



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: <u>Dearmin East</u>	FILE NO: <u>SK-000893-2017</u>	DATE SUBMITTED: <u>5/23/2017</u>
		FEES PAID: <u>\$9,000</u>

PROJECT/BUSINESS NAME: Proposed Unnamed Community

PROJECT ADDRESS: Southeast corner of Erie Parkway and County Road 5

PROJECT DESCRIPTION: Sketch Plan application for the proposed development of a mixed use community comprised of single-family, attached homes and commercial uses. The total number of proposed residential units is 800 with approximately 6 acres of commercial and mixed-use area..

LEGAL DESCRIPTION (attach legal description if Metes & Bounds)

Subdivision Name: SEE ATTACHED LEGAL DESCRIPTION

Filing #:	Lot #:	Block #:	Section:	Township:	Range:
-----------	--------	----------	----------	-----------	--------

OWNER (attach separate sheets if multiple)

Name/Company: SEE ATTACHED OWNER LIST

Contact Person: _____

Address: _____

City/State/Zip: _____

Phone: _____ Fax: _____

E-mail: _____

AUTHORIZED REPRESENTATIVE

Company/Firm: SLC Development, LLC

Contact Person: Ben Crenshaw

Address: 1550 W. McEwen Drive, Suite 200

City/State/Zip: Franklin, Tennessee 37067

Phone: 615-778-2884 Fax: 615-778-2884

E-mail: ben.crenshaw@southernland.com

MINERAL RIGHTS OWNER (attach separate sheets if multiple)

Name/Company: SEE ATTACHED MINERAL OWNER LIST

Address: _____

City/State/Zip: _____

MINERAL LEASE HOLDER (attach separate sheets if multiple)

Name/Company: SEE ATTACHED MINERAL LEASE HOLDER LIST

Address: _____

City/State/Zip: _____

LAND-USE & SUMMARY INFORMATION

Present Zoning: <u>RP-3</u>	Gross Site Density (du/ac): _____
Proposed Zoning: <u>LR & NMU w/ PUD</u>	# Lots/Units Proposed: <u>800</u>
Gross Acreage: _____	Gross Floor Area: _____

SERVICE PROVIDERS

Electric: <u>United Power</u>	Gas: <u>Xcel Energy</u>
Metro District: _____	Fire District: <u>Mountain View Fire District</u>
Water (if other than Town): _____	Sewer (if other than Town): _____

PAGE TWO MUST BE SIGNED AND NOTARIZED

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

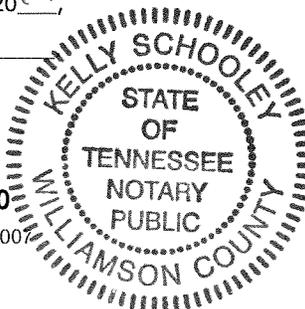
Applicant: Ken Howen Date: 5.17.17

STATE OF COLORADO)
 County of Williamson) ss.

The foregoing instrument was acknowledged before me this 17 day of May, 2017, by Ken Howen

My commission expires: _____
 Witness my hand and official seal.

My Commission Expires May 25, 2020



Kelly Schooley
 Notary Public

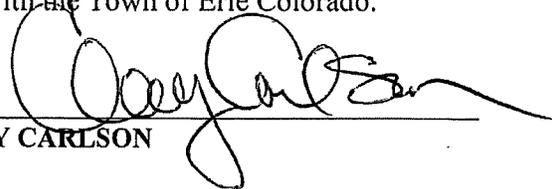
OWNER LIST

ANYA CARLSON
CLAY CARLSON
KENT CARLSON
NIA CARLSON
SCOTT CARLSON
TATE CARLSON
TAVIA CARLSON
ZANE CARLSON
C & J LAND INVESTMENTS, LLC
J.P.K. PARTNERS, LLC
K & H LAND INVESTMENTS, LLC
PARKWOOD EAST, LLC
S & L LAND INVESTMENTS, LLC

Contact Person: Clay Carlson
Address: c/o Carlson Associates, Inc.
12460 1st Street
Eastlake, Colorado 80614-0247
Phone: (303) 457-2966
Fax: (303) 280-2978
E-mail: claycarlson@carlsonland.net

AUTHORIZATION TO PROCESS LAND USE APPLICATION

We, the undersigned, are all of the owners of that certain real property located in the West Half of Section 21, Township 1 North, Range 68 West of the Sixth Principal Meridian, Town of Erie, County of Weld, State of Colorado, which is more particularly described on Exhibit A attached hereto (the "Property"). We hereby authorize SLC Development, LLC to process a Land Use Application for the Property with the Town of Erie Colorado.

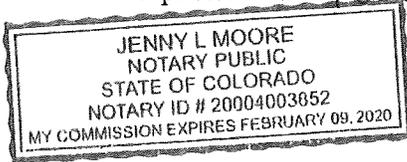


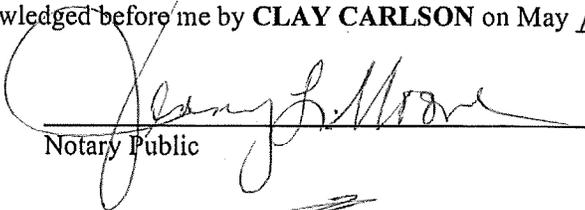
CLAY CARLSON

STATE OF COLORADO
COUNTY OF WELD *Adams*

The foregoing instrument was acknowledged before me by **CLAY CARLSON** on May 11, 2017.

My commission expires: *02/09/2020*





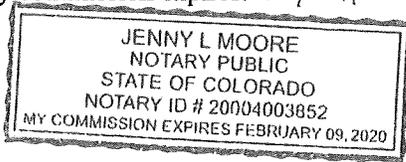
Notary Public

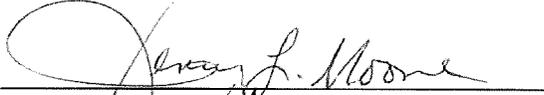
KENT CARLSON, individually and as attorney-in-fact for Nia Carlson, Tavia Carlson and Heidi D. Carlson, as conservator of the estates of Tate Carlson, Anya Carlson and Zane Carlson, collectively, under the "Colorado Uniform Transfers to Minors Act"

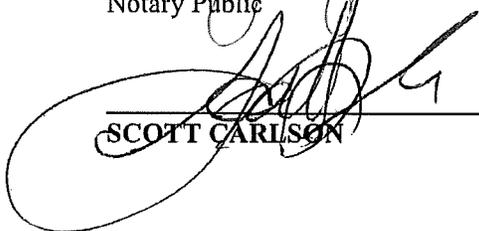
STATE OF COLORADO
COUNTY OF WELD *Adams*

The foregoing instrument was acknowledged before me by **KENT CARLSON** on May 11, 2017.

My commission expires: *02/09/2020*





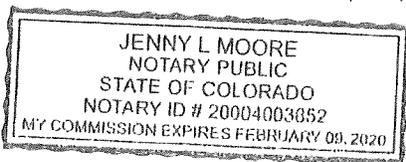
Notary Public


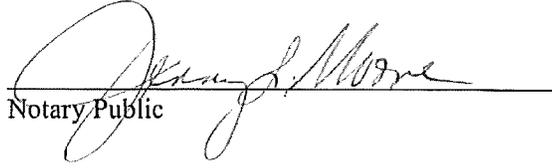
SCOTT CARLSON

STATE OF COLORADO
COUNTY OF WELD *Adams*

The foregoing instrument was acknowledged before me by **SCOTT CARLSON** on May 11, 2017.

My commission expires: *02/09/2020*





Notary Public

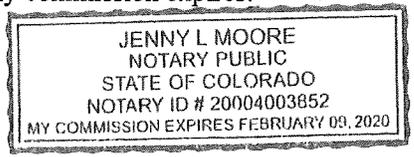
C & J LAND INVESTMENTS, LLC,
a Colorado limited liability company

By: [Signature]
Name: CLAY CARLSON
Its: mgr

STATE OF COLORADO
COUNTY OF WELD Adams

The foregoing instrument was acknowledged before me on May 11, 2017 by Clay Carlson
of C & J LAND INVESTMENTS, LLC, a Colorado limited liability company.

My commission expires: 02/09/2020



[Signature]
Notary Public

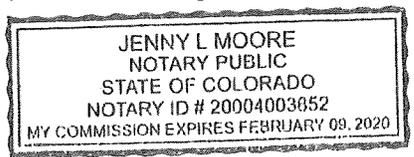
J.P.K. PARTNERS, LLC,
a Colorado limited liability company

By: [Signature]
Name: Kent Carlson
Its: Manager

STATE OF COLORADO
COUNTY OF WELD Adams

The foregoing instrument was acknowledged before me on May 11, 2017 by Kent Carlson
of J.P.K. PARTNERS, LLC, a Colorado limited liability company.

My commission expires: 02/09/2020



[Signature]
Notary Public

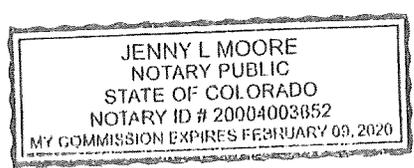
K & H LAND INVESTMENTS, LLC,
a Colorado limited liability company

By: [Signature]
Name: Kent Carlson
Its: Manager

STATE OF COLORADO
COUNTY OF WELD Adams

The foregoing instrument was acknowledged before me on May 11, 2017 by Kent Carlson
of K & H LAND INVESTMENTS, LLC, a Colorado limited liability company.

My commission expires: 02/09/2020



[Signature]
Notary Public

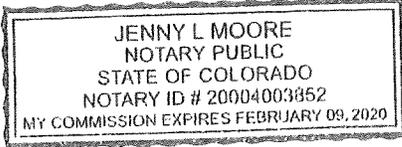
PARKWOOD EAST, LLC,
a Colorado limited liability company

By: [Signature]
Name: Clay Carlson
Its: Manager

STATE OF COLORADO
COUNTY OF ~~WELD~~ Adams

The foregoing instrument was acknowledged before me on May 11, 2017 by Clay Carlson of PARKWOOD EAST, LLC, a Colorado limited liability company.

My commission expires: 02/09/2020



[Signature]
Notary Public

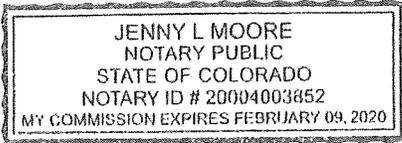
S & L LAND INVESTMENTS, LLC,
a Colorado limited liability company

By: [Signature]
Name: Scott L Carlson
Its: Manager

STATE OF COLORADO
COUNTY OF ~~WELD~~ Adams

The foregoing instrument was acknowledged before me on May 11, 2017 by Scott L Carlson of S & L LAND INVESTMENTS, LLC, a Colorado limited liability company.

My commission expires: 02/09/2020



[Signature]
Notary Public

Attachment to Land Use Application

Mineral Rights Owners:

RME Petroleum Corporation
c/o Anadarko Petroleum Corporation
P.O. Box 9149
The Woodlands, Texas 77387-9147
Attn: Manager Land, Western Division

RME Land Corp.
c/o Anadarko Petroleum Corporation
P.O. Box 9149
The Woodlands, Texas 77387-9147
Attn: Manager Property and Rights-of-Way

Mineral Lease Holders:

Amoco Production Company
c/o HS Resources, Inc.
1999 Broadway, Suite 3600
Denver, Colorado 80202-5740

Encana Oil & Gas (USA) Inc.
370 17th Street, Suite 1700
Denver, Colorado 80202

Requests for Notification of Surface Development Not Listed Above:

Noble Energy, Inc.
Attn: Wattenberg Land Department
1625 Broadway, Suite 2000
Denver, Colorado 80202

Kerr-McGee Oil & Gas Onshore LP
1099 18th Street #1500
Denver, Colorado 80202
Attn: Land Manager/Wattenberg

SOUTHERN LAND COMPANY

1550 West McEwen Drive
Suite 200
Franklin, Tennessee 37076
Phone: 615-778-3150
Fax: 615-778-3170
www.southernland.com

May 15, 2017

Town of Erie
Community Development Department
645 Holbrook Street
Erie, CO 80516

RE: Sketch Plan, Dearmin Tract

To Whom It May Concern:

Southern Land Company, LLC ("Applicant") is pleased to submit the enclosed Sketch Plan application for the property located at the southwest corner of Erie Parkway and Weld County Road 5. This project consists of a parcel with an area of 266.66 acres that is located in the Town of Erie and is currently zoned Rural Preservation 3 (RP-3). The Town of Erie Comprehensive Plan – 2015 Update depicts this property to include Mixed Use (MU), Low-Density Residential (LDR) and Rural Residential (RR) zoning classifications. An 'Area of Special Consideration' is indicated on the property adjacent to Erie Parkway within the Mixed-Use zone.

The design concept of the community plan emphasizes a walkable village at the northeast corner with a direct connection through the open space to the Neighborhood Park at the promontory along the east property line. The vehicular circulation provides direct access through the community while leading to or terminating at the Neighborhood Park. Every resident is within a 5 minute walk to the Neighborhood Park, Pocket Park or connection to the pedestrian trail network.

The Applicant will make a request in the future to rezone the parcel to a PUD with the base zoning categories of Low-Density Residential (LR), Medium-Density Residential (MR), NMU (Neighborhood Mixed-Use) and Public Land and Institutions (PLI). This Sketch Plan assumes the following breakdown as approximate areas of Zoning categories and densities:

Zoning Category	Area	Density	Total Units	Total Commercial
LR	235.8	5 DUA max	695	
MR	14.0	5-10 DUA	70	
NMU	3.34			35000 sf
PLI	13.54			

With the anticipated total of 765 units and assuming 2.85 residents per dwelling, 18.53 acres of Parkland dedication and 37.06 acres of Open Space area required. The following summarizes the proposed Parkland and Open Space requirements and dedications:

	Required	Proposed
Parkland	18.53	22.83
Town Neighborhood Park	7.00	7.03
Community Park	0	0
Town Open Space	37.06	37.17 (Excludes Easements, Oil/Gas Setbacks)

The provision of a Community Park is not required due to the area of the parcel not meeting the minimum requirements. The Town Neighborhood Park and Town Open Space will be dedicated to the Town and maintained by the Town. The Pocket Parks and remaining open space will be maintained by the HOA or Metro District. The project proposes two community amenity areas that will be maintained by the HOA or Metro District.

The project will likely be constructed in 6 or 7 phases. The first phases will be centered around the northernmost proposed community amenity and subsequent phases will be built to the north and south of that area.

The total residential area of the proposed community plan is 249.8 acres, which requires 4 housing types (or 3 types and one variation or 2 types and 2 variations) to meet the Housing Diversity requirements. The plan proposes 3 housing types with one variation: Front-Loaded Single Family, Alley-Loaded Single Family, Alley-Loaded Townhome, and Stacked Quad-Plex. This Sketch Plan does not depict the final proposed locations of each housing type. The Applicant is in negotiations with participants in the local homebuilding community to finalize the product types and locations.

St. Vrain Valley School District provides service to this parcel. The District has identified this area for a future school with the requirement of 25 acres. The plan proposes 13.54 acres as a set-aside of half of the requested land with the understanding that the Applicant will work with the adjacent property owner to provide the remainder of the requested land.

Mountain View Fire District provides service to the subject parcel. No special fire district requirements are anticipated.

The water and sanitary sewer infrastructure for this project will be served by the Town of Erie. The project is located within water Zones 3 and 4. A 30" (Zone 3) water line is located in Erie Parkway at the northern boundary of the site which will serve the project. The project will be required to construct a new Zone 4 water line to serve the development within the Zone 4 area. An 18" sanitary sewer (Coal Creek Basin) line exists at the northwest corner of Erie Parkway and WCR 5 and will serve this project.

Thank you for your consideration of the project and we look forward to reviewing the plans with the Town of Erie.

Sincerely,
Southern Land Company, LLC



Ben Crenshaw, ASLA, CO#1074
SVP, Design

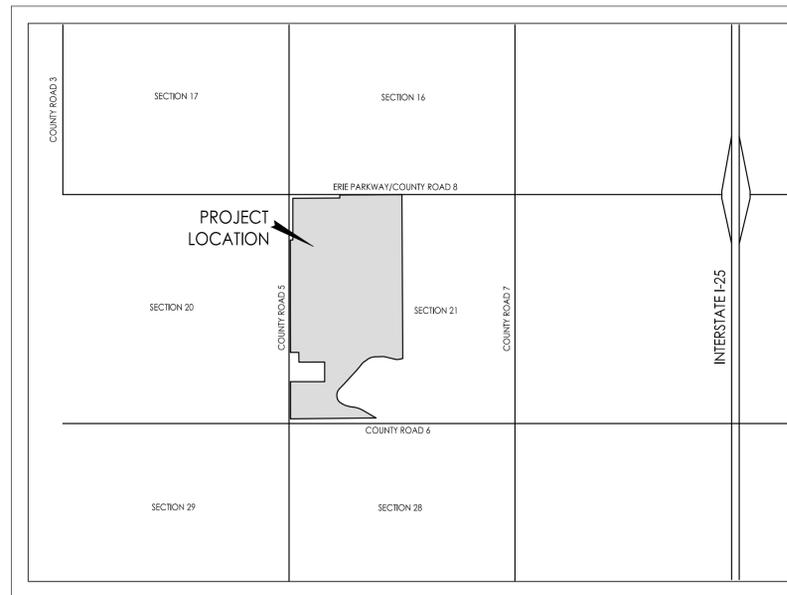
ERIE COMMUNITY SKETCH PLAN

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
266.66 ACRES | 765 LOTS | 32 TRACTS

SK _____ - _____

SOUTHERN LAND COMPANY

Southern Land Company, LLC
1550 W. McEwen Drive, Suite 200
Franklin, Tennessee 37067
Office (615) 778-3150 - Fax (615) 778-2875
www.southernland.com



VICINITY MAP

SCALE: 1"=2000'

INDEX OF SHEETS

- SHEET 1 COVER SHEET
- SHEET 2 OVERALL SKETCH PLAN
- SHEET 3 NORTH AREA SKETCH PLAN
- SHEET 4 CENTRAL AREA SKETCH PLAN
- SHEET 5 SOUTH AREA SKETCH PLAN

SOUTHERN LAND COMPANY

Southern Land Company, LLC
1550 W. McEwen Drive, Suite 200 - Franklin, Tennessee 37067
Office (615) 778-3150 - Fax (615) 778-2875 - www.southernland.com

ERIE COMMUNITY SKETCH PLAN SUBMITTAL

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

REVISIONS:

1	
2	
3	
4	
5	
6	

DATE: 05/17/2017

PROJECT #: SK_ - _

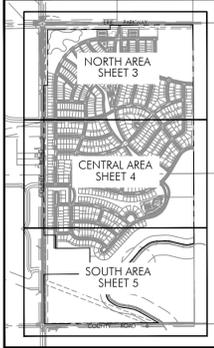
COVER

APPLICANT/DEVELOPER:
SOUTHERN LAND COMPANY
1550 WEST MCEWEN DRIVE, SUITE 200
FRANKLIN, TN 37067
PREPARED BY: J. BENJAMIN CRENSHAW, RLA

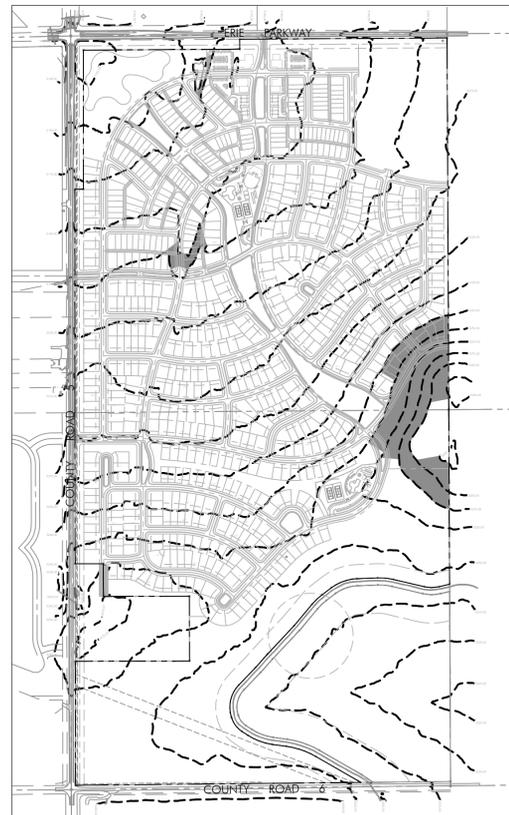
SHEET NO.
SHEET 1 OF 5

ERIE COMMUNITY SKETCH PLAN

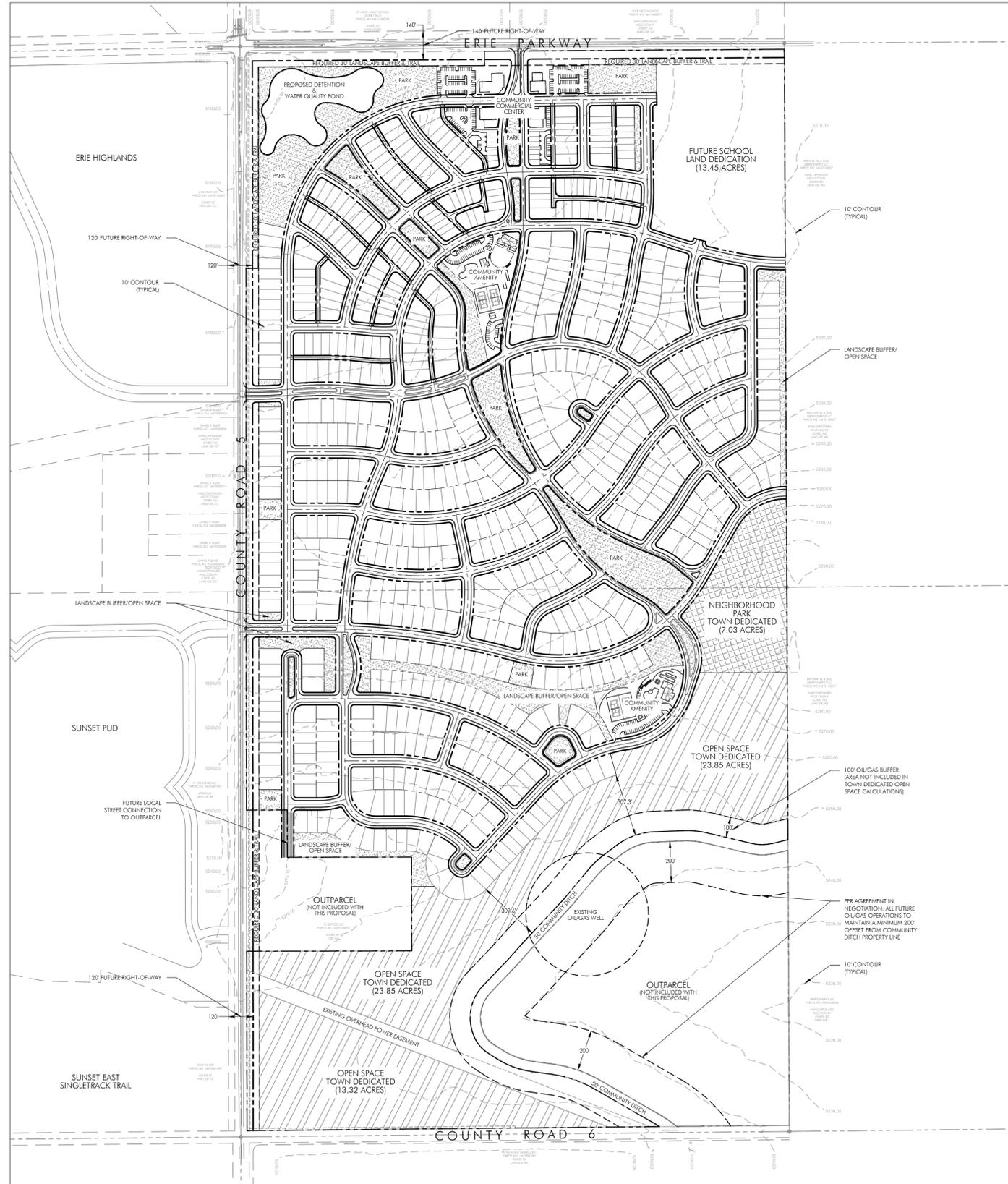
LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
 266.66 ACRES | 765 LOTS | 32 TRACTS
 SK _____



UNDERMINING AREAS
 SCALE: 1" = 600' - 0"
 NORTH



SLOPE ANALYSIS FOR AREAS 8% OR GREATER
 SCALE: 1" = 600' - 0"
 NORTH



TYPE	AREA (ACRES)	% OF TOTAL AREA
ALLEY-LOADED RESIDENTIAL LOTS	19.47 ACRES	7.32%
FRONT-LOADED RESIDENTIAL LOTS	63.23 ACRES	23.71%
ACTIVE ADULT RESIDENTIAL LOTS	21.24 ACRES	7.96%
COMMUNITY AMENITY LOTS	4.88 ACRES	1.83%
COMMERCIAL LOTS	3.34 ACRES	1.25%
SCHOOL SITE DEDICATION	13.54 ACRES	5.10%
OPEN SPACE TRACTS	80.00 ACRES	30.00%
PUBLIC RIGHT-OF-WAY	58.62 ACRES	21.98%
PRIVATE ALLEY RIGHT-OF-WAY	2.14 ACRES	0.80%
TOTAL	266.66 ACRES	100.00%

TRACT	AREA	USE	OWNERSHIP	MAINTENANCE
A*	7.74 ACRES	OPEN SPACE/POND	HOA	HOA
B	1.22 ACRES	COMMERCIAL	DEVELOPER	DEVELOPER
C	0.68 ACRES	COMMERCIAL	DEVELOPER	DEVELOPER
D*	0.39 ACRES	OPEN SPACE	HOA	HOA
E	0.28 ACRES	COMMERCIAL	DEVELOPER	DEVELOPER
F	1.16 ACRES	COMMERCIAL	DEVELOPER	DEVELOPER
G*	1.27 ACRES	OPEN SPACE	HOA	HOA
H	0.22 ACRES	OPEN SPACE	HOA	HOA
I	13.54 ACRES	SCHOOL SITE	SVVSD	SVVSD
J	0.16 ACRES	OPEN SPACE	HOA	HOA
K*	0.91 ACRES	OPEN SPACE	HOA	HOA
L*	0.33 ACRES	OPEN SPACE	HOA	HOA
M	0.79 ACRES	OPEN SPACE	HOA	HOA
N	2.84 ACRES	COMMUNITY AMENITY	HOA	HOA
O	0.87 ACRES	OPEN SPACE	HOA	HOA
P	0.06 ACRES	OPEN SPACE	HOA	HOA
Q*	1.26 ACRES	OPEN SPACE	HOA	HOA
R	0.46 ACRES	OPEN SPACE	HOA	HOA
S	0.89 ACRES	OPEN SPACE	HOA	HOA
T*	0.25 ACRES	OPEN SPACE	HOA	HOA
U*	2.77 ACRES	OPEN SPACE	HOA	HOA
V*	7.03 ACRES	NEIGHBORHOOD PARK	TOWN OF ERIE	TOWN OF ERIE
W**	47.77 ACRES	OPEN SPACE	TOWN OF ERIE	TOWN OF ERIE
X	2.23 ACRES	COMMUNITY AMENITY	HOA	HOA
Y	3.17 ACRES	OPEN SPACE	HOA	HOA
Z*	0.27 ACRES	OPEN SPACE	HOA	HOA
AA*	0.34 ACRES	OPEN SPACE	HOA	HOA
BB	1.35 ACRES	OPEN SPACE	HOA	HOA
CC*	0.12 ACRES	OPEN SPACE	HOA	HOA
DD*	0.25 ACRES	OPEN SPACE	HOA	HOA
EE	1.31 ACRES	OPEN SPACE	HOA	HOA
FF	0.08 ACRES	OPEN SPACE	HOA	HOA
TOTAL	181.73 ACRES			

TYPE	CHARACTER	OWNER/MAINT.	REQUIRED AREA	PROVIDED AREA
PARK LAND	NEIGHBORHOOD PARK	TOWN OF ERIE	7.03 ACRES	7.03 ACRES
PARK LAND	PARKS (MIN. 0.25 ACRES)	HOA	11.33 ACRES	15.86 ACRES
PARK LAND TOTALS			18.36 ACRES	22.89 ACRES
OPEN SPACE	OPEN SPACES/TRAILS	TOWN OF ERIE	37.86 ACRES	37.17 ACRES
BUFFER/INFORMAL	OPEN SPACE	HOA	N/A	20.00 ACRES
PARK LAND & OPEN SPACE TOTALS			55.59 ACRES	80.00 ACRES

NOTES:
 1. TRACTS NOTED WITH "*" ABOVE INDICATES ACREAGE COUNTING TOWARDS PARK LAND REQUIREMENT.
 2. TRACT NOTED WITH "**" ABOVE INDICATES ACREAGE COUNTING TOWARDS OPEN SPACE REQUIREMENT.
 HOWEVER, THE ACREAGE SHOWN FOR THE ENTIRE TRACT INCLUDES BOTH THE OVERHEAD POWER EASEMENT AND OIL/GAS BUFFER. THESE AREAS HAVE BEEN EXCLUDED IN THE PARK LAND & OPEN SPACE CHART BECAUSE THESE AREAS DO NOT COUNT TOWARDS THE REQUIREMENTS.

SOUTHERN LAND COMPANY
 Southern Land Company, LLC
 1550 W. McEwen Drive, Suite 200 - Franklin, Tennessee 37067
 Office (615) 778-3150 • Fax (615) 778-2875 • www.southernland.com

ERIE COMMUNITY SKETCH PLAN SUBMITTAL
 LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN
 TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

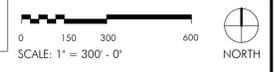
1	
2	
3	
4	
5	
6	

DATE: 05/17/2017

PROJECT #: SK_____

OVERALL SKETCH PLAN

SHEET NO.
 SHEET 2 OF 5

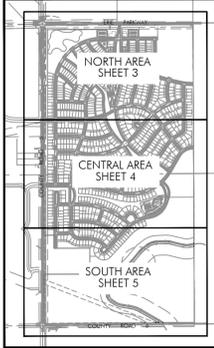


APPLICANT/DEVELOPER:
 SOUTHERN LAND COMPANY
 1550 WEST MCEWEN DRIVE, SUITE 200
 FRANKLIN, TN 37067
 PREPARED BY: J. BENJAMIN CRENSHAW, RLA

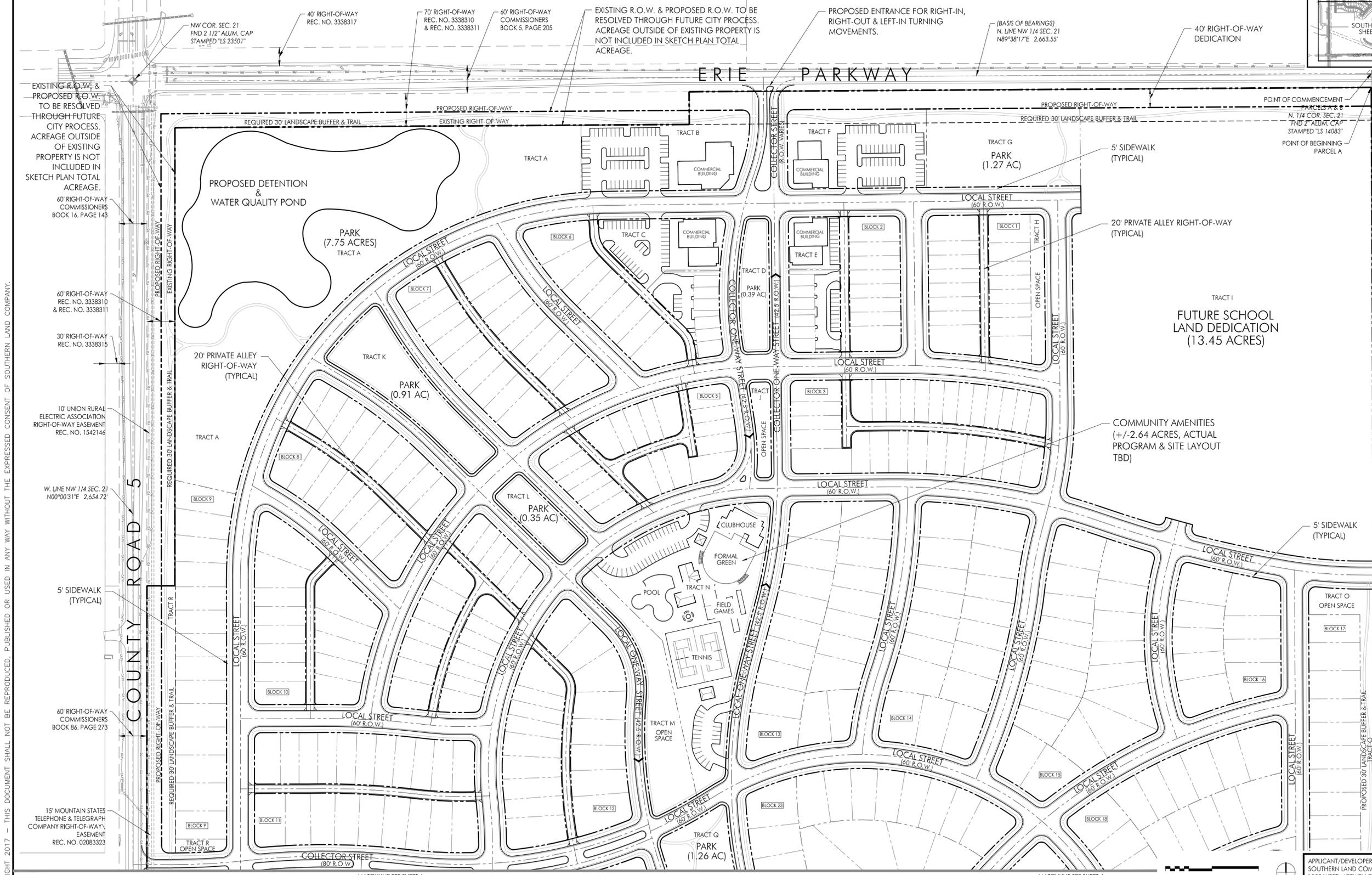
COPYRIGHT 2017 - THIS DOCUMENT SHALL NOT BE REPRODUCED, PUBLISHED OR USED IN ANY WAY WITHOUT THE EXPRESSED CONSENT OF SOUTHERN LAND COMPANY.

ERIE COMMUNITY SKETCH PLAN

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
 266.66 ACRES | 765 LOTS | 32 TRACTS
 SK _____



SOUTHERN LAND COMPANY
 Southern Land Company, LLC
 1550 W. McEwen Drive, Suite 200 - Franklin, Tennessee 37067
 Office (615) 778-3150 - Fax (615) 778-2873 - www.southernland.com



E. LINE NW 1/4 SEC. 21 S00°16'01"E 2,649.90'
 ENCANA OIL & GAS
 LIBERTY ENERGY LLC
 PARCEL NO. 146721100037

COPYRIGHT 2017 - THIS DOCUMENT SHALL NOT BE REPRODUCED, PUBLISHED OR USED IN ANY WAY WITHOUT THE EXPRESSED CONSENT OF SOUTHERN LAND COMPANY.

ERIE COMMUNITY SKETCH PLAN SUBMITTAL
 LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

REVISIONS:

1	
2	
3	
4	
5	
6	

DATE: 05/17/2017

PROJECT #: SK _____

NORTH AREA SKETCH PLAN

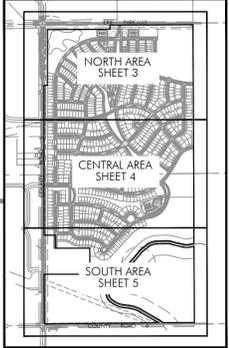
SHEET NO.
SHEET 3 OF 5

APPLICANT/DEVELOPER:
 SOUTHERN LAND COMPANY
 1550 WEST MCEWEN DRIVE, SUITE 200
 FRANKLIN, TN 37067
 PREPARED BY: J. BENJAMIN CRENSHAW, RLA

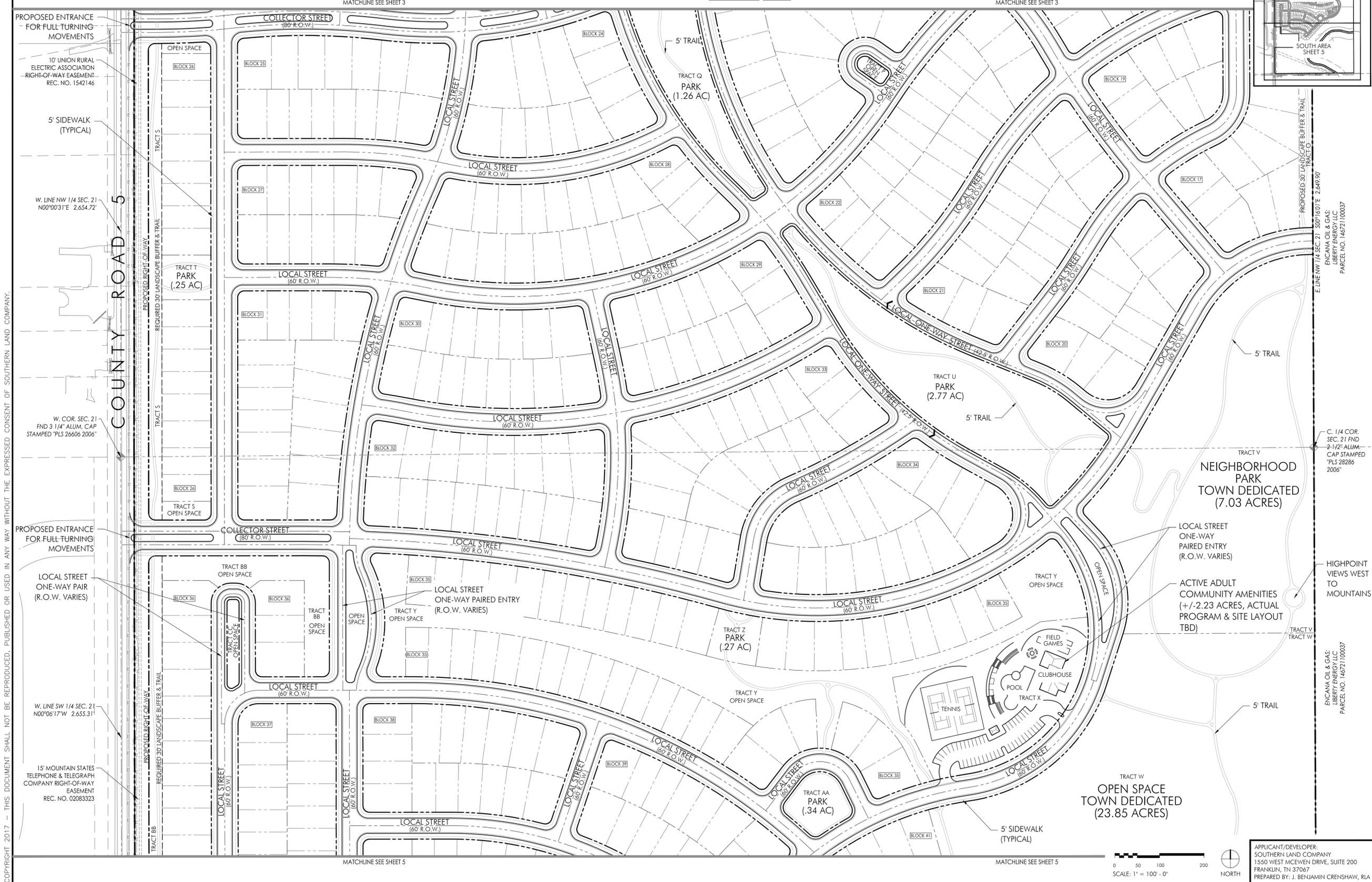


ERIE COMMUNITY SKETCH PLAN

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
 266.66 ACRES | 765 LOTS | 32 TRACTS
 SK _____



SOUTHERN LAND COMPANY
 Southern Land Company, LLC
 1550 W. McEwen Drive, Suite 200 - Franklin, Tennessee 37067
 Office (615) 778-3150 - Fax (615) 778-2873 - www.southernland.com



COPYRIGHT 2017 - THIS DOCUMENT SHALL NOT BE REPRODUCED, PUBLISHED OR USED IN ANY WAY WITHOUT THE EXPRESSED CONSENT OF SOUTHERN LAND COMPANY.

ERIE COMMUNITY
 SKETCH PLAN SUBMITTAL
 LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH,
 RANGE 68 WEST OF THE 6TH PRINCIPLE MERIDIAN
 TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO

REVISIONS:

1	
2	
3	
4	
5	
6	

DATE: 05/17/2017

PROJECT #: SK-____

CENTRAL AREA SKETCH PLAN

SHEET NO.
 SHEET 4 OF 5

APPLICANT/DEVELOPER:
 SOUTHERN LAND COMPANY
 1550 WEST MCEWEN DRIVE, SUITE 200
 FRANKLIN, TN 37067
 PREPARED BY: J. BENJAMIN CRENSHAW, RLA



ALTA/ACSM LAND TITLE SURVEY

DEARMIN

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
SHEET 1 OF 5

LEGAL DESCRIPTION

PARCEL A:

A PARCEL OF LAND LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 21, AND CONSIDERING THE NORTHERLY LINE OF THE NORTHWEST QUARTER OF SAID SECTION 21 TO BEAR NORTH 89°38'17" EAST WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO; THENCE SOUTH 00°16'01" EAST ALONG THE EASTERLY LINE OF THE NORTHWEST QUARTER OF SAID SECTION 21 A DISTANCE OF 30.00 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF ERIE PARKWAY (WELD COUNTY ROAD 8) AS DESCRIBED IN COMMISSIONERS BOOK 5, PAGE 206 OF THE RECORDS OF THE WELD COUNTY COMMISSIONERS AND THE POINT OF BEGINNING;

THENCE CONTINUING ALONG SAID EASTERLY LINE OF THE NORTHWEST QUARTER OF SECTION 21 SOUTH 00°16'01" EAST A DISTANCE OF 2,619.90 FEET TO THE CENTER CORNER OF SAID SECTION 21;

THENCE SOUTH 00°16'04" EAST ALONG THE EASTERLY LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 21 A DISTANCE OF 1,229.70 FEET TO A POINT ON THE WESTERLY BOUNDARY OF THE COMMUNITY DITCH AS DESCRIBED IN BOOK 63, PAGE 464, RECEPTION NO. 23030 OF THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER;

THENCE ALONG SAID WESTERLY BOUNDARY OF THE COMMUNITY DITCH THE FOLLOWING TWENTY-ONE (21) COURSES:

- 1) SOUTH 76°41'08" WEST A DISTANCE OF 77.18 FEET TO A POINT OF CURVATURE;
- 2) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 26°32'10", A RADIUS OF 225.00 FEET, AN ARC LENGTH OF 104.21 FEET AND A CHORD THAT BEARS SOUTH 89°57'13" WEST A DISTANCE OF 103.28 FEET;
- 3) NORTH 78°46'42" WEST A DISTANCE OF 223.30 FEET TO A POINT OF CURVATURE;
- 4) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 15°24'26", A RADIUS OF 425.00 FEET, AN ARC LENGTH OF 114.29 FEET AND A CHORD THAT BEARS NORTH 84°28'55" WEST A DISTANCE OF 113.94 FEET;
- 5) SOUTH 87°48'52" WEST A DISTANCE OF 145.31 FEET TO A POINT OF CURVATURE;
- 6) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 34°36'07", A RADIUS OF 325.00 FEET, AN ARC LENGTH OF 196.27 FEET AND A CHORD THAT BEARS SOUTH 70°30'47" WEST A DISTANCE OF 193.30 FEET;
- 7) SOUTH 53°12'44" WEST A DISTANCE OF 80.82 FEET TO A POINT OF CURVATURE;
- 8) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 13°09'14", A RADIUS OF 425.00 FEET, AN ARC LENGTH OF 95.57 FEET AND A CHORD THAT BEARS SOUTH 46°38'08" WEST A DISTANCE OF 97.36 FEET;
- 9) SOUTH 40°03'31" WEST A DISTANCE OF 199.79 FEET;
- 10) SOUTH 43°18'24" WEST A DISTANCE OF 274.93 FEET;
- 11) SOUTH 41°54'01" WEST A DISTANCE OF 126.84 FEET;
- 12) SOUTH 43°57'21" WEST A DISTANCE OF 169.36 FEET TO A POINT OF CURVATURE;
- 13) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 62°08'24", A RADIUS OF 225.00 FEET, AN ARC LENGTH OF 244.02 FEET AND A CHORD THAT BEARS SOUTH 12°53'09" WEST A DISTANCE OF 232.24 FEET;
- 14) SOUTH 18°11'03" EAST A DISTANCE OF 8.91 FEET TO A POINT OF CURVATURE;
- 15) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 39°02'42", A RADIUS OF 175.00 FEET, AN ARC LENGTH OF 119.26 FEET AND A CHORD THAT BEARS SOUTH 37°42'25" EAST A DISTANCE OF 116.96 FEET;
- 16) SOUTH 57°13'46" EAST A DISTANCE OF 50.68 FEET TO A POINT OF CURVATURE;
- 17) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 24°57'41", A RADIUS OF 425.00 FEET, AN ARC LENGTH OF 185.15 FEET AND A CHORD THAT BEARS SOUTH 89°42'37" EAST A DISTANCE OF 183.69 FEET;
- 18) SOUTH 82°11'27" EAST A DISTANCE OF 100.58 FEET TO A POINT OF CURVATURE;
- 19) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 22°03'40", A RADIUS OF 625.00 FEET, AN ARC LENGTH OF 221.40 FEET AND A CHORD THAT BEARS SOUTH 71°09'37" EAST A DISTANCE OF 220.03 FEET;
- 20) SOUTH 60°07'47" EAST A DISTANCE OF 347.74 FEET TO A POINT OF CURVATURE;
- 21) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 02°24'14", A RADIUS OF 475.00 FEET, AN ARC LENGTH OF 19.93 FEET AND A CHORD THAT BEARS SOUTH 58°55'40" EAST A DISTANCE OF 19.93 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF WELD COUNTY ROAD 6 AS DESCRIBED IN COMMISSIONERS BOOK 86, PAGE 273 OF THE RECORDS OF THE WELD COUNTY COMMISSIONERS;

THENCE SOUTH 89°25'57" WEST ALONG SAID NORTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 2,019.11 TO A POINT ON THE EASTERLY RIGHT-OF-WAY LINE OF WELD COUNTY ROAD 5 AS DESCRIBED IN COMMISSIONERS BOOK 86, PAGE 273 OF THE RECORDS OF THE WELD COUNTY COMMISSIONERS;

THENCE NORTH 00°06'17" WEST ALONG SAID EASTERLY RIGHT-OF-WAY LINE A DISTANCE OF 874.06 TO A POINT ON THE BOUNDARY OF THAT PARCEL OF LAND DESCRIBED AT RECEPTION NO. 2978817 OF THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER;

THENCE ALONG SAID BOUNDARY THE FOLLOWING FIVE (5) COURSES:

- 1) NORTH 89°53'43" EAST A DISTANCE OF 807.64 FEET;
- 2) NORTH 00°06'17" WEST A DISTANCE OF 457.00 FEET;
- 3) SOUTH 89°53'43" WEST A DISTANCE OF 608.07 FEET;
- 4) NORTH 00°06'17" WEST A DISTANCE OF 230.00 FEET;
- 5) SOUTH 89°53'43" WEST A DISTANCE OF 199.57 FEET TO A POINT ON THE EASTERLY RIGHT-OF-WAY LINE OF SAID WELD COUNTY ROAD 5;

THENCE ALONG SAID EASTERLY RIGHT-OF-WAY LINE THE FOLLOWING TWO (2) COURSES:

- 1) NORTH 00°06'17" WEST A DISTANCE OF 1,064.19 FEET;
- 2) NORTH 00°03'11" EAST A DISTANCE OF 1,574.75 FEET TO A POINT ON THE EASTERLY RIGHT-OF-WAY LINE OF WELD COUNTY ROAD 5 AS DESCRIBED IN THE DEEDS RECORDED AT RECEPTION NO. 3338310 AND RECEPTION NO. 3338311 OF THE WELD COUNTY CLERK AND RECORDER;

THENCE ALONG SAID EASTERLY RIGHT-OF-WAY LINE AND ALONG THE SOUTHERLY RIGHT-OF-WAY LINE OF ERIE PARKWAY (WELD COUNTY ROAD 8) THE FOLLOWING FOUR (4) COURSES:

- 1) SOUTH 89°59'29" EAST A DISTANCE OF 60.00 FEET;
- 2) NORTH 00°03'11" EAST A DISTANCE OF 980.30 FEET;
- 3) NORTH 89°38'17" EAST A DISTANCE OF 1,106.54 FEET;
- 4) NORTH 00°21'43" WEST A DISTANCE OF 70.00 FEET TO A POINT ON SAID SOUTHERLY RIGHT-OF-WAY LINE OF ERIE PARKWAY (WELD COUNTY ROAD 8) AS DESCRIBED IN COMMISSIONERS BOOK 5, PAGE 205 OF THE RECORDS OF THE WELD COUNTY COMMISSIONERS;

THENCE NORTH 89°38'17" EAST ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 1,467.60 FEET TO THE POINT OF BEGINNING.

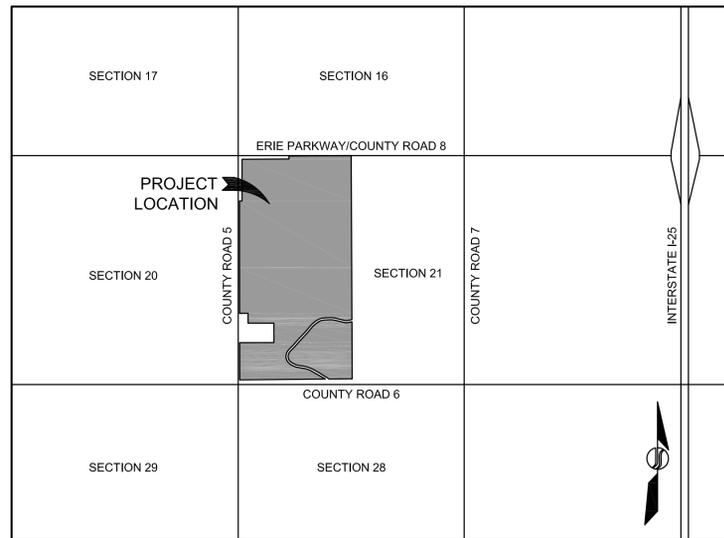
PARCEL A CONTAINS 11,615,744 SQUARE FEET, OR 266.66 ACRES, MORE OR LESS.

PARCEL B:

A PARCEL OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF SAID SECTION 21, AND CONSIDERING THE NORTHERLY LINE OF THE NORTHWEST QUARTER OF SAID SECTION 21 TO BEAR NORTH 89°38'17" EAST WITH ALL BEARINGS SHOWN HEREON RELATIVE THERETO; THENCE SOUTH 00°16'01" EAST ALONG THE EASTERLY LINE OF THE NORTHWEST QUARTER OF SAID SECTION 21 A DISTANCE OF 2,649.90 FEET TO THE CENTER CORNER OF SAID SECTION 21; THENCE SOUTH 00°16'04" EAST ALONG THE EASTERLY LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 21 A DISTANCE OF 1,231.03 FEET TO A POINT ON THE EASTERLY BOUNDARY OF THE COMMUNITY DITCH AS DESCRIBED IN BOOK 63, PAGE 464, RECEPTION NO. 23030 OF THE RECORDS OF THE WELD COUNTY CLERK AND RECORDER AND THE POINT OF BEGINNING;

PARCEL 'B' IS EXCLUDED FROM THIS PROPOSAL



VICINITY MAP

SCALE 1"=2000'

LEGAL DESCRIPTION CONTINUED

THENCE CONTINUING ALONG SAID EASTERLY LINE OF THE SOUTHWEST QUARTER OF SECTION 21 SOUTH 00°16'04" EAST A DISTANCE OF 1,339.39 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF WELD COUNTY ROAD 6 AS DESCRIBED IN COMMISSIONERS BOOK 86, PAGE 273 OF THE RECORDS OF THE WELD COUNTY COMMISSIONERS;

THENCE SOUTH 89°25'57" WEST ALONG SAID NORTHERLY RIGHT-OF-WAY LINE A DISTANCE OF 551.20 TO A POINT ON THE EASTERLY BOUNDARY OF SAID COMMUNITY DITCH;

THENCE ALONG SAID EASTERLY BOUNDARY OF THE COMMUNITY DITCH THE FOLLOWING TWENTY-ONE (21) COURSES:

- 1) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 10°05'03", A RADIUS OF 525.00 FEET, AN ARC LENGTH OF 92.40 FEET AND A CHORD THAT BEARS NORTH 55°05'16" WEST A DISTANCE OF 92.28 FEET;
- 2) NORTH 60°07'47" WEST A DISTANCE OF 347.74 FEET TO A POINT OF CURVATURE;
- 3) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 22°03'40", A RADIUS OF 625.00 FEET, AN ARC LENGTH OF 240.65 FEET AND A CHORD THAT BEARS NORTH 71°09'37" WEST A DISTANCE OF 239.17 FEET;
- 4) NORTH 82°11'27" WEST A DISTANCE OF 100.58 FEET TO A POINT OF CURVATURE;
- 5) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 24°57'41", A RADIUS OF 375.00 FEET, AN ARC LENGTH OF 163.37 FEET AND A CHORD THAT BEARS NORTH 89°42'37" WEST A DISTANCE OF 162.08 FEET;
- 6) NORTH 57°13'46" WEST A DISTANCE OF 50.68 FEET TO A POINT OF CURVATURE;
- 7) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 39°02'42", A RADIUS OF 125.00 FEET, AN ARC LENGTH OF 85.18 FEET AND A CHORD THAT BEARS NORTH 37°42'25" WEST A DISTANCE OF 83.54 FEET;
- 8) NORTH 18°11'03" WEST A DISTANCE OF 8.91 FEET TO A POINT OF CURVATURE;
- 9) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 62°08'24", A RADIUS OF 175.00 FEET, AN ARC LENGTH OF 189.80 FEET AND A CHORD THAT BEARS NORTH 12°53'09" EAST A DISTANCE OF 180.63 FEET;
- 10) NORTH 43°57'21" EAST A DISTANCE OF 170.26 FEET;
- 11) NORTH 41°54'01" EAST A DISTANCE OF 127.12 FEET;
- 12) NORTH 43°18'24" EAST A DISTANCE OF 275.73 FEET;
- 13) NORTH 40°03'31" EAST A DISTANCE OF 201.21 FEET TO A POINT OF CURVATURE;
- 14) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 13°09'14", A RADIUS OF 375.00 FEET, AN ARC LENGTH OF 86.09 FEET AND A CHORD THAT BEARS NORTH 46°38'08" EAST A DISTANCE OF 85.90 FEET;
- 15) NORTH 53°12'44" EAST A DISTANCE OF 80.82 FEET TO A POINT OF CURVATURE;
- 16) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 34°36'07", A RADIUS OF 275.00 FEET, AN ARC LENGTH OF 166.08 FEET AND A CHORD THAT BEARS NORTH 70°30'47" EAST A DISTANCE OF 163.57 FEET;
- 17) NORTH 87°48'52" EAST A DISTANCE OF 145.31 FEET TO A POINT OF CURVATURE;
- 18) ALONG A CURVE TO THE RIGHT HAVING A CENTRAL ANGLE OF 15°24'26", A RADIUS OF 375.00 FEET, AN ARC LENGTH OF 100.94 FEET AND A CHORD THAT BEARS NORTH 84°28'55" EAST A DISTANCE OF 100.54 FEET;
- 19) SOUTH 78°46'42" EAST A DISTANCE OF 223.30 FEET TO A POINT OF CURVATURE;
- 20) ALONG A CURVE TO THE LEFT HAVING A CENTRAL ANGLE OF 26°32'10", A RADIUS OF 275.00 FEET, AN ARC LENGTH OF 127.36 FEET AND A CHORD THAT BEARS NORTH 89°57'13" EAST A DISTANCE OF 126.23 FEET;
- 21) NORTH 76°41'08" EAST A DISTANCE OF 65.60 FEET THE POINT OF BEGINNING.

PARCEL B CONTAINS 1,548,137 SQUARE FEET, OR 35.54 ACRES, MORE OR LESS.

PARCEL 'B' IS EXCLUDED FROM THIS PROPOSAL

SURVEYOR'S CERTIFICATION

TO ERIE EQUITIES 11, LLC, A COLORADO LIMITED PARTNERSHIP AND COMMONWEALTH LAND TITLE INSURANCE 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, 2, 3, 4, 7 (a), 8, 11 (b), 13, 16 AND 18 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON APRIL 21, 2014 A.D.

DATE OF PLAT OR MAP: _____

THOMAS D. STAAB, PLS
COLORADO PLS NO. 25965
FOR AND ON BEHALF OF
JANSEN STRAWN CONSULTING ENGINEERS, INC.

COUNTY SURVEYOR'S CERTIFICATE

DEPOSITED THIS _____ DAY OF _____, 2014, AT _____ M., IN BOOK _____ OF THE COUNTY SURVEYOR'S LAND SURVEY PLAT / RIGHT-OF-WAY SURVEYS AT PAGE _____, RECEPTION NO. _____.

COUNTY SURVEYOR _____

ENGINEER / SURVEYOR

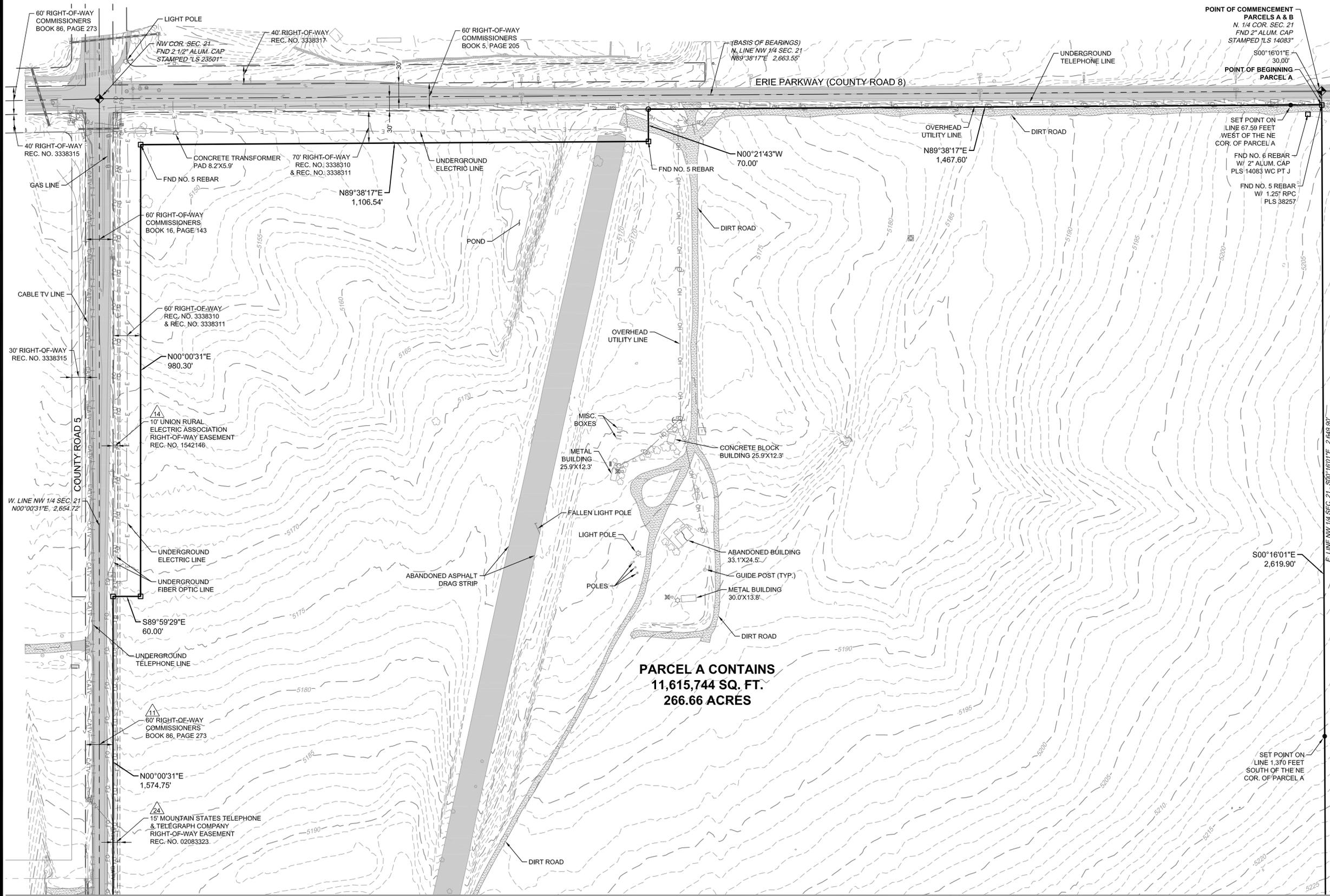
JANSEN STRAWN
CONSULTING ENGINEERS
45 WEST 2ND AVENUE
DENVER, CO 80223
P. 303.561.3333
F. 303.561.3339

Scale: N/A			
Date: JUNE 22, 2014			
Job No.: 14034			
Sheet 1 of 5			
No.	Revisions	Date	By
Designed By: IH		Checked By: TS	

ALTA/ACSM LAND TITLE SURVEY

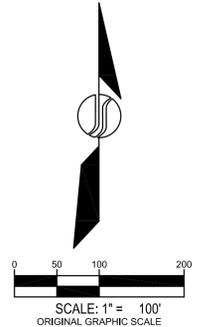
DEARMIN

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
SHEET 3 OF 5



**PARCEL A CONTAINS
11,615,744 SQ. FT.
266.66 ACRES**

LEGEND	
	SECTION CORNER
	SET NO. 4 REBAR W/ 1" YPC PLS 25965
	FND NO. 5 REBAR W/ 1.25" YPC CVL 35593
	FND NO. 5 REBAR W/ 1.25" YPC PLS 25953 UNLESS OTHERWISE NOTED
	WATER VALVE
	WATER MANHOLE
	WATER METER
	WATER MARKER
	WATER SPIGOT
	WATER CATHODE TEST STATION
	WATER LINE
	MONITOR WELL
	SIGN
	FENCE
	BOLLARD
	SANITARY SEWER MANHOLE
	SANITARY SEWER LINE
	ELECTRIC MARKER
	TELEPHONE MARKER
	GAS MARKER
	ROAD MARKER
	GAS VALVE
	UTILITY POLE
	TREE
	TELEPHONE MANHOLE
	STORM SEWER MANHOLE
	STORM SEWER LINE
	FIBER OPTIC VAULT
	TELEPHONE VAULT
	TELEPHONE PEDESTAL
	ELECTRIC METER
	DIRT ROAD
	ASPHALT ROAD
	GUY ANCHOR
	TITLE COMMITMENT EXCEPTION NUMBER



ENGINEER / SURVEYOR

**JANSEN STRAWN
CONSULTING ENGINEERS**

45 WEST 2ND AVENUE
DENVER, CO 80223
P. 303.561.3333
F. 303.561.3339

Scale: 1" = 100'			
Date: JUNE 27, 2014			
Job No.: 14034			
Sheet 3 of 5			
No.	Revisions	Date	By
Designed By: IH		Checked By: TS	

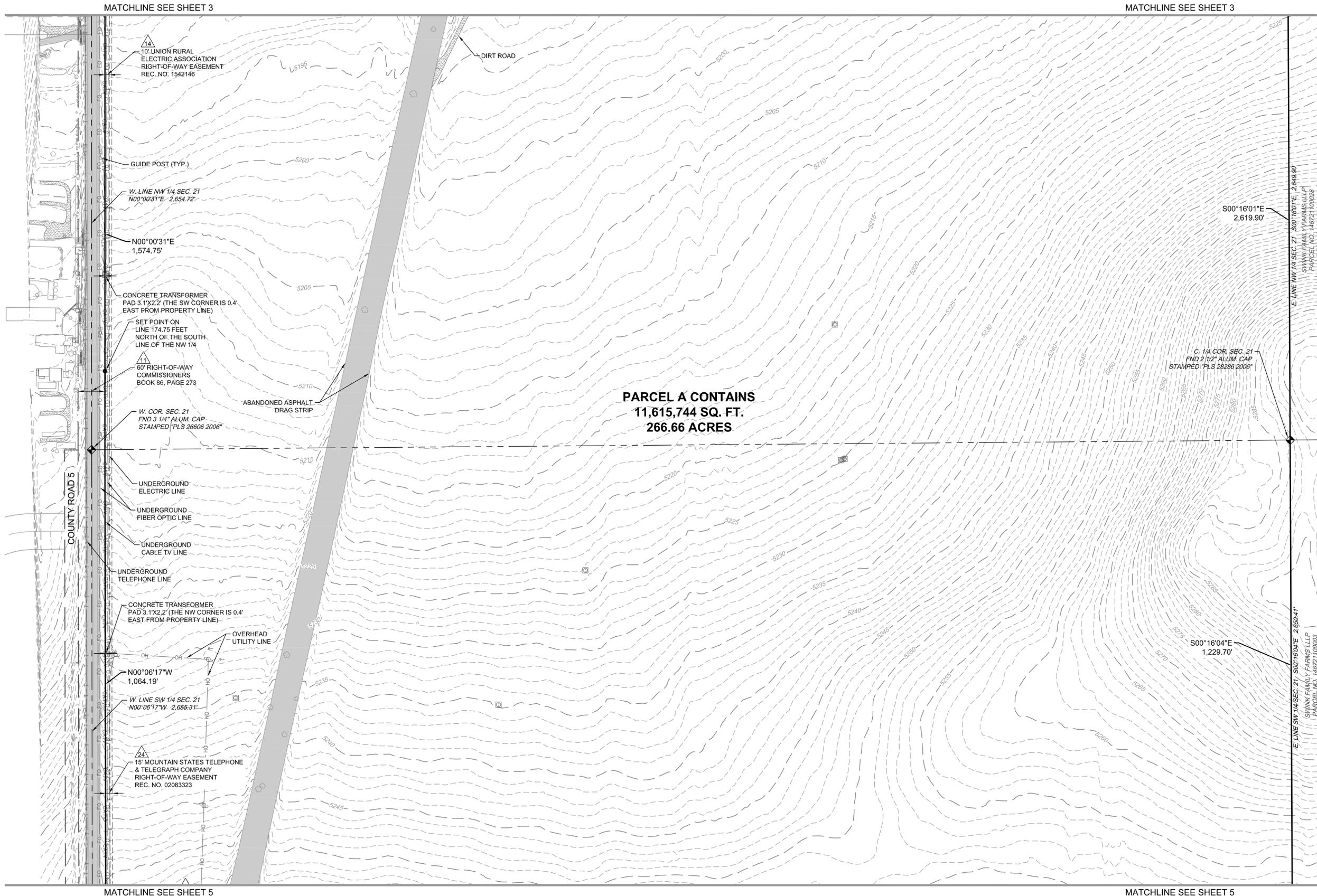
MATCHLINE SEE SHEET 4

MATCHLINE SEE SHEET 4

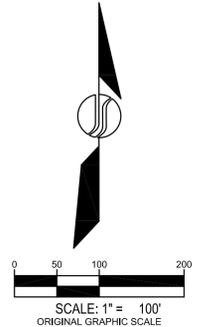
ALTA/ACSM LAND TITLE SURVEY

DEARMIN

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
SHEET 4 OF 5



LEGEND	
	SECTION CORNER
	SET NO. 4 REBAR W/ 1" YPC PLS 25965
	FND NO. 5 REBAR W/ 1.25" YPC CVL 35593
	FND NO. 5 REBAR W/ 1.25" YPC PLS 25953 UNLESS OTHERWISE NOTED
	WATER VALVE
	WATER MANHOLE
	WATER METER
	WATER MARKER
	WATER SPIGOT
	WATER CATHODE TEST STATION
	WATER LINE
	MONITOR WELL
	SIGN
	FENCE
	BOLLARD
	SANITARY SEWER MANHOLE
	SANITARY SEWER LINE
	ELECTRIC MARKER
	TELEPHONE MARKER
	GAS MARKER
	ROAD MARKER
	GAS VALVE
	UTILITY POLE
	TREE
	TELEPHONE MANHOLE
	STORM SEWER MANHOLE
	STORM SEWER LINE
	FIBER OPTIC VAULT
	TELEPHONE VAULT
	TELEPHONE PEDESTAL
	ELECTRIC METER
	DIRT ROAD
	ASPHALT ROAD
	GUY ANCHOR
	TITLE COMMITMENT EXCEPTION NUMBER



ENGINEER / SURVEYOR

JANSEN STRAWN
CONSULTING ENGINEERS

45 WEST 2ND AVENUE
DENVER, CO 80223
P. 303.561.3333
F. 303.561.3339

Scale: 1" = 100'
Date: JUNE 27, 2014
Job No.: 14034

Sheet **4** of **5**

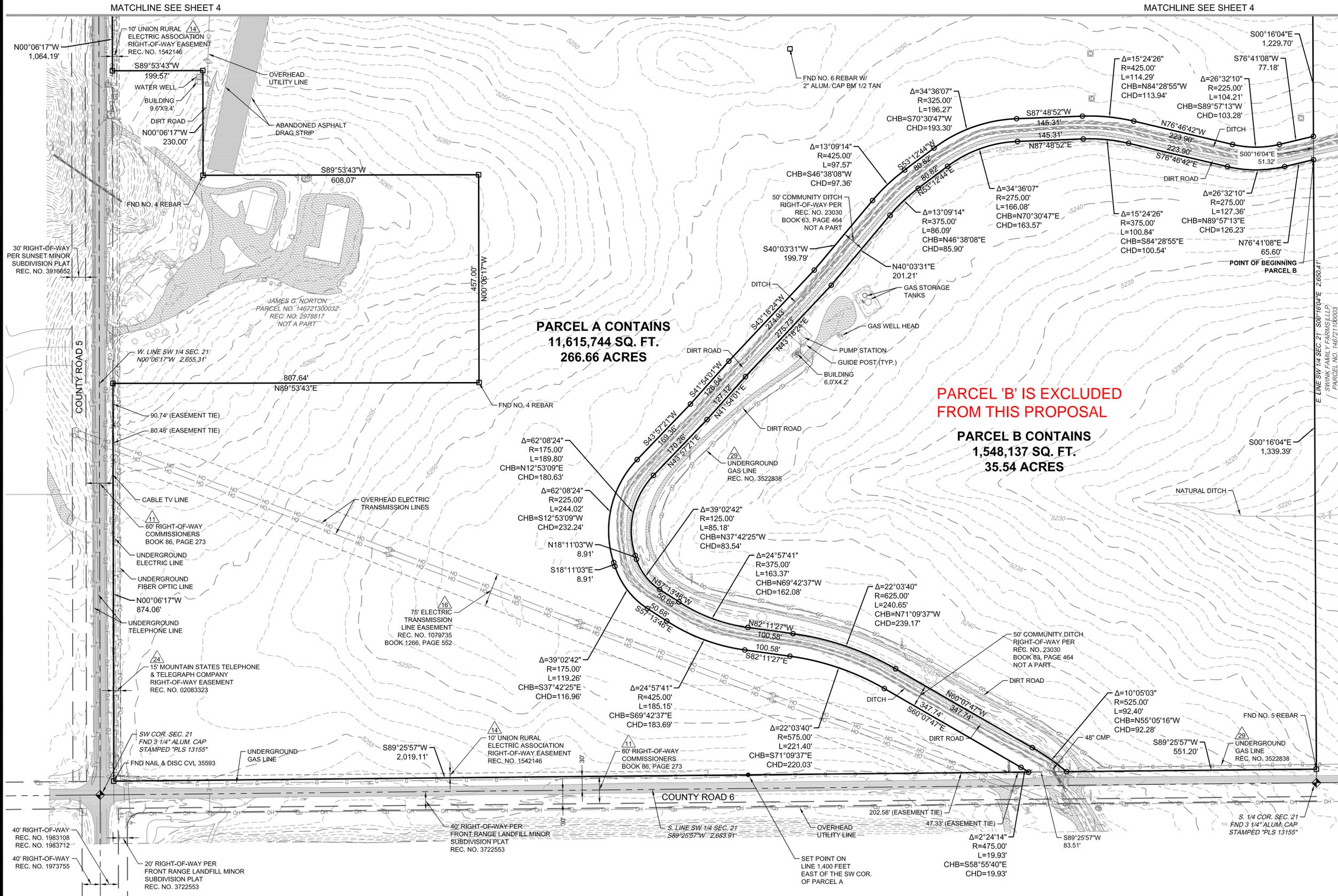
No.	Revisions	Date	By

Designed By: IH Checked By: TS

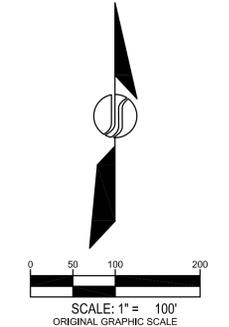
ALTA/ACSM LAND TITLE SURVEY

DEARMIN

LOCATED IN THE WEST HALF OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68 WEST OF THE SIXTH PRINCIPAL MERIDIAN,
TOWN OF ERIE, COUNTY OF WELD, STATE OF COLORADO
SHEET 5 OF 5



LEGEND	
	SECTION CORNER
	SET NO. 4 REBAR W/ 1" YPC PLS 25965
	FND NO. 5 REBAR W/ 1.25" YPC CVL 35593
	FND NO. 5 REBAR W/ 1.25" YPC PLS 25953 UNLESS OTHERWISE NOTED
	WATER VALVE
	WATER MANHOLE
	WATER METER
	WATER MARKER
	WATER SPIGOT
	WATER CATHODE TEST STATION
	WATER LINE
	MONITOR WELL
	SIGN
	FENCE
	BOLLARD
	SANITARY SEWER MANHOLE
	SANITARY SEWER LINE
	ELECTRIC MARKER
	TELEPHONE MARKER
	GAS MARKER
	ROAD MARKER
	GAS VALVE
	UTILITY POLE
	TREE
	TELEPHONE MANHOLE
	STORM SEWER MANHOLE
	STORM SEWER LINE
	FIBER OPTIC VAULT
	TELEVISION VAULT
	TELEPHONE PEDESTAL
	ELECTRIC METER
	DIRT ROAD
	ASPHALT ROAD
	GUY ANCHOR
	TITLE COMMITMENT EXCEPTION NUMBER



ENGINEER / SURVEYOR

JANSEN STRAWN CONSULTING ENGINEERS
45 WEST 2ND AVENUE
DENVER, CO 80223
P. 303.561.3333
F. 303.561.3339

Scale: 1" = 100'
Date: JUNE 27, 2014
Job No.: 14034

Sheet 5 of 5

No.	Revisions	Date	By

Designed By: IH Checked By: TS

GENERAL ECOLOGICAL RESOURCES SURVEY

**306 Acres in the West ½ Section 21,
Township 1 North, Range 68 West
Erie, Colorado 80516**



PREPARED FOR:



c/o Jansen Strawn Consulting Engineers, Inc.
45 West 2nd Avenue
Denver, Colorado 80223

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

306 Acres in the West ½ Section 21,
Township 1 North, Range 68 West
Erie, Colorado 80516.

Western Environment and Ecology, Inc.
Project Number: 614-003-02

PREPARED FOR:



c/o Jansen Strawn Consulting Engineers, Inc.
45 West 2nd Avenue
Denver, Colorado 80223

May 20th, 2014

Prepared by:

Austin Curry
Staff Scientist

Reviewed by:

Greg D. Sherman P.G.
President

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	11
	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 AND SUPPORTING DOCUMENTATION	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 Tom Jensen of Jensen Strawn Consulting Engineers, Inc. to conduct a general survey of ecological resources, including threatened and endangered species, wetlands, and other significant habitats, on approximately 306 acres in Erie, Colorado. Mr. Jensen 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.



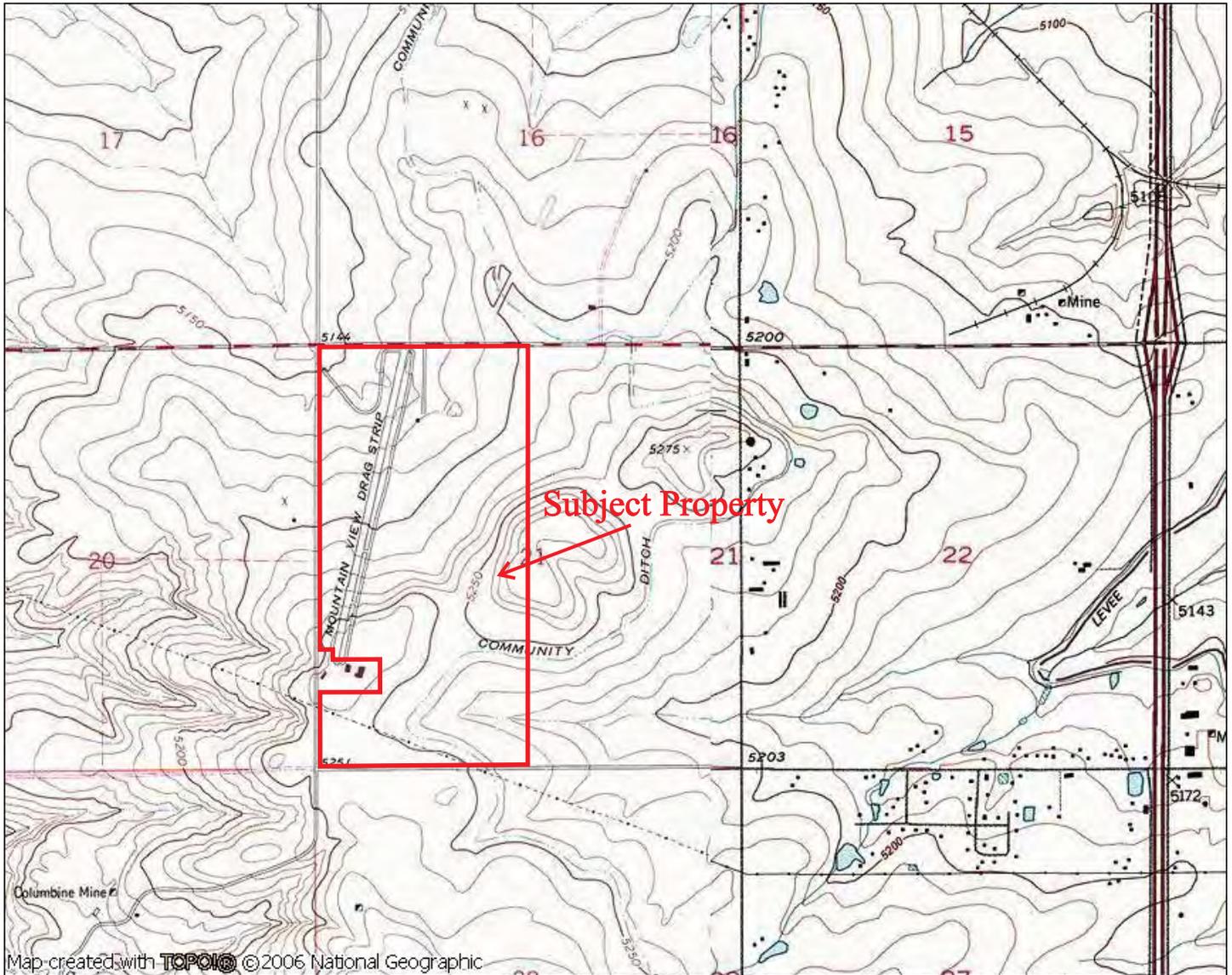
View to south from Erie Parkway

2.0 STUDY AREA

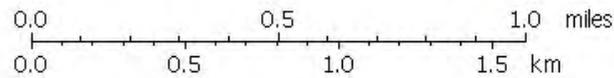
This General Ecological Resource Survey was conducted for approximately 306 acres of agricultural land in the west ½ of Section 21, Township 1 North, Range 68 West, of the 6th P.M., in incorporated Erie, Colorado (Figure 1). The site is located southeast of the intersection of Erie Parkway and Weld County Road 5. The southeastern portion of the property is bisected by the Community Ditch (Figure 2). According to the Weld County Assessors Office, the property is zoned for agricultural use. The majority of the site is currently in active cultivation. A burned-out house, two abandoned sheds and a sheet metal stable are present on the property. High tension electric transmission power lines run diagonally across the southwestern corner of the site in a southeast to northwest direction. High pressure natural gas lines run adjacent to the property along Weld County Roads 5 and 6. Also, a buried fiberoptic cable follows the boundary of the property on the west and north along Weld County Road 5 and Erie Parkway. Records maintained by the Colorado Oil and Gas Conservation Commission (COGCC) identify one petroleum production site and associated ancillary equipment located near the Community Ditch at the southern end of the property. A single family residence borders the property on the west, and the adjoining property to the east is in agricultural use.

The site occurs at an elevation range of approximately 5,265 to 5,155 feet above sea level (USGS Erie 7.5 Minute Quadrangle, 1979). The topography is hilly, with gradual slopes to the northwest and southeast. Review of the FEMA Flood Insurance Maps indicate that the project is not within a recognized flood zone. The site geology includes eolian sands, silts and clays, overlaying the Cretaceous Age Laramie Formation (Ogden Tweto, 1979). The US Resource Conservation Service classifies the site soils as Nunn loam on 1 -3% slopes and Midway-single complex on three 5-20% slopes.

A preliminary geo-technical investigation performed by Terracon (Project # 22055222) dated January 2006, described the subsurface conditions as consisting of between 4-18 feet of lean clays overlying high plasticity claystone bedrock. No groundwater was encountered in the Terracon investigation to a depth of 20 feet.



Map created with **TOPIC** © 2006 National Geographic



TN MN
8 1/2°
05/12/14

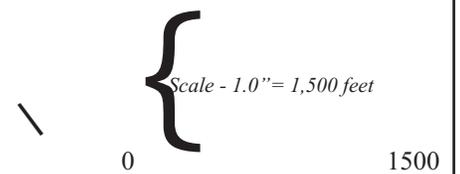
USGS Longmont 7.5 Minute Quadrangle, 1979

Western environment
and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 1 - Project Location Map
306 Acres in the West 1/2 of Section 21,
Township 1 North, Range 68 West,
Erie, Colorado 80516



Aerial Photograph from GoogleEarth



Western environment
and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 2 - Site Map
306 Acres in the West 1/2 of Section 21,
Township 1 North, Range 68 West,
Erie, Colorado 80516

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 May 2nd, 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.



Community Ditch view to northeast

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, USFWS).

Common Name	Scientific Name	Status¹
Birds		
Bald eagle	<i>Haliaeetus leucocephalus</i>	ST
Whooping crane	<i>Grus americana tabida</i>	FE, SE
Least Tern	<i>Sterna antillarum</i>	FE, SE
Mountain plover	<i>Charadrius montanus</i>	FPT, SC
Piping Plover	<i>Charadrius melodus</i>	FT, ST
Mexican spotted owl	<i>Strix occidentalis lucida</i>	FT, ST
Plains Sharp-Tailed Grouse	<i>Tympanuchus phasianellus jamesii</i>	SE
Western burrowing owl	<i>Athene cunicularia</i>	ST
Lesser Prairie Chicken	<i>Tympanuchus pallidicinctus</i>	ST
Ferruginous Hawk	<i>Buteo regalis</i>	SC
Mammals		
Black-footed ferret	<i>Mustela nigripes</i>	FE, SE
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	FT, ST
Canada Lynx	<i>Lynx canadensis</i>	FT, SE
Kit Fox	<i>Vulpes macrotis</i>	SE
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	SC
Amphibians		
Boreal Toad	<i>Bufo boreas boreas</i>	SE
Northern Leopard Frog	<i>Rana pipiens</i>	SC
Plants		
Ute ladies'-tresses	<i>Spiranthes diluvialis</i>	FT
Colorado butterfly plant	<i>Gaura neomexicana coloradensis</i>	FT
Insects		
Pawnee montane skipper	<i>Hesperia leonardus montana</i>	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 and Vegetation

No perennial waters of the US occur on or adjacent to the Section 21 site. However, the Community Ditch does bisect the southern portion of the property. Recent conversations with the U.S. Army Corps of Engineers (Corps) indicate that the Community Ditch is currently considered “waters of the US” and that any disturbance to the ditch or wetlands developed from seepage of the ditch will require Corps consultation.

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.

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.”

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. However, should any disturbance to the ditch be required for development, consultation with the Corps will be required.

The majority of the 306 acres is planted in dryland winter wheat (*Triticum aestivum*). At the time of the inspection the wheat was being harvested for animal fodder. A small area south of the Community Ditch was a fallow corn field. Non-native up-land vegetation occurs along roads and in disturbed areas. These species include: Smooth Brome (*Bromus inermis*), Downy Brome (*Bromus tectorum*), Cheatgrass (*Bromus tectorum*), Field bindweed (*Ambrosia artemisiifolia*), Pinnate tansymustard (*Descurainia sophia*), Western Wheatgrass (*Agropyron smithii*), Summer cypress (*Kochia scoparia*), Canada horseweed (*Conyza canadensis*) and Russian Thistle (*Salsola iberica*).

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 known to occur on Colorado's desert slopes ranging from Montrose to Grand Junction. The black-footed ferret was eradicated from the Colorado Piedmont and has not been reintroduced.

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.

This migratory species is most often seen in Colorado during the summer months. During the inspection a large active prairie dog colony was observed on the northern end of the subject property. **Due to the existence of the active prairie dog colony, a burrowing owl survey will be required if construction occurs during nesting season between March 15th and October 31st.**

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 Division of Wildlife indicated that an “active Bald Eagle Nest” is located approximately 2.0 miles north of the Section 21 property.



Western burrowing owl, photo acquired on www.corbis.com.

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 16th, 1999 (USFWS, 1999b), however the U.S. Fish and Wildlife Service withdrew the proposal on September 8th, 2003. Mountain plovers breed in eastern Colorado from approximately April 1st through August 1st. The active Prairie dog colony constitutes Mountain Plover habitat. **It is the recommendation of Western Environment that if construction is to occur during breeding season, a survey should be performed to identify any plover nest locations that may be present.**

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). Sightings of Piping Plover have occurred in Weld County, however due to the lack of sandbars or mud-flats along the Community Ditch, it is unlikely to occur on the subject project.

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, 2013).

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 Lesser Prairie Chicken are known to occur in proximity to the subject project (CDOW, 2013).

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

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 meadow jumping mouse

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. Riparian habitat with a permanent water source likely suitable to Preble's was not observed on or adjacent to the project.

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. An historically large black-tailed prairie dog colony has been observed on the northern portions of the site. **The Colorado Division of Wildlife requires the "humane removal" of prairie dogs prior to construction. Additionally, local governments are conscious of public opinion regarding euthanasia of animals and may require relocation efforts.**

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 20th to August 31st). 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.



Ute Ladies'-Tresses Orchid

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

No other wildlife were observed during the inspection.



Prairie dog colony along Erie Parkway

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.

Due to the presence of the prairie dog colony a burrowing owl and mountain plover survey will be required if construction occurs during nesting season between March 15th and October 31st. The survey procedures should follow the recommendations contained in the Colorado Division of Wildlife (DOW) “Recommended Survey Protocol and Actions to Protect Nesting Burrowing Owls”. The prairie dog colony will need to be “humanely” removed prior to development.

No other 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 sympatric 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.

General Geologic Hazard Assessment

306 Acres in the West ½ Section 21,
Township 1 North, Range 68 West
Erie, Colorado 80516



Prepared For:



c/o Jansen Strawn Consulting Engineers, Inc.
45 West 2nd Avenue
Denver, Colorado 80223

WESTERN ENVIRONMENT AND ECOLOGY, INC.

2217 West Powers Avenue
Littleton, Colorado 80120
303-730-3452
303-730-3461 (fax)
westernenvironment.com

General Geologic Hazard Assessment

306 Acres in the West ½ Section 21,
Township 1 North, Range 68 West
Erie, Colorado 80516

May 21, 2014

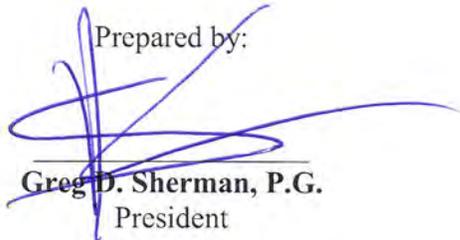
Western Environment and Ecology, Inc. Project Number 614-003-03

Prepared For:



c/o Jansen Strawn Consulting Engineers, Inc.
45 West 2nd Avenue
Denver, Colorado 80223

Prepared by:



Greg D. Sherman, P.G.
President

WESTERN ENVIRONMENT AND ECOLOGY, INC.

2217 West Powers Avenue
Littleton, Colorado 80120
303-730-3452
303-730-3461 (fax)
westernenvironment.com

Table of Contents

1.0	INTRODUCTION	1
2.0	METHODS	4
3.0	RESULTS	4
3.1	Flood Hazards	4
3.2	Landslides	4
3.3	Seismic Activity / Earthquakes	4
3.4	Shrinking / Swelling Potentials of Soils and Bedrock	5
3.5	Undermining	7
4.0	CONCLUSIONS	9
5.0	LITERATURE CITED	10

FIGURES

FIGURE 1	SITE LOCATION MAP	2
FIGURE 2	SITE MAP	3
FIGURE 3	AREA GEOLOGY MAP	6
FIGURE 4	CGS WELD COUNTY MINE MAP	8

1.0 INTRODUCTION

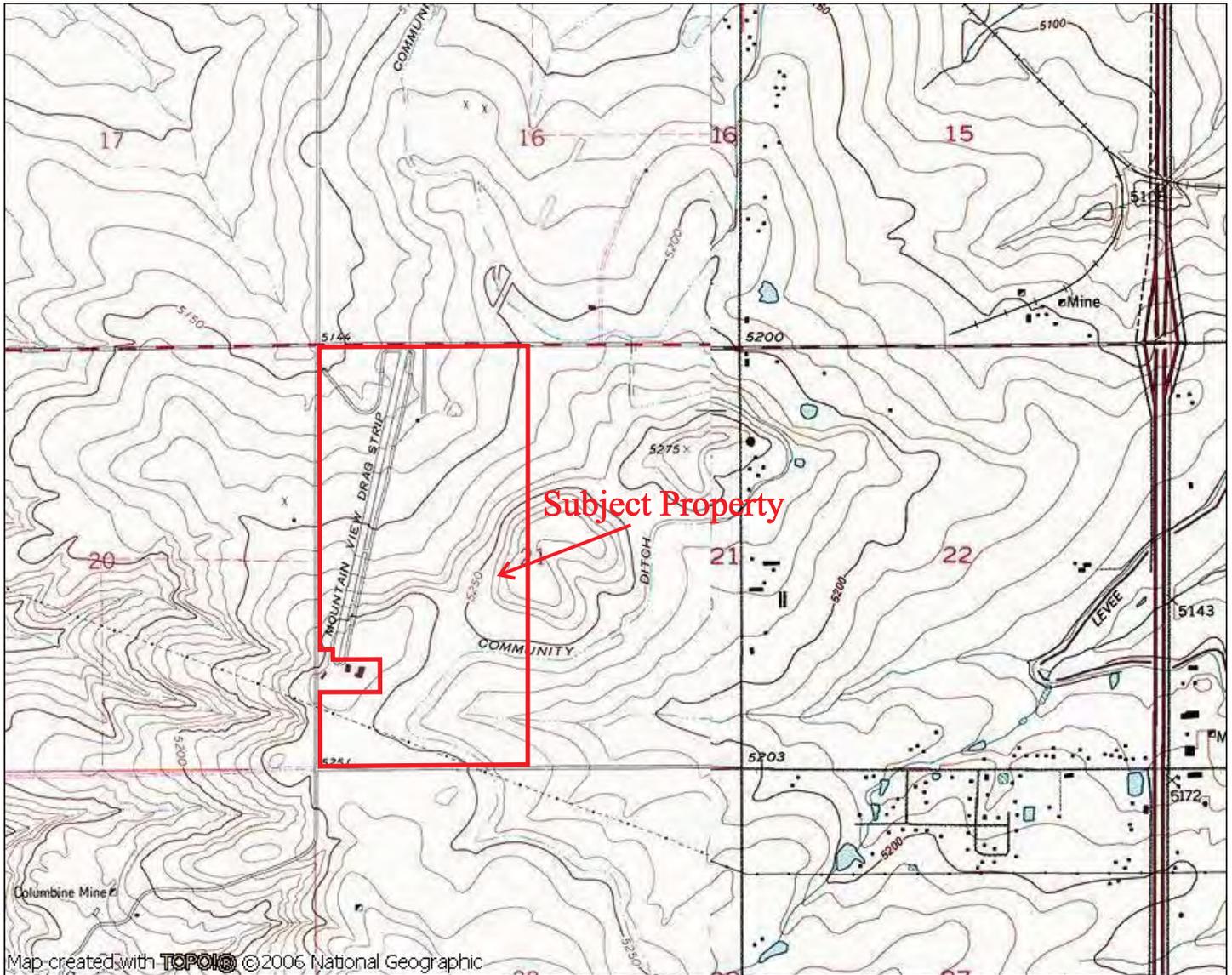
Page 1

This Geologic Hazards Assessment was conducted for two parcels of land consisting of approximately 306 acres located within the West ½ of Section 21, Township 1 North, Range 68 West, Weld County, Colorado (Figure 1). The Weld County Assessor's Office records indicate that the subject property is currently zoned as dry farm land agriculture and grazing land. The site contains several derelict structures and an oil/gas production facility (Figure 2).

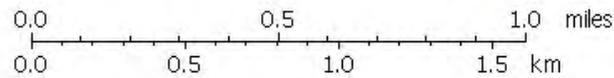
The subject area is located southeast of the intersection of Erie Parkway and Weld County Road 5, within the city limits of Erie, Colorado. The majority of the site is in winter wheat production. The site contains the old Mountain View Drag Strip, which includes approximately 4,000 feet of deteriorated asphalt. A single family residence borders the property on the west, while Erie High School is located directly to the north across Erie Parkway. The old Boulder Valley No. 1 Coal Mine and Blake's Small Car Salvage border the property to the west across Weld County Road 5. Furthermore, southwest across Weld County Road 6, the Denver Regional South Landfill, the Front Range Landfill, the Old Erie Landfill, and the Columbine Landfill are present (Figure 2). The southeastern portion of the property is bisected by the Community Ditch. High tension electric transmission power lines run diagonally through the southwestern corner of the property. Records maintained by the Colorado Oil and Gas Conservation Commission (COGCC) identify one petroleum production site and associated ancillary equipment on the site. The operators of the production facility are Kerr-McGee Oil and Gas Onshore LP.

The site occurs at an elevation range of approximately 5,260 to 5,150 feet above sea level (USGS Erie 7.5 Minute Quadrangle, 1979). The topography is hilly, with gradual slopes to the northwest and southeast towards the Community Ditch. Review of the FEMA Flood Insurance Maps indicate that the project is not within a recognized flood zone. The site geology includes eolian sands, silts and clays, overlaying the Cretaceous Age Laramie Formation (Ogden Tweto, 1979). The USRCS classifies the site soils as Nunn loam on 1-3% slopes and Midway-single complex on the 5-20% slopes.

A preliminary geo-technical investigation performed on an adjacent property to the west by Terracon (Project # 22055222) dated January 2006, described the subsurface conditions as consisting of between 4-18 feet of lean clays overlying high plasticity claystone bedrock. No groundwater was encountered in the Terracon investigation to a depth of 20 feet. The Colorado Division of Water Resources records indicated that a domestic use water well (Permit # 223888) is located at 2240 Weld County Road 5. This well is 695 foot deep and produces 7 gallons per minute from a static water level at 275 feet.



Map created with **TOPIC** © 2006 National Geographic

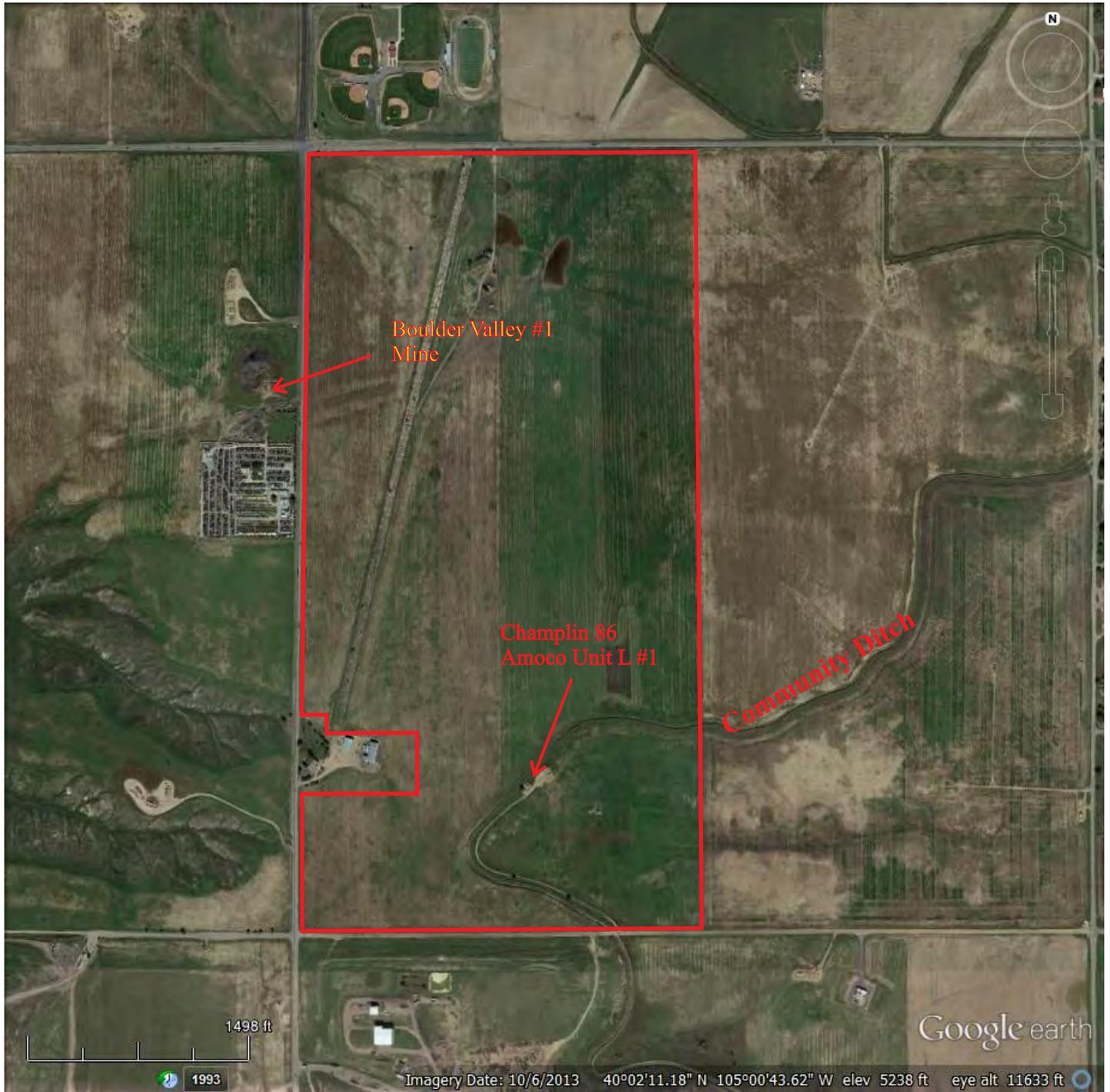


TN MN
8 1/2°
05/12/14

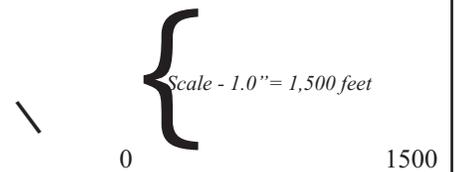
USGS Longmont 7.5 Minute Quadrangle, 1979

Western environment
and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 1 - Project Location Map
306 Acres in the West 1/2 of Section 21,
Township 1 North, Range 68 West,
Erie, Colorado 80516



Aerial Photograph from GoogleEarth



Western environment
and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 2 - Site Map
306 Acres in the West 1/2 of Section 21,
Township 1 North, Range 68 West,
Erie, Colorado 80516

2.0 METHODS

Page 4

Western Environment utilized readily available published information developed by the Colorado Geological Survey, the United States Geological Survey, the United States Department of Agriculture, the Federal Emergency Management Agency, and a site inspection. **No direct investigations involving drilling or sampling was performed.**

Specific hazards reviewed using readily available documents for the Section 21 Property included - flooding, landslides, seismic activity/earthquakes, shrinking/swelling soils and bedrock, and undermining. A discussion of these hazards is presented in Section 3.0.

3.0 RESULTS

3.1 Flood Hazards

Western Environment personnel reviewed maps prepared by the Federal Emergency Management Agency for Weld County, Colorado. This review indicated **that Section 21 is not within a recognized flood plane.**

3.2 Landslides

The United States Geological Survey defines landslides as “a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows.” A review of the USGS Erie Topographic Quadrangle (Figure 1) indicated that the site contains gentle slopes. This was verified during a site visit on December 5, 2012. Although soil and rock movement can occur on slopes as shallow as 2 degrees, it is the opinion of Western Environment that **landslide events on the subject site are unlikely.** However, care should be exercised during all excavation operations to avoid over steeping of cuts and provide proper shoring as required.

3.3 Seismic Activity / Earthquakes

Colorado contains several Quaternary faults with several documented seismic events, generally located from the Front Range and west. The largest recorded earthquake in Colorado was magnitude 6.6. This earthquake occurred north of Estes Park in 1882, and caused variable amounts of damage as far away as Denver. A CGS study indicated that a repeat of the 1882 earthquake could cause damages of \$240 million dollars. Prior to 2000, most Colorado municipalities used the Uniform Building Code (UBC) for requirements of earthquake-resistant designs of buildings. At that time, the subject site was located within Seismic Zone 1 (note: the higher the Zone number, the more stringent the seismic design criteria). This rating was in place due to a relatively low seismic risk for the area. In 2000, the International Building Code (IBC) replaced the UBC. This code called for considerably less stringent mitigation controls in relation

to building techniques and earthquakes within the Front Range Urban Corridor. However, most municipalities and building departments in Colorado have not adopted the IBC. Development of the site should conform to the current building codes used by the Town of Erie.

3.4 Shrinking /Swelling Potentials of Soils and Bedrock

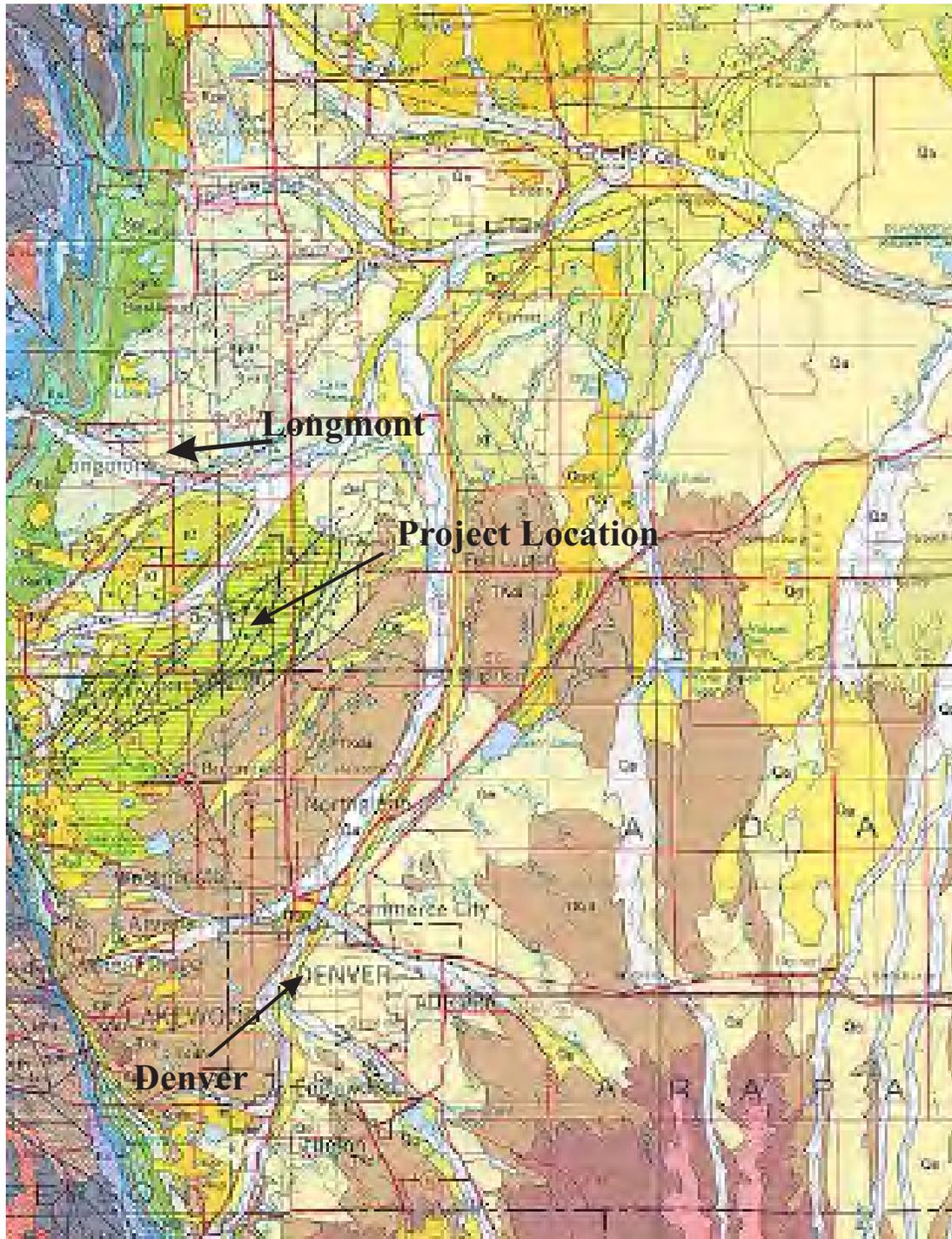
Western Environment utilized the Soil Survey of Southern Weld County, Colorado prepared by the United States Department of Agriculture, Resource Conservation Service (NRCS) to help qualify potential hazards associated with soils located on the site. Two soil types were identified within the Section 21 property. A table indicating map designation number, soil name, slope occurrence and shrink/swell potential is located below.

Map Designation Number	Soil Name	Slope Occurrence (in percent)	Shrink / Swell Potential
40	Nunn loam	1-3	moderate to high
36	Midway single complex	5-20	low to moderate

Nunn loam is a deep well drained and formed on alluvium. The NRCS indicates it is about 12 inches thick and has moderate permeability with an effective root depth of 60 inches. The Midway single complex is a shallow well drained soil formed on slopes above calcareous shale. It is typically 7 inches thick with weathered shale occurring at 13 inches below the surface.

The Geology of Colorado Map, prepared by Ogden Tweto, was reviewed to determine subsurface geology of the site and area (Figure 3). Based on this review, it was determined that the Cretaceous Age Laramie Formation occurs beneath the subject property. The results of a Preliminary Geotechnical Engineering Report (Terracon Project Number 22055222, January 4, 2006) conducted on an adjacent property indicated that “lean clays occur from the surface to between 4 and 18 feet in depth where claystone bedrock was encountered. No groundwater was identified in the borings which were completed to 25 feet. Laboratory testing indicated swell potential of the clay soil and claystone bedrock ranged from 2 to 8%.

It is the opinion of Western Environment that **moderate to high swell potentials exist on the site**. However, significant variability of soil and bedrock can be expected. Therefore, a detailed investigation by a qualified geo-technical engineer should be performed prior to development.



Western environment
and ecology, inc.
2217 West Powers Avenue
Littleton, Colorado 80120

Figure 3 - Area Geology Map
3306 Acres in the West 1/2, Section 21, T1N, R68W
Erie, Colorado

3.5 Undermining

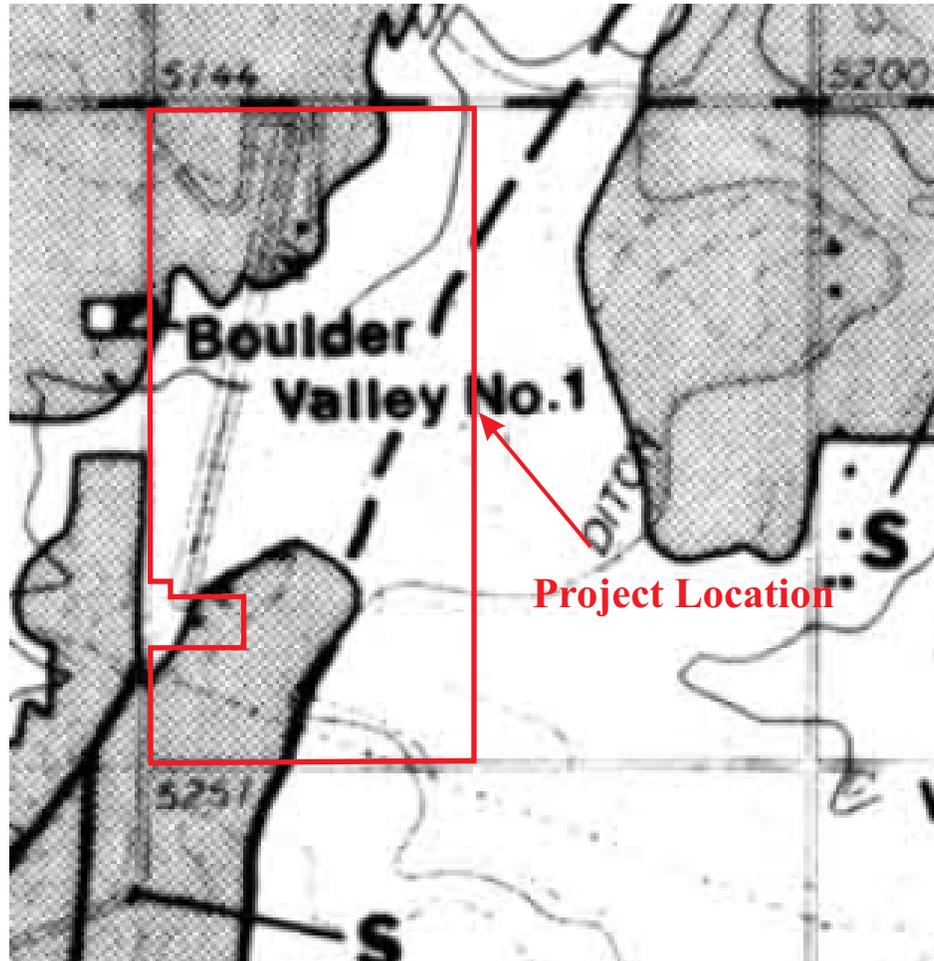
Publications of the Colorado Geological Survey (CGS) indicate that the **Section 21 property is undermined by workings of the Columbine and Boulder Valley #1 Mines** (Figure 4). These records show the Columbine Mine began operation in 1920 and continued until 1946. Total production from all operations was placed at 7,216,286 tons. Entry to the mine was gained via a 300 foot deep, two compartment production shaft located approximately 1900 feet southwest of the Section 21 Property. The Boulder Valley #1 Mine began production in 1917. When the mine closed in 1946 a total of 3,518,912 tons were extracted.

The these mines were classified as a modified room and pillar (pillar retreat) mines. Haulage ways were ten feet wide and were separated by 30 foot wide “chain pillars”. Rooms had approximate widths of twenty feet and lengths of 200 feet. The Columbine and Boulder Valley Mines was among the largest in the Boulder/Weld Coal Field.

The results of several Mine Subsidence Investigations performed by Western Environment on adjacent properties identified three distinct geologic units. The first unit was a clayey sand soil occurring from 0 to 20 feet in depth. The next unit, which had a transitional boundary between soil and weathered bedrock, was the interbedded claystone, siltstone, fine grained sandstone and coals of the Cretaceous Age Laramie Formation. The Boulder Valley Mine main seam coal occurred approximately 310 feet beneath the surface in the northeast corner of the adjacent Section 20. The main seam of the Columbine Mine on the southern portions of Section 20 was encountered at approximately 280 feet beneath the surface.



Waste pile Boulder Valley #1



Colorado Geological Survey 1983



Western environment
and ecology, inc.
2217 West Powers Avenue
Littleton, Colorado 80120

Figure 3 - Area Geology Map
306 Acres in the West 1/2, Section 21, T1N, R68W
Erie, Colorado

4.0 CONCLUSIONS

Based on the findings of this survey, it is the opinion of Western Environment that geologic hazards occurring on 306 acres in the West 1/2 of Section 21, Township 1 North, Range 68 West are:

- **Moderate to high swell potentials on the site.** A qualified geotechnical engineer should evaluate these conditions prior to development of the site.
- **Undermining from the Columbine and Boulder Valley #1 Mines.** Additional investigations should be performed to confirm the location, depth and condition of the mines.

5.0 LITERATURE CITED

Federal Emergency Management Agency. Flood Insurance Rate Map, Weld County, Colorado. September 28, 1990.

Matthews III, Vincent. Colorado Geological Survey Publication. The Challenges of Evaluating Earthquake Hazard in Colorado. 2003.

United States Department of Agriculture, Soil Conservation Service. Soil Survey of Weld County, Colorado, Southern Part. September, 1980.

Turney, J.E.; Murray-Williams, L. Colorado Geological Survey. Colorado Front Range Inactive Coal Mine Data and Subsidence Information, Weld County. 1983.

Tweto, Ogden. Geologic Map of Colorado. United States Geological Survey. 1979.

United States Geological Survey. Erie, Colorado 7.5 Minute Quadrangle. 1994.

Phase I Environmental Site Assessment

306 Acres in Section 21,
Township 1 North, Range 68 West
Erie, Colorado 80516



Prepared For:
c/o Jansen Strawn Consulting Engineers
45 West 2nd Avenue
Denver, Colorado 80223

WESTERN ENVIRONMENT AND ECOLOGY, INC.

2217 West Powers Avenue
Littleton, Colorado 80120
(303) 730-3452
(303) 730-3461 (fax)
westernenvironment.com

Phase I Environmental Site Assessment

306 Acres in Section 21,
Township 1 North, Range 68 West
Erie, Colorado 80516

Western Environment and Ecology, Inc.
Project Number: 614-003-01

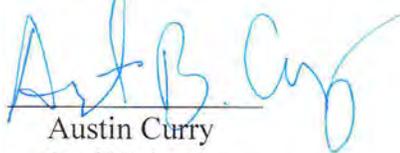
May 20th, 2014

Prepared for:



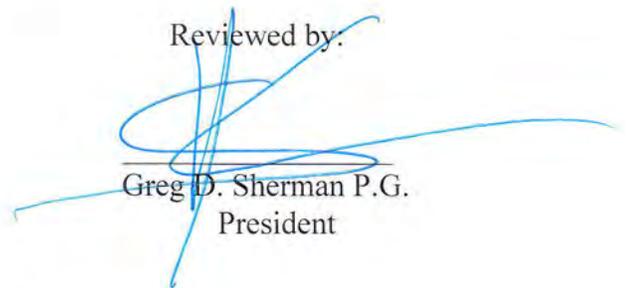
c/o Jansen Strawn Consulting Engineers
45 West 2nd Avenue
Denver, Colorado 80223

Prepared by:



Austin Curry
Staff Scientist

Reviewed by:



Greg D. Sherman P.G.
President

WESTERN ENVIRONMENT AND ECOLOGY, INC.

2217 West Powers Avenue
Littleton, Colorado 80120
(303) 730-3452
(303) 730-3461 (fax)
westernenvironment.com

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SITE DESCRIPTION	2
3.0	RECORDS REVIEW	5
3.1	Results	6
3.2	Colorado Oil and Gas Conservation Commission	7
3.3	Aerial Photography Review	8
3.4	Undermining	8
3.5	Governmental Inquiries	9
4.0	SITE INSPECTION / INTERVIEWS	10
5.0	CONCLUSIONS	13
5.1	Deviations	13

FIGURES

FIGURE 1	PROJECT LOCATION MAP	3
FIGURE 2	SITE MAP	4

APPENDICES

APPENDIX A	References List
APPENDIX B	Aerial Photography Documentation
APPENDIX C	Environmental Inquiry Request/Supporting Documentation
APPENDIX D	Western Environment and Ecology, Inc, Statement of Qualifications

1.0 INTRODUCTION

The purpose of a Phase I Environmental Site Assessment is to identify, to the extent feasible, recognized environmental conditions associated with the subject property. A Phase I Environmental Site Assessment has four components: Records Review, Site Reconnaissance, Interviews, and a Report. These specific activities are further defined by the American Society for Testing and Materials (ASTM 1527-13, Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process, December, 2013).

The U.S. Environmental Protection Agency issued a final rule governing “All Appropriate Inquiries” (AAI) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) on November 1st, 2006 (40 C.F.R. Part 312). The EPA has determined that a Phase I Environmental Site Assessment prepared in accordance with ASTM 1527-13 meets the AAI requirements.

The following document was prepared at the request of Mr. Tom Jansen of Jansen Strawn Consulting Engineers. Mr. Jansen indicated that this report was in response to the potential purchase of the property by Carlson Land Development. The Weld County Assessor’s Office records indicate that ownership of the subject property is an investment group including, Dearmin J. LLC, Gaz J. LLC, Western Waste Industries Inc. On May 5th, 2014, Western Environment sent Owner and User Environmental Questionnaires to Mr. Jansen. These questionnaires (attached) requested information on previous Phase I Environmental Assessments performed on the subject property and any data regarding environmental issues, liens, covenants, hazardous material spills or releases. On May 15th, 2014, Blake Carlson responded to the questionnaire indicating no knowledge of any environmental issues associated with the property.

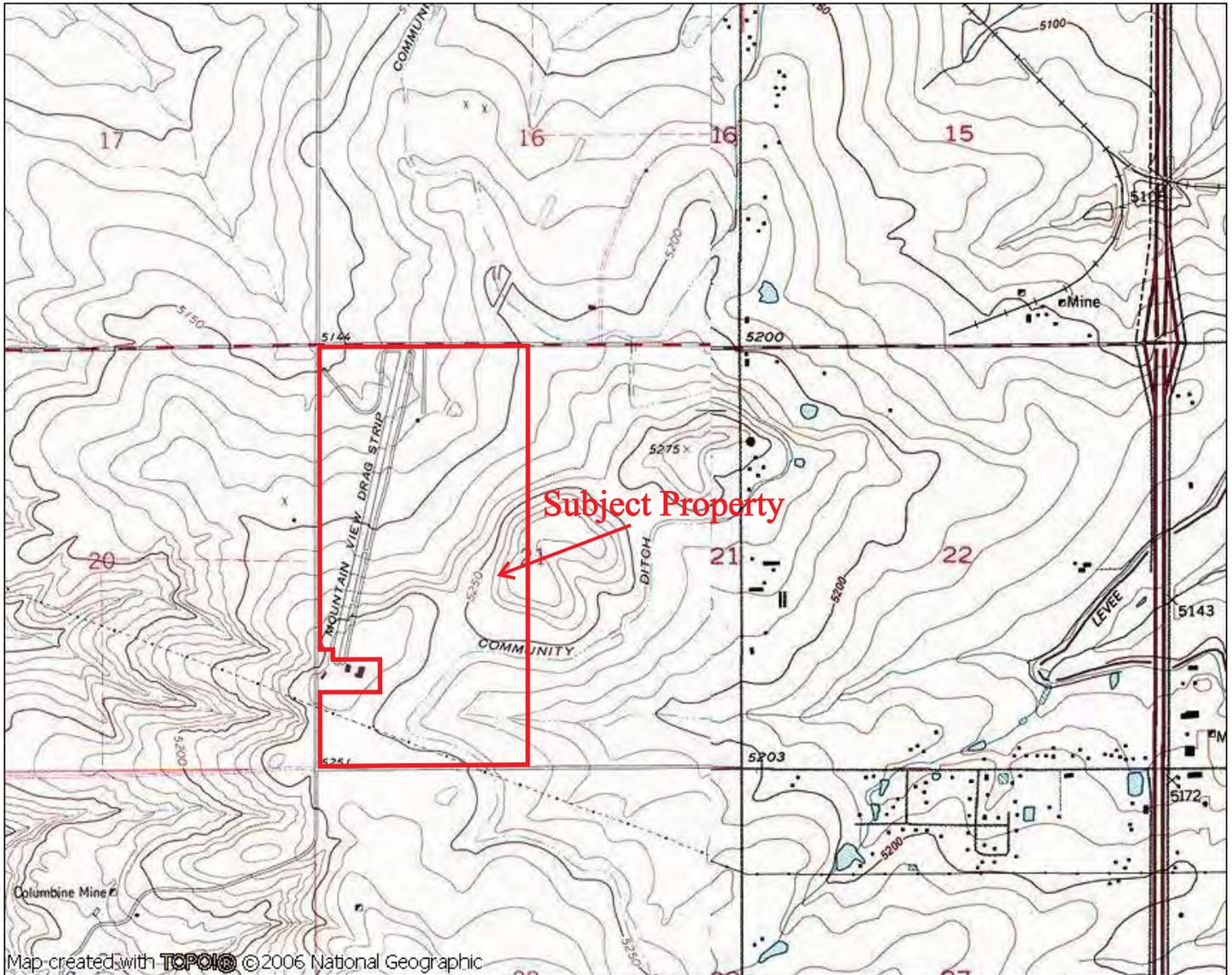
2.0 SITE DESCRIPTION

This Phase I Environmental Site Assessment was conducted for two parcels of land consisting of approximately 306 acres located within the west ½ of Section 21, Township 1 North, Range 68 West, Weld County, Colorado (Figure 1). The Weld County Assessor's Office records indicate that the subject property is currently zoned as dry farm land agriculture and grazing land. The site contains several derelict structures and an oil/gas production facility (Figure 2).

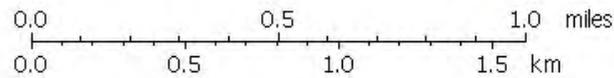
The subject area is located southeast of the intersection of Erie Parkway and Weld County Road 5, within the city limits of Erie, Colorado. The majority of the site is in winter wheat production. The site contains the old Mountain View Drag Strip, which includes approximately 4,000 feet of deteriorated asphalt. A single family residence borders the property on the west, while Erie High School is located directly to the north across Erie Parkway. The old Boulder Valley No. 1 Coal Mine and Blake's Small Car Salvage border the property to the west across Weld County Road 5. Furthermore, southwest across Weld County Road 6, the Denver Regional South Landfill, the Front Range Landfill, the Old Erie Landfill, and the Columbine Landfill are present (Figure 2). The southeastern portion of the property is bisected by the Community Ditch. High tension electric transmission power lines run diagonally through the southwestern corner of the property. Records maintained by the Colorado Oil and Gas Conservation Commission (COGCC) identify one petroleum production site and associated ancillary equipment on the site. The operators of the production facility are Kerr-McGee Oil and Gas Onshore LP.

The site occurs at an elevation range of approximately 5,260 to 5,150 feet above sea level (USGS Erie 7.5 Minute Quadrangle, 1979). The topography is hilly, with gradual slopes to the northwest and southeast towards the Community Ditch. Review of the FEMA Flood Insurance Maps indicate that the project is not within a recognized flood zone. The site geology includes eolian sands, silts and clays, overlaying the Cretaceous Age Laramie Formation (Ogden Tweto, 1979). The USRCS classifies the site soils as Nunn loam on 1-3% slopes and Midway-single complex on the 5-20% slopes.

A preliminary geo-technical investigation performed on an adjacent property to the west by Terracon (Project # 22055222) dated January 2006, described the subsurface conditions as consisting of between 4-18 feet of lean clays overlying high plasticity claystone bedrock. No groundwater was encountered in the Terracon investigation to a depth of 20 feet. The Colorado Division of Water Resources records indicated that a domestic use water well (Permit # 223888) is located at 2240 Weld County Road 5. This well is 695 foot deep and produces 7 gallons per minute from a static water level at 275 feet.



Map created with **TOPOLIC** © 2006 National Geographic

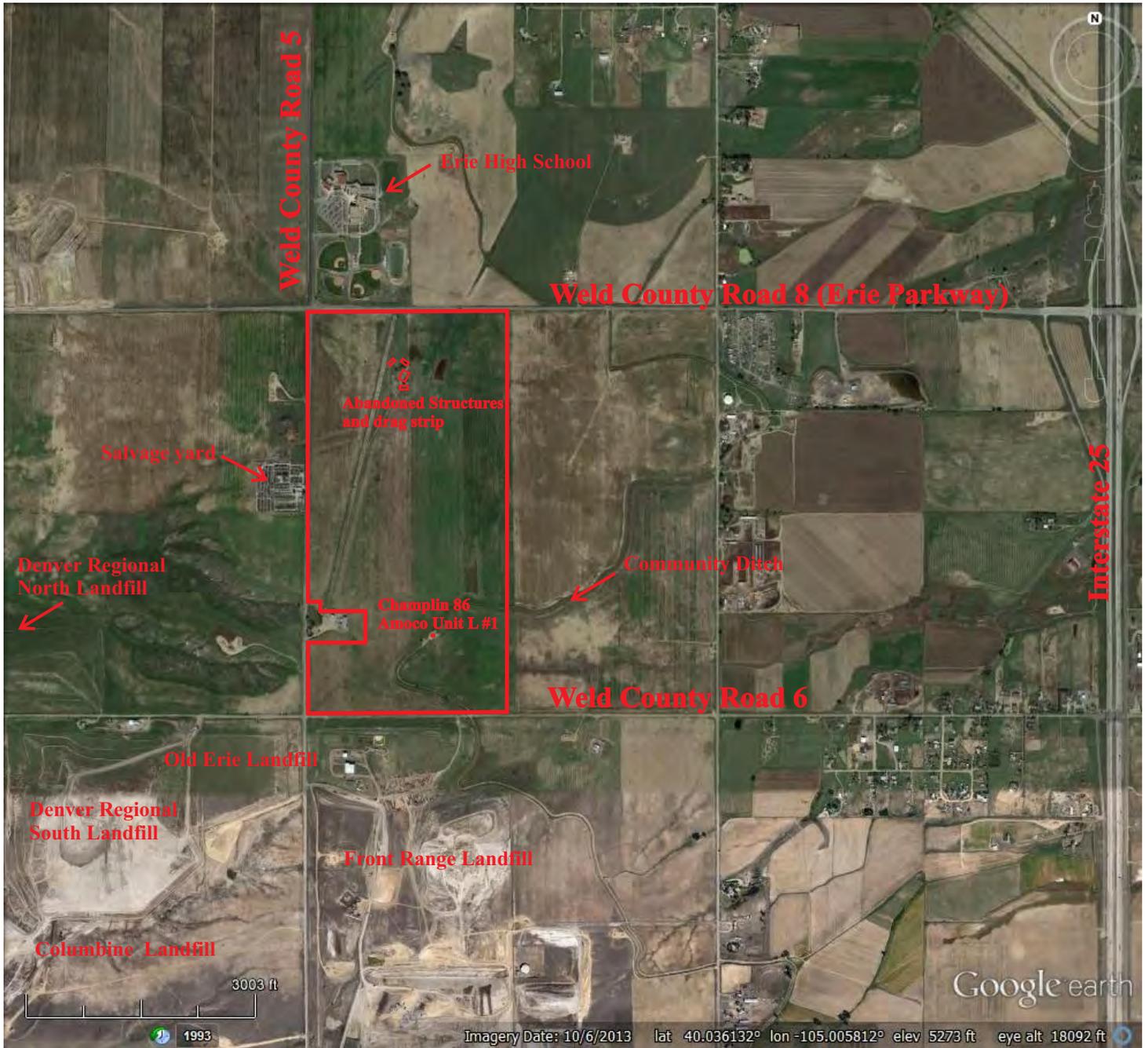


TN MN
8 1/2°
05/12/14

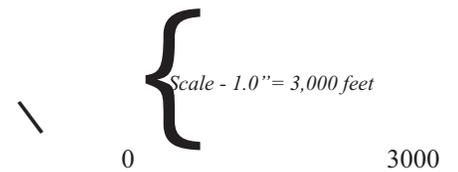
USGS Longmont 7.5 Minute Quadrangle, 1979

Western environment
and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 1 - Project Location Map
306 Acres in the West 1/2 of Section 21,
Township 1 North, Range 68 West,
Erie, Colorado 80516



Aerial Photograph from GoogleEarth



Western environment
and ecology, inc.
2217 West Powers Avenue,
Littleton, Colorado 80120

Figure 2 - Site Map
306 Acres in the West 1/2 of Section 21,
Township 1 North, Range 68 West,
Erie, Colorado 80516

3.0 RECORDS REVIEW

The purpose of the records review is to obtain and review information that will help identify the potential for recognized environmental conditions in connection with the property. Availability of records varies from information source to information source, including governmental jurisdictions. Western Environment did not identify, obtain, or review every possible record that might exist with respect to the property. Instead, record information from reasonably ascertainable standard sources was reviewed. The approximate minimum search distance incorporated in the review, the resources utilized, and the number of sites found are listed below:

Lists Reviewed	ASTM Standard Minimum Search Distance	Number of Site Within Search Distance
Federal and Colorado NPL List	1.0 mile	0
Federal and State CERCLIS List	0.5 mile	1
Federal RCRA TSD Facilities List	1.0 mile	0
Federal RCRA Generators List	Property and Adjoining Property	0
Federal RCRA Corrective Action List	1.0 mile	0
State Landfill and/or Solid Waste Disposal Site List	0.5 mile	5
State Leaking UST List	0.5 mile	0
State Registered UST List	Property and Adjoining Property	0
Colorado Brownfield / Voluntary Cleanup List	1.0 mile	0
Federal ERNS List	Property and Adjoining Property	0

Definitions:

NPL: *National Priority List (Superfund)*
 CERCLIS: *Comprehensive Environmental Response, Compensation and Liability Information System*
 RCRA: *Resource Conservation and Recovery Act*
 TSD: *Hazardous Waste Transport, Storage, and Disposal*
 UST: *Underground Storage Tank*
 ERNS: *Emergency Response Notification System*

3.1 Results

One **Federal/State CERCLIS** site is currently listed an archived “No Further Remedial Action Planed (NFRAP) ” site is located within the one mile minimum search distance. This is identified as the Columbine Landfill located at the Denver Regional Landfill South on the site of the abandoned Columbine Mine. The Columbine Mine is located approximately 3,600 feet southwest of the subject property. Discovery of a violation was reported on October 1st, 1984. A site inspection on December 1st, 1984 determined no further remedial action was required and the site was archived on June 19th, 1992.

In addition to the Columbine Landfill, four **Solid Waste Facilities** were identified within the one mile search radius. Two of these are listed twice with multiple Colorado Department of Public Health and Environment permits. The Denver Regional Landfill South, Front Range Landfill, Old Erie Landfill and the Columbine Landfill are located to the southwest of the parcel. The Denver Regional Landfill North occurs to the west.

The **Old Erie Landfill** (Pratt Property) is a closed landfill located approximately 1,500 feet southwest of the subject property. According to the Colorado Department of Public Health and Environment, the landfill began operation around 1964. The original use was the disposal of municipal refuse. Records indicate liquid waste and other compounds were accepted, including torpedo propellant which was destroyed (burned) on the site. Allegedly, the landfill accepted recycled solvates from IBM from 1965-1969. Waste disposal ended in 1969. The Erie Landfill is monitored as a condition of the permit for the Denver Regional Landfill South. The Old Erie Landfill has three monitoring wells, which were last sampled in September 2012. At that time no Volatile Organic Compounds (VOC's) were detected. No offsite investigations have been performed. In 1998 post closure care and maintenance of the Old Erie Landfill were fulfilled. However, ground water monitoring will continue through the active life of the Denver Regional Landfill South.

The **Front Range Landfill** occurs adjacent to the south boundary of the subject property. As of November, 2013, the Front Range Landfill was in compliance with EPA procedural requirements. The Front Range Landfill is listed as a RCRA small quantity generator, with actual or potential emissions above the applicable major threshold. Recent monitoring reports of groundwater indicate no contamination resulting from the landfill. However, no offsite investigations have been performed.

The **Denver Regional Landfill South** is listed as a RCRA small quantity generator that is located approximately 3,500 feet to the southwest.

The **Denver Regional Landfill North** occurs approximately 3,800 feet to the west of the subject property. It is listed as a RCRA small quantity generator currently in compliance with procedural requirements. Presently, this landfill is closed and undergoing post-closure monitoring. A single well on the north boundary adjacent to the FS Erie levels was sampled during the latest monitoring event. No contaminate concentrations above State or Federal guidelines were detected. The Colorado Department of Public Health and Environment is in the process of releasing the facility from Post Closure Monitoring. No investigation of the eastern portion of the landfill (adjacent to the subject site), or offsite, has occurred.

A complete listing of all environmental records is attached in the Appendix A.

3.2 Colorado Oil and Gas Conservation Commission

Western Environment reviewed records maintained by the Colorado Oil and Gas Conservation Commission (COGCC) for petroleum wells permitted on the subject property. These records confirm that petroleum development has occurred on the site since the 1980's. Records also indicated that the site contains only one producing well (Figure 2), but has over 20 expired permits associated with the property. The following table presents the well name, current operator, status and if any releases or violations were recorded during COGCC inspections on January 13th, 2014, May 7th, 2007, and April 2nd, 1996.

Facility ID	Facility Name	Operator	Status	Releases or Violations
05-123-12613	Champlin 86 Amoco Unit L#1	Kerr-McGee	Producing	None

According to Title 34, Article 60 (As Amended) of the Oil and Gas Conservation Act, Section 34-06-102, the State of Colorado gives the Oil and Gas Commission legislative declaration over the development, production, and utilization of the natural resources in the state of Colorado. Moreover, this legislation gives the Commission the authority to force the operator to perform remediation activities deemed necessary in compliance with all Federal and State health regulations.

3.3 Aerial Photography Review

Western Environment reviewed aerial photography to document past uses of the subject property. The available first photo dated June 22nd, 1937, showed the Town of Serine (now abandoned) approximately ½ mile southwest of the subject site. In this photo the property was undeveloped and vacant. Railroad tracks are present through the northwest corner of the subject property to the mining rail yard across Weld County Road 5. The Community Ditch is present in the south. The property is bordered by County Roads, and the Town of Erie is present to the west.

In photos from October 15th, 1975, the coal mine to the west seems to be abandoned and the rail road is no longer present. However, a drag strip, oriented northeast to southwest, is in its place. A house and two sheds are present at the southern end of the drag strip, while the northern end contains only one house, with two smaller sheds and multiple trailers parked on the property. The rest of the property, and surrounding properties are in agricultural production. The property is bordered to the west by a salvage yard, and to the south, the former Old Erie Landfill is visible. No changes were observed until September 5th, 1985, when the salvage yard was expanded, containing more cars.

In photos from September 24th, 1991, an oil/gas well (#05-123-12613) was present in the southern end of the property along the Community Ditch. The houses, sheds and drag strip were still present in the photos from July 6th, 1995. Subsequent photos were acquired from GoogleEarth Images. In the photos from August 5th, 2004, Erie High School was constructed to the north of the property. Half of the house at the north end of the property was burned and collapsed in photos from October 6th, 2005. The Erie Commons development to the west was completed in the photo dated March 30th, 2008. The most recent photo reviewed dated October 6th, 2013, showed the site as it currently appears. A list of the photos reviewed is presented in Appendix B.

3.4 Undermining

A significant portion of the site is undermined by the Columbine Mine. The mine which operated below the southwestern portion subject property is referred to as the Columbine.

Records from the Colorado Division of Mines and the Colorado Geologic Survey show the “Columbine” Mine began operation in 1920 and continued until 1946. Total production from all operations was placed at 7, 216,286 tons. Entry to the mine was gained via a 300 foot deep, two compartment production shaft 3,500 feet to the southwest.



Coal waste from Boulder Valley #1 Mine west of site

3.5 Governmental Inquiries

Western Environment submitted Environmental Inquiries (attached) to the Weld County Environmental Health Department and the Mountain View Fire Department on May 5th, 2014, regarding the subject property and its history. On May 6th, 2014, LuAnn Penfold of the Mountain View Fire Department provided a response, indicating that she had no records on any environmental issues with the subject property. On May 7th, 2014, Ms. Marcela Swain of Weld County responded with information about an incident involving liquid sludge pooling on the subject property. In response to a complaint, Weld County inspected the property on September 28th, 1988, and sent a letter to Liquid Waste Management informing them of the incident. Liquid Waste Management is a company specializing in the application of biosolids, or natural fertilizers, for nutrient enhancement of soils. On May 15th, 2014, Western Environment contacted Liquid Waste Management regarding the incident. Liquid Waste Management indicated that they do not maintain records as far back as the incident date. Due to the limited files and correspondence available for this incident, it is unclear if the incident was resolved.

4.0 SITE INSPECTION / INTERVIEWS

The purpose of a site inspection is to obtain information indicating the likelihood of identifying recognized environmental condition (REC's) in connection with the property. During a site visit on May 2nd, 2014 Western Environment personnel visually and physically observed the property to the extent not obstructed by bodies of water, vegetation, adjacent buildings, or other obstacles and debris.

At the time of the inspection, the subject property was vacant, with the majority of land in winter wheat cultivation and fallow corn fields. The eastern half of Section 21 is also in winter wheat production. The property is bordered to the north and west by Erie Parkway and Weld County 5 respectively. Weld County Road 6, currently unpaved, borders the site on the south. A residence with two large equipment sheds, was present on the western border of the property. Blake's Small Car Salvage was present further to the west, along with the remains of the Boulder Valley No. 1 Coal Mine. Erie High School was present to the north across Weld County Road 8 and the Front Range Landfill was present to the south across Weld County 6.



Mountain View drag strip view to southwest, residence shown in center

Upon inspection of the property, the Mountain View Drag Strip was still present. The asphalt was cracked and yielding weeds. The land around the drag strip is not developed and contains gravel, grass and weeds. Also, four abandoned structures were observed near the northern end of drag strip. These include a burned out residence, two brick sheds and sheet metal stable. These structures are not listed with the Weld County Assessors Office. There are few trees present on the property, however, the mentioned structures are surrounded, and hidden from view by a group of pine trees. Also, an active prairie dog colony was present in the northern end of the property. The eastern portion of the property had been recently cut and hay bales were still present throughout the field.

High tension electric transmission power lines run diagonally across the southwestern corner of the property in a southeast to northwest direction. High pressure natural gas lines run adjacent to the property along Weld County Roads 5 and 6. Also, a buried fiberoptic cable borders the property to the west and north along Weld County Road 5 and Erie Parkway.



Burn-out residence adjacent to drag strip

The Community Ditch bisects the southeastern corner of the property. The agricultural ditch contained water flowing north. Several of the trees on the property were located along this canal. Western Environment inspected the site for petroleum wells and infrastructure. Champlin 86 Amoco Unit L #1 and its associated ancillary equipment were located along the Community Ditch at the southern end of the property. The well and crude oil storage tank appeared to be well maintained, and there was no sign of soil contamination or petroleum release. During the inspection, the land southeast of the Community Ditch consisted of fallow corn fields overgrown with grass.



Crude oil storage tank for Champlin 86 Amoco Unit L #1

5.0 CONCLUSIONS

Western Environment and Ecology, Inc. performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 of 306 acres within the west ½ of Section 21, Township 1 North, Range 68 West, Erie, Colorado. Any exceptions to, or deletions from, this practice are described in Section 5.1 of this report. **This assessment has revealed no evidence of recognized environmental conditions (REC) in connection with the subject property.**

5.1 Deviations/Data Gaps

No Sanborn Fire Maps or City Directories were available for review and no response by the current owners regarding knowledge of environmental issues. It is the opinion of Western Environment that this lack of information does not constitute a significant Data Failure as defined by ASTM E-1527-13, Section 8.3.2.3. No significant “Data Gaps” as defined in ASTM E-1527-13, Section 12.7 were identified.

APPENDICES

APPENDIX A

Reference List



Radius Report

[Satellite view](#)

Target Property:

***W 1/2 S21, T1N, R68W Phase 1
ERIE, Weld County, Colorado 80516***

Prepared For:

Western Environment & Ecology Inc

Order #: 35397

Job #: 78479

Project #: 614-003-01

Date: 04/29/2014

Table of Contents

<i>Target Property Summary</i>	1
<i>Database Findings Summary</i>	2
<i>Locatable Database Findings</i>	6
<i>Radius Map 1</i>	10
<i>Radius Map 2</i>	11
<i>Ortho Map</i>	12
<i>Topographic Map</i>	13
<i>Report Summary of Locatable Sites</i>	14
<i>Environmental Records Definitions</i>	17

Target Property Summary

W 1/2 S21, T1N, R68W Phase 1
ERIE, Weld County, Colorado 80516

USGS Quadrangle: **Erie, CO**
Target Property Geometry: **Point**

Target Property Longitude(s)/Latitude(s):
(-105.01372, 40.035539)

County/Parish Covered:
Weld (CO)

Zipcode(s) Covered:
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 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.

Disclaimer - 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.

Database Findings Summary

FEDERAL LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	0.5000
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION & LIABILITY INFORMATION SYSTEM	CERCLIS	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	0.5000
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	0.5000
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSCO	0	0	0.5000
HISTORICAL GAS STATIONS	HISTPST	0	0	0.5000
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR08	0	0	0.5000
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	0.5000
NO FURTHER REMEDIAL ACTION PLANNED SITES	NFRAP	0	0	0.5000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	0	0	0.5000
NO LONGER REGULATED RCRA GENERATOR FACILITIES	NLRRCRAG	0	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
NATIONAL PRIORITIES LIST	NPL	0	0	0.5000
OPEN DUMP INVENTORY	ODI	0	0	0.5000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR FACILITIES	RCRAGR08	0	0	0.5000
RCRA SITES WITH CONTROLS	RCRASC	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	0	0	0.5000
RECORD OF DECISION SYSTEM	RODS	0	0	0.5000
TOXICS RELEASE INVENTORY	TRI	0	0	0.5000
SUB-TOTAL		0	0	

Database Findings Summary

STATE (CO) LISTING

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
ABOVEGROUND STORAGE TANK FACILITIES	AST	0	0	0.5000
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	0.5000
ENVIRONMENTAL REAL COVENANTS LIST	COVENANTS	0	0	0.5000
HISTORICAL SOLID WASTE LANDFILLS	HISTSWLF	2	0	0.5000
HAZARDOUS WASTE SITES- CORRECTIVE ACTION	HWSCA	0	0	0.5000
HAZARDOUS WASTE SITES- GENERATOR	HWSG	0	0	0.5000
HAZARDOUS WASTE SITES- TREATMENT, STORAGE & DISPOSAL	HWSTSD	0	0	0.5000
LEAKING STORAGE TANK FACILITIES	LST	0	0	0.5000
LEAKING UNDERGROUND STORAGE TANKS TRUST FUND SITES	LUSTTRUST	0	0	0.5000
METHANE GAS STUDY SITES	METHANESITES	0	0	0.5000
SUPERFUND SITES	SF	0	0	0.5000
SPILLS LISTING	SPILLS	0	0	0.5000
SOLID WASTE FACILITIES	SWF	0	0	0.5000
UNDERGROUND STORAGE TANK FACILITIES	UST	0	0	0.5000
VOLUNTARY CLEANUP AND REDEVELOPMENT PROGRAM SITES	VCRA	0	0	0.5000
SUB-TOTAL		2	0	

Database Findings Summary

LOCAL LISTING

<i>Database</i>	<i>Acronym</i>	<i>Locatable</i>	<i>Unlocatable</i>	<i>Search Radius (miles)</i>
WELD COUNTY SOLID WASTE FACILITIES	WCSWF	0	0	0.5000
SUB-TOTAL		0	0	

Database Findings Summary

TRIBAL LISTING

<i>Database</i>	<i>Acronym</i>	<i>Locatable</i>	<i>Unlocatable</i>	<i>Search Radius (miles)</i>
INDIAN RESERVATIONS	INDIANRES	0	0	0.5000
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR08	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR08	0	0	0.5000
SUB-TOTAL		0	0	
TOTAL		2	0	

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
BF	0.5000		0	0	0	NS	NS	0
CDL	0.5000		0	0	0	NS	NS	0
CERCLIS	0.5000		0	0	0	NS	NS	0
DNPL	0.5000		0	0	0	NS	NS	0
EC	0.5000		0	0	0	NS	NS	0
ERNSCO	0.5000		0	0	0	NS	NS	0
HISTPST	0.5000		0	0	0	NS	NS	0
HMIRSR08	0.5000		0	0	0	NS	NS	0
LUCIS	0.5000		0	0	0	NS	NS	0
NFRAP	0.5000		0	0	0	NS	NS	0
NLRRCRAC	0.5000		0	0	0	NS	NS	0
NLRRCRAG	0.5000		0	0	0	NS	NS	0
NLRRCRAT	0.5000		0	0	0	NS	NS	0
NPL	0.5000		0	0	0	NS	NS	0
ODI	0.5000		0	0	0	NS	NS	0
PNPL	0.5000		0	0	0	NS	NS	0
RCRAC	0.5000		0	0	0	NS	NS	0
RCRAGR08	0.5000		0	0	0	NS	NS	0
RCRASC	0.5000		0	0	0	NS	NS	0
RCRAT	0.5000		0	0	0	NS	NS	0
RODS	0.5000		0	0	0	NS	NS	0
TRI	0.5000		0	0	0	NS	NS	0
SUB-TOTAL			0	0	0	0	0	0

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
AST	0.5000		0	0	0	NS	NS	0
CDL	0.5000		0	0	0	NS	NS	0
COVENANTS	0.5000		0	0	0	NS	NS	0
HISTSWLF	0.5000		0	0	2	NS	NS	2
HWSCA	0.5000		0	0	0	NS	NS	0
HWSG	0.5000		0	0	0	NS	NS	0
HWSTSD	0.5000		0	0	0	NS	NS	0
LST	0.5000		0	0	0	NS	NS	0
LUSTTRUST	0.5000		0	0	0	NS	NS	0
METHANESITES	0.5000		0	0	0	NS	NS	0
SF	0.5000		0	0	0	NS	NS	0
SPILLS	0.5000		0	0	0	NS	NS	0
SWF	0.5000		0	0	0	NS	NS	0
UST	0.5000		0	0	0	NS	NS	0
VCRA	0.5000		0	0	0	NS	NS	0
SUB-TOTAL			0	0	2	0	0	2

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
INDIANRES	0.5000		0	0	0	NS	NS	0
LUSTR08	0.5000		0	0	0	NS	NS	0
ODINDIAN	0.5000		0	0	0	NS	NS	0
USTR08	0.5000		0	0	0	NS	NS	0

SUB-TOTAL			0	0	0	0	0	0
-----------	--	--	---	---	---	---	---	---

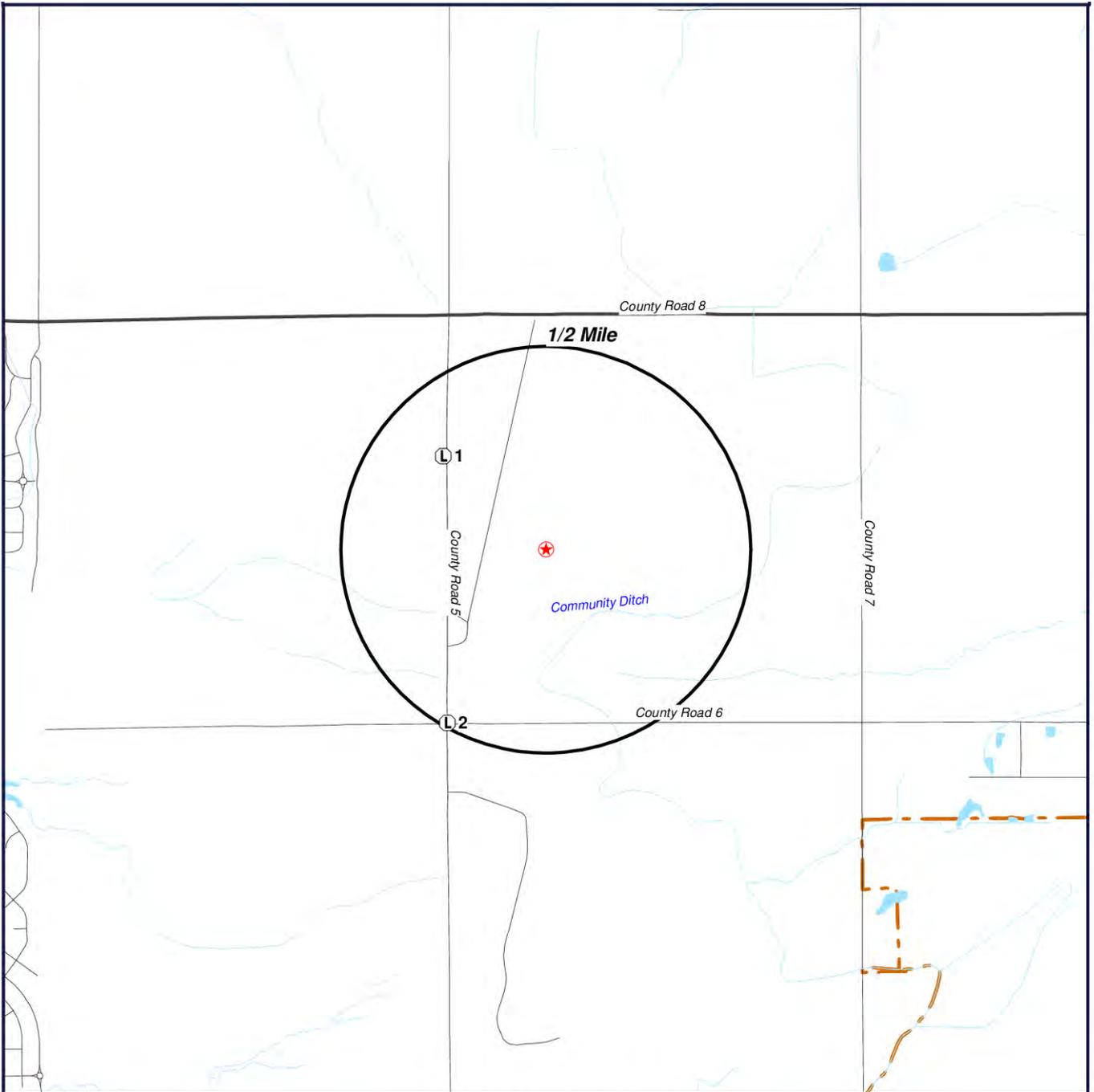
TOTAL			0	0	2	0	0	2
-------	--	--	---	---	---	---	---	---

NOTES:

NS = NOT SEARCHED

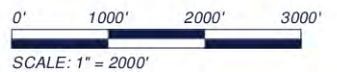
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

Radius Map 1



- ★ Target Property (TP)
- Ⓛ HISTSWLF

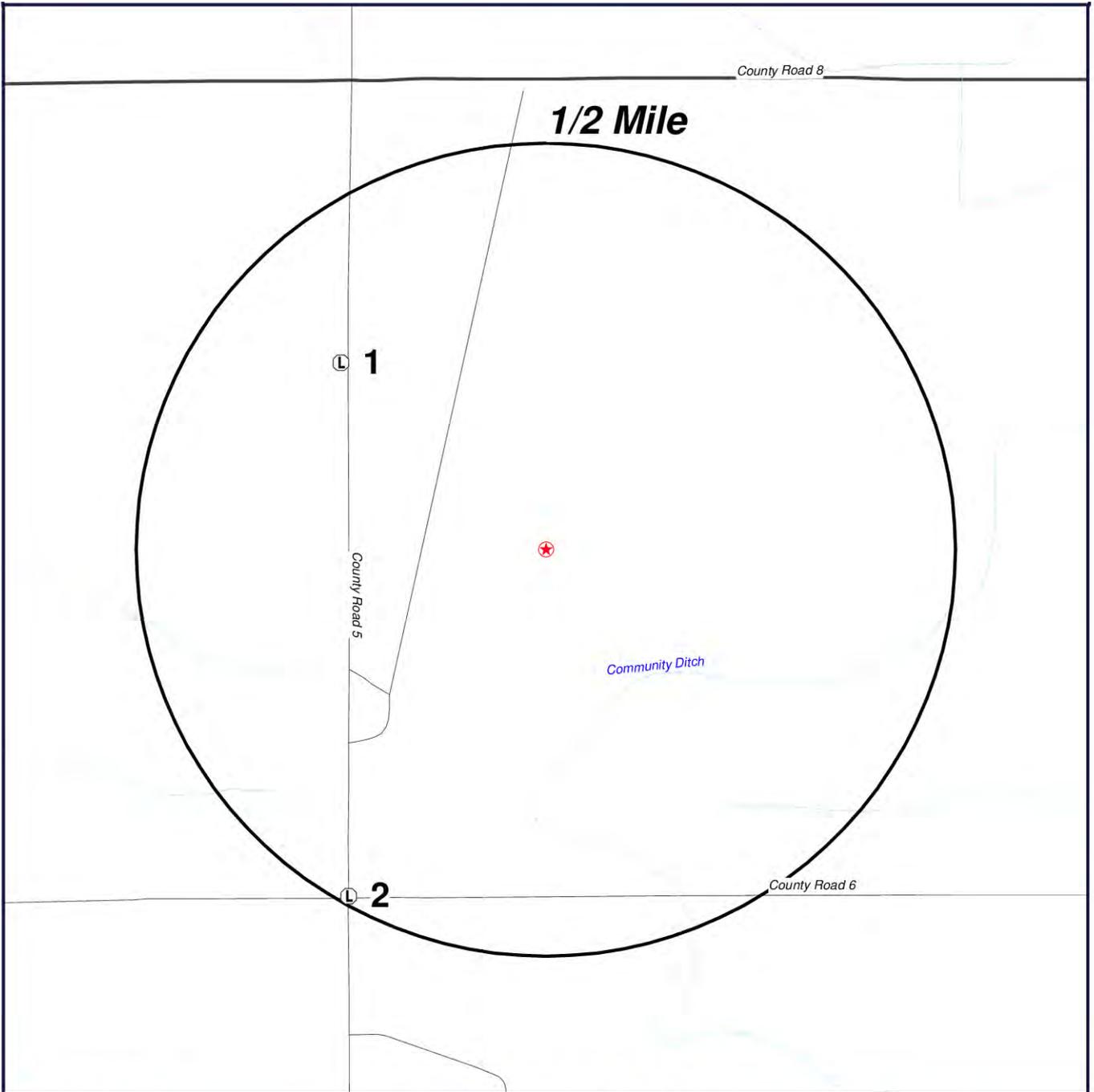
**W 1/2 S21, T1N, R68W Phase 1
ERIE, Colorado
80516**



[Click here to access Satellite view](#)

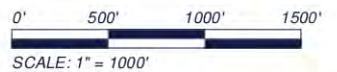
GeoSearch www.geo-search.com 888-396-0042

Radius Map 2



- ★ Target Property (TP)
- Ⓛ HISTSWLF

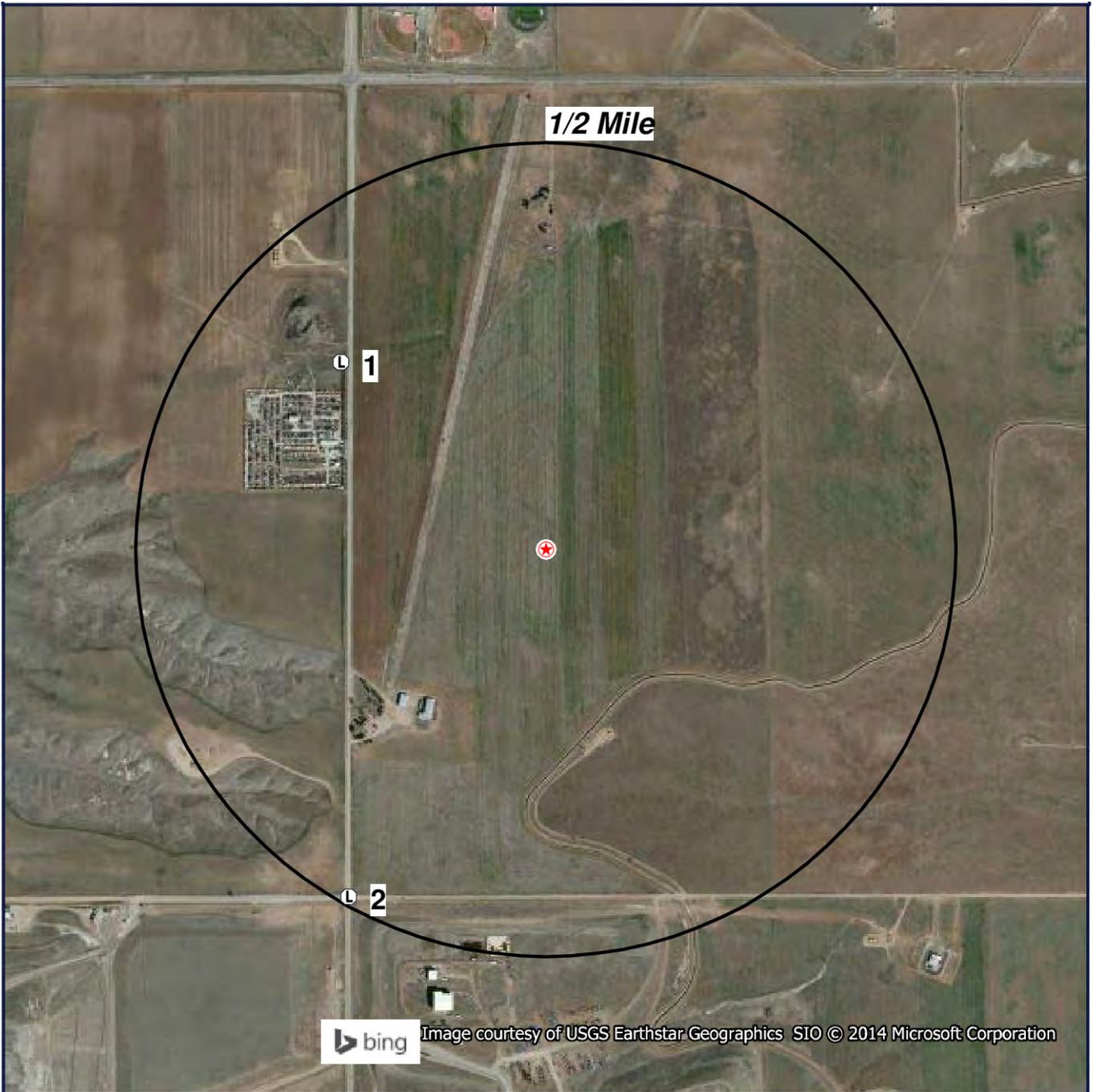
**W 1/2 S21, T1N, R68W Phase 1
ERIE, Colorado
80516**



[Click here to access Satellite view](#)

GeoSearch www.geo-search.com 888-396-0042

Ortho Map



- ★ Target Property (TP)
- Ⓛ HISTSWLF

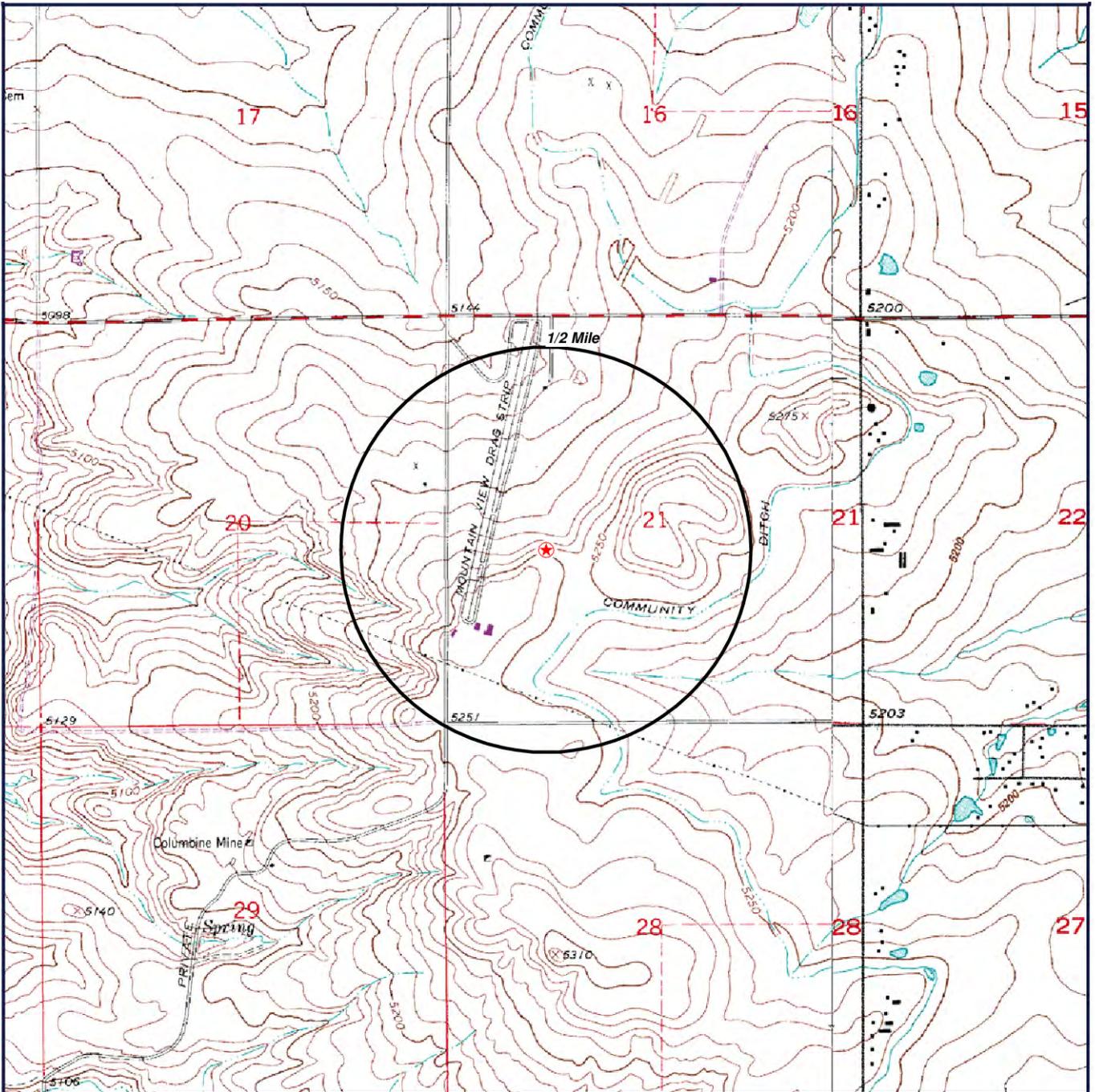
Quadrangle(s): Erie
W 1/2 S21, T1N, R68W Phase 1
ERIE, Colorado
80516



[Click here to access Satellite view](#)

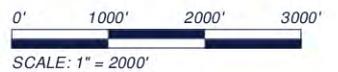
GeoSearch www.geo-search.com 888-396-0042

Topographic Map



★ Target Property (TP)

**Quadrangle(s): Erie
W 1/2 S21, T1N, R68W Phase 1
ERIE, Colorado
80516**



[Click here to access Satellite view](#)

GeoSearch www.geo-search.com 888-396-0042

Report Summary of Locatable Sites

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address	City, Zip Code
1	HISTSWLF	00070-0002196	0.34 NW	HORST SWDS (AKA ERIE SWDS)	2240WELD CTY #5	ERIE, 80516
2	HISTSWLF	00070-0002199	0.489 SW	ERIE LANDFILL RD 6&5	UNKNOWN	ERIE, 80516

Historical Solid Waste Landfills (HISTSWLF)

[MAP ID# 1](#)

Distance from Property: 0.34 mi. NW

SITE INFORMATION

UNIQUE ID: 00070-0002196

NAME: HORST SWDS (AKA ERIE SWDS)

ADDRESS: 2240WELD CTY #5

ERIE, CO

DIRECTIONS: NOT REPORTED

COUNTY: WELD

SITE DETAILS

AGENCY ID: NOT REPORTED

DETAIL1:

NOT REPORTED

DETAIL2:

TYPE- LANDFILL; OPER/OWNER/OTHR- LANDFILL SYSTEMS, INC./ /, DANIAL HORST, 303-666-5157

[Back to Report Summary](#)

Historical Solid Waste Landfills (HISTSWLF)

MAP ID# 2

Distance from Property: 0.49 mi. SW

SITE INFORMATION

UNIQUE ID: 00070-0002199

NAME: ERIE LANDFILL RD 6&5

ADDRESS: ADDRESS NOT REPORTED

ERIE, CO

DIRECTIONS: NOT REPORTED

COUNTY: WELD

SITE DETAILS

AGENCY ID: NOT REPORTED

DETAIL1:

LOCATED IN GULLEY, EVIDENCE OF SEEPAGE. IMPACT: GW.; ACRES- >100

DETAIL2:

TYPE- LANDFILL; FILL- REFUSE. ; OPER/OWNER/OTHR- // WELD CO LANDFILL INC, ,

[Back to Report Summary](#)

Environmental Records Definitions - FEDERAL

BF Brownfields Management System

VERSION DATE: 01/13/14

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.

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.

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.

DNPL Delisted National Priorities List

VERSION DATE: 10/25/13

This database includes sites from the United States Environmental Protection Agency's Final National Priorities 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.

EC Federal Engineering Institutional Control Sites

VERSION DATE: 12/09/13

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

GeoSearch www.geo-search.com 888-396-0042

Environmental Records Definitions - FEDERAL

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.

ERNSCO Emergency Response Notification System

VERSION DATE: 12/31/12

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.

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.

HMIRS08 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.

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.

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.

Environmental Records Definitions - FEDERAL

NLRRCRAC

No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 12/12/13

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.

NLRRCRAG

No Longer Regulated RCRA Generator Facilities

VERSION DATE: 12/12/13

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.

NLRRCRAT

No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 12/12/13

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.

Environmental Records Definitions - FEDERAL

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.

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.

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: 12/12/13

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).

RCRAGR08 Resource Conservation & Recovery Act - Generator Facilities

VERSION DATE: 12/12/13

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)

GeoSearch www.geo-search.com 888-396-0042

Environmental Records Definitions - FEDERAL

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.

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.

RCRAT Resource Conservation & Recovery Act - Treatment, Storage & Disposal Facilities

VERSION DATE: 12/12/13

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).

RODS Record of Decision System

VERSION DATE: 07/01/13

 www.geo-search.com 888-396-0042

Environmental Records Definitions - FEDERAL

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.

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.

Environmental Records Definitions - STATE (CO)

AST Aboveground Storage Tank Facilities

VERSION DATE: 01/27/14

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.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 12/31/10

The North Metro Task Force provides this list of Methamphetamine labs 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".

COVENANTS Environmental Real Covenants List

VERSION DATE: 12/23/13

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.

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.

HWSCA Hazardous Waste Sites- Corrective Action

VERSION DATE: 06/30/03

GeoSearch www.geo-search.com 888-396-0042

Environmental Records Definitions - STATE (CO)

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.

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.

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.

Environmental Records Definitions - STATE (CO)

LST Leaking Storage Tank Facilities

VERSION DATE: 02/21/14

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 investigation 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.

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.

SPILLS Spills Listing

VERSION DATE: 10/28/13

The Colorado Department of Public Health and Environment's Division of Emergency Preparedness and Response maintains this listing of chemical spills and/or releases.

GeoSearch www.geo-search.com 888-396-0042

Environmental Records Definitions - STATE (CO)

SWF Solid Waste Facilities

VERSION DATE: 01/14/14

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.

UST Underground Storage Tank Facilities

VERSION DATE: 01/27/14

The Oil and Public Safety Division of the Colorado Department of Labor and Employment maintains this list of underground storage tank facilities.

VCRA Voluntary Cleanup and Redevelopment Program Sites

VERSION DATE: 09/12/13

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.

Environmental Records Definitions - LOCAL

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

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.

LUSTR08 Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 02/01/13

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).

USTR08 Underground Storage Tanks On Tribal Lands

VERSION DATE: 02/01/13

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.

APPENDIX B

Aerial Photography Documentation

Colorado Aerial Photo Service

Invoice

2757 W. 2nd Ave.
 Denver, CO 80219
 303-934-2419 FAX:934-2410
 FEIN 84-1367318

Western Environment & Ecology
 2217 W. POWERS AVE.
 LITTLETON, CO 80120

49519

Date			Terms
5/6/2014			Net 30

Quantity	Item	Description	Each	SubTotal
		Ordered by: Austin Curry		
		Site: Area East of Eire, Colorado		
6	Research Taxed	06-22-37 #YB1-037,038 10-15-75 #142-080,079 05-12-79 #284,283 09-09-85 #X1-8-34,33 09-24-91 #076,074,076 07-06-95 #258,257	12.00	72.00
	TAX - Research	SUBTOTAL - Research Denver Sales Tax on Research Service @ 3.62%	3.62%	72.00 2.61

PLEASE PAY FROM THIS INVOICE
 NO STATEMENT WILL BE SENT

E-mail
caps@coloradoaerialphoto.com

Total \$74.61

APPENDIX C

Environmental Issues Inquiry and Supporting Documentation

Western Environment and Ecology, Inc.
User Questionnaire for a Phase I Environmental Site Assessment, ASTM 1527-13

Subject Property Address or Description:

West ½ of Section 21, Township 1 North, Range 68 West, Erie, Colorado 80516

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001, The user of a Phase I Environmental Site Assessment must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that “all appropriate inquiry” is not complete.

1. Environmental cleanup liens that are filed or recorded against the site:

Are you aware of any environmental cleanup liens against the subject property that are filed or recorded under federal, tribal, state, or local law? I don't know

If yes, please describe the lien and provide supporting documentation:

2. Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry:

Are you aware of any AULs, such as engineering controls, land use restrictions, or institutional controls that are in place at the subject property and/or have been filed or recorded in a registry under federal, tribal, state, or local law? I don't know

If yes, please describe the AUL and provide supporting documentation:

3. Specialized knowledge or experience of the person seeking to qualify for the LLP

As the potential user of the subject property, do you have any specialized knowledge or experience related to the subject property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or adjoining property so that you would have specialized knowledge of the chemicals, processes, etc., used by this type of business?

No

If yes, please describe this specialized knowledge or experience:

4. Relationship of the purchase price to the fair market value of the subject property if it were not contaminated.

Has the purchase price of this property been lowered below fair market value because of any contamination or some type of environmental issue? No

If yes, please describe the reasons for the lower purchase price:

5. Commonly known or reasonably ascertainable information about the property.

Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases?

A. Do you know the past uses of the property? (if "Yes", what?)

No

B. Do you know of chemicals that are present or once were present at the property? No

User Questionnaire for a Phase I Environmental Site Assessment, ASTM 1527-13

- C. Do you know of any petroleum based products that are present or were once present on the subject property (in 5-gal or greater size containers, barrels, or tanks)? No
- D. Do you know of any spills or other chemical releases that have taken place at the property? No
- E. Do you know of any environmental cleanups that have taken place at the property? No

If yes, please describe the information:

6. Do you know of any special permits need for the operation of the business or businesses that have occupied the subject property?

- Waste water discharge permit? No
- Air emissions permit? No
- Any other type of permits? No

7. The degree of obviousness of the presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.

As the potential user of the subject property, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

No

If yes, please describe the information:

8. Are you aware or have you ever been notified that another property around the subject site has caused or had an environmental impact to the property.

No

If yes, please describe which property and a brief description of the issue: _____

9. Are there any prior environmental reports concerning the subject property or related addresses? No

If yes, can you provide copies of these reports or know where there are copies of these reports? _____

Additional Information

How long have you had interest in acquiring the subject property?

3 years

Description of current activity on the subject property? Ag.

Do you have any knowledge of past ownership or activity on the subject property that would be of environmental concern? No

What is the reason the Phase I is being conducted? The town

List all parties who will rely on the Phase I ESA report:

Completed by:

Signature: [Signature]

Printed Name: Edie Cooper

Date: 3-15-14

Western Environment and Ecology, Inc.
User Questionnaire for a Phase I Environmental Site Assessment, ASTM 1527-13

Additional Notes:

WESTERN ENVIRONMENT AND ECOLOGY, INC

May 5th, 2014

Lu Ann Penfold
Mountain View Fire Rescue
9119 East County Line Road
Longmont, Colorado 80501

**Subject: Environmental Issues Inquiry, West ½ of Section 21, Township 1 North,
Range 68 West, Erie, Colorado 80516**

Dear Ms Penfold,

As a requirement for a Phase I Environmental Site Assessment, I respectfully submit this request for an environmental records search of the subject properties by your office. I am especially interested in any records of environmental releases, chemical recovery, responses, above ground and/or underground storage tanks, hazardous materials storage, incidents, landfills, etc., which may be, or are impacting the site.

I look forward to receiving your response. If you have any questions about these properties, do not hesitate to contact me at 303-730-3452. Faxed (303-730-3461) or emailed response of your review would be more than sufficient. Thank you very much for your time in this matter.

Sincerely,
WESTERN ENVIRONMENT AND ECOLOGY, INC.

Austin Curry
Staff Scientist

cc. File

Austin Curry

From: LuAnn Penfold <lpenfold1101@gmail.com>
Sent: Tuesday, May 06, 2014 10:01 AM
To: Austin Curry
Subject: Re: Environmental Issues Inquiry, West 1/2 of Section 21, Town 1 North, Range 68 West, Erie, Colorado 80516

Hi Austin,

I don't have anything for this property. The car bone yard is across the street to the west - they may have fuel tanks over there as well, I've not had any problems with them so I've not been out there. The property is just north of the landfills as you are aware of. But nothing major has happened there that I know. There was a drag strip there some time ago.

LuAnn

On Tue, May 6, 2014 at 9:53 AM, Austin Curry <austin@westernenvironment.com> wrote:

Hi LuAnn,

I have attached a map with cross streets of the subject property.

Thank you.

Austin Curry

Staff Scientist

WESTERN ENVIRONMENT AND ECOLOGY

2217 West Power Avenue

Littleton, Colorado 80120

Austin@westernenvironment.com

[303.730.3452](tel:303.730.3452)

WESTERN ENVIRONMENT AND ECOLOGY, INC

May 5th, 2014

Weld County
Department of Public Health and Environment
1555 North 17th Avenue
Greeley, Colorado 80631
mswain@co.weld.co.us

Subject: **Environmental Issues Inquiry, West ½ of Section 21, Township 1 North,
Range 68 West, Erie, Colorado 80516 .**

Dear Ms. Swain,

As a requirement for a Phase I Environmental Site Assessment, I respectfully submit this request for an environmental records search of the subject properties and adjacent properties by your office. I am especially interested in any records of environmental releases, chemical recovery, responses, above ground and/or underground storage tanks, hazardous materials storage, incidents, landfills, etc., which may be, or are, impacting the site.

I look forward to receiving your response. If you have questions about these properties, do not hesitate to contact me at 303-730-3452. Faxed or emailed responses of your review would be more than sufficient. Thank you very much for your time in this matter.

Sincerely,
WESTERN ENVIRONMENT AND ECOLOGY, INC.

Austin Curry
Staff Technician

cc. File



DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
 1555 North 17th Avenue
 Greeley, CO 80631



Web: www.weldhealth.org

Health Administration Vital Records Tele: 970.304.6410 Fax: 970.304.6412	Public Health & Clinical Services Tele: 970.304.6420 Fax: 970.304.6416	Environmental Health Services Tele: 970.304.6415 Fax: 970.304.6411	Communication, Education & Planning Tele: 970.304.6470 Fax: 970.304.6452	Emergency Preparedness & Response Tele: 970.304.6420 Fax: 970.304.6469
---	---	---	---	---

Our vision: Together with the communities we serve, we are working to make Weld County the healthiest place to live, learn, work and play.

REQUEST TO REVIEW FILES

NAME: AUSTIN CURRY

COMPANY: WESTERN ENVIRONMENT & ECOLOGY

ADDRESS: 2217 W. POWERS AVE. LITTLETON, CO 80120

MAILING ADDRESS: " "

PHONE NUMBER: 303 730-3452

FILES REQUESTED: COMPLAINT/INCIDENT FILES FOR PROPERTY
 IN THE WEST 1/2 OF SECTION 21, TOWNSHIP 1 NORTH, RANGE 68
 WEST, ERIE, COLORADO.

REASON FOR REQUEST: CONDUCTING PHASE I ENVIRONMENTAL ASSESSMENT
 ON PROPERTY.

After the first fifteen minutes of file requests/audits there is a \$15.00 charge per hour, all copies are 25 cents per page. You will be charged either the copy fee or the hourly fee, whichever is higher. Payment in full will be remitted at the end of the requests/audits. **PLEASE - DO NOT REMOVE ANY CORRESPONDENCE OR CHANGE THE ORDER OF THE CORRESPONDENCE IN THE FILE.** If you would like copies, post-it notes will be provided for you to flag the correspondence. Copies will be made within five (5) working days and mailed to you.

Signature of Requester: Ayl B. Cury

Date: 5-7-14

Approved by: _____
 Director or Supervisor of E.H.S. Division

Date: _____

Start Time: _____
 End Time: _____
 (\$15.00 per hour)

Copies: _____
 (25 cents per page)

Copies: _____
 Time: _____
 Total: _____

Complaint Summary Form

COMPLAINT ID: CO0801543

Inspector Information

Received by: Employee ID Not Specified

Assigned Date: No Date

Assigned Time:

Assigned to: No Employee ID

Resolved By:

Resolved Date:

PROPERTY OWNER INFORMATION

MARLIN PYLES

Site Address: Property Owner Address Not Specified

Phone: Hm: Number Not Specified

PROPERTY INFORMATION

Property Name not Specified

Location: :

Site Address: : Property Address Not Specified
LONGMONT, CO

Phone: 1st: Number Not Specified

Complaint Details

LIQUID SLUDGE POOLING ON GROUND

Inspection Comments

COMPLAINT ID: CO0801543

Inspector No Employee ID

6200.rpt



file
DEPARTMENT OF HEALTH

1516 HOSPITAL ROAD
GREELEY, COLORADO 80631

ADMINISTRATION (303) 353-0586
HEALTH PROTECTION (303) 353-0635
COMMUNITY HEALTH (303) 353-0639

Certified # P 814 105 411

Legal Action # 88-150

September 29, 1988

Liquid Waste Management
P.O. Box 888
Longmont, Colorado 80501

Dear Sirs:

In response to a complaint, your property located at SEC 21, TWN 1N, RNG 68W, was inspected on September 28, 1988, by Scott Perkins of this department. The following was found to be a nuisance problem:

Liquid ludge pooled on top of the ground 2-4' deep where applied to the soil, creating a putrid offensive stench.

Colorado Revised Statute Section 25-1-613 provides the following:

"The Board of Health shall examine all nuisances, sources of filth, and causes of sicknesses, which, in its opinion, may be injurious to the health of the inhabitants, within its own town, city or county..., and it shall destroy, remove, or prevent the same as the case may require."

Be advised that you have five (5) days from receipt of this notice to correct the aforementioned violations. Failure to respond will result in further legal action by this department.

If you have any questions concerning this matter, feel free to contact me at this office by calling 353-0635.

Sincerely,

A handwritten signature in cursive script that reads "Wes Potter".

Wes Potter, Director
Health Protection Services

WP/bks

cc: Marc Ringel, M.D., Medical Director, Weld County
Chuck Kozel, Administrator, Weld County Health Department
Lee Morrison, Assistant County Attorney

WELL CONSTRUCTION AND TEST REPORT
STATE OF COLORADO, OFFICE OF THE STATE ENGINEER

For Office Use only

0456366

RECEIVED

SEP 07 2000

WATER RESOURCES
STATE ENGINEER
COLO.

1. WELL PERMIT NUMBER 223888

2. OWNER NAME(S) DANIEL R. HORST
Mailing Address 2240 WELD CO. RD. 5
City, St. Zip ERIE, CO. 80516
Phone (303) 665-3069

3. WELL LOCATION AS DRILLED: NW 1/4 SW 1/4, Sec. 21 Twp. 1 N Range 68 W
DISTANCES FROM SEC. LINES:
1610 ft. from S Sec. line. and 216 ft. from W Sec. line. OR
(north or south) (east or west)
SUBDIVISION: LOT BLOCK FILING(UNIT)
STREET ADDRESS AT WELL LOCATION:

4. GROUND SURFACE ELEVATION _____ ft. DRILLING METHOD ROTARY
DATE COMPLETED 8-28-00 TOTAL DEPTH 695 ft. DEPTH COMPLETED 695 ft.

5. GEOLOGIC LOG:

Depth	Description of Material (Type, Size, Color, Water Location)
0-12	clay
12-13	coal
13-90	clay
90-200	sandy
206-208	rock
208-254	shale
254-257	coal
257-265	shale
265-268	coal
268-270	rock
270-305	shale
305-307	rock
307-350	shale
350-355	coal
355-475	shale
475-490	sand X
490-635	sand mix shale X
635-636	rock
636-690	sand shale X

6. HOLE DIAM. (in.) From (ft) To (ft)

978	0	50
778	30	50
6	50	695

7. PLAIN CASING

OD (in)	Kind	Wall Size	From(ft)	To(ft)
658	steel	188	0	40
4 1/2	steel	188	40	485
PERF. CASING: Screen Slot Size:				
4 1/2	steel	.045	485	695

8. FILTER PACK:
Material _____
Size _____
Interval _____

9. PACKER PLACEMENT:
Type _____
Depth _____

REMARKS:

10. GROUTING RECORD:

Material	Amount	Density	Interval	Placement
cement	30sac	14.5	0-485	pumped

11. DISINFECTION: Type HTH Amt. Used 2LBS.

12. WELL TEST DATA: Check box if Test Data is submitted on Form No. GWS 39 Supplemental Well Test.
TESTING METHOD AIRLIFT
Static Level 275 ft. Date/Time measured 8-28-00 9AM-11AM, Production Rate 7 gpm.
Pumping level 575 ft. Date/Time measured 8-28-00 9AM-11AM, Test length (hrs.) 2HRS.
Remarks

13. I have read the statements made herein and know the contents thereof, and that they are true to my knowledge. [Pursuant to Section 24-4-104 (13)(a) C.R.S., the making of false statements herein constitutes perjury in the second degree and is punishable as a class 1 misdemeanor.]

CONTRACTOR ROGER SCHOCKE WELL DRILLING INC. Phone (803) 288-5474 Lic. No. 403
Mailing Address 9875 BRIGHTON RD. HENDERSON, CO. 80640

Name/Title (Please type or print) <u>ROGER SCHOCKE PRES.</u>	Signature <i>Roger Schocke</i>	Date <u>9-5-00</u>
---	-----------------------------------	-----------------------

The report must be typed or printed in **BLACK INK**. All changes on the form must be initialed and dated. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

This form may be reproduced by photocopy methods, or by computer generation with prior approval by the State Engineer. Photocopy reproductions must retain margins and print quality of the original form.

The original form must be submitted to the State Engineer's Office within 60 days after completing the well or 7 days after the permit expiration date, whichever is earlier.

A copy of the form must be provided to the well owner.

1. Complete the Well Permit Number in full.
2. Fill in Name and Mailing Address of Well Owner where correspondence should be sent.
3. Complete the blocks for the actual location of the well where drilled. If the owner has more than one well serving this property, provide the identification (Owner's Designation) for this well. **DO NOT USE THE OWNER SUPPLIED LOCATION** unless a survey has been provided. For wells located in subdivisions the lot, block and subdivision information must also be provided.
4. Report the ground surface elevation in feet above sea level if available. This value may be obtained from a topographic map. Describe the drilling method used to construct the well and the date completed. Indicate the total depth drilled and the actual completed depth of the well.
5. Fully describe the materials encountered in drilling. Do not use formation names unless they are in conjunction with a description of materials.
Examples of descriptive terms include:
Grain size—Boulders, gravel, sand, silt, clay.
Hardness—Loose, soft, tight, hard, very hard.
Color—All materials. Most critical in sedimentary rock.
Depth when water is encountered (if it can be determined).
6. Provide the diameters of the drilled bore hole.
7. The outside diameter, kind, wall thickness and interval of casing lengths must be indicated.
8. Indicate the type and size of filter (gravel) pack and the interval where placed.
9. Indicate the type and setting depth for any packers installed.
10. The density of the grout slurry must be reported and may be indicated as pounds per gallon, gallons of water per sack, total gallons of water and number of sacks used, etc. Specify the grout placement method, i.e. tremie pipe or positive displacement. The percentage of additives mixed with the grout should be reported under remarks.
11. Record the type and the amount of disinfection used, how placed and the length of time left in the hole.
12. Report well test data as required by Rule 10.7. Spaces are provided to report all measurements made during the test. The report should show that the test complied with the provisions of the rules. If a test was not performed explain when it will be done. If available, report clock time when measurements were taken.
13. Fill in Company Name and Address of Contractor who constructed the well. The report must be signed by the licensed contractor responsible for the construction of the well.

APPENDIX D

WESTERN ENVIRONMENT AND ECOLOGY, INC.

Statement of Qualifications

“We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental professional as defined in 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.”

REAL ESTATE TRANSFER ENVIRONMENTAL AUDITS (RETA)

In response to provisions contained within the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), lending institutions, firms and individuals involved with property transfers have become painfully aware of the costs associated with environmental liabilities. In an attempt to make informed decisions and potentially avail themselves of the "innocent purchaser defense" as defined in CERCLA, lending institutions are requiring the completion of an environmental audit. Previously, the completeness and the thoroughness of these audits varied as greatly as the cost. However, in late 1992, the American Society of Testing and Materials (ASTM) adopted specific standards for completion of Phase I audits. The ASTM standards (E-1527 and E-1528) are quite specific as to the level of investigation necessary to complete the audit. **WESTERN ENVIRONMENT AND ECOLOGY, INC.** has performed Real Estate Transfer Environmental Audits to ASTM standards long before the standards were adopted. Additionally, **WESTERN ENVIRONMENT AND ECOLOGY, INC.** personnel have provided training to FDIC regional offices on environmental compliance and financial institution liabilities. This familiarity with lending institutions and more than fifteen years of experience in performing RETA's allows **WESTERN ENVIRONMENT AND ECOLOGY, INC.** to provide efficient and complete reports meeting short time frame requirements.

SERVICES

- | | |
|----------------------------------|--------------------------|
| ◆Historical Photo Records Search | ◆Lead-Based Paint Survey |
| ◆Environmental Records Search | ◆Asbestos Survey |
| ◆Interviews | ◆Radon Survey |
| ◆On-site Inspection | ◆PCB Survey |

SELECTED CLIENT LIST

Community Development Group Denver, Colorado

City of Aurora, Aurora, Colorado

City of Wheat Ridge, Colorado

Shively, Strommen & Holst, Longmont, Colorado

Town of Lyons, Colorado

Grant & Grant, Longmont, Colorado

GREG D. SHERMAN, P.G.

President

PROFESSIONAL CAPABILITIES:

Mr. Sherman has more than 39 years of professional experience. He is currently President of **WESTERN ENVIRONMENT AND ECOLOGY, INC.** Prior to his current position, he was the Principal Geologist with SEACOR in its Lakewood, Colorado office and Project Director with Roy F. Weston also in Lakewood.

Duties performed in these capacities involved responsibility for CERCLA RI/FS studies and RCRA investigations. His professional assignments include project management and technical direction of the design and installation of the 2,000-foot long the 881 Hillside Groundwater Interception trench at the Rocky Flats Nuclear Weapons Plant in Jefferson County, Colorado. Mr. Sherman was Field Operations Manager for the installation of 75 groundwater extraction wells and vapor extraction and sparging points. This work was completed on the Stanford Research Park Superfund site in Palo Alto, California. Recently, he has concentrated on VOC remediation system design and installation utilizing on-site re-injection of treated groundwater and enhanced oxygenation systems. Mr. Sherman was lead investigator for the City of Wheat Ridge regarding the characterization of the Jay Street Park. This project, which was submitted to the Colorado Voluntary Clean-Up Program, received a grant from the Colorado Department of Public Health and Environment for innovative use of a Brownsfields site. Mr. Sherman and Western Environment and Ecology, Inc. was selected by the Cities of Aurora and Lakewood as their approved USEPA Brownsfields contractor.

Mr. Sherman is past Chairman of the Rocky Mountain Section of the Association of Engineering Geologists. He has served as Chairman of Executive Enterprises Seminars on Sampling and Data Analysis. He has extensive experience in geotechnical and geological investigations, groundwater studies, UST testing and evaluation, construction materials testing and mineral resource evaluation.

Mr. Sherman is recognized in the region as one of the leading experts in underground storage tank management and mine subsidence. He has placed special emphasis on the application of geophysical techniques to environmental and geotechnical investigations. Clients for these projects range from Federal, state and local governments to private industry and commercial developments. The project types included petroleum distribution facilities, nuclear power plants, highways and streets, dams and reservoirs, transmission lines, sewage treatment plants and sewage systems, hazardous and industrial waste disposal areas, and mining facilities, as well as residential and commercial developments. Mr. Sherman has performed geotechnical and geological investigations in Alaska, Arizona, California, Colorado, Idaho, Illinois, Montana, New Mexico, New York, Nevada, North Dakota, South Dakota, Texas, Utah and Wyoming. Additionally, he has international evaluation experience in the Middle East and Mexico.

REGISTRATION/CERTIFICATION

Wyoming Professional Geologist #2296

Indiana Certified Geologist #786

Certified Professional Geologist, CPG #6586

Petro Tite Training Course, 1986

40-Hour OSHA Training Course, 1987

8-Hour OSHA Supervisor Course, 1987

Nuclear Density Gauge Operation and Safety Training Course, 1984

NRC Quality Assurance Training, 1978

Asbestos Inspector, 1996

EXPERIENCE

Western Environment and Ecology, Inc., Littleton, Colorado; President, 1994.

SEACOR, Inc., Lakewood, Colorado; Principal Scientist, 1992-1993.

Roy F. Weston, Inc., Lakewood, Colorado; Principal Geologist, 1990-1992.

ATEC Associates, Inc., Denver, Colorado; Environmental Division Manager, 1985-1990.

Tierra Consultants, Inc., Denver, Colorado; President, 1982-1985.

Apache Energy and Minerals, Denver, Colorado; Senior Project Geologist, 1979-1982.

Dames and Moore, Denver, Colorado; Project Geologist, 1977-1979.

Resource Associates of Alaska, Fairbanks, Alaska; Staff Geologist, 1976.

Uranerez U.S.A., Inc., Casper, Wyoming; Staff Geologist, 1975-1976.

Amoco Production Company, Denver, Colorado; Lab Technician, 1974.

Cities Service Company, Durango, Colorado; Field Technician, 1973.

EDUCATION

B.S., Geology, University of Northern Colorado, 1975

Graduate Studies, New Mexico Institute of Mining and Technology, 1977

AWARDS

Rocky Mountain Associate of Geologists, Outstanding Senior, 1975

Who's Who in the West, 1988

Colorado Wildlife Federation, 1996 Conservationist of the Year (Owl Mountain Partnership)

PROFESSIONAL ASSOCIATIONS

Association of Engineering Geologists

American Institute of Professional Geologists

Senior Scientist Colca Canyon Scientific Expedition, 1990

Colorado School of Mines, Non-facility Senior Design Team Advisor

PUBLICATIONS/PRESENTATIONS

Sherman Greg D., "Mine Subsidence Assessment, Boulder-Weld Coal Field, Using British National Coal Board Methods" The Mountain Geologist, Volume 46, Number 1 January 2009.

Sherman Greg D. and Brian R. Partington., "Abandoned Mine Subsidence Prediction Using British National Coal Board Methods, Boulder/Weld Coal Field, Denver, Colorado" Proceedings for the International Association of Engineering Geologists, 2006 Meeting Nottingham, United Kingdom. September 2006.

Sherman, Greg D., "Sampling and Data Analysis"; Executive Enterprises Seminar, Chairman, May 1992.

Sherman, Greg D., "Statistical Design of Sampling Plans"; Executive Enterprises Seminar, June 1990.

Sherman, Greg D., "Impact of the EPA UST Regulations"; Tri-State Petroleum Marketer, December 1988.

Sherman, Greg D., "Variables Effecting Volumetric Leak Detection Methods for Underground Storage Tanks"; Paper given to the Colorado Section, American Society of Civil Engineers, 1988.

Sherman, Greg D., "The Impact of Underground Storage Tank Regulations on Industry"; Extended Abstracts, American Institute of Chemical Engineers, National Meeting, 1988.

Sherman, Greg D., "Assessment of Subsidence Damage to Existing Structures in Louisville, Lafayette, Colorado"; Proceedings of the Colorado Governor's Conference on Subsidence, 1985.

Sherman, Greg D., "Geology and Mining History of the Boulder/Weld Coal Field"; Paper given at Denver Coal Club Meeting, 1985.

Sherman, Greg D., "The New Mexico Gold Belt Regional Structural Implications"; Proceedings of the Western Mining Association, 1982 Convention.

Sherman, Greg D., "Colorado Front Range Uranium Deposits, A Possible Origin": in review.

Sherman, Greg D., "Origin of Monoclinial Folding Near Livermore, Colorado"; The Mountain Geologist, April 1976



JANSEN STRAWN
CONSULTING ENGINEERS

PHASE 1 DRAINAGE REPORT DEARMIN/ERIE COMMUNITY

Erie, CO

May 16, 2017

JN: 14034

Prepared for:

Southern Land Company
1550 W. McEwen Drive, Suite 200
Franklin, TN 37067
P: 615.778.1212

Prepared by:

Jansen Strawn Consulting Engineers
990 S. Broadway, Suite 230
Denver, CO 80209
P: 303.561.3333
F: 303.561.3339

Thomas C. Jansen, PE No. 35942
Principal

solutions. partnerships. success.

TABLE OF CONTENTS

I. GENERAL LOCATION AND DESCRIPTION	3
II. DRAINAGE BASINS AND SUB-BASINS.....	4
III. DRAINAGE FACILITY DESIGN.....	5
IV. SUMMARY.....	8
V. REFERENCES.....	9

APPENDICES

APPENDIX A

Vicinity Map
Soil Classification Map
FIRM Panel
Drainage Design Criteria

APPENDIX B

Drainage Map

I. GENERAL LOCATION AND DESCRIPTION

The purpose of this Phase I Drainage Report is to present conceptual design and impacts of the stormwater with the proposed Dearmin/Erie Community development. The property owner is applying for a Sketch Plan through the Town of Erie.

A. Site Location

The site is located in the Town of Erie and more specifically in the west half of Section 21, Township 1 North, Range 68 West of the 6th Principal Meridian. See Appendix A for the vicinity map.

The site is bounded on the Erie Parkway to the north, to the east by vacant land, to the south by County Road 6 and County Road 5 to the west.

B. Site Description

The project site is approximately 302.2 acres. The majority of the site is located within the Boulder Creek tributary basin, with smaller falling within the Little Dry Creek and Coal Creek tributary basins.

The majority of the property is dry farm land and grazing land, containing several derelict structures, a drag strip, and an oil/gas production facility. There is also an existing residential property in the western portion of the site along County Road 5, which is not within this projects boundary.

Soils onsite are composed of multiple types including Type A, B and C soils according to the Web Soil Survey by the National Resources Conservation Service (NRCS). A small portion of the site contains Cascajo gravelly sandy loam (Hydrologic Soil Group A). Type A soils are characterized as having low runoff potential when thoroughly wet. Water is transmitted freely through the soil. Group A soils typically have less than 10 percent clay and more than 90 percent sand or gravel and have gravel or sand textures. The majority of the soils onsite are Wiley-Colby complex or Colby loam (Hydrologic Soil Group B). Type B soils are characterized as soils that have a moderate infiltration rate when thoroughly wet and have a moderate rate of water transmission. Type B soils consist of moderately deep or deep, moderately well drained or well drained soils that have a moderately fine texture to a moderately coarse texture. Type C soils are also present onsite in the form of Nunn loam, Nunn clay loam and Weld loam. Type C soils have are characterized as having a moderately high runoff potential when thoroughly wet and water transmission through the soil is somewhat restricted. Refer to Appendix A for more detailed information on the physical soil properties.

C. Proposed Project Description

The associated Sketch Plan for Dearmin proposed approximately 214 alley loaded single family lots, 406 standard single family lots and 145 active adult single family dwelling units at full build out. A 7.0 acre neighborhood park has been located within the single family area along the western boundary. A Middle School is anticipated in the northeast corner of the site (13.5 acres) along with Community Commercial (CC) along Erie Parkway. The project also includes oil and gas areas surrounded by open space. This project includes proposed local roadways to service the proposed uses.

II. DRAINAGE BASINS AND SUB-BASINS

A. Major Drainage Basin

The site is located within the Coal Creek, Boulder Creek and Little Dry Creek major drainage basins. Generally, the site drains from the southeast to the northwest, however there is a ridge running from midway along the eastern property line to the southwest corner of the site. This ridge separates the Boulder Creek basin to the north from the Little Dry Creek basin to the south. Flows along this ridge split with the flows in the southeastern part of the site flowing to the existing irrigation channel which is proposed to remain. To clarify, any area that is developed will be collected, routed to the proposed detention pond, detained, treated for water quality and released at the appropriate release rate into the existing drainage system. Any areas to the south of the development that are not developed will be allowed to discharge over historic drainage patterns. This site will also collect offsite flows in the northeastern portion of the site, which historically flow into the site. Slopes on the site range from 2 to 12%, with higher slopes coming along the ridge running through the site.

All Coal Creek, Boulder Creek and Little Dry Creek basins are analyzed within the Erie Outfall Systems Planning Preliminary Design Report, prepared by Love and Associates, December 2007 (MDP).

The site is located within a Zone C per the FEMA FIRM Map No. 0802660962D, as shown in Appendix A. A Zone C is defined as an area being outside the limits of the 500-year flood level.

B. Sub-Basin and Site Drainage

The existing site drainage generally flows from southeast to northwest to a lowpoint at the intersection of County Road 8 and County Road 5. A culvert in this low point conveys these flows across County Road 5. The ridge which crosses the site separating Big Dry Creek basin from Boulder Creek basin separates the Boulder Creek basin flows which travel northwest from the Little Dry Creek basin flows with travel to the southeast. The onsite flows within Dry Creek basin flow overland to the existing

irrigation channel, which conveys flows to the south and ultimately reach Preble Creek which is tributary to Little Dry Creek. Flows within the small portion of the site in the southwestern portion of the site which drains to Coal Creek, in the existing condition will flow overland to the low point along County Road 5 and enter into the existing culvert which will convey the flows beneath the roadway.

Offsite flows enter the site in the northeast portion of the site. Sheet flow is anticipated to enter from the roughly 54 acres of offsite land within basin 432 of the OSP to the east of the site. The OSP identifies that the future developed runoff rates for the two proposed mixed use lots at the northern portion of the property as High Density Residential with an expected imperviousness of 70%. The proposed residential development is within a proposed Low Density Residential area with an expected imperviousness of 43%. The proposed open space and oil and gas property in the southern portion of the site are within a proposed Rural Residential area with an expected imperviousness of 30%. The adjacent property to the east which is expected to flow onto the proposed site is expected to also have a Low Density Residential imperviousness of 43%.

The MDP does not identify any onsite detention ponds. There is an existing channel in the southeastern portion of the site which is within Little Dry Creek basin. The channel runs to the south and is tributary to Preble Creek which is tributary to Little Dry Creek.

III. DRAINAGE FACILITY DESIGN

A. General Concept

Existing drainage patterns will be maintained onsite to the greatest extent possible. Runoff that historically drains onsite will be conveyed through the site to the appropriate outfall in a safe, efficient and manageable manner.

Stormwater runoff within the developed residential portions of the site will have the following runoff characteristics: runoff within the individual lots will be conveyed through roofs, downspouts, shallow swales and sheet flow to adjacent streets or tracts. Once runoff is within the street it will be conveyed within the street section to proposed storm sewer inlets. Runoff captured in proposed inlets will be conveyed via proposed storm sewer to designated outfall locations into the proposed water quality ponds and detention pond. Runoff rates will be attenuated in accordance with the future imperviousness rates provided within the OSP.

Two defined low points exist onsite, one is located in the northwest corner and the other is located towards the southwest corner. In both cases, existing flows will be captured and conveyed within the existing culvert across County Road 5 to the adjacent properties. The culvert in the northwest corner will become the outfall point for the proposed detention pond and will continue to convey flows across County Road 5. The

existing culvert to the south, lies outside of the property line and will remain in place. The total area running to this culvert will be reduced since, in the existing condition, proposed residential property has runoff which runs to the existing culvert, which in the developed condition will run elsewhere. A large regional pond has been located in the northwestern corner of the site to control much of the development's drainage. Smaller ponds may be necessary depending on phasing or developed drainage patterns.

There are no known wetlands onsite, nor are there any known irrigation facilities.

As a part of future drainage studies for this property, it is assumed that the proposed stormwater runoff amounts and conveyance will need to be evaluated using two methodologies. The rational method ($Q=C*i*A$), in accordance with UDFCD criteria, will provide runoff values for the smaller basins associated with onsite storm sewer and conveyance design. The onsite stormwater conveyance system, including street capacity calculations, inlet sizing and storm sewer capacities will be analyzed using rational method runoff calculations. In accordance with the Town of Erie standards, the onsite stormwater conveyance infrastructure will be sized to convey runoff from the 2-year storm (minor event) and the 100-year storm (major event.)

Following the Town of Erie Standards and Specifications, this site will be analyzed using the Colorado Urban Hydrograph Procedure since it is over 160 acres.

B. Specific Details

The future land use plans that were evaluated in the OSP for the site account for the northern portion of the site being developed as medium density residential (70%), the proposed residential portions as low density residential (43%) and the eastern portions as rural residential and open space (30%). The proposed land uses include mixed use to the north, low density residential, oil and gas, and open space, with the majority being residential. As a result, it is anticipated that the developments within the proposed school, commercial and residential portions will be at or below the anticipated runoff rates, while the developments to the south will fall below the anticipated runoff rates. The effects of the proposed imperviousness will be fully evaluated in subsequent drainage reports for the proposed developments.

As mentioned earlier, offsite flows are anticipated to enter the site in the northeastern portion. These flows will be captured and conveyed by a proposed channel along the western edge of the site to the proposed street section, where it will be captured within the proposed storm sewer. The channel is anticipated to be grassed lined and designed in accordance with UDFCD capacity and stability criteria. The grades along the eastern border of the site are relatively steep with grades reaching 15%. The portion of the site in the southeast which is within Little Dry Creek basin slopes away from the rest of the residential development to the west.

No onsite water quality will be provided for runoff from offsite sources. Although it is understood that the offsite properties that are tributary to the site will remain agricultural uses or will be dedicated open space, offsite water quality and detention would be required offsite in accordance with the Town of Erie standards if the offsite tributary land were to develop in the future.

The main pond will provide both water quality and detention for the residential, commercial and school site. The single family detached residential development area of approximately 129 acres with 551 lots provides a residential density of 4.3 du/acre which is equal to or less than the anticipated future residential density within the OSP (43% impervious). The alley product has 214 units on 36.8 acres (5.8 du/acre) and an imperviousness of 55% has been assumed for this area. This is well below the OSP that called for 70% imperviousness for multifamily. The main pond will be sized based on the overall residential and school areas and their imperviousness. The design will include water quality and detention ponds that are sized and designed in accordance with UDFCD Volume 3 criteria. The pond will have an outlet structure which will convey flows to the existing culvert at the northwestern portion of the site which will route the flows across County Road 5 in its historic drainage pattern. The commercial parcel in the northwest corner will be required to provide its own detention and water quality. All of the proposed detention ponds shall provide water quality, 10-year detention and 100-year detention volumes. The three provided detention volumes will have controlled releases provided by three separated orifice control devices.

The OSP called for the design of Detention Pond 1103 in the northwest corner of the site. This pond was proposed to detain runoff from existing basins 431 and 432 according to the OSP.

The OSP recommends a 19.0 acre-foot pond at the northeast corner of this parcel based on the tributary area of Basin 431 and 432 in the OSP. We anticipated the bulk of this volume will be controlled with the main pond along Erie Parkway. The proposed pond's outfall structure is proposed to convey flows to the northwest portion of the site where it shall be conveyed across County Road 5 within the existing culvert at historic flow rates. Surrounding developments at the intersection County Road 5 & County Road 8 may rebuild portions of the culverts, and this development might be required to reimburse if not designed in a manner to facilitate future developments.

Access roads will be provided for each of the proposed onsite detention and water quality ponds. The access roads will be provided from the public right-of-way to the required portions of the pond for maintenance purposes. The material used will be suitable for all weather access to the ponds and will be designed in accordance with UDFCD criteria and Town of Erie standards. All proposed drainage conveyance infrastructure and water quality and detention ponds will be located within public right-

of-way or drainage easements, which will guarantee access to the Town of Erie as needed.

IV. SUMMARY

The drainage patterns and methods described in this Phase I Drainage Report are consistent with The Town of Erie Standards and Specifications and with responsible drainage engineering design. The concepts presented in this study will need to be designed as a part of future drainage studies for this property to ensure that the efficiency of the stormwater conveyance facilities is maximized and that safety is ensured with all aspects of the ultimate design.

V. REFERENCES

1. *Natural Resources Conservation Center Web Soil Survey*, United States Department of Agriculture, site visited September 2014.
2. *Federal Emergency Management Agency Flood Insurance Rate Map*, Community-Panel Number 0802660960D, Map Revised September 28, 1990.
3. *Standards and Specifications for Design and Construction of Public Improvements-2012 Edition*, Town of Erie, CO

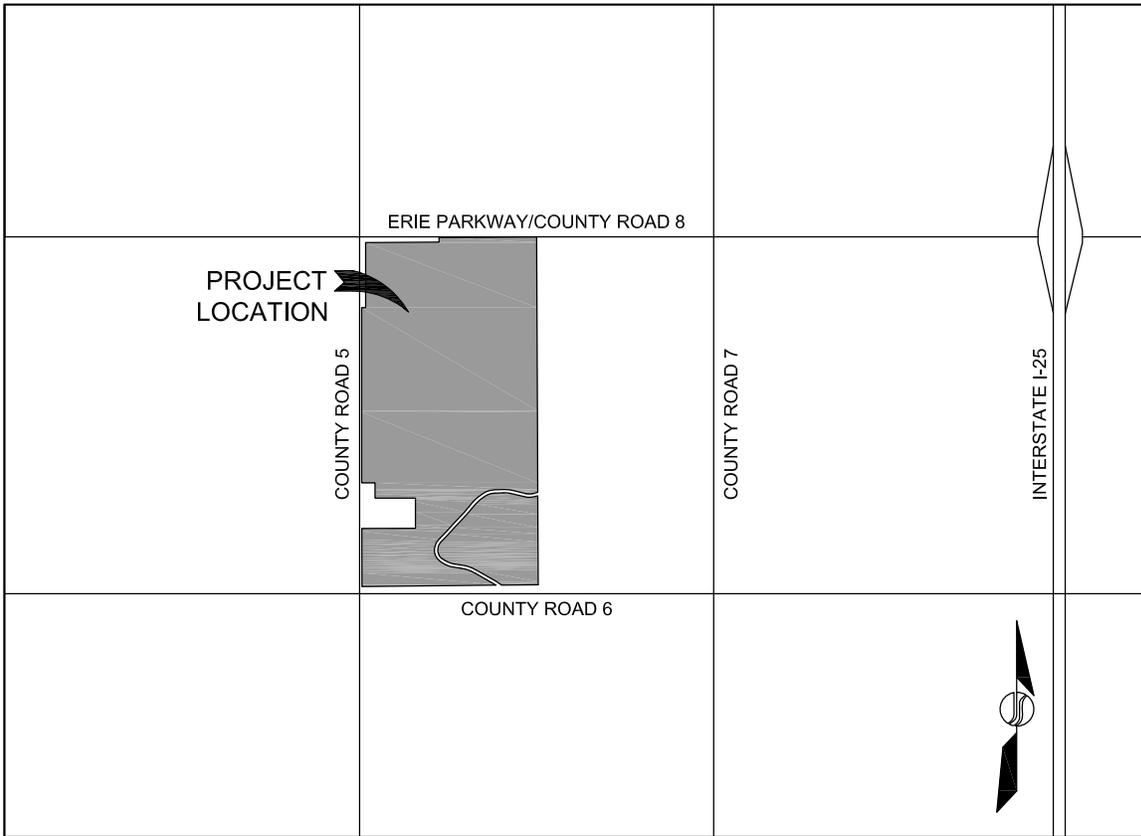
APPENDIX A

Vicinity Map

Soil Classification Map

FEMA FIRM Panel

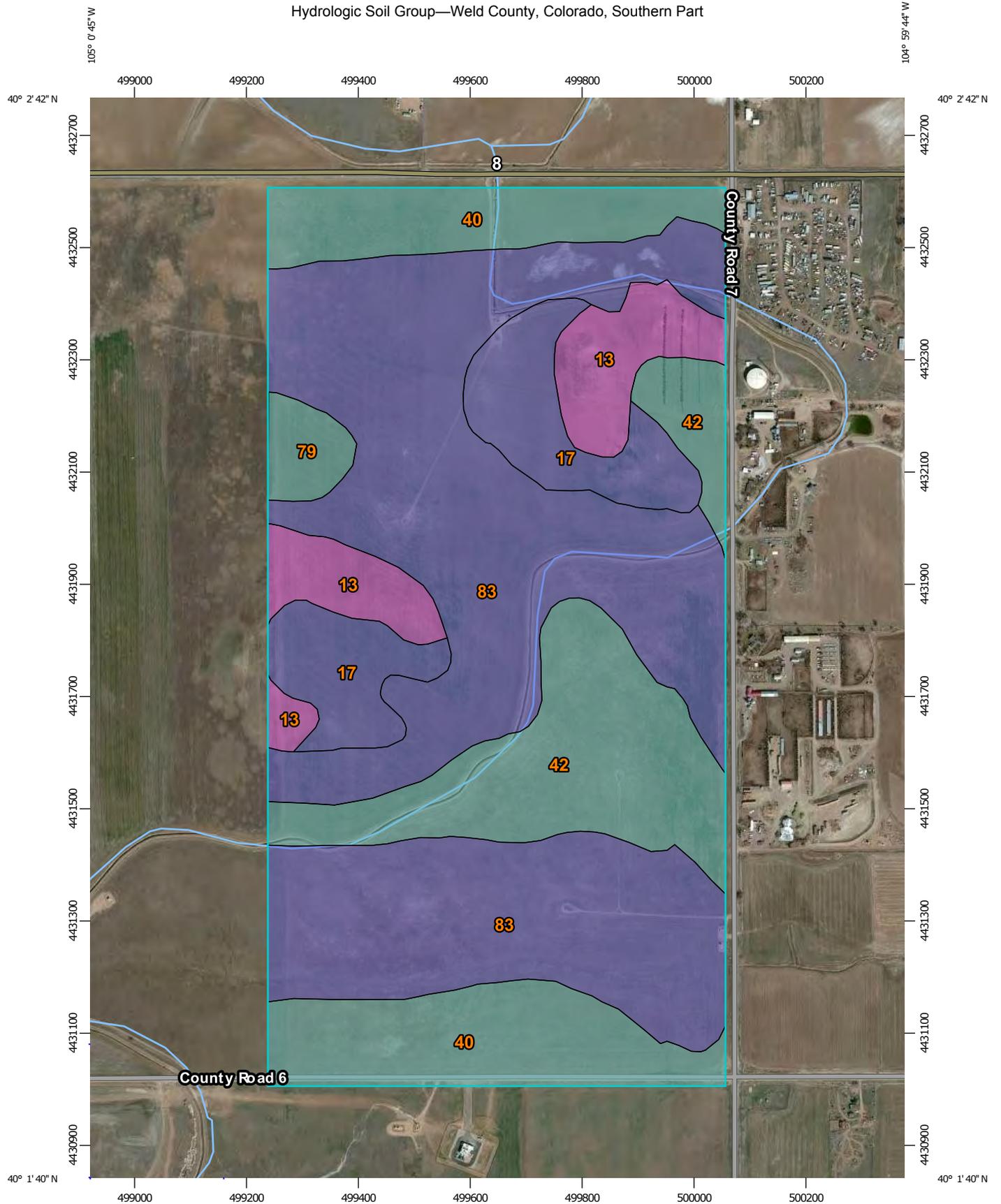
Drainage Design Criteria



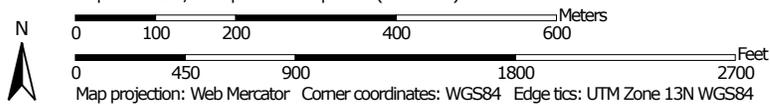
VICINITY MAP

SCALE 1"=2000'

Hydrologic Soil Group—Weld County, Colorado, Southern Part



Map Scale: 1:9,380 if printed on A portrait (8.5" x 11") sheet.



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 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: Weld County, Colorado, Southern Part
 Survey Area Data: Version 12, Jan 3, 2014

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 — Weld County, Colorado, Southern Part (CO618)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
13	Cascajo gravelly sandy loam, 5 to 20 percent slopes	A	24.0	7.4%
17	Colby loam, 5 to 9 percent slopes	B	30.8	9.5%
40	Nunn loam, 1 to 3 percent slopes	C	51.6	15.9%
42	Nunn clay loam, 1 to 3 percent slopes	C	49.3	15.2%
79	Weld loam, 1 to 3 percent slopes	C	5.8	1.8%
83	Wiley-Colby complex, 3 to 5 percent slopes	B	163.5	50.3%
Totals for Area of Interest			324.9	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.

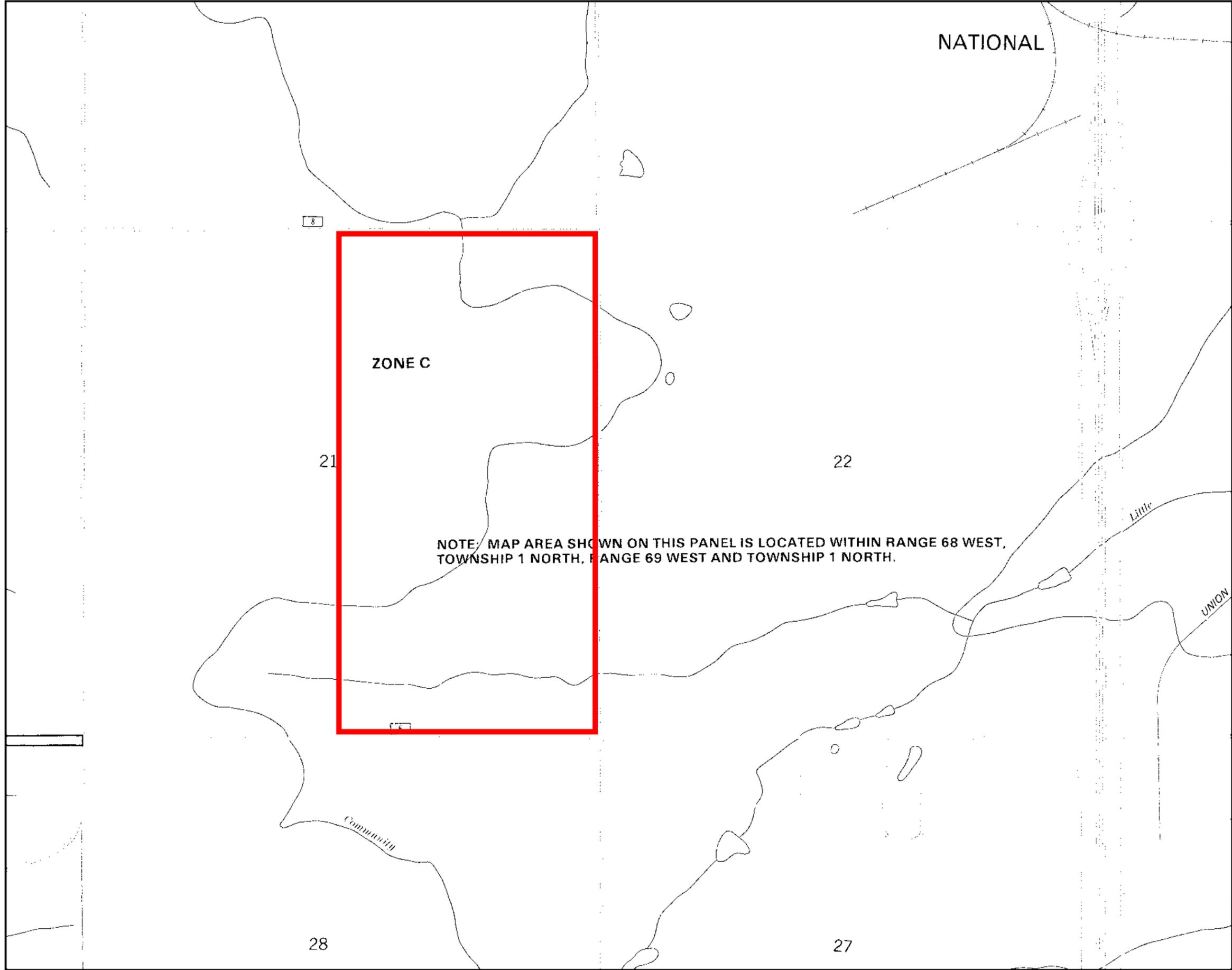
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



ZONE C

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN RANGE 68 WEST, TOWNSHIP 1 NORTH, RANGE 69 WEST AND TOWNSHIP 1 NORTH.



APPROXIMATE SCALE IN FEET
 1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
 FLOOD INSURANCE RATE MAP

WELD COUNTY,
 COLORADO
 (UNINCORPORATED AREAS)

PANEL 960 OF 1075
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
 080266 0960 D

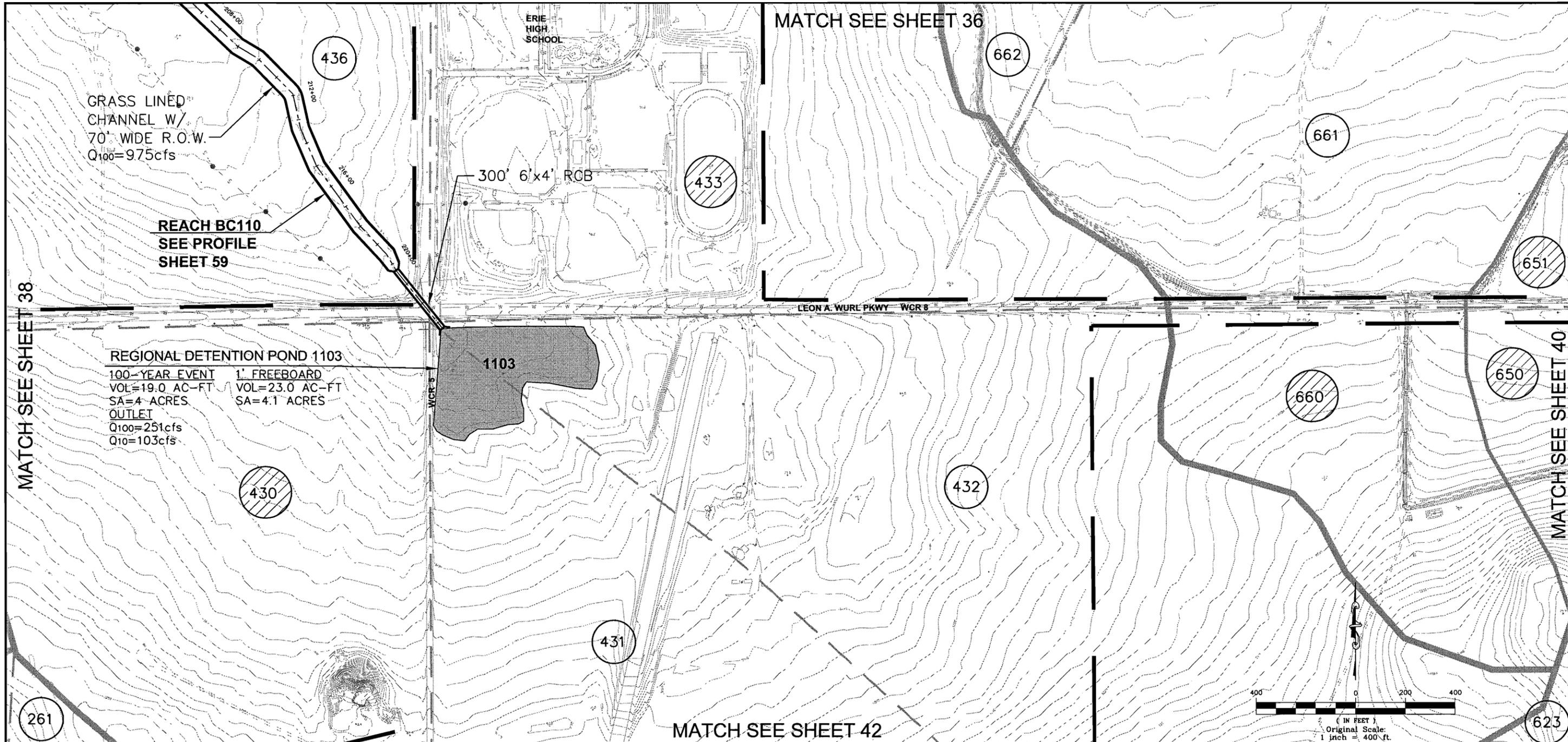
MAP REVISED:
 SEPTEMBER 28, 1990



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

\\ServerData\PROJECTS - CURRENT\0603\DRAWINGS\PRELIM BY SHEETS\PDF-SHTS-37-42.dwg, 8/8/2007 10:40:51 AM, LOVE & ASSOCIATES, INC.



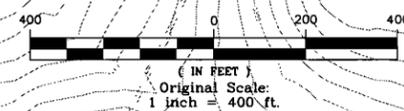
REGIONAL DETENTION POND 1103
 100-YEAR EVENT VOL=19.0 AC-FT
 SA=4 ACRES
 OUTLET Q100=251cfs
 Q10=103cfs
 1' FREEBOARD VOL=23.0 AC-FT
 SA=4.1 ACRES

MATCH SEE SHEET 38

MATCH SEE SHEET 36

MATCH SEE SHEET 40

MATCH SEE SHEET 42



SHEET INDEX

NIWOT RD	1	2	3	4	5	6	COLO HWY 52 MINERAL RD
	7	8	9	10	11	12	
N. 107TH ST US HWY 287	13	14	15	16	17	18	I-25
	19	20	21	22	23	24	
LOOKOUT RD	25	26	27	28	29	30	WCR 5
UPRR	31	32	33	34	35	36	
E. COUNTY LINE RD	37	38	39	40	41	42	WCR 7
	43	44	45	46	47	48	
N. 111 TH ST	49	50	51	52	53	54	COLO HWY 7 BASELINE RD
	55						

LEGEND

- CATCHMENT BOUNDARY
- MINOR CATCHMENT BOUNDARY
- STUDY AREA
- 100-YEAR REGULATORY FLOODPLAIN
- CATCHMENT I.D.
- ON-SITE OR LOCAL DETENTION REQUIRED
- ERIE TOWN BOUNDARY
- CHANNEL CENTERLINE
- DRAINAGE R.O.W.
- DETENTION BASIN

- CULVERT
- STORM SEWER
- POTENTIAL WETLANDS
- OVERHEAD ELECTRIC
- BURIED ELECTRIC
- CABLE TV
- TELEPHONE
- GAS
- WATER
- SANITARY SEWER
- STORM SEWER
- DATUM:
HORIZONTAL: COLORADO STATE PLANE
NORTH ZONE, HARN ADJUSTMENT.
VERTICAL: NGVD 88
- CONTROL POINTS:
USGS CONTROL POINT:
JR-53-1948

NOTES:

1. THIS DRAWING IS FOR MASTER PLANNING PURPOSES AND REPRESENTS PRELIMINARY AND CONCEPTUAL ENGINEERING. ALTERNATIVES TO THIS OUTFALL SYSTEM WILL BE CONSIDERED BY THE TOWN OF ERIE PROVIDED THE ALTERNATIVE OFFERS EQUAL HYDROLOGIC RESPONSE, HYDRAULIC CAPACITY AND STREAM STABILITY. THE ALTERNATIVE MUST COMPLY WITH ALL REQUIREMENTS OF THE TOWN OF ERIE. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.
2. THE TOWN OF ERIE, WELD AND BOULDER COUNTIES MANAGE AND REGULATE ALL LAND DEVELOPMENT AND REDEVELOPMENT WITHIN THE 100-YEAR FLOODPLAINS SO AS TO PREVENT FUTURE FLOOD DAMAGES BY FOLLOWING THE RECOMMENDATIONS OF THIS PLAN.
3. WHEN REGIONAL BASINS ARE NOT CONSTRUCTED:
 - a. IF DEVELOPMENT OCCURS IN ANY SUB-CATCHMENT SERVED BY ANY OF THE REGIONAL DETENTION BASINS BEFORE THE REGIONAL DETENTION BASIN IS IN EXISTENCE ON THE GROUND, DEVELOPMENT SHALL PROVIDE ON-SITE WATER QUALITY AND 10- AND 100-YEAR DETENTION.
 - b. STORAGE VOLUME AND THE ALLOWABLE RELEASE RATES FOR ALL ON-SITE DETENTION BASINS SHALL BE BASED ON THE EQUATIONS (CHARTS) FOR WATER QUALITY CAPTURE VOLUME CONTAINED IN UD&FCD URBAN STORM DRAINAGE CRITERIA MANUAL - VOLUME 3 AND FOR 10- AND 100- YEAR PEAK FLOW CONTROLS THE EQUATIONS DEVELOPED BY ENGINEER FOR THIS FINAL PLAN.
 - c. ALL DRAINAGE FACILITIES SHALL BE SIZED TO HANDLE FLOWS THAT ARE NOT REDUCED BY UPSTREAM DETENTION UNLESS THE DETENTION FACILITIES ARE PHYSICALLY IN PLACE AT THE TIME OF DESIGN. ASSUMING DETENTION WILL BE BUILT IN THE FUTURE IS NOT VALID AND WILL NOT BE ACCEPTED.

Love & Associates, Inc.
 water resource consultants
 800 Jefferson Avenue - Suite B
 Louisville, Colorado 80027-1873
 Phone: 303-673-9795
 Fax: 303-673-9796

DESIGNED: RJP
 DRAWN: PEM
 CHECKED: DJL
 DATE: 6-07

TOWN OF ERIE

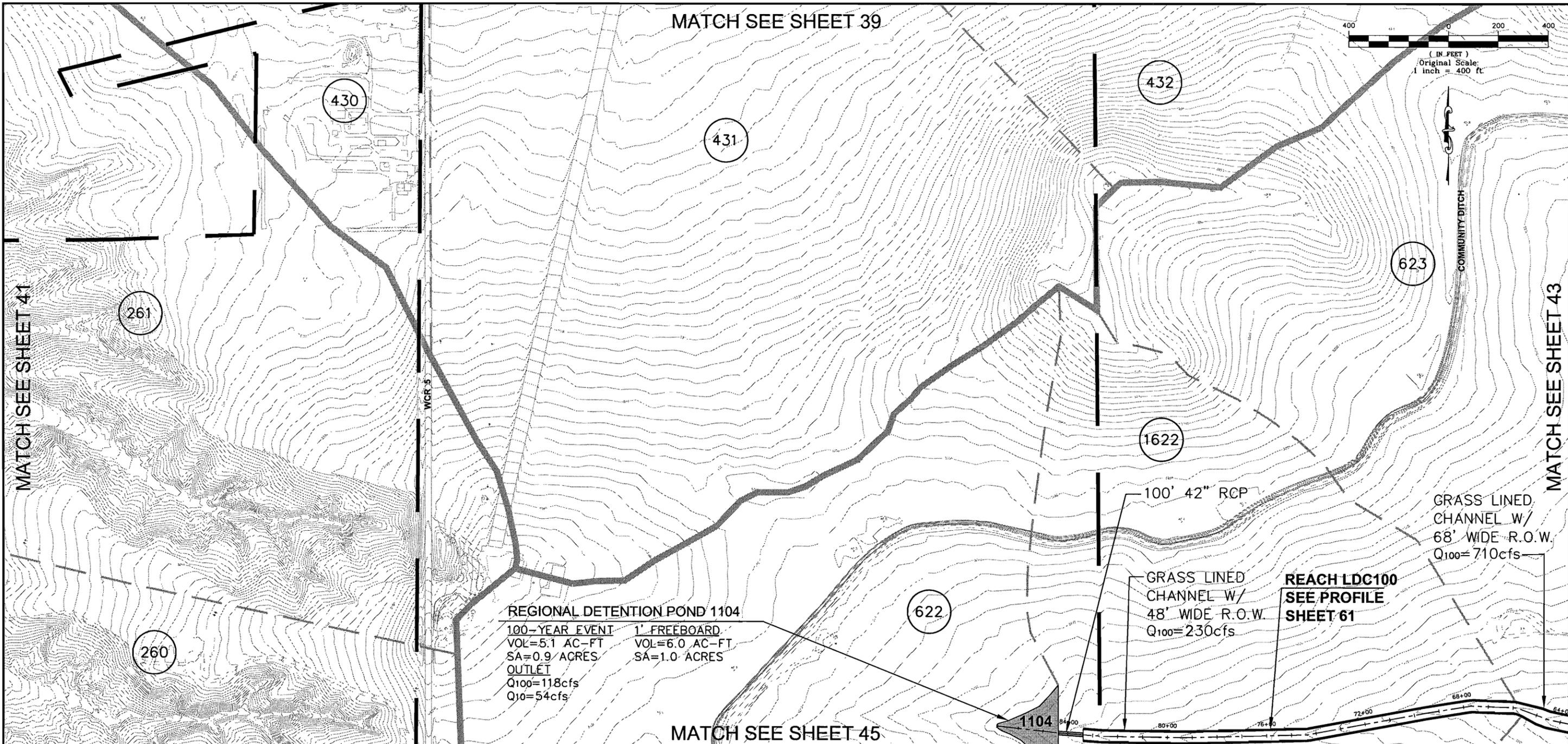
**ERIE AND ADJACENT AREAS
 OUTFALL SYSTEMS PLANNING**

**PRELIMINARY
 DESIGN PLAN**

**SHEET
 39 OF 67**

\\ServerData\PROJECTS - CURRENT\0603B\DRAWINGS\PRELIM BY SHEETS\PDF-SHTS-37-42.dwg, 8/8/2007 10:40:01 AM, LOVE & ASSOCIATES, INC.

MATCH SEE SHEET 39



REGIONAL DETENTION POND 1104
 100-YEAR EVENT VOL=5.1 AC-FT
 SA=0.9 ACRES
 OUTLET Q100=118cfs
 Q10=54cfs
 1' FREEBOARD VOL=6.0 AC-FT
 SA=1.0 ACRES

100' 42" RCP
 GRASS LINED CHANNEL W/
 48' WIDE R.O.W.
 Q100=230cfs

GRASS LINED CHANNEL W/
 68' WIDE R.O.W.
 Q100=710cfs

REACH LDC100
 SEE PROFILE SHEET 61

SHEET INDEX

NIWOT RD	1	2	3	4	5	6	COLO HWY 52 MINERAL RD
	7	8	9	10	11	12	
N. 107TH ST US HWY 287	13	14	15	16	17	18	I-25
	19	20	21	22	23	24	
LOOKOUT RD	25	26	27	28	29	30	WCR 5
UPRR	31	32	33	34	35	36	
E. COUNTY LINE RD	37	38	39	40	41	42	WCR 7
	43	44	45	46	47	48	
N. 111 TH ST	49	50	51	52	53	54	COLO HWY 7 BASELINE RD
	55						

LEGEND

- CATCHMENT BOUNDARY
- MINOR CATCHMENT BOUNDARY
- STUDY AREA
- 100-YEAR REGULATORY FLOODPLAIN
- CATCHMENT I.D.
- ON-SITE OR LOCAL DETENTION REQUIRED
- ERIE TOWN BOUNDARY
- CHANNEL CENTERLINE
- DRAINAGE R.O.W.
- DETENTION BASIN

- CULVERT
- STORM SEWER
- POTENTIAL WETLANDS
- OVERHEAD ELECTRIC
- BURIED ELECTRIC
- CABLE TV
- TELEPHONE
- GAS
- WATER
- SANITARY SEWER
- STORM SEWER
- DATUM:
HORIZONTAL: COLORADO STATE PLANE
NORTH ZONE, HARN ADJUSTMENT.
VERTICAL: NGVD 88
- CONTROL POINTS:
USGS CONTROL POINT:
JR-53-1948

NOTES:

1. THIS DRAWING IS FOR MASTER PLANNING PURPOSES AND REPRESENTS PRELIMINARY AND CONCEPTUAL ENGINEERING. ALTERNATIVES TO THIS OUTFALL SYSTEM WILL BE CONSIDERED BY THE TOWN OF ERIE PROVIDED THE ALTERNATIVE OFFERS EQUAL HYDROLOGIC RESPONSE, HYDRAULIC CAPACITY AND STREAM STABILITY. THE ALTERNATIVE MUST COMPLY WITH ALL REQUIREMENTS OF THE TOWN OF ERIE. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.
2. THE TOWN OF ERIE, WELD AND BOULDER COUNTIES MANAGE AND REGULATE ALL LAND DEVELOPMENT AND REDEVELOPMENT WITHIN THE 100-YEAR FLOODPLAINS SO AS TO PREVENT FUTURE FLOOD DAMAGES BY FOLLOWING THE RECOMMENDATIONS OF THIS PLAN.
3. WHEN REGIONAL BASINS ARE NOT CONSTRUCTED:
 - a. IF DEVELOPMENT OCCURS IN ANY SUB-CATCHMENT SERVED BY ANY OF THE REGIONAL DETENTION BASINS BEFORE THE REGIONAL DETENTION BASIN IS IN EXISTENCE ON THE GROUND, DEVELOPMENT SHALL PROVIDE ON-SITE WATER QUALITY AND 10- AND 100-YEAR DETENTION.
 - b. STORAGE VOLUME AND THE ALLOWABLE RELEASE RATES FOR ALL ON-SITE DETENTION BASINS SHALL BE BASED ON THE EQUATIONS (CHARTS) FOR WATER QUALITY CAPTURE VOLUME CONTAINED IN UD&FCD URBAN STORM DRAINAGE CRITERIA MANUAL - VOLUME 3 AND FOR 10- AND 100- YEAR PEAK FLOW CONTROLS THE EQUATIONS DEVELOPED BY ENGINEER FOR THIS FINAL PLAN.
 - c. ALL DRAINAGE FACILITIES SHALL BE SIZED TO HANDLE FLOWS THAT ARE NOT REDUCED BY UPSTREAM DETENTION UNLESS THE DETENTION FACILITIES ARE PHYSICALLY IN PLACE AT THE TIME OF DESIGN. ASSUMING DETENTION WILL BE BUILT IN THE FUTURE IS NOT VALID AND WILL NOT BE ACCEPTED.

Love & Associates, Inc.
 water resource consultants
 800 Jefferson Avenue - Suite B
 Louisville, Colorado 80027-1873
 Phone: 303-673-9795
 Fax: 303-673-9796

DESIGNED:	RJP
DRAWN:	PEM
CHECKED:	D.JL
DATE:	6-07

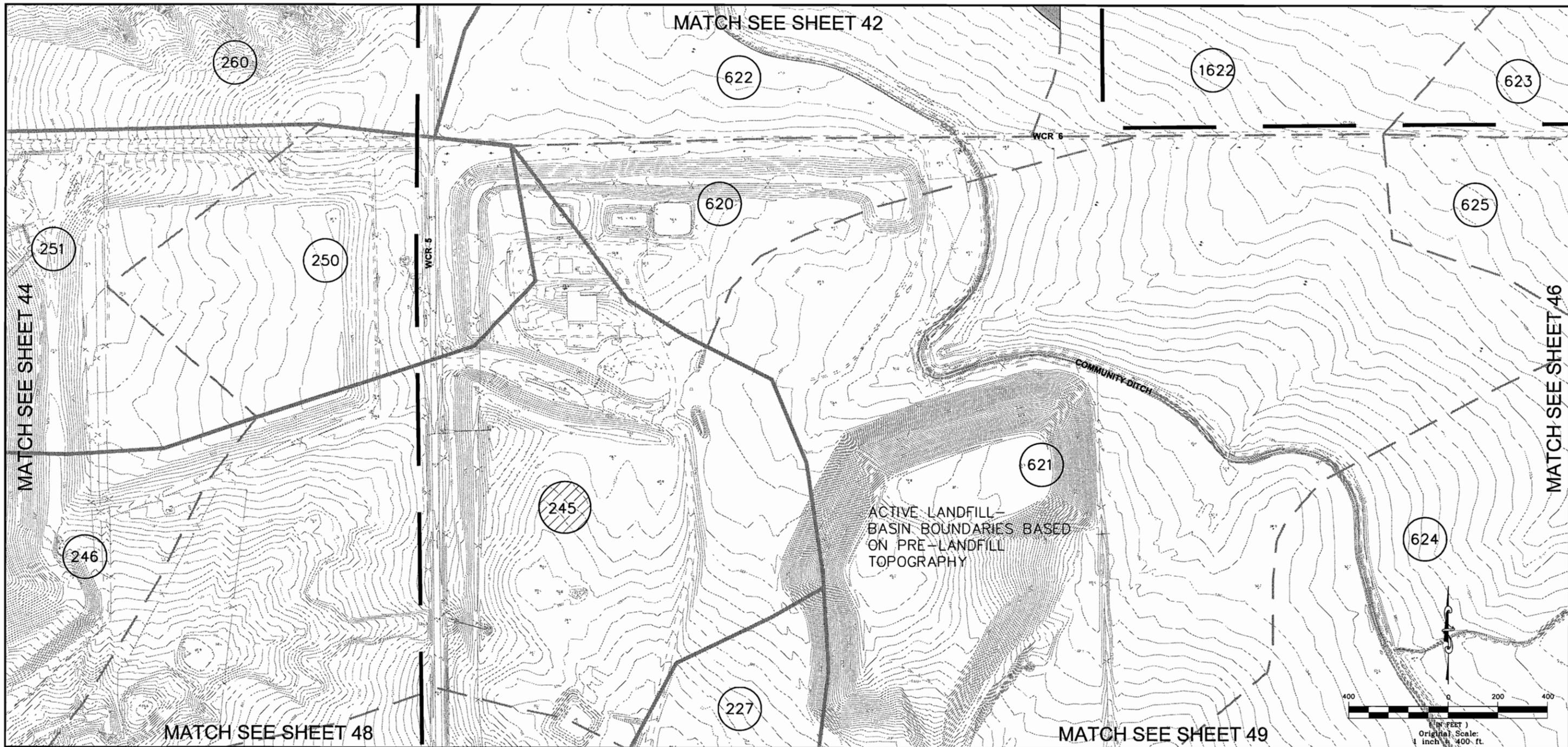
TOWN OF ERIE

**ERIE AND ADJACENT AREAS
 OUTFALL SYSTEMS PLANNING**

**PRELIMINARY
 DESIGN PLAN**

**SHEET
 42 OF 67**

\\Server\Data\PROJECTS - CURRENT\0603\DRAWINGS\PRELIM BY SHEETS\DDP-SHTS-43-48.dwg, 8/8/2007 11:10:58 AM, LOVE & ASSOCIATES, INC.



SHEET INDEX

NIWOT RD	1	2	3	4	5	6	COLO HWY 52 MINERAL RD
	7	8	9	10	11	12	
N. 107TH ST	13	14	15	16	17	18	I-25
US HWY 287	19	20	21	22	23	24	
LOOKOUT RD	25	26	27	28	29	30	WCR 5
UPRR	31	32	33	34	35	36	
E. COUNTY LINE RD	37	38	39	40	41	42	WCR 7
N. 111 TH ST	43	44	45	46	47	48	
	49	50	51	52	53	54	COLO HWY 7 BASELINE RD
	55						

LEGEND

- CATCHMENT BOUNDARY
- MINOR CATCHMENT BOUNDARY
- STUDY AREA
- 100-YEAR REGULATORY FLOODPLAIN
- CATCHMENT I.D.
- ON-SITE OR LOCAL DETENTION REQUIRED
- ERIE TOWN BOUNDARY
- CHANNEL CENTERLINE
- DRAINAGE R.O.W.
- DETENTION BASIN

- CULVERT
 - STORM SEWER
 - POTENTIAL WETLANDS
 - OVERHEAD ELECTRIC
 - BURIED ELECTRIC
 - CABLE TV
 - TELEPHONE
 - GAS
 - WATER
 - SANITARY SEWER
 - STORM SEWER
- DATUM:
HORIZONTAL: COLORADO STATE PLANE
NORTH ZONE, HARN ADJUSTMENT.
VERTICAL: NGVD 88
- CONTROL POINTS:
USGS CONTROL POINT:
JR-53-1948

NOTES:

1. THIS DRAWING IS FOR MASTER PLANNING PURPOSES AND REPRESENTS PRELIMINARY AND CONCEPTUAL ENGINEERING. ALTERNATIVES TO THIS OUTFALL SYSTEM WILL BE CONSIDERED BY THE TOWN OF ERIE PROVIDED THE ALTERNATIVE OFFERS EQUAL HYDROLOGIC RESPONSE, HYDRAULIC CAPACITY AND STREAM STABILITY. THE ALTERNATIVE MUST COMPLY WITH ALL REQUIREMENTS OF THE TOWN OF ERIE. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.
2. THE TOWN OF ERIE, WELD AND BOULDER COUNTIES MANAGE AND REGULATE ALL LAND DEVELOPMENT AND REDEVELOPMENT WITHIN THE 100-YEAR FLOODPLAINS SO AS TO PREVENT FUTURE FLOOD DAMAGES BY FOLLOWING THE RECOMMENDATIONS OF THIS PLAN.
3. WHEN REGIONAL BASINS ARE NOT CONSTRUCTED:
 - a. IF DEVELOPMENT OCCURS IN ANY SUB-CATCHMENT SERVED BY ANY OF THE REGIONAL DETENTION BASINS BEFORE THE REGIONAL DETENTION BASIN IS IN EXISTENCE ON THE GROUND, DEVELOPMENT SHALL PROVIDE ON-SITE WATER QUALITY AND 10- AND 100-YEAR DETENTION.
 - b. STORAGE VOLUME AND THE ALLOWABLE RELEASE RATES FOR ALL ON-SITE DETENTION BASINS SHALL BE BASED ON THE EQUATIONS (CHARTS) FOR WATER QUALITY CAPTURE VOLUME CONTAINED IN UD&FCD URBAN STORM DRAINAGE CRITERIA MANUAL - VOLUME 3 AND FOR 10- AND 100-YEAR PEAK FLOW CONTROLS THE EQUATIONS DEVELOPED BY ENGINEER FOR THIS FINAL PLAN.
 - c. ALL DRAINAGE FACILITIES SHALL BE SIZED TO HANDLE FLOWS THAT ARE NOT REDUCED BY UPSTREAM DETENTION UNLESS THE DETENTION FACILITIES ARE PHYSICALLY IN PLACE AT THE TIME OF DESIGN. ASSUMING DETENTION WILL BE BUILT IN THE FUTURE IS NOT VALID AND WILL NOT BE ACCEPTED.

Love & Associates, Inc.
water resource consultants
800 Jefferson Avenue - Suite B
Louisville, Colorado 80027-1873
Phone: 303-673-9795
Fax: 303-673-9796

DESIGNED: RJP
DRAWN: PEM
CHECKED: DJL
DATE: 6-07

TOWN OF ERIE

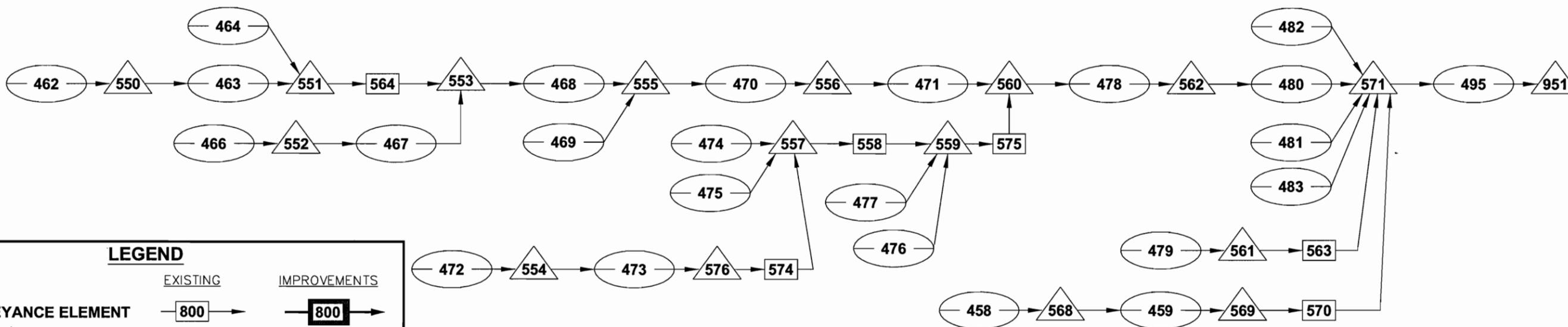
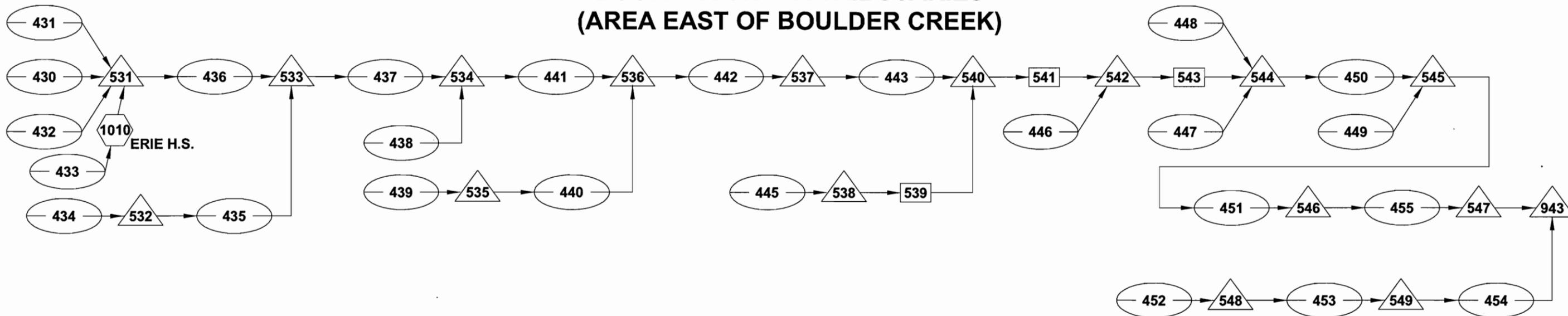
**ERIE AND ADJACENT AREAS
OUTFALL SYSTEMS PLANNING**

**PRELIMINARY
DESIGN PLAN**

**SHEET
45 OF 67**

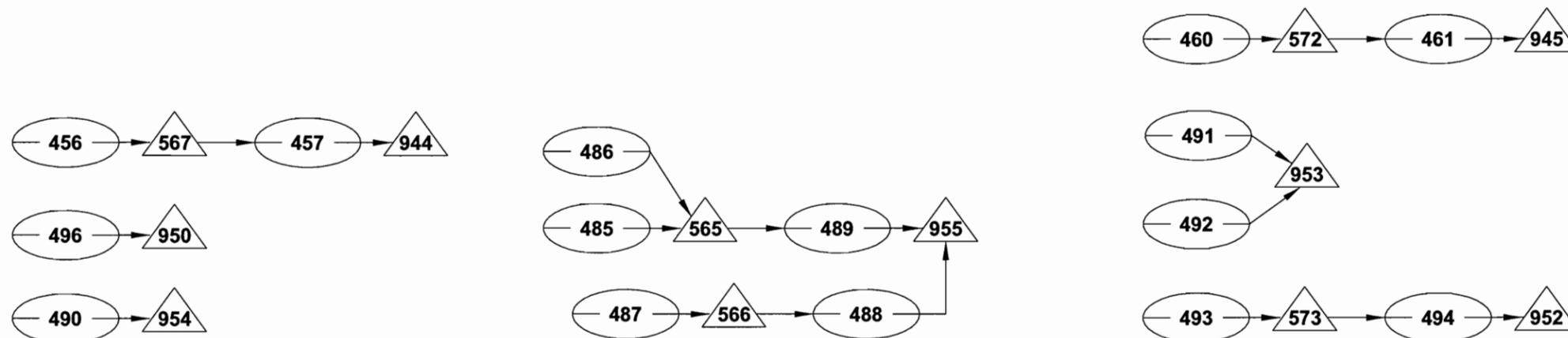
\\Server1Data\PROJECTS - CURRENT\0603\DRAWINGS\PRELIM BY SHEETS\FLOW CHARTS_EX AND FUTURE.dwg, 8/9/2007 2:31:48 PM, LOVE & ASSOCIATES, INC.

BOULDER CREEK TRIBUTARIES (AREA EAST OF BOULDER CREEK)



LEGEND

	EXISTING	IMPROVEMENTS
CONVEYANCE ELEMENT		
REGIONAL DETENTION FACILITY		
NODE		
JOINT CATCHMENT AND CONVEYANCE ELEMENT		
CATCHMENT ELEMENT		
OFFSITE CATCHMENTS		
DIVERSION ELEMENT		
REGIONAL FLOW PATH		



Love & Associates, Inc.
water resource consultants
800 Jefferson Avenue - Suite B
Louisville, Colorado 80027-1873
Phone: 303-673-9795
Fax: 303-673-9796

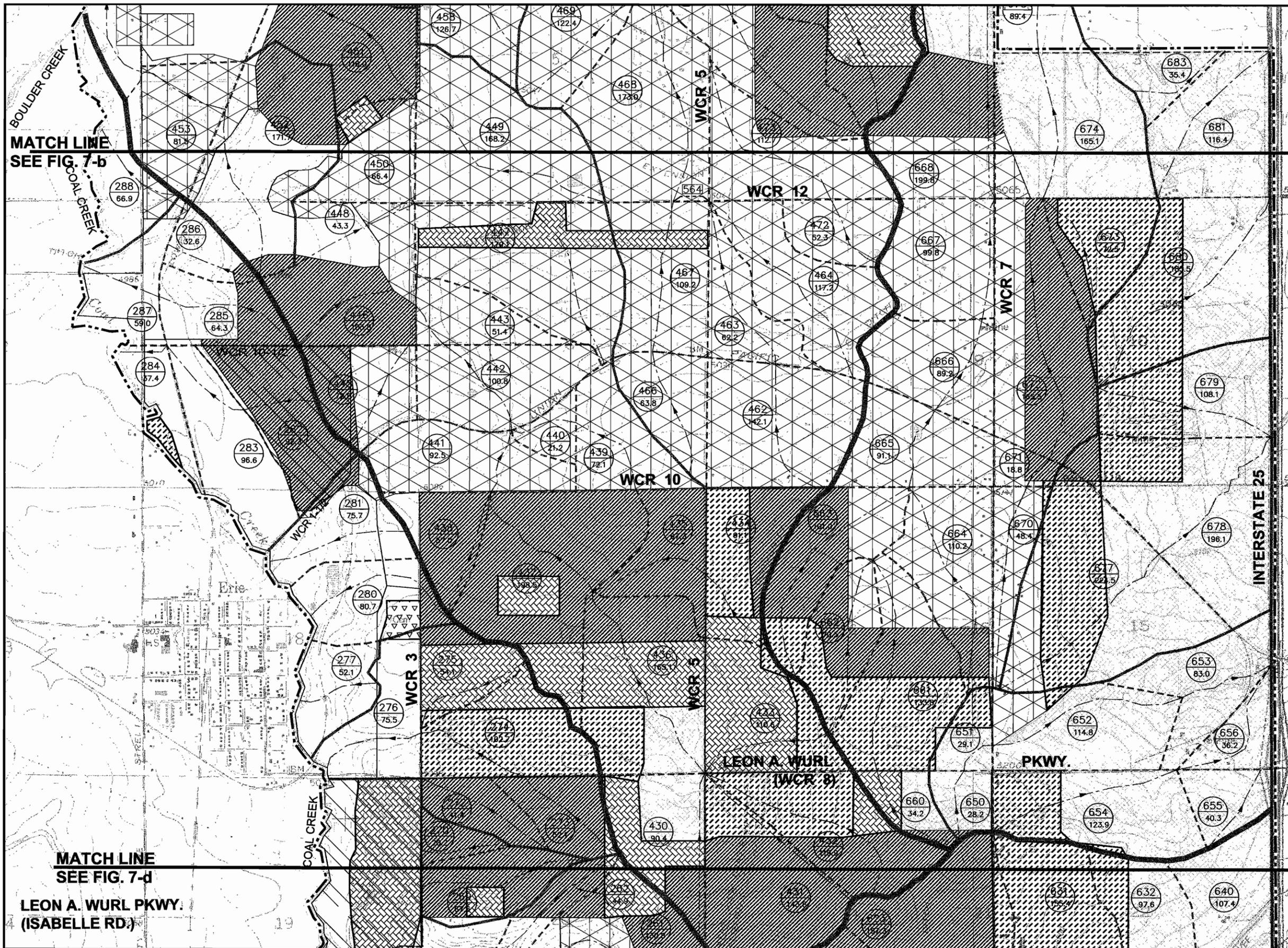
DESIGNED: RJP
DRAWN: PEM
CHECKED: DJL
DATE: 8-06

TOWN OF ERIE

ERIE AND ADJACENT AREAS
OUTFALL SYSTEMS PLANNING

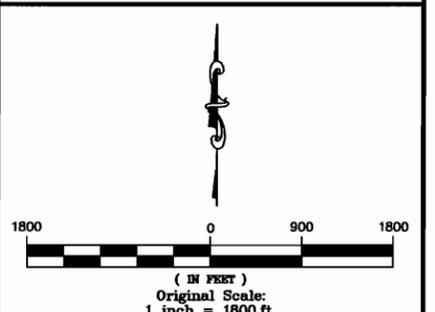
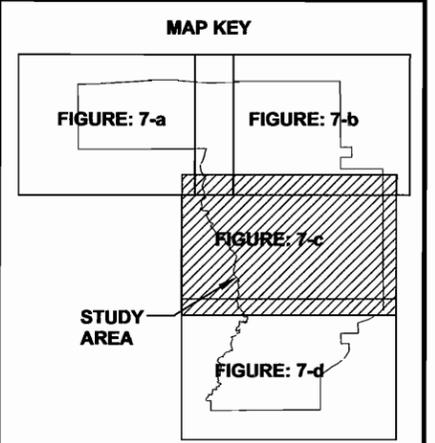
SWMM FLOW CHARTS
EXISTING AND FUTURE
CONDITIONS

Figure A-2
Page 6



LEGEND

	% IMPERVIOUS
OPENSOURCE, PARKS, AGRICULTURAL	2
CEMETERY, GOLF COURSE RECREATION	7
LANDFILL, MINES AND OIL & GAS FIELDS	10
RURAL RESIDENTIAL	30
LOW DENSITY RESIDENTIAL	43
MEDIUM DENSITY RESIDENTIAL, SCHOOLS, AIRPORTS	50
HIGH DENSITY RESIDENTIAL	70
INDUSTRIAL	90
COMMERCIAL	95
DEVELOPED SUBDIVISION	
CATCHMENT I.D.	800 CATCHMENT ACRES 80.6
WATERSHED DIVIDE	
CATCHMENT BOUNDARY	
MINOR CATCHMENT BOUNDARY	
OUTFALL FLOW PATH	
STUDY AREA BOUNDARY	



MATCH LINE
SEE FIG. 7-b

MATCH LINE
SEE FIG. 7-d

LEON A. WURL PKWY.
(ISABELLE RD.)

Lore & Associates, Inc.
water resource consultants
800 Jefferson Avenue - Suite B
Louisville, Colorado 80027-1873
Phone: 303-673-9795
Fax: 303-673-9796

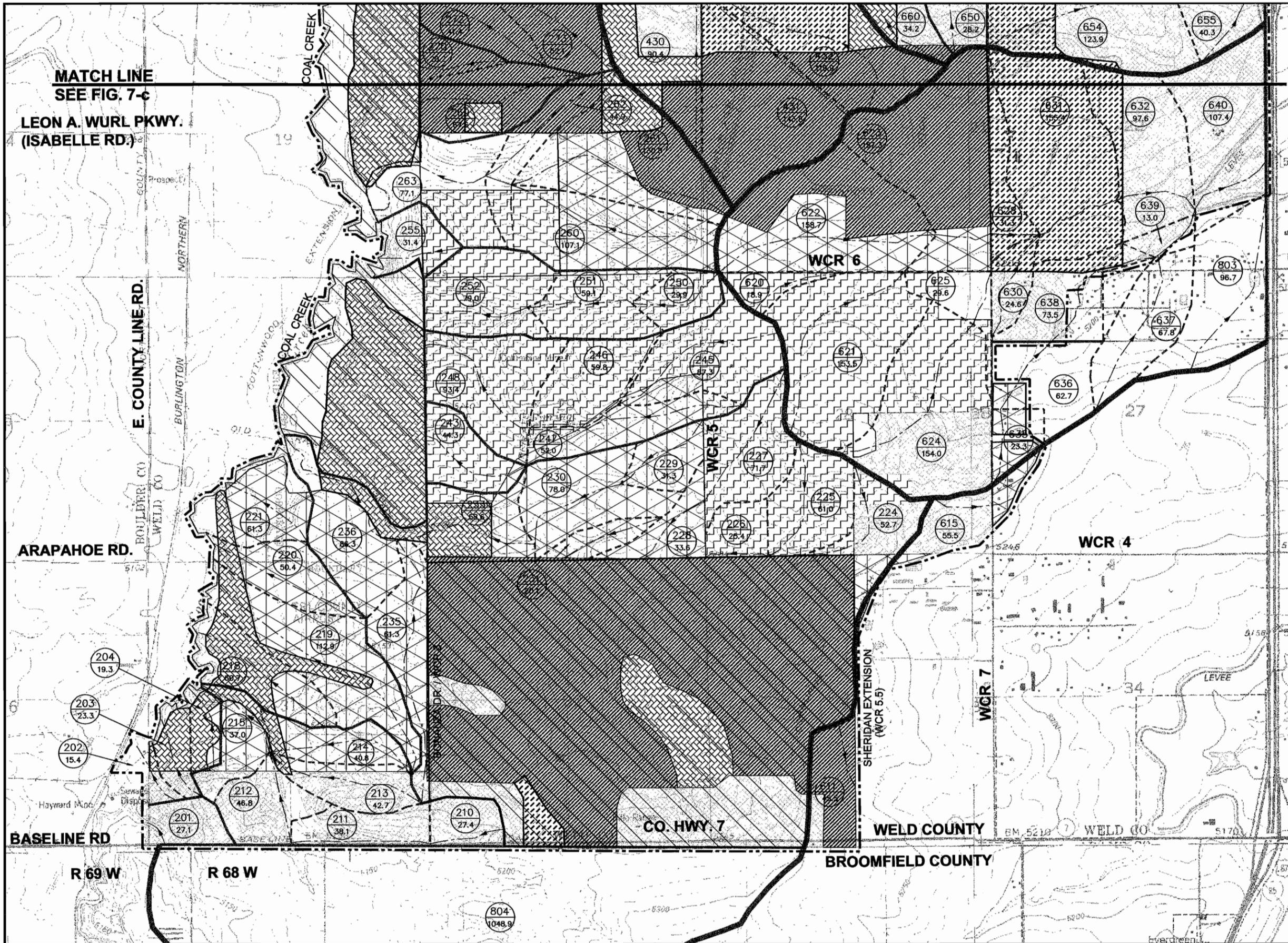
DESIGNED: RJP
DRAWN: PEM
CHECKED: DJL
DATE: 8-06

TOWN OF ERIE

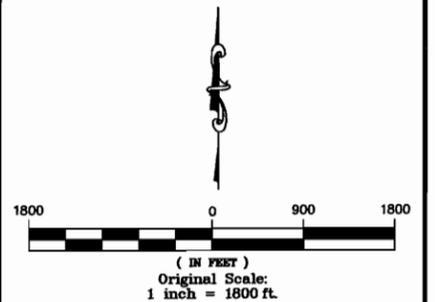
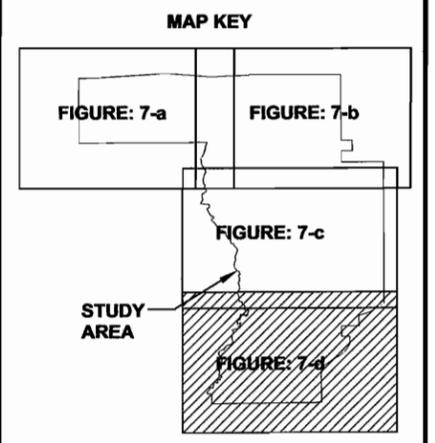
**ERIE AND ADJACENT AREAS
OUTFALL SYSTEMS PLANNING**

FUTURE PERCENT IMPERVIOUS

**Figure 7-c
Page II-22**



LEGEND		% IMPERVIOUS
OPENSOURCE, PARKS, AGRICULTURAL		2
CEMETERY, GOLF COURSE RECREATION		7
LANDFILL, MINES AND OIL & GAS FIELDS		10
RURAL RESIDENTIAL		30
LOW DENSITY RESIDENTIAL		43
MEDIUM DENSITY RESIDENTIAL, SCHOOLS, AIRPORTS		50
HIGH DENSITY RESIDENTIAL		70
INDUSTRIAL		90
COMMERCIAL		95
DEVELOPED SUBDIVISION		
CATCHMENT I.D.		800 CATCHMENT ACRES
WATERSHED DIVIDE		
CATCHMENT BOUNDARY		
MINOR CATCHMENT BOUNDARY		
OUTFALL FLOW PATH		
STUDY AREA BOUNDARY		



Lore & Associates, Inc.
 water resource consultants
 800 Jefferson Avenue - Suite B
 Louisville, Colorado 80027-1873
 Phone: 303-673-9795
 Fax: 303-673-9796

DESIGNED: RJP
 DRAWN: PEM
 CHECKED: DJL
 DATE: 8-06

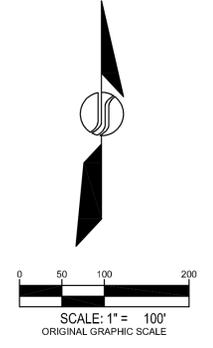
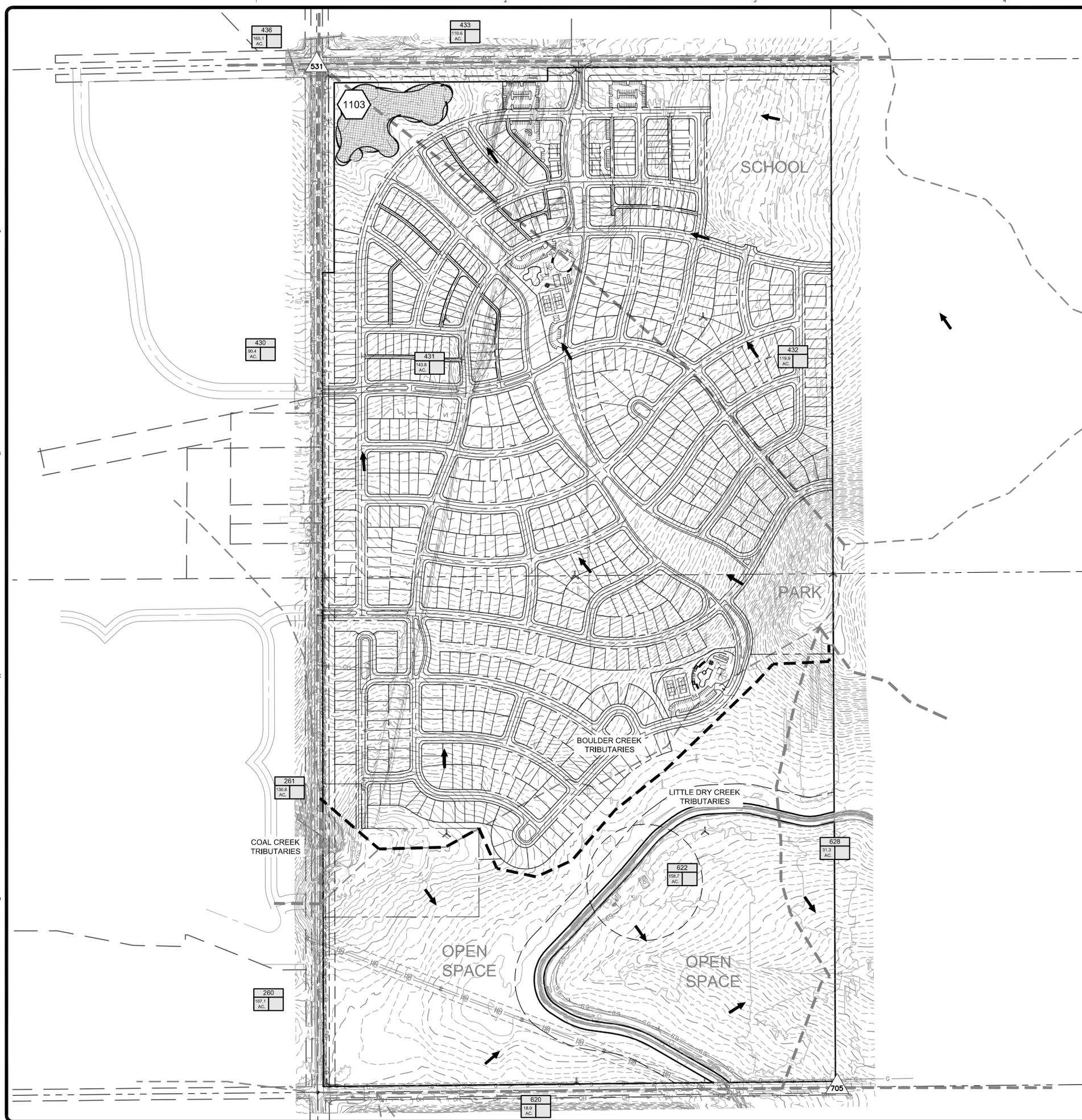
TOWN OF ERIE

**ERIE AND ADJACENT AREAS
 OUTFALL SYSTEMS PLANNING**

FUTURE PERCENT IMPERVIOUS

**Figure 7-d
 Page II-23**

APPENDIX B
Drainage Map



LEGEND

- EXISTING CONTOURS
- EXISTING MAJOR BASIN DELINEATION
- EXISTING BASIN DELINEATION (OSP)
- PROPOSED BASINS
- EXISTING BASIN LABEL (PER OSP)
- DESIGN POINT
- OSP DETENTION FACILITY
- FLOW DIRECTION ARROW

JANSEN STRAWN
CONSULTING ENGINEERS

45 WEST 2ND AVENUE
DENVER, CO 80223
P.303.561.3333
F.303.561.3339

May 15, 2017
FOR AND ON BEHALF OF
JANSEN STRAWN CONSULTING ENGINEERS, INC.

BENCHMARK:

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

No.	Description of Revisions	Date	By
1			

Designed By: MDS
Checked By: TCJ

DEARMINERIE COMMUNITY

PHASE I DRAINAGE MAP

Date: 05/16/17
Job No.: 14034
Sheet:

DR1

Sheet DR1 of DR1