fall under the guidelines for ULTO surveys because the project area is within Weld County, and there is no perennial tributary to the South Platte River. No action is necessary regarding ULTO.
- **Black-tailed prairie dog.** Prairie dogs were not observed within the project area and no action is necessary. Prior to earthwork, reasonable precautions should be taken to ensure that prairie dogs from nearby properties have not colonized the site.
- **Burrowing owls.** Burrowing owls are protected under the MBTA and can be inadvertently killed during activities within abandoned and active prairie dog towns. If construction occurs between March 1 and October 31, prairie dog burrows within 225 feet of the development activities should be surveyed for the presence of burrowing owls. If burrowing owls are present, recommended setbacks should be followed until the owls have left the area.
- **Raptors and Migratory Birds.** No migratory bird nests were observed within the project area; however, activities should be restricted during the breeding season near any newly identified migratory bird nest.
- **Other Wildlife.** No sensitive or unique wildlife habitat occurs within the project area; however, the proposed project may result in a change of species composition and diversity.

References

Andrews, R.A. and R. Righter. 1992. Colorado Birds. Denver Museum of Natural History, Denver, CO.

Colorado Division of Wildlife (CDOW). 2007. Colorado Listing of Endangered, Threatened, and Wildlife Species of Special Concern. Available at: <http://wildlife.state.co.us/species_cons/list.asp>. Last updated March 2, 2007.

Craig, G.R. 2002. Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptor Nests. Colorado Division of Wildlife. January 18.

Gillihan, S.C. and S.W. Hutchings. 2000. Best management practices for shortgrass prairie birds: a landowner's guide. Rocky Mountain Bird Observatory. Brighton, CO.

Haug, E.A. and L.W. Oliphant. 1990. Movements, activity patterns, and habitat use of burrowing owls in Saskatchewan. Journal of Wildlife Management 54:27-35.

Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing Owl (Speotyto cunicularia). *In* A. Poole and F. Gills (eds.). The Birds of North America, No. 61. The Academy of Natural Science, Philadelphia, and the American Ornithologists' Union, Washington, DC.

King, T.L., J.F. Switzer, C.L. Morrison, M.S. Eackles, C.C. Young, B.A. Lubinski, and P. Cryan. 2006. Comprehensive genetic analyses reveal evolutionary distinction of a mouse (*Zapus hudsonius preblei*) proposed for delisting from the U.S. Endangered Species Act. Molecular Ecology. In press.

Kingery, H.E. 1998. Colorado Breeding Bird Atlas. Colorado Breeding Bird Atlas Partnership and Colorado Division of Wildlife.

Kuford, C.C. 1958. Prairie dogs, Whitefaces, and Blue Grama. Wildlife Monograph 1-78.

McDonald, D., N.M. Korfanta, and S.J. Lantz. 2004. The Burrowing Owl *(Athene cunicularia)*: a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Available at: <http://www.fs.fed.us/r2/projects/scp/assessments/burrowingowl.pdf>.

Meaney, C.A., A. Deans, N.W. Clippenger, M. Rider, N. Daly, and M. O'Shea-Stone. 1997. Third year survey for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in Colorado. Under contract to Colorado Division of Wildlife. Boulder, CO.

NatureServe. 2006. NatureServe Explorer. Available at: <http://www.natureserve.org/explorer/servlet/NatureServe>.

Power, M.E., D. Tilman, J.A. Estes, B.A. Menge, W.T. Bond, L.S. Mills, G. Daily, J.C. Castilla, J. Lutchonco, and R.T. Paine. 1996. Challenges in the Quest for Keystone Species. BioScience 46:609-620.

Ramey, R.R., H.P. Liu, C.W. Epps, L.M. Carpenter, and J.D. Wehausen. 2005. "Genetic relatedness of the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) to nearby subspecies of *Z. hudsonius* as inferred from variation in cranial morphology,

mitochondrial DNA and microsatellite DNA: implications for taxonomy and conservation." Animal Conservation. 8:329 346.

Smith, R.E. 1967. Natural History of the Prairie Dog in Kansas. University of Kansas Museum of Natural History Misc. Publication No. 49.

Spackman, S., B. Jennings, J. Coles, C. Dawson, M. Minton, A. Kratz, and C. Spurrier. 1997. Colorado Rare Plant Field Guide. Prepared for the Bureau of Land Management, the U.S. Forest Service, and the U.S. Fish and Wildlife Service by the Colorado Natural Heritage Program.

U.S. Fish and Wildlife Service (Service). 1992a. Endangered and Threatened Wildlife and Plants: Final Rule to List the Plant *Spiranthes diluvialis* (Ute ladies'-tresses) as a Threatened Species. Federal Register 50 CFR Part 17, Volume 57, No. 12, Pages 2048-2054. January 17.

U.S. Fish and Wildlife Service (Service). 1992b. Interim Survey Requirements for *Spiranthes diluvialis.*

U.S. Fish and Wildlife Service (Service). 1999. Survey Guidelines for Preble's Meadow Jumping Mouse. USFWS, Colorado Field Office. Revised April 2004.

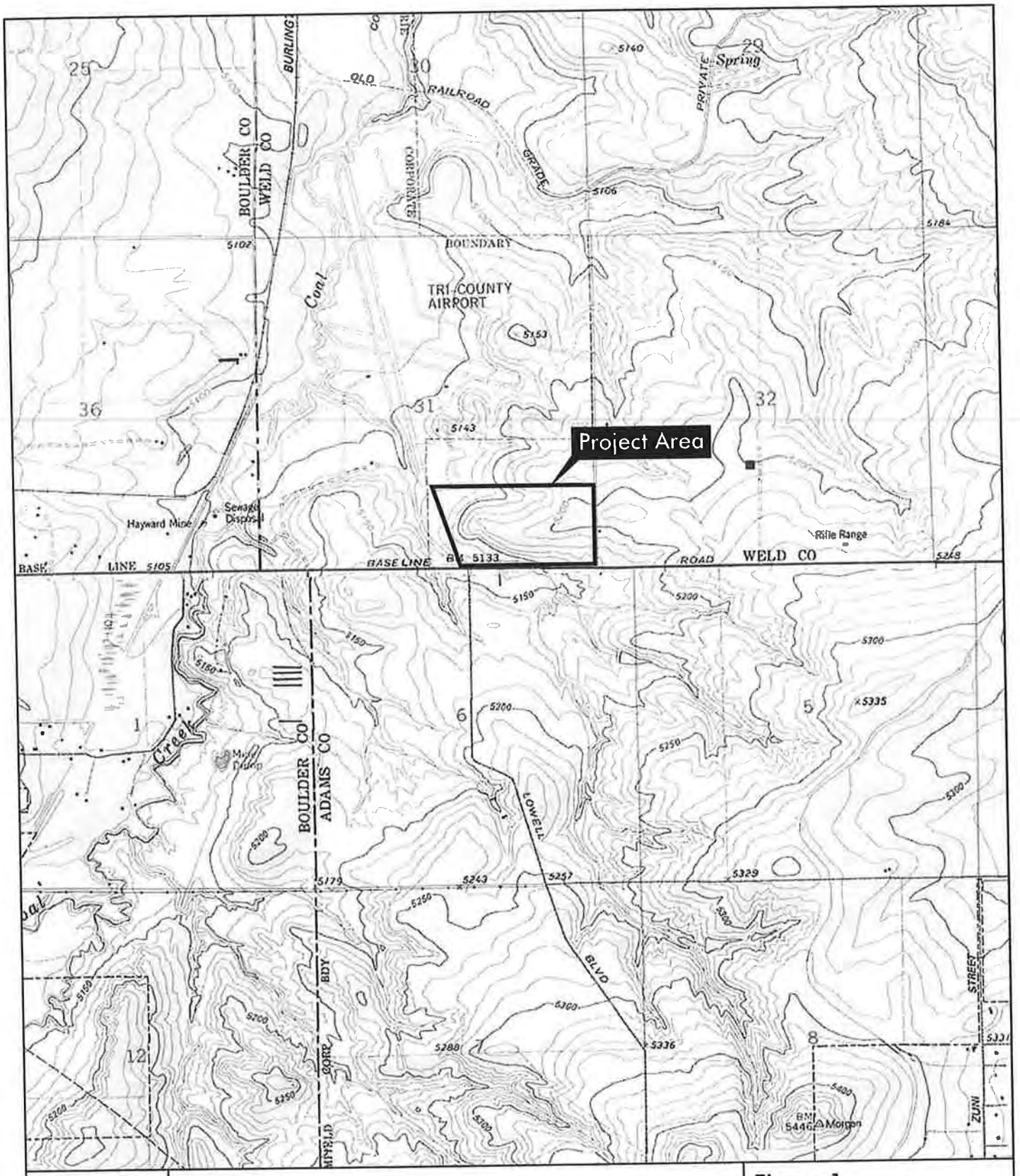
U.S. Fish and Wildlife Service (Service). 2004. Endangered and Threatened Wildlife and Plants: Designated Critical Habitat for Colorado butterfly plant, Proposed Rule. Federal Register, Volume 69, No. 151. August 6.

U.S. Fish and Wildlife Service (Service). 2006. Federally Listed and Proposed, Endangered, Threatened, Experimental, and Candidate Species and Habitat in Colorado by County. Available at: <http://www.r6.fws.gov/endspp/CountyLists/COLORADO.htm>.

U.S. Fish and Wildlife Service. 2007. *Endangered and Threatened Wildlife and Plants; Revised Proposed Rule To Amend the Listing for the Preble's Meadow Jumping Mouse (Zapus hudsonius preblei) To Specify Over What Portion of Its Range the Subspecies Is Threatened; Proposed Rule.* Federal Register Part III Rules and Regulations, 50 CFR Part 17, 72:215. November 7.

Whicker, A.D. and J.K. Detling. 1988. Ecological Consequences of Prairie Dog Disturbances. BioScience, 38:778-785.

Witmer, G.W., K.C. VerCauteren, K.M. Manci, and D.M. Dees. 2002. Urban-suburban prairie dog management opportunities and challenges. Proceedings of 19th Vertebrate Pest Conference. 19:439-444.



ERO

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199

Pratt Property

SE ¼ of Section 31, T1N, R68W
UTM Coordinates: Zone 13; 496513mE, 4427982mN
USGS Erie, CO Quadrangle
Weld County, Colorado

0 2000 4000 feet

1 Inch = 2,000 Feet

N

Figure 1
Site Location

Prepared for: RDB Development
File: 4060 Figure 1.pdf
October 2007

ERO
ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199

Pratt Property

Aerial Photograph: USGS 2005

0 700 1400 feet

1 Inch = 700 Feet

N

Figure 2
Site Plan

Prepared for: RDB Development
File: 4060 Figure 2.pdf
November 2007

Pratt Property
Photo Log
November 8, 2007

Photo 1 - View of prairie grassland within the northern portion of the project area. View is to the west.

Photo 2 - View of the tributary to Coal Creek in the southwestern portion of the project area. View is to the southeast.

Photo 3 - View of the tributary to Coal Creek, with steep banks. View is to the northwest.

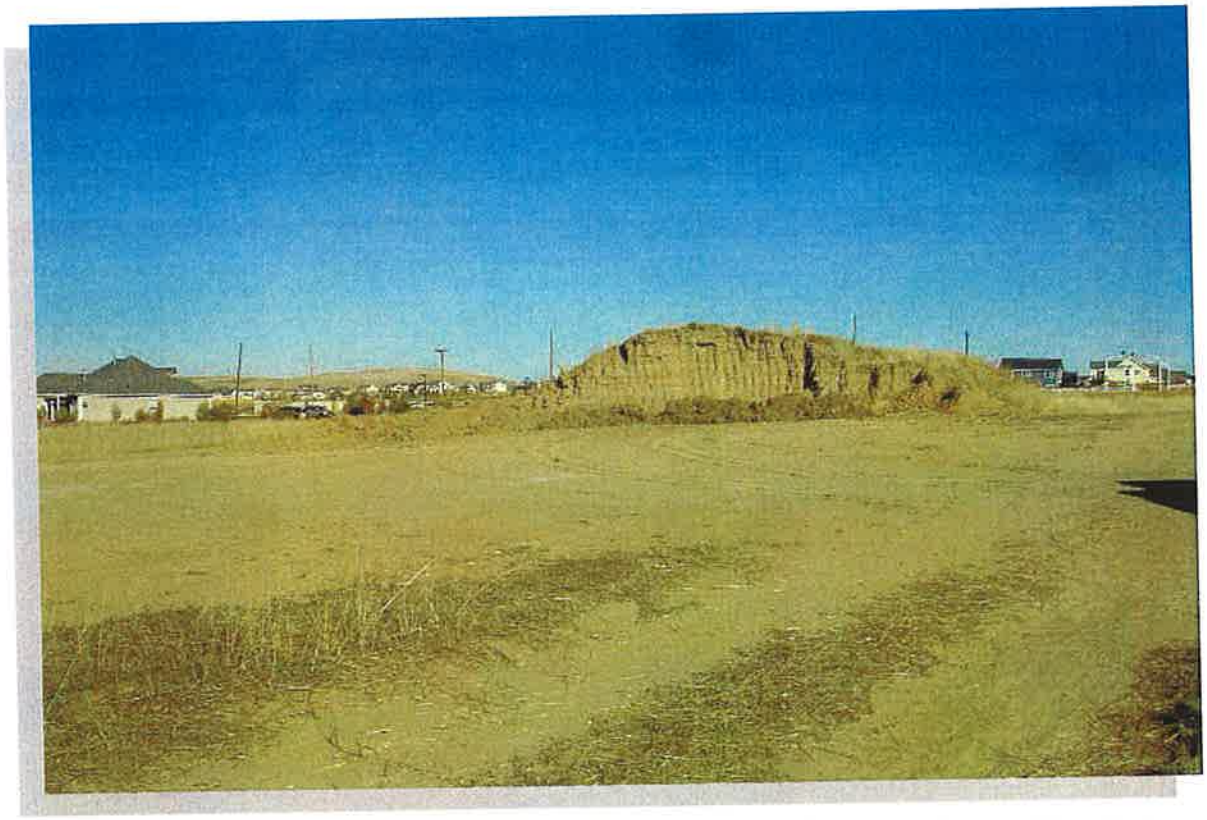


Photo 4 - View of excavated area in the northeastern corner of the project area. View is to the northeast.

July 31, 2015

Oread Capital and Development
9033 East Easter Place
Centennial, Colorado 80112

Attention: Carl Nelson

Subject: Coal Mine Subsidence Evaluation
Sierra Vista Subdivision
Northwest of
Colorado State Highway 7 and
Bonanza Road
Erie, Colorado
Project No. DN47,229-115

At your request, we have evaluated the risk of coal mine subsidence for the Sierra Vista Subdivision located northwest of Colorado State Highway 7 and Bonanza Road in Erie, Colorado. CTL | Thompson, Inc. previously conducted a Supplemental Preliminary Geotechnical Investigation for this site under our Project No. DN47,229-115, dated July 16, 2014. This letter presents the results of our evaluation and presents our recommendations.

We understand the Colorado Geological Survey (CGS) conducted a review of the Sierra Vista preliminary plat for the Town of Erie with the results of their review presented in a letter dated April 28, 2015. As part of its review, CGS indicated that historic mines are located in relatively close proximity to the site. As a result of this, CGS indicated the following recommendation:

> "…a subsidence hazard investigation does not appear necessary. However, if the town wishes to be conservative, a subsidence hazard investigation consisting of several borings near the northeastern corner of the property….could be required to verify that mine-related voids are not present beneath the site.
>
> At a minimum, grading activities should be carefully observed to identify any unmapped shafts, other mining features, or evidence of subsidence. The developer, engineer, builder, earthmoving contractors and field inspection staff should be made aware that there is a potential risk of sinkholes and other subsidence-related features developing, especially in the northeastern corner of the Sierra Vista site."

Based on available mine maps, at the closest point, mined areas of the Parkdale Mine are located about 150 feet west of the site, with the majority of the workings more than 200 feet west. The Parkdale Mine workings are reported to be about 200 to 250 feet below the ground surface. Mine workings for the Baseline Mine are located about 300 feet north of the site and at depths reported at 50 to 100 feet. The attached Fig. 1 presents the proposed development plan and the previous coal mine subsidence hazard mapping.

The northwestern portion of the site is located within a mapped "Low Subsidence Hazard" area and the northeastern portion of the site is within a mapped "Severe

Subsidence Hazard" area (Amuedo and Ivey, 1975, Coal Mine Subsidence and Land Use In the Boulder-Weld Coalfield: Boulder and Weld Counties, Colorado, Colorado Geological Survey).

It is our opinion that due to the depth and location of the Parkdale Mine workings, the risk of subsidence on the subject site is low. Additionally, current development plans indicate that planned improvements are located over 400 feet east of the mapped mine workings.

The mine workings for the Baseline Mine are much shallower, hence, the "Severe Subsidence Hazard" designation. Recent subsidence above the Baseline Mine within the past ten years has occurred along Bonanza Drive necessitating repairs to the roadway and grouting of mine opening to mitigate future subsidence. The location of this subsidence was between Skylane Drive and Piper Drive about 500 feet north of the site which coincides with the location of the mapped mine workings. The Baseline Mine was mined in the early 1940s and for this reason, we believe the mapped location of the workings is likely more accurate than other mines in the area due to improved surveying techniques in use at that time.

Based on the distance of the mine workings from the site, it is our opinion the risk of subsidence on the Sierra Vista site is low. To our knowledge, subsidence features or structure distress has not been reported in the homes located between the site and the mapped Baseline Mine workings.

We concur with CGS that a subsidence hazard investigation is not necessary. Observations during site grading should be conducted by site personnel and CTL | Thompson staff to identify potential sinkholes or subsidence features.

We trust this information is of use to you. Please call with any questions or if we can be of further service.

Very truly yours,

CTL | THOMPSON, INC.

COLORADO LICENSED
ALAN J. LISOWY
32516
7/31/15
PROFESSIONAL ENGINEER

Alán J. Lisowy, P.E.
Associate Engineer

AJL/bg
(3 copies)

Attachment: Fig. 1 – Development Plan

Via email: mjdeibel@gmail.com

LEGEND:

TH–1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

TB–1 ⊗ APPROXIMATE LOCATION OF TERRACON BORING

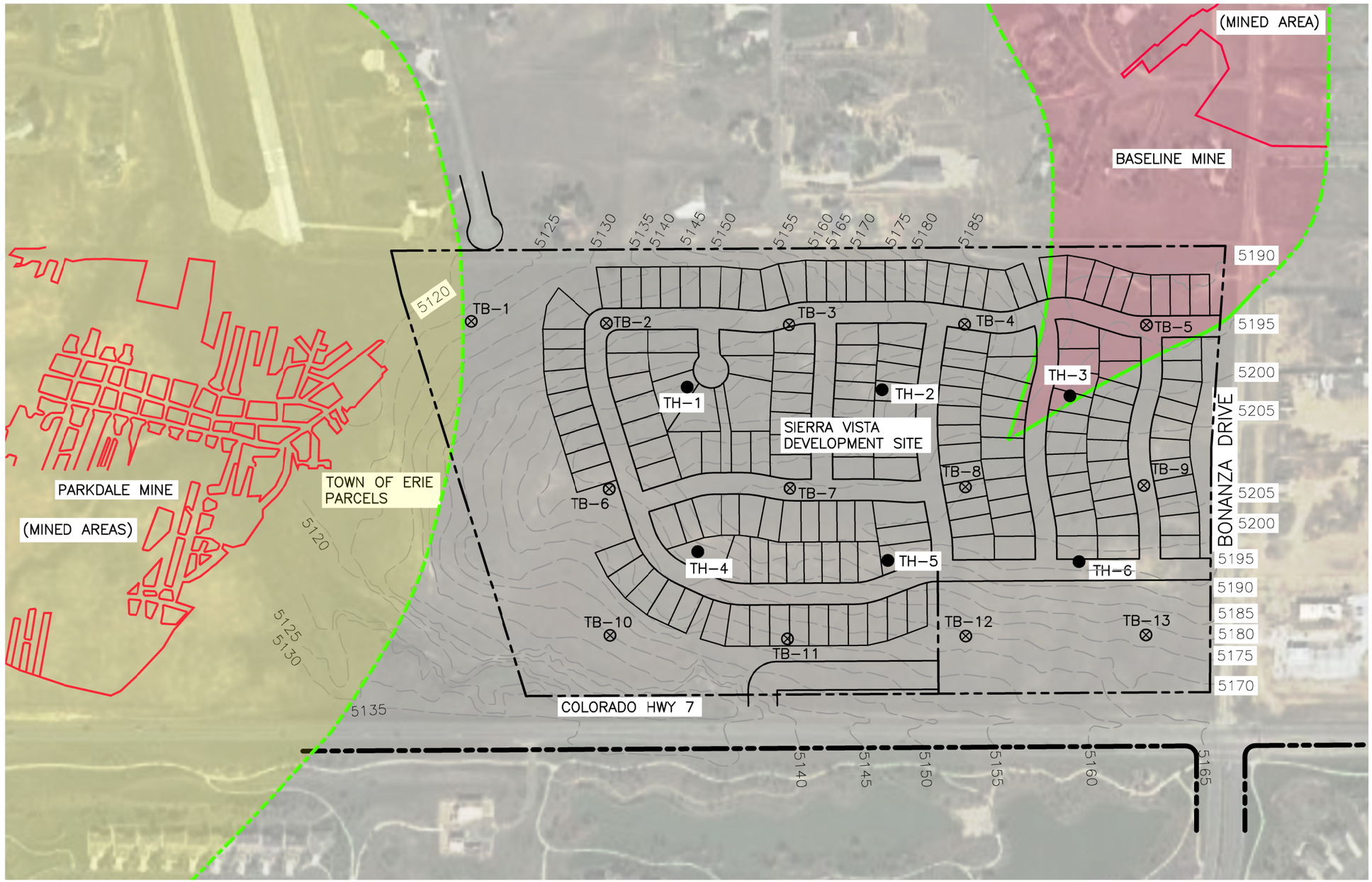
—5120 INDICATES EXISTING GROUND SURFACE ELEVATION (FEET)

APPROXIMATE LOCATION OF MINE WORKINGS AS SHOWN ON DAMES & MOORE OVERBURDEN THICKNESS, COAL MINE AND DRILL HOLE LOCATION MAP. DAMES & MOORE, MARCH 1986

LOW

AREA MAPPED AS SUBSIDENCE HAZARD, SUBSIDENCE HAZARD MAP, BOULDER–WELD COAL FIELD, AMUEDO & IVEY, DECEMBER 1, 1974

SEVERE



N

0 150 300
SCALE: 1" = 300'

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

Development Plan and Previous Coal Mine Subsidence Hazard Mapping

Fig. 1

S:\PROJECTS\47200\DN47229.000\115\3. Letters\LT1DN47229-115-L1-D.dwg, 7/31/2015 2:53:15 PM, CutePDF Writer

CTL | THOMPSON INCORPORATED

PP TA PR I I AR
OT CH ICA I TI ATIO
I RRA I TA DI I IO
ORTH T OF
CO ORADO TAT HI H A A D
O A A ROAD
RI , CO ORADO

Prepared for:

OR AD CAPITA A D D OP T
0 ast aster P ace
Centennia , Co orado 0112

Attention: Car e son

Pro ect o D 4 ,22 11

u y 1 , 2014

1 1 est 12t A enue Den er, Co orado 0204 P one: 0 2 0 Fa : 0 2 42 2 www ct t co

TABLE OF CONTENTS

SCOPE 1
SUMMARY AND FINDINGS OF CONCLUSIONS 1
SITE CONDITIONS 2
PROPOSED CONSTRUCTION 3
PREVIOUS INVESTIGATION 4
INVESTIGATION 4
SUBSURFACE CONDITIONS 5
Groundwater 6
ESTIMATED POTENTIAL HEAVE 6
SITE DEVELOPMENT 7
Excavation 7
Site Grading 8
Sub-Excavation 9
Slopes 12
Underdrain 13
Utilities 13
Pavements 14
BUILDING CONSTRUCTION CONSIDERATIONS 14
Foundations 14
Slab-On-Grade Construction 15
Below-Grade Construction 16
Surface Drainage 16
Concrete 17
RECOMMENDED FUTURE INVESTIGATIONS 17
LIMITATIONS 18
FIG. 1 –LOCATIONS OF EXPLORATORY BORINGS
FIG. 2 – PRELIMINARY EXPANSIVE SOIL RISK EVALUATION
FIG. 3 – CONCEPTUAL SUB-EXCAVATION PROFILE
FIG. 4 – CONCEPTUAL SUB-EXCAVATION PROFILE (WALK-OUT BASEMENT)
FIG. 5 – BENCHED FILL DETAIL
FIG. 6 – SEWER UNDERDRAIN DETAIL
FIG. 7 – CONCEPTUAL UNDERDRAIN SERVICE PROFILE
FIG. 8 – UNDERDRAIN CUTOFF WALL DETAIL

APPENDIX A – SUMMARY LOGS OF EXPLORATORY BORINGS
APPENDIX B – LABORATORY TEST RESULTS
APPENDIX C – GUIDELINE SITE GRADING SPECIFICATIONS
APPENDIX D – TERRACON'S BORINGS AND LOGS

COP

This report presents the results of our Supplemental Preliminary Geotechnical Investigation for Sierra Vista, located northwest of Colorado State Highway 7 and Bonanza Drive in Erie, Colorado (Fig. 1). The purpose of our investigation was to evaluate the subsurface conditions to assist in due diligence evaluation and planning of site development and residential construction. The report includes descriptions of the subsurface conditions and groundwater levels found in our exploratory borings and preliminary discussion of site development and construction as influenced by geotechnical considerations. The scope was described in our Service Agreement (DN 14-0371) dated July 15, 2014.

The preliminary discussions in this report are based on our understanding of the planned development, subsurface conditions disclosed by exploratory drilling and sampling, site reconnaissance, results of field and laboratory tests, engineering analysis of field and laboratory data, previous investigations, and our experience. The recommendations presented in this report are intended for planning purposes. Additional investigations will be required to better assess limits of sub-excavation (if selected) and to design residence foundations and floor systems, pavements and other improvements. A brief summary of our conclusions and recommendations follows, with more detailed discussion presented in the report.

AR OF FI DI A D CO C IO

1. The site is judged suitable for residential development. The primary geotechnical concerns are expansive soil and bedrock, and existing fill. We believe there are no geotechnical constraints at this site that preclude development.

2. Strata encountered in our exploratory borings consisted of 3 to 7 feet of natural clayey sand underlain by sandstone or claystone bedrock to the maximum explored depth of 30 feet. Samples of the claystone swelled 2.0 to 19.7 percent after wetting under approximate overburden pressures. The sand and sandstone is considered non to low swelling.

3. Groundwater was not encountered in any of our borings at the time of drilling or when the borings were checked subsequent to drilling. Groundwater will likely fluctuate seasonally and may rise in response to landscape irrigation and precipitation.

4. Expansive claystone bedrock is present at depths likely to influence the performance of shallow foundations and slabs-on-grade. We estimate total potential ground heave of from less than 0.5 to 19.0 inches considering a depth of wetting of 24 feet. Without ground modification, about 30 percent of residences will require use of very long drilled pier foundations and structurally-supported basement floors due to risk of post-construction heave.

5. Sub-excavation may be considered as a means to likely allow use of footing foundations and slab-on-grade basement floors by reducing potential heave. Based on swell tests, potential heave calculations and our experience, we judge performance of surface improvements will be poor for about 30 percent of the site if sub-excavation is not performed. If performed, sub-excavation should reduce potential heave to about 2 inches or less. Soil conditions are highly variable at this site. It appears about 30 percent of the site may merit sub-excavation in order to use footings. Due to the variable soil conditions, additional investigation is recommended to better evaluate the limits and depths of sub-excavation.

6. Town of Erie pavement design criteria and preliminary data suggests local streets will require 4 inches of asphalt over 8 inches of base course or equivalent sections for local and collector residential streets. Three to five feet of moisture treated fill will likely be required. In areas where clay or claystone is present a design-level subgrade investigation should be done prior to paving.

IT CO DITIO

Sierra Vista Subdivision is located northwest of Colorado State Highway 7 and Bonanza Drive in Erie, Colorado (Photo 1 and Fig. 1). According to plans, the property contains about 60 acres and is bordered by residential developments to the north and south, and vacant parcels to the east and west. The Erie Municipal Airport is located northwest of the site.

Photo 1 – Google Earth© Aerial Site Photo, October 2013

Ground cover consists of grasses, weeds and rodent burrows with a few scattered trees and bushes. The site is bisected by an east-west trending ridge that runs through the center of the site and the ground surface slopes slightly to moderately from this ridge to the north, south and west. Overall, there is about 90 feet of topographic relief across the property. A minor drainage crosses the southwest corner of the site and appears to accommodate buried culverts which outlet onto the site. The drainage was dry during our investigation. A small stockpile about 10 to 15 feet high was observed near the northeast corner of the site. Overhead utilities are located along the north side of Colorado State Highway 7.

PROPO D D OP T

Conceptual plans have not been developed. We anticipate that the residences will be one or two-story, wood-framed structures utilizing both full depth and walkout basements. Foundation loads will be relatively light and may vary from 1,000

to 3,000 pounds per lineal foot of foundation wall. Buried utilities and paved streets and driveways will be constructed to provide access.

PR IO I TI ATIO

A previous Preliminary Geotechnical Engineering Report for the site was completed by Terracon Consultants Western, Inc. under their Project Number 22975061, dated May 30, 1997. At that time, a commercial/industrial development was planned. Thirteen borings were drilled to investigate the subsurface conditions. Locations of Terracon's borings are shown on Figures 1 and 2, and logs are provided in Appendix D. The subsurface conditions described in the Terracon report consisted of ½ to 12½ feet of topsoil and sandy clay to clayey sand underlain by claystone or sandstone bedrock. The upper soils were described as non-expansive with some potential to compress when wetted. The claystone was moderately to highly swelling and the sandstone was described as non-expansive. Groundwater was not encountered in the Terracon borings.

I TI ATIO

We investigated subsurface conditions on April 24, 2014 by drilling and sampling 6 exploratory borings at about 400 to 500-foot spacing at the approximate locations shown on Fig. 1. The boring locations were selected to supplement Terracon data. We contacted the Utility Notification Center of Colorado and local sewer and water districts to identify locations of buried utilities.

The borings were drilled to depths of 20 to 35 feet below the existing ground surface using 4-inch diameter, continuous-flight solid-stem auger and a truck-mounted CME-45 drill rig. Samples were obtained at 5-foot intervals using a 2.5-inch diameter (O.D.) modified California barrel sampler driven by blows of an automatic, 140-pound hammer falling 30 inches. Our field representative was present to observe drilling operations, log the strata encountered, and obtain samples for laboratory tests. Summary logs of the exploratory borings, including results of field penetration

resistance tests and a portion of laboratory test results, are presented in Appendix A. The boring elevations shown on the logs were estimated using ground surface elevation contours on the grading plans provided. If your surveyor has the boring elevations, we can incorporate them into this report, if desired.

Samples were returned to our laboratory where they were examined by our engineer and tests were assigned. Laboratory tests included moisture content, dry density, percent silt and clay-sized particles (passing No. 200 sieve), Atterberg limits, swell-consolidation, and water-soluble sulfate concentration. Swell-consolidation tests were performed by wetting the samples under approximate post-grading over-burden pressures (the weight of the overlying soil after the planned grading was taken into account). Laboratory test results are presented in Appendix B and summarized in Table B-I.

RFAC CO DITIO

Strata encountered in our exploratory borings consisted of about 3 to 7 feet of natural clayey sand to very sand clay, underlain by sandstone or claystone bedrock to the maximum explored depth of 30 feet. Pertinent engineering characteristics of the soil and bedrock are described in the following paragraphs.

The natural soils consisted of about 3 to 7 feet of sandy clay to very sandy clay. The sand was medium dense based on penetration test results. One sand sample contained 43 percent fines.

Bedrock was found at depths of about 3 to 7 feet and predominantly consisted of sandstone. Claystone was found in TH-1, TH-3, TH-4, and TH-6. The bedrock was generally hard to very hard based on penetration test results, the claystone in the upper 10 feet of TH-6 was medium hard. The claystone was relatively deep in TH-1 and TH-4 and shallow in TH-3 and TH-6, which are located on the east end of the site. Five samples of the sandstone had 22 to 35 percent silt and clay-sized

particles. Three sandstone samples compressed 0.2 to 1.6 percent when wetted. Six claystone samples swelled 2.0 to 19.7 percent. The claystone is considered to be very highly expansive and the sandstone is non-expansive.

Groundwater

Groundwater was not encountered in any of the borings at the time of drilling or when the borings were checked subsequent to drilling. Groundwater may develop in response to landscape irrigation and precipitation.

TI AT D POT TIA H A

Expansive claystone bedrock is present, which can swell and cause heave upon wetting. Heave can lead to damaging differential movements. Based on subsurface conditions, swell-consolidation test results, and our experience, we estimate potential heave of about 2 inches or less for TH-1 TH-2, TH-3, TH-4, and TH-5. We estimate potential heave for TH-6 could be as much as 19 inches due to the presence of highly swelling claystone from a depth of 3 to 22 feet. A depth of wetting of 24 feet was considered for the analysis. Claystone was encountered in more of the Terracon borings than in the borings drilled for this study. Based on the swell-consolidation test results and our experience, we estimated the potential heave at each boring location as shown in Table A below. Due to widely spaced borings and limited testing, variations from our estimates should be anticipated. It is not certain these movements will occur.

TABLE A
ESTIMATED HEAVE

Boring	Basement Slab Performance Risk	Estimated Heave (inches) 26-foot Depth of Wetting	
		Ground Surface	Basement
1	Low	1.8	1.8
2	Low	<0.5	<0.5
3	Low	1.0	1.0
4	Low	0.8	0.8
5	Low	<0.5	<0.5
6	High	19.0	15.0

IT D OP T

The primary geotechnical concern that we believe will impact development and building performance is the presence of expansive claystone bedrock. This concern can be mitigated with proper planning, engineering, design and construction. We believe there are no geologic or geotechnical constraints at this site that would preclude development. The following sections discuss site development recommendations.

Excavation

We believe the soils penetrated by our exploratory borings can generally be excavated with typical heavy-duty equipment. Hard or cemented bedrock may require heavy ripping or possibly blasting for efficient removal.

We recommend the owner and the contractor become familiar with applicable local, state and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards. Based on our investigation and OSHA standards, we anticipate the sand will classify as Type C soil and the claystone and sandstone bedrock will classify as Type A based on OSHA Standards governing excavations published in 29 CFR, Part 1926. Type A

soil requires a maximum slope inclination of ¾:1 (horizontal to vertical), and Type C requires 1½:1 for temporary excavations in dry conditions. Saturated soils may require flatter slopes or bracing. Excavation slopes specified by OSHA are dependent upon soil types and groundwater conditions encountered. The contractor's "competent person" should identify the soils encountered in the excavations and refer to OSHA standards to determine appropriate slopes. Stockpiles of soils and equipment should not be placed within a horizontal distance equal to one-half the excavation depth, from the edge of the excavation. A professional engineer should design excavations deeper than 20 feet.

Site Grading

A site grading plan is not available at this time. We believe grading can be accomplished using conventional heavy-duty construction equipment. It is possible some very hard sandstone will require ripping.

The ground surface in areas to be filled should be stripped of vegetation and existing fill, scarified, and moisture conditioned to between 1 and 4 percent above optimum moisture content for clay and claystone, and within 2 percent of optimum for sand and sandstone and between 1 and 4 percent for clay, and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698). We anticipate stripping may require cuts of 3 to 6 inches for the majority of the site.

The properties of fill will affect the performance of foundations, slabs-on-grade, utilities, pavements, flatwork and other improvements. If imported soil is needed to achieve site grades, the material should be tested and approved by our firm prior to importing to the site. The on-site soils are suitable for use as site grading fill provided they are substantially free of debris, organics and other deleterious materials. Fill should be placed in thin loose lifts, moisture conditioned and compacted prior to placement of the next lift using the criteria presented in the previous paragraph. The placement and compaction of site grading fill should be observed and density tested

by our representative during construction. Guideline grading specifications are presented in Appendix C.

Our experience indicates fill and backfill can settle, even if properly compacted to criteria provide above. Factors that influence the amount of settlement are depth of fill, material type, degree of compaction, amount of wetting and time. The degree of compression of fill under its own weight will likely range from low for granular soils (½ percent or less), to moderate for clay/sand mixtures (1 to 2 percent), to high for highly plastic clay and claystone (2 percent or more).

Sub-Excavation

We calculated potential ground heave of greater than 12 inches based on the data obtained for TH-6. We estimate that potential ground heave could also be very high at six of the Terracon boring locations. Drilled pier foundations and structurally supported floor systems should be anticipated on sites where moderate to high swell soils predominate. Very long piers will be merited for portions of this site. Alternatively, some builder-developers choose to perform sub-excavation to reduce potential heave and provide a relatively uniform fill layer that is likely suitable for footings and slab-on-grade basement floors. Based on the results of swell tests, potential heave calculations and our experience, we judge performance of surface improvements will be poor if sub-excavation is not performed.

Sub-excavation has been employed in the Denver area with satisfactory performance for the large majority of the sites where this ground modification method has been completed. We have seen isolated instances where differential settlement of sub-excavation fill has led to damage to buildings supported on footings. In most cases, the settlement was caused by wetting associated with poor surface drainage or seepage, and/or poorly compacted fill placed at the horizontal limits of excavation. Wetting of the fill may cause softening and settlement.

Our experience indicates the sub-excavation depth is normally about 18 to 20 feet or approximately 10 to 12 feet below the basement excavation. The depth of wetting can be deeper than the depth of sub-excavation. The potential ground heave may include heave of the sub-excavation fill and the ground below the sub-excavation. If the depth of wetting extends below the bottom of the sub-excavation to a depth of 24 feet, based on the swell test data, we estimate potential heave of the claystone bedrock below the sub-excavation of 2 inches may occur. We judge heave of the lower bedrock will not cause significant differential heave at the basement level.

Sub-excavation may be considered as a means to likely allow use of footing foundations and slab-on-grade basement floors by reducing potential heave. Based on swell tests, potential heave calculations, and our experience, we judge performance of surface improvements will be poor if sub-excavation is not performed. If performed, sub-excavation should reduce potential heave to about 2 inches or less. Soil conditions are highly variable at this site. It appears about 30 percent of the site may merit sub-excavation in order to use footings. Depth of sub-excavation may vary from 12 to 18 feet below existing grade. Due to the variable soil conditions, additional investigation is recommended to better evaluate the limits and depths of sub-excavation.

Sub-excavation of the upper 3 to 5 feet of adjacent streets or private drives will enhance pavement, sidewalk, and driveway performance. The bottom of the sub-excavated area should extend laterally at least 5 feet outside the largest possible foundation footprints to ensure foundations are constructed over moisture-conditioned fill. Conceptual sub-excavation profiles are shown on Figs. 3 and 4. The excavation slopes should meet OSHA, state, and local safety standards.

The properties of fill will affect the performance of foundations, slabs-on-grade, utilities, pavements, flatwork and other improvements. If imported soil is needed to achieve site grades, the material should be tested and approved by our firm prior to

importing to the site. The on-site and stockpiled soils are suitable for use as fill provided they are substantially free of debris, organics and other deleterious materials. Fill should be placed in thin loose lifts, moisture conditioned and compacted prior to placement of the next lift. Our experience has shown clay fill which is moisture treated above optimum will exhibit lower swell than clay fill receiving the same compactive effort, but moisture treated below optimum moisture content. Clay and claystone fill should be moisture conditioned to between 1 and 4 percent above optimum moisture content and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698). Sand fill should be moisture conditioned to within 2 percent of optimum moisture content and compacted similarly. Appendix C contains guideline grading specifications.

The excavation contractor should be chosen carefully to assure they have experience with fill placement at over-optimum moisture and have the necessary compaction equipment. In order for the sub-excavation procedure to be performed properly, close control of fill placement to specifications is required. Special precautions should be taken for compaction of fill at corners, access ramps and edges of the sub-excavation due to equipment access constraints. The contractor should have the appropriate equipment to reach and compact these areas. Our representative should observe and test compaction of the fill on a full-time basis. The fill should be tested during and after the fill placement to evaluate the swell of the fill and whether footing or pad-type foundations can be used.

If the fill dries excessively prior to construction, it may be necessary to rework the upper drier materials prior to constructing foundations. We judge the fill should retain adequate moisture for about two years. We can check moisture conditions in each excavation as construction progresses, if requested.

Ideally, the sub-excavation process will result in lots with a “low swell potential” and allow use of footing type foundations with slab-on-grade basement floors. It is possible swell of the fill will be moderate or higher.

Based on our experience, several problems have been encountered from the use of sub-excavation. The most common problem arises from placement of the structure outside of the sub-excavated area. The following suggestions should aid in planning and performing sub-excavation:

1. We recommend design of the treatment area and depth, paying particular attention to cul-de-sac lots, lots on corners, and lots that slope to the street. Many times houses on cul-de-sacs are set back further than houses on straight streets. Consider the side setbacks for corner lots. For all lots, the anticipated foundation elevation (bottom of deepest footing) will be limited by the bottom elevation of treatment and the recommended minimum depth of treatment below foundations.

2. We recommend a surveyor document the actual limits of the treatment, and create "as-built" plans. These plans should be provided to the civil/surveyor who prepares plot plans so that they can verify that each residence is over the treated area. In the case of deep sub-excavation, the "treated area" stops at the toe of the deep sub-excavation slope. It would be prudent to show the horizontal limits and bottom elevation of treatment on the plot plans.

3. Land development staff must communicate with the building and sales division about the limitations of house locations.

Slopes

We recommend permanent cut and fill slopes be designed with a maximum grade of 3:1 (horizontal:vertical). Use of 4:1 or flatter slope is better to control erosion. If site constraints (property boundaries and streets) do not permit construction with recommended slopes, we should be contacted to evaluate the subsurface soils and steeper slopes. Slopes greater than 20 feet high should be evaluated by our office on a case-by-case basis. Surface drainage should not be allowed to sheet flow across slopes or pond near the crest of slopes. All cut and fill slopes should be designed and re-vegetated as soon as possible after grading to reduce potential for erosion problems. Excavation contractors should evaluate ground conditions and control slopes in accordance with OSHA criteria.

We recommend fill placed on existing slopes steeper than 5:1 (20 percent) be carefully benched into existing ground with 10-foot wide horizontal benches at 5-foot high vertical intervals. We should observe bench cuts to evaluate soil and bedrock exposed. A benched fill detail is provided on Fig. 5.

Underdrain

With long-term development and subsequent irrigation on sites with granular soils over relatively impermeable bedrock, groundwater may rise. We believe this water should be controlled. The water could lead to expansive soil related problems and frequent pumping of basement foundation drains. We advocate use of an under-drain system incorporated into the design of sanitary sewer systems to provide a means to control water and allow gravity discharge from basement foundation drains. It may not be practical to install underdrains at this site if a gravity discharge is not available. In that situation, individual house foundations would discharge into sumps with pumps. Sump discharge can result in ponding and recycling if slopes between lots are not adequately graded. Problems with chronic ice or algae formation at sidewalks has also been blamed on sump discharge. Conceptual sewer underdrain details are provided on Figs. 5 through 7. The underdrain should be provided with clean-outs and be maintained. Drain outfalls should be designed with a concrete head wall large enough to protect the pipe from damage during maintenance. We are available to assist in design of the underdrain system if one is chosen.

Utilities

When buried utilities are installed, the placement and compaction of backfill should be controlled. Compaction of trench backfill can have a significant effect on the life and serviceability of pavements. Trench backfill should be placed in thin (8 inches or less) loose lifts and moisture conditioned to between 1 and 4 percent above optimum moisture content for clay and claystone, within 2 percent of optimum mois-ture content for sand and compacted to at least 95 percent of maximum dry density

(ASTM D 698). The placement and compaction of trench fill and backfill should be observed and tested by our firm during construction.

Pavements

Pavement subgrade soils will likely consist of clayey sand, sandstone or claystone bedrock, or fill of similar composition. The claystone is considered poor pavement subgrade materials. For the local streets within this subdivision, sub-excavation and moisture treatment will be required to mitigate expansive soils. The minimum asphalt pavement section allowed by the Town of Erie is based on proposed traffic loads and will likely be 4 inches of asphalt over 8 inches of base for local streets and residential collectors. Thicker sections may be necessary based on the results of a design level subgrade investigation. Pavement subgrade consisting of claystone bedrock will likely have to be sub-excavated and moisture-conditioned to a depth of 3 to 5 feet below the pavement section. Chemical stabilization can also be used to reduce swell potential and stabilize pavement subgrade. A design-level subgrade investigation should be done prior to paving.

I DI CO TR CTIO CO ID RATIO

The following discussions are preliminary and are not intended for design or construction. After overlot grading is completed, design-level investigations should be performed on a lot-specific basis.

Foundations

Expansive claystone was present in seven borings (including Terracon). Depending on grading, drilled piers or other deep foundation system should be anticipated in these areas to control risk of heave. Long (30 to 35-foot) drilled piers should be anticipated unless sub-excavation is performed. Sub-excavation as described

previously may allow shallow foundations and slab-on-grade basement floors on most or all treated sites.

Comparatively non-expansive sandstone was found in twelve borings in the central and northeast portion of the site. We anticipate footings can be used in these areas (Fig. 2), depending on grading.

Slab-On-Grade Construction

Slab-on-grade basement floors may be considered on low and some moderate swell sites where potential heave is acceptable to the homebuyers. Structurally-supported basement floors should be used on all lots with high or very high risk of poor basement slab performance and on all lots with moderate, high and very high risk where a walkout or garden level basement is planned. Preliminary data suggests about 30 percent of the lots will require use of structurally supported basement floors. Sub-excavation should reduce potential heave and allow wider use of slab-on-grade floors.

The performance of garage floors, driveways, sidewalks and other surface flatwork will likely be poor for about 30 percent of this site, unless sub-excavation is performed. The following precautions will be required to reduce the potential for damage due to movement of slabs-on-grade placed anywhere at this site:

1. Isolation of the slabs from foundation walls, columns and other slab penetrations;

2. Voiding of interior partition walls to allow for slab movement without transferring the movement to the structure;

3. Flexible water and gas connections to allow for slab movement. A flexible plenum above furnaces will be required; and

4. Proper surface grading and foundation drain installation to reduce water availability to sub-slab and foundation soils.

Below-Grade Construction

Surface water can penetrate relatively permeable loose backfill soils located adjacent to residences and collect at the bottom of relatively impermeable basement excavations causing wet or moist conditions. Basement foundation walls should be designed for lateral earth pressures. Foundation drains should be constructed around the lowest excavation levels and ideally should be connected to an under-drain system to provide a gravity outlet. The drains can be connected to a sump pit where water can be removed by pumping if an underdrain is not provided.

Surface Drainage

The performance of improvements will be influenced by surface drainage. When developing an overall drainage scheme, consideration should be given to drainage around each residence. The ground surface around the residences should be sloped to provide positive drainage away from the foundation. We recommend a slope of at least 10 percent for the first 10 feet surrounding each residence, where practical. If the distance between houses is less than 20 feet, the slope in this area should be 10 percent to the swale between houses. Where possible, drainage swales should slope at least 2 percent, more slope is desirable. Variation from these criteria is acceptable in some areas. For example, on lots graded to direct drainage from the rear yard to the front it is difficult to achieve the recommended slope at the high point behind the house. We believe it is acceptable to use a slope of about 6 inches in the first 10 feet at this location. Roof downspouts and other water collection systems should discharge well beyond the limits of all backfill around structures.

Proper control of surface runoff is also important to control the erosion of surface soils. Sheet flow should not be directed over unprotected slopes. Water should not be allowed to pond at the crest of slopes. Permanent slopes should be prepared in such a way to reduce erosion.

Attention should be paid to compact the soils behind curb and gutter adjacent to streets and in utility trenches during development. If surface drainage between preliminary development and construction phases is neglected, performance of the roadways, flatwork and foundations may be poor.

Concrete

Concrete in contact with soil can be subject to sulfate attack. We measured water-soluble sulfate concentrations of less than 0.01 to 0.07 percent in four samples from this site. For this level of sulfate concentration, ACI 332-08 *Code Requirements for Residential Concrete* indicates there are no special requirements for sulfate resistance. The claystone may contain higher sulfate content, meriting use of sulfate-resistant mixes.

Superficial damage may occur to the exposed surfaces of highly permeable concrete, even though sulfate levels are relatively low. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or high water tables. Concrete should have a total air content of 6 percent ± 1.5 percent. We advocate all foundation walls and grade beams in contact with the subsoils (including the inside and outside faces of garage and crawl space grade beams) be damp-proofed.

R CO D D F T R I TI ATIO

We recommend the following investigations and services:

1. Review of grading plans and further investigation to evaluate the extent and depth of sub-excavation.

2. Construction testing and observation during site development, sub-excavation, and pavement construction.

3. Subgrade investigation and pavement design;

4. Design-level soils and foundation investigation(s); and

5. Foundation installation observations.

LIMITATIONS

Our borings were widely spaced to provide a general picture of subsurface conditions for preliminary planning of development and single-family residential construction. Variations in the conditions not indicated by our borings are possible. We believe this investigation was conducted in a manner consistent with that level of care and skill ordinarily used by geotechnical engineers practicing in this area at this time. No warranty, express or implied, is made.

If we can be of further service in discussing the contents of this report or analysis of the influence of subsurface conditions on the project, please call.

CTL | THOMPSON, INC.

COLORADO LICENSED ALAN J. LISOWY 32516 7/6/14 PROFESSIONAL ENGINEER

Alan J. Lisowy, P.E.
Associate Engineer

Reviewed by:

Ronald M. McOmber, P.E., D. GE.
Chairman & CEO

BIL:AJL:RMM/bil/bg
(3 copies)

Via e-mail: carl.nelson@anthemcolorado.com

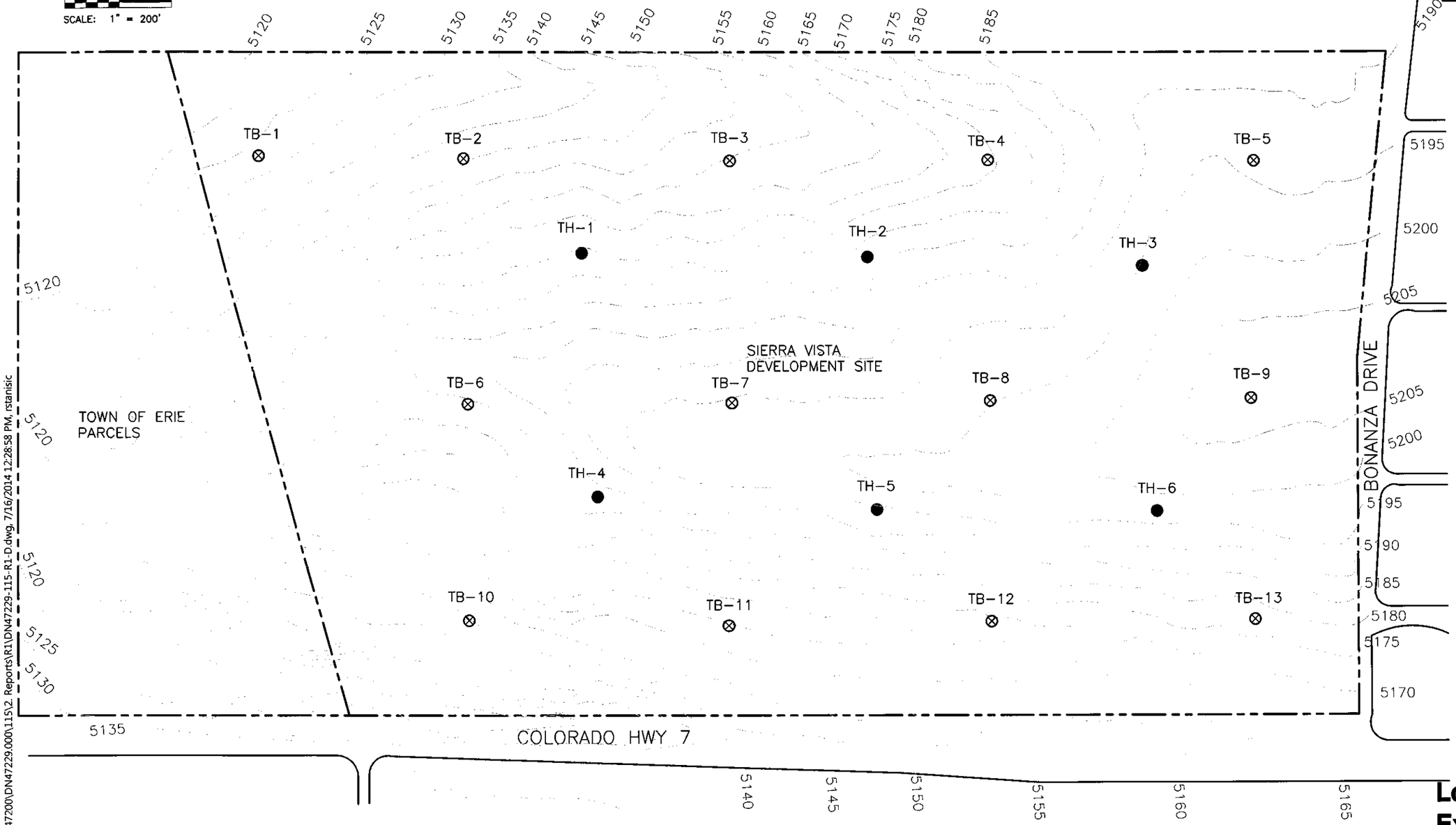
LEGEND:

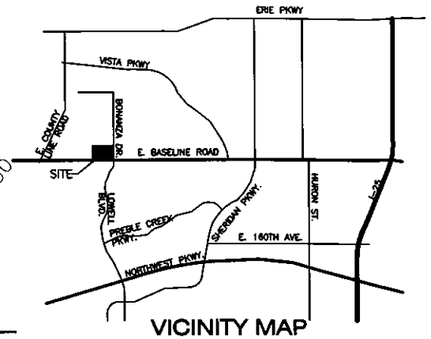
TH–1 ● APPROXIMATE LOCATION OF EXPLORATORY BORING

TB–1 ⊗ APPROXIMATE LOCATION OF TERRACON BORING

5120 INDICATES EXISTING GROUND SURFACE ELEVATION (FEET)

0 100 200
SCALE: 1" = 200'





VICINITY MAP
NOT TO SCALE

S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-D.dwg, 7/16/2014 12:28:58 PM, rstanisic

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

Locations of Exploratory Borings

Fig. 1

LEGEND:

TH-1 APPROXIMATE LOCATION OF EXPLORATORY BORING

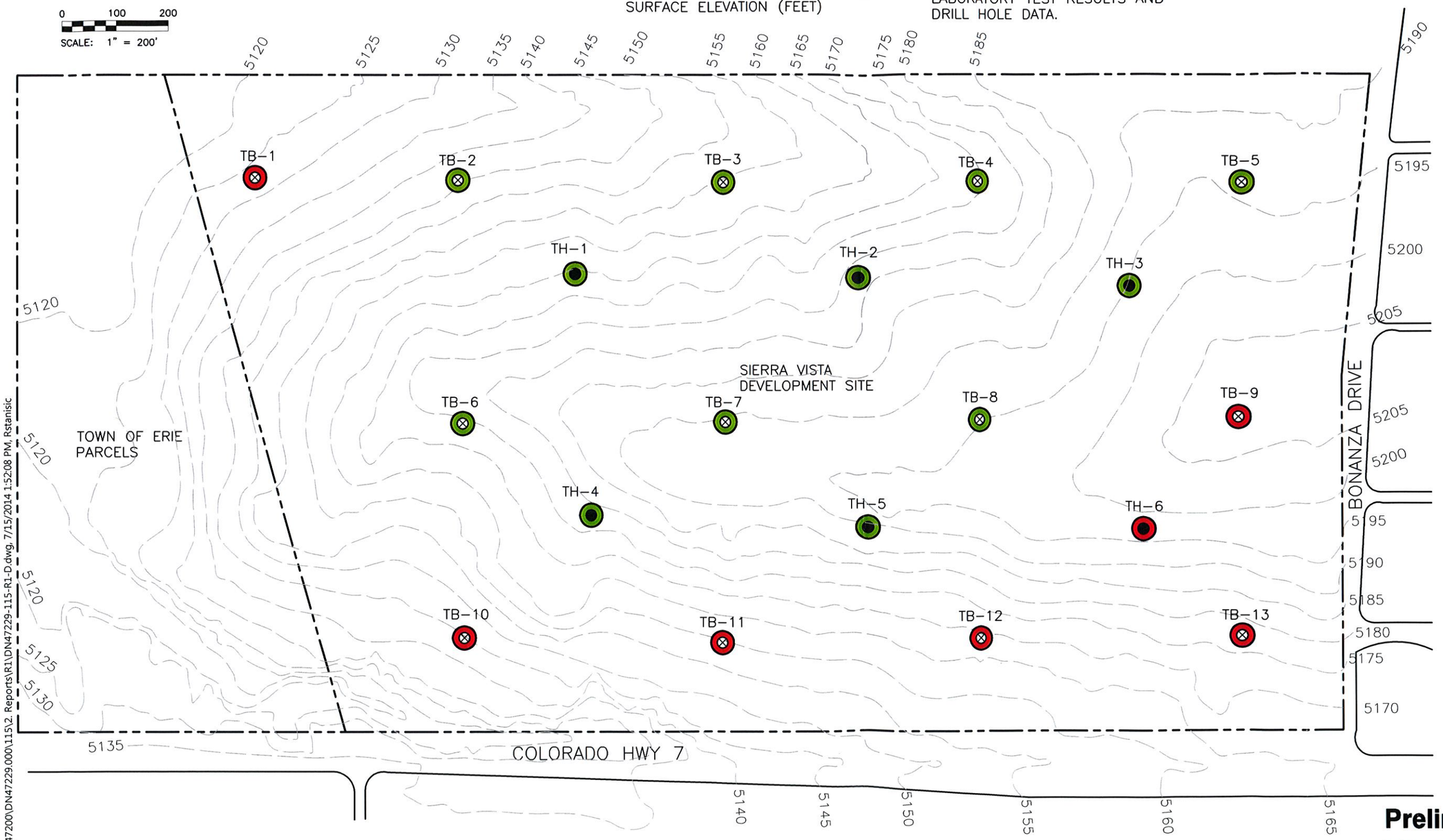
TB-1 APPROXIMATE LOCATION OF TERRACON BORING

5120 INDICATES EXISTING GROUND SURFACE ELEVATION (FEET)

LOW RISK

HIGH RISK

NOTE: THIS ESTIMATE WAS BASED UPON A SUBJECTIVE ANALYSIS OF LABORATORY TEST RESULTS AND DRILL HOLE DATA.



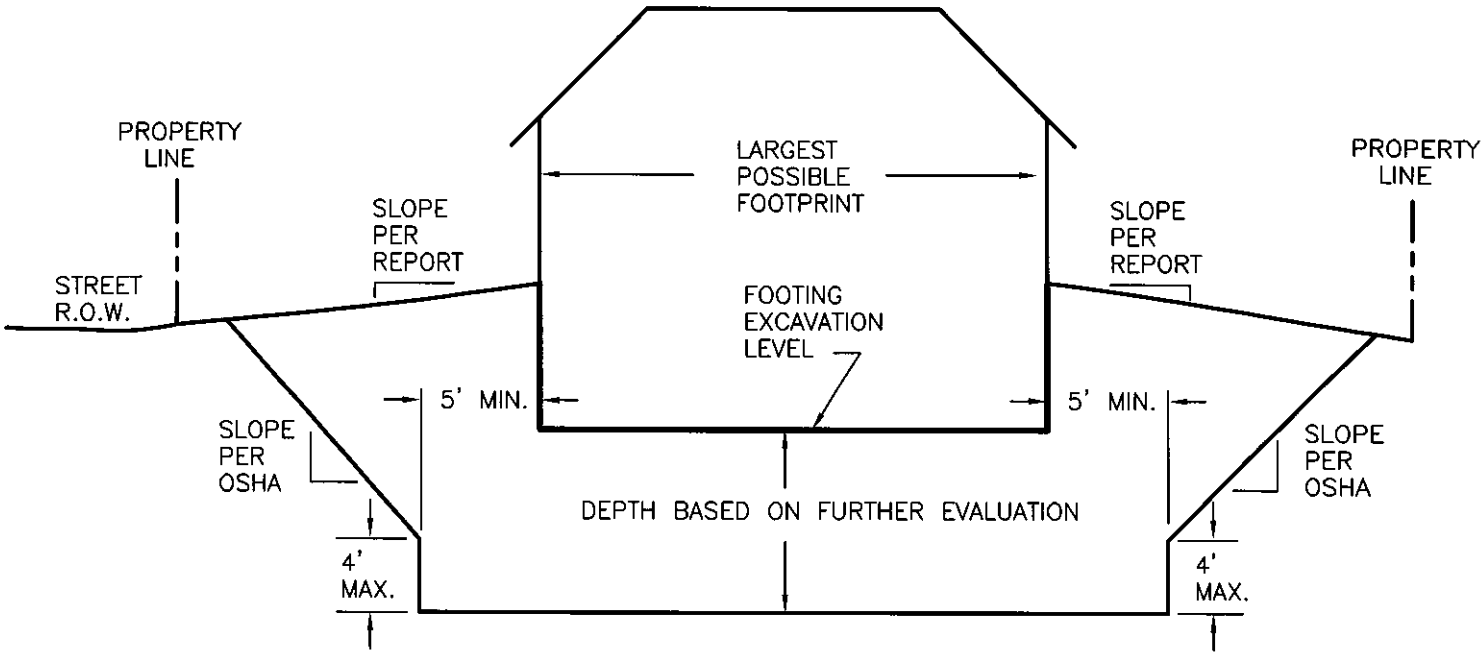
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-D.dwg, 7/15/2014 1:52:08 PM, Rstanisic

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

Preliminary Expansive Soil Risk Evaluation

Fig. 2

95-SUB-EXC_01



NOT TO SCALE

S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-F03-R1-D.dwg, 7/15/2014 1:51:14 PM, Rstanisic

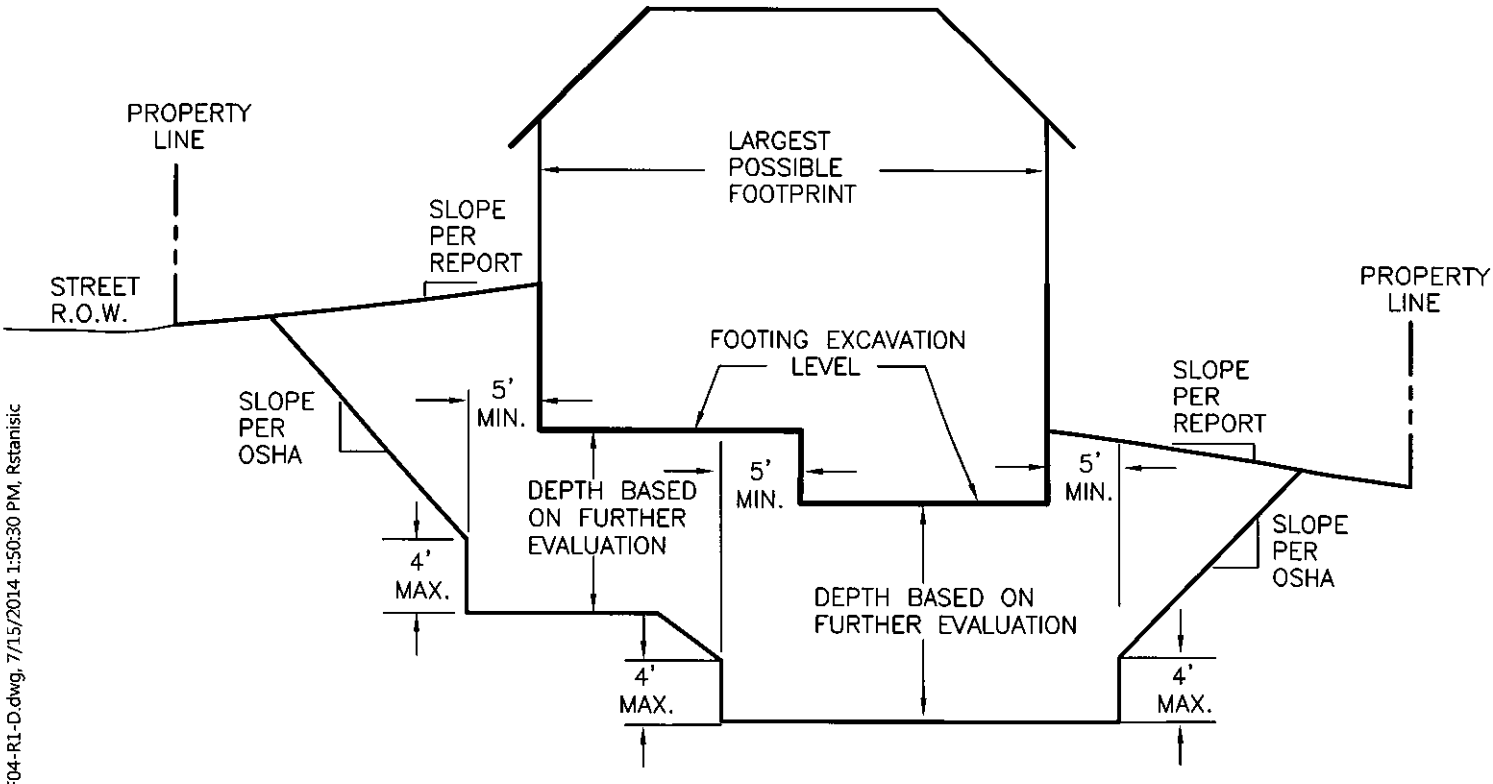
OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA

Project No. DN47,229-115

Conceptual Sub-excavation Profile

Fig. 3

95-SUB-EXCAVATION_03



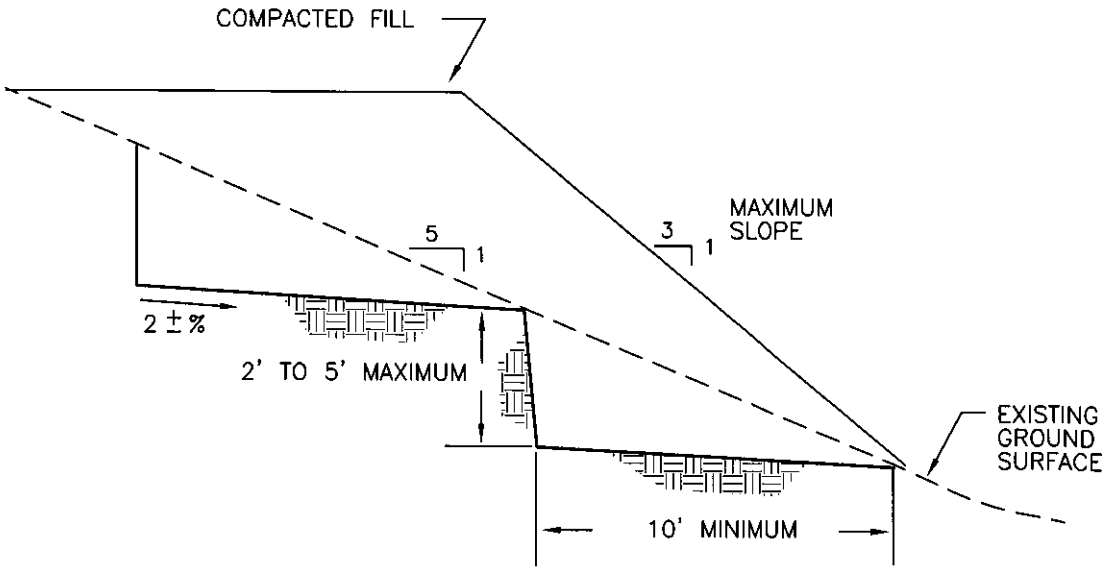
NOT TO SCALE

S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-F04-R1-D.dwg, 7/15/2014 1:50:30 PM, Rstanisic

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

Conceptual Sub-excavation Profile

(Walk-out Basement) Fig. 4



NOTES:

1) NATURAL SLOPES OF 20 PERCENT OR STEEPER ARE TO BE BENCHED PRIOR TO FILL PLACEMENT.

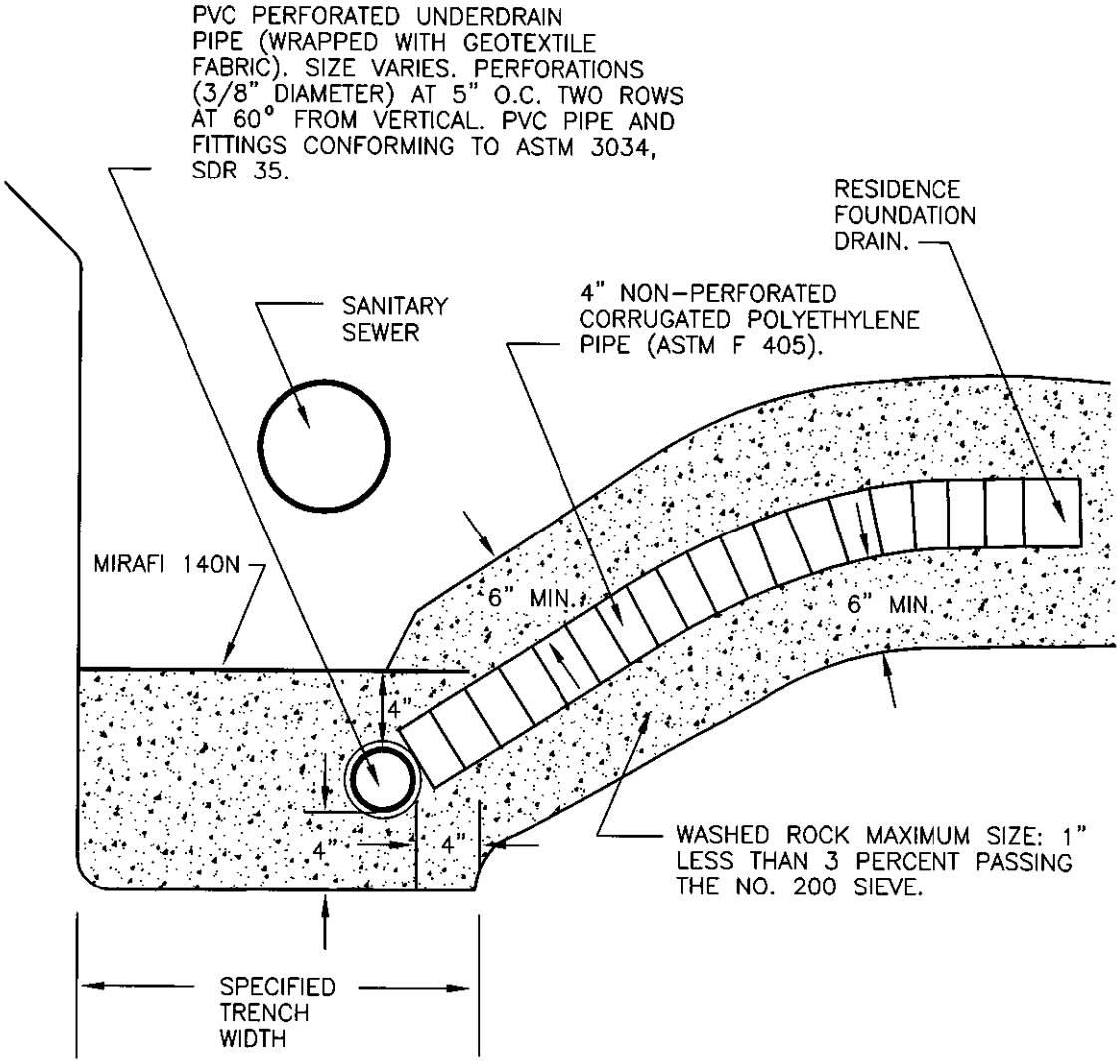
2) SLOPE BENCHES TO OUTSLOPE AT 2± PERCENT.

Benched Fill Detail

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

Fig. 5

60-BENCHED-FILL_01
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-F05-R1-D.dwg, 7/15/2014 1:50:54 PM, Rstanisic



NOTE: NOT TO SCALE.

Sewer Underdrain Detail

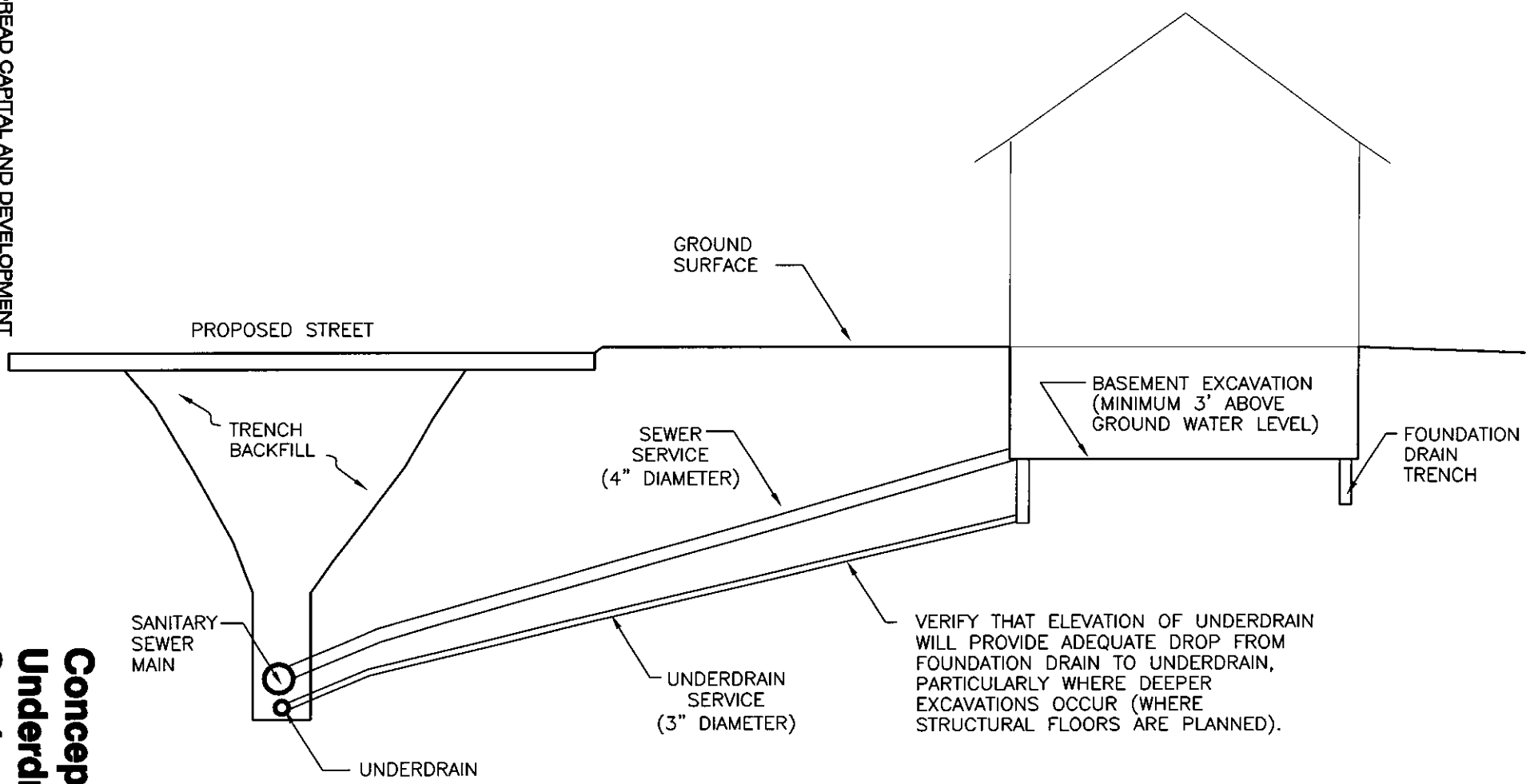
OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

Fig. 6

50-UNDERDRAIN_02

S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-F06-R1-D.dwg, 7/16/2014 12:27:01 PM, rstanisic

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

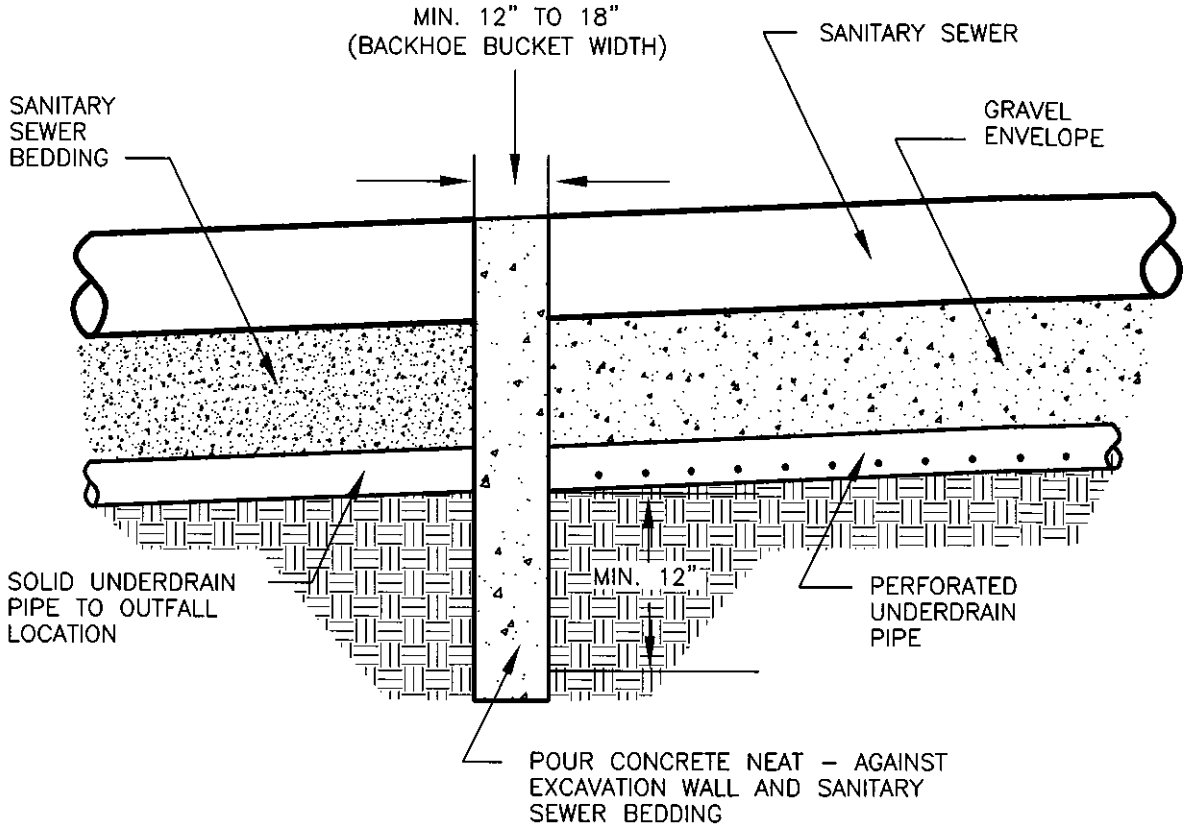


NOT TO SCALE

Conceptual Underdrain Service Profile

Fig. 7

50-UNDERDRAIN_05



NOTE:
THE CONCRETE CUTOFF WALL SHOULD EXTEND INTO THE UNDISTURBED SOILS OUTSIDE THE UNDERDRAIN AND SANITARY SEWER TRENCH A MINIMUM DISTANCE OF 12 INCHES.

S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-F08-R1-D.dwg, 7/16/2014 12:27:49 PM, rstanisic

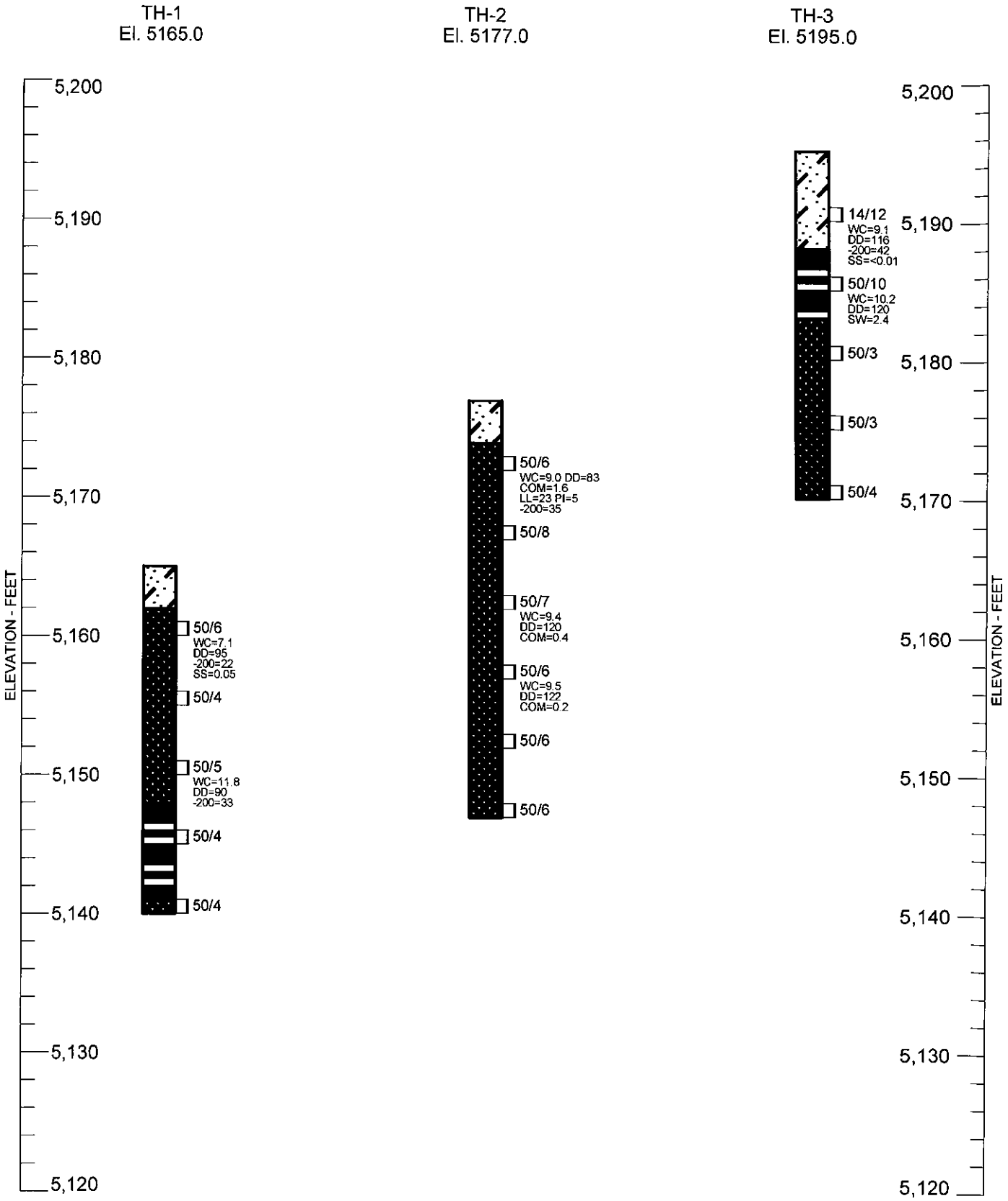
OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
Project No. DN47,229-115

Underdrain Cutoff Wall Detail

Fig. 8

APPENDIX A

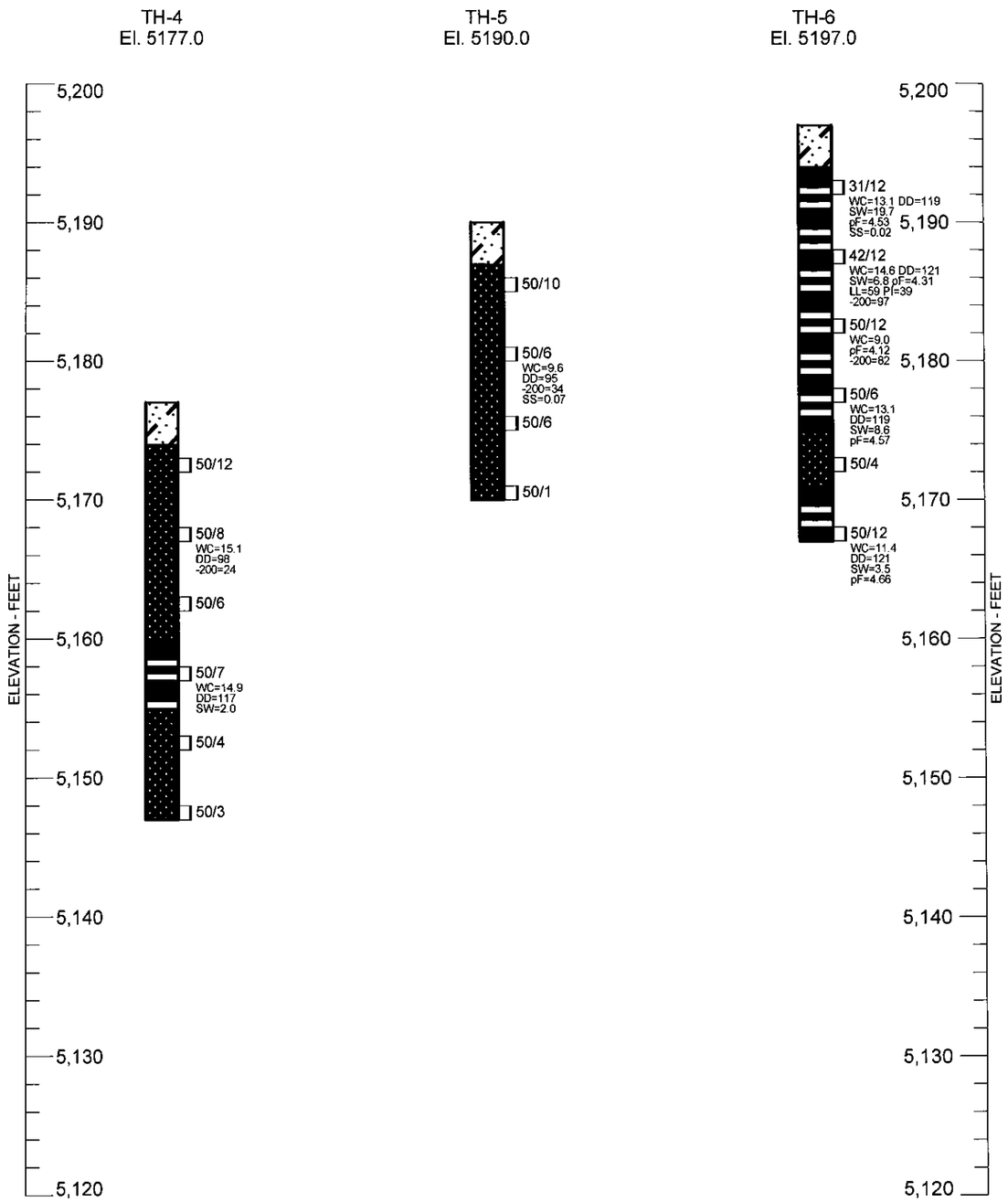
SUMMARY LOGS OF EXPLORATORY BORINGS



SUMMARY LOGS OF EXPLORATORY BORINGS

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115

FIG. A- 1



SUMMARY LOGS OF EXPLORATORY BORINGS

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47.229-115

LEGEND:

SAND, CLAYEY, MEDIUM DENSE, SLIGHTLY MOIST, BROWN, GRAY (SC).

BEDROCK, SANDSTONE, HARD, MOIST, BROWN, TAN.

BEDROCK, CLAYSTONE, MEDIUM HARD TO HARD, MOIST, BROWN, GRAY.

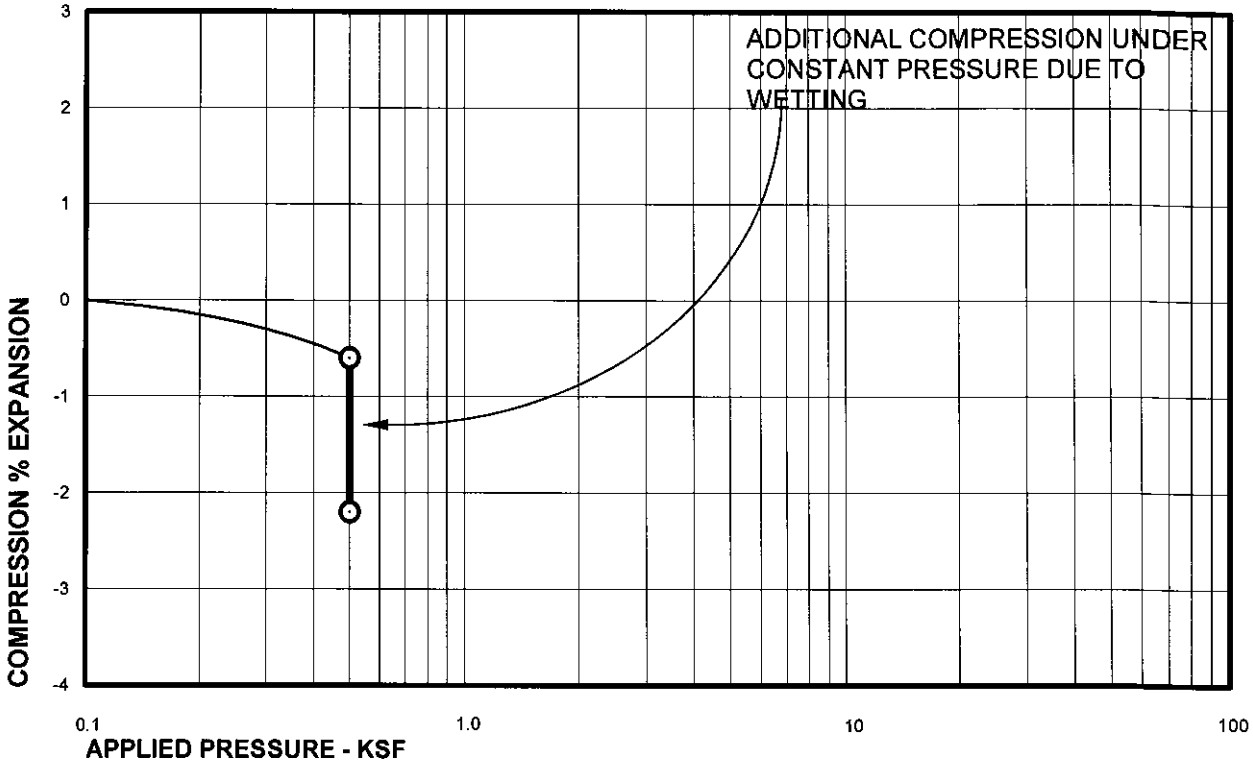
DRIVE SAMPLE. THE SYMBOL 50/6 INDICATES 50 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. SAMPLER 6 INCHES.

NOTES:

1. THE BORINGS WERE DRILLED ON APRIL 24, 2014 USING 4-INCH DIAMETER, CONTINUOUS-FLIGHT AUGER AND A TRUCK-MOUNTED DRILL RIG.
2. GROUNDWATER WAS NOT ENCOUNTERED DURING THIS INVESTIGATION.
3. BORING ELEVATIONS WERE INTERPOLATED FROM CONTOURS SHOWN ON THE SITE PLAN PROVIDED BY THE CLIENT.
4. WC - INDICATES MOISTURE CONTENT (%).
   DD - INDICATES DRY DENSITY (PCF).
   SW - INDICATES SWELL WHEN WETTED UNDER APPLIED PRESSURE (%).
   COM- INDICATES COMPRESSION WHEN WETTED UNDER APPLIED PRESSURE (%).
   LL - INDICATES LIQUID LIMIT.
   PI - INDICATES PLASTICITY INDEX.
   -200 - INDICATES PASSING NO. 200 SIEVE (%).
   SS - INDICATES WATER-SOLUBLE SULFATE CONTENT (%).
   pF - INDICATES SOIL SUCTION VALUE (pF).
5. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS AND CONCLUSIONS CONTAINED IN THIS REPORT.

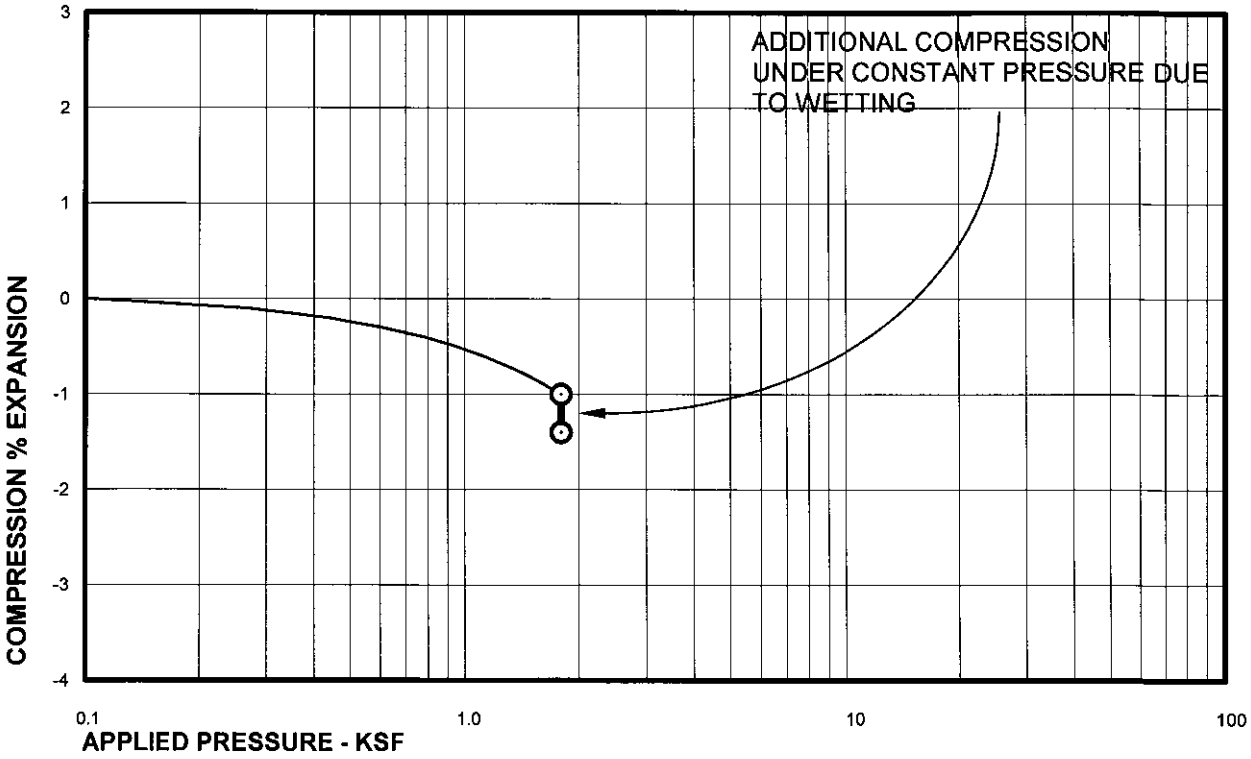
APPENDIX B

LABORATORY TEST RESULTS



Sample of SANDSTONE
From TH-2 AT 4 FEET

DRY UNIT WEIGHT= 83 PCF
MOISTURE CONTENT= 9.0 %



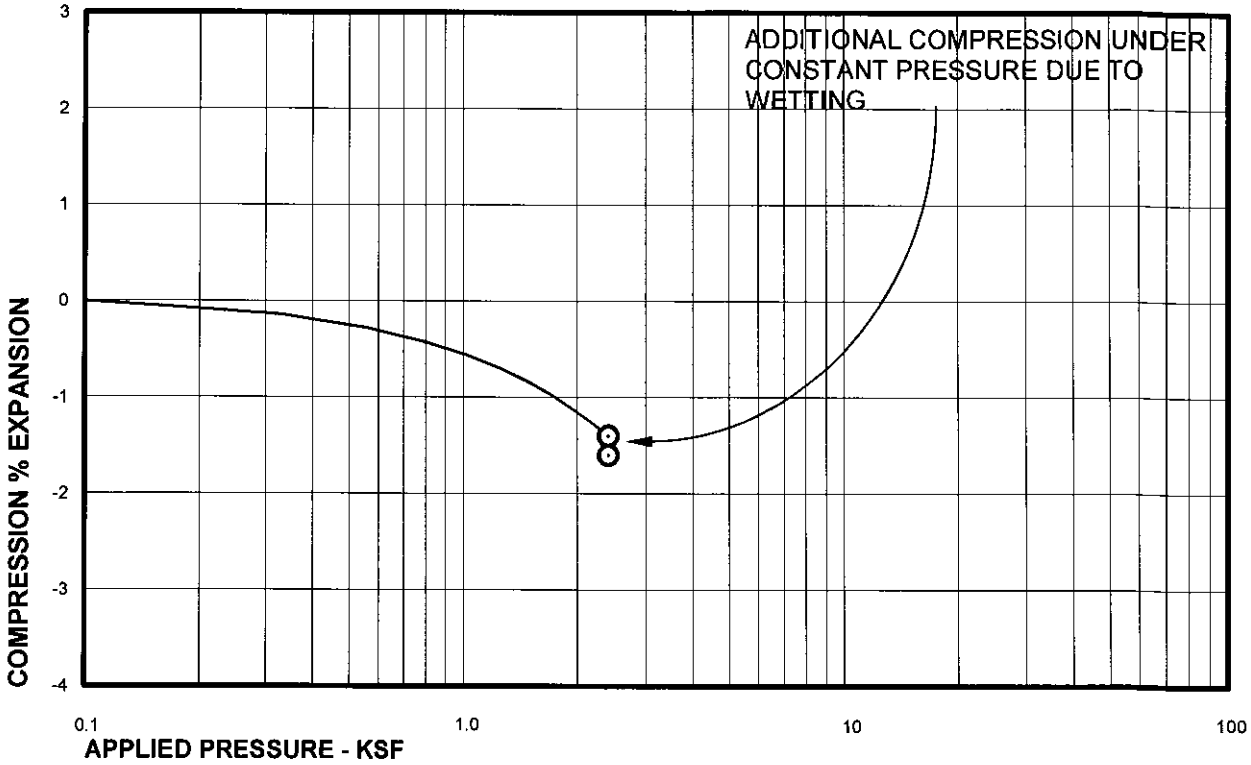
Sample of SANDSTONE
From TH-2 AT 14 FEET

DRY UNIT WEIGHT= 120 PCF
MOISTURE CONTENT= 9.4 %

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X1(SWELL).xlsm

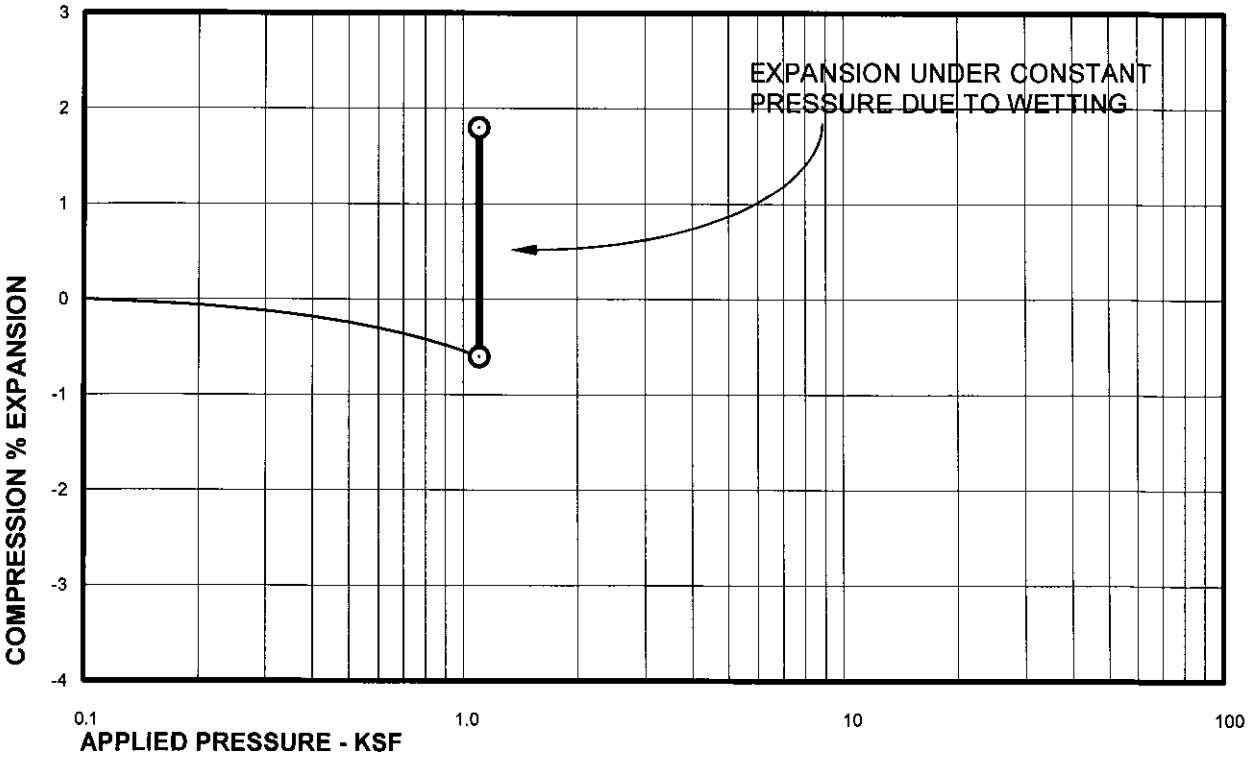
Swell Consolidation Test Results

FIG. B-1



Sample of SANDSTONE
From TH-2 AT 19 FEET

DRY UNIT WEIGHT= 122 PCF
MOISTURE CONTENT= 9.5 %



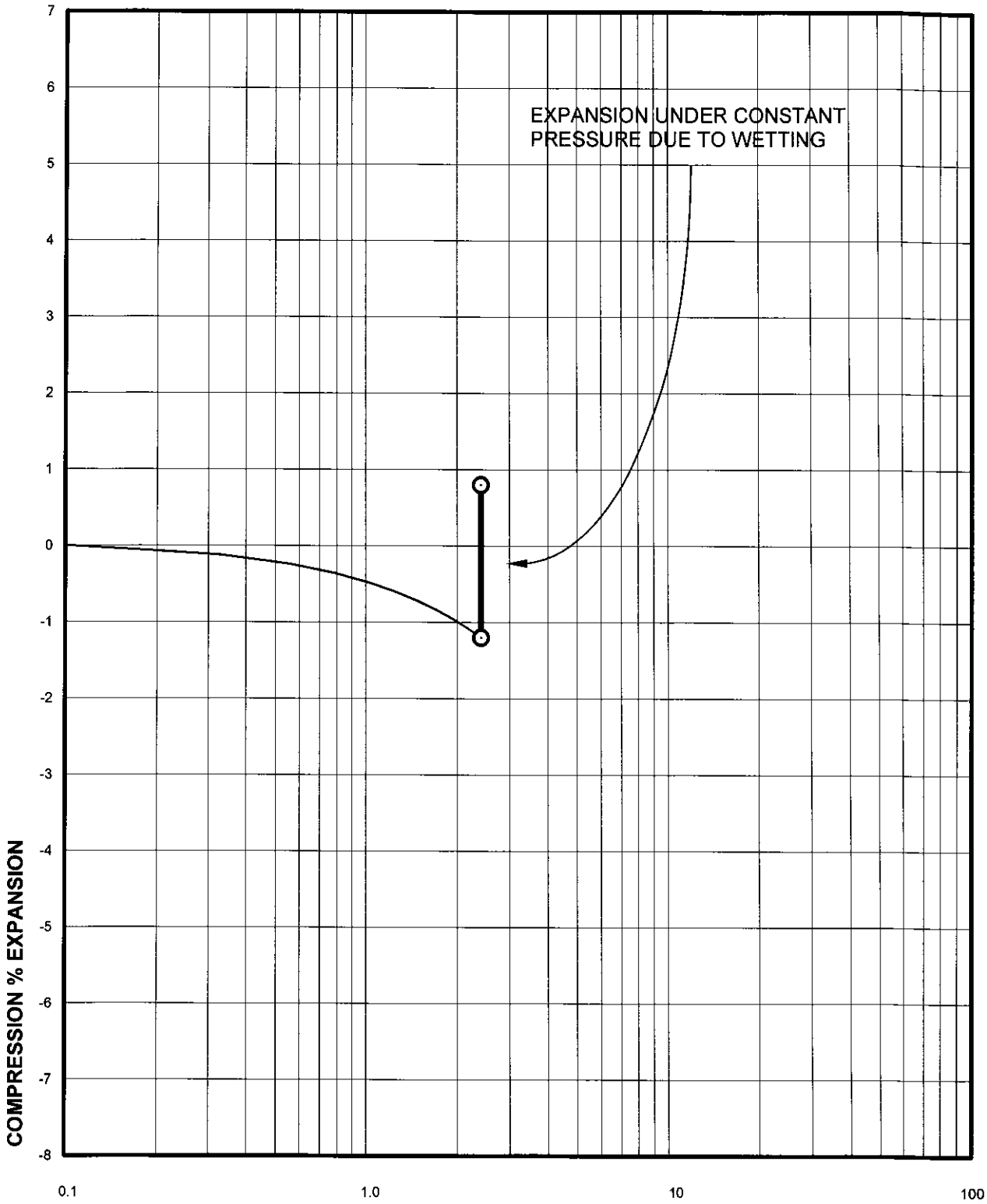
Sample of CLAYSTONE
From TH-3 AT 9 FEET

DRY UNIT WEIGHT= 120 PCF
MOISTURE CONTENT= 10.2 %

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X1(SWELL).xlsm

Swell Consolidation Test Results

FIG. B-2



Sample of CLAYSTONE

From TH-4 AT 19 FEET

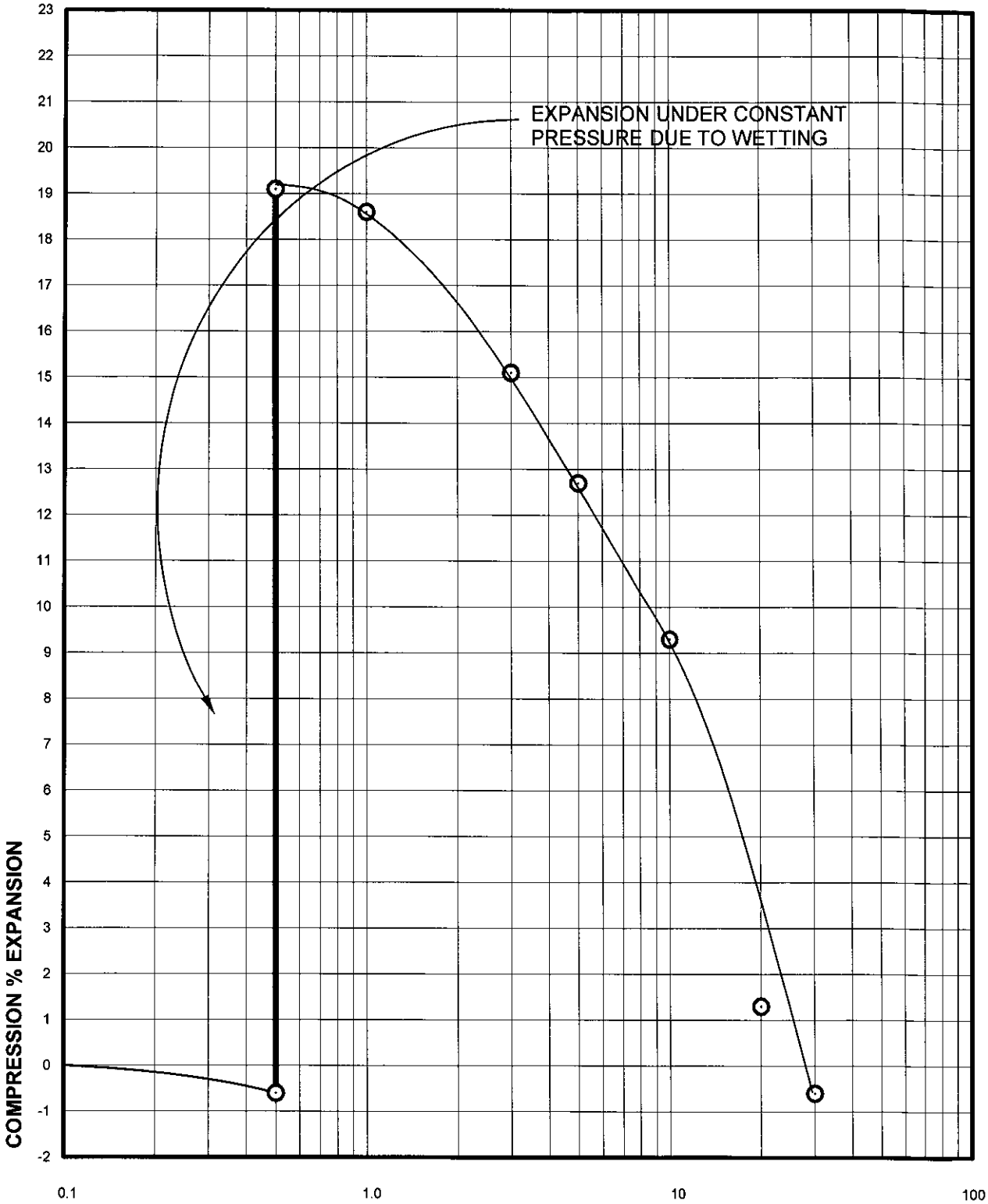
DRY UNIT WEIGHT= 117 PCF

MOISTURE CONTENT= 14.9 %

Swell Consolidation Test Results

FIG. B-3

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X1(SWELL).xlsm



Sample of CLAYSTONE

From TH-6 AT 4 FEET

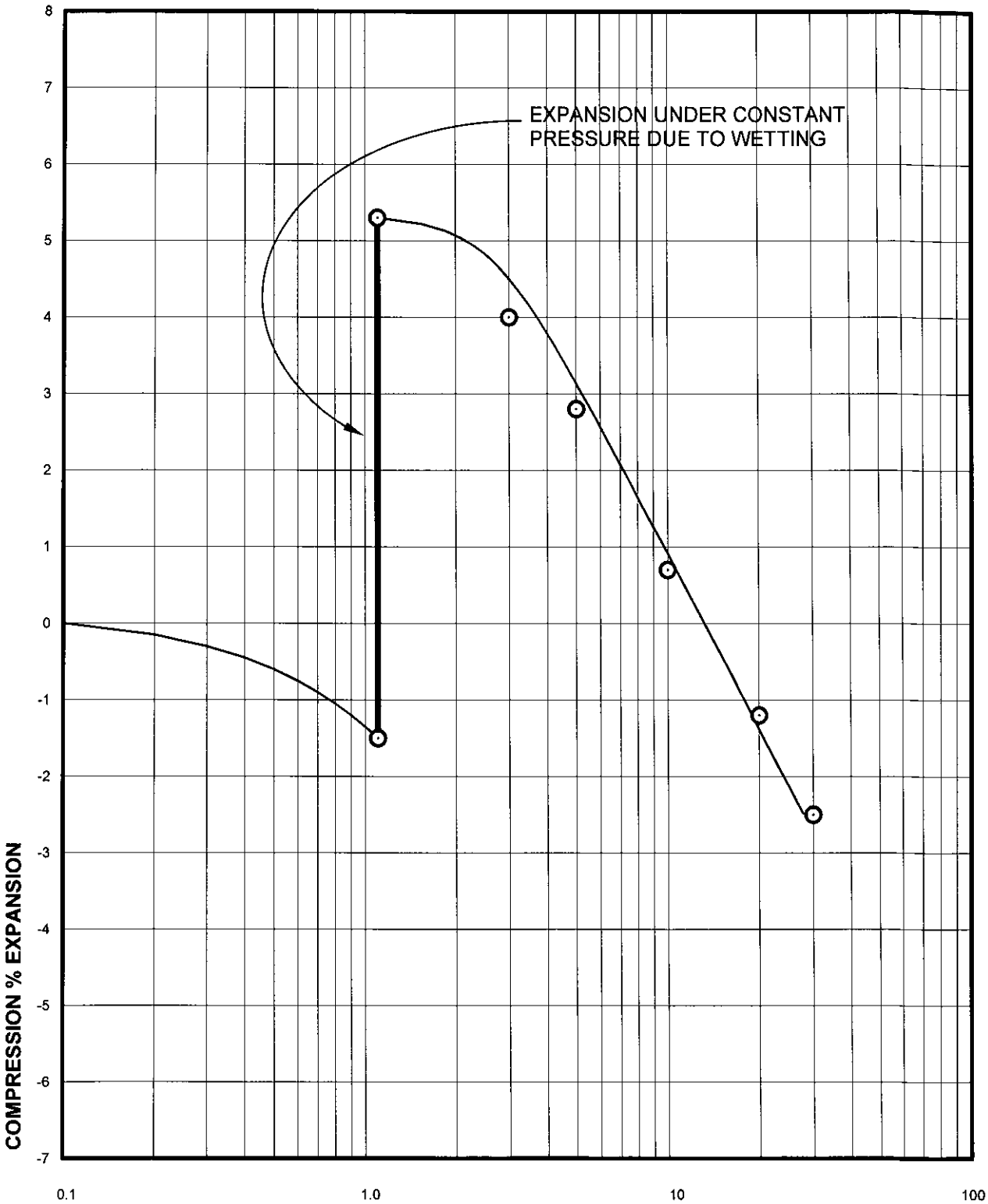
DRY UNIT WEIGHT= 119 PCF

MOISTURE CONTENT= 13.1 %

Swell Consolidation Test Results

FIG. B-4

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X1(SWELL).xlsm



Sample of CLAYSTONE

From TH-6 AT 9 FEET

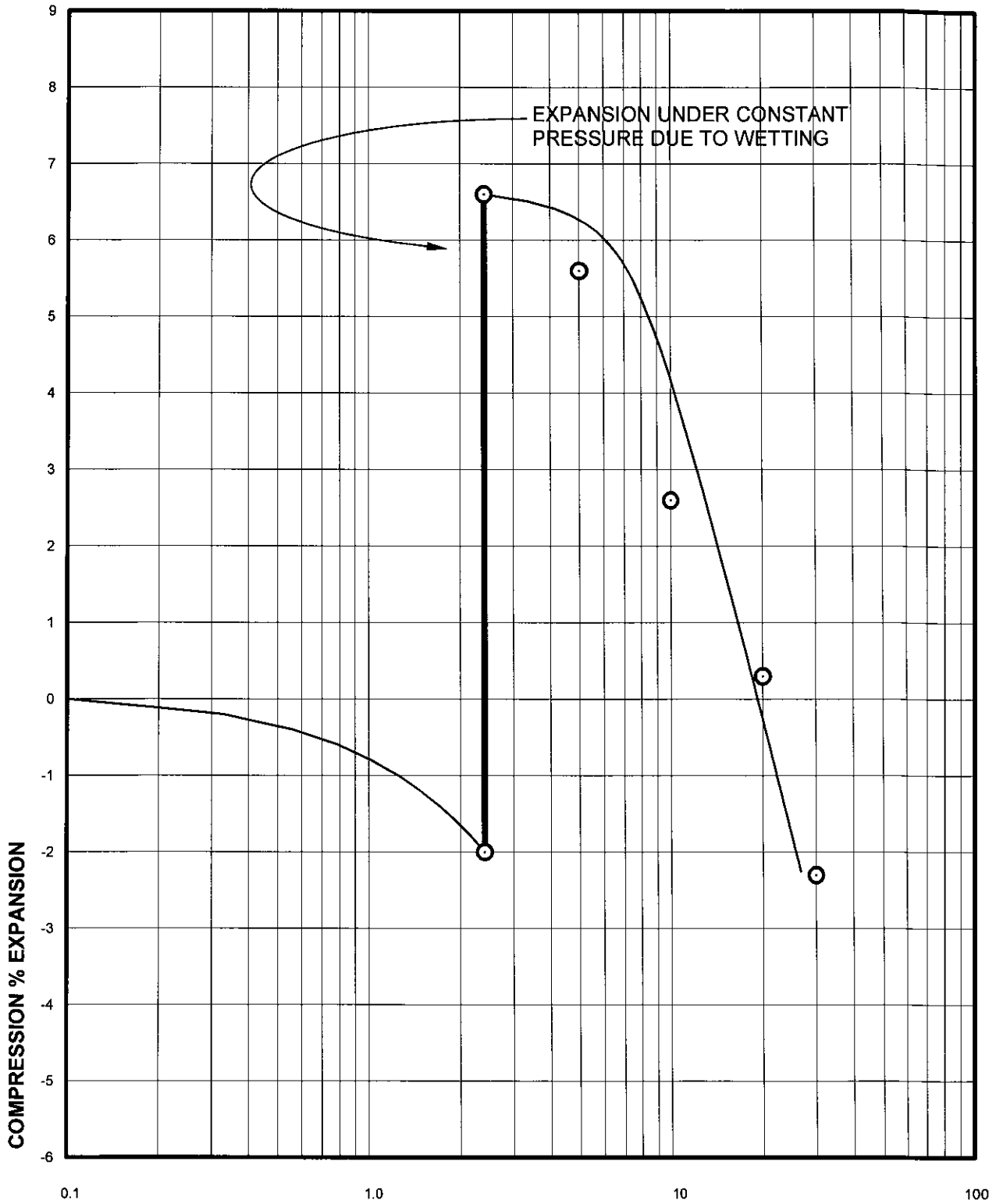
DRY UNIT WEIGHT= 121 PCF

MOISTURE CONTENT= 14.6 %

Swell Consolidation Test Results

FIG. B-5

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X1(SWELL).xlsm



Sample of CLAYSTONE

From TH-6 AT 19 FEET

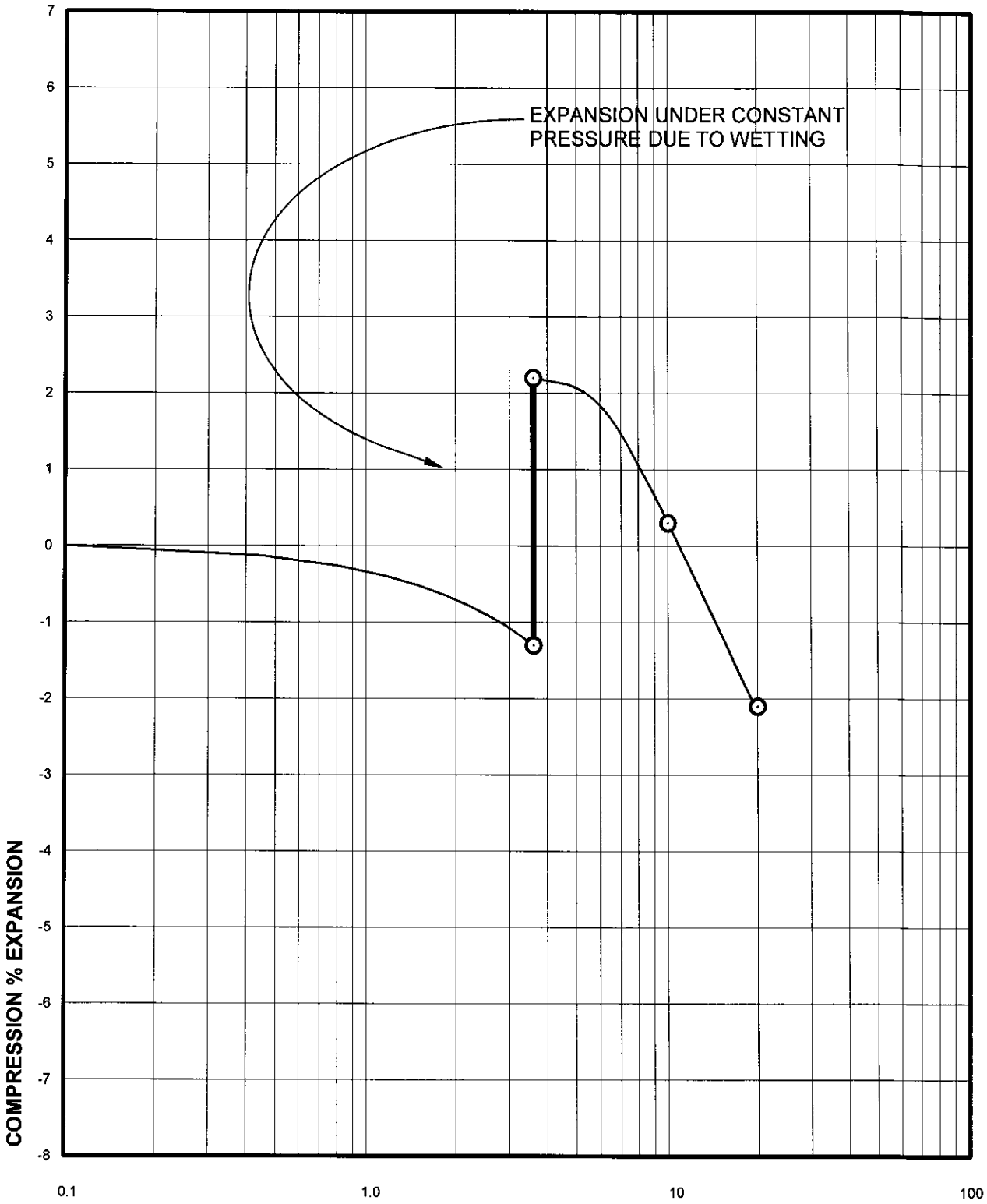
DRY UNIT WEIGHT= 119 PCF

MOISTURE CONTENT= 13.1 %

Swell Consolidation Test Results

FIG. B-6

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X1(SWELL).xlsm



Sample of CLAYSTONE

From TH-6 AT 29 FEET

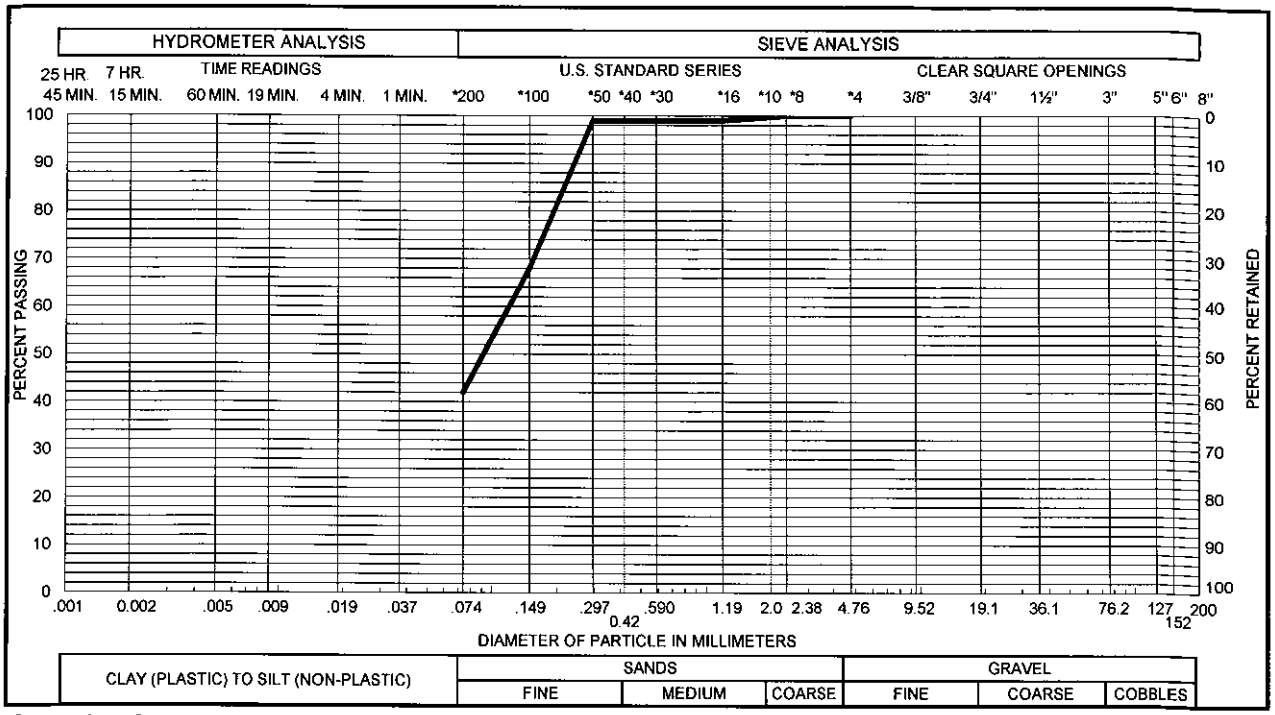
DRY UNIT WEIGHT= 121 PCF

MOISTURE CONTENT= 11.4 %

Swell Consolidation Test Results

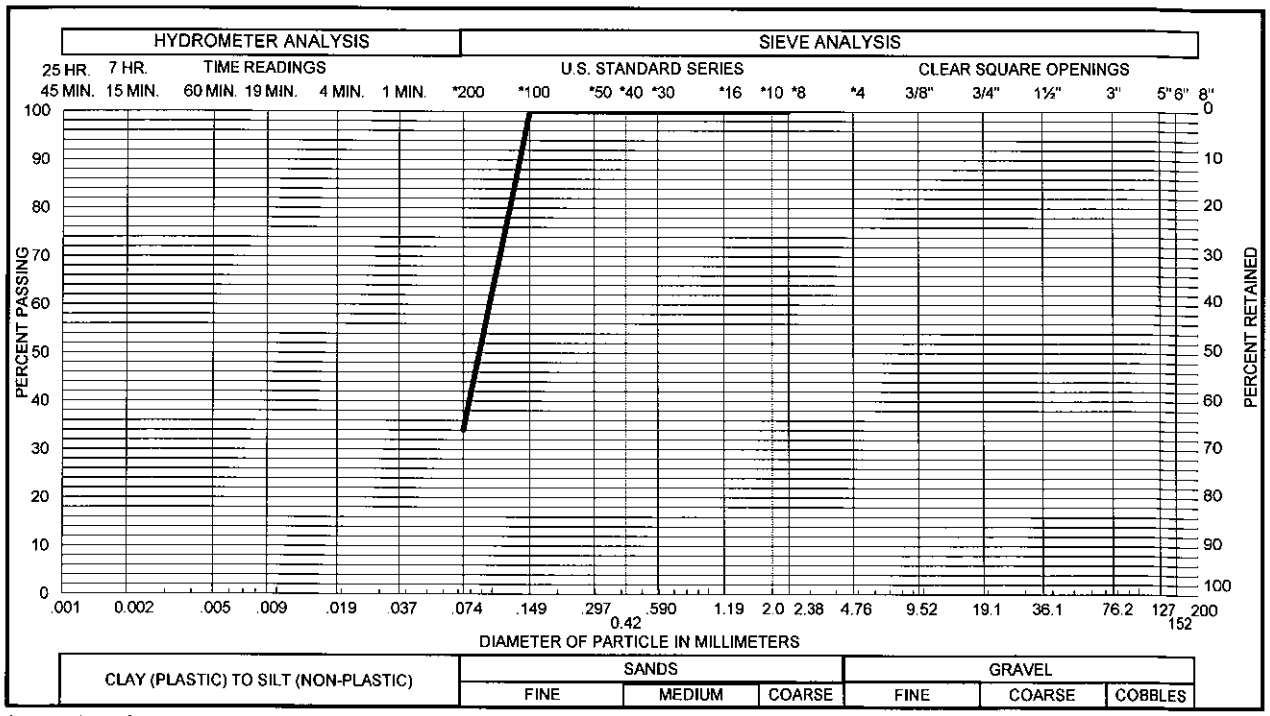
FIG. B-7

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X1(SWELL).xlsm



Sample of SAND, CLAYEY (SC)
From TH - 3 AT 4 FEET

GRAVEL 0 % SAND 58 %
SILT & CLAY 42 % LIQUID LIMIT ___ %
PLASTICITY INDEX ___ %



Sample of SANDSTONE
From TH - 5 AT 9 FEET

GRAVEL 0 % SAND 66 %
SILT & CLAY 34 % LIQUID LIMIT ___ %
PLASTICITY INDEX ___ %

OREAD CAPITAL AND DEVELOPMENT
SIERRA VISTA
PROJECT NO. DN47,229-115
S:\PROJECTS\47200\DN47229.000\115\2. Reports\R1\DN47229-115-R1-X2(GRAD).xlsm

Gradation Test Results FIG. B-8

TABLE B - I

SUMMARY OF LABORATORY TEST RESULTS

BORING	DEPTH (ft)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	SWELL TEST DATA				SOIL SUCTION VALUE (pF)	ATTERBERG LIMITS		SOLUBLE SULFATE CONTENT (%)	PASSING NO. 200 SIEVE (%)	SOIL TYPE
				SWELL (%)	COMPRESSION (%)	APPLIED PRESSURE (psf)	SWELL PRESSURE (psf)		LIQUID LIMIT (%)	PLASTICITY INDEX (%)			
TH-1	4	7.1	95								0.05	22	SANDSTONE
TH-1	14	11.8	90									33	SANDSTONE
TH-2	4	9.0	83		1.6	500			23	5		35	SANDSTONE
TH-2	14	9.4	120		0.4	1,800							SANDSTONE
TH-2	19	9.5	122		0.2	2,400							SANDSTONE
TH-3	4	9.1	116								<0.01	42	SAND, CLAYEY (SC)
TH-3	9	10.2	120	2.4		1,100							CLAYSTONE
TH-4	9	15.1	98									24	SANDSTONE
TH-4	19	14.9	117	2.0		2,400							CLAYSTONE
TH-5	9	9.6	95								0.07	34	SANDSTONE
TH-6	4	13.1	119	19.7		500	30,000	4.53			0.02		CLAYSTONE
TH-6	9	14.6	121	6.8		1,100	21,000	4.31	59	39		97	CLAYSTONE
TH-6	14	9.0						4.12				82	CLAYSTONE
TH-6	19	13.1	119	8.6		2,400	25,000	4.57					CLAYSTONE
TH-6	29	11.4	121	3.5		3,600	16,000	4.66					CLAYSTONE

APPENDIX C

GUIDELINE SITE GRADING SPECIFICATIONS

Sierra Vista Subdivision
Erie, Colorado

GUIDELINE SITE GRADING SPECIFICATIONS

Sierra Vista Subdivision
Erie, Colorado

1. DESCRIPTION

This item shall consist of the excavation, transportation, placement and compaction of materials from locations indicated on the plans, or staked by the Engineer, as necessary to achieve preliminary street and overlot elevations. These specifications shall also apply to compaction of excess cut materials that may be placed outside of the development boundaries.

2. GENERAL

The Soils Representative shall be the Owner's representative. The Soils Representative shall approve fill materials, method of placement, moisture contents and percent compaction, and shall give written approval of the completed fill.

3. CLEARING JOB SITE

The Contractor shall remove all vegetation and debris before excavation or fill placement is begun. The Contractor shall dispose of the cleared material to provide the Owner with a clean, neat appearing job site. Cleared material shall not be placed in areas to receive fill or where the material will support structures of any kind.

4. AREA TO BE FILLED

All topsoil and vegetable matter shall be removed from the ground surface upon which fill is to be placed. The surface shall then be plowed or scarified until the surface is free from ruts, hummocks or other uneven features, which would prevent uniform compaction.

After the foundation for the fill has been cleared and scarified, it shall be disked or bladed until it is free from large clods, brought to the proper moisture content (0 to 3 percent above optimum moisture content for clays and within 2 percent of optimum moisture content for sands) and compacted to not less than 95 percent of maximum dry density as determined in accordance with ASTM D698.

5. FILL MATERIALS

Fill soils shall be free from organics, debris or other deleterious substances, and shall not contain rocks or lumps having a diameter greater than six (6) inches. Claystone bedrock should be broken down to three (3) inches or smaller in size. Fill materials shall be obtained from cut areas shown on the plans or staked in the field by the Engineer.

On-site materials classifying as CL, CH, SC, SM, SW, SP, GP, GC and GM are acceptable. Concrete, asphalt, organic matter and other deleterious materials or debris shall not be used as fill.

6. MOISTURE CONTENT

Fill material classifying as CH and CL and placed in the upper 20 feet shall be moisture conditioned to between 0 to 3 percent above optimum moisture content. Fill classifying as CH or CL and placed at depths greater than 20 feet shall be moisture conditioned to within 1 percent below and 2 percent above optimum moisture content. Granular soils classifying as SC, SM, SW, SP, GP, GC and GM shall be moisture conditioned to within 2 percent of optimum moisture content as determined from Proctor compaction tests. Sufficient laboratory compaction tests shall be made to determine the optimum moisture content for the various soils encountered in borrow areas.

The Contractor may be required to add moisture to the excavation materials in the borrow area if, in the opinion of the Soils Representative, it is not possible to obtain uniform moisture content by adding water on the fill surface. The Contractor may be required to rake or disc the fill soils to provide uniform moisture content through the soils.

The application of water to embankment materials shall be made with any type of watering equipment approved by the Soils Representative, which will give the desired results. Water jets from the spreader shall not be directed at the embankment with such force that fill materials are washed out.

Should too much water be added to any part of the fill, such that the material is too wet to permit the desired compaction from being obtained, rolling and all work on that section of the fill shall be delayed until the material has been allowed to dry to the required moisture content. The Contractor will be permitted to rework wet material in an approved manner to hasten its drying.

7. COMPACTION OF FILL AREAS

Selected fill material shall be placed and mixed in evenly spread layers. After each fill layer has been placed, it shall be uniformly compacted to not less than the specified percentage of maximum density. Fill placed in the upper 20 feet shall be compacted to at least 95 percent of the maximum density as determined in accordance with ASTM D 698. Fill placed 20 feet or deeper shall be compacted to at least 100 percent of standard Proctor maximum dry density (ASTM D 698). At the option of the Soils Representative, soils classifying as SW, GP, GC, or GM may be compacted to 95 percent of maximum density as determined in accordance with ASTM D 1557 or 70 percent relative density for cohesionless sand soils. Fill materials shall be placed such that the thickness of loose materials does not exceed 10 inches and the compacted lift thickness does not exceed 6 inches.

Compaction as specified above, shall be obtained by the use of sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other equipment for soils classifying as CL, CH, or SC. Granular fill shall be compacted using vibratory equipment or other approved equipment. Compaction shall be accomplished while the fill material is at the specified moisture content. Compaction of each layer shall be continuous over the

entire area. Compaction equipment shall make sufficient trips to ensure that the required density is obtained.

8. COMPACTION OF SLOPES

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compaction operations shall be continued until slopes are stable, but not too dense for planting, and there is not appreciable amount of loose soils on the slopes. Compaction of slopes may be done progressively in increments of three to five feet (3' to 5') in height or after the fill is brought to its total height. Permanent fill slopes shall not exceed 3:1 (horizontal to vertical).

9. PLACEMENT OF FILL ON NATURAL SLOPES

Where natural slopes are steeper than 20 percent in grade and the placement of fill is required, benches shall be cut at the rate of one bench for each 5 feet in height (minimum of two benches). Benches shall be at least 10 feet in width. Larger bench widths may be required by the Engineer. Fill shall be placed on completed benches as outlined within this specification.

10. DENSITY TESTS

Field density tests shall be made by the Soils Representative at locations and depths of his choosing. Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted material below the disturbed surface. When density tests indicate that the density or moisture content of any layer of fill or portion thereof is not within specification, the particular layer or portion shall be reworked until the required density or moisture content has been achieved.

11. SEASONAL LIMITS

No fill material shall be placed, spread or rolled while it is frozen, thawing, or during unfavorable weather conditions. When work is interrupted by heavy precipitation, fill operations shall not be resumed until the Soils Representative indicates that the moisture content and density of previously placed materials are as specified.

12. NOTICE REGARDING START OF GRADING

The Contractor shall submit notification to the Soils Representative and Owner advising them of the start of grading operations at least three (3) days in advance of the starting date. Notification shall also be submitted at least 3 days in advance of any resumption dates when grading operations have been stopped for any reason other than adverse weather conditions.

13. REPORTING OF FIELD DENSITY TESTS

Density tests made by the Soils Representative, as specified under "Density Tests" above, shall be submitted progressively to the Owner. Dry density, moisture content, and percentage compaction shall be reported for each test taken.

14. DECLARATION REGARDING COMPLETED FILL

The Soils Engineer shall provide a written declaration stating that the site was filled with acceptable materials, and was placed in general accordance with the specifications.

APPENDIX D

TERRACON'S BORINGS AND LOGS

LOG OF BORING NO. TB-1

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5128.0 ft.

DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: PENETRATION BLOWS	TESTS: MOISTURE, %	TESTS: DRY DENSITY (PCF)	TESTS: UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS: %SWELL-CONSOL/SURCHARGE LOAD (PSF)	TESTS: FREE SWELL (PSF)
0.5 TOPSOIL — 5127.5										
1.5 CLAYEY SAND, silty, light brown, dry, loose. — 5126.5		SC		SS	7					
				CB	36	14	115		+6.7/500	
	5									
				CB	50/9					
	10									
CLAYSTONE, high plasticity, dark gray to mottled gray, brown and rust, slightly moist to moist, calcareous, medium hard to hard.				CB	50/9	16	115		+8.0/500	
	15									
				SS	50/10					
	20									
25.0 — 5103.0				SS	50/11					
BOTTOM OF BORING	25									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-2

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5145.0 ft.

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES PENETRATION BLOWS	TESTS MOISTURE, %	TESTS DRY DENSITY (PCF)	TESTS UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS FREE SWELL (PSF)
	0.5 TOPSOIL 5144.5										
					CB	50/8					
		5									
	SANDSTONE, slightly silty, fine-grained, poorly cemented, light gray to tan and rust, dry to slightly moist, hard to very hard.				CB	50/5					
		10									
	15.0 5130.0				SS	50/5					
	BOTTOM OF BORING	15									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-3

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5156.0 ft.

GRAPHIC LOG	DESCRIPTION		DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: PENETRATION BLOWS	TESTS: MOISTURE, %	TESTS: DRY DENSITY (PCF)	TESTS: UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS: %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS: FREE SWELL (PSF)
	0.5 TOPSOIL	5155.5										
	1.5 SILTY TO CLAYEY SAND, light brown to tan, dry.	5154.5		SC SM								
						CB	50/5					
			5									
	SANDSTONE, slightly silty and clayey, fine-grained, poorly cemented, tan to rust, dry to slightly moist, very hard.					CB	50/5					
			10									
	15.0	5141.0				SS	50/4					
	BOTTOM OF BORING		15									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-4

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5170.0 ft.

DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: PENETRATION BLOWS	TESTS: MOISTURE, %	TESTS: DRY DENSITY (PCF)	TESTS: UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS: %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS: FREE SWELL (PSF)	DESCRIPTION
0.5										TOPSOIL — 5169.5
1.5	SC SM									SILTY TO CLAYEY SAND, light brown to tan, dry. — 5168.5
			CB	3						
5										
	SM		CB	10	4	98		-0.4/500		SILTY SAND, slightly clayey, dark brown to tan, slightly moist to dry, calcareous, porous, very loose to medium dense.
10										
11.5										5158.5
15.0			SS	50/3						SANDSTONE, slightly silty, fine-grained, poorly cemented, tan to light gray, dry to slightly moist, very hard. — 5155.0
15										BOTTOM OF BORING

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-5

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5195.0 ft.

DEPTH (FT.)	DESCRIPTION	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: PENETRATION BLOWS	TESTS: MOISTURE, %	TESTS: DRY DENSITY (PCF)	TESTS: UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS: %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS: FREE SWELL (PSF)
0.5	TOPSOIL (5194.5)			SS	6					
		SC		SS	9					
				CB	14	3	101	6320		
5	CLAYEY SAND, light brown to tan, calcareous, dry to slightly moist, porous, loose to medium dense, varies to a sandy silty clay with depth.									
				CB	13	7	100		-3.1/1K	
10										
12.5	(5182.5)									
14.5	LIGNITE SEAM, black, moist, soft. (5180.5)									
				CB	50/9					
15										
				CB	50/2					
20	SANDSTONE, slightly clayey, fine-grained, poorly cemented, gray, black and tan, dry to slightly moist, hard to very hard.									
25.0	(5170.0)			SS	50/2					
25	BOTTOM OF BORING									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-6

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5174.0 ft.

GRAPHIC LOG	DESCRIPTION		DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES PENETRATION BLOWS	TESTS MOISTURE, %	TESTS DRY DENSITY (PCF)	TESTS UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS FREE SWELL (PSF)
	0.5 TOPSOIL	5173.5										
	SILTY SAND, slightly clayey, dark brown, moist, loose.											
	3.0	5171.0	SC	SM		CB	6					
			5									
						CB	50/9					
	SANDSTONE, slightly silty, fine-grained, poorly cemented, tan to light gray, dry to slightly moist, hard.		10									
	15.0	5159.0	15			SS	50/8					
	BOTTOM OF BORING											

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-7

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5192.0 ft.

DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES PENETRATION BLOWS	TESTS MOISTURE, %	TESTS DRY DENSITY (PCF)	TESTS UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS FREE SWELL (PSF)
			SS	7					
	SC		CB	7	6	89	2590	-3.8/1K	
5									
			CB	50/11					
10									
			CB	50/4					
15									
			SS	50/4					
20									
			SS	50/6					
25									

GRAPHIC LOG / DESCRIPTION

0.5 TOPSOIL — 5191.5

CLAYEY SAND, light brown to tan, dry to slightly moist, calcareous, porous, loose, varies to a sandy silty clay.

8.5 — 5183.5

SANDSTONE, slightly silty, fine-grained, poorly cemented, tan to light gray, dry to slightly moist, hard.

12.0 — 5180.0

14.0 SANDSTONE, caprock, very hard, well cemented. — 5178.0

SANDSTONE, slightly clayey, fine grained, poorly cemented, tan, dry, very hard.

23.0 — 5169.0

25.0 CLAYSTONE, silty and sandy, gray and rust, moist, hard to very hard. — 5167.0

BOTTOM OF BORING

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-8

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5196.0 ft.

GRAPHIC LOG	DESCRIPTION		DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES PENETRATION BLOWS	TESTS MOISTURE, %	TESTS DRY DENSITY (PCF)	TESTS UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS FREE SWELL (PSF)
	0.5 TOPSOIL	5195.5										
	2.0 SILTY TO CLAYEY SAND, brown, slightly moist.	5194.0	SC	SM								
						CB	50/11					
			5									
	SANDSTONE, slightly silty, fine-grained, poorly cemented, light gray with yellow, dry to slightly moist, weathered to very hard.					CB	50/4					
			10									
	15.0	5181.0				SS	50/3					
	BOTTOM OF BORING		15									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-9

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5208.0 ft.

Depth (ft.)	Description	Elevation	USCS Symbol	Sample Number	Type	Penetration Blows	Moisture, %	Dry Density (PCF)	Unconfined Compressive Strength (PSF)	%Swell-Consol/Surcharge Load (PSF)	Free Swell (PSF)
0.5	TOPSOIL	5207.5									
	CLAYEY SAND, light brown to tan, dry to slightly moist, calcareous, porous, medium dense, varies to a sandy silty clay.		SC		CB	12	6	95	5850	-0.6/1K	
4.0		5204.0									
6.0	SANDSTONE, slightly silty, fine-grained, poorly cemented, tan to light gray, dry to slightly moist.	5202.0			CB	42	11	121	17700		
	CLAYSTONE, slightly silty and sandy, high plasticity, gray, tan and rust, moist, calcareous, medium hard.				CB	50/6	13	113	6530		
13.0		5195.0									
	CLAYSTONE/SILTSTONE, with sandstone interbeds, gray, tan and rust, slightly moist, calcareous, hard to very hard.				CB	50/7					
					SS	50/6					
25.0		5183.0									
	BOTTOM OF BORING										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-10

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5144.0 ft.

DESCRIPTION	Depth (ft.)	USCS Symbol	Sample Number	Type	Penetration Blows	Moisture, %	Dry Density (PCF)	Unconfined Compressive Strength (PSF)	%Swell-Consol./Surcharge Load (PSF)	Free Swell (PSF)
0.5 TOPSOIL — 5143.5										
CLAYEY SAND, medium brown, slightly moist. — 3.0 — 5141.0		SC SM								
				CB	27					
CLAYSTONE, with sandstone interbeds, silty, dark gray with tan and rust, slightly moist, firm. — 8.0 — 5136.0	5									
				CB	50/6					
SILTSTONE/SANDSTONE/CLAYSTONE, interbedded, rust, brown and gray, slightly moist, hard to very hard.	10									
	15			CB	50/6					
	20			CB	50/2					
25.0 — 5119.0	25			SS	50/4					
BOTTOM OF BORING										

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES; IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-11

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5160.0 ft.

DEPTH (FT.)	USCS SYMBOL	SAMPLES: NUMBER	TYPE	PENETRATION BLOWS	TESTS: MOISTURE, %	DRY DENSITY (PCF)	UNCONFINED COMPRESSIVE STRENGTH (PSF)	%SWELL-CONSOL /SURCHARGE LOAD (PSF)	FREE SWELL (PSF)
0.5									
	SC								
3.5									
			CB	32	18	108	10530		
5									
			CB	50/11	13	115		+1.7/500	
10									
15.0			CB	50/6					
15									

GRAPHIC LOG

DESCRIPTION

0.5 TOPSOIL. 5159.5

CLAYEY SAND, silty, brown, moist.

3.5 5156.5

CLAYSTONE, silty and sandy, dark gray, rust and brown, slightly moist to moist, hard to very hard.

15.0 5145.0

BOTTOM OF BORING

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS

WL	▽ Dry 5/14/97	▼ Dry 5/27/97
WL	▽	
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-12

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5170.0 ft.

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES PENETRATION BLOWS	TESTS MOISTURE, %	TESTS DRY DENSITY (PCF)	TESTS UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS FREE SWELL (PSF)
	0.5 TOPSOIL 5169.5										
		1			CB	23					
		5									
					CB	50/10	16	116		+6.8/500	
	CLAYSTONE, high plasticity, dark gray with black and rust, slightly moist to moist, calcareous, weathered to hard.	10									
	15.0 5155.0				CB	50/8					
	BOTTOM OF BORING	15									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS		
WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

LOG OF BORING NO. TB-13

OWNER/CLIENT: Pratt Management Company, LLC

ARCHITECT/ENGINEER:

SITE: NW Corner of State HWY 7 & WCR 3, Erie, Colorado

PROJECT: Proposed Industrial Development

Approx. Surface Elev.: 5176.0 ft.

GRAPHIC LOG	DESCRIPTION	DEPTH (FT.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES PENETRATION BLOWS	TESTS MOISTURE, %	TESTS DRY DENSITY (PCF)	TESTS UNCONFINED COMPRESSIVE STRENGTH (PSF)	TESTS %SWELL-CONSOL /SURCHARGE LOAD (PSF)	TESTS FREE SWELL (PSF)
	0.5 TOPSOIL 5175.5										
					SS	10					
					CB	31	15	113	6830		
		5									
					CB	50/7					
		10									
	CLAYSTONE, high plasticity, dark gray with black and rust, slightly moist to moist, calcareous, weathered to hard.				CB	50/7					
		15									
		20									
	25.0 5151.0				SS	50/10					
	BOTTOM OF BORING	25									

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL OBSERVATIONS

WL	Dry 5/14/97	Dry 5/27/97
WL		
WL		

Terracon

BORING STARTED	5-14-97		
BORING COMPLETED	5-14-97		
RIG	B-57	FOREMAN	CVS
APPROVED	ESW	JOB #	22975061

CTL | THOMPSON
INCORPORATED

PHA I IRO TA IT A T
I RRA I TA PARC
OF HI H A A D O A A DRI
RI , CO ORADO

Prepared for:

Hig way and onan a, C
1 as risas Dri e
roo fie d, Co orado 002

Attention: Car e son

Pro ect o D 4 ,22 200

October 2 , 2014

1 1 est 12t A enue Den er, Co orado 0204 P one: 0 2 0 Fa : 0 2 42 2

TABLE OF CONTENTS

EXECUTIVE SUMMARY i

1.0 INTRODUCTION 1
- 1.1 Purpose 1
- 1.2 Scope of Services 2
- 1.3 Limitations 2

2.0 SITE DESCRIPTION AND LOCATION 3
- 2.1 Location and Legal Description 3
- 2.2 General Description of Site and Improvements 4
- 2.3 General Uses of Adjoining Properties 4

3.0 USER AND OWNER PROVIDED INFORMATION 5
- 3.1 Environmental Liens/Title Records 5
- 3.2 Activity and Use Limitations 5
- 3.3 Specialized Knowledge 6
- 3.4 Valuation Reduction for Environmental Issues 6
- 3.5 Commonly Known or Reasonably Ascertainable Information 6
- 3.6 Reason for Performing a Phase I ESA 6
- 3.7 Previous Environmental Site Assessments 6

4.0 RECORDS REVIEW 6
- 4.1 Physiography 7
- 4.2 Geology and Soils 7
- 4.3 Groundwater 8
- 4.4 Water Wells 8
- 4.5 Oil/Gas Wells 8
- 4.6 Physical Setting Analysis of Migration of Hazardous/Petroleum Substances 8

5.0 HISTORICAL USE INFORMATION 9
- 5.1 Historical Aerial Photographs and Topographic Maps 9
- 5.2 Sanborn Fire Insurance Maps 9
- 5.3 Assessor Records 10

6.0 REGULATORY AGENCY RECORDS 10
- 6.1 Summary of Findings 10
  - *6.1.1 Erie Municipal Airport* 11
  - *6.1.2 Resource Conservation & Recovery Act-Non-Generator Facilities* 12
- 6.2 Local Government Records 12

7.0 SITE RECONNAISSANCE 13
- 7.1 Methodology and Limiting Conditions 13
- 7.2 Description of Site Structures and Roads 13
- 7.3 Site Observations 13
  - *7.3.1 Stockpiles of Soil or Debris* 14
- 7.4 Review of Adjacent Properties 14

8.0 INTERVIEWS 15
8.1 Owner, Site Manager and/or Occupants 15

9.0 DEVIATIONS 16
9.1 Exceptions and Deletions 16
9.2 Data Gaps 16

10.0 FINDINGS AND OPINION 16
10.1 Summary of Site Historical Use 16
10.2 Nearby Environmental Concerns 17
10.3 Storm Water Discharges Associated with Construction Activity 17

11.0 CONCLUSIONS 17

12.0 QUALIFICATIONS 18

REFERENCES

FIG. 1 – TOPOGRAPHIC AREA MAP

FIG. 2 – SITE PLAN

APPENDIX A – SITE PHOTOGRAPHS

APPENDIX B – AERIAL PHOTOGRAPH

APPENDIX C – GEOSEARCH REPORT

APPENDIX D – LOCAL FIRE AND HEALTH DEPARTMENT RESPONSES

APPENDIX E – RESUMES

C TI AR

This report presents the results of the Phase I Environmental Site Assessment (ESA) that was performed by CTL | Thompson, Inc. for Highway 7 and Bonanza, LLC. The Site consists of vacant land, situated immediately northwest of Highway 7 and Bonanza Drive in Erie, Colorado.

The Phase I ESA was conducted in general conformance with the methods and procedures described in the American Society for Testing and Materials (ASTM) E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

The Site and much of the surrounding area appears to have remained in use as grazing or agricultural land since at least 1937. Residential development began to the north of the Site in the late 1970s and the Erie Municipal Airport began development in 1978. Residential units in the Anthem development began to appear around 2005. The Site has had no other known historic uses nor has been developed with structures. In the northeast corner of the Site, there is a large soil pile that was placed there by Weld County while excavating soil from County Road 5 and improving the interchange on Highway 7, sometime between 1993 and 1999 based on aerial photography. Additionally there are small piles of fill and construction debris in the northeast corner that may have asbestos-containing materials. We believe these piles of soil and construction debris present a business environmental risk to the property and we recommend the material be observed and tested for the presence of asbestos and that all imported fill/debris be disposed of properly. We do not believe there is evidence of a REC in connection with the Site.

This executive summary does not contain all the information that is found in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

1 0 I TROD CTIO

This report was prepared by CTL | Thompson, Inc. (CTL) for Highway 7 and Bonanza, LLC and presents the results of the Phase I Environmental Site Assessment (ESA) for the Sierra Vista Parcel. The Phase I ESA was conducted in general accordance with CTL's Proposal No. DN 14-0477 and subsequent authorization by Mr. Carl Nelson.

1.1 Purpose

The purpose of the Phase I ESA was to identify Recognized Environmental Conditions (REC), to the extent feasible, pursuant to the methods and procedures described in the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessments, E 1527-13.

A REC is defined as the presence or likely presence of hazardous substances or petroleum products on a site under conditions that indicate an existing release, a past release, or a material threat of a release of hazardous substances or petroleum products into structures on the site or into the ground, groundwater, or surface water of the Site. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

ASTM Standard E1527-13 also has separate definitions for past conditions that would otherwise be considered a REC but have been addressed to the satisfaction of the applicable regulatory agencies and would either allow for generally unrestricted use of the Site (referred to as a Historic Recognized Environmental Condition, or HREC) or

for use of the Site with various restrictions (referred to as a Controlled Recognized Environmental Condition, or CREC).

1.2 Scope of Services

The scope of services for this assessment consisted of a records review, a site reconnaissance, historical research, interviews, and documentation of findings in a report.

1.3 Limitations

This Phase I ESA was prepared in general accordance with ASTM Standard E 1527-13. There may be additional environmental issues present at the site that are outside the scope of this practice that include, but are not limited to, the following:

- Asbestos-containing materials;
- Radon;
- Lead-based paint;
- Lead in drinking water;
- Cultural and historic resources;
- Mold and fungi;
- Industrial hygiene;
- Indoor air quality;
- Health & safety;
- Ecological resources;
- Endangered species;
- Biological or infectious agents and pathogens;
- Wetlands;
- Jurisdictional waters of the U.S;
- Regulatory compliance;
- High voltage power lines; and,
- Mine subsidence.

CTL provided an opinion based upon the condition of the Site on the day it was observed and a review of existing and reasonably ascertainable regulatory records and historical information. Our scope did not include chemical testing of soil, groundwater,

air, or building materials. The opinion, conclusions, and recommendations of this report are not intended to be used or relied upon by a third party to this Agreement. With the written consent of our client, CTL may be available to contract with other parties to provide an opinion or conduct additional environmental assessment services. Due to latent conditions and other contingencies which may become evident in the future, the current assessment does not result in any guarantee the subject site is free and clear of hazardous materials. Should additional surface, subsurface or chemical data become available, the conclusions and recommendations contained in this report shall not be considered valid unless the data is reviewed and the conclusions of this report are modified or approved in writing by our firm.

We believe that this investigation was conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of the project. No other warranty, express or implied, is made.

2 0 IT D CRIPTIO A D OCATIO

2.1 Location and Legal Description

The “Site” consists of two parcels that total 60.476 acres, located northwest of the intersection of Highway 7 and Bonanza Drive, in Erie, Colorado. The legal description is as follows: A Part of the S ½ of the SE ¼ of Section 31, Township 1 North, Range 68 West of the 6th P.M., County of Weld, State of Colorado, More Particularly Described As Follows: Commencing at the SE Corner of Said SE ¼ of Section 31; thence N 00º 15’ 14” E Along the East Line of Said SE1/4, A Distance of 75.31 Feet; Thence N 89º 44’ 46” W, A Distance of 109.21 Feet to the Westerly Right of Way of County Road No. 3 as Recorded in the Office of the Weld County Clerk and Recorder in Book 1631 at Reception No. 2572958, Said Point also Being the Northerly Right of Way of State Highway No.7 as Described in the Office of the Weld County Clerk and Recorder in Book 1224 at Reception No. 2170911 and the Point of Beginning; Thence Along Said

Northerly Right of Way of State Highway No. 7, Along a Line 75.00 Feet Northerly Distant and Parallel, When Measured at Right Angles, with the South Line of Said SE ¼ of the Following 2 Courses; 1) Thence N 89º 34' 543" W, A Distance of 1896.40 Feet 2) Thence N 89º 32' 45" W, A Distance of 13.43 Feet to the Easterly Line of that Parcel of Land as Recorded in the Office of the Weld County Clerk and Recorder in Book 1274 at Reception No. 2225423; Thence Along Said Easterly Line the Following 2 Courses: 1) Thence N 16º 31' 20" W, A Distance of 1176.48 Feet; 2) Thence N 12º 14' 16" W, A Distance of 123.38 Feet to the North Line of Said S ½ of the SE ¼ of Section 31; Thence 89º 35' 08" E Along said North Line, a Distance of 2330.26 Feet to Said Westerly Right of Way of County Road No. 3 as Described in Book 1631 at Reception No. 2572958; Thence Along Said Westerly Right of Way the Following 2 Courses: 1) Thence S 04º 46' 24" W, A Distance of 564.23 Feet; 2) Thence S 01º 04' 07" W, A Distance of 683.43 Feet to the Point of Beginning.

The Site is generally located in Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian, in Weld County, Colorado. The Site location and plan are shown on Figure 1 (Area Map) and Figure 2 (Site Plan).

2.2 General Description of Site and Improvements

The Site consists of vacant land. A photographic record of our site reconnaissance is presented in Appendix A.

2.3 General Uses of Adjoining Properties

The Site is located in a vacant area of Erie, Colorado. The surrounding properties consist of residential properties, vacant land and commercial businesses and the Erie Municipal airport. Additional details regarding our observations of adjacent properties are presented in Section 7.4 of this report.

0 R A D O R PRO ID D I FOR ATIO

Mr. Carl Nelson, of Oread Capital and Development, completed the user questionnaire. The Site is currently unoccupied. Mr. Al Linton, President of Pratt Land, was interviewed by phone on October 16, 2014.

3.1 Environmental Liens/Title Records

An environmental lien is a charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous material or petroleum products upon a property. Mr. Nelson and Mr. Linton were not aware of existing environmental liens associated with the Site.

Mr. Nelson provided CTL with title records available from Old Republic National Title Insurance Company, Order No. ABC25121785.1 dated May 6, 2014. Based on a cursory review of the title exceptions, there were no obvious indications of environmental liens or AULs associated with environmental contamination. It should be noted that CTL's practitioners are not title professionals or attorneys, and our review of title documents does not necessarily eliminate the user's ASTM requirement to perform a search for environmental liens and AULs.

3.2 Activity and Use Limitations

Environmental AULs are legal or physical restrictions or limitations on the use of, or access to, a Site or facility to: 1) reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil or groundwater on the property, or 2) prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions may include engineering controls,

institutional controls, or land use restrictions. Mr. Nelson and Mr. Linton were not aware of recorded environmental AULs related to the Site.

3.3 Specialized Knowledge

Mr. Nelson and Mr. Linton were not aware of specialized knowledge or experience related to previous environmental activities on the Site.

3.4 Valuation Reduction for Environmental Issues

Mr. Nelson and Mr. Linton were not aware of valuation reduction of the Site because of environmental issues.

3.5 Commonly Known or Reasonably Ascertainable Information

Mr. Nelson and Mr. Linton were not aware of commonly known or reasonably ascertainable information regarding environmental issues related to the site vicinity.

3.6 Reason for Performing a Phase I ESA

Mr. Nelson requested a Phase I ESA as part of due diligence prior to acquisition of the Site.

3.7 Previous Environmental Site Assessments

No previous environmental assessments were provided to CTL.

4 0 R CORD R I

CTL reviewed existing sources listed in the **R F R C** section to assess the soils, geologic and hydrogeologic conditions of the general vicinity of the Site.

4.1 Physiography

The Site is located on relatively flat land with a gentle slope to the west, as presented on the topographic map (Figure 1). The elevation of the Site ranges from approximately 5,200 to 5,130 feet. The predominant surface water feature in the vicinity of the Site is Coal Creek located approximately 1/2 mile to the west.

4.2 Geology and Soils

The Site is located within the Colorado Piedmont section of the great Plains physiographic province. The Colorado Piedmont, formed during Late Tertiary and Early Quarternary time, is a broad, erosional trench which separates the Southern Rocky Mountains from the High Plains. During the Late Mesozoic and Early Cenozoic Periods intense tectonic activity occurred, causing the uplifting of the Front Range and associated downwarping of the Denver Basin to the east. Relatively flat uplands and broad valleys characterize the present-day topography of the Colorado Piedmont in this region.

Surficial geologic conditions at the site, as mapped by the USGS, consist of Loess of Pleistocene age. These materials generally consist of windblown clay, silt and sand. Maximum thickness of this sequence has been reported to be on the order of 10 to 15 feet below ground surface (bgs). Bedrock underlying the surface units consists of the Laramie Formation which is primarily claystone shale, sandy shale and scattered lenticular beds of sandstone and lignite in this area.

CTL conducted a Geotechnical Investigation for the Site (Project No. DN47,229-115, report dated July 16, 2014). The soils encountered at the property generally consist of clayey sand soils to depths of 3 to 7 feet below ground surface (bgs). Bedrock consisting of sandstone with some areas of claystone, was encountered beneath these soils to depths up to 30 feet bgs. The geotechnical report should be read for further details on soils.

4.3 Groundwater

Groundwater was not encountered in any of the borings from our previous geotechnical investigation that had a maximum completion depth of 30 feet bgs.

4.4 Water Wells

Water wells were identified through the Colorado Division of Water Resources online water well permit database. The database did not indicate the presence of wells located on the Site. No well structures were observed during our Site visit.

4.5 Oil/Gas Wells

Records regarding oil/gas wells were obtained from the Colorado Oil and Gas Conservation Commission (COGCC) online database. The database did not indicate the presence of oil or gas wells at the Site; however there are two wells located to the east of the Site, approximately 700 feet away.

4.6 Physical Setting Analysis of Migration of Hazardous/Petroleum Substances

A hypothetic spill of a hazardous or petroleum substance on the Site would be expected to migrate along the ground surface to the west eventually arriving at Coal Creek. Off-Site surface spills on the adjoining parcels to the east appear to have the highest potential to migrate on-Site. Based on local topography, we estimate groundwater generally flows to the west. Sources of contamination with potential to migrate in groundwater beneath the Site, if present, would most likely be located to the east.

0 HI TORICA I FOR ATIO

5.1 Historical Aerial Photographs and Topographic Maps

Historical aerial photographs of the Site and surrounding area were reviewed for 1937, 1966, 1974, 1985, 1995, 2002 and 2013; a copy of the 2013 photograph is presented in Appendix B. USGS topographic maps were reviewed for 1950, 1967 photo-revised 1971 and 1965 revised 1994. An interpretation of the aerial photographs and maps is presented, as follows:

- 1937-1967: The Site and surrounding area are undeveloped. Highway 7 and Bonanza Drive are visible to the south and east of the Site respectively.
- 1967-1974: The Site and surrounding area appears to be developed as cultivated farmland.
- 1985: The Site remains generally unchanged; however, the Erie Municipal Airport is now located to the northwest of the Site. Some residential units are now visible to the north of the Site and the vehicle storage lot and a commercial building are located to the east of the Site.
- 1993: The Site remains generally unchanged. There appear to be several oil/gas wells located to the east and south of the Site.
- 2002: The Site remains generally unchanged and there are additional residential units north of the Site.
- 2013: There is significant residential development to the east and south of the Site. The site remains generally unchanged and appears generally as it did at the time of the site visit.

5.2 Sanborn Fire Insurance Maps

Sanborn fire insurance maps were a tool used by the fire insurance industry to evaluate property risk. The maps often show details of historic dwellings, commercial buildings, and factories, indicate property uses and addresses, and show locations of

items such as wells, cisterns, and fuel storage tanks. Sanborn Fire Insurance Map coverage was not available for the Site and surrounding area.

5.3 Assessor Records

We reviewed Weld County Assessor online files for the Site. The Site has three listed owners for the parcels: Anadarko Land Corporation, Pratt Properties LP and BC Land, LLC. There are no records of buildings. The listed area of the site is 60.476 acres.

0 R ATOR A C R CORD

Regulatory agency records were provided by GeoSearch. The report, dated October 7, 2014, is presented in Appendix C.

6.1 Summary of Findings

This section discusses those findings which are located on the Site, topographically up-gradient of the Site, or which otherwise may present an environmental concern to the Site. These findings are summarized in Table I. All other listings not in Table I are not believed to be a REC for the Site based on regulatory status, distance, and/or location from the Site. In addition to the findings listed in Table I, there was one unlocatable finding identified in the database for an Emergency Response Notification Systems (ERNSCO). There is no exact location beyond the City being Broomfield, and thus it is unlikely that it is associated with the Site.

TABLE I

Summary of Selected Nearby Regulatory Agency Findings

Findings	Distance and Estimated Topographic Location	Search Radius											
		1 Mile		½ Mile					¼ Mile				
		National Priority List (NPL)	RCRA CORRACTS	RCRA Treatment, Storage, Disposal (TSD)	CERCLIS/NFRAP	Colorado Voluntary Cleanup List (VCL)	Solid Waste	Leaking Storage Tank (LST)	Registered Tanks (UST/AST)	Institutional Controls/Engineering Controls (AUL)	Spills (ERNS)	RCRA Generator	Other HW
Erie Municipal Airport	~100 feet northwest Down-gradient							X	X			X	
Betty Picraux 50 County Rd 3	~850 feet east Up-gradient											X	

6.1.1 Erie Municipal Airport

The Erie Municipal Airport is located to the northwest of the Site and has several listings associated with it. Rocky Mountain Propellers located within the airport approximately 2,000 feet northwest of the Site has a Hazardous Waste Site Generator and RCRA Generator Facility Listing. This facility is a small quantity generator that produces less than 100 kilograms a month of ignitable waste, spent halogenated and non-halogenated solvents. There are no violations of enforcement actions associated with this site and it was inspected most recently in 2012.

There are three underground storage tank (UST) listings for a 3,000-gallon jet fuel, 8,000-gallon aviation gas and 3,000-gallon unleaded gasoline tank. These tanks are associated with three leaking storage tank (LST) listings that were issued regulatory closure in 1997, 1999 and 2001 respectively. There are currently two aboveground storage tank (AST) listings for a 12,000-gallon jet fuel and 12,000-gallon aviation gas tank.

Due to down-gradient location and regulatory closure status we do not believe that these listings present a REC to the Site; however, they are mentioned here due to proximity to the Site.

6.1.2 Resource Conservation & Recovery Act – Non-Generator Facilities

This database identifies RCRAInfo system sites that only handle hazardous waste, such as transporters, without generating any amount of hazardous waste. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to date supporting the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). There is one listing for Betty Picraux at 50 County Rd 3. There are no evaluations, violations or enforcements for this listing; therefore based on regulatory status we do not believe this listing presents a REC to the Site.

6.2 Local Government Records

We sent a request to the Weld County Department of Public Health and Environment for information pertaining to hazardous material spills and releases on the Site. Ms. Marcela Swain responded via email on October 9, 2014. There were no records in their incident and complaint files or records of septic permits for the Site.

We contacted Mountain View Fire Protection District for information of hazardous material incidents on the Site. We received a response from Ms. LuAnn Penfold via email on October 10, 2014 stating that the Site was used for retail sales of fireworks for several years and that there were temporary aboveground storage fuel tanks during the construction of the Blue Sky Condos located to the east of the Site.

0 IT R CO AI A C

The following section discusses observations made during our Site reconnaissance.

7.1 Methodology and Limiting Conditions

Mr. Trevor M. Branch conducted a Site visit on October 14, 2014. The Site was accessed by walking. A photographic record of the Site reconnaissance is presented in Appendix A.

7.2 Description of Site Structures and Roads

No roads or structures are present on the Site.

7.3 Site Observations

During our reconnaissance, we specifically looked for obvious evidence of the Site features listed in Table II. Table II lists features typically observed outside of Site structures. An “X” located within each table indicates that the feature was readily observable. Those features which were observed on the Site are discussed in further detail within the following subsection(s).

TABLE II
EXTERIOR SITE FEATURES

	Aboveground Storage Tanks		Stained Soil and/or Pavement
	Air Emissions Sources	X	Stockpiles of Soil or Debris
	Cultivated Land/Crops		Stressed Vegetation
	Drains, Sumps, Pits		Surface Water, Streams, Ponds, Lagoons
	Hazardous Material Storage		Transformers (Potential PCB)
	High Power Transmission Lines		Underground Storage Tanks
	Natural Gas Pipelines		Unidentified Piping
	Odors		Unidentified Substance Containers
	Petroleum Pipelines		Vehicle Maintenance Areas
	Physical Irregularities		Waste Water Discharge
	Placed Fill or Imported Soils		Waste Treatment Processes
	Railroad Lines		Wells (Agricultural, Water Supply)
	Septic Systems or Leach Fields		Wells (Monitoring)
	Solid Waste or Disposal Areas		Wells (Oil or Natural Gas)

7.3.1 Stockpiles of Soil or Debris

We observed several small piles of soil and construction debris in the northeast corner of the Site. There was one pile of wood debris with fiberglass insulation and drywall adjacent to the large pile of stockpiled soil. The owner informed CTL that the large soil stockpile originated in County Road 5 and the nearby interchange at Highway 7. The pile consists of two segments approximately 25 feet long, 15 feet wide and 10 feet high.

7.4 Review of Adjacent Properties

General observations of properties adjacent to the Site were performed in conjunction with on-site observations made on October 14, 2014. Properties adjacent to the Site are described below, based on outdoor observations from the Site or nearby public streets. The surrounding properties generally consist of residential properties and vacant land.

- North: The Site is bounded by single family residences.
- East: The Site is bounded by Bonanza Drive with a residential unit, a vehicle storage yard and service station under construction located beyond.
- South: The Site is bounded by Highway 7 and the Anthem housing development beyond.
- West: The Site is bounded by vacant land.

Observation of adjacent properties did not reveal obvious visual indications of environmental concern. We did not observe evidence of landfills, lagoons, pits, or other waste treatment or disposal operations; underground storage tanks, spills, releases, or discharge of hazardous material.

0 I T R I

8.1 Owner, Site Manager and/or Occupants

The owner and manager of the Site is Pratt Land. The owner's representative is Mr. Al Linton, President. CTL spoke with Mr. Linton by phone on October 16 and 20, 2014. Mr. Linton stated that Pratt Land has been associated with the property for over 70 years. He was aware of the presence of the large pile of fill material in the northeast corner of the Site and stated that the fill was placed there by Weld County during nearby road excavation activities. He was unaware what year the fill was placed there. Part of the fill was removed by a local resident to use for retaining wall purposes. He was unaware of the existence of several small piles of fill and debris located in the northeast corner adjacent to the other large pile of soil. He stated that there was coal mining associated with this area to the east; however, there were no mining activities occurring at the Site.

0 D IATIO

9.1 Exceptions and Deletions

ASTM Standard E 1527-13 for Phase I Environmental Site Assessments, Section 8.3.2, states that “all obvious uses of the Site shall be identified from the present, back to the Site’s obvious first developed use, or back to 1940, whichever is earlier.” The term “developed use” includes agricultural uses (i.e., cultivated land / agricultural crops) and placement of fill. In our opinion, livestock rangeland is not a developed use.

The historical documentation for this assessment went back to 1937 on the basis of an historical aerial photograph; which showed the Site as undeveloped. Thus, the historical documentation was generally satisfied for the ASTM standard.

It is the opinion of CTL that obtaining earlier historical information would not be sufficiently useful, reasonably ascertainable, or change the likelihood for the presence of a REC on the Site.

9.2 Data Gaps

Based on the information presented in this report, we do not believe that there are significant data gaps which would affect our ability to identify recognized environmental conditions associated with the Site.

10 0 FI DI A D OPI IO

10.1 Summary of Site Historical Use

The Site is currently undeveloped and appears to have had no prior developed use.

10.2 Nearby Environmental Concerns

There is an oil/gas well located approximately 700 feet to the east and up-gradient. The well was mostly recently inspected in December 2013 and was in good condition with no violations. We do not believe this presents a REC to the Site.

10.3 Storm Water Discharges Associated with Construction Activity

Under current Federal/state regulations, construction Sites that disturb one acre, or are part of a larger development in which total disturbed area is equal to or greater than one acre, are required to apply for a General Permit for Storm Water Discharges Associated With Construction Activity (General Permit) from the Colorado Department of Public Health and Environment (CDPHE). Some Municipal Separate Storm Sewer Systems (MS4s) also require additional permitting for construction Sites within their jurisdiction.

The General Permit application must be submitted to the CDPHE at least ten days prior to the start of construction activities. The General Permit requires a Storm Water Management Plan (SWMP) to be developed, implemented, and modified as needed from before commencement of construction activities until final stabilization is complete and a Notice of Termination has been submitted to the CDPHE. Furthermore, the General Permit requires that Site inspections be performed at least every 14 calendar days and within 24 hours following a storm event that causes significant movement of sediment on-Site. The local MS4 may require more frequent inspections. Complete and current storm water management plans should be kept on-Site. CTL can assist with your storm water management and compliance needs, if desired.

11 0 CO C IO

We have performed a Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of ASTM Practice E 1527-13 of the Sierra

Vista Parcel, the Site. Any exceptions to, or deletions from, this practice are described in Section 9.1 of this report. We did not find evidence of recognized environmental conditions; however, we believe the construction debris and fill in the northeast corner of the Site presents a business environmental risk. The debris should be disposed of properly.

12 0 A IFICATIO

This Phase I ESA was supervised by, and the report reviewed by, Mr. Matthew Wardlow, a licensed Professional Engineer (P.E.) registered in the State of Colorado. Mr. Wardlow has performed or reviewed over 1,000 Phase I ESAs in the State of Colorado, and has been practicing within the local environmental consulting profession for at least 15 years. The resumes of the individuals conducting this Phase I ESA are included in Appendix E.

I, Mr. Wardlow, declare that, to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject Site. I have developed and performed all appropriate inquiries in general conformance with the standards and practices set forth in 40 CFR Part 312.

We believe that this ESA was conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of the project. No warranty, express or implied, is made.

If we can be of further service in discussing the contents of this report, please call.

CTL | THOMPSON, INC.

Trevor M. Branch, E.I.T.
Environmental Staff Engineer

Reviewed by:

Matthew L. Wardlow, P.E.
Environmental Department Manager

TMB:MLW/nt
(1 copy)

Via e-mail: carl.nelson@anthemcolorado.com

R F R C

Colorado Aerial Photo Service, Aerial Photographs, Stereo Pairs, from 1937, 1966, 1974, and 1985.

Colorado Oil and Gas Conservation Commission, online Oil/Gas Well Permit Database, http://www.oil-gas.state.co.us

CTL | Thompson, Inc., Geotechnical Investigation for Sierra Vista, Project No. DN47,229-115, report dated July 16, 2014.

GeoSearch Report. (Job #91632, dated October 7, 2014).

http://propertyinfo.co.weld.co.us/

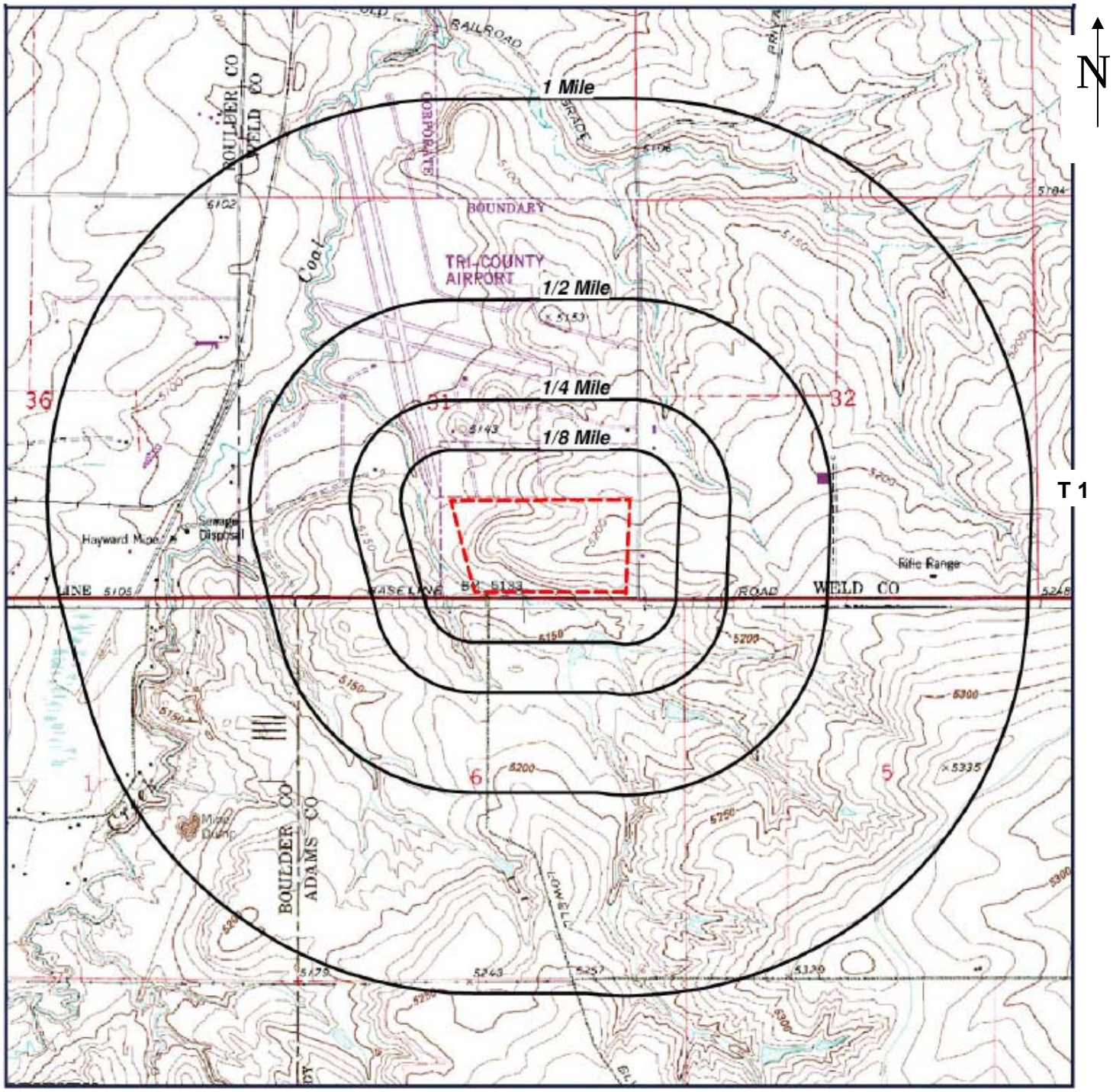
http://water.state.co.us/pubs/aquamap.asp

Environmental Questionnaire, Mr. Carl Nelson, Oread Capital and Investment, completed October 13, 2014

U.S. Geological Survey Topographic Map, Erie Quadrangle, Colorado (1950, 1967 revised 1971, and1965 revised 1994).

Google Earth©, Aerial Photography 1993, 1999, 2002 and 2013

Interview by phone with Mr. Al Linton of Pratt Land on October 16 and 20, 2014



ource:

Topograp ic ap
rie uadrang e, Co orado
1 4

ca e:
1 2,000

CT T PRO CT O D 4 ,22 200

Figure 2
ite P an

APPENDIX A

SITE PHOTOGRAPHS

Description: iew nort of ite
Direction: ort

Description: iew across ite
Direction: out west

Description: iew across ite
Direction: ort

Description: iew nort of site
Direction: ort

CTL | THOMPSON

IT PHOTO RAPH

ierra ista
October 14, 2014
CTL Project No. DN47229-200

Description: iew sout of ite
Direction: out

Description: iew west of ite
Direction: est

Description: iew of ser ice station east of ite
Direction: ast

Description: iew of e ic e storage ot ad acent to t e ite
Direction: ast

CTL | THOMPSON

IT PHOTO RAPH

ierra ista
October 14, 2014
CTL Project No. DN47229-200
Page 2 of 2

Description: iew of fi and debris pi e
Direction: O er ead

Description: iew of arge pi e of fi
Direction: ort

Description: a pi e of construction debris
Direction: O er ead

Description: a pi e of drywa ateria
Direction: O er ead

CTL | THOMPSON

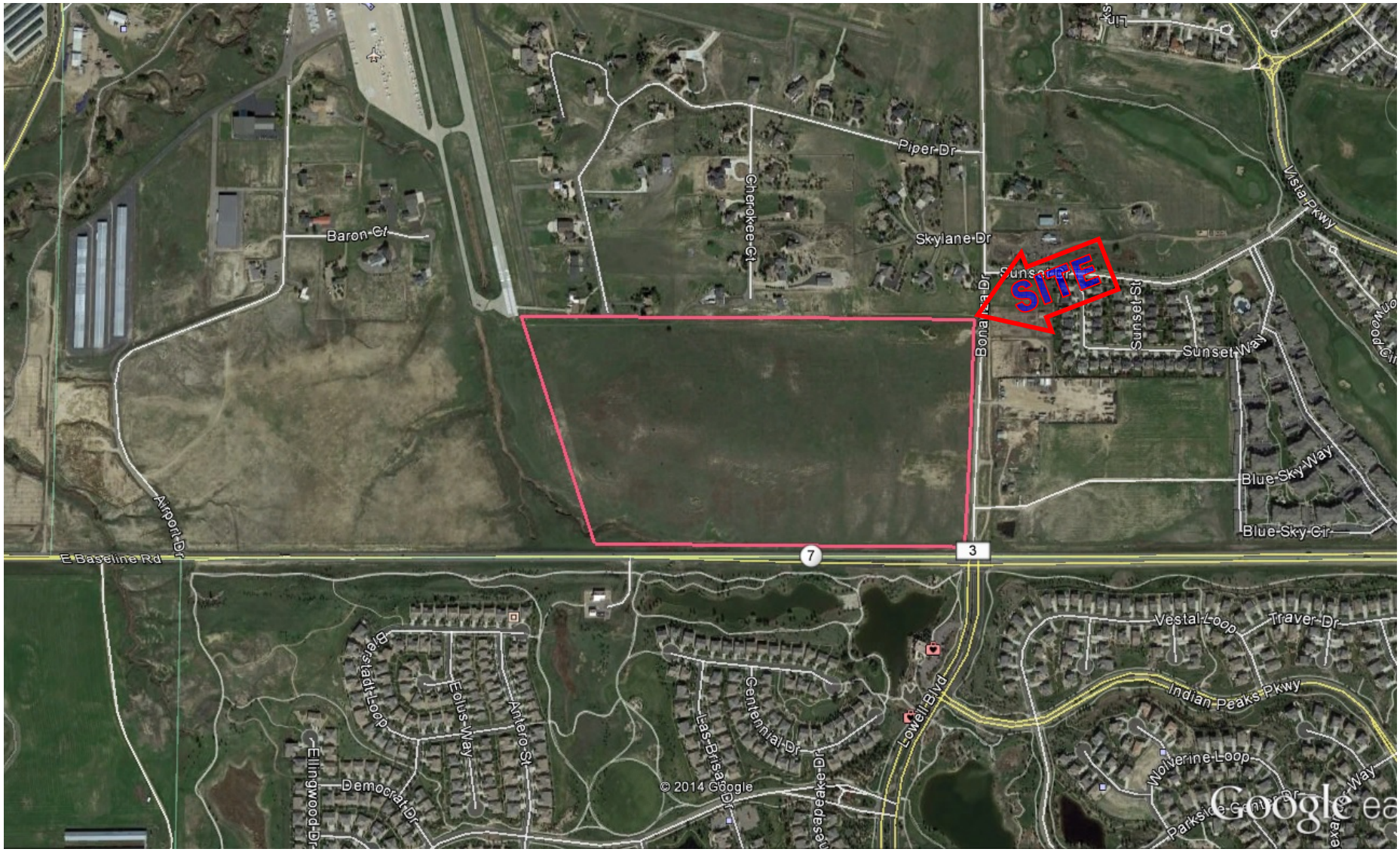
IT PHOTO RAPH

ierra ista
October 14, 2014
CTL Project No. DN47229-200

APPENDIX B

AERIAL PHOTOGRAPH

N



CT T PRO CT O D 4 ,22 200

201 A RIA PHOTO RAPH
Appro i ate ite ocation

APPENDIX C

GEOSEARCH REPORT

GeoSearch

On time. On target. In touch.™

Radius Report

Satellite view

Target Property:

Sierra Vista

ERIE, Weld County, Colorado 80516

Prepared For:

CTL Thompson- Denver

Order #: 41648

Job #: 91632

Project #: DN47229-200

Date: 10/07/2014

Table of Contents

Target Property Summary 1

Database Findings Summary 2

Locatable Database Findings 6

Radius Map 1 10

Radius Map 2 11

Ortho Map 12

Topographic Map 13

Report Summary of Locatable Sites 14

Unlocatable Summary 30

Environmental Records Definitions 32

Unlocatable Report . . . . . See Attachment

Zip Report . . . . . See Attachment

Disclaimer

This report was designed by GeoSearch to meet or exceed the records search requirements of the All Appropriate Inquires Rule (40 CFR §312.26) and the current version of the ASTM International E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process or, if applicable, the custom requirements requested by the entity that ordered this report. The records and databases of records used to compile this report were collected from various federal,state and local governmental entities. It is the goal of GeoSearch to meet or exceed the 40 CFR §312.26 and E1527 requirements for updating records by using the best available technology. GeoSearch contacts the appropriate governmental entities on a recurring basis. Depending on the frequency with which a record source or database of records is updated by the governmental entity, the data used to prepare this report may be updated monthly, quarterly, semi-annually, or annually.

The information provided in this report was obtained from a variety of public sources. GeoSearch cannot ensure and makes no warranty or representation as to the accuracy, reliability, quality, errors occurring from data conversion or the customer's interpretation of this report. This report was made by GeoSearch for exclusive use by its clients only. Therefore, this report may not contain sufficient information for other purposes or parties. GeoSearch and its partners, employees, officers And independent contractors cannot be held liable For actual, incidental, consequential, special or exemplary damages suffered by a customer resulting directly or indirectly from any information provided by GeoSearch.

Target Property Summary

Sierra Vista
ERIE, Weld County, Colorado 80516

USGS Quadrangle: ***Erie, CO***
Target Property Geometry: ***Corridor***

Target Property Longitude(s)/Latitude(s):
(-105.03735, 40.000455), (-105.03735, 40.000455), (-105.03718, 40.003859), (-105.04558, 40.003832), (-105.04446, 40.000535), (-105.03739, 40.000535)

County/Parish Covered:
Weld (CO) , Broomfield (CO) , Boulder (CO)

Zipcode(s) Covered:
Broomfield CO: 80023
Lafayette CO: 80026
Erie CO: 80516

State(s) Covered:
CO

****Target property is located in Radon Zone 1.***
Zone 1 areas have a predicted average indoor radon screening level greater than 4 pCi/L (picocuries per liter).

This report may have unlocatable records. Please see the Unlocatables Report, attached to this file.

Database Findings Summary

FEDERAL LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
EPA DOCKET DATA	DOCKETS	0	0	TP/AP
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	TP/AP
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	TP/AP
MATERIAL LICENSING TRACKING SYSTEM	MLTS	0	0	TP/AP
RCRA SITES WITH CONTROLS	RCRASC	0	0	TP/AP
CERCLIS LIENS	SFLIENS	0	0	TP/AP
TOXIC SUBSTANCE CONTROL ACT INVENTORY	TSCA	0	0	TP/AP
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	AIRSAFS	0	0	0.1250
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	0.1250
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSCO	0	1	0.1250
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR08	0	0	0.1250
TOXICS RELEASE INVENTORY	TRI	0	0	0.1250
BIENNIAL REPORTING SYSTEM	BRS	0	0	0.2500
HISTORICAL GAS STATIONS	HISTPST	0	0	0.2500
NO LONGER REGULATED RCRA GENERATOR FACILITIES	NLRRCRAG	0	0	0.2500
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR FACILITIES	RCRAGR08	1	0	0.2500
RESOURCE CONSERVATION & RECOVERY ACT - NON-GENERATOR FACILITIES	RCRANGR08	2	0	0.2500
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION & LIABILITY INFORMATION SYSTEM	CERCLIS	0	0	0.5000
NO FURTHER REMEDIAL ACTION PLANNED SITES	NFRAP	0	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
OPEN DUMP INVENTORY	ODI	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	1.0000
DEPARTMENT OF DEFENSE SITES	DOD	0	0	1.0000
FORMERLY USED DEFENSE SITES	FUDS	0	0	1.0000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	1	0	1.0000
NATIONAL PRIORITIES LIST	NPL	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	0	0	1.0000
RECORD OF DECISION SYSTEM	RODS	0	0	1.0000

SUB-TOTAL		4	1	

Database Findings Summary

STATE (CO) LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
ASBESTOS ABATEMENT AND DEMOLITION PROJECTS	ASBESTOS	0	0	TP/AP
ENVIRONMENTAL REAL COVENANTS LIST	COVENANTS	0	0	TP/AP
URANIUM MILL TAILINGS SITES	UMTS	0	0	TP/AP
AIR POLLUTION CONTROL DIVISION PERMITTED FACILITIES	APCDP	0	0	0.1250
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	0.1250
DRY CLEANING FACILITIES	CLEANERS	0	0	0.1250
SPILLS LISTING	SPILLS	0	0	0.1250
ABOVEGROUND STORAGE TANK FACILITIES	AST	1	0	0.2500
HAZARDOUS WASTE SITES- GENERATOR	HWSG	1	0	0.2500
UNDERGROUND STORAGE TANK FACILITIES	UST	2	0	0.2500
HISTORICAL SOLID WASTE LANDFILLS	HISTSWLF	0	0	0.5000
HAZARDOUS WASTE SITES- TREATMENT, STORAGE & DISPOSAL	HWSTSD	0	0	0.5000
LEAKING STORAGE TANK FACILITIES	LST	1	0	0.5000
LEAKING UNDERGROUND STORAGE TANKS TRUST FUND SITES	LUSTTRUST	0	0	0.5000
METHANE GAS STUDY SITES	METHANESITES	0	0	0.5000
SOLID WASTE FACILITIES	SWF	0	0	0.5000
VOLUNTARY CLEANUP AND REDEVELOPMENT PROGRAM SITES	VCRA	0	0	0.5000
HAZARDOUS WASTE SITES- CORRECTIVE ACTION	HWSCA	1	0	1.0000
SUPERFUND SITES	SF	0	0	1.0000

SUB-TOTAL		6	0	

Database Findings Summary

LOCAL LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
WELD COUNTY SOLID WASTE FACILITIES	WCSWF	0	0	0.5000

SUB-TOTAL		0	0	

Database Findings Summary

TRIBAL LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR08	0	0	0.2500
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR08	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
INDIAN RESERVATIONS	INDIANRES	0	0	1.0000

SUB-TOTAL		0	0	

TOTAL		10	1	

Locatable Database Findings

FEDERAL LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
DOCKETS	0.0200		NS	NS	NS	NS	NS	0
EC	0.0200		NS	NS	NS	NS	NS	0
LUCIS	0.0200		NS	NS	NS	NS	NS	0
MLTS	0.0200		NS	NS	NS	NS	NS	0
RCRASC	0.0200		NS	NS	NS	NS	NS	0
SFLIENS	0.0200		NS	NS	NS	NS	NS	0
TSCA	0.0200		NS	NS	NS	NS	NS	0
AIRSAFS	0.1250		0	NS	NS	NS	NS	0
CDL	0.1250		0	NS	NS	NS	NS	0
ERNSCO	0.1250		0	NS	NS	NS	NS	0
HMIRSR08	0.1250		0	NS	NS	NS	NS	0
TRI	0.1250		0	NS	NS	NS	NS	0
BRS	0.2500		0	0	NS	NS	NS	0
HISTPST	0.2500		0	0	NS	NS	NS	0
NLRRCRAG	0.2500		0	0	NS	NS	NS	0
RCRAGR08	0.2500	1	0	0	NS	NS	NS	1
RCRANGR08	0.2500		0	2	NS	NS	NS	2
BF	0.5000		0	0	0	NS	NS	0
CERCLIS	0.5000		0	0	0	NS	NS	0
NFRAP	0.5000		0	0	0	NS	NS	0
NLRRCRAT	0.5000		0	0	0	NS	NS	0
ODI	0.5000		0	0	0	NS	NS	0
RCRAT	0.5000		0	0	0	NS	NS	0
DNPL	1.0000		0	0	0	0	NS	0
DOD	1.0000		0	0	0	0	NS	0
FUDS	1.0000		0	0	0	0	NS	0
NLRRCRAC	1.0000		0	0	0	1	NS	1
NPL	1.0000		0	0	0	0	NS	0
PNPL	1.0000		0	0	0	0	NS	0
RCRAC	1.0000		0	0	0	0	NS	0
RODS	1.0000		0	0	0	0	NS	0
SUB-TOTAL		1	0	2	0	1	0	4

Locatable Database Findings

STATE (CO) LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
ASBESTOS	0.0200		NS	NS	NS	NS	NS	0
COVENANTS	0.0200		NS	NS	NS	NS	NS	0
UMTS	0.0200		NS	NS	NS	NS	NS	0
APCDP	0.1250		0	NS	NS	NS	NS	0
CDL	0.1250		0	NS	NS	NS	NS	0
CLEANERS	0.1250		0	NS	NS	NS	NS	0
SPILLS	0.1250		0	NS	NS	NS	NS	0
AST	0.2500	1	0	0	NS	NS	NS	1
HWSG	0.2500	1	0	0	NS	NS	NS	1
UST	0.2500	1	0	1	NS	NS	NS	2
HISTSWLF	0.5000		0	0	0	NS	NS	0
HWSTSD	0.5000		0	0	0	NS	NS	0
LST	0.5000	1	0	0	0	NS	NS	1
LUSTTRUST	0.5000		0	0	0	NS	NS	0
METHANESITES	0.5000		0	0	0	NS	NS	0
SWF	0.5000		0	0	0	NS	NS	0
VCRA	0.5000		0	0	0	NS	NS	0
HWSCA	1.0000		0	0	0	1	NS	1
SF	1.0000		0	0	0	0	NS	0
SUB-TOTAL		4	0	1	0	1	0	6

Locatable Database Findings

LOCAL LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
WCSWF	0.5000		0	0	0	NS	NS	0
SUB-TOTAL			0	0	0	0	0	0

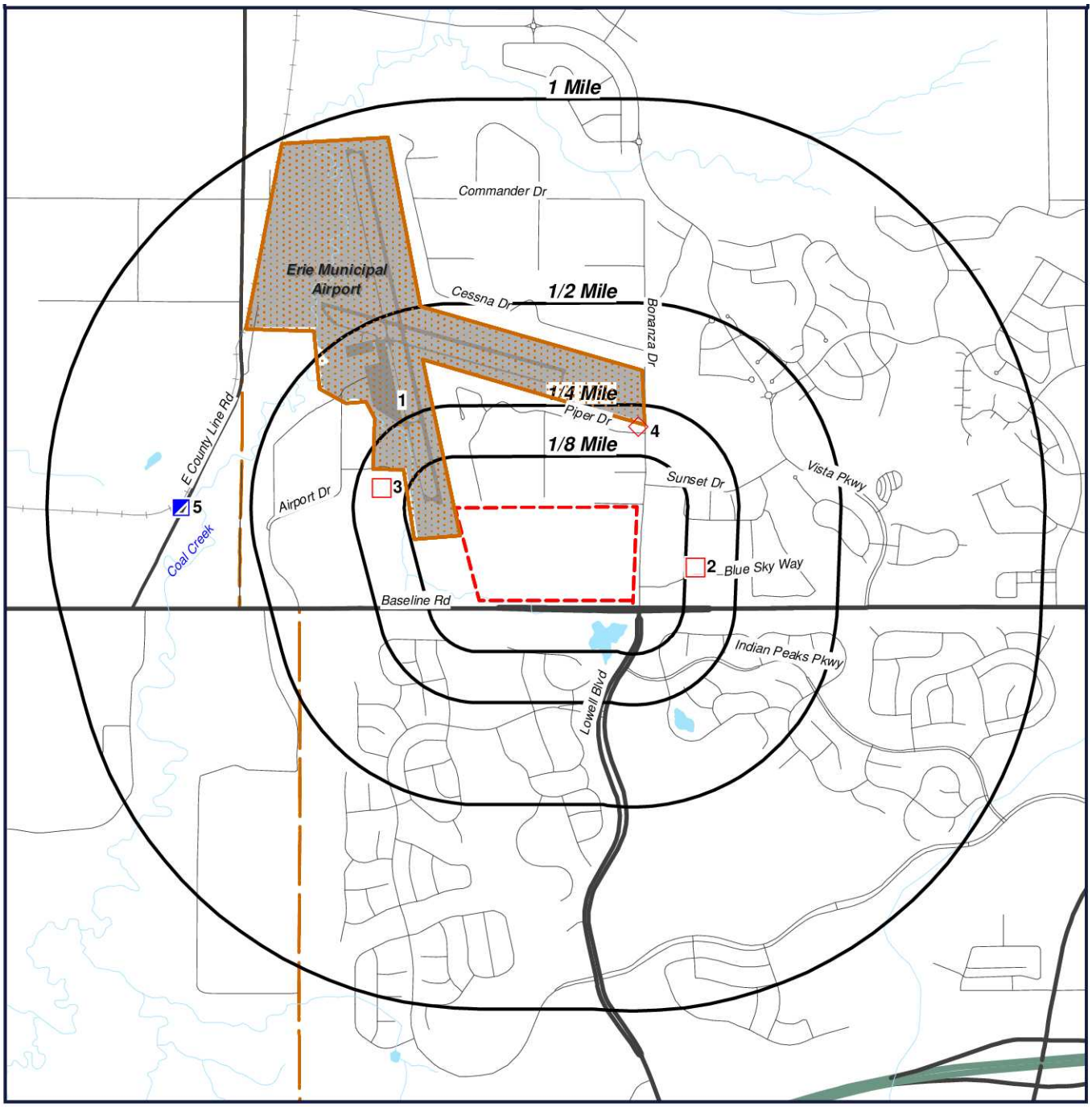
Locatable Database Findings

TRIBAL LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
USTR08	0.2500		0	0	NS	NS	NS	0
LUSTR08	0.5000		0	0	0	NS	NS	0
ODINDIAN	0.5000		0	0	0	NS	NS	0
INDIANRES	1.0000		0	0	0	0	NS	0
SUB-TOTAL			0	0	0	0	0	0
TOTAL		5	0	3	0	2	0	10

NOTES:
NS = NOT SEARCHED
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

Radius Map 1



Target Property (TP)
HWSG
RCRAGR08
UST
AST
LST
RCRANGR08
UST
NLRRCRAC

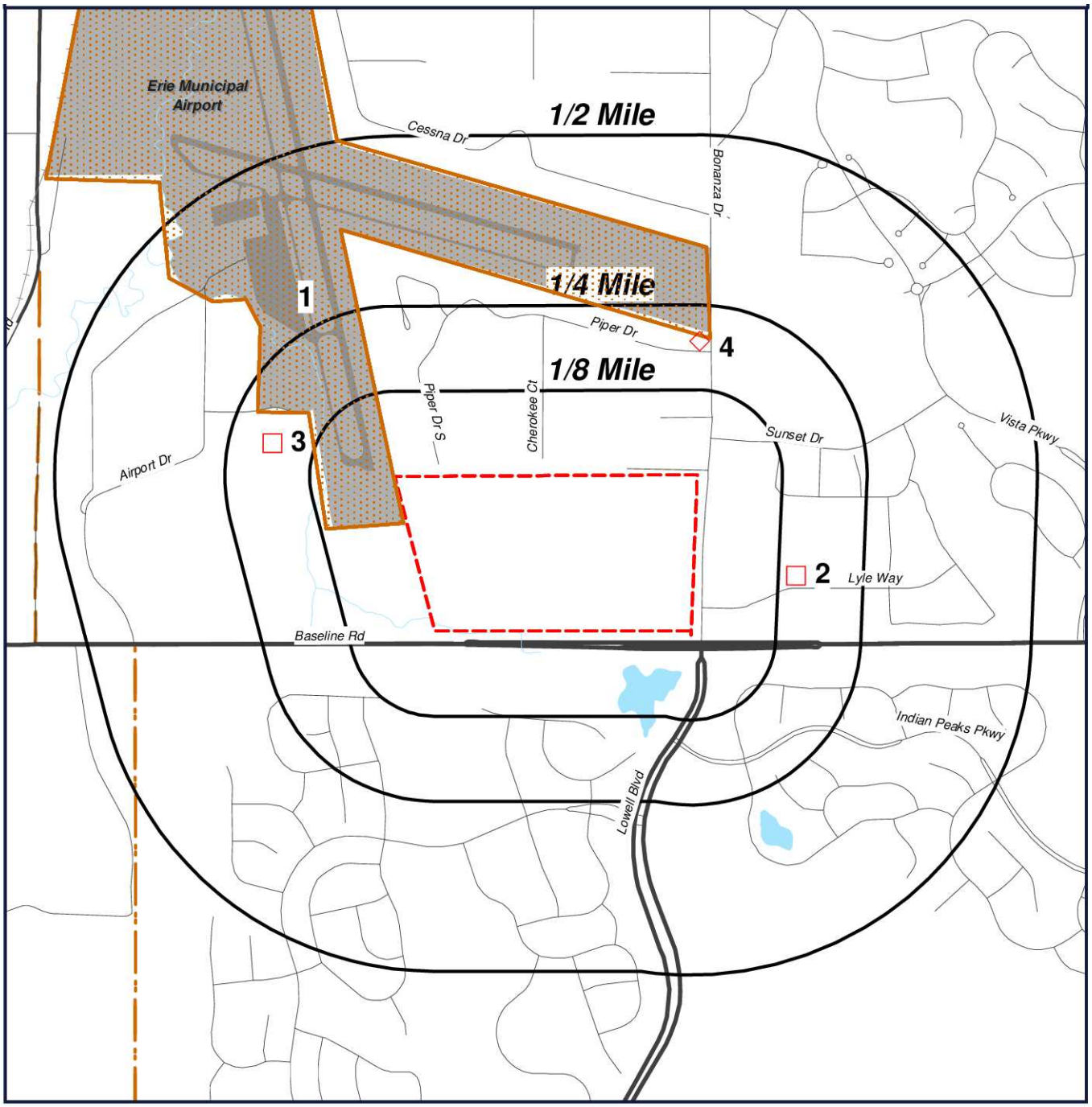
Sierra Vista
ERIE, Colorado
80516

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

Click here to access Satelite view

Radius Map 2



Target Property (TP)
HWSG
RCRAGR08
UST
AST
LST
RCRANGR08
UST
NLRRCRAC

Sierra Vista
ERIE, Colorado
80516

N
W E
S

0' 600' 1200' 1800'
SCALE: 1" = 1200'

Click here to access Satelite view

Ortho Map

Target Property (TP)
HWSG
RCRAGR08
UST
AST
LST
RCRANGR08
UST
NLRRCRAC

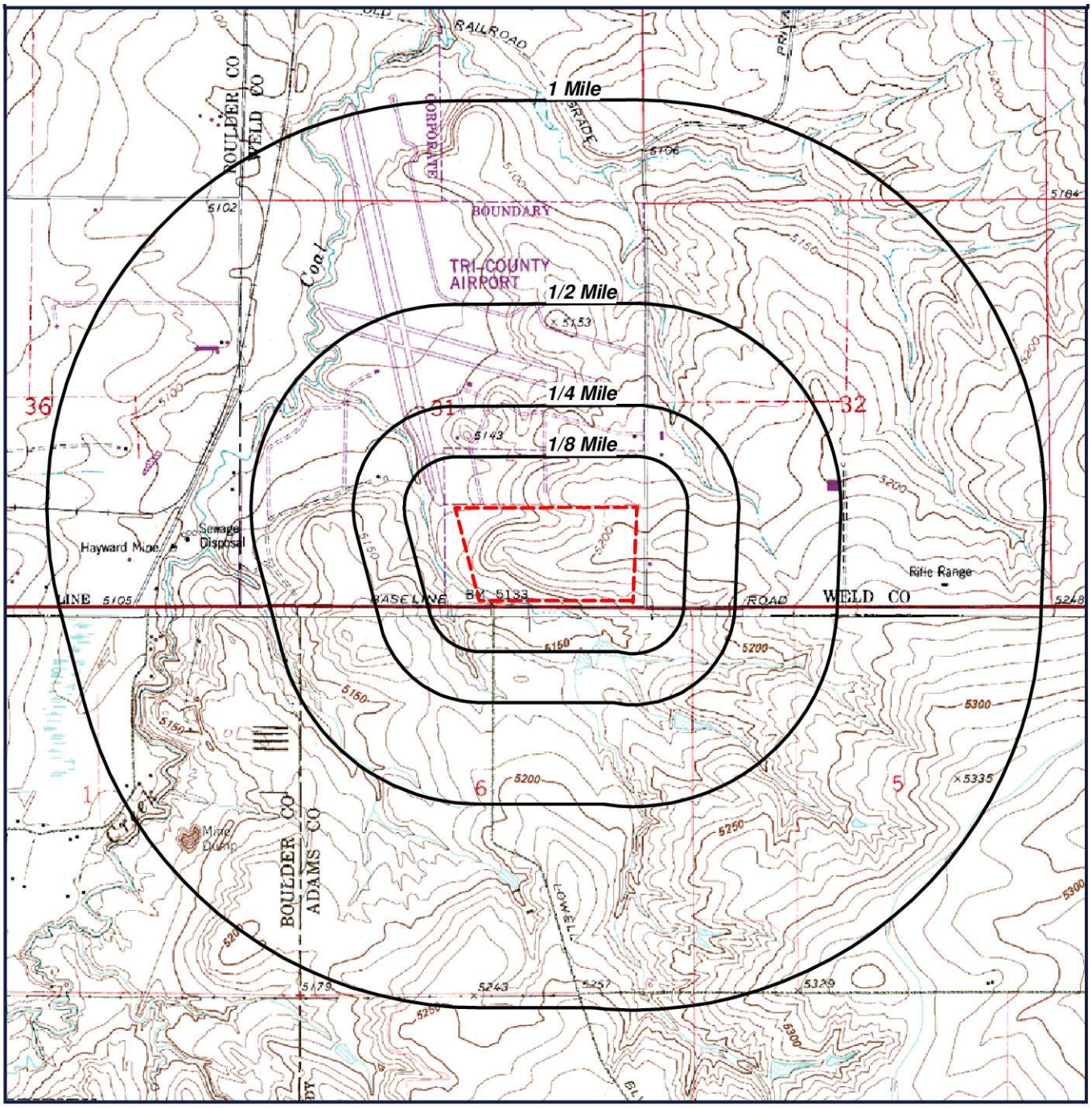
Quadrangle(s): Erie
Sierra Vista
ERIE, Colorado
80516

N
W E
S

0' 600' 1200' 1800'
SCALE: 1" = 1200'

Click here to access Satelite view

Topographic Map



Target Property (TP)

Quadrangle(s): Erie
Source: USGS, 1994
Sierra Vista
ERIE, Colorado
80516

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

Click here to access Satelite view

Report Summary of Locatable Sites

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address	City, Zip Code	PAGE #
1	HWSG	COD981541535	0.01 N	ROCKY MOUNTAIN PROPELLERS INC	TRICOUNTY AIRPORT	ERIE, 80516	15
1	RCRAGR08	COD981541535	0.01 N	ROCKY MOUNTAIN PROPELLERS INC	ERIE MUNICIPAL AIRPORT	ERIE, 80516	16
1	UST	8024	0.01 N	ERIE MUNICIPAL AIRPORT	395 AIRPORT DR	ERIE, 80516	18
1	AST	8024AST	0.01 N	ERIE MUNICIPAL AIRPORT	395 AIRPORT DR	ERIE, 80516	19
1	LST	8024LST	0.01 N	ERIE MUNICIPAL AIRPORT	395 AIRPORT DR	ERIE, 80516	20
2	RCRANGR08	COR000011049	0.16 E	BETTY PICRAUX	050 CNTY RD 3	ERIE, 80516	21
3	RCRANGR08	COD983776550	0.19 W	TRI COUNTY AIRPORT	350 BARON CT	ERIE, 80516	23
4	UST	19572	0.2 N	KUM & GO #316	2999 BONANZA DR	ERIE, 80516	25
5	HWSCA	COD007079627	0.68 W	CROCKETT & KELLY INC.	1001 WELD CNTY RD 1	ERIE, 80516	26
5	NLRRCRAC	COD007079627	0.68 W	CROCKETT & KELLY INC	1001 WELD CNTY RD 1	ERIE, 80516	27

MAP ID# 1 **Distance from Property: 0.01 mi. N**

SITE INFORMATION

EPA ID: **COD981541535**

SITE NAME: **ROCKY MOUNTAIN PROPELLERS INC**

SITE ADDRESS: **TRICOUNTY AIRPORT**
ERIE, CO 80516

SITE COUNTY: **WELD**

FACILITY TYPE: **SQG**

STATUS: **ACTIVE**

LINKS: **http://www.epa.gov/cgi-bin/get1cReport.cgi?tool=echo&IDNumber=COD981541535**

Back to Report Summary

MAP ID# 1 **Distance from Property: 0.01 mi. N**

FACILITY INFORMATION

EPA ID#: **COD981541535**
NAME: **ROCKY MOUNTAIN PROPELLERS INC**
ADDRESS: **ERIE MUNICIPAL AIRPORT**
ERIE, CO 80516

OWNER TYPE: **PRIVATE**
OWNER NAME: **ROCK, ROBERT**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **ROCKY MOUNTAIN PROPELLERS INC**

CONTACT NAME: **DAVE HAMPEL**
CONTACT ADDRESS: **2865 AIRPORT DR**
ERIE CO 80516
CONTACT PHONE: **303-665-7905**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **09/16/2009**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
DAVE HAMPEL	**ENV MGR**	**09/10/2003**
DAVE HAMPEL	**ENV MGR**	**08/31/2009**

INDUSTRY CLASSIFICATION (NAICS)

81131 - COMMERCIAL AND INDUSTRIAL MACHINERY AND EQUIPMENT

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **09/16/2009**
NAME: **ROCKY MOUNTAIN PROPELLERS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/02/2003**
NAME: **ROCKY MOUNTAIN PROPELLERS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/17/2001**
NAME: **ROCKY MOUNTAIN PROPELLERS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **11/13/1998**
NAME: **ROCKY MOUNTAIN PROPELLERS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **09/17/2009**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**

FURNACE EXEMPTION: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
USED OIL REFINER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSFER FACILITY: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

01/06/2012	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
02/15/2001	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
03/28/1991	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
06/21/2012	**FSD**	**FACILITY SELF DISCLOSURE**
06/24/2013	**FSD**	**FACILITY SELF DISCLOSURE**
07/07/2011	**FSD**	**FACILITY SELF DISCLOSURE**
07/14/2008	**FSD**	**FACILITY SELF DISCLOSURE**
07/19/2010	**FSD**	**FACILITY SELF DISCLOSURE**
07/22/2009	**FSD**	**FACILITY SELF DISCLOSURE**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D000	
D001	**IGNITABLE WASTE**
F002	**THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE,TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE,CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**
F004	**THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: CRESOLS, CRESYLIC ACID, AND NITROBENZENE; AND THE STILL BOTTOMS FROM THE RECOVERY OF THESE SOLVENTS; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NO**	**NO**	**NOTIFICATION**
BATTERIES	**NO**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NO**	**NO**	**NOTIFICATION**
LAMPS	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NO**	**NO**	**NOTIFICATION**
PESTICIDES	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY CONTAINING EQUIPMENT	**NO**	**NOT REPORTED**	**NOTIFICATION**

CORRECTIVE ACTION AREA **- NO CORECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORECTIVE ACTION EVENT REPORTED -**

Back to Report Summary

Underground Storage Tank Facilities (UST)

MAP ID# 1 **Distance from Property: 0.01 mi. N**

FACILITY INFORMATION

FACILITY ID: **8024**

NAME: **ERIE MUNICIPAL AIRPORT**

ADDRESS: **395 AIRPORT DR**
ERIE, CO 80516

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=8024

OWNER INFORMATION

NAME: **TOWN OF ERIE**

ADDRESS: **PO BOX 750**
ERIE, CO 80516

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
20954	**UNDERGROUND STORAGE TANK**	**JETFUEL**	**3000**	**CLOSED**	**NOT REPORTED**
20955	**UNDERGROUND STORAGE TANK**	**AV GAS**	**8000**	**CLOSED**	**NOT REPORTED**
20956	**UNDERGROUND STORAGE TANK**	**1 - UNLEADED REGULAR (RUL)**	**3000**	**CLOSED**	**NOT REPORTED**

Back to Report Summary

Aboveground Storage Tank Facilities (AST)

MAP ID# 1 **Distance from Property: 0.01 mi. N**

FACILITY INFORMATION

FACILITY ID: **8024**

NAME: **ERIE MUNICIPAL AIRPORT**

ADDRESS: **395 AIRPORT DR**
ERIE, CO 80516

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=8024

OWNER INFORMATION

NAME: **TOWN OF ERIE**

ADDRESS: **PO BOX 750**
ERIE, CO 80516

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
42550	**ABOVEGROUND STORAGE TANK**	**JETFUEL**	**12000**	**OPEN**	**08-MAR-11**
42551	**ABOVEGROUND STORAGE TANK**	**AV GAS**	**12000**	**OPEN**	**08-MAR-11**

Back to Report Summary

Leaking Storage Tank Facilities (LST)

MAP ID# 1 **Distance from Property: 0.01 mi. N**

FACILITY INFORMATION

UNIQUE ID: **8024LST**

FACILITY ID: **8024**

NAME: **ERIE MUNICIPAL AIRPORT**

ADDRESS: **395 AIRPORT DR**
ERIE, CO 80516

LEAKING INFORMATION

EVENT ID:	STATUS:	RELEASE DATE:	ALTERNATE NAME:
11568	**CLOSED**	**12/15/11**	**ERIE MUNICIPAL AIRPORT**
COSTIS LINK:	http://costis.cdle.state.co.us/event.asp?h_id=11568		
7563	**CLOSED**	**07/22/99**	**TRI COUNTY AIRPORT**
COSTIS LINK:	http://costis.cdle.state.co.us/event.asp?h_id=7563		
2546	**CLOSED**	**06/11/97**	**ERIE TRI-COUNTY AIRPORT**
COSTIS LINK:	http://costis.cdle.state.co.us/event.asp?h_id=2546		

Back to Report Summary

Resource Conservation & Recovery Act - Non-Generator Facilities (RCRANGR08)

MAP ID# 2 **Distance from Property: 0.16 mi. E**

FACILITY INFORMATION

EPA ID#: **COR000011049**
NAME: **BETTY PICRAUX**
ADDRESS: **050 CNTY RD 3**
ERIE, CO 805168118
CONTACT NAME: **BETTY PICRAUX**
CONTACT ADDRESS: **1511 E FLORENCE BLVD # 133**
CASA GRANDE AZ 85222
CONTACT PHONE: **520-426-7133**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **11/01/1999**

OWNER TYPE: **PRIVATE**
OWNER NAME: **BETTY PICRAUX**
OPERATOR TYPE: **NOT REPORTED**
OPERATOR NAME: **NOT REPORTED**

CERTIFICATION **- NO CERTIFICATION REPORTED -**

INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **11/01/1999**
NAME: **BETTY PICRAUX**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **12/01/2004**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS **- NO EVALUATIONS REPORTED -**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D001 **IGNITABLE WASTE**
D002 **CORROSIVE WASTE**
D018 **BENZENE**

F002 THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE,TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE,CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F003 THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F005 THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORECTIVE ACTION EVENT REPORTED -**

Back to Report Summary

Resource Conservation & Recovery Act - Non-Generator Facilities (RCRANGR08)

MAP ID# 3 **Distance from Property: 0.19 mi. W**

FACILITY INFORMATION

EPA ID#: **COD983776550**
NAME: **TRI COUNTY AIRPORT**
ADDRESS: **350 BARON CT**
ERIE, CO 80516
CONTACT NAME: **SUE HURD**
CONTACT ADDRESS: **395 AIRPORT DR**
ERIE CO 80516
CONTACT PHONE: **303-661-9146**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **12/23/1996**

OWNER TYPE: **PRIVATE**
OWNER NAME: **TRI COUNTY AIRPORT**
OPERATOR TYPE: **NOT REPORTED**
OPERATOR NAME: **NOT REPORTED**

CERTIFICATION **- NO CERTIFICATION REPORTED -**

INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **12/23/1996**
NAME: **TRI COUNTY AIRPORT**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **09/15/2000**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

03/28/1991	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
10/07/1991	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
12/12/1995	**FUI**	**FOLLOW-UP INSPECTION**

VIOLATIONS

03/23/1991	**262.A**	**GENERATORS - GENERAL**

ENFORCEMENTS

09/04/1991	**120**	**WRITTEN INFORMAL**

HAZARDOUS WASTE

D001	**IGNITABLE WASTE**
D008	**LEAD**
F003	**THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**
F005	**THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORECTIVE ACTION EVENT REPORTED -**

Back to Report Summary

Underground Storage Tank Facilities (UST)

MAP ID# 4 **Distance from Property: 0.20 mi. N**

FACILITY INFORMATION

FACILITY ID: **19572**

NAME: **KUM & GO #316**

ADDRESS: **2999 BONANZA DR**
ERIE, CO 80516

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=19572

OWNER INFORMATION

NAME: **KUM & GO LC**

ADDRESS: **6400 WESTOWN PKWY**
WEST DES MOINES, IA 50266

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
45261	**UNDERGROUND STORAGE TANK**	**1 - UNLEADED REGULAR (RUL)**	**20000**	**OPEN**	**NOT REPORTED**
45262	**UNDERGROUND STORAGE TANK**	**9 - GAS/GAS (MULTI-COMP)**	**20000**	**OPEN**	**NOT REPORTED**
45263	**UNDERGROUND STORAGE TANK**	**DIESEL/OTHER (MULTI-COMP)**	**20000**	**OPEN**	**NOT REPORTED**

Back to Report Summary

MAP ID# 5 **Distance from Property: 0.68 mi. W**

SITE INFORMATION

EPA ID: **COD007079627**

SITE NAME: **CROCKETT & KELLY INC.**

SITE ADDRESS: **1001 WELD CNTY RD 1**
ERIE, CO 80516

SITE COUNTY: **WELD**

FACILITY TYPE: **CA**

STATUS: **ACTIVE**

LINKS: **http://www.epa.gov/cgi-bin/get1cReport.cgi?tool=echo&IDNumber=COD007079627**

Back to Report Summary

No Longer Regulated RCRA Corrective Action Facilities (NLRRCRAC)

MAP ID# 5 **Distance from Property: 0.68 mi. W**

FACILITY INFORMATION

EPA ID#: **COD007079627**
NAME: **CROCKETT & KELLY INC**
ADDRESS: **1001 WELD CNTY RD 1**
ERIE, CO 80516
CONTACT NAME: **DOYLE DUNGER**
CONTACT ADDRESS: **P O BOX 750**
ERIE CO 80516
CONTACT PHONE: **303-666-7788**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **08/10/1993**

OWNER TYPE: **NOT REPORTED**
OWNER NAME: **NOT REPORTED**
OPERATOR TYPE: **NOT REPORTED**
OPERATOR NAME: **NOT REPORTED**

CERTIFICATION **- NO CERTIFICATION REPORTED -**

INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **08/10/1993**
NAME: **CROCKETT & KELLY INC**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **12/01/2004**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **YES**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **YES**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **YES**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

01/29/1985	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
01/30/1998	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
02/10/2005	**FUI**	**FOLLOW-UP INSPECTION**
05/14/2004	**FUI**	**FOLLOW-UP INSPECTION**
07/13/1995	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
08/25/1995	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
10/06/1987	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
10/22/1996	**FCI**	**FOCUSED COMPLIANCE INSPECTION**

11/02/1994	FCI	FOCUSED COMPLIANCE INSPECTION
12/01/1994	FCI	FOCUSED COMPLIANCE INSPECTION
12/15/1986	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
12/27/2004	FUI	FOLLOW-UP INSPECTION

VIOLATIONS

01/29/1985	262.A	GENERATORS - GENERAL

ENFORCEMENTS

06/21/1985	310	FINAL 3008(A) COMPLIANCE ORDER

HAZARDOUS WASTE

F002	THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE,TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE,CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
U226	ETHANE, 1,1,1-TRICHLORO-
U226	METHYL CHLOROFORM

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA (RELEASE)

AREA NAME:	AIR:	GROUNDWATER:	SOIL:	SURFACE WASTE:
ENTIRE FACILITY	-----	Y	Y	-----
GROUNDWATER	-----	Y	-----	-----
SOIL	-----	-----	Y	-----

CORRECTIVE ACTION EVENT

CA EVENT:	DATE:	EVENT DESCRIPTION:
CA0012	//	CORRECTIVE ACTION UNIVERSE
CA002Y	//	REMEDIATION UNIVERSE
CA006AC	08/17/1999	TYPE OF UNIT - AREA OF CONCERN
CA006SM	06/01/1994	TYPE OF UNIT - SOLID WASTE MGMT UNIT
CA050PA	08/17/1999	RFA COMPLETED-ASSESSMENT WAS A PA-PLUS
CA075LO	06/30/1995	CA PRIORITIZATION-LOW CA PRIORITY
CA100	06/01/1994	INVESTIGATION IMPOSITION
CA100DC	05/14/2004	RFI IMPOSITION-FOCUSED DATA COLLECTION REQ STAB EVAL
CA155	01/30/1998	INVESTIGATION SUPPLEMENTAL INFO REQ BY AGENCY
CA155	11/01/1996	INVESTIGATION SUPPLEMENTAL INFO REQ BY AGENCY
CA200	11/04/1994	INVESTIGATION COMPLETE
CA225NF	06/30/1995	STABILIZATION MEASURES EVALUATION-NOT AMENABLE TO STABILIZATION (NOT FEASIBLE)
CA250	12/19/1994	CMS IMPOSITION
CA450	12/05/1994	CORRECTIVE MEASURES DESIGN APPROVED
CA515	02/07/2005	CORRECTIVE MEASURES REPORT RECEIVED
CA550	02/07/2005	REMEDY CONSTRUCTION
CA650	07/13/1995	STABILIZATION CONSTRUCTION COMPLETED

CA725YE	06/30/1995	HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE
CA750YE	06/30/1995	RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE
CA811OM	12/09/2004	OTHER WORKPLAN RECEIVED - OPERATION AND MAINTENANCE
CA814OM	12/27/2004	OTHER WORKPLAN APPROVED
CA817OM	12/09/2004	OTHER SUPPLEMENTAL INFORMATION RECEIVED
CA999RM	02/10/2005	CA PROCESS IS TERMINATED-REMEDIAL ACTIVITIES COMPLETE

Back to Report Summary

Unlocatable Summary

This list contains sites that could not be mapped due to limited or incomplete address information.

Database Name	***Site ID#***	***Site Name***	***Address***	***City/State/Zip/County***
ERNSCO	581479	SITE SPECIFIC		BROOMFIELD

DOCKETS EPA Docket Data

VERSION DATE: 12/22/05

The United States Environmental Protection Agency Docket data lists Civil Case Defendants, filing dates as far back as 1971, laws broken including section, violations that occurred, pollutants involved, penalties assessed and superfund awards by facility and location. Please refer to ICIS database as source of current data.

EC Federal Engineering Institutional Control Sites

VERSION DATE: 01/14/14

This database includes site locations where Engineering and/or Institutional Controls have been identified as part of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. A site listing does not indicate that the institutional and engineering controls are currently in place nor will be in place once the remedy is complete; it only indicates that the decision to include either of them in the remedy is documented as of the completed date of the document. Institutional controls are actions, such as legal controls, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.

LUCIS Land Use Control Information System

VERSION DATE: 09/01/06

The LUCIS database is maintained by the U.S. Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

MLTS Material Licensing Tracking System

VERSION DATE: 01/30/13

MLTS is a list of approximately 8,100 sites which have or use radioactive materials subject to the United States Nuclear Regulatory Commission (NRC) licensing requirements.

RCRASC RCRA Sites with Controls

VERSION DATE: 01/14/14

This list of Resource Conservation and Recovery Act sites with institutional controls in place is provided by the U.S. Environmental Protection Agency.

SFLIENS CERCLIS Liens

VERSION DATE: 06/08/12

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which United States

Environmental Protection Agency has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties. This database contains those CERCLIS sites where the Lien on Property action is complete.

TSCA Toxic Substance Control Act Inventory

VERSION DATE: 12/31/06

The Toxic Substances Control Act (TSCA) was enacted in 1976 to ensure that chemicals manufactured, imported, processed, or distributed in commerce, or used or disposed of in the United States do not pose any unreasonable risks to human health or the environment. TSCA section 8(b) provides the United States Environmental Protection Agency authority to "compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States." This TSCA Chemical Substance Inventory contains non-confidential information on the production amount of toxic chemicals from each manufacturer and importer site.

AIRSAFS Aerometric Information Retrieval System / Air Facility Subsystem

VERSION DATE: 04/28/14

The United States Environmental Protection Agency (EPA) modified the Aerometric Information Retrieval System (AIRS) to a database that exclusively tracks the compliance of stationary sources of air pollution with EPA regulations: the Air Facility Subsystem (AFS). Since this change in 2001, the management of the AIRS/AFS database was assigned to EPA's Office of Enforcement and Compliance Assurance.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 09/06/13

The U.S. Department of Justice ("the Department") provides this information as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments. The Department does not establish, implement, enforce, or certify compliance with clean-up or remediation standards for contaminated sites; the public should contact a state or local health department or environmental protection agency for that information.

ERNSCO Emergency Response Notification System

VERSION DATE: 07/27/14

This National Response Center database contains data on reported releases of oil, chemical, radiological, biological, and/or etiological discharges into the environment anywhere in the United States and its territories. The data comes from spill reports made to the U.S. Environmental Protection Agency, U.S. Coast Guard, the National Response Center and/or the U.S. Department of Transportation.

HMIRSR08 Hazardous Materials Incident Reporting System

VERSION DATE: 01/10/14

The HMIRS database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

TRI Toxics Release Inventory

VERSION DATE: 12/31/12

The Toxics Release Inventory, provided by the United States Environmental Protection Agency, includes data on toxic chemical releases and waste management activities from certain industries as well as federal facilities. This inventory contains information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management.

BRS Biennial Reporting System

VERSION DATE: 12/31/11

The United States Environmental Protection Agency (EPA), in cooperation with the States, biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The Biennial Report captures detailed data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage and disposal facilities. Currently, the EPA states that data collected between 1991 and 1997 was originally a part of the defunct Biennial Reporting System and is now incorporated into the RCRAInfo data system.

HISTPST Historical Gas Stations

VERSION DATE: 07/01/30

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

NLRRCRAG No Longer Regulated RCRA Generator Facilities

VERSION DATE: 04/10/14

This database includes RCRA Generator facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly generated hazardous waste.
Large Quantity Generators: Generate 1,000 kg or more of hazardous waste during any calendar month; or Generate more than 1 kg of acutely hazardous waste during any calendar month; or Generate more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land

or water, or acutely hazardous waste during any calendar month; or Generate 1 kg or less of acutely hazardous waste during any calendar month, and accumulate more than 1kg of acutely hazardous waste at any time; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulated more than 100 kg of that material at any time.
Small Quantity Generators: Generate more than 100 and less than 1000 kilograms of hazardous waste during any calendar month and accumulate less than 6000 kg of hazardous waste at any time; or Generate 100 kg or less of hazardous waste during any calendar month, and accumulate more than 1000 kg of hazardous waste at any time.
Conditionally Exempt Small Quantity Generators: Generate 100 kilograms or less of hazardous waste per calendar month, and accumulate 1000 kg or less of hazardous waste at any time; or Generate one kilogram or less of acutely hazardous waste per calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste.

RCRAGR08 Resource Conservation & Recovery Act - Generator Facilities

VERSION DATE: 04/10/14

This database includes sites listed as generators of hazardous waste (large, small, and exempt) in the RCRAInfo system. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). This database includes sites located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.
Large Quantity Generators: Generate 1,000 kg or more of hazardous waste during any calendar month; or Generate more than 1 kg of acutely hazardous waste during any calendar month; or Generate more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month; or Generate 1 kg or less of acutely hazardous waste during any calendar month, and accumulate more than 1kg of acutely hazardous waste at any time; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulated more than 100 kg of that material at any time.
Small Quantity Generators: Generate more than 100 and less than 1000 kilograms of hazardous waste during any calendar month and accumulate less than 6000 kg of hazardous waste at any time; or Generate 100 kg or less of hazardous waste during any calendar month, and accumulate more than 1000 kg of hazardous waste at any time.
Conditionally Exempt Small Quantity Generators: Generate 100 kilograms or less of hazardous waste per calendar month, and accumulate 1000 kg or less of hazardous waste at any time; or Generate one kilogram or less of acutely hazardous waste per calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the

cleanup of a spill, into or on any land or water, or acutely hazardous waste; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste.

RCRANGR08 Resource Conservation & Recovery Act - Non-Generator Facilities

VERSION DATE: 04/10/14

This database identifies RCRAInfo system sites that only handle hazardous waste, such as transporters, without generating any amount hazardous waste. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). This database includes sites located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

BF Brownfields Management System

VERSION DATE: 04/15/14

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. The United States Environmental Protection Agency maintains this database to track activities in the various brown field grant programs including grantee assessment, site cleanup and site redevelopment.

CERCLIS Comprehensive Environmental Response, Compensation & Liability Information System

VERSION DATE: 10/25/13

CERCLIS is the repository for site and non-site specific Superfund information in support of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This United States Environmental Protection Agency database contains an extract of sites that have been investigated or are in the process of being investigated for potential environmental risk.

NFRAP No Further Remedial Action Planned Sites

VERSION DATE: 10/25/13

This database includes sites which have been determined by the United States Environmental Protection Agency, following preliminary assessment, to no longer pose a significant risk or require further activity under CERCLA. After initial investigation, no contamination was found, contamination was quickly removed or contamination was not serious enough to require Federal Superfund action or NPL consideration.

NLRRCRAT No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 04/10/14

This database includes RCRA Non-Corrective Action TSD facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly treated, stored or disposed of hazardous waste.

ODI Open Dump Inventory

VERSION DATE: 06/01/85

The open dump inventory was published by the United States Environmental Protection Agency. An “open dump” is defined as a facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944) and which is not a facility for disposal of hazardous waste. This inventory has not been updated since June 1985.

RCRAT Resource Conservation & Recovery Act - Treatment, Storage & Disposal Facilities

VERSION DATE: 04/10/14

This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste in the RCRAInfo system. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).

DNPL Delisted National Priorities List

VERSION DATE: 10/25/13

This database includes sites from the United States Environmental Protection Agency’s Final National Priorties List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate, and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.

DOD Department of Defense Sites

VERSION DATE: 12/01/05

This information originates from the National Atlas of the United States Federal Lands data, which includes lands owned or administered by the Federal government. Army DOD, Army Corps of Engineers DOD, Air Force DOD, Navy DOD and Marine DOD areas of 640 acres or more are included.

FUDS Formerly Used Defense Sites

VERSION DATE: 06/01/14

The 2012 Formerly Used Defense Sites (FUDS) inventory includes properties previously owned by or leased to the United States and under Secretary of Defense Jurisdiction, as well as Munitions Response Areas (MRAs). The remediation of these properties is the responsibility of the Department of Defense. This data is provided by the U.S. Army Corps of Engineers (USACE), the boundaries/polygon data are based on preliminary findings and not all properties currently have polygon data available. DISCLAIMER: This data represents the results of data collection/processing for a specific USACE activity and is in no way to be considered comprehensive or to be used in any legal or official capacity as presented on this site. While the USACE has made a reasonable effort to insure the accuracy of the maps and associated data, it should be explicitly noted that USACE makes no warranty, representation or guaranty, either expressed or implied, as to the content, sequence, accuracy, timeliness or completeness of any of the data provided herein. For additional information on Formerly Used Defense Sites please contact the USACE Public Affairs Office at (202) 528-4285.

NLRRCRAC No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 04/10/14

This database includes RCRA Corrective Action facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements.

NPL National Priorities List

VERSION DATE: 10/25/13

This database includes United States Environmental Protection Agency (EPA) National Priorities List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

PNPL Proposed National Priorities List

VERSION DATE: 10/25/13

This database contains sites proposed to be included on the National Priorities List (NPL) in the Federal Register. The United States Environmental Protection Agency investigates these sites to determine if they may present long-term threats to public health or the environment.

RCRAC Resource Conservation & Recovery Act - Corrective Action Facilities

VERSION DATE: 04/10/14

This database includes hazardous waste sites listed with corrective action activity in the RCRAInfo system. The Corrective Action Program requires owners or operators of RCRA facilities (or treatment, storage, and disposal facilities) to investigate and cleanup contamination in order to protect human health and the environment. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system

which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).

RODS Record of Decision System

VERSION DATE: 07/01/13

These decision documents maintained by the United States Environmental Protection Agency describe the chosen remedy for NPL (Superfund) site remediation. They also include site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, and scope and role of response action.

ASBESTOS Asbestos Abatement and Demolition Projects

VERSION DATE: 07/08/14

The Colorado Department of Public Health and Environment's Air Pollution Control Division assists schools and businesses to comply with air pollution laws regulating asbestos and asbestos containing materials. The regulation that governs asbestos in Colorado is the Colorado Air Quality Control Commission s Regulation No. 8, Part B, "Emission Standards for Asbestos." Notification is required for all demolitions of all facilities and all asbestos abatement projects that exceed the trigger levels, whatever is the lesser quantity. The notification requirements apply to both friable and non-friable asbestos materials. This database contains those related projects since January 2008.

COVENANTS Environmental Real Covenants List

VERSION DATE: 03/31/14

Senate Bill 01-145 gave authority to the Colorado Department of Public Health and Environment to approve requests to restrict the future use of a property using an enforceable agreement called an environmental covenant. These covenants, which are recorded with the deed and run with the land, provide a mechanism to ensure that institutional controls that are part of environmental remediation projects are properly implemented and that engineered structures are protected and maintained, so that implemented remedies continue to be protective of human health and the environment for as long as any residual contamination remains a risk.

UMTS Uranium Mill Tailings Sites

VERSION DATE: 08/09/02

There were nine uranium mill tailings sites in Colorado designated for cleanup under the federal Uranium Mill Tailings Radiation Control Act. These nine sites, know commonly as UMTRA sites, were remediated jointly by the State of Colorado and the U.S. Department of Energy during the late 1980's and early 1990's. Mill tailings were removed from 8 of the mill sites and relocated in engineered disposal cells. A disposal cell is designed to encapsulate the material, reduce radon emanation, and prevent the movement of water through the material. At one site, Maybell, CO, the tailings were stabilized in-place at the mill site. After remediation of the tailings was completed, the State and DOE began to investigate the residual impacts to groundwater at the mill sites. The groundwater phase of the UMTRA program is on-going. This database was provided by the Colorado Department of Public Health and Environment.

APCDP Air Pollution Control Division Permitted Facilities

VERSION DATE: 07/01/14

The Stationary Sources Program, located within the Air Pollution Control Division of the Colorado Department of Public Health and Environment, evaluates and develops air permits for stationary sources in Colorado. The program inspects sources to determine compliance with air regulations and permit conditions, and maintains a computerized inventory of air pollution emissions throughout the state.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 04/28/14

This list of Methamphetamine lab seizures is provided by multiple sources: the North Metro Task Force, FACTS (Forensic Applications Consulting Technologies, Inc) and the Colorado Springs Police Department. The North Metro Task Force list of Methamphetamine labs were seized between 2001 and 2010. The North Metro area includes the following Cities and Counties of Colorado: Adams County, Broomfield, Brighton, Commerce City, Federal Heights, Northglenn, Thornton, and Westminster. According to Section 2 of Colorado Revised Statutes: "25-18.5-103. Discovery of an illegal drug laboratory - property owner - clean-up - liability. (1) (a) Upon notification from a peace officer that chemicals, equipment, or supplies indicative of an illegal drug laboratory are located on a property, or when an illegal drug laboratory used to manufacture methamphetamine is otherwise discovered and the property owner has received notice, the owner of any contaminated property shall meet the cleanup standards for property established by the board in section 25-18.5-102". The FACTS and Colorado Springs Police Department Methamphetamine labs were seized between 2001 and 2014.

CLEANERS Dry Cleaning Facilities

VERSION DATE: 07/01/14

This database contains dry cleaners which have obtained an air permit through the Air Pollution Control Division at the Colorado Department of Public Health and Environment.

SPILLS Spills Listing

VERSION DATE: 06/19/14

The Colorado Department of Public Health and Environment's Division of Emergency Preparedness and Response maintains this listing of chemical spills and/or releases.

AST Aboveground Storage Tank Facilities

VERSION DATE: 08/28/14

The Oil and Public Safety Division of the Colorado Department of Labor and Employment maintains this list of aboveground storage tank (AST) facilities. This AST database also includes other types of storage tank facilities such as liquefied petroleum gas (LPG), vehicle tank meters (VTM), and compressed natural gas facilities.

HWSG Hazardous Waste Sites- Generator

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. This facility listing includes RCRA sites listed as generators of hazardous waste (Small Quantity Generators and Large Quantity Generators) and was provided by the Colorado Department of Public Health and Environment.

Small Quantity Generators (SQG) generate, in any calendar month, more than 100 kg (220 lbs.) but less than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; and generate, in any calendar month, or accumulate at any time, no more than 1 kg (2.2 lbs.) of acute hazardous waste and no more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste; and accumulate on-site no more than 6000 kg (13,200 lbs) of hazardous waste at any one time; or, the site is a Small Quantity Generator if the site met all other criteria for a Conditionally Exempt Small Quantity Generator, but accumulated, at any time, more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste.
Large Quantity Generators (LQG) generate, in any calendar month, 1,000 kg (2,200 lbs.) or more of RCRA hazardous waste; or generate, in any calendar month, or accumulated at any time, more than 1 kg (2.2 lbs.) of RCRA acute hazardous waste; or generate, in any calendar month, or accumulated at any time, more than 100 kg (220 lbs.) of spill cleanup material contaminated with RCRA acute hazardous waste.

UST Underground Storage Tank Facilities

VERSION DATE: 08/28/14

The Oil and Public Safety Division of the Colorado Department of Labor and Employment maintains this list of underground storage tank facilities.

HISTSWLF Historical Solid Waste Landfills

VERSION DATE: NR

This historical solid waste landfills database contains data from the Hazardous Materials Waste Management Division (HMWMD) of the Colorado Department of Public Health and other various state and local agencies. In the early 1980s, the HMWMD conducted a survey of staff members and local agencies to compile this listing of sites that were known or thought to have waste issues. This Solid Waste Historical Data is not considered complete or verifiable and has not been maintained since the late 1980s. The HMWMD is not responsible and shall not be liable to the used for damages of any kind arising out of the use of this data or information.

HWSTSD Hazardous Waste Sites- Treatment, Storage & Disposal

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. TSD facilities treat, store, dispose, or recycle hazardous waste on site in units and therefore are subject to RCRA permitting requirements. Historic TSDs are facilities that have completed closure and/or post-closure of the RCRA Subtitle C Regulated Unit(s) or the Treatment/Storage/Disposal Unit is no longer regulated. This database was provided by the Colorado Department of Public Health and Environment.

LST Leaking Storage Tank Facilities

VERSION DATE: 08/28/14

The Oil and Public Safety Division of the Colorado Department of Labor and Employment maintains this list of

leaking aboveground and underground storage tank facilities.

LUSTTRUST Leaking Underground Storage Tanks Trust Fund Sites

VERSION DATE: 01/01/00

Suspected tank leaks have been discovered at the sites included in this database, but the facility responsible for the leak has not been identified. The state's investigtion and search for responsible parties is paid for out of the state's Leaking Underground Storage Tank (LUST) Trust Fund. This database was provided by the Colorado Department of Labor & Employment, Division of Oil and Public Safety, State Fund Section and is no longer updated.

METHANESITES Methane Gas Study Sites

VERSION DATE: 01/01/81

This Investigation of Methane Gas Hazards report was prepared by the Denver Office of Emergency Preparedness in 1981. The purpose of this study was to assess the actual and potential generation, migration, explosive and related problems associated with specified landfills, and to identify existing and potential problems, suggested strategies to prevent, abate, and control such problems and recommend investigative and monitoring functions as may be deemed necessary. The Colorado Department of Health selected eight landfills as priorities due to population density and potential hazards to population and property.

SWF Solid Waste Facilities

VERSION DATE: 08/18/14

The Colorado Department of Public Health and Environment maintains this database of active solid waste disposal facilities, transfer stations, recyclers, waste tire registrants, and waste grease registrants.

VCRA Voluntary Cleanup and Redevelopment Program Sites

VERSION DATE: 08/14/14

This site listing is provided by the Colorado Department of Public Health and Environment (CDPHE) and includes both voluntary cleanup and brownfield properties. The Voluntary Cleanup and Redevelopment program was created in 1994. The objective of the program is to facilitate the redevelopment and transfer of contaminated properties. Properties that sit untouched because of their real or perceived contamination can be rehabilitated using the CDPHE's Brownfields Program in conjunction with the Voluntary Cleanup Program. Cleanup decisions are based on existing standards and the proposed use of the property. The actual cleanup and verification is the owner's responsibility.

HWSCA Hazardous Waste Sites- Corrective Action

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the

promulgation of implementing regulations in 1980. In 1984, the Hazardous and Solid Waste Amendments (HSWA) were added to RCRA providing for corrective action at facilities subject to RCRA. That same year, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. Corrective action may be implemented as part of a RCRA Hazardous Waste Permit, an Order, or a Corrective Action Plan pursuant to the Colorado Hazardous Waste Regulations. Corrective action is the process by which regulated facilities investigate and remediate, as necessary, all contamination (soil, ground water, surface water, air) associated with their releases into the environment. Historic Corrective Action Sites are facilities that have completed the RCRA Subtitle C corrective Action process. This database was provided by the Colorado Department of Public Health and Environment.

SF Superfund Sites

VERSION DATE: 06/01/03

This listing contains active, deleted and proposed "Superfund" hazardous waste sites, as well as those sites identified through the Natural Resource Damages section of Superfund legislation and one Private Non-Superfund Cleanup site. A site qualifies for the National Priorities List (NPL or Superfund list) when the U.S. Environmental Protection Agency (EPA) determines there is a release or threatened release of hazardous substances that may endanger public health, welfare or the environment. In Colorado, the lead agency for Superfund remediation may be either the EPA or the Colorado Department of Public Health and Environment.

WCSWF Weld County Solid Waste Facilities

VERSION DATE: 08/03/09

This listing of solid waste facilities is provided by the Weld County Public Health Department.

Environmental Records Definitions - TRIBAL

USTR08 Underground Storage Tanks On Tribal Lands

VERSION DATE: 11/25/13

This database, provided by the United States Environmental Protection Agency (EPA), contains underground storage tanks on Tribal lands located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

LUSTR08 Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 11/25/13

This database, provided by the United States Environmental Protection Agency (EPA), contains leaking underground storage tanks on Tribal lands located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

ODINDIAN Open Dump Inventory on Tribal Lands

VERSION DATE: 11/08/06

This Indian Health Service database contains information about facilities and sites on tribal lands where solid waste is disposed of, which are not sanitary landfills or hazardous waste disposal facilities, and which meet the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944).

INDIANRES Indian Reservations

VERSION DATE: 01/01/00

The Department of Interior and Bureau of Indian Affairs maintains this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations and Recognized State Reservations.

APPENDIX D

LOCAL FIRE AND HEALTH DEPARTMENT RESPONSES

Branch, Trevor

From: LuAnn Penfold [lpenfold1101@gmail.com]
Sent: Friday, October 10, 2014 9:34 AM
To: Branch, Trevor
Subject: Re: Request for Records

Hi Brandon,

I don't have any records of anything on that particular site other than they did use it for the retail sales of fireworks for several years. There had also been some above ground fuel tanks on the property to the east, during the construction of the Blue Sky Condo's project.

LuAnn Penfold
Mountain View Fire District

On Wed, Oct 8, 2014 at 4:42 PM, Branch, Trevor <tbranch@ctlthompson.com> wrote:

Hello LuAnn,

I am doing a Phase I ESA and would like to request any records for a site that is located northwest of the Highway 7 and Bonanza Drive in Erie. I have attached a request letter and a site map highlighting the location.

Thank you,

Trevor Branch, E.I.T.

Environmental Staff Engineer

CTL | Thompson, Inc.

Office: 303-825-0777

Cell: 914-582-4491

tbranch@ctlthompson.com

www.ctlt.com

Branch, Trevor

From: Marcela Swain [mswain@co.weld.co.us]
Sent: Thursday, October 09, 2014 12:15 PM
To: Branch, Trevor
Subject: Request to review files

October 9, 2014

Trevor Branch
CTL Thompson

RE: Your request to review files at Weld County Department of Public Health and Environment

Mr. Branch:

I conducted a file search with the information (Parcel #146731400011 and Parcel #146731400012)you provided and was unable to find any records in our incident and complaint files and septic permits.

Please be aware that we cannot conduct a file search based on a general location area. If you are seeking a local record search from the Health Department for any property, please note the following information and provide search terms. We can search our records once you identify and provide search terms. The Weld County Department of Public Health & Environment can search our Department's incident and complaint files and septic permits and see if we have any facility files on specific property. The information may be under one or more of the following type of search terms: ***parcel number, property address, property owner's name, former property owner's name, business name, former business name, and Section-Township-Range***. These are records of the Weld County Department of Public Health & Environment only, and will not include records of any and all spills, which may have been reported to other agencies for which the agencies are responsible for maintaining.

For state records, you may contact the Colorado Dept. of Public Health & Environment at 303-692-3300 to request records of spill reports, submitted via the Environmental Release and Incident Reporting System. Some of the properties/businesses you may identify could have permits or be in inventory databases at the Colorado Department of Public Health & Environment as generators of hazardous waste or air emissions sources. There are also RCRA site databases on the EPA's website. The CO Dept. of Labor Oil Inspection Section maintains UST/AST tank registrations 303-318-8505. The Colorado Oil & Gas Conservation Commission (303-894-2100) can be consulted regarding records of any oil & gas wells and or clean-ups within your desired search distance.

You may provide search terms to this Department via e-mail, letter, or fax. If you have any questions regarding this matter, please contact me.

Marcela Swain
Office Technician III
Environmental Health Division
1555 N. 17th Avenue
Greeley, Colorado 80631
Email: mswain@co.weld.co.us
Phone: 970-304-6415, Ext 2202
Fax: 970-304-6411

APPENDIX E

RESUMES

Resu e

TREVOR BRANCH
Staff Engineer

EDUCATION

B.S. Environmental Engineering
University of New Hampshire
Durham, NH 2010

TRAINING & CERTIFICATIONS

40 Hour OSHA Training

Engineer-in Training,
State of New Hampshire Serial No. 5359

PROFESSIONAL AFFILIATIONS

National Groundwater Association (NGWA)

PROFESSIONAL SUMMARY

Mr. Branch recently joined CTL | Thompson with over two years of previous experience providing environmental consulting throughout New York, New Jersey and Connecticut.

Currently, as a Staff Engineer/Geologist for CTL's Denver-based environmental consulting division, his responsibilities are primarily providing Phase I environmental site assessments and Phase II due diligence reports.

Mr. Branch's experience includes Phase I and II environmental site assessments, underground storage tank removals and site characterization and remediation.

PROJECT EXPERIENCE

t and a nut Par ing arage, Auraria Hig er ducation Center, Den er, Co orado
Served as site geologist during subsurface investigation activities to determine the extent of PAH contamination previously encountered in test borings and pits. Oversight of drilling, logging and field screening of soils, lab analysis and groundwater flow determination were all conducted during the Phase II investigation. The findings of this investigation indicated that the site was not a source of contamination and was likely downgradient from an unidentified source.

aptist Co unity Center, ount ernon, ew or
Performed Phase I ESA for a Baptist church and community center in Mount Vernon. A Phase I was required prior to bank approval of a refinanced loan due to environmental concerns due to site being located in a historically industrial area. Site assessment proved there were no RECs in the immediate area except for the heating oil UST located onsite that advised to be removed. Following recommendations from our Phase I ESA the loan was approved.

Roc ester A enue apart ents, roo yn, ew or
Served as project manager of a vacant previously developed lot in Brooklyn proposed for residential redevelopment. Site characterization, organization of contractors, oversight of soil removal, air quality monitoring, end-point soil and soil vapor sampling, vapor system design and summary report were all part of my duties during this project.

CTL | THOMPSON

Resu e

MATTHEW L. WARDLOW, P.E.
Environmental Division Manager

EDUCATION

B.S. Engineering and Policy
Washington University, St. Louis, MO, 1993

TRAINING & CERTIFICATIONS

40 Hour OSHA Training

Confined Space Training

Mold Remediation Technician Training

Principals of Forced Air Remediation

Asbestos Inspector #775 Management Planner

Air Monitoring Specialist

PROFESSIONAL REGISTRATION

Registered Professional Engineer, Colorado No. 36223

PROFESSIONAL SOCIETIES

American Society of Civil Engineers

American Society of Foundation Engineers

Colorado Hazardous Waste Management Society

PROFESSIONAL SUMMARY

Mr. Wardlow joined CTL|Thompson, Inc. in 2004, having ten years of previous experience providing environmental consulting throughout Colorado. He currently serves as the Division Manager for CTL|Thompson's Denver-based Environmental Consulting Division, which includes staff supervision, project management, and business marketing. Mr. Wardlow has a variety of technical expertise in Phase I and II Environmental Site Assessments, underground storage tank removals, site characterizations, CDPHE Voluntary Cleanup applications, mold and moisture evaluations, and asbestos consulting services. Mr. Wardlow reviews and stamps Phase I and II studies that CTL|Thompson publishes, making sure that the latest regulations and standards are followed. He has developed a reputation as a consistent and reliable consultant for his clients, which include builders, lenders, attorneys, and government representatives. He encompasses a variety of project experience including transportation facilities, municipal buildings, residential developments, historical sites, medical facilities, and wastewater treatment plants.

PROJECT EXPERIENCE

Rose Medical Center, Aurora, Colorado -

Served as Project Manager for removal of this backup generator tank. Mr. Wardlow was able to negotiate closure of the site even though residual diesel and PAH contamination remained. This was accomplished by demonstrating the lack of impact to ground water, the inapplicability and uncertainty of certain soil standards, the lack of impact on proposed use, and by submitting a materials management and health and safety plan for proposed construction.

Aurora Academy Charter School, Aurora, Colorado -

Served as Project Manager for this voluntary study arising out of a concern of a TCE plume from the nearby Lowry site. Ground water sampling and characterization followed by soil vapor sampling indicated that the impact to a proposed gymnasium addition from solvent vapors was negligible. Served as head liaison to CDPHE personnel, detailing the site activities in a face-to-face meeting. CDPHE personnel issued a No Further Action letter to the school within one week of the meeting.

Roaring Fork Transportation Authority, Aspen, Colorado -

Served as Project Engineer for Roaring Fork Transportation Authority during the Environmental Consultation phase of the project. This project involved designing a treatment process for wash down waters and other waste streams. This will enable the client to abandon the septic field properly and switch its service over to Aspen Wastewater.

Troxel Residential Property, Gardner, Colorado -

As Project Manager, Mr. Wardlow was able to coordinate a contractor and obtain an UST Closure permit on an expedited basis. Extensive soil removal was needed at this UST installation in Carbondale, Colorado. Diesel-contaminated soils were segregated and characterized properly. The client was able to obtain tank closure on a rapid turnaround basis.

3960 High Street, Denver, Colorado -

Currently serving as Project Manager for a Phase I ESA, Phase II ESA and an UST removal. Phase II ESA was performed out of concern of prolonged industrial use on site and surrounding area. CTL discovered Carbon Tetrachloride and Chloroform above ground water standards, but in keeping up with the latest regulatory revision of March 2005 and by staying in contact with regulators, CTL was able to demonstrate that the more stringent standard of Carbon Tet is inapplicable, and that Chloroform is ubiquitous in lab results. Client successfully sold this industrial property.

Governor's Mansion, Denver, Colorado -

Project Manager for removal of a 1,000-gallon gasoline tank, and a second, 500-gallon waste oil tank that was discovered. Closure was obtained.

3500 South Clarkson, Denver, Colorado -

Project Manager for a soil and ground water study. This involved concerns by Swedish Hospital of a historical gas station at the specific site. Temporary monitoring wells were installed around the site of the project and the ground water was tested. The ground water was discovered to be un-impacted and the client purchased the site successfully.

Highlands Ranch and Grant Ranch Subdivisions, Denver Area, Colorado -

Project Manager and reviewer for over 200 mold and moisture intrusion evaluations for various builders. Projects have included an initial evaluation with air sampling, a perimeter drain observation, a post-mitigation observation, and followup sampling and placement of a temperature and humidity datalogger in the crawl space. Other evaluations throughout a given house have included roof leaks, elevated humidity in the attic, foul odors from sump pits and other locations, window flashing, and drainage issues.

Hotel Building, Aspen, Colorado -

Project Engineer for mold and moisture consultation. This consultation was performed in association with contractor remodeling of the building. CTL|T assisted in evaluating moisture intrusion pathways such as roof flashing. CTL|T gathered engineering information and air sampling data into a report detailing the recommended remediation protocols. CTL|T performed a follow-up evaluation and sampling after remediation, documenting that remediation was performed to industry standards. The contractor was able to proceed with the remodel, putting previously abandoned hotel space into profitable use.

Beacon Point, Aurora, Colorado

Project Engineer and Reviewer for storm water consultation for a residential developer. Reviewed the Storm Water Management Plan (SWMP) after development and before initial application to the state. Reviews the SWMP to reflect changing site conditions. Also provides general consultation to the client during construction, offering erosion and sediment control alternatives.

Denver Federal Center, Colorado

Project Engineer for development of the SWMP for the general contractor. Project involves reconstruction of roads, parking lots, and utilities. This federal project is administered directly by the EPA. Mr. Wardlow provided senior review and oversight for development of the SWMP

ERO Resources Corp.

September 28, 2015

To: Matt Deibel, Highway 7 and Bonanza, LLC

From: Denise Larson, ERO Resources Corporation

Re: Wetland Assessment – Sierra Vista Property, Weld County, Colorado

Background

Highway 7 and Bonanza, LLC retained ERO Resources Corporation (ERO) to conduct a wetland delineation for a parcel northwest of Highway 7 and Weld County Road 3 in Weld County, Colorado (project area; Figure 1). On September 9, 2015, Hidde Snieder with ERO surveyed the project area for wetlands, streambeds, and open water (2015 site visit). ERO assumes the landowner or municipality is responsible for obtaining all federal, state, and local permits associated with the project.

The natural resources and associated regulations described in this memo are valid as of the date of this memo and may be relied upon for the specific use for which it was prepared by ERO under contract to Highway 7 and Bonanza, LLC. Because of their dynamic natures, site conditions and regulations should be reconfirmed by a qualified consultant before relying on this memo for a use other than that for which ERO was contracted.

General Description of Project Area

Project Area Location

The project area is in Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian in Weld County, Colorado (Figure 1). The UTM coordinates of the approximate center of the project area are NAD 83; 496513mE, 4427982mN, Zone 13N. The latitude/longitude of the project area is 40.002125°N/105.040935°W. The elevation of the project area is about 5,200 feet.

Site Description

The project area is bounded by residential development to the north and south, a storage yard and residential development to the east, and undeveloped land to the west. The Tri-County Airport is northwest of the project area.

The vegetation within the project area consists of common prairie and pasture grasses including blue grama (*Bouteloua gracilis*), sideoats grama (*Bouteloua curtipendula*), crested wheatgrass (*Agropyron desertorum*), cheatgrass (*Bromus tectorum*), western wheatgrass (*Pascopyrum smithii*), slender wheatgrass (*Elymus trachycaulus*), and switchgrass (*Panicum virgatum*) (Photos 1 and 2). The noxious weeds diffuse knapweed (*Acosta diffusa*) and field bindweed (*Convolvulus arvensis*) are also present. Yucca (*Yucca glauca*), rabbitbrush (*Chrysothamnus* sp.), three leaf sumac (*Rhus trilobata*), and prickly pear (*Opuntia* sp.) are also prevalent in the project area. A small tributary to Coal Creek crosses the southwest corner of the project area with

Denver
1842 Clarkson St.
Denver, CO 80218
303.830.1188

Durango
1015 ½ Main Avenue
Durango, CO 81301
970.422.2136

Hotchkiss
P.O. Box 932
161 South 2nd St.
Hotchkiss, CO 81419
970.872.3020

Idaho
4001 East Main Street
Emmett, ID 83617
208.365.7684

www.eroresources.com

wetlands throughout the majority of its reach. The wetlands range from 5 to 20 feet wide within the project area and are dominated by broadleaf cattail (*Typha latifolia*) with some patches of sandbar willow (*Salix exigua*) (Photos 3 and 4). The soils are classified as Samsil-Shingle complex (U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) 2015a).

Wetlands and Waters of the U.S.

Background

ERO conducted the wetland delineation following the methods for routine on-site wetland determinations in areas of less than 5 acres as described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and used methods in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (U.S. Army Corps of Engineers (Corps) 2010) to record data on vegetation, soils, and hydrology on routine determination forms (Appendix A). Wetlands were determined based on the presence of three wetland indicators: hydrophytic vegetation, hydric soils, and wetland hydrology. Wetland boundaries were determined by a visible change in vegetation community, topographic changes, and other visible distinctions between wetlands and uplands.

The wetland indicator status of plant species was identified using the *National Wetland Plant List* (Lichvar 2014), taxonomy was determined using *Colorado Flora: Eastern Slope* (Weber and Wittmann 2012), and nomenclature was determined using *PLANTS Database* (USDA, NRCS 2015b). Wetlands were classified according to the U.S. Fish and Wildlife Service's (Service) Cowardin classification system (Cowardin et al. 1979). Hydric soils were identified using field observation for hydric soil indicators accepted by the Corps. A Munsell soil color chart was used to determine soil color. Wetland locations and classifications were supported by U.S. Geological Survey (USGS) topographic maps, aerial photography, and the Soil Survey (USDA, NRCS 2015b).

Intermittent, ephemeral, and perennial drainages with characteristics of a defined streambed, streambank, ordinary high water mark (OHWM), and other erosional features also were identified. The Corps defines "stream bed" as the substrate of the stream channel between the OHWMs. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. The Corps defines "ordinary high water mark" as that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the soil character, destruction of terrestrial vegetation, presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR 328.3(e)).

The dimensions of drainages with these characteristics and the boundaries of identified wetlands either were drawn onto aerial photographs or mapped using a Global Positioning System (GPS) unit. GPS data were differentially corrected using the CompassCom base station. All differential correction was completed using Trimble Pathfinder Office 5.4 software. GPS data were incorporated onto base mapping using ARC Geographic Information System software.

Currently, the Corps bases its jurisdictional determinations on the 2007 guidance. On May 27, 2015, the Corps and Environmental Protection Agency (EPA) jointly published a final rule defining the phrase "waters of the United States" under the federal Clean Water Act. However, on August 27, 2015, a federal district court in North Dakota granted a preliminary injunction blocking implementation of the new rule defining "waters of the United States" in the 13 states that joined the suit (including Colorado). Under the order issued by the District Court of North Dakota, the parties that obtained the preliminary injunction are not subject to the new rule, and instead continue to be subject to the prior regulation. In light of the order, the EPA and Corps will continue to implement the prior regulation in the 13 states that joined the suit. While ERO may provide its opinion on the likely jurisdictional status of wetlands and waters, the Corps makes the final determination of jurisdiction based on the current rulings.

To assist the Corps in making a preliminary jurisdictional determination, ERO reviewed the proximity and potential surface water connection of wetlands to known jurisdictional waters of the U.S. using aerial photo interpretation, landowner information, and information from the wetland delineation. Data were collected in the project area to document the characteristics of uplands and potential wetlands. Two data points were established in the project area and were given labels that correspond to a location shown on Figure 2 and a routine wetland determination form (Appendix A). The following sections contain information on potential surface water connections of wetlands and other waters within the project area.

Project Area Conditions

Streams, Open Water, and Wetlands

A tributary to Coal Creek flows along the southern border of the project area. The tributary to Coal Creek is shown on the Erie USGS topographic quadrangle as an intermittent drainage that connects to Coal Creek, which connects to Boulder Creek, which connects to the South Platte River; all of these water bodies are considered jurisdictional waters of the U.S. Within the project area, ERO mapped a total of 0.233 acre of wetlands (Figure 2).

Vegetation

A wetland occurs within the tributary to Coal Creek within the project area. The wetland is classified as persistent emergent (Cowardin et al. 1979). Broadleaf cattail (obligate wetland) is the dominant species in the wetland.

Soils

Data were collected from two locations in the project area (Figure 2)—one within the wetland (DP1) and one within the uplands (DP2) (Figure 2). Because of the dominance of hydrophytic vegetation and the presence of hydrology, hydric soils were assumed; therefore, no soil data were collected within DP1. Data collected from DP2 had a matrix color of 10YR3/2 and did not contain any hydric soil indicators.

Hydrology

The soils at DP1 in the project area were saturated or shallowly inundated at the time of the 2015 site visit. Hydrologic indicators observed at DP1 and within the delineated wetland include surface water, a high water table, saturation, and drainage patterns. No wetland hydrology indicators were observed at DP2. In addition to a lack of hydrology indicators, DP2 lacked hydrophytic vegetation and hydric soils and, as a result, ERO determined DP2 was not a wetland.

Recommendations

If any work is planned within the wetland and open water areas, a jurisdictional determination should be requested from the Corps. If these areas are considered jurisdictional, a Section 404 permit would be required for the placement of fill or dredged material within the wetland or below the OHWM. If these areas are determined nonjurisdictional, or if no work is planned within them, no action is necessary. Based on the proposed plans provided by the Client on September 25, 2013 (attached at the end of this report), the project would not impact the wetlands on the property.

References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the U.S. Library of Congress, Washington, DC.

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report 7-87-1, U.S. Army Engineer Waterways Experiment Station. Vicksburg, MS.

Lichvar, R.W. 2014. The National Wetland Plant List: 2014 wetland ratings. *Phytoneuron* 2014-41:1-42. Available at: http://rsgisias.crrel.usace.army.mil/NWPL/. Last accessed: March 31, 2015.

U.S. Army Corps of Engineers (Corps). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)*. J.S. Wakeley, R.W. Lichvar, and C.V. Noble (eds.). ERDC/EL TR-10-1. Vicksburg, MS: U.S. Army Engineer Research and Development.

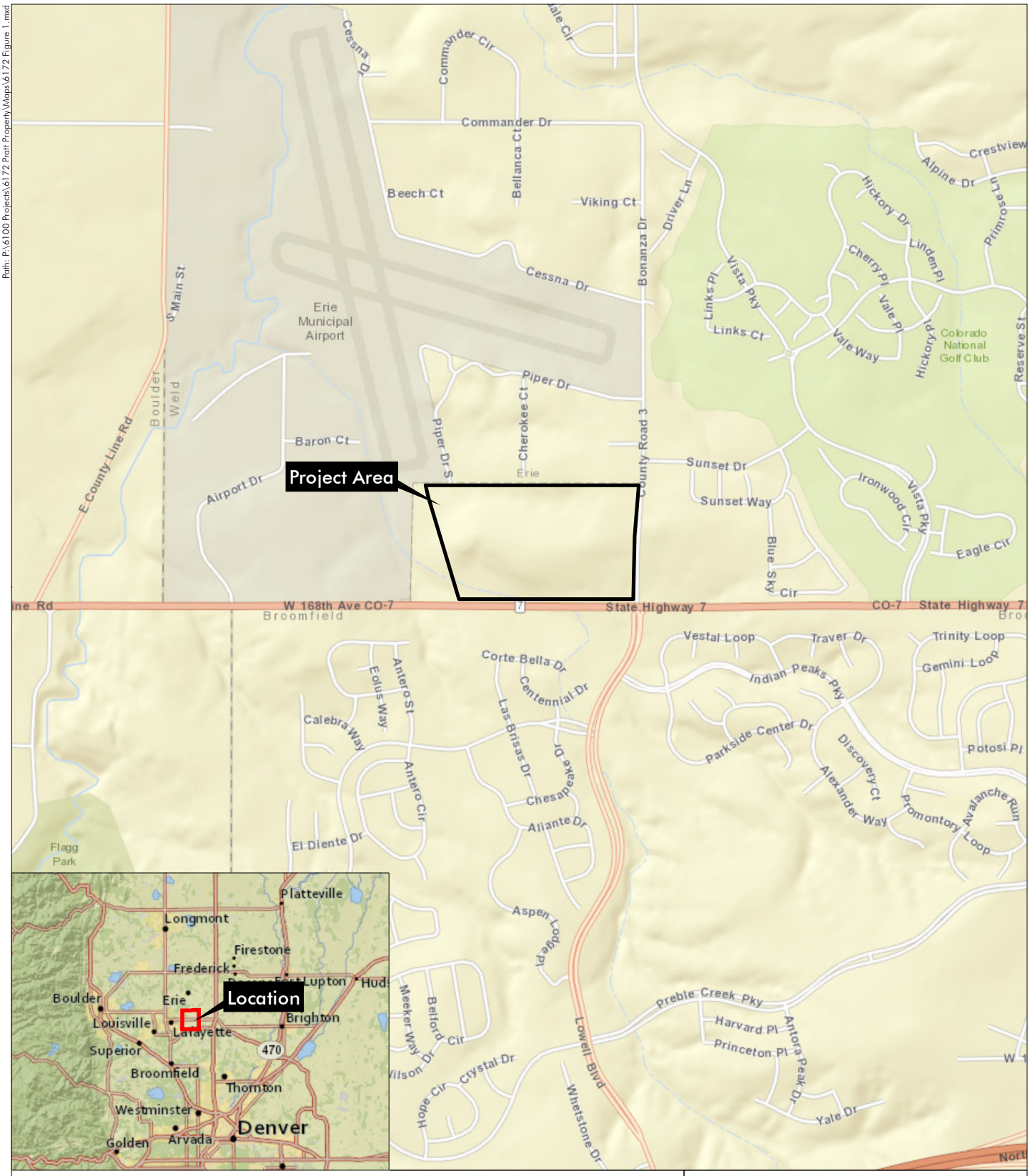
U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2015a. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Last accessed: March 31, 2015.

U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2015b. *The PLANTS Database*. Available at: http://plants.usda.gov. National Plant Data Team, Greensboro, NC 27401-4901 USA. March 31.

Weber, W.A. and R.C. Wittmann. 2012. *Colorado Flora: Eastern Slope.* 4th edition. University Press of Colorado. Boulder, CO.

Attachments

Path: P:\6100 Projects\6172 Pratt Property\Maps\6172 Figure 1.mxd



Siera Vista Property

Section 31, T1N, R68W; 6th PM

UTM NAD 83: Zone 13N; 496513mE, 4427982mN

Latitude, Longitude: 40.002125°N, 105.040935°W

USGS Erie, CO Quadrangle

Weld County, Colorado

0 750 1,500 Feet

N

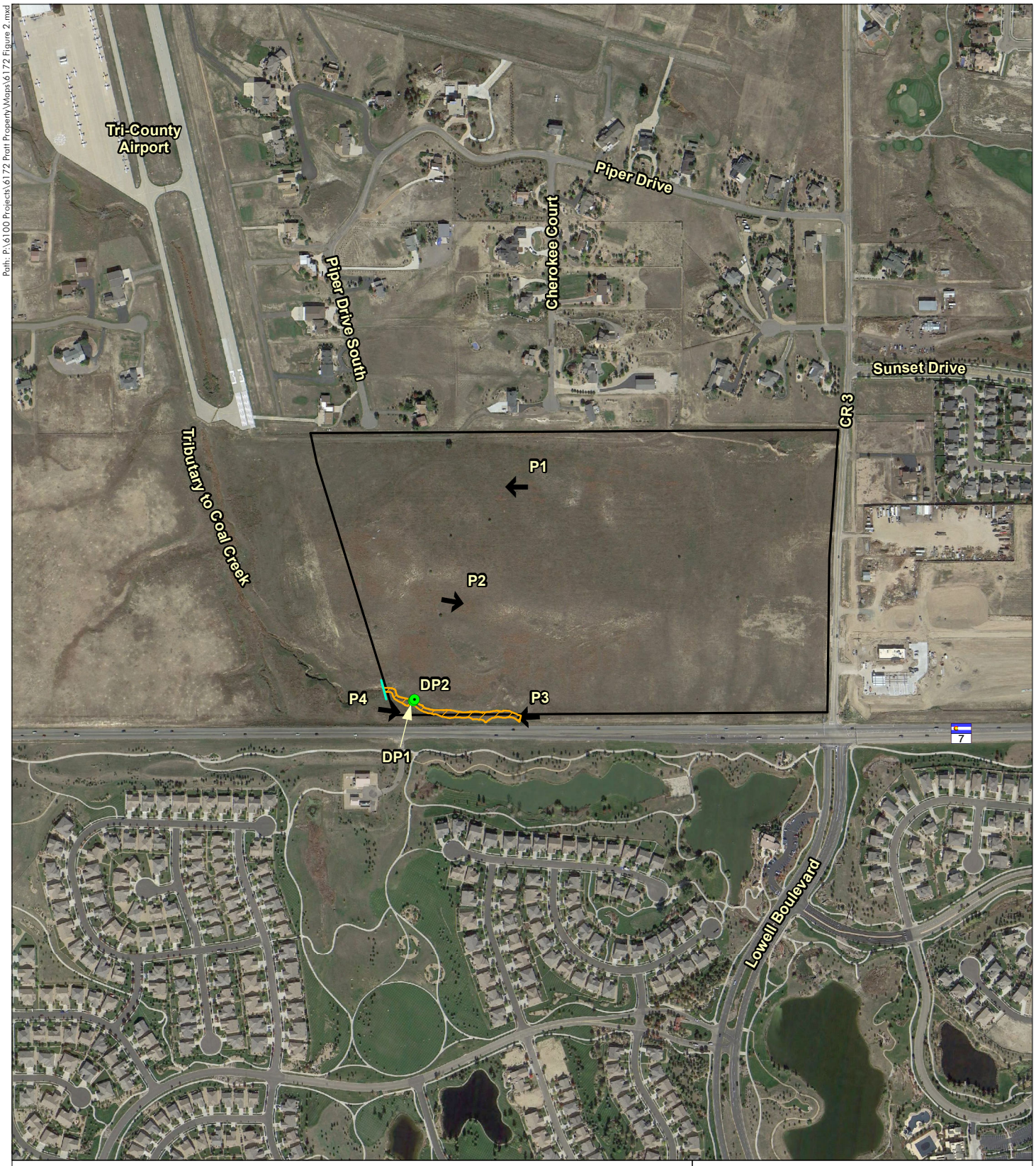
Figure 1
Vicinity Map

Prepared for: Highway 7 and Bonanza, LLC
File: 6172 Figure 1.mxd (GS)
July 28, 2015

ERO Resources Corp.

Portions of this document include intellectual property of ESRI and its licensors and are used herein under license. Copyright © 2014 ESRI and its licensors. All rights reserved.

Path: P:\6100 Projects\6172 Pratt Property\Maps\6172 Figure 2.mxd



Siera Vista Property

- Data Point
- Photo Point
- Limit of Delineation
- Wetland (0.367 ac total, 0.233 ac within project area boundary)
- Project Area Boundary

Image Source: Google Earth©, October 2014

0 300 600 Feet

N

Figure 2
Site Conditions

Prepared for: Highway 7 and Bonanza, LLC
File: 6172 Figure 2.mxd (GS)
September 22, 2015

ERO
ERO Resources Corp.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sierra Vista City/County: Erie, Weld County Sampling Date: 9-9-15

Applicant/Owner: Highway 7 and Bonanza, LLC State: Co Sampling Point: DP1

Investigator(s): Hidde Snieder Section, Township, Range: Section 31, T1N, R68W

Landform (hillslope, terrace, etc.): Stream Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): G Lat: 40.0007000 Long: -105.0439833 Datum: NAD83

Soil Map Unit Name: Samsil-Shingle complex NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** **Yes** [X] **No** [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5x5ft.)			
1. Typha latifolia	80	Y	OBL
2. Rumex crispus	5	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [X] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** [X] **No** [ ]

Remarks:

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Did not dig due to inundation and dominance of obligate wetland vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☒ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

inundated with flowing water

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sierra Vista City/County: Erie, Weld County Sampling Date: 9-9-15

Applicant/Owner: Highway 7 and Bonanza, LLC State: Co Sampling Point: DP2

Investigator(s): Hidde Snieder Section, Township, Range: Section 31, T1N, R68W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 4

Subregion (LRR): G Lat: 40.0007194 Long: 105.0439556 Datum: NAD83

Soil Map Unit Name: Samsil-Shingle complex NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [X] No [ ] (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [X]	**Is the Sampled Area within a Wetland?** **Yes** [ ] **No** [X]
Hydric Soil Present?	Yes [ ]	No [X]	
Wetland Hydrology Present?	Yes [ ]	No [X]	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft.)			
1. Rosa woodsii	10	Y	FACU
2. Symphoricarpos occidentalis	20	Y	UPL
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5ft.)			
1. Bromus tectorum	35	Y	UPL
2. Cirsium arvense	25	Y	FACU
3. Conyza canadensis	5	N	FACU
4. Rumex crispus	5	N	FAC
5. Carduus nutans	5	N	FACU
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 =
FACW species	0	x 2 =
FAC species	5	x 3 = 15
FACU species	45	x 4 = 180
UPL species	55	x 5 = 275
Column Totals:	105 (A)	470 (B)

Prevalence Index = B/A = 4.61

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [ ] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** [ ] **No** [X]

Remarks:

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR3/2	100					ClLo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

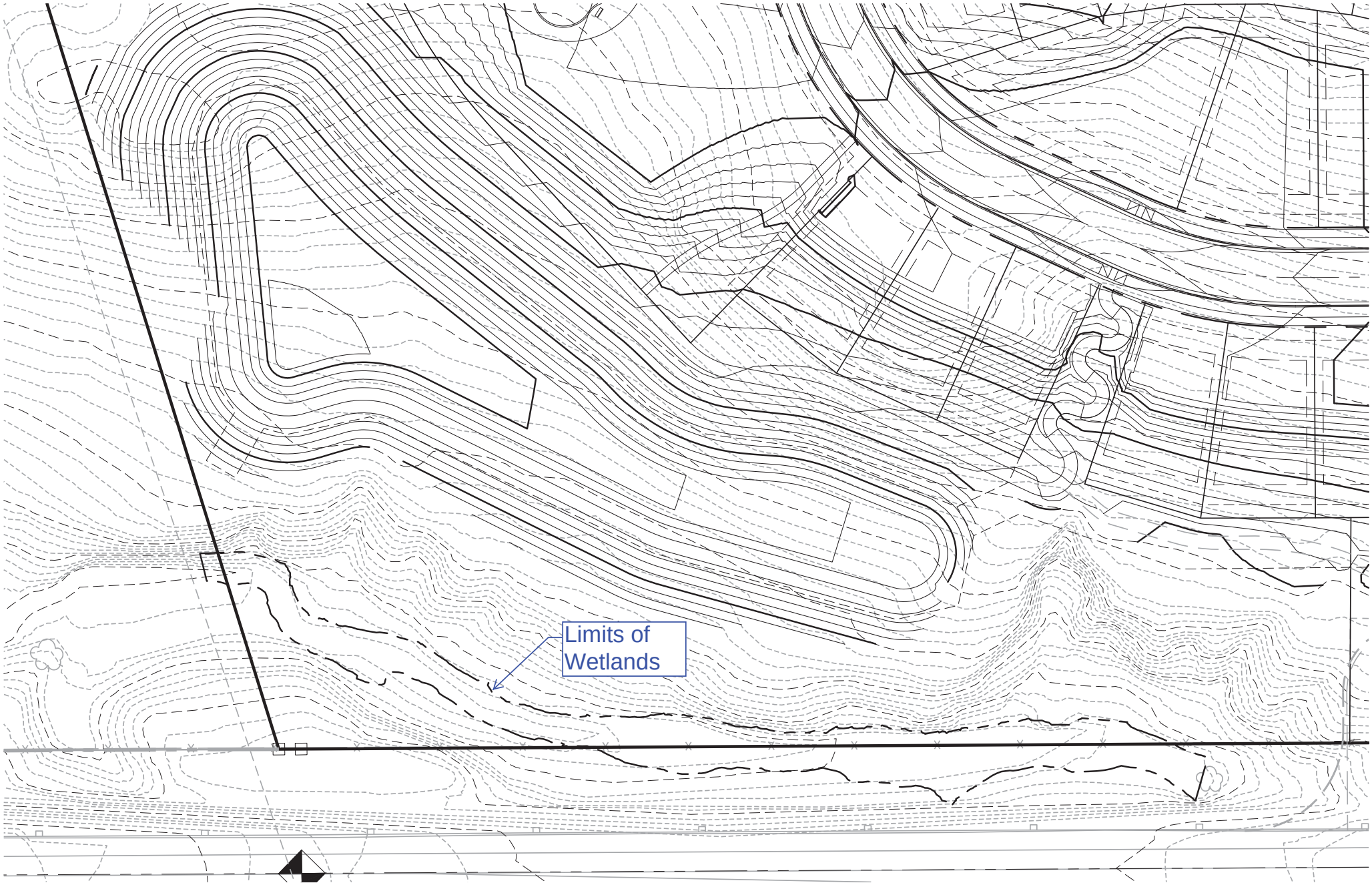
Photo Log
Sierra Vista
Weld County, Colorado
September 9, 2015

Photo 1 - Overview of the project area uplands consisting of a mixture of native and introduced grassland vegetation. View is to the west.

Photo 2 - Overview of the project area consisting primarily of upland grasslands. View is to the east.

Photo 3 - Cattail wetlands within the Coal Creek tributary in the southwestern corner of the project area. View is to the west.

Photo 4 - Overview of the vegetation along the Coal Creek tributary. View is to the east.


Limits of
Wetlands

Aldridge Transportation Consultants, LLC

Advanced Transportation Planning and Traffic Engineering

Traffic Impact Study

for

Sierra Vista

Eire, Colorado

Prepared for:

Calibre Engineering, Inc.
9090 South Ridgeline Blvd. Suite 105
Highlands Ranch, Colorado 80129

Prepared by:
John M.W. Aldridge, PE, PTOE, AICP
Aldridge Transportation Consultants, LLC
1082 Chimney Rock Road
Highlands Ranch, Colorado 80120
303-703-9112

January 13, 2015

1. INTRODUCTION

This report examines the traffic impact associated with the construction of Sierra Vista in Erie, Colorado. The project is located on the northwest corner of SH-7 and Bonanza Drive. The aerial photo shows the location and general vicinity of the project.

The proposed development of the site is single-family residential and neighborhood commercial center. The residential area features 202 homes and the commercial of 5.5 acres will allow about 50,000 square feet of commercial/shopping center uses. The development plan proposes two primary accesses from Bonanza Drive. The first will be approximately 375 feet from SH-7 and the second further north at approximately 650 feet from the first.

A third access is available from SH-7 approximately 1,200 feet west of Bonanza Drive. It is a 3/4 movement and CDOT approved per the ***SH-7 Access Control***

Plan. The timetable for placement of the 3/4 movement access is unknown. Nevertheless, it will not be open in the initial phases of development.

SH-7 is a two-lane, undivided state highway roadway that carries approximately 20,000 AADT in this section of the roadway. It is designated as a Principal Arterial NR-A per the CDOT Access Code. The posted speed limit is 55 mph. Bonanza Drive is a two-lane collector according to the ***Town of Erie Transportation Master Plan (2008).*** It currently carries approximately 2,500 ADT and the speed limit is 35 mph.

The traffic operations analysis herein examined the existing condition, a 2020 5-year horizon scenario, and a 20-year horizon 2035 scenario. The future scenarios assumed full build out of the property including the commercial area.

2. PROJECT TRIP GENERATION AND DESIGN HOUR VOLUMES

The project's trip generation calculates from rates and values found in the ***ITE Trip Generation Manual, 9th Edition.*** The proposed site plan has 202 single-family residences and approximately 50,000 square feet of commercial/shopping center use. The chart below shows the trip generation for average weekday (ADT) and AM and PM peak hours.

Trip Generation Worksheet								
					Average Weekday			
					AM		PM	
ITE Code	Land Use	Unit	Quantity	ADT	In	Out	In	Out
210	Single Family	DU	202	*9.52*	*0.19*	*0.56*	*0.63*	*0.37*
				1,923	**38**	**114**	**127**	**75**
820	Commercial	KSF	50	*42.70*	*0.60*	*0.36*	*1.78*	*1.93*
				2,135	**30**	**18**	**89**	**97**
Total Trips				4,058	68	132	216	171

As the PM peak hour trips are higher than the AM peak hour, the PM peak hour is the design hour volume (DHV). An analysis of the AM peak hour impacts was prepared to review and check the proposed intersection design and traffic control. Although there will be internal trips of approximately 10 percent and pass-by trips associated with the commercial area, to be conservative in the analysis these reductions were not taken.

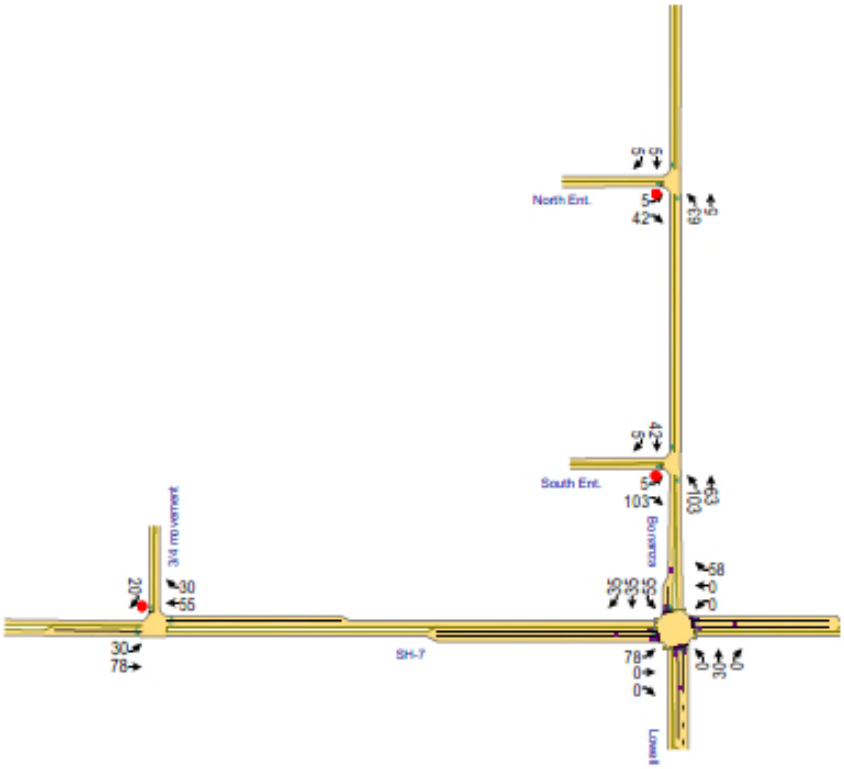
3. TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution and assignment is based on the location of streets and highways (including access to I-25) and employment and shopping in the surrounding area. It also considers the current turning movements at the intersection of SH-7/Bonanza/Lowell. The assumption is that 50 percent will originate to/from the west, and approximately 30 to 40 percent to/from the east.

The remaining 10 to 20 percent or so will orient north and south on Bonanza Drive and Lowell Blvd.

The distribution and assignment of site-generated trips for the AM and PM peak hours are shown on the following graphics

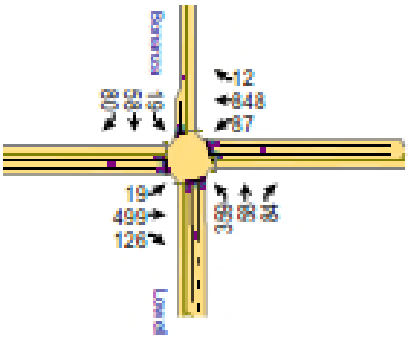
Assignment of AM Peak Hour Trips



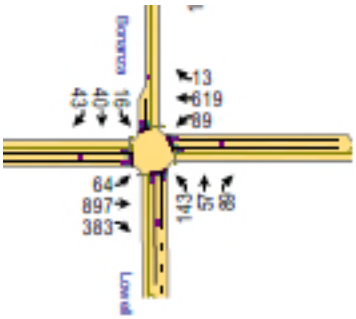
Assignment of PM Peak Hour Trips

4. EXISTING AND PROJECTED TRAFFIC VOLUMES

All Traffic Data took traffic counts at the intersection SH-7 and Bonanza Drive on December 11, 2014. The counts for the existing AM and PM peak hours are shown in the following graphics and on the Synchro graphics in the appendix. Operations models were prepared using Synchro v8. The existing LOS at each intersection is C in both the AM and PM peak hours.



Existing AM

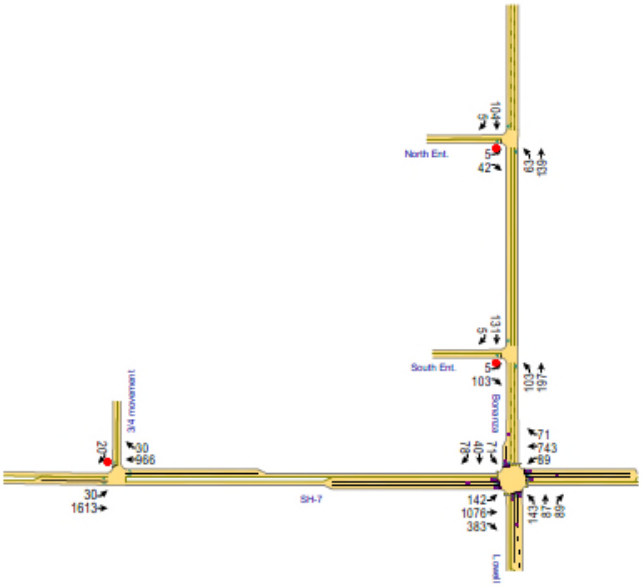


Existing PM

The intersection features 500-foot left and right turn lanes on the eastbound approach, a 750-foot left turn lane and a 250-foot right turn lane on the westbound approach. The northbound approach is complete with a 500-foot left turn lane and a continuous right turn lane. The southbound approach is essentially a shared right, through and left turn lane. The lane is wide enough for a minimal storage of the right turns. The westbound departures features an acceleration lane of 350 feet and the eastbound acceleration lane becomes a second through lane.

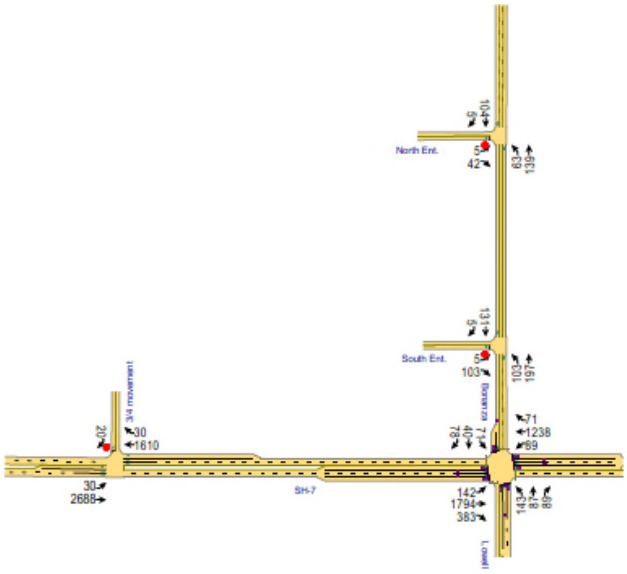
The ***Town of Erie Transportation Master Plan (2008)*** provides forecasts for 2015, 2030, and 2060 (highly speculative full build-out of the Town and not used in this analysis). The forecast volumes in the master plan, CDOT growth factors, and the ***SH-7 Access Control Plan*** provide some control points for this analysis. CDOT and the access plan plans show that traffic on SH-7 in this area is projected to double in 20 years (a growth factor of 2.0). The master plan projections for 2030 are below existing and were not used. For the 5-year analysis, a growth factor of 1.2 was used. The following graphics show the 2020 and 2035 AM and PM traffic projections.

2020 AM Peak Hour



2020 PM Peak Hour

2035 AM Peak Hour



2035 PM Peak Hour

5. CAPACITY AND LEVEL OF SERVICE (LOS) ANALYSIS

A series of Synchro v8 traffic operations and SimTraffic simulation models were prepared to analyze the traffic operations of each scenario. The operations analysis is used to determine the veracity of access locations, type of traffic control, and intersection geometry. It also provides several key indicators on arterial traffic flow, level of service, signal coordination, and queuing data.

Synchro v8 is based on procedures and methodologies referenced from the ***Highway Capacity Manual 2010 (HCM).*** It rates intersection operations using a determination of level of service (LOS). LOS is letter rating from A to F. LOS A indicates free-flow traffic conditions and no delay at intersections. LOS F is heavy traffic congestion with significant delay. LOS is provided for the overall operations at signalized intersections. LOS D is generally the benchmark for acceptable signalized intersection operations during the weekday AM/PM peak hours. The critical movement, not the overall, provides the LOS rating for unsignalized intersections, which is generally a left turn out from the minor street. Caution must be used when evaluating the LOS at unsignalized intersections particularly when LOS F is shown. In case of an LOS F, the HCM[1] suggests that other evaluation measures should be considered such as the control delay, volume over capacity ratio, and the 95th percentile queue length to make the most effective traffic control decision. LOS F at unsignalized intersections is normal for the weekday peak hour. The operations analysis data are presented on Synchro graphics in the appendix along with the Synchro worksheet reports.

[1] Highway Capacity Manual 2010 page 19-40

The table below on the next page provides a Level of Service summary of the unsignalized and signalized intersections. If an LOS F appears, the control delay in seconds per vehicle and the 95th percentile queue length is shown as well.

Level of Service Summary

LOS/Control Delay (s)

	Existing		2020		2035	
Intersection	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
SH-7 / Bonanza	C/32.2	C/22.1	E/55.9	C/29.8	D/37.4	C/28.2
Bonanza / South Entrance	n/a	n/a	A/9.9	A/9.8	A/9.9	A/9.8
Bonanza / North Entrance	n/a	n/a	A/9.6	A/9.3	A/9.6	A/9.3
SH-7 / 3/4 Movement	n/a	n/a	E/42.7	C/19.2	E/38.2	C/18.3

The operations analysis demonstrates that acceptable operating conditions in all the AM and PM peak hours are achievable.

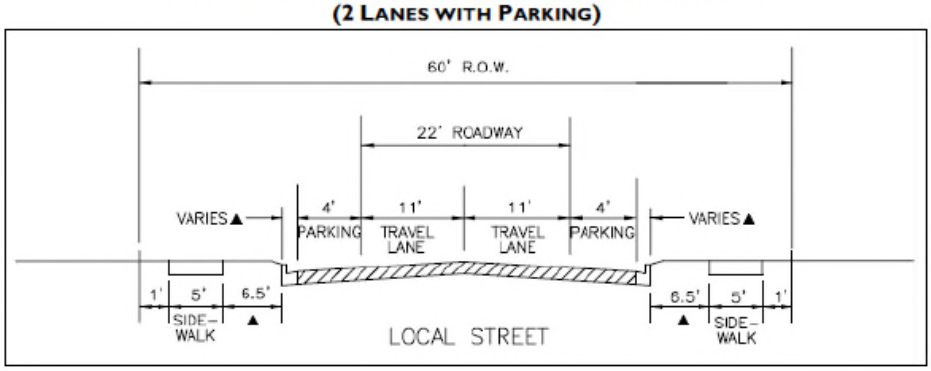
5. ROADWAY DESIGN

The ***Town of Erie Transportation Master Plan*** provides recommended cross-sections for Bonanza Drive and internal streets within Sierra Vista. These recommendations are consistent with the master plan roadway design requirements.

For the internal streets, the local street cross-section as illustrated in the master plan's Figure 21 would serve the streets that have residential driveways fronting the street. This section is specifically designed to provide access to properties.

.

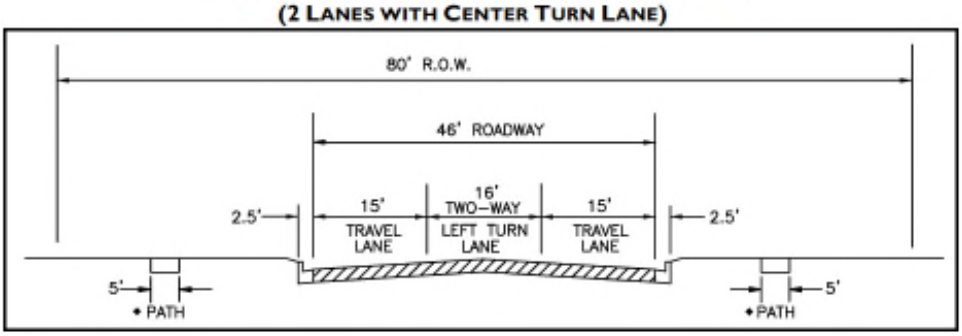
FIGURE 21: STREET DESIGN STANDARD - LOCAL STREETS (2 LANES WITH PARKING)



For the collector type streets, the cross-section in the master plan shown in Figure 17 below would serve as the connector between the arterial and local streets. This type of street is without parking and does not provide direct access to property.

For the collector type streets in the commercial area and the commercial entrance from Bonanza Drive, the cross-section in the master plan shown in Figure 20 on the next page includes a center turn lane for direct access to commercial property. Adjustments to this cross-section can be made to add on street parking where desired. This cross-section would also be appropriate for Bonanza Drive along the property frontage.

FIGURE 20: STREET DESIGN STANDARD - COLLECTOR (2 LANES WITH CENTER TURN LANE)



AUXILIARY LANE DESIGN REQUIREMENTS

SH-7 is categorized as an NR-A and the auxiliary lane design requirements are specified in the State Highway Access Code. Posted at 55 mph the deceleration lane length is 600 feet including an 18.5:1 taper. The left turn lanes require additional length for storage.

No auxiliary lanes are necessary on Bonanza Drive at the North and South Entrances. The two-way left turn is sufficient for the left in movements. The right turn in movement volume is too small to warrant an exclusive lane.

8. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This traffic analysis demonstrates that the traffic generated by Sierra Vista can be accommodated within acceptable operating parameters provided the recommended improvements below are made.

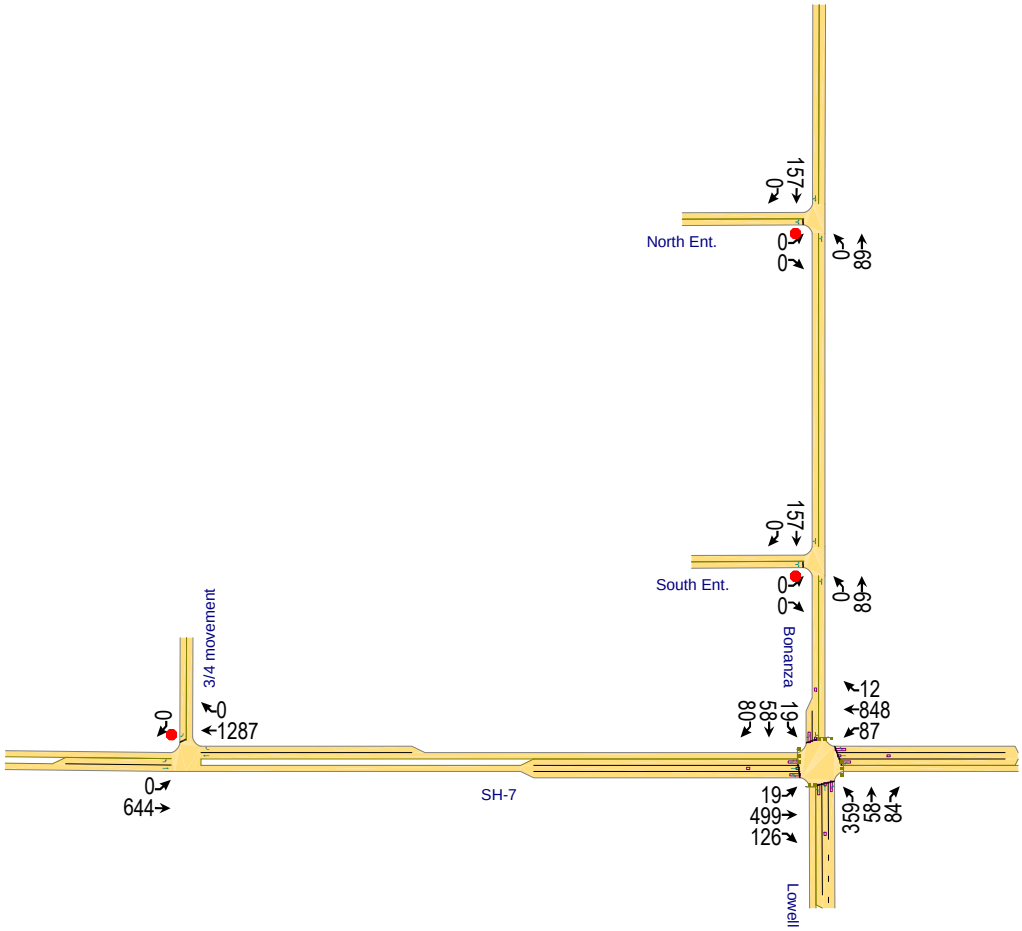
1) No improvements to SH-7 as an NR-A type roadway are necessary within the 5-year design horizon. After that, the roadway will require widening and redesign of the intersection turning lanes.

2) Bonanza Drive should be improved to the collector standard with a two-way center turn lane to up the North Entrance. At the intersection with SH-7, a left turn lane and right turn lane should be included. These can be a minimal 150 feet of storage.

3) The internal streets should be built to the 60 foot local standard.

In conclusion, this report finds that the roadway layout in the site plan and the recommended accesses will operate at an acceptable level of service and that overall traffic flow on the adjacent streets and intersections would be efficiently served by the proposed improvements.

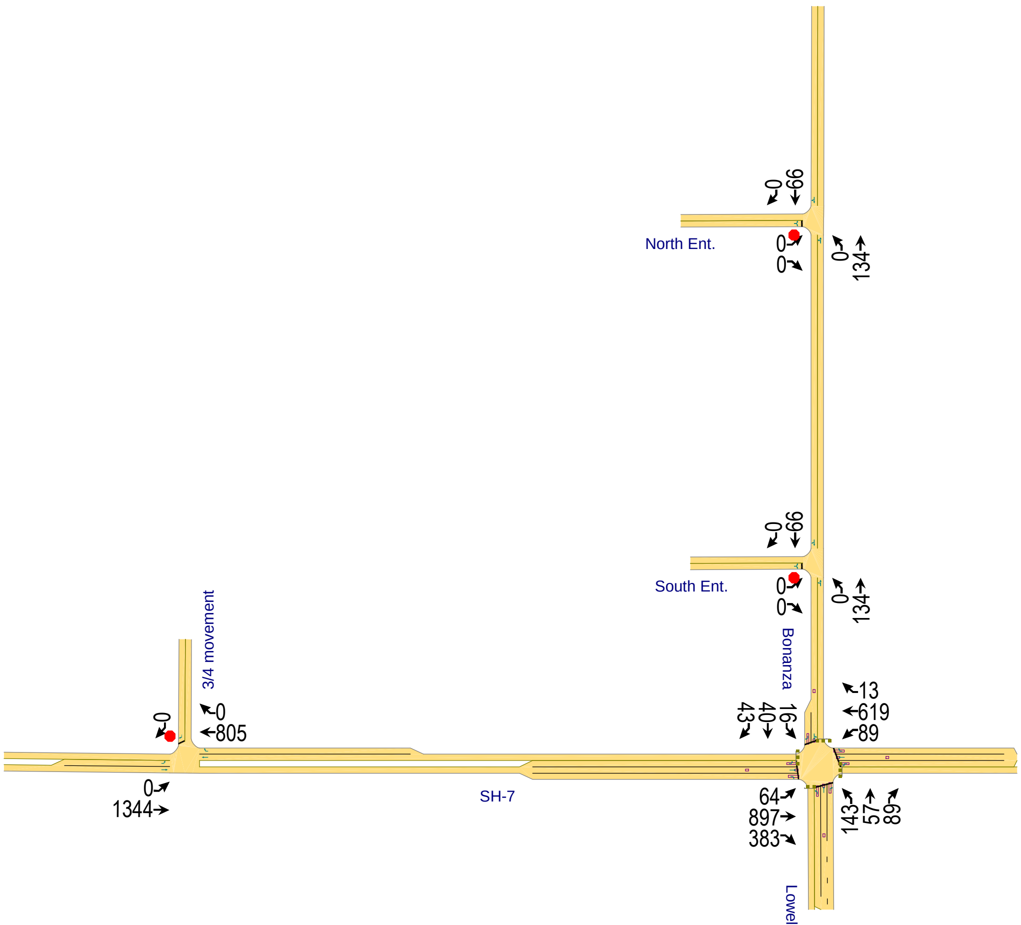
APPENDIX


157
0
0
0
68
0
North Ent.
157
0
0
0
68
0
South Ent.
Bonanza
12
848
87
19
58
80
19
499
126
359
58
84
Lowell
SH-7
0
644
0
1287
0
3/4 movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	499	126	87	848	12	359	58	84	19	58	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	21	542	137	95	922	13	390	63	91	21	63	87
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	958	814	373	1001	851	475	635	539	81	214	235
Arrive On Green	0.02	0.51	0.51	0.04	0.54	0.54	0.16	0.34	0.34	0.15	0.15	0.15
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	279	1439	1583
Grp Volume(v), veh/h	21	542	137	95	922	13	390	63	91	84	0	87
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1718	0	1583
Q Serve(g_s), s	0.6	22.8	5.3	2.8	51.9	0.4	18.0	2.6	4.6	0.0	0.0	5.7
Cycle Q Clear(g_c), s	0.6	22.8	5.3	2.8	51.9	0.4	18.0	2.6	4.6	4.6	0.0	5.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.25		1.00
Lane Grp Cap(c), veh/h	143	958	814	373	1001	851	475	635	539	295	0	235
V/C Ratio(X)	0.15	0.57	0.17	0.25	0.92	0.02	0.82	0.10	0.17	0.29	0.00	0.37
Avail Cap(c_a), veh/h	175	1042	885	379	1058	899	475	635	539	295	0	235
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.7	19.1	14.8	14.4	24.2	12.3	35.2	25.7	26.4	43.5	0.0	43.9
Incr Delay (d2), s/veh	0.5	0.6	0.1	0.4	12.4	0.0	10.9	0.3	0.7	2.4	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	11.9	2.3	1.4	29.8	0.2	4.5	1.4	2.1	2.6	0.0	2.8
LnGrp Delay(d),s/veh	24.2	19.7	14.9	14.8	36.7	12.4	46.1	26.1	27.1	45.9	0.0	48.3
LnGrp LOS	C	B	B	B	D	B	D	C	C	D		D
Approach Vol, veh/h		700			1030			544			171	
Approach Delay, s/veh		18.9			34.3			40.6			47.1	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		43.0	8.6	62.8	22.0	21.0	5.9	65.5
Change Period (Y+Rc), s		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s		39.0	5.0	64.0	18.0	17.0	4.0	65.0
Max Q Clear Time (g_c+I1), s		6.6	4.8	24.8	20.0	7.7	2.6	53.9
Green Ext Time (p_c), s		1.5	0.0	16.3	0.0	0.9	0.0	7.6

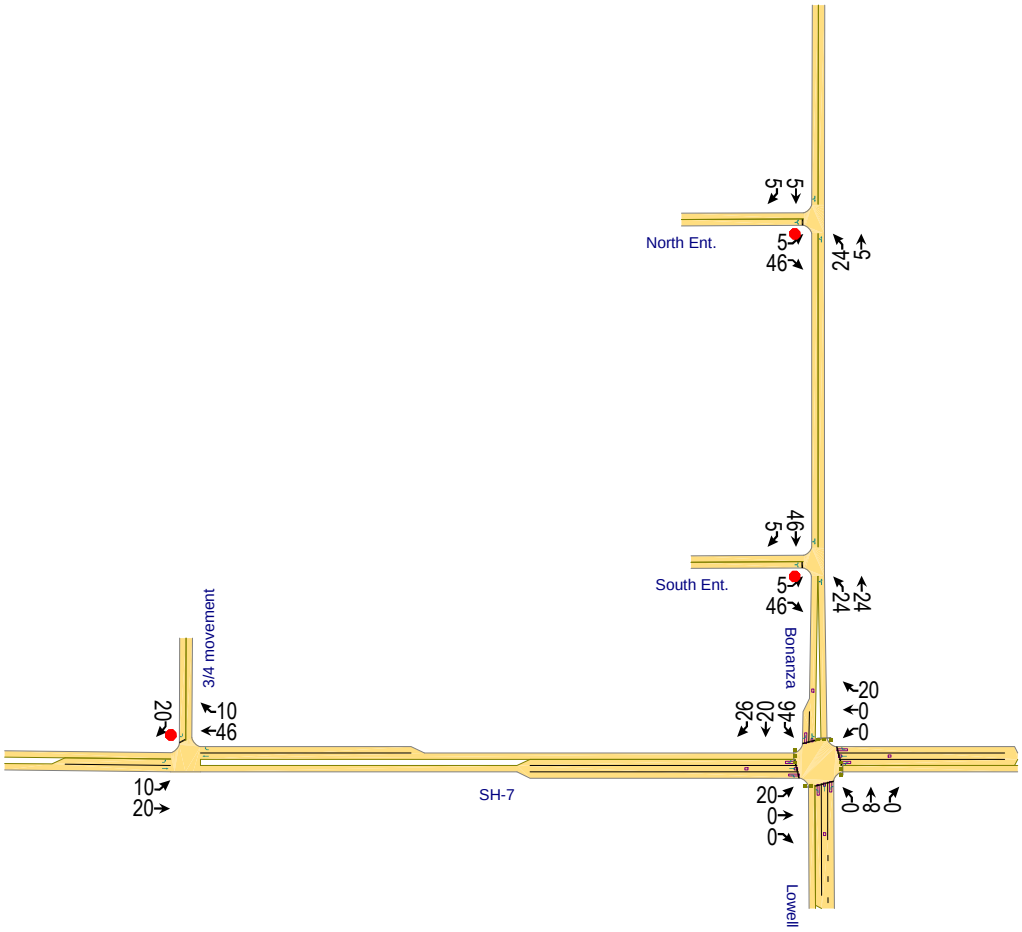
Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

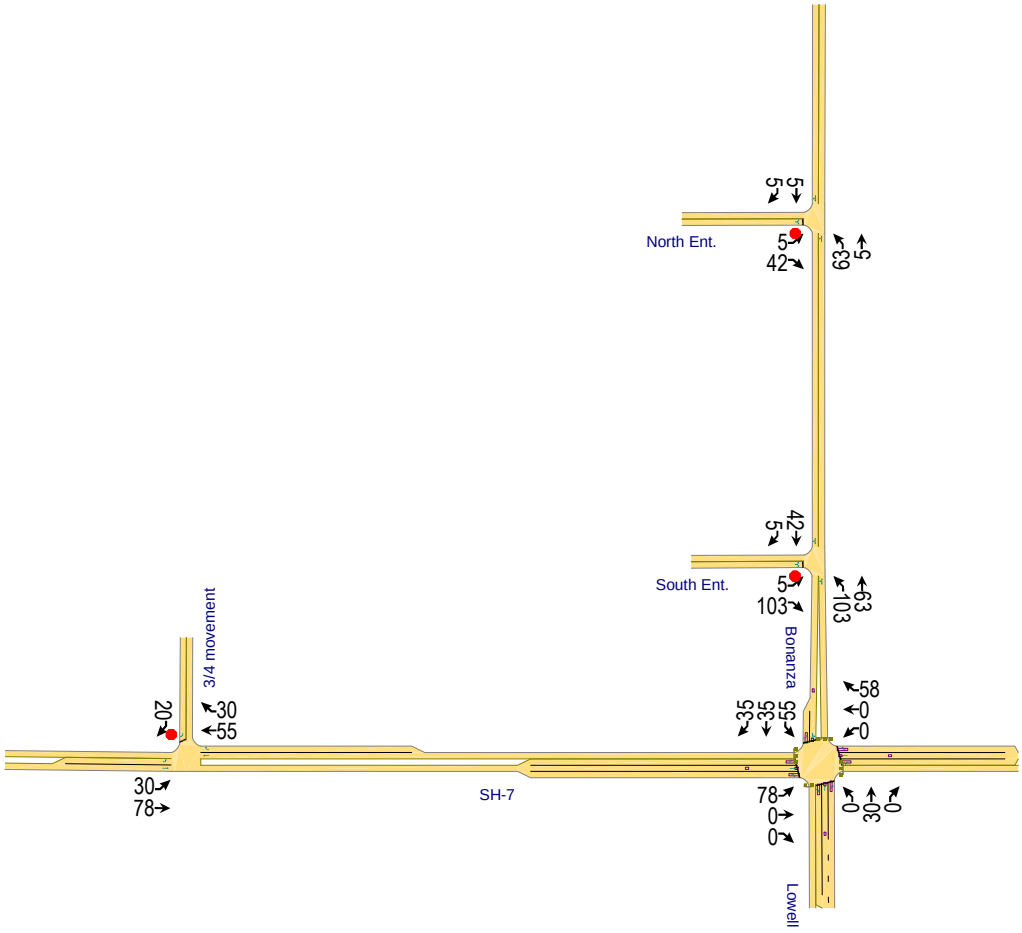

0
99
North Ent.
0
0
0
134
0
99
South Ent.
0
0
0
134
Bonanza
3/4 movement
0
0
805
13
619
89
43
40
16
0
1344
SH-7
64
897
383
143
57
89
Lowell

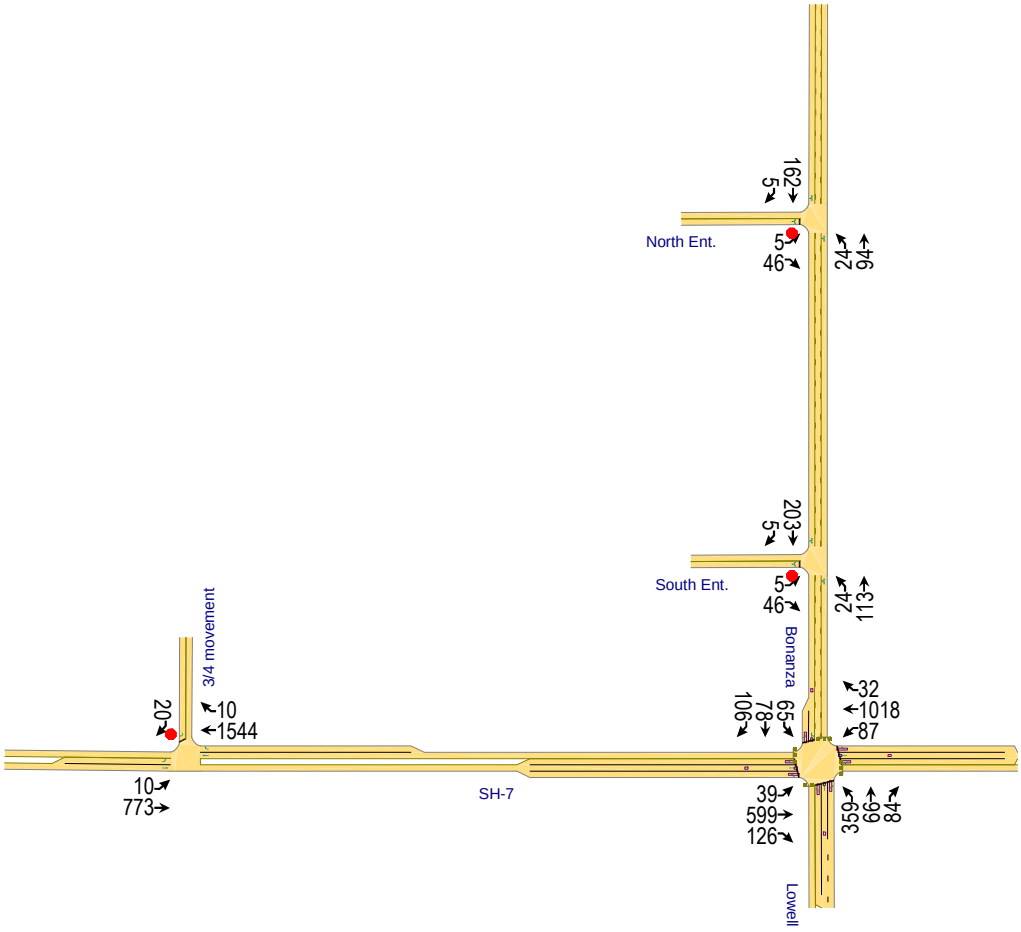
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	897	383	89	619	13	143	57	89	16	40	43
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	70	975	416	97	673	14	155	62	97	17	43	47
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	405	1116	948	189	1123	955	347	481	409	95	216	254
Arrive On Green	0.03	0.60	0.60	0.04	0.60	0.60	0.06	0.26	0.26	0.16	0.16	0.16
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	337	1349	1583
Grp Volume(v), veh/h	70	975	416	97	673	14	155	62	97	60	0	47
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1686	0	1583
Q Serve(g_s), s	1.7	49.4	16.0	2.4	25.2	0.4	7.0	2.9	5.4	0.0	0.0	2.9
Cycle Q Clear(g_c), s	1.7	49.4	16.0	2.4	25.2	0.4	7.0	2.9	5.4	3.1	0.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.28		1.00
Lane Grp Cap(c), veh/h	405	1116	948	189	1123	955	347	481	409	312	0	254
V/C Ratio(X)	0.17	0.87	0.44	0.51	0.60	0.01	0.45	0.13	0.24	0.19	0.00	0.19
Avail Cap(c_a), veh/h	412	1245	1058	189	1245	1058	347	481	409	312	0	254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	18.9	12.2	22.4	13.8	8.9	36.2	31.9	32.9	40.9	0.0	40.8
Incr Delay (d2), s/veh	0.2	6.6	0.3	2.4	0.7	0.0	0.9	0.6	1.4	1.4	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	27.2	7.0	1.9	13.1	0.2	0.9	1.6	2.5	1.7	0.0	1.4
LnGrp Delay(d),s/veh	11.2	25.5	12.6	24.8	14.5	8.9	37.1	32.5	34.2	42.2	0.0	42.4
LnGrp LOS	B	C	B	C	B	A	D	C	C	D		D
Approach Vol, veh/h		1461			784			314			107	
Approach Delay, s/veh		21.2			15.7			35.3			42.3	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		33.0	8.0	71.2	11.0	22.0	7.5	71.7
Change Period (Y+Rc), s		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s		29.0	4.0	75.0	7.0	18.0	4.0	75.0
Max Q Clear Time (g_c+I1), s		7.4	4.4	51.4	9.0	5.1	3.7	27.2
Green Ext Time (p_c), s		1.1	0.0	15.8	0.0	0.9	0.0	23.9

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C


Lowell
0
8
0
20
0
0
Bonanza
94
02
92
20
0
0
24
24
South Ent.
5
46
46
5
North Ent.
5
46
5
24
5
5
5
SH-7
20
10
3/4 movement
46
10
20


5
5
5
42
North Ent.
5
63
42
5
5
103
South Ent.
63
103
Bonanza
58
0
0
35
35
55
30
55
20
3/4 movement
30
78
SH-7
78
0
0
0
30
0
Lowell


162
5
North Ent.
5
46
24
94
203
5
South Ent.
5
46
24
113
Bonanza
3/4 movement
20
10
1544
106
78
65
32
1018
87
10
773
SH-7
39
599
126
359
66
84
Lowell

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	499	126	87	848	32	359	66	84	65	78	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	42	651	137	95	1106	35	390	72	91	71	85	115
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	1024	870	340	1049	891	354	579	492	134	129	226
Arrive On Green	0.03	0.55	0.55	0.04	0.56	0.56	0.13	0.31	0.31	0.14	0.14	0.14
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	629	900	1583
Grp Volume(v), veh/h	42	651	137	95	1106	35	390	72	91	156	0	115
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1530	0	1583
Q Serve(g_s), s	1.2	28.8	5.1	2.8	67.0	1.2	16.0	3.3	5.0	10.1	0.0	8.0
Cycle Q Clear(g_c), s	1.2	28.8	5.1	2.8	67.0	1.2	16.0	3.3	5.0	11.5	0.0	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.46		1.00
Lane Grp Cap(c), veh/h	105	1024	870	340	1049	891	354	579	492	263	0	226
V/C Ratio(X)	0.40	0.64	0.16	0.28	1.05	0.04	1.10	0.12	0.18	0.59	0.00	0.51
Avail Cap(c_a), veh/h	120	1024	870	361	1049	891	354	579	492	263	0	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.0	18.5	13.2	14.7	26.0	11.6	40.9	29.4	30.0	48.5	0.0	47.1
Incr Delay (d2), s/veh	2.4	1.3	0.1	0.4	43.4	0.0	78.3	0.4	0.8	9.5	0.0	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	15.0	2.2	1.4	46.7	0.5	7.7	1.8	2.3	5.6	0.0	4.0
LnGrp Delay(d),s/veh	31.4	19.9	13.3	15.1	69.4	11.6	119.2	29.8	30.8	58.0	0.0	55.1
LnGrp LOS	C	B	B	B	F	B	F	C	C	E		E
Approach Vol, veh/h		830			1236			553			271	
Approach Delay, s/veh		19.4			63.6			93.0			56.8	
Approach LOS		B			E			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		41.0	8.6	69.4	20.0	21.0	7.0	71.0
Change Period (Y+Rc), s		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s		37.0	6.0	65.0	16.0	17.0	4.0	67.0
Max Q Clear Time (g_c+I1), s		7.0	4.8	30.8	18.0	13.5	3.2	69.0
Green Ext Time (p_c), s		2.1	0.0	20.7	0.0	0.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.9
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	644	1287	10	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	400	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	840	1679	11	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1679	0	-	0	2541	1679
Stage 1	-	-	-	-	1679	-
Stage 2	-	-	-	-	862	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	381	-	-	-	30	117
Stage 1	-	-	-	-	166	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	381	-	-	-	29	117
Mov Cap-2 Maneuver	-	-	-	-	29	-
Stage 1	-	-	-	-	166	-
Stage 2	-	-	-	-	402	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	42.7
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	381	-	-	-	117
HCM Lane V/C Ratio	0.029	-	-	-	0.186
HCM Control Delay (s)	14.7	-	-	-	42.7
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	46	24	94	162	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	50	26	102	176	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	333	179	182	0	-	0
Stage 1	179	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	662	864	1393	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	649	864	1393	-	-	-
Mov Cap-2 Maneuver	686	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1393	-	843	-	-
HCM Lane V/C Ratio	0.019	-	0.066	-	-
HCM Control Delay (s)	7.6	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

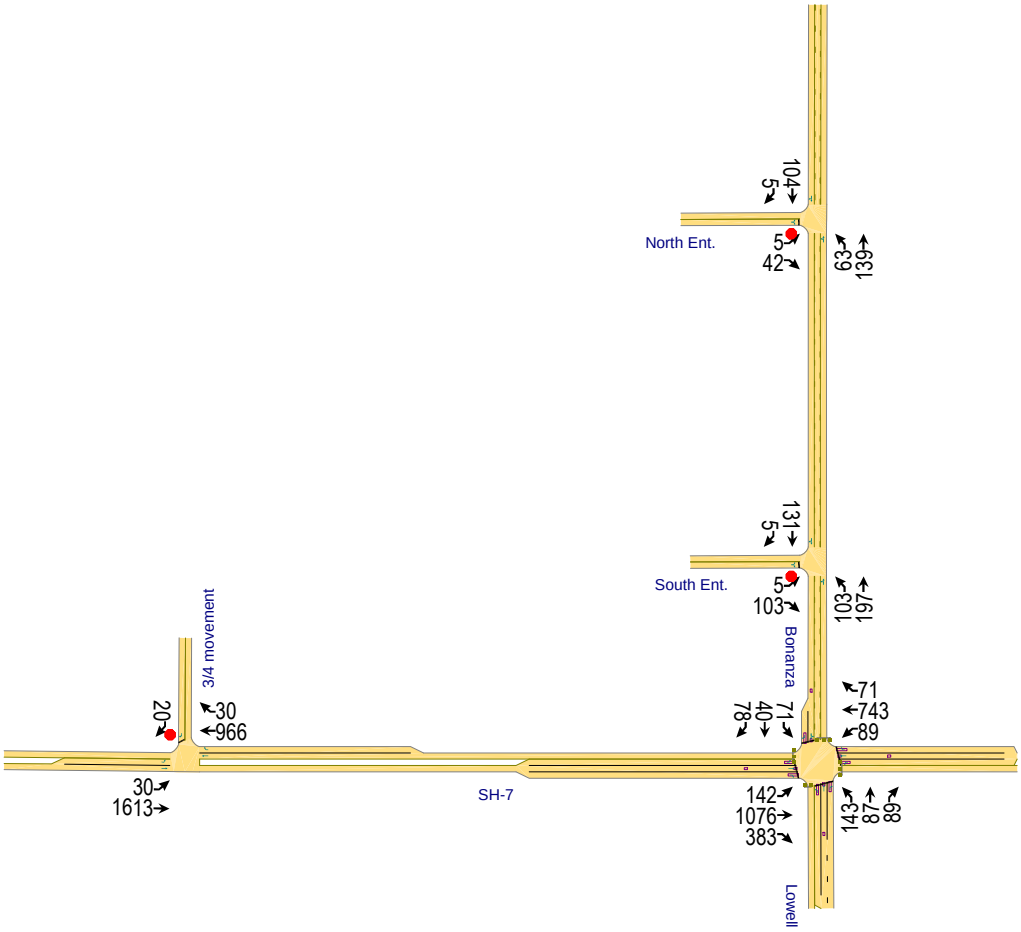
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	46	24	113	203	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	50	26	123	221	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	398	223	226	0	-	0
Stage 1	223	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	607	817	1342	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	594	817	1342	-	-	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1342	-	797	-	-
HCM Lane V/C Ratio	0.019	-	0.07	-	-
HCM Control Delay (s)	7.7	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-


104
5
North Ent.
5
42
63
139
131
5
South Ent.
5
103
103
197
Bonanza
71
743
89
78
40
71
142
1076
383
143
87
89
Lowell
SH-7
30
1613
20
30
966
3/4 movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	142	897	383	89	619	71	143	87	89	71	40	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	154	1170	416	97	807	77	155	95	97	77	43	85
Adj No. of Lanes	1	1	1	1	1	1	1	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1203	1023	136	1177	1000	213	408	347	174	87	240
Arrive On Green	0.05	0.65	0.65	0.03	0.63	0.63	0.03	0.22	0.22	0.15	0.15	0.15
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	1863	1583	821	574	1583
Grp Volume(v), veh/h	154	1170	416	97	807	77	155	95	97	120	0	85
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1583	1395	0	1583
Q Serve(g_s), s	3.6	70.9	15.0	2.3	33.4	2.2	4.0	5.0	6.0	8.1	0.0	5.7
Cycle Q Clear(g_c), s	3.6	70.9	15.0	2.3	33.4	2.2	4.0	5.0	6.0	9.3	0.0	5.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.64		1.00
Lane Grp Cap(c), veh/h	365	1203	1023	136	1177	1000	213	408	347	261	0	240
V/C Ratio(X)	0.42	0.97	0.41	0.71	0.69	0.08	0.73	0.23	0.28	0.46	0.00	0.35
Avail Cap(c_a), veh/h	414	1224	1041	136	1177	1000	213	408	347	261	0	240
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.9	20.0	10.1	30.2	14.2	8.5	48.2	38.1	38.5	46.5	0.0	45.1
Incr Delay (d2), s/veh	0.8	19.2	0.3	16.1	1.7	0.0	11.8	1.3	2.0	5.7	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	42.5	6.5	2.6	17.6	1.0	3.8	2.7	2.8	4.0	0.0	2.8
LnGrp Delay(d),s/veh	13.7	39.2	10.3	46.4	15.9	8.5	60.0	39.5	40.5	52.2	0.0	49.2
LnGrp LOS	B	D	B	D	B	A	E	D	D	D		D
Approach Vol, veh/h		1740			981			347			205	
Approach Delay, s/veh		30.0			18.3			49.0			50.9	
Approach LOS		C			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		30.0	8.0	80.7	8.0	22.0	9.7	79.0
Change Period (Y+Rc), s		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s		26.0	4.0	78.0	4.0	18.0	9.0	73.0
Max Q Clear Time (g_c+I1), s		8.0	4.3	72.9	6.0	11.3	5.6	35.4
Green Ext Time (p_c), s		1.7	0.0	3.7	0.0	1.0	0.1	27.5

Intersection Summary	
HCM 2010 Ctrl Delay	29.8
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	30	1344	805	30	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	400	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	1753	1050	33	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1050	0	-	0	2868	1050
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	1818	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	663	-	-	-	18	276
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	142	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	663	-	-	-	17	276
Mov Cap-2 Maneuver	-	-	-	-	17	-
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	135	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	663	-	-	-	276
HCM Lane V/C Ratio	0.049	-	-	-	0.079
HCM Control Delay (s)	10.7	-	-	-	19.2
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	42	63	139	104	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	46	68	151	113	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	404	116	118	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	603	936	1470	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	573	936	1470	-	-	-
Mov Cap-2 Maneuver	618	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1470	-	887	-	-
HCM Lane V/C Ratio	0.047	-	0.058	-	-
HCM Control Delay (s)	7.6	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

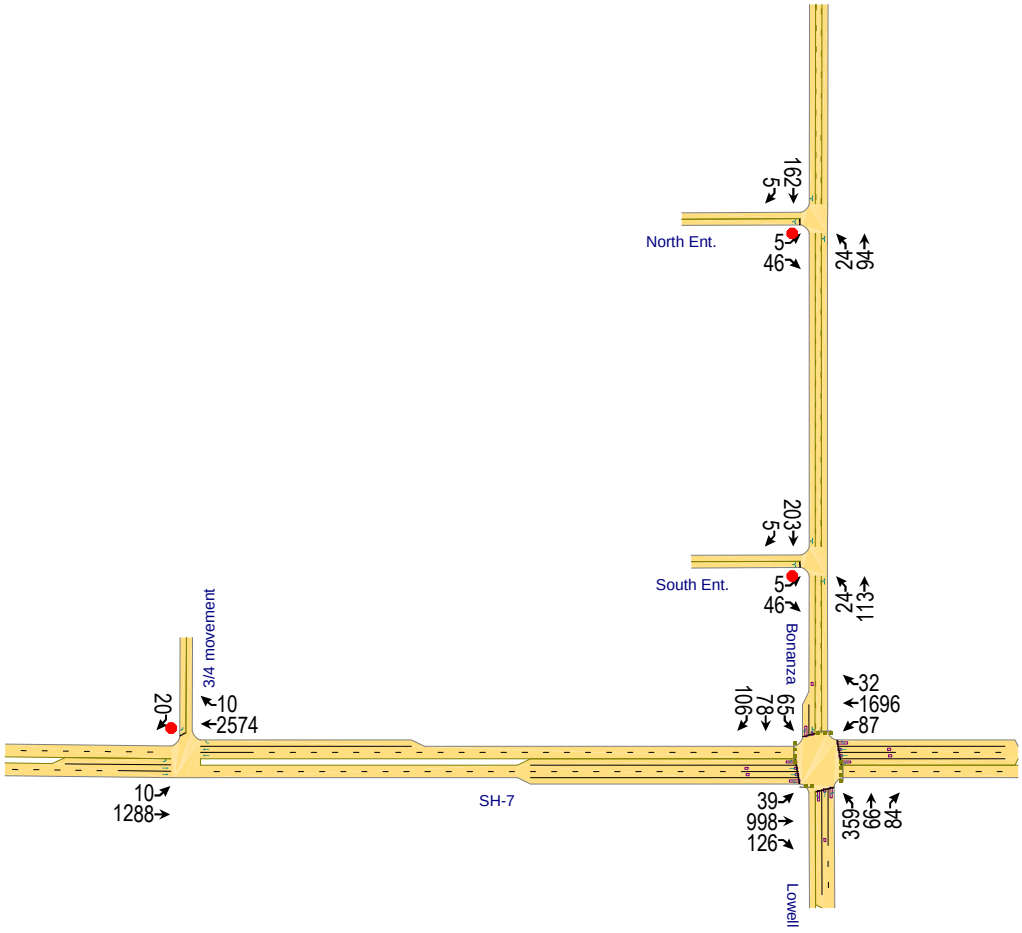
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	103	103	197	131	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	112	112	214	142	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	583	145	148	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	475	902	1434	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	433	902	1434	-	-	-
Mov Cap-2 Maneuver	503	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	593	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1434	-	870	-	-
HCM Lane V/C Ratio	0.078	-	0.135	-	-
HCM Control Delay (s)	7.7	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-


162
5
North Ent.
5
46
24
94
203
5
South Ent.
5
46
24
113
Bonanza
32
1696
87
106
87
65
39
998
126
359
66
84
Lowell
SH-7
10
1288
20
3/4 movement
10
2574

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	39	499	126	87	848	32	359	66	84	65	78	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	42	1085	137	95	1843	35	390	72	91	71	85	115
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	1850	828	273	1902	851	399	627	533	134	129	226
Arrive On Green	0.03	0.52	0.52	0.04	0.54	0.54	0.16	0.34	0.34	0.14	0.14	0.14
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1863	1583	629	901	1583
Grp Volume(v), veh/h	42	1085	137	95	1843	35	390	72	91	156	0	115
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1863	1583	1530	0	1583
Q Serve(g_s), s	1.3	25.1	5.4	2.9	59.8	1.2	19.0	3.2	4.8	10.1	0.0	8.0
Cycle Q Clear(g_c), s	1.3	25.1	5.4	2.9	59.8	1.2	19.0	3.2	4.8	11.5	0.0	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.46		1.00
Lane Grp Cap(c), veh/h	114	1850	828	273	1902	851	399	627	533	263	0	226
V/C Ratio(X)	0.37	0.59	0.17	0.35	0.97	0.04	0.98	0.11	0.17	0.59	0.00	0.51
Avail Cap(c_a), veh/h	129	1850	828	292	1905	852	399	627	533	263	0	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.3	19.5	14.8	15.4	26.5	13.0	38.3	27.2	27.8	48.4	0.0	47.1
Incr Delay (d2), s/veh	2.0	0.5	0.1	0.8	14.0	0.0	38.9	0.4	0.7	9.5	0.0	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	12.3	2.4	1.5	32.6	0.5	7.8	1.7	2.2	5.6	0.0	4.0
LnGrp Delay(d),s/veh	30.3	20.0	14.9	16.1	40.6	13.0	77.3	27.6	28.5	57.9	0.0	55.0
LnGrp LOS	C	C	B	B	D	B	E	C	C	E		D
Approach Vol, veh/h		1264			1973			553			271	
Approach Delay, s/veh		19.8			38.9			62.8			56.7	
Approach LOS		B			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		44.0	8.7	66.1	23.0	21.0	7.0	67.9
Change Period (Y+Rc), s		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s		40.0	6.0	62.0	19.0	17.0	4.0	64.0
Max Q Clear Time (g_c+I1), s		6.8	4.9	27.1	21.0	13.5	3.3	61.8
Green Ext Time (p_c), s		2.1	0.0	30.5	0.0	0.7	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	10	644	1287	10	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	400	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1400	2798	11	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2798	0	-	0	3520	1399
Stage 1	-	-	-	-	2798	-
Stage 2	-	-	-	-	722	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	136	-	-	-	5	130
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	442	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	136	-	-	-	5	130
Mov Cap-2 Maneuver	-	-	-	-	5	-
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	406	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	38.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	136	-	-	-	130
HCM Lane V/C Ratio	0.08	-	-	-	0.167
HCM Control Delay (s)	33.8	-	-	-	38.2
HCM Lane LOS	D	-	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	46	24	94	162	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	50	26	102	176	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	333	179	182	0	-	0
Stage 1	179	-	-	-	-	-
Stage 2	154	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	662	864	1393	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	649	864	1393	-	-	-
Mov Cap-2 Maneuver	686	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1393	-	843	-	-
HCM Lane V/C Ratio	0.019	-	0.066	-	-
HCM Control Delay (s)	7.6	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

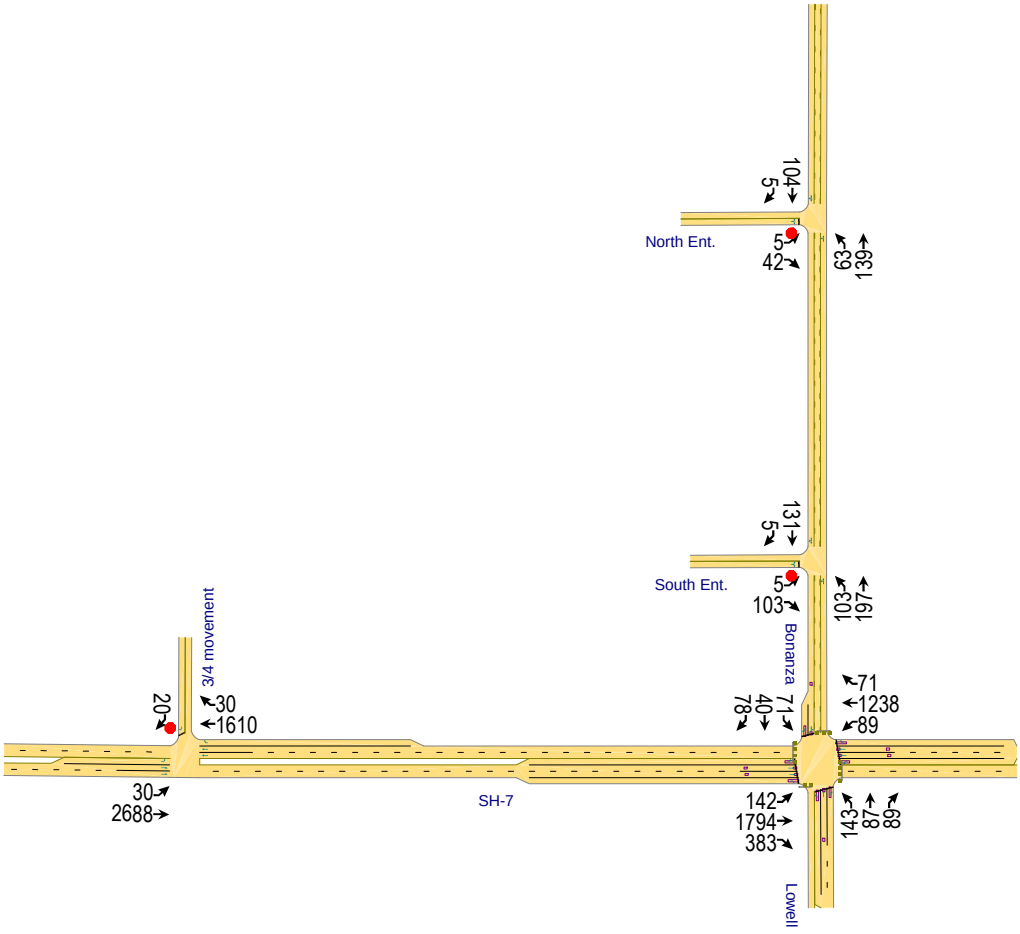
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	46	24	113	203	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	50	26	123	221	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	398	223	226	0	-	0
Stage 1	223	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	607	817	1342	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	594	817	1342	-	-	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1342	-	797	-	-
HCM Lane V/C Ratio	0.019	-	0.07	-	-
HCM Control Delay (s)	7.7	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-


104
5
North Ent.
5
42
63
139
131
5
South Ent.
5
103
103
197
Bonanza
71
1238
89
78
40
71
20
30
1610
3/4 movement
30
2688
SH-7
142
1794
383
143
87
89
Lowell

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	142	897	383	89	619	71	143	87	89	71	40	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	154	1950	416	97	1346	77	155	95	97	77	43	85
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	0	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	2043	914	136	2028	907	324	530	451	185	93	260
Arrive On Green	0.04	0.58	0.58	0.04	0.57	0.57	0.09	0.28	0.28	0.16	0.16	0.16
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	1863	1583	825	567	1583
Grp Volume(v), veh/h	154	1950	416	97	1346	77	155	95	97	120	0	85
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1863	1583	1392	0	1583
Q Serve(g_s), s	4.4	62.0	18.0	2.7	31.3	2.6	8.4	4.6	5.6	8.1	0.0	5.7
Cycle Q Clear(g_c), s	4.4	62.0	18.0	2.7	31.3	2.6	8.4	4.6	5.6	9.2	0.0	5.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.64		1.00
Lane Grp Cap(c), veh/h	251	2043	914	136	2028	907	324	530	451	278	0	260
V/C Ratio(X)	0.61	0.95	0.46	0.71	0.66	0.08	0.48	0.18	0.22	0.43	0.00	0.33
Avail Cap(c_a), veh/h	251	2045	915	143	2045	915	363	530	451	278	0	260
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	23.8	14.5	28.9	17.6	11.4	35.7	32.2	32.6	45.4	0.0	44.1
Incr Delay (d2), s/veh	4.4	11.1	0.4	14.6	0.8	0.0	1.1	0.7	1.1	4.8	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	33.2	7.9	2.4	15.4	1.1	4.2	2.5	2.6	4.0	0.0	2.7
LnGrp Delay(d),s/veh	21.0	34.9	14.8	43.5	18.4	11.5	36.8	32.9	33.6	50.3	0.0	47.4
LnGrp LOS	C	C	B	D	B	B	D	C	C	D		D
Approach Vol, veh/h		2520			1520			347			205	
Approach Delay, s/veh		30.7			19.6			34.8			49.1	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		38.0	8.5	72.9	14.4	23.6	9.0	72.4
Change Period (Y+Rc), s		4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s		34.0	5.0	69.0	13.0	17.0	5.0	69.0
Max Q Clear Time (g_c+I1), s		7.6	4.7	64.0	10.4	11.2	6.4	33.3
Green Ext Time (p_c), s		1.9	0.0	5.0	0.1	0.9	0.0	33.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	30	1344	805	30	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	400	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	2922	1750	33	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1750	0	-	0	3276	875
Stage 1	-	-	-	-	1750	-
Stage 2	-	-	-	-	1526	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	354	-	-	-	7	292
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	166	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	354	-	-	-	6	292
Mov Cap-2 Maneuver	-	-	-	-	6	-
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	151	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	354	-	-	-	292
HCM Lane V/C Ratio	0.092	-	-	-	0.074
HCM Control Delay (s)	16.2	-	-	-	18.3
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	42	63	139	104	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	46	68	151	113	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	404	116	118	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	603	936	1470	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	573	936	1470	-	-	-
Mov Cap-2 Maneuver	618	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1470	-	887	-	-
HCM Lane V/C Ratio	0.047	-	0.058	-	-
HCM Control Delay (s)	7.6	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	5	103	103	197	131	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	112	112	214	142	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	583	145	148	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	475	902	1434	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	433	902	1434	-	-	-
Mov Cap-2 Maneuver	503	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	593	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	2.7	0
HCM LOS	A		

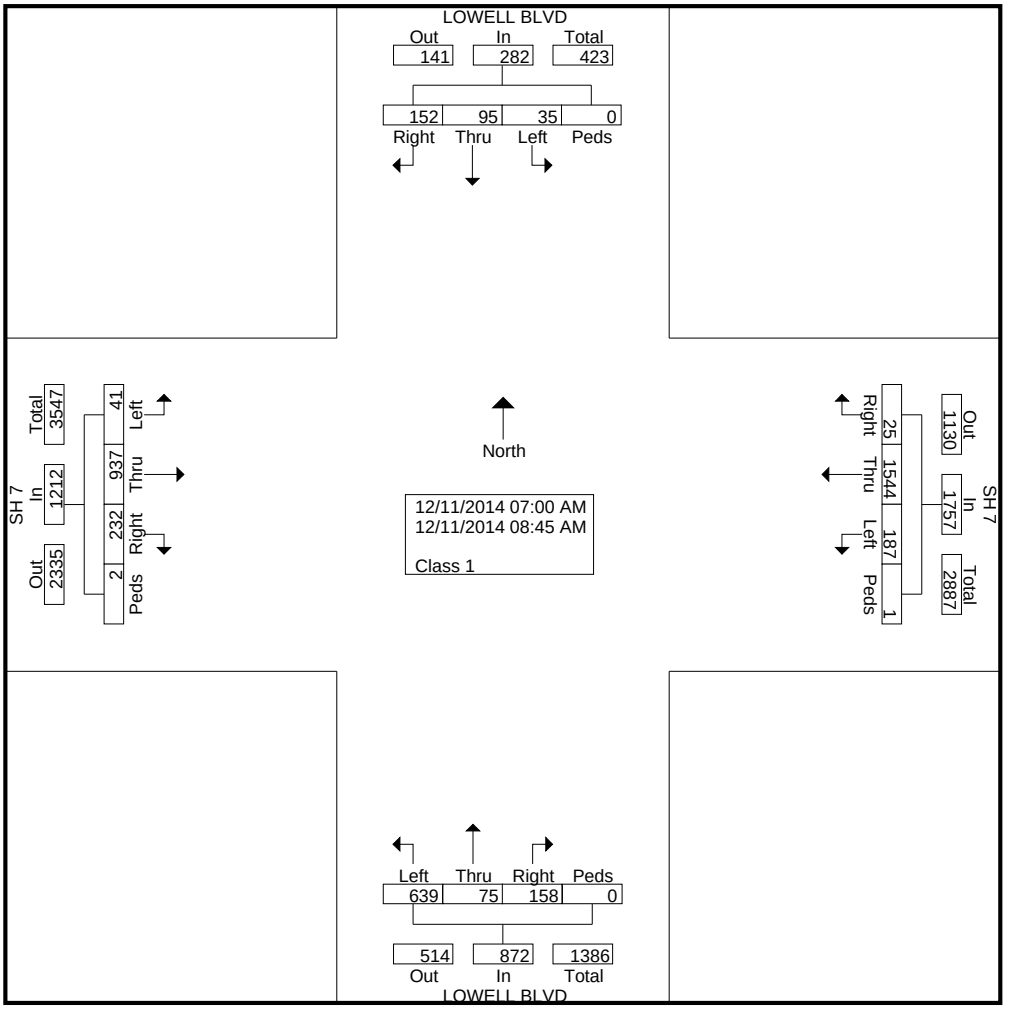
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1434	-	870	-	-
HCM Lane V/C Ratio	0.078	-	0.135	-	-
HCM Control Delay (s)	7.7	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-

All Traffic Data Services,Inc.
9660 W 44th Ave
Wheat Ridge,CO 80033
www.alltrafficdata.net

File Name : #1 LOWELL&SH7AM
Site Code : 00000000
Start Date : 12/11/2014
Page No : 1

Groups Printed- Class 1

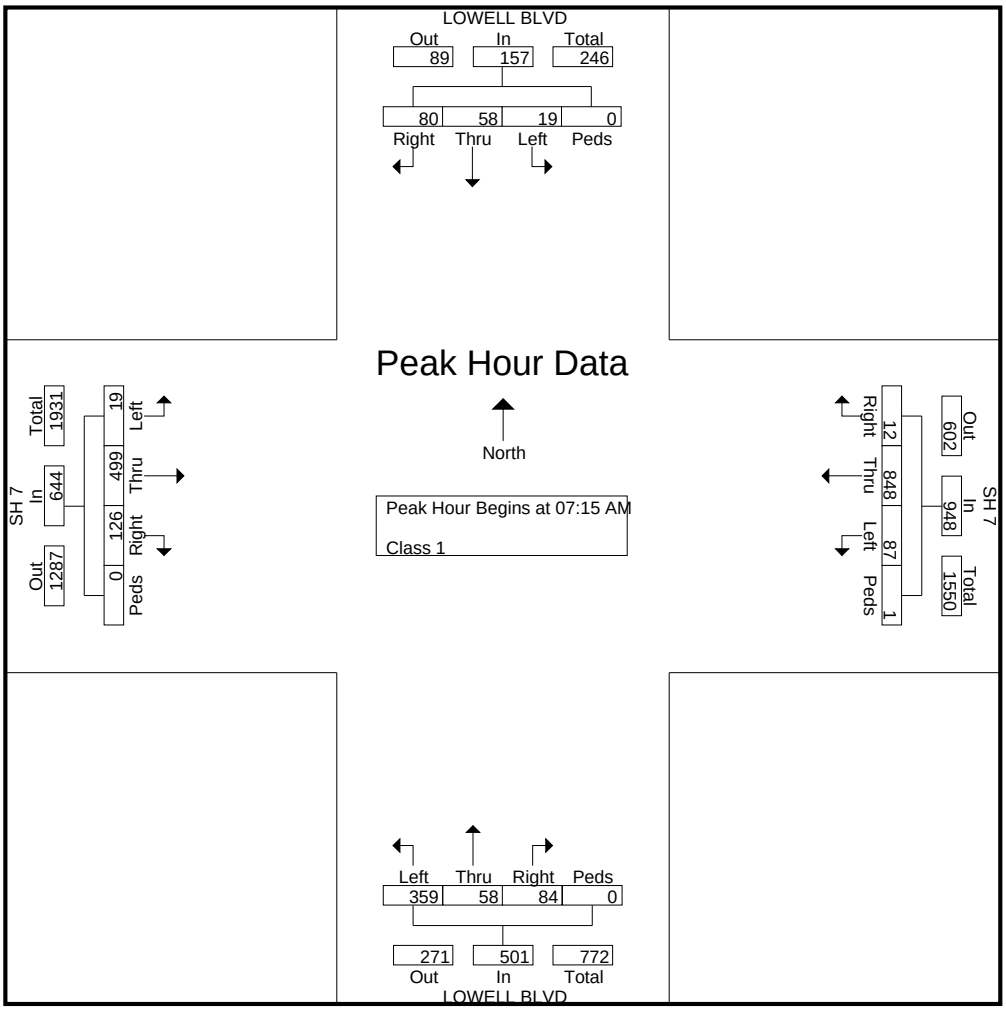
	LOWELL BLVD Southbound				SH 7 Westbound				LOWELL BLVD Northbound				SH 7 Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
07:00 AM	26	18	3	0	0	206	25	0	22	6	72	0	13	107	5	0	503
07:15 AM	21	17	4	0	0	220	19	0	17	11	92	0	19	111	2	0	533
07:30 AM	34	20	6	0	3	213	22	0	20	22	90	0	39	124	7	0	600
07:45 AM	12	8	2	0	2	207	21	0	28	19	88	0	39	135	2	0	563
Total	93	63	15	0	5	846	87	0	87	58	342	0	110	477	16	0	2199
08:00 AM	13	13	7	0	7	208	25	1	19	6	89	0	29	129	8	0	554
08:15 AM	19	4	2	0	1	160	25	0	18	4	80	0	23	115	6	0	457
08:30 AM	20	7	4	0	8	193	26	0	16	4	78	0	39	103	4	1	503
08:45 AM	7	8	7	0	4	137	24	0	18	3	50	0	31	113	7	1	410
Total	59	32	20	0	20	698	100	1	71	17	297	0	122	460	25	2	1924
Grand Total	152	95	35	0	25	1544	187	1	158	75	639	0	232	937	41	2	4123
Apprch %	53.9	33.7	12.4	0	1.4	87.9	10.6	0.1	18.1	8.6	73.3	0	19.1	77.3	3.4	0.2	
Total %	3.7	2.3	0.8	0	0.6	37.4	4.5	0	3.8	1.8	15.5	0	5.6	22.7	1	0	



All Traffic Data Services,Inc.
9660 W 44th Ave
Wheat Ridge,CO 80033
www.alltrafficdata.net

File Name : #1 LOWELL&SH7AM
Site Code : 00000000
Start Date : 12/11/2014
Page No : 2

	LOWELL BLVD Southbound					SH 7 Westbound					LOWELL BLVD Northbound					SH 7 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	21	17	4	0	42	0	220	19	0	239	17	11	92	0	120	19	111	2	0	132	533
07:30 AM	34	20	6	0	60	3	213	22	0	238	20	22	90	0	132	39	124	7	0	170	600
07:45 AM	12	8	2	0	22	2	207	21	0	230	28	19	88	0	135	39	135	2	0	176	563
08:00 AM	13	13	7	0	33	7	208	25	1	241	19	6	89	0	114	29	129	8	0	166	554
Total Volume	80	58	19	0	157	12	848	87	1	948	84	58	359	0	501	126	499	19	0	644	2250
% App. Total	51	36.9	12.1	0		1.3	89.5	9.2	0.1		16.8	11.6	71.7	0		19.6	77.5	3	0		
PHF	.588	.725	.679	.000	.654	.429	.964	.870	.250	.983	.750	.659	.976	.000	.928	.808	.924	.594	.000	.915	.938

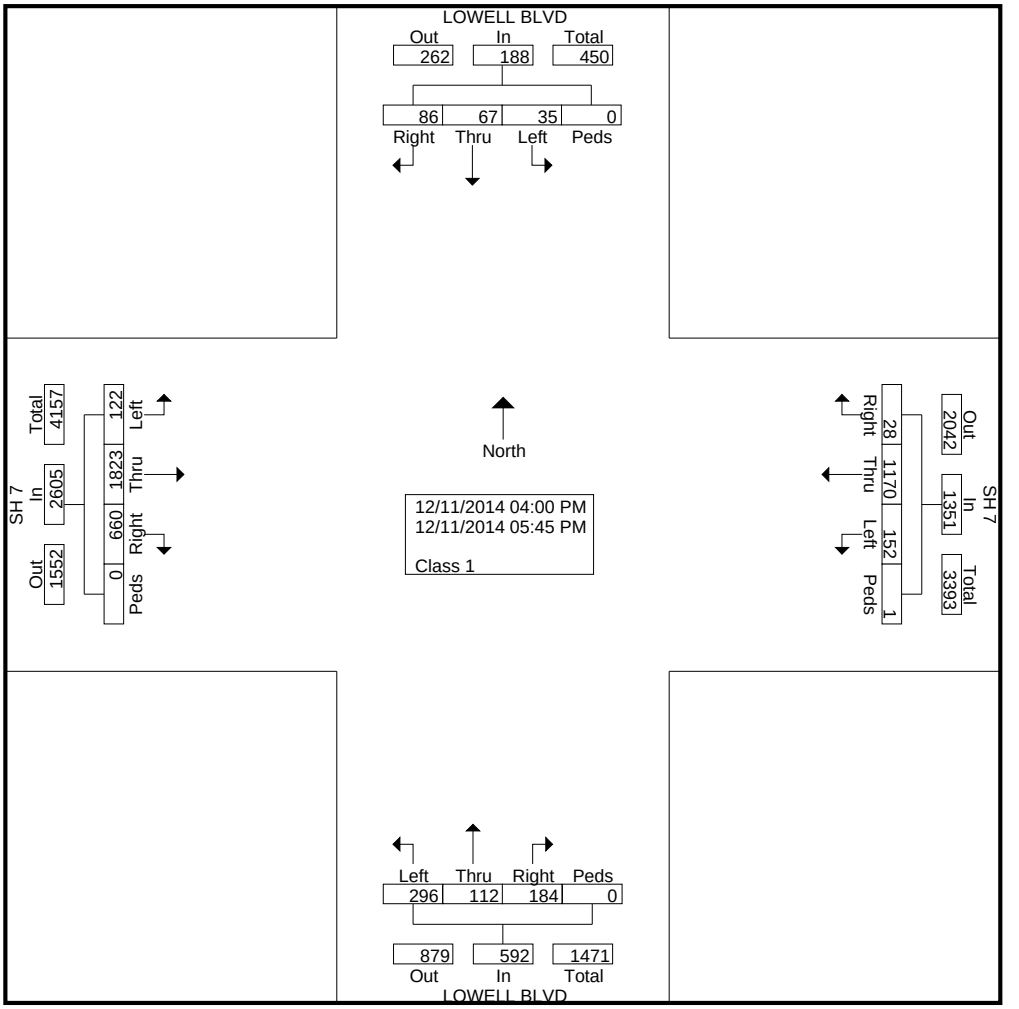


All Traffic Data Services,Inc.
9660 W 44th Ave
Wheat Ridge,CO 80033
www.alltrafficdata.net

File Name : #1 LOWELL&SH7PM
Site Code : 00000000
Start Date : 12/11/2014
Page No : 1

Groups Printed- Class 1

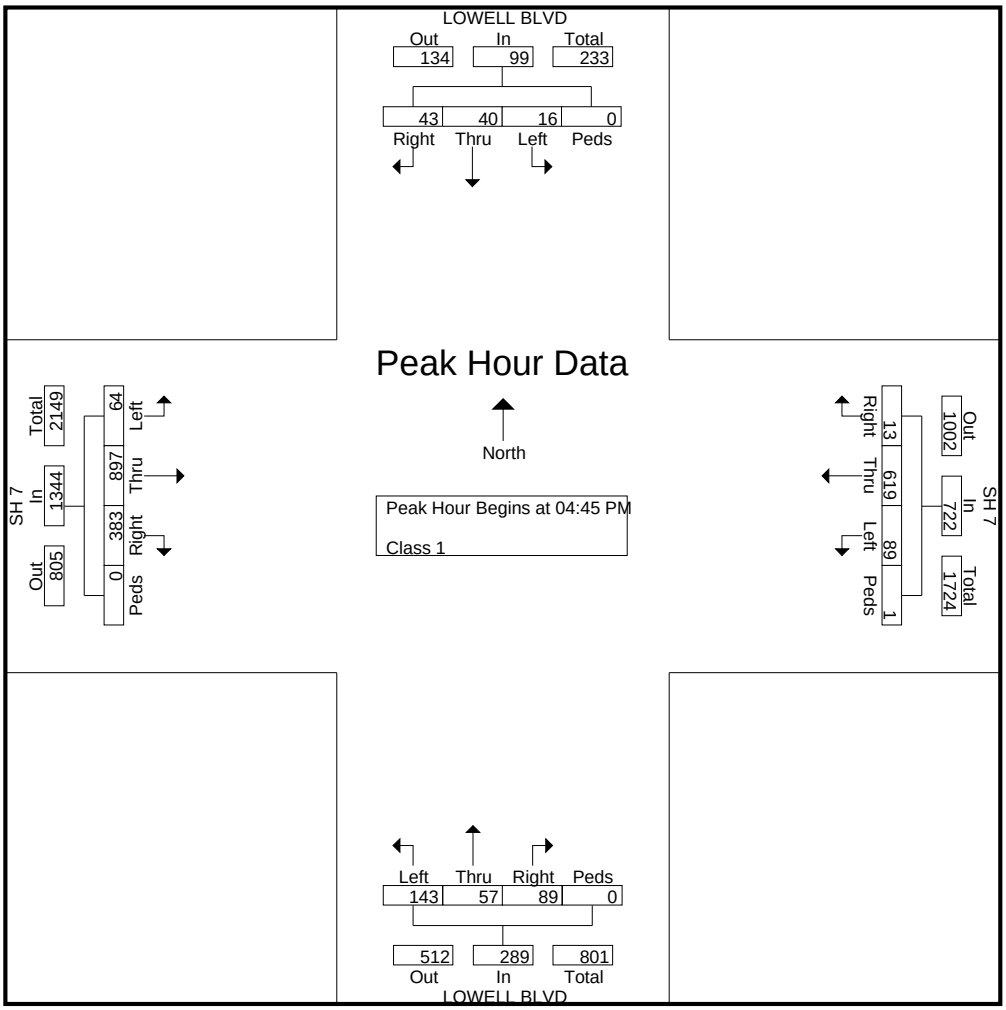
	LOWELL BLVD Southbound				SH 7 Westbound				LOWELL BLVD Northbound				SH 7 Eastbound				
Start Time	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Right**	**Thru**	**Left**	**Peds**	**Int. Total**
04:00 PM	9	7	7	0	4	166	13	0	23	11	36	0	59	211	13	0	559
04:15 PM	16	6	1	0	1	148	18	0	20	12	49	0	76	244	19	0	610
04:30 PM	10	2	5	0	6	107	20	0	33	16	34	0	74	241	11	0	559
04:45 PM	13	7	6	0	4	149	23	0	28	15	28	0	97	238	16	0	624
Total	48	22	19	0	15	570	74	0	104	54	147	0	306	934	59	0	2352
05:00 PM	11	12	3	0	1	138	15	1	26	10	29	0	92	227	16	0	581
05:15 PM	9	16	1	0	5	164	27	0	22	14	44	0	84	230	15	0	631
05:30 PM	10	5	6	0	3	168	24	0	13	18	42	0	110	202	17	0	618
05:45 PM	8	12	6	0	4	130	12	0	19	16	34	0	68	230	15	0	554
Total	38	45	16	0	13	600	78	1	80	58	149	0	354	889	63	0	2384
Grand Total	86	67	35	0	28	1170	152	1	184	112	296	0	660	1823	122	0	4736
Apprch %	45.7	35.6	18.6	0	2.1	86.6	11.3	0.1	31.1	18.9	50	0	25.3	70	4.7	0	
Total %	1.8	1.4	0.7	0	0.6	24.7	3.2	0	3.9	2.4	6.2	0	13.9	38.5	2.6	0	



All Traffic Data Services,Inc.
9660 W 44th Ave
Wheat Ridge,CO 80033
www.alltrafficdata.net

File Name : #1 LOWELL&SH7PM
Site Code : 00000000
Start Date : 12/11/2014
Page No : 2

	LOWELL BLVD Southbound					SH 7 Westbound					LOWELL BLVD Northbound					SH 7 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	7	6	0	26	4	149	23	0	176	28	15	28	0	71	97	238	16	0	351	624
05:00 PM	11	12	3	0	26	1	138	15	1	155	26	10	29	0	65	92	227	16	0	335	581
05:15 PM	9	16	1	0	26	5	164	27	0	196	22	14	44	0	80	84	230	15	0	329	631
05:30 PM	10	5	6	0	21	3	168	24	0	195	13	18	42	0	73	110	202	17	0	329	618
Total Volume	43	40	16	0	99	13	619	89	1	722	89	57	143	0	289	383	897	64	0	1344	2454
% App. Total	43.4	40.4	16.2	0		1.8	85.7	12.3	0.1		30.8	19.7	49.5	0		28.5	66.7	4.8	0		
PHF	.827	.625	.667	.000	.952	.650	.921	.824	.250	.921	.795	.792	.813	.000	.903	.870	.942	.941	.000	.957	.972



SIERRA VISTA

PRELIMINARY UTILITY REPORT

SEPTEMBER 2015

For:

HI H A A D O A A, C
0 A T A T R P AC , IT 110
OOD, CO 0112

ENGINEER'S STATEMENT

I hereby state that this Master Utility Study was prepared by me or under my direct supervision in general accordance to the *Town of Erie Standards and Specifications* for and on behalf of Calibre Engineering, Inc.

_____

Todd A. Johnson
Registered Professional Engineer
State of Colorado No. 37660

TABLE OF CONTENTS

1.0. GENERAL LOCATION AND DESCRIPTION 1

2.0. WATER DEMAND 2

3.0. WATER ANALYSIS METHODOLOGY AND CRITERIA 3

4.0. SANITARY SEWAGE GENERATION 4

5.0. SANITARY SEWAGE CALCULATION METHODOLOGY AND CRITERIA 5

6.0. CONCLUSIONS 6

7.0. REFERENCES 7

APPENDIX

SCOPE AND PURPOSE

The purpose of this study is to determine and analyze the water demands and sanitary sewer generations associated with the development of the Sierra Vista property. A water model is provided in this report for the proposed water system of the development. Pipe capacities for the sanitary sewer system are included in this study.

1.0 GENERAL LOCATION AND DESCRIPTION

1.1 Location

- The project is located as follows:
  - Within the south half of the southeast quarter of Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian.
  - Within the Town of Erie and County of Weld, State of Colorado.
  - The Sierra Vista site is north of State Highway No. 7 (E. Baseline Road) and west of County Road No. 3 (Bonanza Drive).
  - The site is bound on the west and northwest by the Erie Municipal Airport, the south by State Highway No. 7, the east by County Road No. 3 (Bonanza Drive), and the north by rural residential homes.

1.2 Description Of Property

- Sierra Vista is approximately 60.5 acres in size.
- The development will consist of single family and commercial uses.
- The site is split by a ridge running east to west with slopes ranging from approximately 7-12%.
- There are no known delineated wetlands onsite.
- The site is currently undeveloped land with native grasses. According to the Natural Resources Conservation Service Web Soil Survey for Weld County, the site is primarily Hydrologic Soil Group D as Midway-Shingle complex, and some Group C soils as Ulm clay loam.

1.3 Existing Utilities

- An existing 14” ABS waterline runs along the northern boundary of the site by the existing rural residential lots within a 30’ easement. The Sierra Vista property will connect to this line to complete necessary loops within the proposed water system.
- An existing 8” waterline stub from the recently developed Kum & Go east of Bonanza Drive.

- An existing 8” waterline stub located within a cul-de-sac on Piper Drive located near the northwest corner of the property approximately 500’ west of the Erie Municipal Airport Runway-33.
- A proposed 8” sanitary sewer main, South Coal Creek Extension, will be built under the existing Aviation Easement and stub outside of the northwest boundary of the site.
- An existing overhead electric line runs along the southern boundary of the site, north of State Highway No. 7, and heads north along the east side of Bonanza Drive.

1.4 Proposed Development

The following are characteristics of the proposed development. Please see the attached exhibits for a map of the proposed development.

- Current land uses for the site include single family detached residences, commercial use, and open spaces and parks.
- By the *Town of Erie Water Master Plan 2013*, 8” and 12” water lines will be used throughout the site.
- The proposed water system will connect to an existing 14” water main in one location, an existing 12” water main in one location, and an existing 8” water main in two locations in order to complete necessary loops within the property, as recommended by the *Master Plan*. The proposed water system will also connect to an existing 8” stub from Kum & Go east of Bonanza Drive.
- 8” sanitary sewer lines will be used throughout the site.
- The proposed sanitary lines will outfall to the proposed 8” South Coal Creek Extension sanitary sewer line west of the Sierra Vista property, which will be used to service the development.
- Sanitary sewer line will extend to the existing Vista Ridge stub east of the site. See Section 5.2 for allowable flow that Vista Ridge will have capacity to outfall.

2.0 WATER DEMAND

2.1 Description of Water Mains Serving the Area

The following characteristics describe the water system serving the Sierra Vista development:

- Water to the development will be supplied within Zone 3 and Zone 4B.
- One connection will be made along the existing 14" waterline, which runs along the north boundary of the site, in order to complete necessary loops in the proposed water system.
- System demands were calculated using the Town of Erie's *Standards and Specifications for Design and Construction of Public Improvements.*
- The Town of Erie Water Master Plan 2013 was used in providing hydraulic grade lines and overflow elevation for the Vista Ridge Zone 3 Tank and master layout concepts.
- The Zone 3 HGL for the tank will be 5,313 ft.
- The Zone 4B HGL for the pump station will be 5,420 ft.

3.0 WATER ANALYSIS METHODOLOGY AND CRITERIA

3.1 Criteria and Constraints

- The final network analysis shall be based on the following criteria:
  - Maximum static head of **125 psi** and minimum static head of **43 psi**.
  - Minimum **40 psi** residential residual peak flow.
  - Minimum **20 psi** residual pressure during fire flow.
  - Maximum pressure drop from static head to either fire flow or peak residential flow shall not exceed **30 psi**.
  - Pipe velocities should not exceed **10 fps**.
- Residential Assumptions
  - 140 gal/capita/day
  - 2.79 person/unit
  - Max Day factor: 2.60
  - Max Hour factor: 3.90
- Commercial Assumptions:
  - 1651 gal/day/acre
  - 6 acres
  - Max Day factor: 2.00
  - Max Hour factor: 3.0
- Fire flows, per Mountain View Fire Protection Department:
  - 1,000 GPM maximum for 1 and 2 family units
  - 2,500 GPM for commercial development

- The Hazen Williams formula shall be used for calculating pipe head losses.
- Pipe friction coefficients: 100 for all 8”-12” PVC pipes.
- See the exhibit in the Appendix for the proposed water system layout.

3.2 Results of Calculations

- The model was run to confirm that two pressure zone connections, Zone 3 and Zone 4B, are necessary to meet fire flow requirements for the development. Pressures above 40 psi can be reached with tie-ins to Zone 3 exclusively, while Zone 4B is needed to gain adequate pressures during fire flow analysis for the commercial development.
- Five scenarios were modeled including: Average Day, Max Day, Max Day plus Fire Flow, Max Hour, and Max Hour plus Fire Flow.
  - The Average Day scenario also results in pressures between 52 and 86 psi.
  - Under Max Day conditions (no fire flow) the system pressures range between 51 and 86 psi. System pressures range between 51 and 85 psi under Max Hour conditions (no fire flow).
  - The Max Day plus Fire Flow scenario was modeled and results show pressures above the 20 psi minimum for the residential requirement.
  - The Max Day Fire Flow Analysis shows that the system will have enough pressure to meet fire flow for the commercial lot at 2,500 gpm.
- There will be 12” lines internal to the site to meet the recommendations laid out in the Town of Erie Master Plan.
- Pressure reducing valve location will be determined with final construction documents.
- All results are included in Appendix B.

4.0 SANITARY SEWAGE GENERATION

4.1 Description of Sanitary Sewer Outfalls Serving the Area

The following characteristics describe the sanitary sewer system serving the Sierra Vista development:

- The site was divided into 2 Basins. Refer to Exhibit SS1 in Appendix C.
- Basin 1 includes the commercial section of the site. This basin will be collected at DP 1 and conveyed to DP 2.
- Basin 2 will have single family detached units and will be collected at DP 2, which combines with flow from DP 1. DP 2 serves as the collection point of

all waste generated by the Sierra Vista property, and will then connect to the existing stub northwest of the site.

5.0 SANITARY SEWAGE CALCULATION METHODOLOGY AND CRITERIA

5.1 Criteria and Constraints

The sewage generation calculations are based on the following criteria:

- Sanitary sewer 8” inch diameter shall be designed to carry the peak design flow at a maximum flow depth of 80%.
- Design flow depth shall be greater than 2 inches where feasible.
- Optimum velocities are 4 to 5 fps at design flow.
- Minimum velocity shall be 2 fps and maximum shall be 10 fps.
- Manning’s n = 0.015.
- Minimum pipe slopes shall be 0.40% for 8” pipes.
- Manholes will be located and constructed to provide accessibility for maintenance.

System demands were calculated using the Town of Erie *Standards and Specifications for Design and Construction of Public Improvements*, 2015 Edition.

- Residential Assumptions:
  - 90 gal/capita/day
  - 2.79 person/unit
  - Peaking Factor: $3.8/ADF^{0.17}$ (ADF=Average Day Flow in MGD)
- Commercial Assumptions:
  - 1,000 gal/acre/day
  - 6 acres
  - Peaking Factor: $3.8/ADF^{0.17}$ (ADF=Average Day Flow in MGD)

5.2 Results of Calculations

- Based on the calculated generations, all pipes within the site can be sized as 8” PVC pipes while still maintaining less than 80% capacity.
- Flowmaster results in the appendix show the allowed flows.
- No residences are planned to tie directly into the 8” sanitary main which connects to the existing 8” sanitary manhole located on the northwest corner of the property boundary.

- Offsite flow includes the development east of Bonanza Drive, which is zoned as Planned Development, and outfalls to the proposed development. Currently, a Kum & Go convenience store is the only lot built within the development. This lot is served with a lift station and force main that routes to the north until the Sierra Vista property is developed. This offsite basin will have the capacity to outfall 83 gal/min.
- Sanitary generation calculations and pipe analysis can be found in Appendix C.

6.0 CONCLUSIONS

6.1 Recommendations

- The water system will utilize pressures from Zone 3 and Zone 4B with connections to adjacent subdivisions, which ultimately connect to Vista Ridge Zone 3 Tank and Zone 4B Pump Station.
- The proposed sanitary sewer system will outfall to the proposed 8” South Coal Creek sanitary main located just outside the northwest corner of the property boundary.
- The proposed systems will be installed and operate in general accordance with the Town of Erie *Standards and Specifications*.

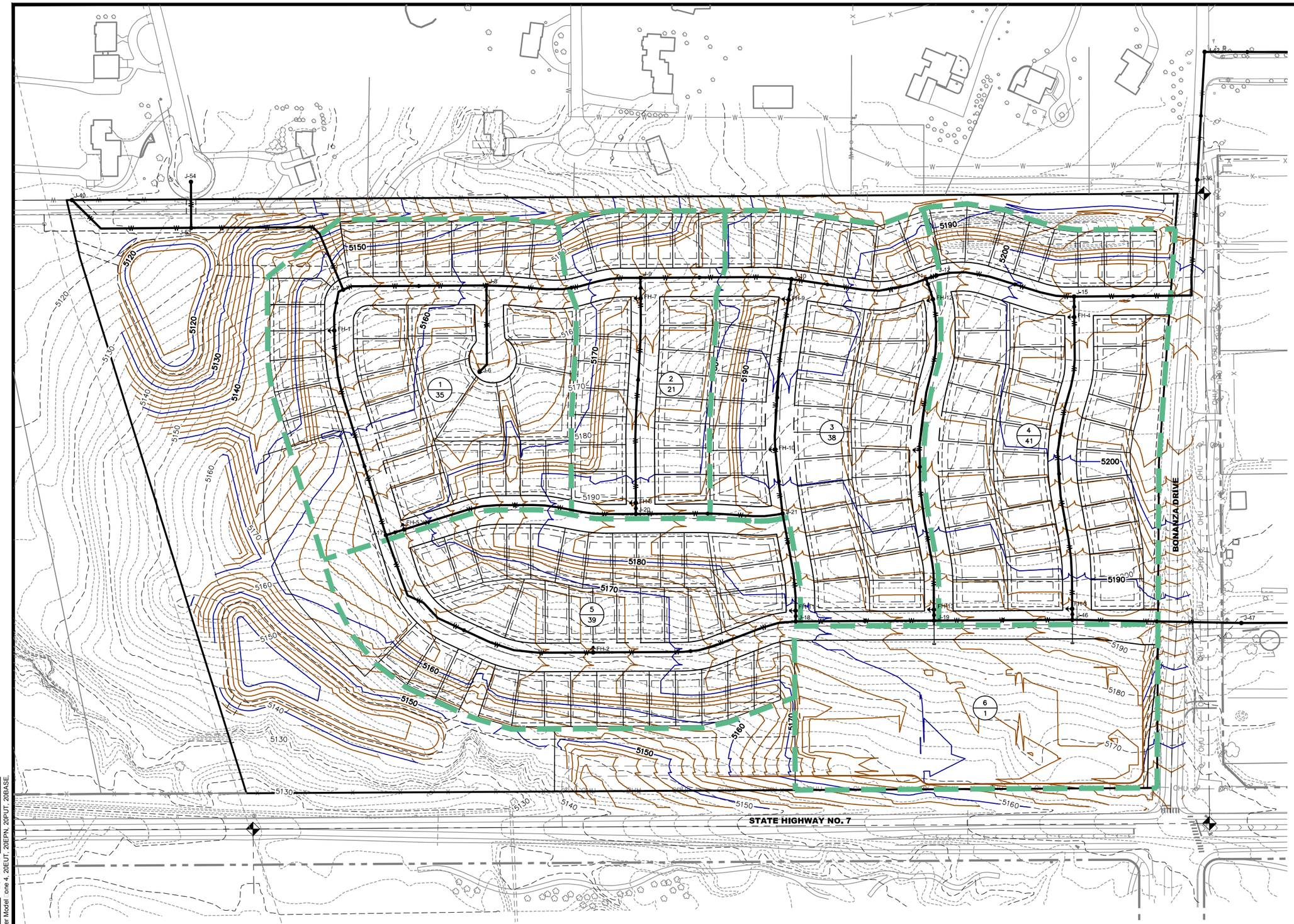
6.2 Summary

- The following conclusions are drawn based on this study:
  - A potable water system comprised of 8” and 12” lines is proposed to tie into the existing water system and will satisfy the residential and commercial requirements for the Max Day plus Fire Flow Analysis scenario. Pressure reducing valve locations will be determined with final construction documents.
  - The proposed sanitary sewer system will outfall to the proposed 8” South Coal Creek sanitary main located just outside the northwest corner of the property boundary.

7.0 REFERENCES

- *2013 Water Master Plan Updated Report and Appendix*, Town of Erie, Colorado
- *2013 Wastewater Utility Plan Report and Appendix*, Town of Erie, Colorado
- *Standards and Specifications for Design and Construction of Public Improvements*, 2015 Edition**,** Town of Erie, Colorado

APPENDIX A
WATER SYSTEM



LEGEND

- ROW/PROPERTY LINE
- CENTERLINE
- PROPERTY BOUNDARY
- EASEMENT
- PR. 8" WATER MAIN
- PR. WATER VALVE
- PR. FIRE HYDRANT
- EX. WATER MAIN
- EX. WATER VALVE
- EX. FIRE HYDRANT
- PR. MAJOR CONTOUR (10') — 5250
- PR. MINOR CONTOUR (2')
- PR. BASIN LINE
- PR. BASIN LABEL
  - X — BASIN DESIGNATION
  - X — UNIT COUNT

PATH: P:\OREAD SIERRA VISTA\CADD\EXHIBITS\UTILITY REPORT EXHIBITS\X-WT-1.DWG
PLOTTED BY: Jared Martinez PLOT DATE: 3/31/2015
XREFS: 20PPN, SV Water Model one 4, 20EUT, 20EPN, 20PUT, 20BASE.

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: X-WT-1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 □ BONAN □A, LLC

0 50 100 200
1 inch = 100 ft. Horizontal

Designer	Drafter	Checked
LMA	LMA	TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
MASTER UTILITY REPORT
WATER EXHIBIT

Sheet WT 1 — 1 of 1

Date AUGUST 2015

SIERRA VISTA

PROJECTED WATER DEMAND GENERATION

RESIDENTIAL	140	GPCD	2.79	PERSONS/UNIT
MAX. DAY / AVG. DAY	2.60			
MAX. HOUR / FLOW RATIO	3.90			
COMMERCIAL	1651.00	GPD/ACRE	6	ACRES
MAX. DAY / AVG. DAY	2.00			
MAX. HOUR / FLOW RATIO	3.00			
	FIRE FLOWS			
SF UNITS	1,000	GPM	1.44	MGD
MULTI-FAMILY	1,500	GPM	2.16	MGD
COMMERCIAL	2,500	GPM	3.6	MGD

BASIN	LAND USE	NO. OF LOTS	SITE DEMAND (GPD)	AVG. DAY DEMAND (GPD)	AVG. DAY DEMAND (GPM)	MAX. DAY DEMAND (GPM)	MAX. HOUR DEMAND (GPM)	MAX. DAY + FIRE FLOW (GPM)	DEMAND POINT
BASIN 1	RESIDENTIAL	35	13,671	13,671	9.5	24.7	37.0	1,025	FH-6
BASIN 2	RESIDENTIAL	21	8,203	8,203	5.7	14.8	22.2	1,015	J-9
BASIN 3	RESIDENTIAL	38	14,843	14,843	10.3	26.8	40.2	1,027	J-10
BASIN 4	RESIDENTIAL	41	16,015	16,015	11.1	28.9	43.4	1,029	J-15
BASIN 5	RESIDENTIAL	39	15,233	15,233	10.6	27.5	41.3	1,028	J-17
BASIN 6	COMMERCIAL	6	9,906	9,906	6.9	13.8	20.6	2,514	J-19
TOTALS		**180**	**77,870**	**77,870**	**54.1**	**136.5**	**204.7**	**7,636**	
TOTALS	**RESIDENTIAL**	**174**	**67964**	**67964**	**47.2**	**122.7**	**184.1**	**5123**	
	COMMERCIAL	**6**	**9,906**	**9,906**	**6.9**	**13.8**	**20.6**	**2,514**	

APPENDIX B
WATER MODEL RESULTS

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: AVERAGE DAY DEMAND

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
FH-1	5,153.87	0	5,318.82	71
FH-2	5,166.28	0	5,320.67	67
FH-3	5,186.80	0	5,323.59	59
FH-4	5,201.51	0	5,321.38	52
FH-5	5,172.04	0	5,320.00	64
FH-7	5,174.17	0	5,320.04	63
FH-8	5,181.59	0	5,320.21	60
FH-9	5,185.91	0	5,320.61	58
FH-10	5,191.42	0	5,320.65	56
FH-11	5,180.50	0	5,321.15	61
FH-12	5,196.46	0	5,321.18	54
FH-13	5,183.66	0	5,322.97	60
J-6	5,164.49	10	5,319.26	67
J-7	5,153.47	0	5,318.57	71
J-8	5,161.90	0	5,319.26	68
J-9	5,173.88	6	5,320.02	63
J-10	5,185.47	10	5,320.60	58
J-11	5,196.20	0	5,321.06	54
J-12	5,196.87	0	5,321.07	54
J-15	5,201.46	11	5,321.22	52
J-17	5,171.79	11	5,319.99	64
J-18	5,179.96	0	5,321.20	61
J-19	5,183.45	7	5,323.03	60
J-20	5,182.38	0	5,320.21	60
J-21	5,188.82	0	5,320.67	57
J-36	5,192.90	0	5,319.97	55
J-38	5,186.29	0	5,319.97	58
J-40	5,118.00	14	5,316.69	86
J-41	5,183.30	41	5,319.96	59
J-42	5,210.00	0	5,312.75	44
J-46	5,186.55	0	5,323.67	59
J-47	5,210.00	0	5,347.49	59
J-53	5,129.32	0	5,316.69	81
J-54	5,126.00	0	5,313.68	81

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: AVERAGE DAY DEMAND

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-6	302	12.0	PVC	100.0	-726	2.06
P-7	326	12.0	PVC	100.0	-735	2.09
P-8	317	12.0	PVC	100.0	-645	1.83
P-9	287	12.0	PVC	100.0	-599	1.7
P-10	23	12.0	PVC	100.0	-324	0.92
P-12	296	8.0	PVC	100.0	324	0.92
P-13	490	12.0	PVC	100.0	-592	1.68
P-16	290	8.0	PVC	100.0	-433	2.76
P-19	308	8.0	PVC	100.0	-198	1.26
P-20	187	8.0	PVC	100.0	10	0.06
P-25	93	8.0	PVC	100.0	-270	1.72
P-26	444	8.0	PVC	100.0	-270	1.72
P-27	555	8.0	PVC	100.0	-179	1.14
P-28	435	8.0	PVC	100.0	-179	1.14
P-31	618	12.0	PVC	100.0	928	2.63
P-32	43	12.0	PVC	100.0	928	2.63
P-33	40	8.0	PVC	100.0	-101	0.65
P-34	495	8.0	PVC	100.0	-101	0.65
P-35	43	8.0	PVC	100.0	-96	0.62
P-37	429	8.0	PVC	100.0	-96	0.62
P-38	23	8.0	PVC	100.0	-96	0.62
P-39	44	8.0	PVC	100.0	-56	0.36
P-41	315	8.0	PVC	100.0	-56	0.36
P-42	135	8.0	PVC	100.0	-56	0.36
P-43	206	8.0	PVC	100.0	-254	1.62
P-44	22	8.0	PVC	100.0	-254	1.62
P-45	45	8.0	PVC	100.0	-275	1.76
P-47	657	8.0	PVC	100.0	-275	1.76
P-48	23	8.0	PVC	100.0	-275	1.76
P-53	727	12.0	PVC	130.0	41	0.12
P-55	22	12.0	PVC	100.0	(N/A)	(N/A)
P-56	163	12.0	Asbestos Cement	100.0	41	0.12
P-57	259	16.0	PVC	115.0	-551	0.88
P-58	268	12.0	PVC	100.0	-551	1.56
P-61	290	12.0	PVC	100.0	-715	2.03
P-62	23	12.0	PVC	100.0	928	2.63
P-67	29	16.0	PVC	100.0	1,642	2.62
P-69	266	16.0	PVC	130.0	1,642	2.62
P-71	488	12.0	PVC	130.0	1,642	10.48
P-72	355	12.0	PVC	130.0	1,642	10.48
P-73	414	12.0	PVC	130.0	1,642	4.66
P-74	230	12.0	PVC	130.0	1,642	4.66
P-75	18	12.0	PVC	130.0	(N/A)	(N/A)

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX DAY DEMAND

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
FH-1	5,153.87	0	5,317.68	71
FH-2	5,166.28	0	5,319.31	66
FH-3	5,186.80	0	5,322.15	59
FH-4	5,201.51	0	5,319.92	51
FH-5	5,172.04	0	5,318.68	63
FH-7	5,174.17	0	5,318.72	63
FH-8	5,181.59	0	5,318.87	59
FH-9	5,185.91	0	5,319.22	58
FH-10	5,191.42	0	5,319.27	55
FH-11	5,180.50	0	5,319.77	60
FH-12	5,196.46	0	5,319.75	53
FH-13	5,183.66	0	5,321.53	60
J-6	5,164.49	25	5,318.04	66
J-7	5,153.47	0	5,317.48	71
J-8	5,161.90	0	5,318.04	68
J-9	5,173.88	15	5,318.70	63
J-10	5,185.47	27	5,319.21	58
J-11	5,196.20	0	5,319.63	53
J-12	5,196.87	0	5,319.64	53
J-15	5,201.46	29	5,319.76	51
J-17	5,171.79	28	5,318.66	64
J-18	5,179.96	0	5,319.82	61
J-19	5,183.45	14	5,321.59	60
J-20	5,182.38	0	5,318.88	59
J-21	5,188.82	0	5,319.30	56
J-36	5,192.90	0	5,318.44	54
J-38	5,186.29	0	5,318.41	57
J-40	5,118.00	35	5,315.92	86
J-41	5,183.30	106	5,318.40	58
J-42	5,210.00	0	5,312.33	44
J-46	5,186.55	0	5,322.23	59
J-47	5,210.00	0	5,346.15	59
J-53	5,129.32	0	5,315.92	81
J-54	5,126.00	0	5,313.53	81

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX DAY DEMAND

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-6	302	12.0	PVC	100.0	-654	1.86
P-7	326	12.0	PVC	100.0	-679	1.93
P-8	317	12.0	PVC	100.0	-603	1.71
P-9	287	12.0	PVC	100.0	-568	1.61
P-10	23	12.0	PVC	100.0	-293	0.83
P-12	296	8.0	PVC	100.0	293	0.83
P-13	490	12.0	PVC	100.0	-610	1.73
P-16	290	8.0	PVC	100.0	-426	2.72
P-19	308	8.0	PVC	100.0	-189	1.21
P-20	187	8.0	PVC	100.0	25	0.16
P-25	93	8.0	PVC	100.0	-245	1.57
P-26	444	8.0	PVC	100.0	-245	1.57
P-27	555	8.0	PVC	100.0	-175	1.11
P-28	435	8.0	PVC	100.0	-175	1.11
P-31	618	12.0	PVC	100.0	932	2.64
P-32	43	12.0	PVC	100.0	932	2.64
P-33	40	8.0	PVC	100.0	-98	0.63
P-34	495	8.0	PVC	100.0	-98	0.63
P-35	43	8.0	PVC	100.0	-91	0.58
P-37	429	8.0	PVC	100.0	-91	0.58
P-38	23	8.0	PVC	100.0	-91	0.58
P-39	44	8.0	PVC	100.0	-62	0.39
P-41	315	8.0	PVC	100.0	-62	0.39
P-42	135	8.0	PVC	100.0	-62	0.39
P-43	206	8.0	PVC	100.0	-251	1.6
P-44	22	8.0	PVC	100.0	-251	1.6
P-45	45	8.0	PVC	100.0	-275	1.75
P-47	657	8.0	PVC	100.0	-275	1.75
P-48	23	8.0	PVC	100.0	-275	1.75
P-53	727	12.0	PVC	130.0	106	0.3
P-55	22	12.0	PVC	100.0	(N/A)	(N/A)
P-56	163	12.0	Asbestos Cement	100.0	106	0.3
P-57	259	16.0	PVC	115.0	-504	0.8
P-58	268	12.0	PVC	100.0	-504	1.43
P-61	290	12.0	PVC	100.0	-714	2.03
P-62	23	12.0	PVC	100.0	932	2.64
P-67	29	16.0	PVC	100.0	1,646	2.63
P-69	266	16.0	PVC	130.0	1,646	2.63
P-71	488	12.0	PVC	130.0	1,646	10.51
P-72	355	12.0	PVC	130.0	1,646	10.51
P-73	414	12.0	PVC	130.0	1,646	4.67
P-74	230	12.0	PVC	130.0	1,646	4.67
P-75	18	12.0	PVC	130.0	(N/A)	(N/A)

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX DAY DEMAND + FIRE FLOW

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
FH-1	5,153.87	0	5,280.32	55
FH-2	5,166.28	0	5,276.43	48
FH-3	5,186.80	0	5,280.72	41
FH-4	5,201.51	0	5,278.55	33
FH-5	5,172.04	0	5,275.40	45
FH-7	5,174.17	0	5,276.21	44
FH-8	5,181.59	0	5,276.19	41
FH-9	5,185.91	0	5,276.28	39
FH-10	5,191.42	0	5,276.48	37
FH-11	5,180.50	0	5,277.22	42
FH-12	5,196.46	0	5,277.74	35
FH-13	5,183.66	0	5,279.88	42
J-6	5,164.49	25	5,271.44	46
J-7	5,153.47	0	5,281.37	55
J-8	5,161.90	0	5,277.27	50
J-9	5,173.88	15	5,276.21	44
J-10	5,185.47	27	5,276.26	39
J-11	5,196.20	0	5,277.59	35
J-12	5,196.87	0	5,277.65	35
J-15	5,201.46	29	5,278.40	33
J-17	5,171.79	28	5,275.34	45
J-18	5,179.96	0	5,277.29	42
J-19	5,183.45	2500	5,279.95	42
J-20	5,182.38	0	5,276.19	41
J-21	5,188.82	0	5,276.56	38
J-36	5,192.90	0	5,280.98	38
J-38	5,186.29	0	5,280.95	41
J-40	5,118.00	35	5,291.69	75
J-41	5,183.30	106	5,280.94	42
J-42	5,210.00	0	5,302.00	40
J-46	5,186.55	0	5,280.80	41
J-47	5,210.00	0	5,307.65	42
J-53	5,129.32	0	5,291.69	70
J-54	5,126.00	0	5,309.10	79

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX HOUR DEMAND + FIRE FLOW

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-6	302	12.0	PVC	100.0	615	1.74
P-7	326	12.0	PVC	100.0	578	1.64
P-8	317	12.0	PVC	100.0	432	1.23
P-9	287	12.0	PVC	100.0	258	0.73
P-10	23	12.0	PVC	100.0	-93	0.26
P-12	296	8.0	PVC	100.0	93	0.26
P-13	490	12.0	PVC	100.0	130	0.37
P-16	290	8.0	PVC	100.0	469	2.99
P-19	308	8.0	PVC	100.0	165	1.06
P-20	187	8.0	PVC	100.0	37	0.24
P-25	93	8.0	PVC	100.0	253	1.61
P-26	444	8.0	PVC	100.0	253	1.61
P-27	555	8.0	PVC	100.0	170	1.08
P-28	435	8.0	PVC	100.0	170	1.08
P-31	618	12.0	PVC	100.0	7	0.02
P-32	43	12.0	PVC	100.0	7	0.02
P-33	40	8.0	PVC	100.0	42	0.27
P-34	495	8.0	PVC	100.0	42	0.27
P-35	43	8.0	PVC	100.0	123	0.79
P-37	429	8.0	PVC	100.0	123	0.79
P-38	23	8.0	PVC	100.0	123	0.79
P-39	44	8.0	PVC	100.0	134	0.86
P-41	315	8.0	PVC	100.0	134	0.86
P-42	135	8.0	PVC	100.0	134	0.86
P-43	206	8.0	PVC	100.0	299	1.91
P-44	22	8.0	PVC	100.0	299	1.91
P-45	45	8.0	PVC	100.0	352	2.24
P-47	657	8.0	PVC	100.0	352	2.24
P-48	23	8.0	PVC	100.0	352	2.24
P-53	727	12.0	PVC	130.0	159	0.45
P-55	22	12.0	PVC	100.0	(N/A)	(N/A)
P-56	163	12.0	Asbestos Cement	100.0	159	0.45
P-57	259	16.0	PVC	115.0	289	0.46
P-58	268	12.0	PVC	100.0	289	0.82
P-61	290	12.0	PVC	100.0	-1,679	4.76
P-62	23	12.0	PVC	100.0	7	0.02
P-67	29	16.0	PVC	100.0	1,686	2.69
P-69	266	16.0	PVC	130.0	1,686	2.69
P-71	488	12.0	PVC	130.0	1,686	10.76
P-72	355	12.0	PVC	130.0	1,686	10.76
P-73	414	12.0	PVC	130.0	1,686	4.78
P-74	230	12.0	PVC	130.0	1,686	4.78
P-75	18	12.0	PVC	130.0	(N/A)	(N/A)

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX DAY FIRE FLOW ANALYSIS

Current Time: 0.000 hours

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)
FH-1	1,000	3,500	1,000	3,500	20
FH-2	1,000	3,500	1,000	3,500	20
FH-3	1,000	3,500	1,000	3,500	20
FH-4	1,000	3,500	1,000	3,500	20
FH-5	1,000	3,500	1,000	3,500	20
FH-7	1,000	3,500	1,000	3,500	20
FH-8	1,000	3,500	1,000	3,500	20
FH-9	1,000	3,500	1,000	3,500	20
FH-10	1,000	3,500	1,000	3,500	20
FH-11	1,000	3,500	1,000	3,500	20
FH-12	1,000	3,500	1,000	3,500	20
FH-13	1,000	3,500	1,000	3,500	20
J-6	1,000	3,500	1,025	3,525	20
J-7	1,000	(N/A)	(N/A)	(N/A)	20
J-8	1,000	(N/A)	(N/A)	(N/A)	20
J-9	1,000	(N/A)	(N/A)	(N/A)	20
J-10	1,000	(N/A)	(N/A)	(N/A)	20
J-11	1,000	(N/A)	(N/A)	(N/A)	20
J-12	1,000	(N/A)	(N/A)	(N/A)	20
J-15	1,000	(N/A)	(N/A)	(N/A)	20
J-17	1,000	(N/A)	(N/A)	(N/A)	20
J-18	2,500	(N/A)	(N/A)	(N/A)	20
J-19	2,500	3,500	2,514	3,514	20
J-20	1,000	(N/A)	(N/A)	(N/A)	20
J-21	1,000	(N/A)	(N/A)	(N/A)	20
J-32	1,000	(N/A)	(N/A)	(N/A)	20
J-36	1,000	(N/A)	(N/A)	(N/A)	20
J-38	1,000	(N/A)	(N/A)	(N/A)	20
J-40	1,000	(N/A)	(N/A)	(N/A)	20
J-41	1,000	(N/A)	(N/A)	(N/A)	20
J-42	1,000	(N/A)	(N/A)	(N/A)	20
J-46	1,000	(N/A)	(N/A)	(N/A)	20
J-47	1,000	(N/A)	(N/A)	(N/A)	20
J-51	1,000	(N/A)	(N/A)	(N/A)	20

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX HOUR DEMAND

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
FH-1	5,153.87	0	5,316.83	71
FH-2	5,166.28	0	5,318.28	66
FH-3	5,186.80	0	5,321.06	58
FH-4	5,201.51	0	5,318.81	51
FH-5	5,172.04	0	5,317.68	63
FH-7	5,174.17	0	5,317.72	62
FH-8	5,181.59	0	5,317.86	59
FH-9	5,185.91	0	5,318.17	57
FH-10	5,191.42	0	5,318.23	55
FH-11	5,180.50	0	5,318.72	60
FH-12	5,196.46	0	5,318.66	53
FH-13	5,183.66	0	5,320.44	59
J-6	5,164.49	37	5,317.12	66
J-7	5,153.47	0	5,316.65	71
J-8	5,161.90	0	5,317.13	67
J-9	5,173.88	22	5,317.70	62
J-10	5,185.47	40	5,318.16	57
J-11	5,196.20	0	5,318.54	53
J-12	5,196.87	0	5,318.55	53
J-15	5,201.46	43	5,318.66	51
J-17	5,171.79	41	5,317.66	63
J-18	5,179.96	0	5,318.77	60
J-19	5,183.45	21	5,320.50	59
J-20	5,182.38	0	5,317.86	59
J-21	5,188.82	0	5,318.26	56
J-36	5,192.90	0	5,317.28	54
J-38	5,186.29	0	5,317.22	57
J-40	5,118.00	53	5,315.33	85
J-41	5,183.30	159	5,317.20	58
J-42	5,210.00	0	5,312.01	44
J-46	5,186.55	0	5,321.14	58
J-47	5,210.00	0	5,345.14	58
J-53	5,129.32	0	5,315.34	80
J-54	5,126.00	0	5,313.43	81

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX HOUR DEMAND

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-6	302	12.0	PVC	100.0	-595	1.69
P-7	326	12.0	PVC	100.0	-632	1.79
P-8	317	12.0	PVC	100.0	-567	1.61
P-9	287	12.0	PVC	100.0	-541	1.54
P-10	23	12.0	PVC	100.0	-267	0.76
P-12	296	8.0	PVC	100.0	267	0.76
P-13	490	12.0	PVC	100.0	-624	1.77
P-16	290	8.0	PVC	100.0	-420	2.68
P-19	308	8.0	PVC	100.0	-183	1.17
P-20	187	8.0	PVC	100.0	37	0.24
P-25	93	8.0	PVC	100.0	-225	1.44
P-26	444	8.0	PVC	100.0	-225	1.44
P-27	555	8.0	PVC	100.0	-171	1.09
P-28	435	8.0	PVC	100.0	-171	1.09
P-31	618	12.0	PVC	100.0	935	2.65
P-32	43	12.0	PVC	100.0	935	2.65
P-33	40	8.0	PVC	100.0	-95	0.61
P-34	495	8.0	PVC	100.0	-95	0.61
P-35	43	8.0	PVC	100.0	-87	0.56
P-37	429	8.0	PVC	100.0	-87	0.56
P-38	23	8.0	PVC	100.0	-87	0.56
P-39	44	8.0	PVC	100.0	-66	0.42
P-41	315	8.0	PVC	100.0	-66	0.42
P-42	135	8.0	PVC	100.0	-66	0.42
P-43	206	8.0	PVC	100.0	-249	1.59
P-44	22	8.0	PVC	100.0	-249	1.59
P-45	45	8.0	PVC	100.0	-274	1.75
P-47	657	8.0	PVC	100.0	-274	1.75
P-48	23	8.0	PVC	100.0	-274	1.75
P-53	727	12.0	PVC	130.0	159	0.45
P-55	22	12.0	PVC	100.0	(N/A)	(N/A)
P-56	163	12.0	Asbestos Cement	100.0	159	0.45
P-57	259	16.0	PVC	115.0	-465	0.74
P-58	268	12.0	PVC	100.0	-465	1.32
P-61	290	12.0	PVC	100.0	-714	2.03
P-62	23	12.0	PVC	100.0	935	2.65
P-67	29	16.0	PVC	100.0	1,649	2.63
P-69	266	16.0	PVC	130.0	1,649	2.63
P-71	488	12.0	PVC	130.0	1,649	10.53
P-72	355	12.0	PVC	130.0	1,649	10.53
P-73	414	12.0	PVC	130.0	1,649	4.68
P-74	230	12.0	PVC	130.0	1,649	4.68
P-75	18	12.0	PVC	130.0	(N/A)	(N/A)

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX HOUR DEMAND + FIRE FLOW

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
FH-1	5,153.87	0	5,308.05	67
FH-2	5,166.28	0	5,306.40	61
FH-3	5,186.80	0	5,306.92	52
FH-4	5,201.51	0	5,306.92	46
FH-5	5,172.04	0	5,307.01	58
FH-7	5,174.17	0	5,307.24	58
FH-8	5,181.59	0	5,306.98	54
FH-9	5,185.91	0	5,306.96	52
FH-10	5,191.42	0	5,306.74	50
FH-11	5,180.50	0	5,305.98	54
FH-12	5,196.46	0	5,306.71	48
FH-13	5,183.66	0	5,303.89	52
J-6	5,164.49	37	5,307.75	62
J-7	5,153.47	0	5,308.26	67
J-8	5,161.90	0	5,307.76	63
J-9	5,173.88	22	5,307.27	58
J-10	5,185.47	40	5,307.00	53
J-11	5,196.20	0	5,306.90	48
J-12	5,196.87	0	5,306.90	48
J-15	5,201.46	43	5,306.92	46
J-17	5,171.79	41	5,307.01	59
J-18	5,179.96	0	5,305.91	54
J-19	5,183.45	2500	5,303.79	52
J-20	5,182.38	0	5,306.97	54
J-21	5,188.82	0	5,306.64	51
J-36	5,192.90	0	5,306.99	49
J-38	5,186.29	0	5,306.93	52
J-40	5,118.00	53	5,309.72	83
J-41	5,183.30	159	5,306.91	53
J-42	5,210.00	0	5,309.17	43
J-46	5,186.55	0	5,306.92	52
J-47	5,210.00	0	5,331.92	53
J-53	5,129.32	0	5,309.72	78
J-54	5,126.00	0	5,312.40	81

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX HOUR DEMAND + FIRE FLOW

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-6	302	12.0	PVC	100.0	615	1.74
P-7	326	12.0	PVC	100.0	578	1.64
P-8	317	12.0	PVC	100.0	432	1.23
P-9	287	12.0	PVC	100.0	258	0.73
P-10	23	12.0	PVC	100.0	-93	0.26
P-12	296	8.0	PVC	100.0	93	0.26
P-13	490	12.0	PVC	100.0	130	0.37
P-16	290	8.0	PVC	100.0	469	2.99
P-19	308	8.0	PVC	100.0	165	1.06
P-20	187	8.0	PVC	100.0	37	0.24
P-25	93	8.0	PVC	100.0	253	1.61
P-26	444	8.0	PVC	100.0	253	1.61
P-27	555	8.0	PVC	100.0	170	1.08
P-28	435	8.0	PVC	100.0	170	1.08
P-31	618	12.0	PVC	100.0	7	0.02
P-32	43	12.0	PVC	100.0	7	0.02
P-33	40	8.0	PVC	100.0	42	0.27
P-34	495	8.0	PVC	100.0	42	0.27
P-35	43	8.0	PVC	100.0	123	0.79
P-37	429	8.0	PVC	100.0	123	0.79
P-38	23	8.0	PVC	100.0	123	0.79
P-39	44	8.0	PVC	100.0	134	0.86
P-41	315	8.0	PVC	100.0	134	0.86
P-42	135	8.0	PVC	100.0	134	0.86
P-43	206	8.0	PVC	100.0	299	1.91
P-44	22	8.0	PVC	100.0	299	1.91
P-45	45	8.0	PVC	100.0	352	2.24
P-47	657	8.0	PVC	100.0	352	2.24
P-48	23	8.0	PVC	100.0	352	2.24
P-53	727	12.0	PVC	130.0	159	0.45
P-55	22	12.0	PVC	100.0	(N/A)	(N/A)
P-56	163	12.0	Asbestos Cement	100.0	159	0.45
P-57	259	16.0	PVC	115.0	289	0.46
P-58	268	12.0	PVC	100.0	289	0.82
P-61	290	12.0	PVC	100.0	-1,679	4.76
P-62	23	12.0	PVC	100.0	7	0.02
P-67	29	16.0	PVC	100.0	1,686	2.69
P-69	266	16.0	PVC	130.0	1,686	2.69
P-71	488	12.0	PVC	130.0	1,686	10.76
P-72	355	12.0	PVC	130.0	1,686	10.76
P-73	414	12.0	PVC	130.0	1,686	4.78
P-74	230	12.0	PVC	130.0	1,686	4.78
P-75	18	12.0	PVC	130.0	(N/A)	(N/A)

SIERRA VISTA MASTER UTILITY REPORT

WATER MODEL

Active Scenario: MAX HOUR FIRE FLOW ANALYSIS

Current Time: 0.000 hours

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)
FH-1	1,000	3,500	1,000	3,500	20
FH-2	1,000	3,500	1,000	3,500	20
FH-3	1,000	3,500	1,000	3,500	20
FH-4	1,000	3,500	1,000	3,500	20
FH-5	1,000	3,500	1,000	3,500	20
FH-7	1,000	3,500	1,000	3,500	20
FH-8	1,000	3,500	1,000	3,500	20
FH-9	1,000	3,500	1,000	3,500	20
FH-10	1,000	3,500	1,000	3,500	20
FH-11	1,000	3,500	1,000	3,500	20
FH-12	1,000	3,500	1,000	3,500	20
FH-13	1,000	3,500	1,000	3,500	20
J-6	1,000	3,500	1,025	3,537	20
J-7	1,000	(N/A)	(N/A)	(N/A)	20
J-8	1,000	(N/A)	(N/A)	(N/A)	20
J-9	1,000	(N/A)	(N/A)	(N/A)	20
J-10	1,000	(N/A)	(N/A)	(N/A)	20
J-11	1,000	(N/A)	(N/A)	(N/A)	20
J-12	1,000	(N/A)	(N/A)	(N/A)	20
J-15	1,000	(N/A)	(N/A)	(N/A)	20
J-17	1,000	(N/A)	(N/A)	(N/A)	20
J-18	2,500	(N/A)	(N/A)	(N/A)	20
J-19	2,500	3,500	2,521	3,521	20
J-20	1,000	(N/A)	(N/A)	(N/A)	20
J-21	1,000	(N/A)	(N/A)	(N/A)	20
J-32	1,000	(N/A)	(N/A)	(N/A)	20
J-36	1,000	(N/A)	(N/A)	(N/A)	20
J-38	1,000	(N/A)	(N/A)	(N/A)	20
J-40	1,000	(N/A)	(N/A)	(N/A)	20
J-41	1,000	(N/A)	(N/A)	(N/A)	20
J-42	1,000	(N/A)	(N/A)	(N/A)	20
J-46	1,000	(N/A)	(N/A)	(N/A)	20
J-47	1,000	(N/A)	(N/A)	(N/A)	20
J-51	1,000	(N/A)	(N/A)	(N/A)	20

APPENDIX C

SANITARY SEWER SYSTEM

LEGEND

- ROW/PROPERTY LINE
- CENTERLINE
- PROPERTY BOUNDARY
- EASEMENT
- PR. MAJOR CONTOUR (10') — 5250
- PR. MINOR CONTOUR (2')
- PR. BASIN LINE
- PR. SANITARY SEWER

MINIMUM SLOPES ARE AS FOLLOWS:
- 8" - 0.4%

UNLESS OTHERWISE SPECIFIED

BASIN DESIGNATION — 1
NO. OF UNITS — 97
BASIN FLOW — 67.7
ROUTED FLOW AT DESIGN POINT — 200.2

SF DETACHED
2
174 | 182 / 207

COMMERCIAL
1
1 | 25 / 25

BONANZA DRIVE

STATE HIGHWAY NO. 7

NORTH

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: X-SS-1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For: HIGHWAY 7 □ BONAN□A, LLC

0 50 100 200
1 inch = 100 ft. Horizontal

Designer	Drafter	Checked
LMA	LMA	TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
MASTER UTILITY REPORT
SANITARY SEWER EXHIBIT

Sheet SS 1 — 1 of 1
Date: AUGUST 2015

PATH: P:\OREAD SIERRA VISTA\CADD\EXHIBITS\UTILITY REPORT EXHIBITS\X-SS-1.DWG
PLOTTED BY: Lorraine Aiff PLOT DATE: 3/31/2015
XREFS: 20EUT, 20EPN, 20PUT, 20BASE;

SIERRA VISTA DEVELOPMENT
SANITARY SEWER GENERATION

Calibre

RESIDENTIAL	90 GPCPD	2.79 Persons/Unit	PEAKING	PF = 3.8/(ADF)^(0.17)	
COMMERCIAL	1000 GPAPD	1.2 Max Month Factor	FACTOR	Where ADF = Average Daily Flow in MGD	

DESIGN POINT	AREA	LAND USE	NO. OF LOTS	AVG. DAY FLOW (GPD)	AVG. DAY FLOW (MGD)	MAX. MONTH FLOW (MGD)	PEAKING FACTOR	PEAK FLOW (MGD)	PEAK FLOW (GPD)	PEAK FLOW (GPM)
1	Basin 1	Commercial	6	6,000	0.006	0.007	5.0	0.036	36,000	25
2	Basin 2	SF Detached	174	43,691	0.044	0.052	5.0	0.262	262,148	182
TOTALS			**180**	**49,691**	**0.050**	**0.060**	**10**	**0.298**	**298,148**	**207**

SANITARY SEWER SUMMARY TABLE

DESIGN POINT	PEAK FLOW (GPM)	ROUTED FLOW (GPM)	COMMENTS
1	25	25	Basin 1
2	182	207	Basins 1+2

8" Sanitary Sewer Capacity at Minimum Slope 0.4%

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.015	
Channel Slope	0.40000	%
Normal Depth	6.40	in
Diameter	8.00	in

Results

Discharge	290.58	gal/min
Flow Area	43.11	in²
Wetted Perimeter	1.48	ft
Hydraulic Radius	2.43	in
Top Width	0.53	ft
Critical Depth	0.38	ft
Percent Full	80.0	%
Critical Slope	1.00054	%
Velocity	2.16	ft/s
Velocity Head	0.07	ft
Specific Energy	0.61	ft
Froude Number	0.51	
Maximum Discharge	319.78	gal/min
Discharge Full	297.27	gal/min
Slope Full	0.00382	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	80.00	%
Downstream Velocity	Infinity	ft/s

8" Sanitary Sewer Capacity at Minimum Slope 0.4%

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	6.40	in
Critical Depth	0.38	ft
Channel Slope	0.40000	%
Critical Slope	1.00054	%

8" Sanitary Sewer Capacity at Slope 2.0%

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.015	
Channel Slope	2.00000	%
Normal Depth	6.40	in
Diameter	8.00	in

Results

Discharge	649.75	gal/min
Flow Area	43.11	in²
Wetted Perimeter	1.48	ft
Hydraulic Radius	2.43	in
Top Width	0.53	ft
Critical Depth	0.56	ft
Percent Full	80.0	%
Critical Slope	1.81123	%
Velocity	4.84	ft/s
Velocity Head	0.36	ft
Specific Energy	0.90	ft
Froude Number	1.14	
Maximum Discharge	715.05	gal/min
Discharge Full	664.72	gal/min
Slope Full	0.01911	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	80.00	%
Downstream Velocity	Infinity	ft/s

8" Sanitary Sewer Capacity at Slope 2.0%

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	6.40	in
Critical Depth	0.56	ft
Channel Slope	2.00000	%
Critical Slope	1.81123	%

8" PVC @ 0.4% Slope w/ Projected Flows

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.015	
Channel Slope	0.40000	%
Diameter	8.00	in
Discharge	207.00	gal/min

Results

Normal Depth	4.92	in
Flow Area	32.39	in²
Wetted Perimeter	1.20	ft
Hydraulic Radius	2.25	in
Top Width	0.65	ft
Critical Depth	0.32	ft
Percent Full	61.4	%
Critical Slope	0.91845	%
Velocity	2.05	ft/s
Velocity Head	0.07	ft
Specific Energy	0.47	ft
Froude Number	0.61	
Maximum Discharge	319.78	gal/min
Discharge Full	297.27	gal/min
Slope Full	0.00194	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

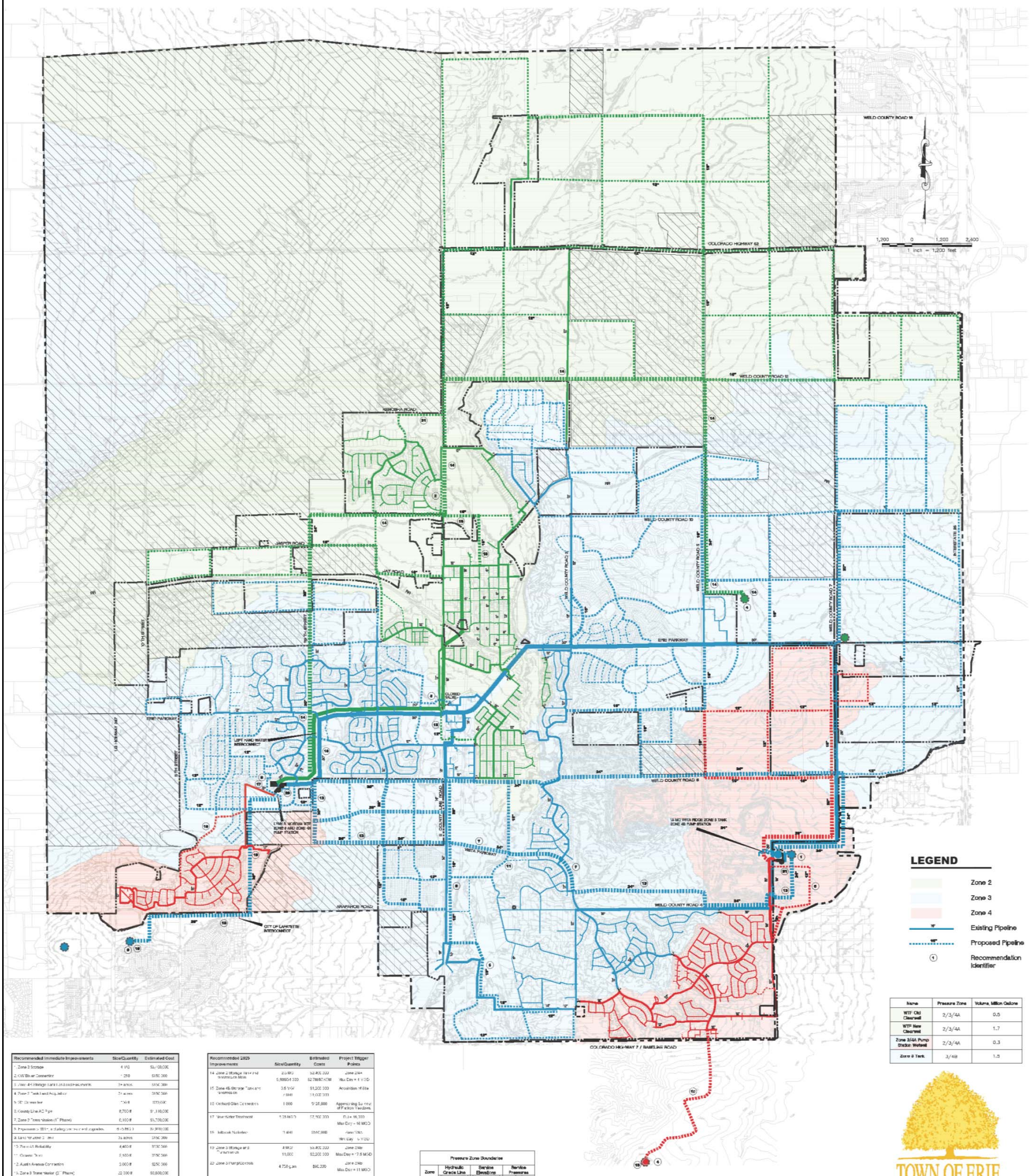
Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	61.44	%
Downstream Velocity	Infinity	ft/s

8" PVC @ 0.4% Slope w/ Projected Flows

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	4.92	in
Critical Depth	0.32	ft
Channel Slope	0.40000	%
Critical Slope	0.91845	%

APPENDIX D
REFERENCED FIGURES



Name	Pressure Zone	Volume, Million Gallons
WTF Old Clearwell	2/3/4A	0.5
WTF New Clearwell	2/3/4A	1.7
Zone 3/4A Pump Station Wetwell	2/3/4A	0.3
Zone 3 Tank	3/4B	1.5

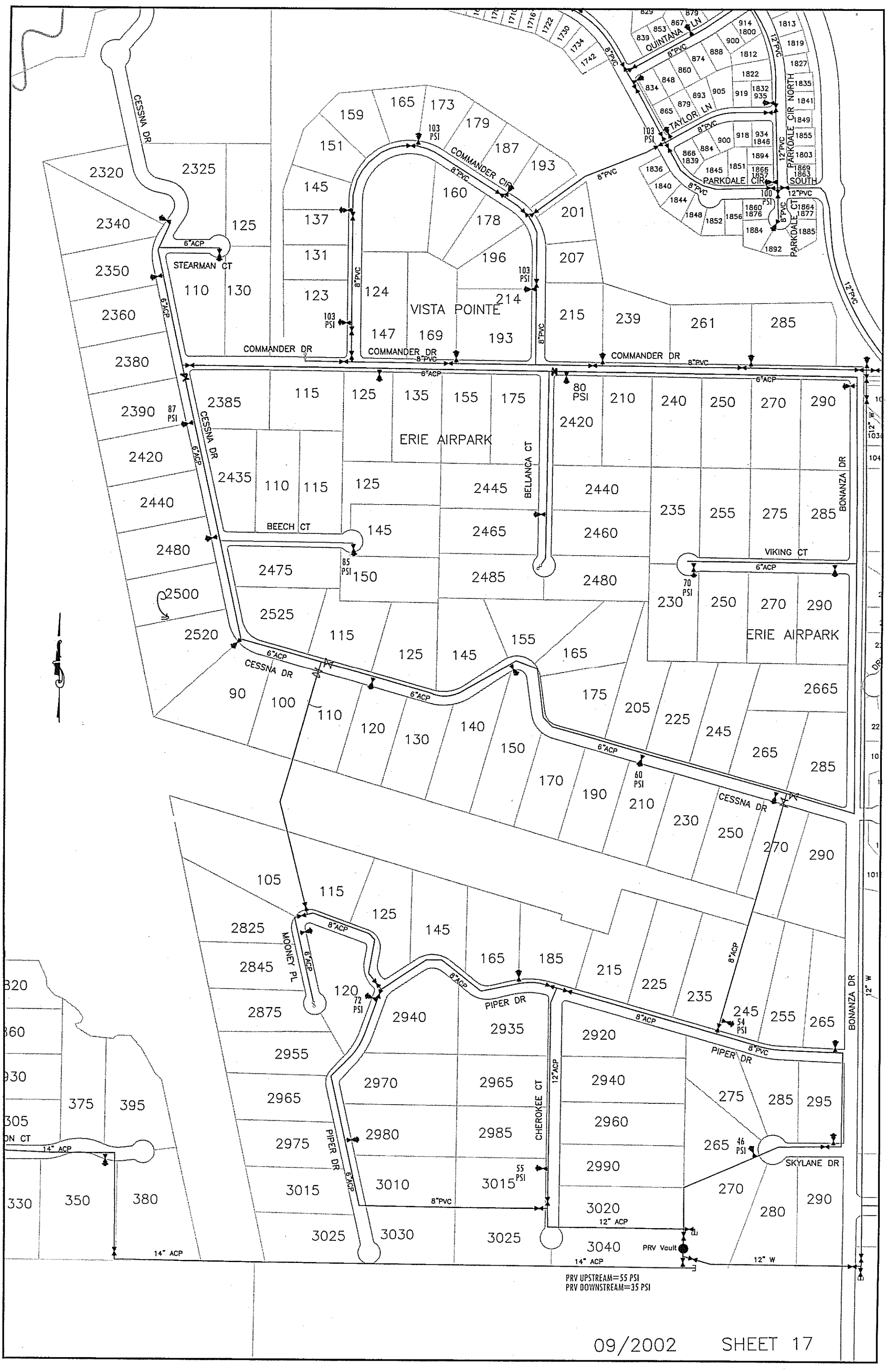
Recommended Immediate Improvements	Size/Quantity	Estimated Cost
1. Zone 3 Storage	4 MG	$5,700,000
2. Old Elker Connector	1,250	$150,000
3. Zone 4A Storage Tank Land Acquisition	3+ acres	$150,000
4. Zone 3 Tank Land Acquisition	3+ acres	$150,000
5. SE Connector	1,100 ft	$[illegible]
6. County Line AC Pipe	8,700 ft	$1,110,000
7. Zone 3 Transmission (1st Phase)	6,100 ft	$1,700,000
8. Expansion of WTF, including pretreatment upgrades	45-55 MGD	$[illegible]
9. Land for Zone 3 Tank	3+ acres	$150,000
10. Zone 4A Reliability	4,400 ft	$150,000
11. Colorado Pipe	5,100 ft	$150,000
12. Austin Avenue Connection	2,000 ft	$250,000
13. Zone 3 Transmission (2nd Phase)	22,300 ft	$3,000,000
Construction Costs		**$23,590,000**
Add 25% for contingencies, engineering, inspection, legal, and administrative costs		$5,900,000
Subtotal - Project Budget		**$29,490,000**

Recommended 2025 Improvements	Size/Quantity	Estimated Costs	Project Trigger Points
14. Zone 2 Storage Tank and Transmission Main	2.0 MG / 5,900 LF	$2,800,000 / $2,780,000	Zone 2/4A Max Day = 1.1 MGD
15. Zone 4B Storage Tank and Transmission	3.5 MG / 7,000 LF	$1,200,000 / $1,000,000	Acquisition Phase
16. Orchard Glen Connection	1,000	$125,000	Approaching 3,000 residential taps
17. New Water Treatment	5.25 MGD	$7,900,000	Future 16,000 Max Day = 16 MGD
18. Milbrook Reliability	1,400	$340,000	Future 16,000 Max Day = 16 MGD
19. Zone 3 Storage and Transmission	4 MG / 11,000	$3,800,000 / $2,200,000	Zone 2/4a Max Day = 7.5 MGD
20. Zone 3 Pump Controls	4,750 gpm	$80,000	Zone 2/4a Max Day = 11 MGD
21. Arapahoe Connector	1,400	$1,400,000	Completion of Zone 2 Improvements
Construction Costs		**$20,935,000**	
Add 25% for contingencies, engineering, inspection, legal, and administrative costs		$7,254,000	
Subtotal - Project Budget		**$36,189,000**	

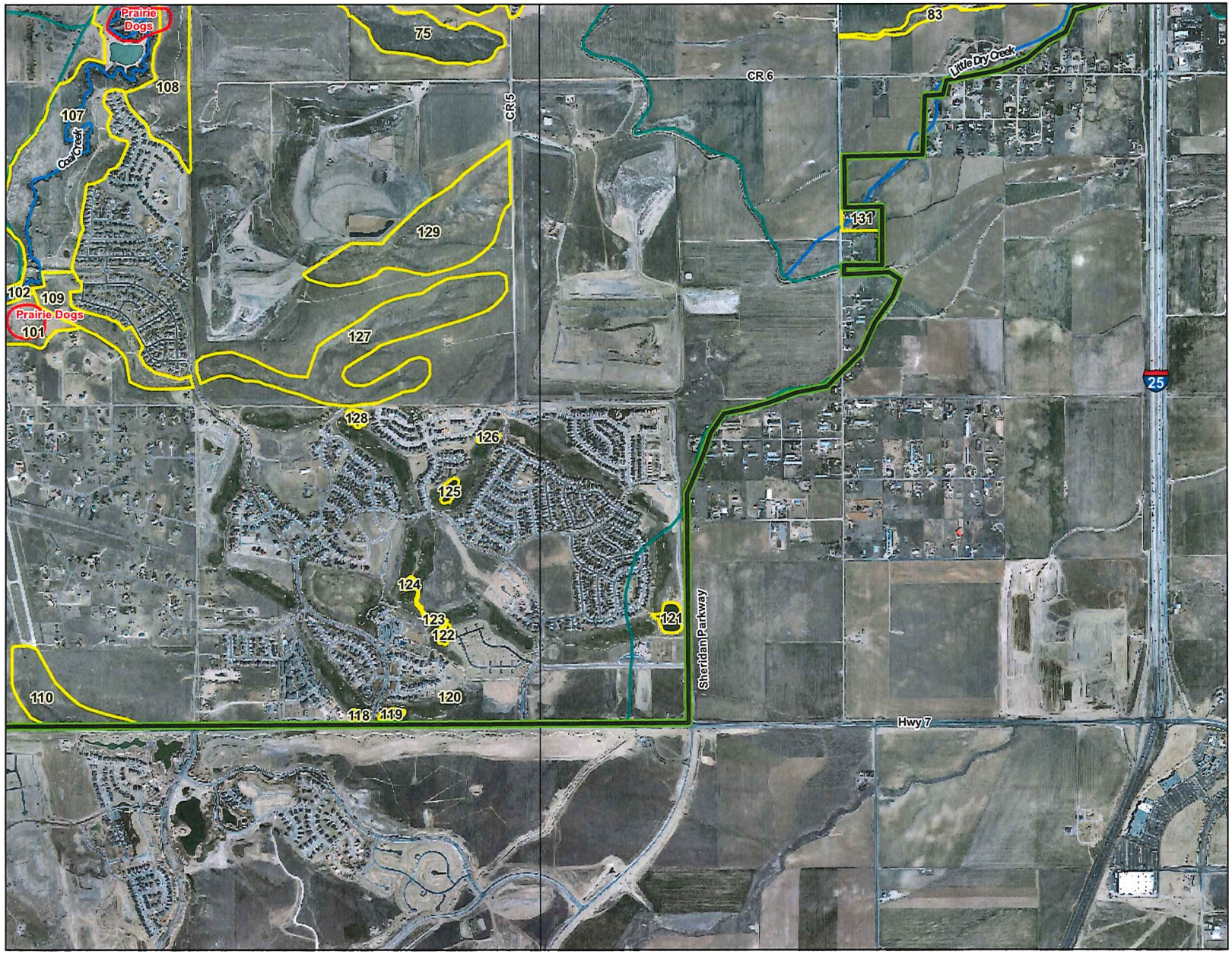
Pressure Zone Boundaries			
Zone	Hydraulic Grade Line (ft above MSL)	Service Elevations (ft above MSL)	Service Pressures (psi)
2	5,175	4,950–5,070	97–45
3	5,313	5,070–5,210	105–45
4A	5,420	5,210–5,300	91–52
4B	5,420	5,210–5,300	91–52

Figure A

ater yste aster P an


CESSNA DR
STEARMAN CT
COMMANDER CIR
COMMANDER DR
VISTA POINTE
QUINTANA LN
TAYLOR LN
PARKDALE CIR
PARKDALE CIR NORTH
PARKDALE CIR SOUTH
PARKDALE CT
ERIE AIRPARK
BELLANCA CT
BEECH CT
VIKING CT
BONANZA DR
MOONEY PL
PIPER DR
CHEROKEE CT
SKYLANE DR
PRV Vault
PRV UPSTREAM=55 PSI
PRV DOWNSTREAM=35 PSI
09/2002
SHEET 17

ATTACHMENT C



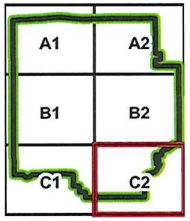
Map 7

Town of Erie Natural Areas

Sheet C2

Legend

- Natural Areas
- Wildlife Sites
- Planning Area Boundary
- Creek - River - Drainage
- Ditch - Canal



0 1,000 2,000 3,000

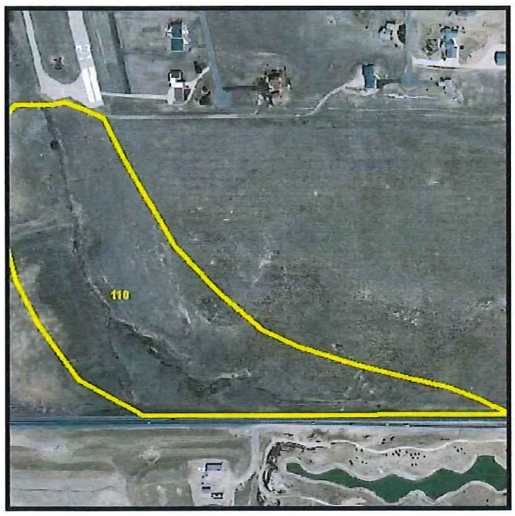
Feet

Datum: North American 1983 HARN
Projection: Lambert Conformal Conic

TOWN OF ERIE

Walsh
an ecology and environment company
International Specialists in the Environment

TOWN OF ERIE NATURAL AREAS INVENTORY



Site #: 110 Map: C2
Coal Creek Tributary South of Airport Acres 25

This site is a tributary of Coal Creek that crosses Highway 7.

Wetlands:
Wetland Functionality: 4 Wetland Value: 5

Landscape Context
Nearby Land Use:
- Field without Crops
- Subdivision
- Creek

Habitat Types Present: 4
- Aquatic
- Wetland
- Woodland
- Other

Viewshed: From Site

Vegetation
Plant Communities: CHSH, ADUD, CWTS, RCSH

Vegetation Structure:
- Shrubs
- Forbs
- Grass

County-listed Noxious Weeds:
- Musk Thistle
- Canada Thistle

Noxious Weed Cover 5
Ground Disturbance: 5
Plant Diversity: 4
Grassland Value: 0

Wildlife Habitat
Prairie Dog Habitat: 0% Wildlife Species of Concern:
Overall Wildlife Habitat Quality: 5

Primary Factors Present	Secondary Factors Present
Water or wetland is present State or federally listed species potentially present Site serves as a migration or movement corridor Site is an irreplaceable source of food and cover, or important for breeding	Site is larger than 3 acres One of the three vegetation structure types is in good condition Three or more habitat types are present

Wildlife Species Seen songbirds

Enhancement Effort: Low
Summary Rating: 25
Site Comments
This site is a tributary of Coal Creek that crosses Highway 7. The tributary appears to be perennial (water was present at the time of the site visit). A large coyote willow, stands of cattails, and reed canary grass are present along the tributary. The banks are steep and vegetation becomes dominated by weedy annuals just above the water's edge. The creek winds through a field of upland weeds. This site could be used by amphibians (frogs), songbirds, and possibly muskrats and meadow voles. Site 110 provides continuous cover to mammals and would be important as a movement corridor. As the creek moves away (N) of Highway 7, vegetation becomes weedier (lots of musk thistle) and the ADUD alliance becomes dominant. The banks become steeper as well. A large prairie dog colony is adjacent but, at present, there are no trees available for raptor use.

ATTACHMENT D

September 14, 2015

Mr. Todd Bjerkaas
Town of Erie
645 Holbrook St.
P.O. Box 750
Erie, CO 80516

Re: Sierra Vista Preliminary Plat Plan – Review #2 Comment Responses

Dear Mr. Bjerkaas,

We have reviewed the comments from the second submittal for the Sierra Vista Preliminary Plat Plan received September 1, 2015, and the following are our responses. Listed in *blue italics* below are the responses to the comments.

Please provide us with any additional questions or comments at your earliest convenience.

Feel free to contact me at 303-257-7653 or taj@calibre.us.com.

Sincerely,
CALIBRE ENGINEERING, INC.

Todd A. Johnson, P.E.
Vice President
Director of Professional Services

Calibre Engineering, Inc. 9090 S Ridgeline Blvd, Suite 105 Highlands Ranch, CO 80129 (303) 730-0434 www.calibre-engineering.com

Preliminary Plat

Town of Erie Community Development

Preliminary Plat

1. General Comments
   a. The narrative describes how the project intends to meet the parks dedication requirements and the request for an alternative to fee-in-lieu. Provide the "monetary value" of the "Applicant's costs to construct the incremental portion of the larger Sierra Vista park beyond Code requirements" as shown on the plans. *Please see attached cost estimate for the park site.*
   b. A neighborhood meeting has not yet been conducted per UDC requirements. *A neighborhood meeting is scheduled for Sept. 21st at the Anthem Highlands Recreation Center. Please see attached notice. Minutes will be provided to Staff after the meeting.*
   c. ***Condition:*** The ALTA shows three potential well-sites/drilling windows located on site. Provide an update to Surface Use Agreement discussions or the purchase of mineral rights as applicable. *We are in discussion with the mineral rights owners to purchase the surface rights.*
   d. Given the response by the Colorado Geological Survey and recent mine subsidence events in close proximity to the property, please submit a subsidence hazard investigation as detailed in the April 28, 2015 CGS referral response. *We have communicated with CGS and determined that three holes will be drilled in the NE corner of the Property. The holes will be drilled to a depth of 100' – 125'. A report will be provided to staff and CGS after the drilling is completed. The drilling operation will commence the week of 9/14/2015.*
   e. ***Condition:*** Provide a Native and Specimen Tree and Vegetation Survey and Protection Plan. *ERO is performing a survey the week of 9/14/2015 and a Protection Plan will be submitted (if needed) once the survey is complete.*
   f. ***Condition:*** The Natural Resource Assessment Update by ERO recommends requesting a jurisdictional wetlands determination from the Army Corps of Engineers. If the southwest area is determined to be jurisdictional, provide a wetland delineation. *ERO is performing a wetland delineation and a plan will be submitted depicting any wetlands once the delineation is complete.*
   g. ***Condition:*** Record the Avigation Easement per the Annexation Agreement. *An Avigation Easement will be executed prior to the recordation of the Final Plat.*
   h. Update the LAND USE SUMMARY CHART and TRACT SUMMARY CHART on Sheet 1 per the included comments. *The Land Use Summary Chart and Tract Summary Chart have been updated accordingly.*
   i. Provide an updated ALTA. *An updated ALTA is included with this submittal.*
   j. Remove PH1 – Phasing Plan from the Preliminary Plat set. It may be included as an exhibit to the resubmittal. *The Phasing Plan has been removed from the Preliminary Plat set.*

Calibre Engineering, Inc. 9090 S Ridgeline Blvd, Suite 105 Highlands Ranch, CO 80129 (303) 730-0434 www.calibre-engineering.com

k. In addition to the Avigation Easement Profile and Sections exhibits, the applicant also previously showed to staff a color coded plan with the visual approach and instrument approach overlaid on the plat. Please provide an updated exhibit. *An updated exhibit has been included with this submittal.*
l. See redlines for technical adjustments and previous comments. *Revisions have been made per redline comments.*

2. Sheet 1 –Title Sheet
   a. The Tract D and E rows in the TRACT SUMMARY CHART show the ownership and maintenance being "Commercial." Staff's understanding is it will be retained by the owner. *The Tract Summary Chart has been updated accordingly. The Owner will retain ownership until such time the commercial property is sold to a commercial developer. At the sale of the commercial property the commercial developer will take title to Tracts D and E.*
   b. The future commercial Tract E is 5.369 acres. Given the grading required to create the commercial pad, what is the anticipated size/acreage of the final pad for marketing purposes? *The anticipated acreage of the final commercial pad is approximately 4.32 acres. The finished pad grading is shown on sheet GR2 which will be completed at the time the commercial tract develops. We anticipate the residential to develop before the commercial.*
   c. Tract A shall be owned by the Town and maintained by SVMD. *The Tract Summary Chart has been updated accordingly.*
   d. Revise the use for Tract D from "Commercial" to "Access." *The Tract Summary Chart has been updated accordingly.*
   e. Delete Tract I from the TRACT SUMMARY CHART. *The Tract Summary Chart has been updated accordingly.*
   f. Provide a PARKS AND OPEN SPACE SUMMARY CHART that details the required versus provided acreage for pocket parks, neighborhood parks, community parks, and open space for the development. *A Parks and Open Space Summary Chart has been added to the Title Sheet.*
   g. The Required acreage of 1.70 acres for Parks in the Land Use Summary is not correct. *The required acreage has been updated.*
   h. Delete Note 4 from the plat. Staff will work with the applicant to include the language in the appropriate document for approval/agreement by the Board of Trustees. *Note 4 has been deleted. Proposed Language: The Town of Erie and Developer acknowledge and agree pursuant to section 10.6.3.B of the Town of Erie Unified Development Code, that the Developer will not be required to pay the Fees in Lieu of park land dedications, as equivalent monetary value was substituted in the form of construction of a 2.0ac park herein, located within Tract B.*

3. Sheet 2 – Site Plan Overall
   a. Add acreage to tracts (typical for enlargements sheets also). *Acreage has been added to enlargement sheets only for all tracts.*
   b. Provide easements on the perimeter of tracts. *Easements have been provided on the perimeter of all tracts along Bonanza Drive. Any necessary easements along State Highway No. 7 will be provided at the time of the final plat. All internal lots and streets have been provided with required easements as well.*

c. Show the dedication of ROW, and not a Tract, at Bonanza Dr. to accommodate the southbound right turn lane. *Dedicated right-of-way has been shown for the Bonanza Drive improvements.*
d. Show the private street tract across Bonanza in Vista Ridge. The Town can then verify that Street A's centerline is aligned with the private street centerline and tract in the Vista Ridge subdivision north of Kum and Go. *The private street tract has been added to the plans.*
e. There is one location where the block length exceeds 900'. Through-block connections, a minimum of 30' wide and located in a tract with a sidewalk, are required in blocks that are 900 feet or more in length (10.6.5.F.2.c). *The northern row of lots has been revised so that no block is more than 900' in length. The tract has been moved to the next intersection to the west to accommodate this change.*
f. Tract A, open space dedicated to the Town, narrows to 100' in width. Code requires dedicated open space to be "no less than 300 feet at the narrowest width, unless the Town approves a lesser amount for a trail." (10.6.3.C.4.a.ii) *We have had conversations with OSTAB regarding the 300' foot width. The park has been adjusted to accommodate a pinch point of approximately 200' with OSTAB support.*
g. Approximately 22 lots are located more than a ¼ mile away from the pocket park. The pocket park is not centrally located with the neighborhood served. (10.6.3.B.4.a.i) *There are 22 lots that exceed the ¼ mile proximity to the Pocket Park. The applicant feels that the Sierra Vista residents and other surrounding communities will benefit with the location of the park at the west end of the Sierra Vista Project. Please refer to the revised narrative to further justify the reasons for locating the pocket park on the west end of the project.*

4. Sheet 3 – Site Plan Enlargement
   a. The 30' easement is not a utility easement. It is an access, ingress, and egress easement. Show a new 30' utility easement for the extents of the propose waterline connection. *The existing easement has been annotated appropriately to match the ALTA and a proposed easement has been added for the proposed utility easement.*

5. Sheet 4, 5 & 6 – Site Plan Enlargements
   a. Show easements for drainage improvements and facilities located in tracts. *Easements have been added for all storm improvements located in tracts.*

6. Sheet 8 – Existing Conditions
   a. The 30' easement is not a utility easement per the ALTA and Title but instead provides for ingress, egress and access to the Erie Airport runways for Erie Airpark lots adjacent to Sierra Vista. *The easement has been revised to match the updated ALTA.*

7. Sheet 9 – Overall Utility Plan
   a. The storm lines in Tracts are not in easements. The detention ponds are not in easements. Show drainage easements. *Easements have been added for all storm improvements located in tracts.*

b. Call out the existing overhead electric located on the property to be buried (10.5.4.J.5). *Update:* Without verification through an updated ALTA, this item will be added as a condition of approval. *The overhead electric is not located on the subject property. Please refer to the updated ALTA included with this submittal.*

8. Sheet 10 – Grading and Erosion Control Plan
   a. There is a bold dashed line shown adjacent to the west property line. Label line as it is not shown in the ALTA Survey. *The line has been removed from the plans.*
   b. Show trail connections in the relocated through-block tract. Revise grading to accommodate trails with a maximum 5% slope. *Trails connections have been revised to connect through the relocated tract.*
   c. Show 8" sidewalk on the west side of Bonanza Drive to complete the 8' trail loop for Sierra Vista. *An 8' sidewalk has been added along the entirety of the west side of Bonanza Drive.*
   d. Modify grading to show that an 8' walk from the tract between Lot 5, Block 8 and Lot 1 Block 9 along SH 7 to the Bonanza intersection can be accommodated. *An 8' walk has been added through Tract D and along State Highway No. 7, connecting the tract between blocks 8 and 9 to the Bonanza Drive and State Highway No. 7 intersection. This portion of the sidewalk will be completed in conjunction with the development of the commercial property.*
   e. Grading is shown in the 30' Erie Airpark access easement along the north property line. Show the new improved surface for the existing taxiway disturbed by the grading. *Any disturbed taxiway will be replaced with crusher fine material.*
   f. Drainage conveyance is shown in the 30' Erie Airpark access easement. Drainage to be located outside of the 30' easement. *Drainage is located outside of the easement.*
   g. Grading in some areas of Tract A exceed a 5:1 slope. Modify grades to a maximum 5:1 slope or exclude these areas from the open space dedication credit. *Slopes have been modified to not exceed 5:1.*
   h. The outfalls of the two ponds appear to be located near the top of the detention ponds potentially resulting in retained water in the ponds. Clarify to ensure stormwater is not retained nor attracts waterfowl leading to an increased risk of bird strikes. *Pond outlets have been revised to ensure no water is being retained.*
   i. The access road grading in Tract D terminates short of Tract E, the commercial tract. Show grading of the access road to the pad elevation in Tract E. *Sheet GR2 depicts the future grading that will accommodate access through Tract D. Final Grading will be completed when the commercial property is developed.*

9. Sheets 11-21 – Landscape Plans
   a. There are several lots that back onto SH 7 and Bonanza. Please note the perimeter fence requirements in the UDC when reviewing lot configuration (10.6.4.H.9.b). Specifically item iii. requiring columns every 50' along the fence and item vii.b. requiring planting pockets every 150'. *The columns have been revised and planting pockets have been added.*

b. Pocket Park is to meet the Parks, Recreation, Open Space and Trails (PROST) Master Plan requirements for amenities and components. Provide a checklist to show the park meets the PROST requirements. Provide information of what improvements exceed the minimum pocket park requirements. *See the attached list of amenities that exceed the minimum requirements for a pocket park.*
c. Add curb ramps as shown in redlines. In some instances, conflicts may occur with storm inlets. *Curb ramps have been added in the location shown on the redlines.*

Town of Erie Engineering

Previous Comments for Preliminary Plat:

6. On the Overall Utility Plan:
   a. The annexation agreement calls for the existing 14 inch waterline on the north property line to be replaced with an 18 inch line and the proposed plan shows a 16 inch line. However, the Town's Water Master Plan now only calls for a 12 inch line which is what the Town prefers. In order to allow for a 12 inch line, the annexation agreement will need to be amended.
   Response: This waterline is a proposed 12" line that will be internal to the site.

   The annexation agreement will still need to be amended to allow for this change. *Comment noted.*

Comments for Preliminary Plat:

1. Tract I needs to be shown as right-of-way and not as a tract. *Tract I has been removed and the area is now being shown as dedicated right-of-way.*
2. On sheet OU1;
   a. An eight inch water line connection is needed to the existing eight inch water line in Piper Drive to the north. *An eight inch line has been added to connect to Piper Drive.*
   b. The eight inch water line in Street A between Street F and G needs to be a 12 inch. *This line has been upgraded from an eight inch line to a twelve inch line.*
   c. The 12 inch water line connection through Tract H is not needed, as it is redundant to the connection in Bonanza Drive. *This 12 inch water line has been removed.*
   d. Two 12 inch stubs and the 12 inch water line in Street G seem oversized just for the 6 acre commercial lot. *Based on the water model the fire flows are requiring a twelve inch line to meet all of the design criteria. We will work with the Town during the final engineering to ensure the proper line sizes are constructed for the future commercial development.*
   e. We would like to know how deep the sanitary sewer in Street A will be with this new alignment. *The sanitary sewer is 19.5' at its deepest point.*
   f. The water line connection across Bonanza Drive to the east can be removed as that is a different pressure zone. *The water model is dictating the connection to the Zone 4 line to meet fire flow requirements. Again, we will work with the Town during final engineering to ensure fire flows can be met with the future commercial development.*

3. On sheet GR1;
   a. Maintenance access to the bottom of the ponds needs to be shown. *Maintenance access has been provided for both detention ponds.*
   b. Grading for the entire future access road from Highway 7 needs to be shown even if construction of it is not included in a Final Plat. *Grading for the entire future access road has been shown on the plans.*

Comments for Phase II Drainage Study:

1. There is no design or calculations for the swale along the north side of the lots on Street A. The swale as shown seems undersized to handle the substantial developed flows for the houses as well as off-site flows. *Design calculations have been included for the swale along the north property line.*

Comments for Master Utility Report:

1. The title of the report needs to be change to Preliminary Utility Report. *The title of the utility report has been updated.*
2. The water line connection across Bonanza Drive to the east can be removed as that is a different pressure zone. *The water model is dictating the connection to the Zone 4 line to meet fire flow requirements. Again, we will work with the Town during final engineering to ensure fire flows can be met with the future commercial development.*

Town of Erie OSTAB

General Comments:
See letter by Open Space and Trails Advisory Board dated August 25, 2015.

1. Modify the shape of adjacent Tracts A (open space) and B (pocket park) so that the open space is a contiguous area that meets all requirements for open space that are in the UDC. *The tracts were modified.*
2. Modify the legend on the landscape sheets to explicitly identify trails. *The legend has been modified accordingly.*
3. Include a trail in Tract D. A future trail has been added through Tract D. *This trail will be constructed with the commercial development.*
4. Expand the width of short connector trails from 5 feet to 8 feet. *Short connector trails have been revised to 8 feet in width.*
5. Increase the width of the sidewalk along Bonanza Drive from 5 feet to 8 feet. *The sidewalk along Bonanza Drive has been revised to 8 feet in width.*
6. Add an 8 foot sidewalk along CO 7 at the southern end of this application. *An 8 foot future sidewalk has been added along State Highway No. 7.*

Mountain View Fire Protection District

General Comments:
1. An additional fire hydrant is needed on Street F. Hydrant spacing has been exceeded. This appears to be a change from the last set of plans. *A fire hydrant has been added to Street F as requested.*

Town of rie
Open pace and Trai s Ad isory oard

From: Town of Erie Open Space and Trails Advisory Board (OSTAB)
To: Todd Bjerkaas, Senior Planner, Community Development
Date: September 21, 2015

ub ect: ierra ista Pre i inary P at

OSTAB has reviewed the package materials (all dated September 14, 2015), compared them to Town planning documents, and has prepared the following comments, questions, and recommendations for the Town's consideration in evaluating this project.

T e atura Areas In entory Al :

Discussion: In 2008, the Town engaged Walsh Environmental Scientists and Engineers of Boulder, Colorado, to identify and evaluate the natural areas within the Town's planning area. Over 125 areas were evaluated. Based upon a variety of characteristics, a numerical "summary rating" was calculated, and the habitat quality of each site was categorized as high, medium, or low. A portion of one area lies within this application: "Coal Creek Tributary South of Airport", Site #110. This site has a "high" rating, based upon its wetland function, wetland quality, and habitat quality. The eastern portion of this NAI site is in Tract A of the application, with a deep gully and steep slopes in the southern end. The western portion of the NAI site is on town owned land that is adjacent to this property on the west.

The changes made in the current design to eliminate some lots, to relocate other lots, and both to move and redesign the detention basins provide adequate protection to this NAI site.

Recommendations: None

Open pace:

Discussion:. The tract summary chart on sheet T1 states that the required dedicated open space is 8.02 acres, and the provided open space is 10.96 acres, all of which is in Tract A in the western most portion of the property. There is also a 2.36 acre city park in Tract B, which is due east of Tract A.

Paragraph C of Section 10.6.3 of the Unified Development Code (UDC) defines the standard criteria for open space, and areas not eligible:

1. "A minimum of 10 contiguous acres";
2. "A parcel that is no less than 300 feet wide at the narrowest width, unless the Town approves a lesser amount for a trail";
3. "Typically, open space shall be owned and maintained by the Town. The Town may consider a conservation easement as an alternative".

Areas not eligible include:

1. "Oil and gas well sites and required buffers";
2. "Storm water channels, detention and water quality ponds greater than 5 feet deep with slopes greater than 5:1."

Open space Tract A contains detention basins in the both the northern and southern portions. It is our understanding that both detention basins have been modified so that the slopes and depth meet the above requirements for dedicated open space.

Sheet SP1 shows that the dedicated open space (Tract A) is less than 300 feet wide where it is adjacent to the planned park. The narrowest width is approximately 200 feet. There is a trail throughout this Tract. During discussion, members noted that there is “de facto” open space on town owned land to the west of the dedicated open space, and a park to the east. OSTAB voted to accept the open space as defined.

Recommendation: Approve the open space as defined, for reasons stated above in the Discussion section.

Trai s:

Discussion:
We prefer that all trails, including short connectors to streets, be an 8 foot wide concrete trail in order to accommodate safely bicycles, baby carriages, wagons, etc. that are passing each other. Likewise, sidewalks that connect trails, or are adjacent to major streets, should also be 8 feet wide and concrete. Previous versions of this application did not meet this criteria in all locations. We reviewed the landscape plan, sheets L1 through Line 10, and are pleased that all previous deficiencies have been corrected:

1. Trail and connectors in Tract A;
2. Trail and connectors in Tract H;
3. Sidewalk along Bonanza Drive;
4. Sidewalk/trail along State Highway 7 (Baseline Road).

Sheets L9 and L10 show a “future 8’W Trail Connection” along CO7. We request that staff ensure that this “future connection” is a requirement

We also discussed whether or not there should be a trail along the northern portion of Tract D, or if there should be a trail along the entire northern boundary in Tract H. We had requested such a trail during the Sketch Plan phase, when we became aware that there is a right-of-way to enable lots in the Airpark to access the runway. We ultimately decided that adding a trail would require substantial changes to the application, including reducing the number of lots. OSTAB voted to accept the trail configuration without changes.

Recommendation: Ensure that the “future 8’W Trail Connection” along CO7 is a requirement.

Please pass this referral letter to the Applicant, and appropriate town departments, boards, and commissions. Thank you for your attention to these matters. OSTAB is available to discuss any of the above in more detail as needed.

Sincerely,

Open pace and Trai s Ad isory oard

Denise Brady
Kevin Chard
Dawn Fraser
Monica Kash
Nicole Littman
Ken Martin (Chair)
Joe Martinez

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

___Town of Erie Community Development
___Town of Erie Parks & Recreation
___Town of Erie Economic Development
___Public Review
___Federal Aviation Administration
___St. Vrain Valley School District
___Colorado Department of Transportation
___Comcast Commercial & Residential
___NCWCD & Subdistrict
___Vista Ridge Metropolitan District
___Vista Ridge Master HOA
___Town of Erie Engineering
___Erie Airport Manager
___Town of Erie OSTAB
___Mountain View Fire Protection District
___Colorado Geologic Survey
___Felsburg Holt & Ullevig
___Century Link Communications
___XCEL Energy
___City & County of Broomfield
___Erie Airpark HOA
X Anadarko Petroleum Corp/Land Corp

Planner: Todd Bjerkaas **Date: April 3, 2015**

Project: Sierra Vista **Applicant: Highway 7 & Bonanza LLC**

Description: Preliminary Plat

Location: NW Corner of Colorado Highway 7 & Bonanza Drive

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, April 28th, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

___We have reviewed this application and find conflicts with our interests.

✓ See comments below or attached letter.

Comments: See attached letter.

Signature: [signature] **Date:** 4/28/15

Name (Please Print) Jake Billadeau

ANADARKO PETROLEUM CORPORATION

MAIN (720) 929-6000

1099 18TH STREET, SUITE 1800 • DENVER, COLORADO 80202

April 28, 2015

Via e-mail and federal express

Todd Bjerkaas
Erie Community Development Department
645 Holbrook
Post Office Box 750
Erie, Colorado 80516

NOTICE OF MINERAL INTERESTS AND OIL AND GAS LEASEHOLD INTERESTS OWNED BY ANADARKO LAND CORP., ANADARKO E&P COMPANY LP AND KERR-McGEE OIL & GAS ONSHORE LP AND OBJECTION

Re: Sierra Vista
Township 1 North, Range 68 West
Section 31: S/2SE/4
Weld County, Colorado

Ladies and Gentlemen:

This objection and notice letter is submitted to the Town of Erie ("Town") on behalf of Anadarko Land Corp. ("Anadarko Land"), Anadarko E&P Company LP ("Anadarko E&P"), and Kerr-McGee Oil & Gas Onshore LP ("Kerr-McGee") with respect to the application for rezoning that has been filed with the Town by Highway 7 & Bonanza, LLC ("Applicant") that includes property in the S/2SE/4 of Section 31, Township 1 North, Range 68 West in Weld County.

Anadarko Land and Anadarko E&P (the "Anadarko entities") together own the minerals that underlie the portion of the property located in the SE/4SE/4 of Section 31 ("Property"). Kerr-McGee owns oil and gas leasehold interests in portions of the Property.

The Anadarko entities and Kerr-McGee wish to give notice to the Town of the mineral interests and oil and gas leasehold interests they own under the Property and make the Town aware that the approval of a final application for development for the Property may significantly impact the prospective development of the minerals and oil and gas leasehold interests that underlie the Property. The Anadarko Entities and Kerr-McGee object to the approval of a final application for development until agreements on surface use are reached among the Anadarko entities, Kerr-McGee and the Applicant covering the Property.

The following are comments in support of this Notice and Objection:

1. The Mineral Resources Owned by Anadarko Land Corp.

Anadarko Land owns all of the hard rock minerals, including the coal, that underlies the Property. A senior landman for Anadarko Land has reviewed the Property for coal resource potential and determined that the Property is underlain with Laramie Formation coals that are approximately 11.3 feet thick and lie at a depth starting at approximately 291 feet. Laramie Formation coals have a high BTU of approximately 8,900 to 9,800 btu/lb and a low sulfur content of between .3 and .8 percent. The landman estimates that there may be over 12.375 million tons of Laramie Formation coal in Section 31.

Enclosed for your ready reference is a copy of the pertinent portion of the Colorado Coal Resources and Development Map that depicts the type and extent of the coal resources that underlie the Property.

2. The Oil and Gas Resources Owned by the Anadarko Entities.

The Anadarko entities together own all of the oil and gas that underlies the Property, and Kerr-McGee owns oil and gas leasehold interests for a portion of the Property.

Colorado Oil and Gas Conservation Commission ("COGCC") reports reflect that there is currently one producing well in Section 31. Current COGCC rules and regulation provide for five drilling windows in a quarter section where the Property is located, one in the center of the quarter section and one in the center of each quarter quarter section.

3. There is Clear Statutory Authority and Direction for the Town to Take Into Account the Rights of Mineral Interest Owners in Its Consideration of Applications for Development.

The State of Colorado recognizes the important rights of mineral owners and lessees in C.R.S. § 30-28-133(10) which states and acknowledges that both the mineral estate and the surface estate are interests in land and that the two interests are "separate and distinct." The subsection specifically recognizes that the owners of subsurface mineral interests and their lessees have "the same rights and privileges as surface owners."

4. Owners of Split Estates Must Exercise Their Rights in a Way that Gives Due Regard to the Rights of the Other.

Colorado law provides that the mineral owner has the right of reasonable access to and use of the surface estate to extract minerals and that the mineral estate owner and the surface estate owner are to give due regard to the rights of the other and reasonably accommodate each other's rights.

Union Pacific Railroad Company gave a deed to David Wherry dated April 30, 1908 and recorded December 31, 1908 in Book 233 at Page 187 in which the Railroad reserved the minerals for the Property. The Railroad granted the minerals to Union Pacific Land Resources Corporation by quitclaim deed dated April 1, 1971 and recorded on April 14, 1971

in Book 644 at Reception No. 1565712. Applicant had record notice at the time it acquired its interests in the Property that the minerals were severed from the surface estate.

5. The Anadarko Entities and Kerr-McGee Have Entered into Many Agreements with Developers With Respect to the Disposition of the Minerals at the Time that the Developer Proposes to Develop the Surface Estate, and the Public Interest is Served by the Parties Entering into Such an Agreement.

The mineral assets have significant value and consequently the Anadarko entities and Kerr-McGee are concerned that the approval by the Town of an application for development for the Property and the subsequent build-out of the Property may impair their ability to develop their minerals and oil and gas leasehold.

Any future surface development plans approved by the Town should incorporate and designate lands to be set aside for oil and gas development and expressly provide protection for future wells, pipelines, gathering lines and related oil and gas facilities and equipment. Approval of any surface development plan that forecloses the rights of mineral owners may be a compensable taking.

The Anadarko entities and Kerr-McGee have extensive mineral and oil and gas leasehold interests throughout the State of Colorado and have successfully worked with many parties who wish to develop the surface estate in order to assure the compatible development of the surface estate and the oil and gas estate or some other disposition of the minerals.

The practice of the Anadarko entities and Kerr-McGee is to meet with surface owners to reach a mutually acceptable surface use agreement and agreement for the disposition of the hard rock mineral interests. The Anadarko entities and Kerr-McGee have worked out agreements with the Applicant on several other occasions for various properties and have been in discussions with the Applicant on this matter; however, no agreement has been reached to date. Because no agreement has been reached between the parties that covers the Property, and in order to protect their mineral and oil and gas leasehold interests and private property rights, the Anadarko entities and Kerr-McGee object to the application and request that the Town make any approval of a final application for development of the Property conditioned upon an agreement among the Anadarko entities, Kerr-McGee and the Applicant.

Very truly yours,

Jake Ballard on behalf of Travis Book

Travis Book

Enclosure

cc: Blake Pickett, Esq.
Don Ballard
Mark Floyd
Ron Olsen
Mike Brotzman
Todd A. Johnson (taj@calibre.us.com)
Jeff Handlin (jeff.handline@oreadcapital.com)

From:	Nancy Parker
To:	Marty Ostholthoff; Todd Bjerkaas
Subject:	FW: Anadarko Comment for Sierra Vista Metropolitan District - Public Hearing 8/11/15
Date:	Tuesday, August 11, 2015 6:21:01 PM
Attachments:	image001.png 201507271431.pdf
Importance:	High

From: Billadeau, Jake [mailto:Jake.Billadeau@anadarko.com]
Sent: Tuesday, August 11, 2015 5:24 PM
To: Nancy Parker
Cc: Book, Travis
Subject: Anadarko Comment for Sierra Vista Metropolitan District - Public Hearing 8/11/15
Importance: High

Ms. Parker,

We recently received the attached public hearing notice for the organization of Sierra Vista Metropolitan District. This response is submitted to the Board of Trustees on behalf of Anadarko Land Corporation, Anadarko E&P Company LP and Kerr-McGee Oil & Gas Onshore LP ("Kerr-McGee").

Anadarko Land and Anadarko E&P (the "Anadarko entities") together own the minerals that underlie the portion of the property located in the SE/4SE/4 of Section 31, Township 1 North, Range 68 West. Kerr-McGee owns oil and gas leasehold interests in portions of the property. The Anadarko Entities and Kerr-McGee preserve all statutory or other rights that may be available pertaining to the interests mentioned above.

Please make this email part of the comments and record for the referenced proceedings.

Thank you,

Jake Billadeau ¦Staff Land Analyst
Anadarko Petroleum Corporation
Office: 720.929.6779
Jake.Billadeau@anadarko.com

Click here for Anadarko's Electronic Mail Disclaimer

U.S. Department
of Transportation
**Federal Aviation
Administration**

Denver Airports District Office
26805 E. 68th Avenue, Room 224
Denver, Colorado 80249
303-342-1250; FAX 303-342-1260

April 14, 2015

Mr. R. Martin Ostholthoff, Director
Community Development Department
Town of Erie
P.O. Box 750
Erie, CO 80516

RE: Proposed Sierra Vista Residential Development

Dear Mr. Ostholthoff:

The Federal Aviation Administration (FAA), Denver Airports District Office, would like to express our concern over the proposed Sierra Vista residential development to be located in close proximity to the primary runway at the Erie Municipal Airport (EIK), Erie, CO. It is our opinion that this proposed residential development will adversely affect the town's ability to safely and efficiently operate the airport and comply with Federal grant assurances and safety regulations.

Specifically, Airport Improvement Program (AIP) Grant Assurance No. 21 requires an airport sponsor that has accepted Federal funds to take appropriate action, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. This is usually accomplished through zoning, based on comprehensive land use planning, which recognizes the characteristics of airports, aircraft activity, and the actual and potential effects of such activity on sensitive adjacent uses, particularly residences, schools and other neighborhood components.

Failure to comply with Federal grant assurances may result in the FAA issuing an order terminating eligibility for grants or suspending the payment of grant funds, or any other compliance order issued by the FAA Administrator, including possible repayment of prior Federal grants. The State of Colorado also has enacted laws to address safety, noise and compatible land uses around airports that may be applicable to this proposed development (see Colorado Revised Statute 24-65.1-202, Criteria for Administration of Areas of State Interest, and 43-10-133, Safe Operating Areas Around Airports).

Based on the Town of Erie's commitment to complying with compatible land use grant assurances, the FAA has invested over $5.6 million in the Erie Municipal Airport since 1990. To assist in planning for future funding at this airport, as well as protecting existing Federal investment, the FAA is requesting an explanation as to how the Town of Erie considers this proposed development to be consistent with it Federal grant assurances. This proposed development is within areas over which the Town of Erie has the authority to zone or control land use and the FAA expects the town to restrict development that would permit residential development near its airport.

Incompatible land use at or near airports may result in the creation of hazards to air navigation and reductions in airport utility resulting from obstructions to flight paths or noise-related incompatible land use resulting from residential construction too close to the airport. For areas over which the airport sponsor has the authority to zone or control land use, FAA expects the airport sponsor to zone and use other measures to restrict the use of land in the vicinity of the airport to activities and purposes compatible with normal aircraft operations. The FAA does not consider an airport sponsor's lack of direct jurisdictional control over land uses of property near its airport as a reason for the sponsor to decline to take any action at all to achieve land use compatibility outside the airport boundaries.

Preliminary plans for the Sierra Vista development show the construction of houses approximately 600 feet east of the end of Runway 33. Since the proposed development would be in such close proximity to a runway end, aircraft will be at low altitudes (1,000 feet and lower) and in significant numbers. Consequently, the proposed development would be subjected to considerable "single-event" noise impacts from aircraft overflights. While these types of operations represent safe and typical flight procedures, it may be disconcerting to many people due to a perceived hazard of low flying aircraft.

Although the frequency of aircraft accidents is comparatively very low, the numbers of aircraft using the concentrated airspace of airport approach areas, together with the complexities of takeoff and landing operations, does mean that accidents are proportionately higher in those areas than in other locations farther away from airports. This is one of the main reasons that the congregation of people is strongly discouraged under and near approach/departure areas. Accordingly, we strongly recommend an avigation easement be included as a plat note on the development plan of any residential development, as well as a disclosure statement, to properly disclose the airport to all residents within the designated Airport Influence Area.

While most of the proposed development is currently outside the 65 L_{dn} noise contour, there is no guarantee that noise contours will remain the same. As the proposed development is so close to Runway 33, any change to aircraft operations and the type of aircraft that use EIK could readily increase the amount of aircraft noise and overflight over the proposed Sierra Vista development. Please be aware FAA would not support any Federal assistance to mitigate aircraft noise or incompatible land uses associated with this proposed development, including the acquisition of houses and relocation of residents. Per FAA policy, remedial noise mitigation measures for new noncompatible development constructed after October 1, 1998 are not eligible for Federal funding (see FAA Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects, dated April 3, 1998).

Further, the terrain of the proposed development rises above the runway end and any houses built in the western portion of the development may penetrate 14 CFR Part 77 approach, departure and

transitional surfaces, thereby requiring red obstruction lights on top of structures. Should the Town of Erie decide to enhance the instrument approach procedure to Runway 33 to improve the all-weather utility of the airport, the terrain of the western portion of the proposed Sierra Vista development would need to be lowered and some houses removed and others fitted with red obstruction lights.

The Town of Erie is conducting an airport master plan study, funded in part with an AIP grant, to identify aviation needs and development at EIK for the next 20 year planning range. The approval of the Sierra Vista development should be done in concert with this airport master plan study to ensure residential development so close to EIK does not limit the town's ability to operate and develop the airport. This would include airport operations and development that would change the airport's noise contours and changes to the approach and departure procedures. Consideration should also be given to acquiring a portion of the proposed development area to protect Runway 33 approach areas from encroachment of noncompatible land uses. Such a land acquisition would be eligible for AIP funds, in accordance 49 CFR Part 24, *Uniform Relocation Assistance and Real Property Acquisition for Federal And Federally-Assisted Programs*, and should be considered as part to EIK's Capital Improvement Plan.

The FAA appreciates the opportunity to comment on the proposed Sierra Vista development. If you have questions regarding the above comments, please contact me at (303) 342-1259.

Sincerely,

John P. Bauer
Manager
FAA/Denver Airports District Office

cc: Gary Behlen, Public Works Director, Town of Erie
Russell Pennington, Public Works Deputy Director, Town of Erie
Jason Hurd, Airport Manager, Erie Municipal Airport
Todd Green, CDOT Division of Aeronautics

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

___Town of Erie Community Development
___Town of Erie Parks & Recreation
___Town of Erie Economic Development
___Public Review
___Federal Aviation Administration
___St. Vrain Valley School District
___Colorado Department of Transportation
___Comcast Commercial & Residential
___NCWCD & Subdistrict
___Vista Ridge Metropolitan District
___Vista Ridge Master HOA

___Town of Erie Engineering
X Erie Airport Manager
___Town of Erie OSTAB
___Mountain View Fire Protection District
___Colorado Geologic Survey
___Felsburg Holt & Ullevig
___Century Link Communications
___XCEL Energy
___City & County of Broomfield
___Erie Airpark HOA
___Anadarko Petroleum Corp/Land Corp

Planner: Todd Bjerkaas **Date: April 3, 2015**

Project: Sierra Vista **Applicant: Highway 7 & Bonanza LLC**

Description: Preliminary Plat

Location: NW Corner of Colorado Highway 7 & Bonanza Drive

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, April 28th, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

_X_We have reviewed this application and find conflicts with our interests.

_X_ See comments below or attached letter.

Comments: See attached

Signature: _____ **Date:** 4/28/15

Name (Please Print) JASON HURD

Vector Air Management

Erie Municipal Airport
395 Airport Drive
Erie, CO 80516
303.664.0633
877.629.8600

fly@vectorair.net
www.vectorair.net

April 28, 2015

Town of Erie
Mr. Todd Bjerkaas
645 Holbrook Street
Erie, CO 80516

Re: Sierra Vista Project – Development Referral

Dear Mr. Bjerkaas,

We have reviewed the application for the Sierra Vista Project and find potential conflicts with our interests.

We have received a copy of the letter from Mr. John Bauer, Manager, FAA/Denver Airport Districts office outlining the FAA's concerns with the Sierra Vista Project. We would like to work with the Developer and the Town to address these concerns. These concerns are but not limited to the following:

Grant Assurances – We want to insure the development of Sierra Vista will not violate grant assurances resulting in the FAA terminating the airport's eligibility for future grants, or the suspension of the payment of current grant funds or possibly repayment of past grant funds.

Noise - We would expect that building standards would mitigate noise inside the homes. Airport Management would strongly recommend an avigation easement be included in the development plan as well as a disclosure statement to properly disclose the airport to all residents in the community as has been required of other developments surrounding the airport.

Security and Safety– There does not appear to be any kind of structure, i.e, a fence or wall around the community. The lack of a structure of this kind raises the concern about residents of the community, especially children, accessing the airport property in an unsafe manner.

Precision Instrument Approach – Future airport plans may include a Precision Instrument Approach to the airport. We would like work with the Developer and the Town to ensure that the Sierra Vista Project will not impact or conflict with the addition of a Precision Instrument Approach.

Based on the proximity of this proposed development to the Erie Municipal Airport, it is the opinion of Airport Management that this development is subject to an FAA Notice of Proposed Construction or Alteration. 14 Code of Federal Regulations Part 77.9 states that any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:

Of any construction or alteration:

- within 20,000 ft of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 ft.

You may file forms **7460-1 and 7460-2** electronically via the FAA website at www.faa.gov. Please complete the Notice of Proposed Construction or Alteration and provide copies of the results of the study to Town staff and airport management.

Please do not hesitate to contact me at 303-664-0633 or Jason@vectorair.net with any questions you may have.

Sincerely,

Jason Hurd
Airport Manager – Erie Municipal Airport

COLORADO GEOLOGICAL SURVEY

1801 19th Street
Golden, Colorado 80401
303.384.2655

Karen Berry
State Geologist

April 28, 2015

Todd Bjerkaas
Community Development Services
Town of Erie
P.O. Box 750
Erie, CO 80516

Location:
Section 31,
T1N, R68W of the 6th P.M.
40.0021, -105.0416

Subject: Sierra Vista – Preliminary Plat
Town of Erie, Weld County, CO; CGS Unique No. WE-15-0027

Dear Todd:

Colorado Geological Survey has reviewed the Sierra Vista preliminary plat referral. I understand the applicant proposes 198 single-family detached residential lots and a 5.57-acre commercial area on approximately 60.5 acres located northwest of Highway 7 and Bonanza Drive.

With this referral, I received a Development Referral requesting CGS's review (April 3, 2015), a copy of the Sierra Vista Preliminary Plat Land Use Application (signed February 2, 2015), a project narrative (Calibre, March 25, 2015), a Supplemental Preliminary Geotechnical Investigation (CTL|Thompson, July 16, 2014), and a set of 21 preliminary plat sheets (Calibre, March 25, 2015).

Not undermined, but… According to available mine maps, the site is not directly undermined, and no shafts or other mine-related surface openings are mapped on or near the site. Room-and-pillar workings of the Parkdale Mine are located immediately west of the site, at a depth of approximately 200-250 feet below the ground surface. The western portion of the site is located within a mapped "Low Subsidence Hazard" area (Ivey et al, 1975, Ground Subsidence and Land-Use Considerations over Coal Mines in the Boulder-Weld Coal Field, Colorado [plate 6, Subsidence Hazard Map]: Colorado Geological Survey, EG-9, scale 1:24000).

The much shallower (depth of workings 50 to 100 feet) Baseline Mine is located about 200 feet northeast of the Sierra Vista property, and a portion of the site's northeastern corner is located within a mapped "Severe Subsidence Hazard" area.

The historic mine maps on which our understanding of the extent of undermining and subsidence hazard is based are subject to numerous potential sources of error, including survey error, and incomplete and/or inaccurate data. There may be unknown, unmapped mines beneath the Sierra Vista property, or the shallow Baseline Mine may extend farther southwest than the historic mine maps indicate. CTL's geotechnical report does not discuss the potential undermining-related subsidence hazard.

Due to the distance between the northeastern corner of the site and mapped Baseline Mine workings, a subsidence hazard investigation does not appear to be necessary. However, if the town wishes to be conservative, a subsidence hazard investigation consisting of several borings near the northeastern corner of the property, extending to a depth of at least 100 feet, could be required to verify that mine-related voids are not present beneath the site.

At a minimum, grading activities should be carefully observed to identify any unmapped shafts, other mining features, or evidence of subsidence. The developer, engineer, builder, earthmoving contractors and field inspection staff should be made aware that there is a potential risk of sinkholes and other subsidence-related features developing, especially in the northeastern corner of the Sierra Vista site. If a subsidence feature or evidence of a shaft is observed, a subsidence hazard investigation, mitigation and/or possible development reconfiguration would be required.

Very highly expansive soils and bedrock. CTL's report contains a valid description of subsurface conditions, soil and bedrock engineering properties, and mitigation strategies for reducing the risk of damage due to areas of extremely highly expansive, shallow claystone bedrock. CTL makes appropriate *preliminary* recommendations for mitigating the risk of structural damage associated with the very highly expansive soils and bedrock, including overexcavation and replacement with moisture-conditioned, properly compacted, low expansive fill to a depth of at least ten to twelve feet below lowest foundation bearing depths, and/or drilled pier foundations with structural floor systems.

Additional geotechnical investigations, consisting of drilling, sampling, lab testing and analysis, will be needed to determine the depth and extent of overexcavation (if planned) and on each lot, once grading is complete, to verify that swell potential values have been reduced to acceptable levels before shallow foundations and slab-on-grade floors are determined to be feasible. Even after ground modifications (if implemented) and grading are complete, it is possible that some of the overexcavated and replaced fill will be moderate or higher swelling and some lots may require drilled pier foundations to resist uplift.

Thank you for the opportunity to review and comment on this project. If you have questions or require further review, please call me at 303-384-2643, or e-mail carlson@mines.edu.

Sincerely,

Jill Carlson, C.E.G.
Engineering Geologist

RECEIVED
APR - 6 2015
FELSBURG, HOLT & ULLEVIG

TOWN OF ERIE
1874

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

___Town of Erie Community Development
___Town of Erie Parks & Recreation
___Town of Erie Economic Development
___Public Review
___Federal Aviation Administration
___St. Vrain Valley School District
___Colorado Department of Transportation
___Comcast Commercial & Residential
___NCWCD & Subdistrict
___Vista Ridge Metropolitan District
___Vista Ridge Master HOA

___Town of Erie Engineering
___Erie Airport Manager
___Town of Erie OSTAB
___Mountain View Fire Protection District
___Colorado Geologic Survey
X Felsburg Holt & Ullevig
___Century Link Communications
___XCEL Energy
___City & County of Broomfield
___Erie Airpark HOA
___Anadarko Petroleum Corp/Land Corp

Planner: Todd Bjerkaas **Date: April 3, 2015**

Project: Sierra Vista **Applicant: Highway 7 & Bonanza LLC**

Description: Preliminary Plat

Location: NW Corner of Colorado Highway 7 & Bonanza Drive

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, April 28th, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

___We have reviewed this application and find conflicts with our interests.

X See comments below or attached letter.

Comments:_____

Signature: Charles M. Buck **Date:** 04/28/2015

Name (Please Print) CHARLES M. BUCK

FELSBURG HOLT & ULLEVIG
connecting and enhancing communities

April 28, 2015

MEMORANDUM

TO: Todd Bjerkaas

FROM: Charles M. Buck, P.E., PTOE
David E. Hattan, P.E., PTOE

SUBJECT: Review of Preliminary Plat and Traffic Impact Study
PROJECT: Sierra Vista
FHU # 95-190

We have reviewed the Preliminary Plat and the Traffic Impact Study for the proposed Sierra Vista development, to be located on the north side of State Highway 7 and west of Bonanza Drive. The Preliminary Plat (Calibre Engineering) is dated March 25, 2015, and the Traffic Impact Study (Aldridge Transportation Consultants) is dated January 13, 2015. We have examined these materials specifically from the perspective of traffic engineering and transportation planning but not general civil or utility engineering. Our comments are as follows:

Preliminary Plat

- Sheets 7/21 and 10/21 identify Bonanza Drive as "State Highway No. 3". This is incorrect: Bonanza Drive is Weld County Road 3.

- The Preliminary Plat details only the residential portion of the development. Tract E, located in the southeast corner of the site, is identified for commercial development, but vehicular access to Tract E is not defined.

- The ¾ movement access, as described and analyzed in the Traffic Impact Study, is not depicted on the plans.

Traffic Impact Study

Generally, we concur with the methods, assumptions, and the resultant findings and recommendations presented in the study, with the following exceptions:

- The study assumes three accesses: two full-movement accesses along Bonanza Drive and a ¾ movement access on State Highway 7. The ¾ movement access is generally consistent with the amended SH 7 Access Control Plan (LSC Transportation Consultants, 2010), but this document has not been officially adopted. The amended plan shows the location of this access as 1,320 feet west of Bonanza Drive, rather than the 1,200 feet dimension discussed in the traffic study. Note that the approved Access Control Plan (LSC, 2003) identifies this access as right-turn-only (RTO), and shows it located farther to the west (at milepost 65.10).

6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832
www.fhueng.com info@fhueng.com

- Although the traffic study mentions this access will not be open during initial phases of development, the site traffic assignments are based on build out of the site and utilize this access for site traffic. The study indicates that timing of the ¾ movement access is uncertain. As noted above, the ¾ movement access is not depicted on the Preliminary Plat; only the two proposed accesses to Bonanza Drive are shown.

- Because the Preliminary Plat addresses the entire residential portion of Sierra Vista, it seems that the ¾ movement access would be intended to serve future commercial uses in Tract E and would be constructed at that time. However, Tract E has only about 750 feet of frontage along SH 7. If the ¾ movement access is located 1,320 feet west of Bonanza Drive as specified in the Access Control Plan, it is difficult to see how this access, if constructed, could serve the commercial uses.

- If construction of the ¾ movement access is to be precluded by this development, then the traffic study should address the condition with all site traffic using Bonanza Drive. Given the relatively minor increases due to the shift of site traffic, however, it is unlikely that LOS and queuing results would change significantly.

- Because Bonanza Drive is essentially a large cul-de-sac, with one way in and out at SH 7, preclusion of the ¾ movement access would eliminate a second means of access to the area for emergency responders.

- The proposed southernmost full-movement site access on Bonanza Drive should provide sufficient spacing (about 370 feet) to accommodate southbound queuing at SH 7. Note that, although the traffic study analyzed this access as a “T” intersection, this access will likely set the location for access to land uses on the east side of Bonanza Drive. The northernmost access also provides appropriate spacing and may also be a location for future east side access alignment.

The above comments constitute our review of the materials provided for Sierra Vista Preliminary Plat. Please call if you have any questions or need additional information.

STATE OF COLORADO

D PART T OF TRA PORTATIO

Region 1 Traffic
Access/Utilities Permits
Roadside Advertising
2000 South Holly Street
Denver, Colorado 80222
303-512-4272 FAX 303-757-9886

May 6, 2015

Town of Erie Public Works
Attn: Todd Bjerkass
645 Holbrook Street
Erie, Colorado 80516

Dear Mr. Bjerkass:

RE: SIERRA VISTA PRELIMINARY PLAT NW CORNER OF BONANZA DRIVE AND SH 7 TOWN OF ERIE

Thank you for referring the development proposal for our review. CDOT has the following comments:

1. The City and County of Broomfield is the issuing authority for SH 7, therefore all construction proposals on SH 7 will need to be reviewed by them.

2. CDOT will require the development proposal provide for the adjacent SH 7 road improvements according to the templet recommended in the Planning and Environmental Linkage Study (PEL). In addition to completing the intersection at Bonanza Street. I can provide a copy of the report to the developer. CDOT and all local agencies with interest in SH 7 agreed on certain improvements and a final road template for SH 7. I would like to see the adjacent improvements designed and constructed for the length of this site according to the Planning and Environmental Linkage Study (PEL) to include curb gutter and sidewalk and storm sewer. If you have any questions on the design I recommend a meeting to discuss how the full improvement construction can be completed.

3. CDOT will not approve direct full time access to SH 7 through Tract B unless emergency access is required.

4. To obtain permission to construct, modify or close a vehicular access, where such work will be within state highway right-of-way, a state highway Access Permit is required. Please visit our website at https://www.codot.gov/business/permits/accesspermits/documents or obtain the application through this office.

5. To obtain permission to place utilities within state highway right-of-way, a Utility/Special Use Permit is required. Please visit our website at https://www.codot.gov/business/permits/accesspermits/documents or obtain the application through this office.

If you have any questions, please contact me at 303-512-4271.

Sincerely,
Bradley T. Sheehan, P.E.
Access Engineer

CC R1:
File (7)

TOWN OF ERIE
1874

7/20/15

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

___Town of Erie Community Development

___Town of Erie Engineering

___Town of Erie Parks & Recreation

___Town of Erie OSTAB

___Public Review

X Mountain View Fire Protection District

Planner: Todd Bjerkaas

Date: July 17, 2015

Project: Sierra Vista

Applicant: Highway 7 & Bonanza LLC

Description: Preliminary Plat

Location: NW Corner of Colorado Highway 7 & Bonanza Drive

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, August 25th, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

___We have reviewed this application and find conflicts with our interests.

X See comments below or attached letter.

Comments: An additional fire hydrant is needed on Street F. Hydrant spacing has been exceeded. This appears to be a change from the last set of plans

Signature: [signature] **Date:** 8/18/15

Name (Please Print) LuAnn Penfold

St. Vrain Valley
School District

April 22, 2015

Todd Bjerkas
Town of Erie
645 Holbrook
Erie CO 80516

RE: Sierra Vista Preliminary Plat

Dear Todd:

Thank you for referring the Sierra Vista Preliminary Plat to the School District. The District has reviewed the development proposal in terms of (1) available school capacity, (2) required land dedications and/or cash-in-lieu fees. After reviewing the above proposal, **t e District supports t is proposed de e op ent, owe er, ac Roc e entary is pro ected to e ceed t e 12 benc ar wit in t e year pro ection ti efra e** The district will continue to monitor enrollment and capacity and will alert the Town of Erie should Black Rock exceed 125% benchmark. Options to accommodate overcrowding are listed below.

Should this development be approved, the options for managing the short and long term overcrowding at Black Rock elementary may include adding modular classrooms and implementing split or staggered schedules as needed. Other options may include, but not be limited to, implementing year-round schools or asking voters to approve new bonds for additional school facilities or a mill levy for additional operating funds. It should be noted that a lack of operating funds may be a factor in delaying construction and occupancy of new school facilities in this area.

Detailed information on the specific capacity issues, the land dedication requirements and transportation impacts for this proposal follow in Attachment A. A land dedication is required with this project and there are comments on pedestrian access included in the attachment. The recommendation of the District noted above applies to the attendance boundaries current as of the date of this letter. These attendance boundaries may change in the future as new facilities are constructed and opened. If you have any further questions or concerns regarding this referral, please feel free to contact me via e-mail at kragerud_ryan@svvsd.org or at the number below.

Sincerely,

Ryan Kragerud, AICP
Planning/GIS

Enc.: Attachment A – Specific Project Analysis
Cash-in-lieu chart

ATTACH T A pecific Pro ect Ana ysis

PRO CT: Wise Farm, Rezoning, Planned Unit Development Overlay & Preliminary Plat

(1) SCHOOL CAPACITY

The Board of Education has established a District-wide policy of reviewing new development projects in terms of the impact on existing and approved school facilities within the applicable feeder system. Any residential project within the applicable feeder that causes the 125% school benchmark capacity to be exceeded within 5 years may not be supported. This determination includes both existing facilities and planned facilities from a voter-approved bond. The building capacity, including existing and new facilities, along with the impact of this proposal and all other approved development projects for this feeder is noted in the chart below.

AC ROC TAR

CAPACIT I FOR ATIO				CAPACIT CH AR (includes projected students, plus development's student impact)									
School Level	Building Capacity	Stdts. Oct-14	Stdt. Impact	**201 1** Stdts	Cap.	**201 1** Stdts	Cap.	**201 1** Stdts	Cap.	**201 1** Stdts	Cap.	**201 20** Stdts	Cap.
Elementary	637	694	44	703	110%	721	113%	747	117%	782	123%	826	**1 0**
Middle (EMS)	720	833	20	837	116%	845	117%	857	119%	873	121%	893	124%
High (EHS)	896	799	22	803	90%	812	91%	825	92%	843	94%	865	97%
Total	2496		86	2343		2377		2430		2498		2584	

*students from new housing are added according to a 5 year buildout of approved plats within the school feeder.

Specific comments concerning this proposal regarding School Capacity are as follows:

- *Specific Impact* - This application will add 198 dwelling units and a potential impact of 86 additional students in the **ac Roc e entary**, **rie idd e** and **rie Hig c oo Feeder**.
- *Benchmark Determination* – Black Rock Elementary is likely to exceed the 125% capacity benchmark in 2019/20 school year. Erie Middle School may reach 125% in year 2019/20, also. In order to accommodate additional students, voluntary mitigation options are provided below.
- *Mitigation Options* - The Town of Erie and the developer should also be aware that the School Board has developed a mitigation policy that would assist in providing capacity for the new students in this subdivision. Under the policy, should an applicant wish to begin construction on a residential development prior to the District's ability to provide additional capacity, the applicant may mitigate the development's impact on the feeder by agreeing to a voluntary, per-unit payment. Funds would be used to provide permanent or temporary capacity within the impacted feeder. The Planning Department would be happy to discuss this type of mitigation for the proposal with either the town or developer.
- *Phasing Plan* – The District would appreciate a phasing plan from the applicant at the time of final plat to more accurately calculate the impacts of this development.

(2) LAND DEDICATIONS AND CASH IN-LIEU FEES

The implementation of the Intergovernmental Agreement (IGA) Concerning Fair Contributions for Public School Sites by the town of Erie requires that the applicant either dedicate land directly to the School District along with provision of the adjacent infrastructure and/or pay cash-in-lieu (CIL) fees based on the student yield of the development. CIL fees provide funds for land acquisition and water rights acquisition, which is only a small component of providing additional school capacity for a feeder. Specific comments regarding land dedications and CIL fees for this referral are as follows:

- *Dedication and/or Cash-in-lieu Requirements* – a land dedication is not required for this development therefore, CIL payments will be required.
- *Number of Units covered by dedication/cash-in-lieu* – n/a
- *Dedication/Cash-in-lieu Procedures – Receipts for dwelling unit credits may be obtained at the time of building permit in the St. Vrain Valley School District Business Office – 395 S. Pratt Parkway, Longmont, CO.*

3) TRANSPORTATION/ACCESS

Transportation considerations for a project deal with bussing and pedestrian access to and from the subdivision. Pedestrian access, in particular, is an important goal of the School District in order to facilitate community connection to schools and to minimize transportation costs. Specific comments for this application are as follows:

- *Provision of Busing* - Busing for this project, under the current boundaries, would most likely be provided at all levels.
- *Pedestrian/Access Issues* – n/a

c oo P anning
tandards And
Ca cu ation of
In ieu Fees

ing e Fa i y							
		c oo P anning tandards					
	u ber	Pro ected	tudent	ite i e	Acres of	De e oped	
	Of	tudent	Faci ity	tandard	and	and	Cas in ieu
	nits	ie d	tandard	Acres	Contribution	a ue	Contribution
Elementary	198	0.22	525	10	0.83	$80,117	
		43.56					
Middle Level	198	0.1	750	25	0.66	$80,117	
		19.8					
High School	198	0.11	1200	50	0.91	$80,117	
		21.78					
Total		85.14			2.40	$80,117	$192,058
Single Family Student Yield is .43							0 Per nit

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

___Town of Erie Community Development
___Town of Erie Parks & Recreation
___Town of Erie Economic Development
___Public Review
___Federal Aviation Administration
___St. Vrain Valley School District
___Colorado Department of Transportation
___Comcast Commercial & Residential
___NCWCD & Subdistrict
___Vista Ridge Metropolitan District
___Vista Ridge Master HOA
___Town of Erie Engineering
___Erie Airport Manager
___Town of Erie OSTAB
___Mountain View Fire Protection District
___Colorado Geologic Survey
___Felsburg Holt & Ullevig
___Century Link Communications
___XCEL Energy
___City & County of Broomfield
X Erie Airpark HOA
___Anadarko Petroleum Corp/Land Corp

Planner: Todd Bjerkaas **Date: April 3, 2015**

Project: Sierra Vista **Applicant: Highway 7 & Bonanza LLC**

Description: Preliminary Plat

Location: NW Corner of Colorado Highway 7 & Bonanza Drive

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, April 28th, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

X We have reviewed this application and find conflicts with our interests.

___See comments below or attached letter.

Comments: Please see attachments

Signature: Pat Miller **Date:** 4/27/15

Name (Please Print) PAT MILLER

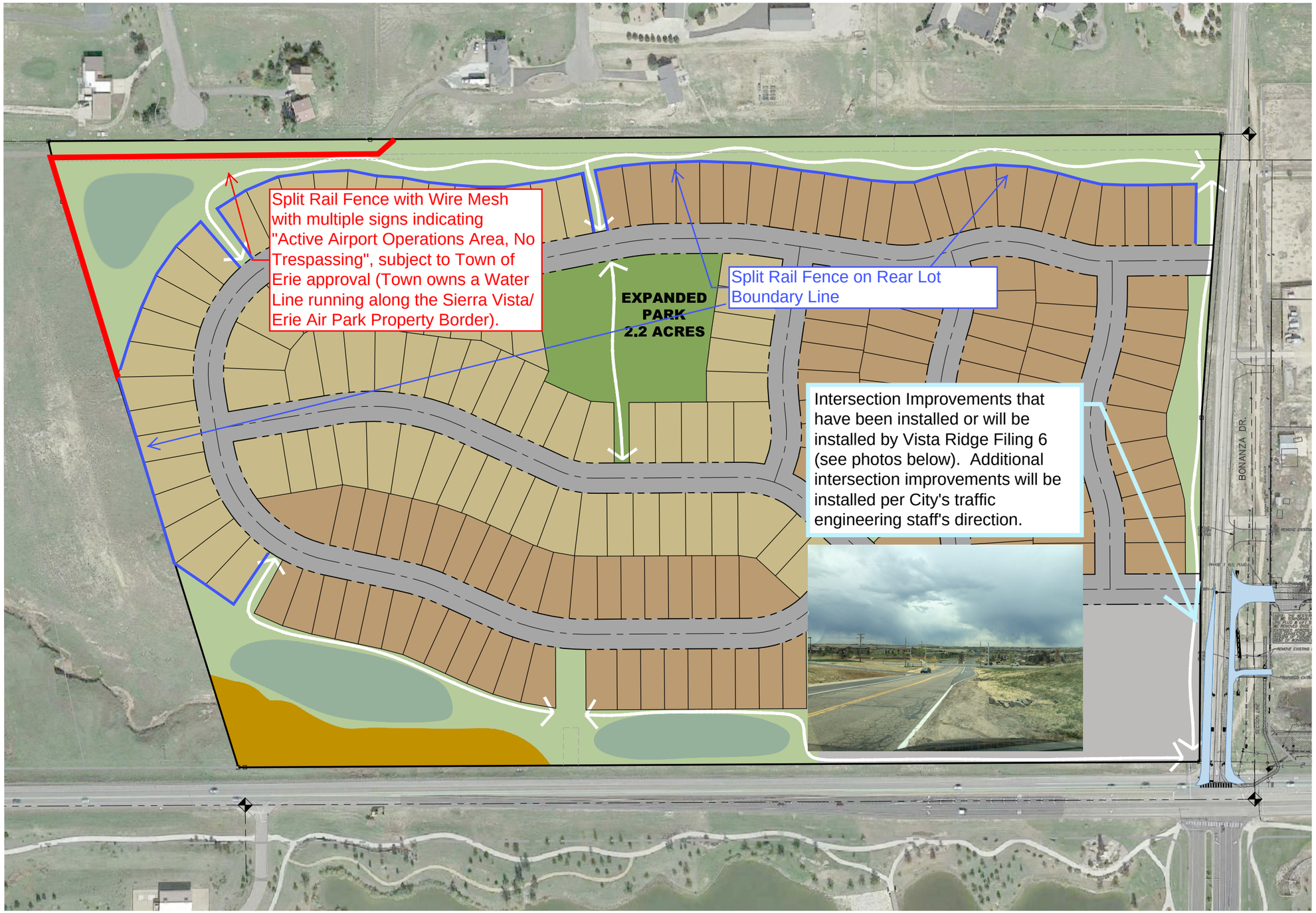
We have two major concerns:

1. Lack of a barrier between the new development and the airport/airpark. While residents of the airpark are familiar with aircraft/airport operations, experience has shown that most people are not.
2. Traffic issues on Bonanza/Highway 7.

Regarding the fence: It is my understanding that you will add a post and rail fence, with wire mesh, as shown on the annotated landscaping plan. It should include signage to the effect of "Active Aircraft Operations Area, No Trespassing." I'm sure your attorneys, the FAA or the town will have the correct legalese.

It is also my understanding that an additional turn lanes will be added to Bonanza Drive; mitigating the traffic concern.

One additional suggestion: add an *Aircraft Appreciation Zone* near the northwest retention pond. A pavilion with tables/benches would give people a place to sit and enjoy the airplanes taking off and landing.



LEGEND

- ROADWAY
- OPEN SPACE
- PARK - 2.2 ACRES
- STORM DRAINAGE
- 47' X 120' LOT
- 52' X 120' LOT
- COMMERCIAL
- NATIVE UNDISTURBED AREA

LOT SUMMARY

117 – 47' X 120' LOTS
81 – 52' X 120' LOTS
198 – TOTAL

PARK DEDICATION CALCULATIONS

COMMUNITY PARK

$\frac{5.0 \text{ AC} * (\# \text{ OF UNITS}) * (P/DU)}{1000}$ = AREA TO BE DEDICATED

5*198*2.79/1000 = 2.76 ACRES

NEIGHBORHOOD PARK

$\frac{3.0 \text{ AC} * (\# \text{ OF UNITS}) * (P/DU)}{1000}$ = AREA TO BE DEDICATED

3*198*2.79/1000 = 1.66 ACRES

POCKET PARK

$\frac{0.5 \text{ AC} * (\# \text{ OF UNITS}) * (P/DU)}{1000}$ = AREA TO BE DEDICATED

0.5*198*2.79/1000 = 0.28 ACRES

NORTH

DATE	REVISION DESCRIPTION
	6
	5
	4
	3
	2
	1

Drawing Name: X-Site Plan Exhibit - Option 1.dwg
Job Number: OREAD SIERRA VISTA
Prepared For:
0 100 200 400
1 inch = 200 ft. Horizontal
11" X 17" PRINT
Designer: RJL | Drafter: RJL | Checked: TAJ

Calibre
Calibre Engineering, Inc.
9090 South Ridgeline Boulevard, Suite 105
Highlands Ranch, CO 80129 (303) 730-0434
www.calibre-engineering.com
Construction Management Civil Engineering Surveying

SIERRA VISTA
EXPANDED PARK
SITE PLAN

Sheet X1 1 of 2
Date JANUARY 12, 2015

PATH: P:\OREAD SIERRA VISTA\CAD\EXHIBITS\X-SITE PLAN EXHIBIT - OPTION 1.DWG
PLOTTED BY: Brian Moss PLOT DATE: 1/13/2015 12:01 PM
XREFS: 20BASE, BankFastFood, 10EPN,

APR 0 6 2015

Community Development Services
Planning and Building

Town of Erie, Colorado
Development Referral

___Town of Erie Community Development
___Town of Erie Parks & Recreation
___Town of Erie Economic Development
___Public Review
___Federal Aviation Administration
___St. Vrain Valley School District
___Colorado Department of Transportation
___Comcast Commercial & Residential
___NCWCD & Subdistrict
X Vista Ridge Metropolitan District
___Vista Ridge Master HOA

___Town of Erie Engineering
___Erie Airport Manager
___Town of Erie OSTAB
___Mountain View Fire Protection District
___Colorado Geologic Survey
___Felsburg Holt & Ullevig
___Century Link Communications
___XCEL Energy
___City & County of Broomfield
___Erie Airpark HOA
___Anadarko Petroleum Corp/Land Corp

Planner: Todd Bjerkaas **Date: April 3, 2015**

Project: Sierra Vista **Applicant: Highway 7 & Bonanza LLC**

Description: Preliminary Plat

Location: NW Corner of Colorado Highway 7 & Bonanza Drive

Legal Description: See Attached Materials

This application is submitted to you for review and comment. Please reply by **Tuesday, April 28th, 2015,** so that we may give full consideration to your comments. Any response not received by this date may be deemed to be a positive response to the Town of Erie. Email responses can be sent to tbjerkaas@erieco.gov. If you have any questions about this application, please call 303-926-2773.

___We have reviewed this application and find no conflicts with our interests

X We have reviewed this application and find conflicts with our interests.

___See comments below or attached letter.

Comments: Please verify if reimbursement to the District for connection into the Coal Creek Sanitary Outfall Line is to occur.

Signature: Lisa Jacoby **Date:** 4/8/15

Name (Please Print) LISA JACOBY

2015TA0904 EM-C. Swenson

U.S. FISH AND WILDLIFE SERVICE

☒ NO CONCERNS
☐ CONCUR NOT LIKELY TO ADVERSELY AFFECT
☐ NO COMMENT

AUG 4 2015

DRUE L. DEBERRY, ACTING COLORADO FIELD SUPERVISOR — DATE

ERO
ERO Resources Corp.

July 28, 2015

Acting Supervisor
U.S. Fish and Wildlife Service
Colorado Field Office
Denver Federal Center (MS 65412)
PO Box 25486
Denver, Colorado 80225

RE: Threatened and Endangered Species Habitat Assessment – Pratt Property, Weld County, Colorado

Dear Acting Supervisor:

On behalf of Highway 7 & Bonanza LLC., ERO Resources Corporation (ERO) is requesting Technical Assistance regarding threatened and endangered species for a 60.476-acre parcel in Weld County. A residential development is proposed in Weld County, Colorado in Section 31, Township 1 North, Range 68 West of the 6th Principal Meridian. The project area is an undeveloped parcel consisting primarily of upland grasslands that contain no suitable habitat for federally listed species. The proposed project would not likely impact Ute ladies'-tresses orchid or Colorado butterfly plant because:

- Project Area does not fall within Survey Guidelines
- Lack of Suitable Habitat
- Lack of Associated Indicator Species

Additionally, the proposed project would not likely impact Preble's meadow jumping mouse habitat because:

- Lack of Suitable Habitat
- Habitat Fragmentation
- Isolated from Nearby Populations
- Project Area is not Identified as Important to Species Recovery (Critical Habitat)

The attached Habitat Assessment includes a description of the proposed project, along with figures and photos of the site.

If you have any questions or need further information, please do not hesitate to call. I look forward to hearing from you.

Sincerely,

CMSwenson

Courtney Swenson
Biologist

Attachments

cc via email: Matt Deibel - Highway 7 & Bonanza LLC.

Denver
1842 Clarkson St.
Denver, CO 80218
303.830.1188

Durango
1015 ½ Main Avenue
Durango, CO 81301
970.422.2136

Hotchkiss
P.O. Box 932
161 South 2nd St.
Hotchkiss, CO 81419
970.872.3020

Idaho
4001 East Main Street
Emmett, ID 83617
208.365.7684

www.eroresources.com

Consultants in
Natural Resources
and the Environment

MINUTES FROM SIERRA VISTA NEIGHBORHOOD MEETING

Anthem Highlands Parkside Community Center, 3624 Parkside Center Drive, Broomfield, CO 80023

6:00pm

- 21 People attended (see attached an attendance sign-in sheet), along with Developer's representatives Matt Deibel, Carl Nelson and Jeff Handlin
- Carl Nelson and Jeff Handlin gave a brief introduction, which included a brief history of Sierra Vista, the project's features, changes the Developer has made over time, the approval process to this point, and its approval process going forward.
- After the introduction, the Developer invited questions from the audience. The following are summaries of questions by audience members and Developer's responses:

QUESTIONS	RESPONSES
Who owns the Sierra Vista land now?	A private family.
Will lighting be controlled on the proposed commercial so as to not disturb the Anthem residents across Highway 7?	Lighting and other site plan details will be addressed at a commercial site plan/plat review process; however, at this time the Developer is not proposing any specific commercial use.
Height restrictions?	Approx. 35 feet for residential homes. Developer was not certain of commercial height restrictions, so Developer deferred to the Town on that topic.
What will the difference be between proposed and existing grades/elevations across the site?	The site balances from a dirt perspective; however, each area will vary in the differential between existing and proposed (to be built) grade. The grading plans show the existing and proposed grades in detail.
Will the Highway 7 CDOT access point be used?	Subject to CDOT acquiescence, the Developer proposes to install the CDOT access point concurrent with the development of the commercial parcel.
What will Bonanza look like?	An additional turn lane at the Highway 7 intersection will be installed concurrently with the development of the commercial parcel.
How will Sierra Vista drainage be handled (drainage from precipitation and irrigation)?	Historic flows will be released into the existing regional drainage channels, and developed flows will be detained onsite until such time that they can be released as historic flows.
Will regional storm waters continue to erode my lot/taxiway? (This question was asked by Beverly Cameron, who lives at 375 Baron Court, Erie, CO, which address is on the WEST side of Erie Airport's main north-south runway.)	Regional drainage issues should be addressed to the Town.
Will the drainage facilities onsite at Sierra Vista be 'wet' retention ponds? If wet, will water fowl represent a risk to incoming/outgoing flights?	No, the ponds will be dry detention ponds. In the event there were a temporary accumulation of water in the dry detention ponds in S. Vista (after a significant precipitation event), it is extremely unlikely it would be in a quantity to attract water fowl, and further, there are wet retention ponds and reservoirs nearby (e.g. in Anthem and environs) that are suitable habitat for water fowl, and

	therefore water fowl would be attracted to such water bodies, not a small amount of detained storm water.
Will Sierra Vista streetlights shine into the neighboring Erie Airpark?	It is not the intention for Sierra Vista streetlights to shine into individual lots within Erie Air Park, but the Developer doesn't know the 'boundaries' of streetlight illumination at this time.
Will the new Bonanza Drive improvements be located into the Town's Right of Way?	Yes, and in some cases, the Developer will be dedicating additional real estate for the expanded areas of Bonanza Drive.
(1) Will my view be affected across Sierra Vista?; (2) Will dogs that reside in Sierra Vista bother our livestock? (Asked by Joel Foote and Lois Knight, 250 County Road 3, Erie, CO, which property is currently an alpaca/llama farm as well as a residence.)	(1) Likely yes, the western view from your property will be affected, given that homes will be constructed upon previously undeveloped land; (2) Dogs within individual lots will be constrained by fencing, and Town leash laws should prevent dogs from wandering freely in the area.
Schedule for construction of infrastructure and homes?	Current estimates indicate that construction of infrastructure should likely begin in 2016, and homes should likely commence in 2017 (both subject to Town approval timelines). Completion of home construction, as well as commencement & completion of construction of the commercial parcel, are all subject to a number of factors, including market conditions, etc.
Is there a fire station that will be located to the north and east of Sierra Vista?	That inquiry should be directed towards Mountain View Fire District or the Town.
How does the sewer extension, providing sanitary sewer to the site, work? Will any of the Erie Air Park residents be required to connect to the municipal sanitary sewer system?	The Town will construct the sewer extension to the site, and no, to the Developer's knowledge, no resident of the Erie Air Park will be forced to connect.

Sierra Vista Meeting - 9-21-15

Name	Address
Lois Knight + Joel Foote	250 County Road 3 Erie
Tim + Nancy Flanagan	3064 Rams Horn Run
Frank + Jan Arbolik	3519 Vestal Loop
Gail Hanson	2665 Bonanza
Brigid + Dean Sanner	2697 Gray Wolf Loop
Ian + Vivien Whalley	4570 SOLL, AR, BF
JoAnn Vondracek	15969 Hamilton Way
JASON HURD	395 AIRPORT DRIVE ERIE
Beverly Cameron	375 Baron CT Erie
BOB HODAPP	110 CESSNA DR. ERIE
Aaron Miller	
BRAD & PATTY ANDERSON	3025 CHEROKEE CT ERIE
Mike & Carrie Eggleston	3020 Cherokee Ct: Erie
Mike DAEHNICK	2935 Cherokee Ct Erie