STATE OF COLORADO

Lennberg - DNR, Patrick <patrick.lennberg@state.co.us>

M2016-0054 TR 1 Adequacy Review 3 Response

Barb Brunk <barbb@dgmllc.com> Wed, May 10, 2023 at 2:51 PM
To: "Lennberg - DNR, Patrick" <patrick.lennberg@state.co.us>
Cc: Landon WILHITE <landon.wilhite@holcim.com>, Wyatt WEBSTER <wyatt.webster@holcim.com>, Neil Whitmer <neil.whitmer@holcim.com>, Reggie Golden <reggieg@dgmllc.com>, Drew Golden <drewg@dgmllc.com>

Patrick,

Applicant response to TR1 review 3 attached. We solved the acreage compare. The current maps and Exhibits match up with the coordinate map and we included a compare table in the response. We have attached the Xcel file for the cost estimate for your review, the .pdf is included with the letter.

Call with Questions.

Barb

Barb Brunk

Resource Conservation Partners, LLC

P.O. Box 1522

Longmont, CO 80502

Fax (303)702-0585

Cell (303)775-6180

barbb@dgmllc.com

2 attachments

M2016-0054_IrwinThomasTR-1_ApplicantResp_ AdequacyReview3_4.10.2023.pdf
6486K

M2016-0054 Irwin Thomas Proposed Reclamation Bond Updated 5.3.23.xlsx
14K

May 10, 2023

Colorado Department of Natural Resources
Division of Reclamation, Mining and Safety
ATTN: Patrick Lennberg
1313 Sherman Street; Room 215
Denver Colorado 80203

RE: Adequacy Review No. 2; Technical Revision (TR-1) – Revise Mining and Reclamation Plans and Maps to Account for Acreage Release Areas in AR-1; Irwin/Thomas Mine, Permit No. M-2016- 054

Dear Patrick,
Please accept this letter and the included attachments as our combined response to your Adequacy Review No. 3 letter dated April 13, 2023. Our response follows your response as outlined in your letter as follows:

1. On the maps provided it appears there is an inconsistency between the originally approved permit maps and the maps that were recently submitted. Specifically, on the Boundary Exhibit Map corners 60 through 67 do not appear to be within the currently approved permit boundary. Please clarify these differences and make necessary adjustments to the all the maps as needed. Please note the permit boundary is different between the Mining Plan and Reclamation Plan Maps while the Reclamation Plan Map is consistent with what has been previously approved.

Applicant Response: The maps have been adjusted as requested. Please see Attachment 1 - Boundary Exhibit and Attachment 2 - Exhibits C1, C4 and C5.

2. The table below is an accounting of the permit acres from the original approved permit through TR-1:

Mining Area	Original Permit acres	Acres Released through AR1	Reported Acres in TR-1	DRMS Acreage Accounting	Difference between TR 1 & DRMS acreage	***Current Permit Acreage based on coordinates***	***Remaining Area to be released AR-2 (86.50-62.96)***
MA 1	211.3	62.96	127.13	148.34	21.21	***125.04***	***23.54***
MA 2	37.7		37.39	37.7	.31	***37.18***	
MA 3	28.4		28.72	28.4	-.32	***28.83***	
MA 4	18.4		18.51	18.4	-.11	***18.40***	
Total	295.8		211.75	232.84	21.09	***209.45***	

From the table above there is an overall difference of approximately 21 acres between what the Operator has calculated and what the Division has calculated. Please see Attachment 1 for a map the Division used to estimate the areas. It appears AR-1 did not fully account for the acres intended to beTR-1 released. The Division estimates the area to be released in AR-1 should have been approximately 84.8 acres not the 62.96 acres that were released. The Operator may have to submit another acreage release request before TR-1 can be approved. Please provide a discussion on the discrepancies reflected in the table above.

Applicant Response: Please see the updated table above. The acreage in AR-1 was incorrect. We will submit AR-2 to make the Permit Boundary match the acres that should have been released with AR-1. There is no mining activity taking place within the area associated with the land development to the west. The area included within the land development to the west includes 86.5 acres. The applicant will prepare and submit AR-2 to remove the remaining 23.54 acres from the permit area. We request that TR-1 can be approved conditioned on submitting the application for AR- 2 and the applicant can begin mining while AR-2 is being processed. Please see Attachment 3 – Permit Area Exhibit.

RESOURCE CONSERVATION PARTNERS, LLC
p.o. box 1522, Longmont CO 80502 tel 303.775.6180 fax 303.702.0585

3. Additional clarification is needed regarding what order the cells of MA-1 will be mined. While it is stated in the Mining Sequence Notes of Map C-4 that Cell 1A will be mined first, does the Operator intend to wait until next year, as mining of Cell 1A is restricted to be between October and April, to begin mining at the site or does the Operator want to mine Cell 1 prior to mining Cell 1A. Please update the notes section according to the clarification given.

Applicant Response: At this point, Cell 1 will be mined before cell 1A as there is a limitation of mining within Cell 1A during the flood prone season of April through October. The operator will circle back to complete mining and backfill of Cell 1A at the end of October. Overburden excavated from 1A will be placed in Cell 1, the area within Cell 1A will be backfilled using overburden from Cell 1. Cell 1A will be backfilled and revegetated prior to the flood prone season beginning the following April.

4. While the Operator did commit to the phased bonding approach, disturbing only 35 acres at any one time, it does not appear that this scenario will work for the site. Based on this approach the Operator would exceed the 35 acre limit by mining Cells 1, 1A and 2. Additionally, this acreage accounting does not include site berms, internal roads, and other support facilities that the PUD may not consider mining disturbance, but the Division does. The cost estimate provided accounts for backfilling with all available onsite material but does account for the importation of backfill to complete reclamation of Cells 4 and 5. The Operator shall either provide a cost estimate for importing 527,000 loose cubic yards of material to the site or propose an alternate method for bonding for the importation of fill material.

Applicant Response: Critically, the mining & backfilling of Cells 4 & 5 will take place after the slurry wall and underdrain have been constructed and significant restoration of Cells 1 & 1A are complete. Therefore, we propose an alternate bonding approach that covers the mining & backfilling of Cells 1 through 3 and construction of the slurry wall and underdrain. Following substantial restoration of Cells 1 & 1A and completion of the slurry wall and underdrain, we will apply for a Technical Revision which replaces the current Aspect B (Slurry Wall) with an aspect that accounts for the backfilling, importation of fill, restoration, and reseeding of Cells 4 & 5.

The total volume of stripped overburden material from Cells 1 through 3 that we calculate will be available for backfilling is approximately 453,800 loose cubic yards. This on-site material will be used to completely backfill Cell 1A and to backfill approximately 75% of the volume of Cell 1. The remaining 25% of Cell 1 will require backfilling with clean fill brought from off-site – approximately 143,300 loose cubic yards of imported material will be required. An updated cost estimate with the reflected changes to the proposed bonding approach can be found in Attachment 4 – M2016-054 Irwin Thomas Proposed Reclamation Bond Updated 5.3.2023. We have also included the Xcel file for the estimate.

Thank you for your assistance. Please let us know if you need any additional Information to complete your review.

Resource Conservation Partners, LLC

Barbra Brunk, Manager

Landon Wilhite, Holcim – WCR, Inc., landon.wilhite@holcim.com
Wyatt Webster, Holcim – WCR, Inc., wyatt.webster@holcim.com
Neil Whitmer, Holcim – WCR, Inc., neil.whitmer@holcim.com
City of Longmont - Glen Van Nimwegen, glen.vannimwegen@longmontcolorado.gov
City of Longmont – Dale Rademacher, Dale.Rademacher@longmontcolorado.gov
Golden Farm, LLLP - Reggie Golden, reggieg@dgmllc.com

ATTACHMENT 1

Boundary Exhibit Map

Point Number	Longitude	Latitude	Point Number	Longitude	Latitude
1	W105° 05' 03"	N040° 09' 35"	64	W105° 04' 49"	N040° 08' 48"
2	W105° 05' 01"	N040° 09' 35"	65	W105° 04' 49"	N040° 08' 49"
3	W105° 05' 01"	N040° 09' 30"	66	W105° 04' 51"	N040° 08' 49"
4	W105° 04' 55"	N040° 09' 30"	67	W105° 04' 51"	N040° 08' 50"
5	W105° 04' 53"	N040° 09' 29"	68	W105° 04' 50"	N040° 08' 52"
6	W105° 04' 49"	N040° 09' 26"	69	W105° 04' 52"	N040° 08' 53"
7	W105° 04' 48"	N040° 09' 25"	70	W105° 05' 02"	N040° 08' 56"
8	W105° 04' 42"	N040° 09' 22"	71	W105° 05' 02"	N040° 08' 58"
9	W105° 04' 39"	N040° 09' 21"	72	W105° 05' 02"	N040° 08' 58"
10	W105° 04' 38"	N040° 09' 23"	73	W105° 05' 02"	N040° 09' 02"
11	W105° 04' 36"	N040° 09' 22"	74	W105° 05' 02"	N040° 09' 02"
12	W105° 04' 37"	N040° 09' 19"	75	W105° 05' 01"	N040° 09' 03"
13	W105° 04' 33"	N040° 09' 18"	76	W105° 05' 01"	N040° 09' 03"
14	W105° 04' 34"	N040° 09' 18"	77	W105° 05' 01"	N040° 09' 04"
15	W105° 04' 36"	N040° 09' 17"	78	W105° 05' 01"	N040° 09' 04"
16	W105° 04' 38"	N040° 09' 16"	79	W105° 05' 00"	N040° 09' 07"
17	W105° 04' 38"	N040° 09' 16"	80	W105° 05' 00"	N040° 09' 07"
18	W105° 04' 40"	N040° 09' 16"	81	W105° 05' 00"	N040° 09' 08"
19	W105° 04' 41"	N040° 09' 17"	82	W105° 05' 00"	N040° 09' 08"
20	W105° 04' 42"	N040° 09' 18"	83	W105° 04' 59"	N040° 09' 08"
21	W105° 04' 43"	N040° 09' 18"	84	W105° 04' 53"	N040° 09' 08"
22	W105° 04' 44"	N040° 09' 18"	85	W105° 04' 39"	N040° 09' 11"
23	W105° 04' 45"	N040° 09' 19"	86	W105° 04' 37"	N040° 09' 12"
24	W105° 04' 46"	N040° 09' 19"	87	W105° 04' 41"	N040° 09' 13"
25	W105° 04' 47"	N040° 09' 18"	88	W105° 04' 42"	N040° 09' 12"
26	W105° 04' 48"	N040° 09' 18"	89	W105° 04' 43"	N040° 09' 12"
27	W105° 04' 50"	N040° 09' 18"	90	W105° 04' 50"	N040° 09' 10"
28	W105° 04' 52"	N040° 09' 18"	91	W105° 04' 54"	N040° 09' 10"
29	W105° 04' 54"	N040° 09' 19"	92	W105° 05' 12"	N040° 09' 10"
30	W105° 04' 55"	N040° 09' 19"	93	W105° 05' 18"	N040° 09' 10"
31	W105° 04' 55"	N040° 09' 19"	94	W105° 05' 18"	N040° 09' 15"
32	W105° 04' 56"	N040° 09' 20"	95	W105° 05' 15"	N040° 09' 16"
33	W105° 04' 57"	N040° 09' 20"	96	W105° 05' 13"	N040° 09' 16"
34	W105° 04' 58"	N040° 09' 20"	97	W105° 05' 08"	N040° 09' 16"
35	W105° 04' 59"	N040° 09' 19"	98	W105° 05' 04"	N040° 09' 16"
36	W105° 05' 00"	N040° 09' 19"	99	W105° 05' 04"	N040° 09' 17"
37	W105° 05' 01"	N040° 09' 19"	100	W105° 05' 03"	N040° 09' 17"
38	W105° 05' 01"	N040° 09' 19"	101	W105° 05' 04"	N040° 09' 16"
39	W105° 05' 02"	N040° 09' 19"	102	W105° 05' 01"	N040° 09' 16"
40	W105° 05' 03"	N040° 09' 19"	103	W105° 04' 59"	N040° 09' 16"
41	W105° 05' 03"	N040° 09' 19"	104	W105° 04' 57"	N040° 09' 16"
42	W105° 05' 04"	N040° 09' 20"	105	W105° 04' 56"	N040° 09' 16"
43	W105° 05' 05"	N040° 09' 20"	106	W105° 04' 56"	N040° 09' 16"
44	W105° 05' 06"	N040° 09' 20"	107	W105° 04' 55"	N040° 09' 16"
45	W105° 05' 06"	N040° 09' 20"	108	W105° 04' 54"	N040° 09' 16"
46	W105° 05' 07"	N040° 09' 20"	109	W105° 04' 53"	N040° 09' 16"
47	W105° 05' 07"	N040° 09' 20"	110	W105° 04' 52"	N040° 09' 16"
48	W105° 05' 08"	N040° 09' 20"	111	W105° 04' 52"	N040° 09' 16"
49	W105° 05' 09"	N040° 09' 21"	112	W105° 04' 52"	N040° 09' 15"
50	W105° 05' 09"	N040° 09' 21"	113	W105° 04' 49"	N040° 09' 15"
51	W105° 05' 10"	N040° 09' 21"	114	W105° 04' 47"	N040° 09' 15"
52	W105° 05' 10"	N040° 09' 21"	115	W105° 04' 46"	N040° 09' 15"
53	W105° 05' 10"	N040° 09' 29"	116	W105° 04' 46"	N040° 09' 15"
54	W105° 05' 01"	N040° 09' 25"	117	W105° 04' 45"	N040° 09' 15"
55	W105° 05' 01"	N040° 09' 27"	118	W105° 04' 44"	N040° 09' 14"
56	W105° 04' 37"	N040° 09' 18"	119	W105° 04' 42"	N040° 09' 15"
57	W105° 04' 36"	N040° 09' 18"	120	W105° 04' 35"	N040° 09' 13"
58	W105° 05' 07"	N040° 09' 30"	121	W105° 04' 35"	N040° 09' 12"
59	W105° 04' 28"	N040° 09' 08"	122	W105° 04' 30"	N040° 09' 10"
60	W105° 04' 27"	N040° 08' 46"	123	W105° 04' 30"	N040° 09' 11"
61	W105° 04' 30"	N040° 08' 46"	124	W105° 04' 29"	N040° 09' 11"
62	W105° 04' 45"	N040° 08' 46"	125	W105° 04' 30"	N040° 09' 09"
63	W105° 04' 46"	N040° 08' 47"			

NORTH

0 150' 300' 600'

SCALE: 1"= 300'-0"

REVISIONS

BY	DATE	DESCRIPTION

DRAWN TP

CHECKED BW

DESIGNED BW

FILENAME DRMS BNDRY EXHIBIT

IRWIN / THOMAS MINE M2016-054
TECHNICAL REVISION 1

BOUNDARY EXHIBIT

TST

TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

JOB NO. 1241.0001.00

SCALE 1" = 300'

DATE , 2023

SHEET 1 of 1

ATTACHMENT 2

Revised Exhibits CI, C4 and **C5**

NOTES:

1. THE IRWIN/THOMAS MINE PERMIT AREA IS LOCATED IN SECTION 11, TOWNSHIP 2 NORTH, RANGE 69 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BOULDER COUNTY, STATE OF COLORADO.
2. THE PERMIT AREA INCLUDES 211.75 ACRES AND IS COMPRISED OF 4 DISTINCT MINING AREAS SEPARATED BY COLORADO HIGHWAY 119, ST. VRAIN CREEK, AND THE BURLINGTON NORTHERN AND SANTA FE (BNSF) RAILROAD. MINING AREA 1 IS LOCATED SOUTH OF HWY 119, MINING AREA 2 IS NORTH OF HWY 119 AND SOUTH OF ST. VRAIN CREEK, MINING AREA 3 IS NORTH OF ST. VRAIN CREEK AND SOUTH OF THE BNSF RAILROAD, AND MINING AREA 4 IS NORTH OF THE RAILROAD.
3. IN GENERAL, THE PERMIT BOUNDARY FOLLOWS PROPERTY PARCEL BOUNDARIES, COLORADO HIGHWAY 119 AND BURLINGTON NORTHERN AND SANTA FE RAILROAD RIGHT-OF-WAYS, AND OFFSETS FROM ST. VRAIN CREEK TOP OF BANK.
4. THE PROPERTY IS BOUNDED BY THE CITY OF LONGMONT SEWAGE TREATMENT PLANT ON THE NORTHWEST, QUAIL ROAD ON THE SOUTH, NORTH 119TH STREET ON THE EAST, AND THE OLD GREAT WESTERN SUGAR FACILITY AND OTHER INDUSTRIAL ACTIVITIES ON THE NORTH.
5. ADJACENT LAND USES ARE PRIMARILY AGRICULTURE, SEMI-RURAL RESIDENTIAL, AND HISTORIC OR CURRENT COMMERCIAL INDUSTRIAL ACTIVITIES.

Parcels Easements and ROW's	Property Owner	Man Made Structures within 200'
131511000029	BILLINGS DENNIS A & DEBORAH A 11859 QUAIL RD LONGMONT CO 80501	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131502300002	BNSF RAILWAY COMPANY 2500 LOU MENK DR FORT WORTH TX 76161	RAILROAD TRACKS OVERHEAD ELECTRIC LINE AND LIGHTS
131511000002	BNSF RAILWAY COMPANY 2500 LOU MENK DR FORT WORTH TX 76161	RAILROAD TRACKS OVERHEAD ELECTRIC LINE AND LIGHTS
	BONUS DITCH COMPANY PO BOX 771 LONGMONT CO 80502	CONCRETE DITCH, DIVERSION STRUCTURE CULVERTS
131511000027	BURIANEK JEFF & LYSA 1347 WILKERSON WAY LONGMONT CO 80504	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131512000026	C & J ENTERPRISES LLC 1451 PARK DR LOVELAND CO 80538	COMMERCIAL BUILDINGS FENCE
131511000044	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	FENCE
131510047004	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	SANITARY SEWER TREATMENT FACILITIES FENCE ACCESS ROADS
131510047005	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	FENCE DRAINAGE IMPROVEMENTS RIVER RESTORATION STRUCTURES
131511049006	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	GREENWAY TRAIL LANDSCAPE IMPROVEMENTS IRRIGATION
131512000064	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	GREENWAY TRAIL AND IMPROVEMENTS IRRIGATION SIGNAGE
131511000068	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	GREENWAY TRAIL AND IMPROVEMENTS IRRIGATION IMPROVEMENTS SIGNAGE SANITARY SEWER OVERHEAD ELECTRIC DRAINAGE IMPROVEMENTS CULVERTS BRIDGES BENCHES ANS SIGNS
131511000067	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	CULVERTS BRIDGES BUILDINGS CHAIN LINK FENCE AND STRUCTURES ASSOCIATED WITH WASTE WATER TREATMENT PLANT STORM SEWER DITCH AND PIPE SANITARY SEWER PIPE
131511000070	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	AGRICULTURAL FARM AND OUTBUILDINGS FENCE
131511000069	CITY OF LONGMONT 350 KIMBARK ST LONGMONT CO 80501	AGRICULTURAL FARM AND OUTBUILDINGS FENCE
	CITY OF LONGMONT PARKS AND NATURAL RESOURCES 7 SOUTH SUNSET ST. LONGMONT CO 80501	GREENWAY TRAIL AND LANDSCAPE IMPROVEMENTS FENCE IRRIGATION SYSTEM SIGNAGE UNDERPASS
	CITY OF LONGMONT PUBLIC WORKS 385 KIMBARK ST LONGMONT CO 80501	WATER LINE SANITARY SEWER LINE ELECTRIC AND FIBER OPTIC IMPROVEMENTS STREET LIGHTS SIDEWALKS LANDSCAPE IMPROVEMENTS STORM DRAINAGE IMPROVEMENTS STREETS TRAFFIC SIGNAL IRRIGATION IMPROVEMENTS SIGNAGE
131512000010	CLEAN ENERGY LLC PO BOX 101960 DENVER CO 80250	FENCE DRAINAGE IMPROVEMENTS
131511000038 131512000010 DRAINAGE EASEMENTS	CLEAN ENERGY LLC PO BOX 101960 DENVER CO 80250	COMMERCIAL INDUSTRIAL BUILDINGS SECURITY FENCE DRAINAGE STRUCTURES AND DITCHES
	COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) 10601 10TH STREET GREELEY, CO 80634	STATE HWY 119 ROADWAY BRIDGE SIGNS
	COMCAST 8000 EAST ILIFF AVENUE DENVER, CO 80231	BURIED CABLE
131512000027 131512000009 131512000016 131512200020	COUNTY OF BOULDER 5201 ST VRAIN RD BLDG 1 LONGMONT CO 80503	OUTBUILDINGS FENCE
131512000020	COUNTY OF BOULDER 5201 ST VRAIN RD BLDG 1 LONGMONT CO 80503	FENCE IRRIGATION LATERALS
	COUNTY OF BOULDER TRANSPORTATION PO BOX 471 BOULDER CO 80306	COUNTY ROAD 20 (QUAIL ROAD) COUNTY ROAD 3 (N. 119TH STREET) BRIDGE UNDERPASS SIGNAGE
131512000009	COUNTY OF BOULDER 5201 ST VRAIN RD BLDG 1 LONGMONT CO 80503	FENCE IRRIGATION LATERALS
131511312002	DIAMOND G CONCRETE CO 7889 ST VRAIN RD LONGMONT CO 80503	LANDSCAPE IMPROVEMENTS
131511312004	DIAMOND G CONCRETE CO 7889 ST VRAIN RD LONGMONT CO 80503	LANDSCAPE IMPROVEMENTS
131511312003	DIAMOND G CONCRETE CO 7889 ST VRAIN RD LONGMONT CO 80503	IRRIGATION TAP
131511312006	DIAMOND G CONCRETE CO 7889 ST VRAIN RD LONGMONT CO 80503	LANDSCAPE IMPROVEMENTS
131502300006	DK HOLDINGS LLC PO BOX 998 Longmont CO 80501	COMMERCIAL BUILDINGS FENCE
131511000020	DORMAN LOIS L 14507 56TH AVE SE EVERETT WA 98208	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131511000022	EL AGUILA LLC 2253 SANTA FE DR LONGMONT CO 80504	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
	FOOTHILLS WATER USERS ASSOCIATION CO LEFT HAND WATER DISTRICT PO BOX 210 NIWOT CO 80544	WATER PIPELINE
131511000037	GARVERT LIVING TRUST 706 PICKET LN LONGMONT CO 80504	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131511000009 131511000021 131511000008	GOLDEN FARM LLLP PO BOX 54 LONGMONT CO	FENCE IRRIGATION LATERAL IRRIGATION IMPROVEMENTS STORM DRAINAGE IMPROVEMENTS
131511000008	GOLDEN FARM LLLP PO BOX 54 LONGMONT CO	IRRIGATION LATERAL IMPROVEMENTS FENCE
131511000009	GOLDEN FARM LLLP PO BOX 54 LONGMONT CO	IRRIGATION LATERAL IMPROVEMENTS FENCE
131511000066	GOLDEN-IRWIN LLC PO BOX 54 LONGMONT CO 80502	MINERALS
131511000048	GUZEVEN CONSTRUCTION INC 5799 CR 5 ERIE CO 80516-9201	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131512000018	HARTMAN PAUL D & KAREN SUE 9412 N 119TH ST LONGMONT CO 80503	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131511000028	HEITMANN JUSTIN 11831 QUAIL RD LONGMONT CO 80501	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131511000024	MCLEOD SEAN & NICOLE 11725 QUAIL RD LONGMONT CO 80501	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131511000018	NARF STUDIOS LLC 1976 AMETHYST DR LONGMONT CO 80504	RESIDENTIAL HOUSE WITH BUSINESS AND OUTBUILDINGS FENCE
131502300006	PANORAMA COORDINATED SERVICES INC 395 A E ROGERS RD Longmont CO 80501	COMMERCIAL BUILDINGS, FENCE
	PLATTE RIVER POWER AUTHORITY (PRPA) 2000 EAST FORESHOOT ROAD FORT COLLINS CO 80525	ELECTRIC TRANSMISSION LINES
131511000030	PLUMLEY JOSEPH 9413 N 119TH ST LONGMONT CO 80501	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE PRIVACY FENCE AND WIRE STRAND FENCE
	QWEST/CENTURYLINK 1801 CALIFORNIA STREET, 24TH FLOOR DENVER CO 80202	BURIED FIBER OPTIC OVERHEAD TELEPHONE LINE
131511000066	RLSJ PROPERTIES LLC PO BOX 54 LONGMONT CO 80502	FENCE
131511000026	SIZEMORE GREGORY 11791 QUAIL RD LONGMONT CO 80501	RESIDENTIAL HOUSE OUTBUILDINGS FENCE
131511000055	SOUTH MILL LLC ET AL 3031 STATE HIGHWAY 119 LONGMONT CO 80504	COMMERCIAL INDUSTRIAL BUILDINGS SECURITY FENCE
131511000032	WADDLE JANET LEA 11767 QUAIL RD LONGMONT CO 80501	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
131511000023	WHITTAKER JUSTIN & HANNAH 11705 QUAIL RD Longmont CO 80501	RESIDENTIAL HOUSE AND OUTBUILDINGS FENCE
	XCEL ENERGY 414 NICOLLET MALL MINNEAPOLIS, MN 55401	GAS LINES ELECTRIC DISTRIBUTION LINES

LEGEND

- PERMIT BOUNDARY
- 200' OFFSET OF PERMIT BOUNDARY
- EXISTING PARCELS
- EXISTING DITCH
- G EXISTING GAS LINE
- OHE EXISTING OVERHEAD ELECTRIC
- SS EXISTING SANITARY SEWER
- EXISTING 5 FOOT CONTOUR
- EXISTING 25 FOOT CONTOUR
- UNDERDRAIN
- 100 YR EFFECTIVE FLOODPLAIN
- 100 YR PRELIMINARY FLOODPLAIN
- 100 YR PROPOSED FLOODPLAIN

NORTH

0 150' 300' 600'
SCALE: 1"= 300'-0"

REVISIONS

DESCRIPTION	DATE	BY

DRAWN BW
CHECKED BW
DESIGNED BW
FILENAME 1241.0001 DRMS C-1

IRWIN/THOMAS MINE M2016-054 TECHNICAL REVISION 1
EXHIBIT C-1
EXISTING CONDITIONS & SURFACE OWNERS OF RECORD

TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

JOB NO. 1241.0001.04
SCALE 1"=300'
DATE MAY 10, 2023
SHEET 1 of 5

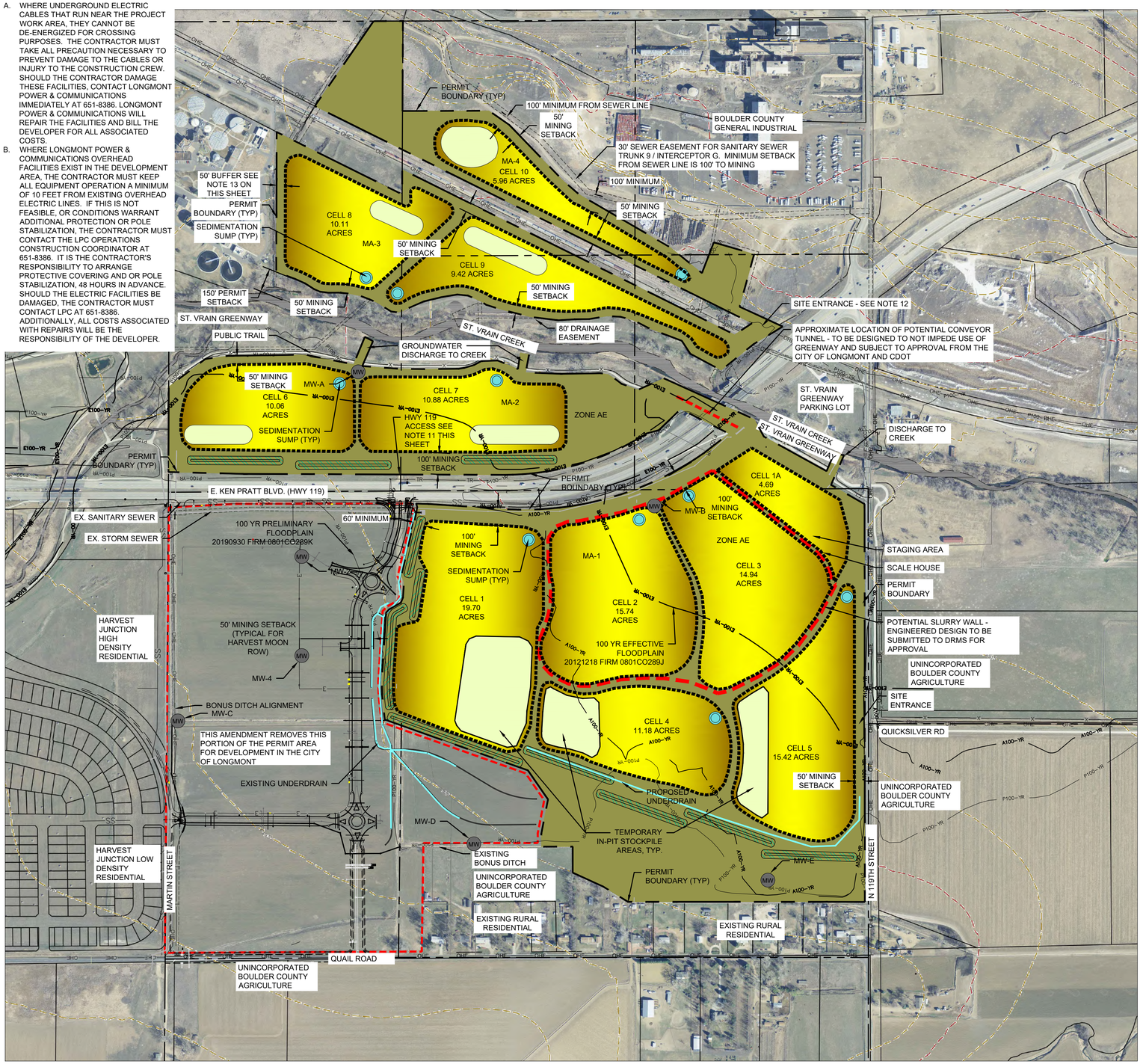
K:\1241\0001\05 Drawings\Sheets LA\1241.0001 DRMS C-1.dwg; 5/10/2023 10:09:35 AM

IRWIN/THOMAS MINE

NOTE:

A. WHERE UNDERGROUND ELECTRIC CABLES THAT RUN NEAR THE PROJECT WORK AREA, THEY CANNOT BE DE-ENERGIZED FOR CROSSING PURPOSES. THE CONTRACTOR MUST TAKE ALL PRECAUTION NECESSARY TO PREVENT DAMAGE TO THE CABLES OR INJURY TO THE CONSTRUCTION CREW. SHOULD THE CONTRACTOR DAMAGE THESE FACILITIES, CONTACT LONGMONT POWER & COMMUNICATIONS IMMEDIATELY AT 651-8386. LONGMONT POWER & COMMUNICATIONS WILL REPAIR THE FACILITIES AND BILL THE DEVELOPER FOR ALL ASSOCIATED COSTS.

B. WHERE LONGMONT POWER & COMMUNICATIONS OVERHEAD FACILITIES EXIST IN THE DEVELOPMENT AREA, THE CONTRACTOR MUST KEEP ALL EQUIPMENT OPERATION A MINIMUM OF 10 FEET FROM EXISTING OVERHEAD ELECTRIC LINES. IF THIS IS NOT FEASIBLE, OR CONDITIONS WARRANT ADDITIONAL PROTECTION OR POLE STABILIZATION, THE CONTRACTOR MUST CONTACT THE LPC OPERATIONS CONSTRUCTION COORDINATOR AT 651-8386. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE PROTECTIVE COVERING AND OR POLE STABILIZATION, 48 HOURS IN ADVANCE. SHOULD THE ELECTRIC FACILITIES BE DAMAGED, THE CONTRACTOR MUST CONTACT LPC AT 651-8386. ADDITIONALLY, ALL COSTS ASSOCIATED WITH REPAIRS WILL BE THE RESPONSIBILITY OF THE DEVELOPER.



NORTH 0 150' 300' 600'
SCALE: 1"= 300'-0"

LEGEND

- PERMIT BOUNDARY
- SECTION LINE
- EXISTING PARCELS
- EXISTING 5 FOOT CONTOUR
- EXISTING 25 FOOT CONTOUR
- EXISTING MONITORING WELL LOCATION
- BERMS
- SLURRY WALL
- SEDIMENTATION SUMP
- TEMPORARY IN-PIT STOCKPILE AREAS
- E100-YR 100 YR EFFECTIVE FLOODPLAIN
- P100-YR 100 YR PRELIMINARY FLOODPLAIN
- A100-YR 100 YR PROPOSED FLOODPLAIN
- UNDERDRAIN

NOTES

1. THE PROPOSED IRWIN/THOMAS MINE PERMIT AREA IS COMPRISED OF 4 DISTINCT MINING AREAS SEPARATED BY COLORADO HIGHWAY 119, ST. VRAIN CREEK, AND THE BURLINGTON NORTHERN AND SANTA FE (BNSF) RAILROAD. MINING AREA 1 (MA1) IS LOCATED SOUTH OF HWY 119, MINING AREA 2 (MA2) IS NORTH OF HWY 119 AND SOUTH OF ST. VRAIN CREEK, MINING AREA 3 IS NORTH OF ST. VRAIN CREEK AND SOUTH OF THE BNSF RAILROAD, AND MINING AREA 4 IS NORTH OF THE RAILROAD.
2. THE PROPOSED PERMIT BOUNDARY ENCOMPASSES APPROXIMATELY 211.75 ACRES WITH ONLY ABOUT 128.1 ACRES CURRENTLY PLANNED FOR MINING. HOWEVER, THE AFFECTED LAND BOUNDARY ESSENTIALLY FOLLOWS THE PERMIT BOUNDARY TO ALLOW FOR RECLAMATION ACTIVITIES AND FUTURE POTENTIAL MINING OPERATIONS. AREAS NOT DISTURBED BY MINING MAY BE DISTURBED BY ACCESS ROADS, MATERIAL CONVEYING, STOCKPILES, OR OTHER MINING RELATED ACTIVITIES. THE REMAINING AREA WILL CONSIST OF SETBACKS AND ROAD AND UTILITY RIGHT-OF-WAYS.
3. IN ADDITION TO AREAS DISTURBED BY MINING, ACCESS ROADS, MATERIAL CONVEYING, STOCKPILES, OR OTHER MINING RELATED ACTIVITIES MAY OCCUR IN AREAS NOT SUBJECT TO MINING AND RIPARIAN SETBACKS AND BUFFERS. AREAS NOT DISTURBED BY MINING MAY BE DISTURBED BY ACCESS ROADS, MATERIAL CONVEYING, STOCKPILES, OR OTHER MINING RELATED ACTIVITIES. THE REMAINING AREA WILL CONSIST OF SETBACKS AND ROAD AND UTILITY RIGHT-OF-WAYS
4. SETBACKS FROM THE MINE PIT TOP OF SLOPE TO THE PROPOSED PERMIT BOUNDARY OR MAN-MADE STRUCTURES NOT OWNED BY THE APPLICANT WILL BE 50 FEET OR GREATER.
5. ITEMS OWNED BY THE APPLICANT OR PROPERTY OWNER LOCATED WITHIN THE PERMIT AREA SUCH AS UN-IMPROVED ROADS, IRRIGATION LATERALS, FENCES, WATER WELLS AND ASSOCIATED PUMPS, AND OTHER STRUCTURES MAY BE REMOVED OR RELOCATED DURING MINING AND RECLAMATION.
6. TEST PITS HAVE VERIFIED THAT COMMERCIAL DEPOSITS OF SAND AND GRAVEL EXIST UP TO 25 FEET BELOW THE SURFACE OF THE GROUND.
7. MINING IS EXPECTED TO ENCOUNTER GROUNDWATER WITHIN FIVE FEET OF THE GROUND SURFACE. THE DEPOSIT WILL BE DRY MINED USING DEWATERING TRENCHES, PUMPS, SUMPS, & RECHARGE PONDS.
8. DURING MINING ADJACENT TO THE ST. VRAIN CREEK RIPARIAN AREA, PRECAUTIONS WILL BE TAKEN TO NOT DISTURB THE CREEK CHANNEL AND DESIRABLE VEGETATION.
9. A MINE OFFICE/SCALE HOUSE TRAILER MAY BE ESTABLISHED NEAR SITE ENTRANCES BOTH NORTH AND SOUTH OF ST. VRAIN CREEK.
10. BEST MANAGEMENT PRACTICES WILL BE USED TO LIMIT DISCHARGE OF STORMWATER AND SEDIMENT ONTO ADJACENT PROPERTIES AND WATERWAYS.
11. THE EXISTING HWY 119 ACCESS WILL CONTINUE TO FUNCTION FOR AGRICULTURE ACCESS AND MAINTENANCE. ONCE MINING AND RECLAMATION BEGIN, ACTIVITY ASSOCIATED WITH THE HWY 119 ACCESS WILL INCLUDE BRINGING EQUIPMENT INTO THE SITE, THE EQUIPMENT OPERATORS VEHICLE, ANY REQUIRED MAINTENANCE OF THE EQUIPMENT AND VEGETATION MANAGEMENT. MINED MATERIAL MAY BE TRANSPORTED VIA THE CONVEYOR AS SHOWN ON THE MINING PLAN OR VIA HAUL TRUCKS UTILIZING DIRECT ACCESS ONTO HWY 119 AT THE CONTROLLED INTERSECTION. SPECIFIC DETAILS REGARDING TRANSPORT OF MATERIAL FROM THE HWY 119 ACCESS OR VIA THE CONVEYOR SHALL BE REVIEWED AND APPROVED BY CDOT AND THE CITY OF LONGMONT.
12. ACCESS TO CELLS 8,9 AND 10 WILL BE VIA AN EXISTING ACCESS EASEMENT TO NORTH 119TH ST. SPECIFIC CONFIGURATION, REQUIRED IMPROVEMENTS AND AN APPROVED HAUL ROUTE TO BE APPROVED BY THE CITY PRIOR TO MINING THESE CELLS. THE OPERATOR WILL ENTER INTO A ROAD MAINTENANCE AGREEMENT WITH THE CITY PRIOR TO MINING THOSE CELLS.
13. THE EXISTING SWALE ON THE WEST SIDE OF CELL 8 IS A MAJOR DRAINAGE CONVEYANCE AND DISCHARGE FOR THE WATER TREATMENT PLANT. THE CHANNEL CANNOT BE IMPACTED AND MUST REMAIN OPERATIONAL AT ALL TIMES. FIELD VERIFY PRIOR TO ANY MINING ACTIVITIES THAT THE 50' PROPOSED BUFFER IS ADEQUATE TO PROTECT THE EXISTING SWALE, AND IF IT IS NOT, INCREASE THE BUFFER AMOUNT TO ENSURE PROPER OPERATION OF THE SWALE.

MINING SEQUENCE NOTES

1. IN MA1, MINING CELL 1A SHALL BE MINED FIRST. MINING AND BACKFILL OF CELL 1A SHALL OCCUR DURING THE NON-FLOOD PRONE SEASON OF OCTOBER THROUGH APRIL. PRIOR TO MINING IN CELLS 2 AND 3, CELL 1A SHALL BE BACKFILLED.
2. THE SCALE HOUSE AND STAGING AREA IN MA1 MAY BE ESTABLISHED ON THE MINED AND BACKFILLED AREA OF CELL 1A.
3. IN MA2 AND MA3, THE AREAS OF THE MINING CLOSEST TO ST. VRAIN CREEK SHALL BE MINED FIRST. THE MINE CELLS WITHIN 200 FEET OF THE CREEK SHALL BE MINED AND BACKFILLED DURING THE NON-FLOOD PRONE SEASON OF OCTOBER THROUGH APRIL.
4. PRIOR TO AFFECTING LAND WITHIN MA2, MA3 OR MA4 THE DIVISION OF RECLAMATION, MINING AND SAFETY (THE DIVISION) SHALL BE NOTIFIED IN WRITING.
5. IF COMPLETED MINE CELL SLOPES ARE TO BE WITHIN A RESERVOIR OR POND, THE DIVISION SHALL BE NOTIFIED FOR INSPECTION PRIOR TO FILLING THE RESERVOIR/POND WITH WATER
6. IF SOIL TESTING IS NECESSARY FOR RECLAMATION, TEST RESULTS AND ANY PROPOSED SOIL AMENDMENTS SHALL BE SUBMITTED TO THE DIVISION.
7. PRIOR TO MINING MA3 AND MA4, MONITORING WELLS SHALL BE INSTALLED AND MONITORED FOR FIVE QUARTERS TO ESTABLISH BASELINE GROUND WATER ELEVATIONS .
8. IF OFF SITE STRUCTURAL FILL IS TO BE IMPORTED, THE DIVISION SHALL BE NOTIFIED ACCORDING TO THE MINERAL RULES AND REGULATIONS RULE 3.1.5(9)
9. A TEMPORARY ABOVE GROUND FUEL STORAGE FACILITY MAY BE PLACED IN MA1 DURING MINING.

FLOODPLAIN NOTES

FLOODPLAIN INFORMATION PER FIRM FLOOD INSURANCE RATE MAP NO 08013C0287J DATED DECEMBER 18, 2012 AND FIRM FLOOD INSURANCE RATE MAP NO 08013C0289J DATED DECEMBER 18, 2012.

- THIS PROPERTY LIES IN AREAS DETERMINED TO BE WITHIN OTHER AREAS - AREAS OUTSIDE THE 2% ANNUAL CHANCE FLOOD
- ZONE X - AREAS OF 25 % ANNUAL CHANCE OF FLOOD OR AREAS WITH 1% ANNUAL CHANCE OF FLOOD WITH AVERAGE DEPTHS OF LESS THAN ONE FOOT OR WITHIN DRAINAGE AREAS LESS THAN ONE SQUARE MILE AND AREAS PROTECTED BY LEVEES FROM THE 100 YEAR FLOOD.
- ZONE AE - SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL FLOOD CHANCE, BASE FLOOD ELEVATIONS DETERMINED.
- ZONE AH - SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL FLOOD CHANCE, FLOOD DEPTHS OF 1 TO 3 FEET, (USUALLY AREAS OF PONDING) BASE FLOOD ELEVATIONS DETERMINED.

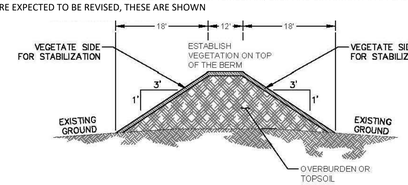
THE ADDITIONAL FLOODPLAINS SHOWN ARE BASED ON PRELIMINARY FEMA FIRM MAP 08013CO289K FROM SEPTEMBER 30, 2019 AND LONGMONT'S APPEAL OF FEMA'S PRELIMINARY FIRM MAP. THESE MAPS ARE NOT FINAL AND ARE EXPECTED TO BE REVISED, THESE ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.

MINING AREA TABLE

MA-1	125.04 AC
MA-2	37.18 AC
MA-3	28.83 AC
MA-4	18.40 AC
TOTAL	209.45 AC

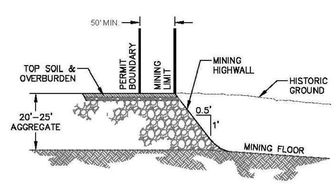
TYPICAL BERMING SECTION

N.T.S.



TYPICAL MINING SECTION AT PERMIT BOUNDARY

N.T.S.



REVISIONS		
DESCRIPTION	DATE	BY

DRAWN PDB
CHECKED BW
DESIGNED BW
FILENAME 1241.0001 DRMS C-4 L-

IRWIN/THOMAS MINE M2016-054 TECHNICAL REVISION 1
EXHIBIT C-4

MINING MAP

TST
TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

JOB NO. 1241.0001.04
SCALE 1"=300'
DATE May 10, 2023
SHEET 4 of 5

K:\1241\0001\05 Drawings\Sheets LA\1241.0001 DRMS C-4 L-1.dwg, 5/10/2023 10:20:52 AM

NORTH

0 150' 300' 600'
SCALE: 1"= 300'-0"

NOTES

1. ST. VRAIN CREEK BISECTS THE PROPOSED PERMIT AREA FROM EAST TO WEST NEAR ITS CONFLUENCE WITH LEFT HAND CREEK.
2. A PORTION OF THE BONUS DITCH AND ITS DIVERSION FROM LEFT HAND CREEK ARE LOCATED ADJACENT TO THE WEST SIDE OF THE PERMIT AREA.
3. CONCRETE IRRIGATION LATERALS AND RETURN FLOW DITCHES ASSOCIATED WITH AGRICULTURAL PRODUCTION ARE LOCATED IN THE PERMIT AREA SOUTH OF ST. VRAIN CREEK.
4. NORTH OF ST. VRAIN CREEK, A HISTORIC DRAINAGE POND FROM THE GREAT WESTERN SUGAR FACILITY REMAINS WITH ASSOCIATED INLET AND OUTLETS FROM AND TO ST. VRAIN CREEK.
5. ALTHOUGH WELLS EXIST WITHIN 600 FEET OF THE PROPOSED PERMIT AREA IMPACTS TO HISTORIC USE FROM THE PROPOSED MINING OPERATION ARE NOT EXPECTED.
6. A WELL PERMIT FOR EXPOSED GROUNDWATER WILL BE OBTAINED FROM THE COLORADO DIVISION OF WATER RESOURCES, OFFICE OF THE STATE ENGINEER.
7. A TEMPORARY SUBSTITUTE WATER SUPPLY PLAN IS IN PLACE FOR THE MINING OPERATIONS.
8. ALL WORK PERFORMED IN THE REGULATORY FLOOD PLAIN WILL CONFORM TO THE CITY OF LONGMONT FLOODPLAIN DEVELOPMENT REGULATIONS.

FLOODPLAIN NOTES

FLOODPLAIN INFORMATION PER FIRM FLOOD INSURANCE RATE MAP NO 08013C0287J DATED DECEMBER 18, 2012 AND FIRM FLOOD INSURANCE RATE MAP NO 08013C0289J DATED DECEMBER 18, 2012.

- THIS PROPERTY LIES IN AREAS DETERMINED TO BE WITHIN
  OTHER AREAS - AREAS OUTSIDE THE 2% ANNUAL CHANCE FLOOD
- ZONE X - AREAS OF 25 % ANNUAL CHANCE OF FLOOD OR AREAS WITH 1% ANNUAL CHANCE OF FLOOD WITH AVERAGE DEPTHS OF LESS THAN ONE FOOT OR WITHIN DRAINAGE AREAS LESS THAN ONE SQUARE MILE AND AREAS PROTECTED BY LEVEES FROM THE 100 YEAR FLOOD.
- ZONE AE - SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL FLOOD CHANCE, BASE FLOOD ELEVATIONS DETERMINED.
- ZONE AH - SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL FLOOD CHANCE, FLOOD DEPTHS OF 1 TO 3 FEET, (USUALLY AREAS OF PONDING) BASE FLOOD ELEVATIONS DETERMINED.

THE ADDITIONAL FLOODPLAINS SHOWN ARE BASED ON PRELIMINARY FEMA FIRM MAP 08013CO289K FROM SEPTEMBER 30, 2019 AND LONGMONT'S APPEAL OF FEMA'S PRELIMINARY FIRM MAP. THESE MAPS ARE NOT FINAL AND ARE EXPECTED TO BE REVISED, THESE ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.

WELL INFORMATION

Owner	Permit No.	Current Status	Use 1	Use 2
JOSEPH PLUMLEY	305037	Well Constructed	DOMESTIC	WELL
CLIFFORD E. & KATHRYN D. SMITH	244958	Well Constructed	DOMESTIC	WELL
BILLINGS DENNIS	244988	Well Constructed	DOMESTIC	WELL
GOLDEN GRAVEL CO.	37575	Well Constructed	OTHER	WELL
LONGMONT CITY OF	67883	Well Constructed	OTHER	WELL
READ ARNOLD & JOSEPHINE	80996	Well Constructed	DOMESTIC	WELL
C&J ENTERPRISES LLC	124818	Well Constructed	DOMESTIC	WELL

LEGEND

- PERMIT BOUNDARY
- 600' OFFSET OF PERMIT BOUNDARY
- MW — MONITORING WELL LOCATION
- EXISTING PARCELS
- EXISTING DITCH
- G — EXISTING GAS LINE
- OHE — EXISTING OVERHEAD ELECTRIC
- SS — EXISTING SANITARY SEWER
- EXISTING 5 FOOT CONTOUR
- EXISTING 25 FOOT CONTOUR
- E100-YR — 100 YR EFFECTIVE FLOODPLAIN
- W — WELL (SEE TABLE)
- P100-YR — 100 YR PRELIMINARY FLOODPLAIN
- A100-YR — 100 YR PROPOSED FLOODPLAIN
- UNDERDRAIN

REVISIONS

BY	DATE	DESCRIPTION

DRAWN BW
CHECKED BW
DESIGNED BW
FILENAME 1241.0001 DRMS C-5

IRWIN/THOMAS MINE M2016-054 TECHNICAL REVISION 1
EXHIBIT C-5
WATER RESOURCE MAP

TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

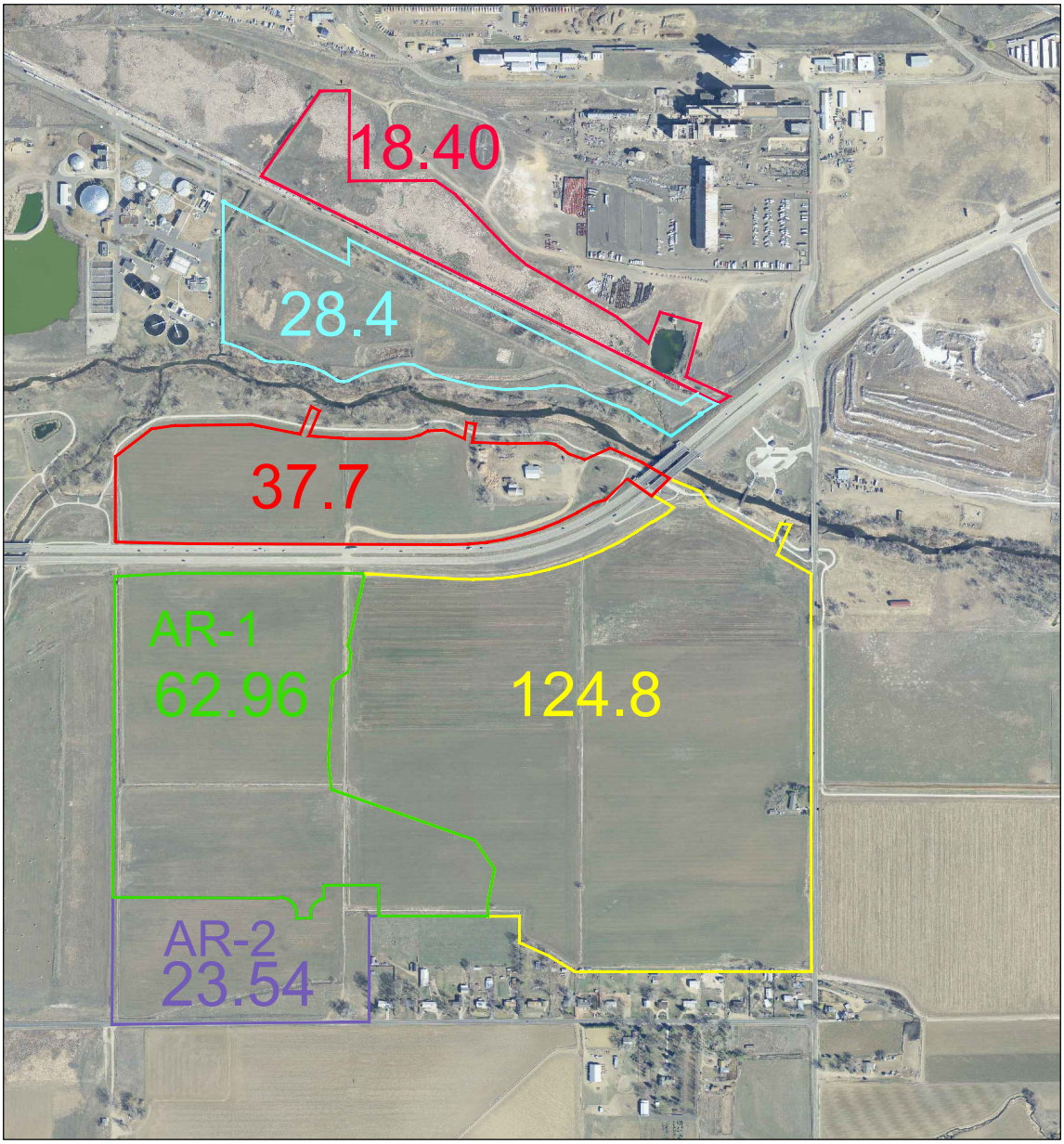
JOB NO. 1241.0001.04
SCALE 1"=300'
DATE MAY 10, 2023
SHEET 5 of 5

K:\1241\0001\05 Drawings\Sheets LA\1241.0001 DRMS C-5.dwg; 5/10/2023 10:33:11 AM

ATTACHMENT 3

Permit Area Exhibit

TR1 AR-1 / AR-2 AREA MAP



1000 500 0 1000

scale 1"=1000' feet

TR1 AR1 AREA MAP
DATE: MAY 12, 2023
JOB NO. 1241.0001.04
SHEET 1 OF 1

TST, INC. CONSULTING ENGINEERS
748 Whalers Way, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557

K:\1241\0001\05 Drawings\Sheets LA\1241.0001 DRMS C-4 L-1

M2016-0055 Irwin Thomas TR1 Acreage summary
May 12, 2023

Mining Area	Original Permit acres	Reported Acres in TR-1	DRMS Acreage Accounting	Difference between TR 1 & DRMS acreage	***Current TR1 Permit Acreage based on coordinates***	***Total Acreage each Mining Area including Acreage Reductions***	Acres Released through AR1	***Remaining Area to be released AR-2 (211.3-187.64)***	***Difference Between Corrected TR-1 acreage and original permit acreage***
MA 1	211.3	127.13	148.34	21.21	***124.8***	***211.3***	62.96	***23.54***	***0***
MA 2	37.7	37.39	37.7	.31	***37.7***	***37.7***			***0***
MA 3	28.4	28.72	28.4	-.32	***28.4***	***28.4***			***0***
MA 4	18.4	18.51	18.4	-.11	***18.40***	***18.4***			***0***
Total	295.8	211.75	232.84	21.09	***209.3***	***295.8***			***0***

ATTACHMENT 4

M2016-054 Irwin Thomas

Proposed Reclamation Bond Updated 5.3.2023

Aspect		Reclamation Operation	Quantity	Units	Unit Costs ($)	Costs ($)
Active Mining Area						
A	1	Backfill and grade disturbed acres of mining cells (1-3) with on-site material	453,800	CY	$3.35	$1,520,230
	2	Haul, backfill, and grade remaining disturbed acres of mining cells (1-3) with imported fill material	143,300	CY	$20.00	$2,866,000
	3	Replace topsoil on backfilled mining cell areas	43,340	CY	$2.60	$112,684
Slurry Wall						
B	1	Slurry Wall Construction (4,800 linear ft x 20 ft avg depth, unit cost derived from 2022 as-built costs in Brighton CO)	96,000	Sq Ft	$9.51	$912,960
	2	Slurry Wall Underdrain Flow Line (length derived from Miller groundwater report, unit cost derived from 2022 as-built costs in Brighton CO)	2,300	Linear Ft	$186	$427,800
	3	Cell dewatering (three months assumed)	3	Months	$15,000	$45,000
	4	Replace Topsoil around active mining cells within slurry wall	2,500	CY	$7.80	$19,500
	5	Reseeding within slurry wall construction area	10	Ac	$2,387	$23,870
Miscellaneous DIsturbed Areas						
C	1	Replace topsoil on internal haul roads	17,150	CY	$2.45	$42,018
	2	Reseeding / Restoration at main site entrance	1	Ac	$2,387	$2,387
	3	Remove privacy berms and reclaim topsoil	34,980	CY	$2.85	$99,693
Final Reclamation						
D	1	Seed all remaining disturbed areas (cells 1-3)	39.3	Ac	$2,387	$93,809
	2	Seed enhanced riparian area	4.7	Ac	$2,387	$11,195
	3	Plant 50 trees in riparian area, 5-gallon	50	Ea	$450	$22,500
	4	Plant 300 rooted cuttings in riparian area	300	Ea	$60	$18,000
Total Reclamation Costs						$6,217,646
Contractor Mobilization/Demobilization Costs (8%)					0.08	$497,412
Overhead (18.5%)					0.185	$1,150,264
Administration (5%)					0.05	$310,882
Total Proposed Financial Warrenty						**$8,176,204**
Disturbed Acreage						39.3
Financial Warranty per Acre						$208,046