

April 21, 2023

Mr. Eric Scott
Environmental Protection Specialist *Physical Address:*1313 Sherman Street, Room 215
Denver, CO 80203 *Mailing Address:*Division of Reclamation, Mining and S

Division of Reclamation, Mining and Safety, Room 215 1001 East 62nd Avenue Denver, CO 80216

RE: Broken Arrow Investments, LLC – Derr Pit – Technical Revision No. 8 Adequacy Review 2 Response – File No. M-2008-017

Dear Mr. Scott,

Broken Arrow Investments, LLC has received the Division's Adequacy Review 2 of the Technical Revision No. 8 Request letter dated April 19, 2023. Below are the comments and the corresponding responses that we have provided to address the comments.

Adequacy Review 2 Comments

1. Contour data on the Stability Section Map provided appears to be much more recent than the contour data provided on the Exhibit C-1 Existing Conditions/Mining Plan map (as well as other figures where contour data is shown). Please update the contour information on the existing conditions map (and other maps) to be as current as possible at this time.

Response: An updated Mining Plan Map has been provided with the attachments to this letter showing the same contour data provided in the slope stability report.

2. Please show locations and anticipated volumes of topsoil and overburden locations for Phase 5a/5 on the mine plan map if you wish to use locations other than what are currently shown to minimize haul distances.

Response: An updated Mining Plan Map has been provided with the attachments to this letter showing the locations for the topsoil and overburden stockpiles.

- 3. Please provide a reclamation plan map(s) that illustrates the following tasks by area:
 - a) Phases 1-4 acres where 6" topsoil will be replaced, scarified, and revegetated, including area of reservoir above proposed waterline. (CIRCES software calculates revegetation cost based on acres, seed mix, tilling, mulch/fertilizer, and anticipated failure/re-seed rate)
 - b) Phases 1-4 acres of 3:1 interior slope that will need to be compacted and graded below waterline.
 - c) Phase 5 perimeter acres that will need to have topsoil replaced, graded and seeded above water line. DRMS assumes that the entire area within Phase 5a will need to have topsoil replaced and reseeded for bonding purposes.

Response: An updated Reclamation Plan Map has been provided with the attachments



- 2 -

to this letter providing the location of acres where the 6" topsoil will be replaced, scarified and revegetated, Phases 1-4 acres of 3:1 interior slope that will need to be compacted and graded, and Phase 5 perimeter acres that will need to have topsoil replaced, graded and seeded. Acknowledged that Phase 5a area bonding is for all area to be re-seeded.

- 4. Please also provide the following information to assist in calculating an accurate reclamation cost estimate:
 - a) The Summary of Unit Costs provided states that topsoil will be replaced to a depth of 6" however the text provided states that 12" of topsoil will be replaced in areas to be revegetated – please clarify for consistency.
 - b) DRMS is required to hold 20% of the total installation cost for approved slurry walls until the permit is released please provide an invoice or other documentation showing the total installation cost of the slurry wall around Phases 1-4 so that cost can be accurately determined.
 - c) Phase 5a outer mined perimeter distance and average height from 3:1 to 4.5:1 break in slope to the top of excavation. This information will be utilized to calculate the average CY of material needed per linear foot of perimeter to re-slope this portion of the mined area. (CIRCES software estimates cost by using CY of material to be moved for each "task", material type, haul distance, and equipment type.) You may also provide the basis for the 303,400 CY of backfill material required provided in your Phase 5a estimate.
 - d) Phase 5 outer perimeter distance and average height that will need to be re-sloped from 2H:1V mining face to 4.5H:1V final reclamation grade. You may also provide the basis for the 1,289,100 CY of backfill material required provided in your Phase 5 estimate.
 - e) Please provide a reference for the dewatering costs and volumes for the Phase 1-4, and Phase 5 reservoir areas
 - f) Please provide the linear feet for the Phase 1-4 proposed Perimeter Drain (if required). Response: The summary of unit costs has been updated for the bond calculations for 6" of topsoil not 12" of topsoil. The slurry wall cost has been provided for the existing slurry wall around Phases 1-4 in the revised Exhibit L bond calculations and is from the final payment application and we are also providing the provisional approval for the leak test from the DWR. We have provided the quantities for the slope backfill for Phase 5a that were calculated using Civil 3D and AutoCAD by generating surfaces for the mining slope and the reclamation slope to determine the volume of backfill/material. We have provided the quantities for the slope backfill for Phase 5 that were calculated using Civil 3D and AutoCAD by generating surfaces for the mining slope and the reclamation slope to determine the volume of backfill/material. The dewatering costs have been removed from the bond calculation as the slurry wall will be constructed before groundwater will be exposed so the full pit storage would not need to be dewatered as we previously calculated using Civil 3D. The linear feet of perimeter drain for Phases 1-4 is 3,450 lineal feet.

DRMS will be required to bond for 100% of the installation cost of the Phase 5 slurry wall until it is approved by the State Engineer's Office. A technical revision will be required to provide the appropriate design and cost information for DRMS to adjust the reclamation bond appropriately prior to exposing groundwater in Phase 5 – please acknowledge.

Response: Acknowledged.

DRMS understands that internal slopes for phases 1-4 will be mined at no steeper than 3H:1V inside the existing slurry wall, as stated in this revision, therefore no backfill earthwork will be required for the Phase 1-4 reservoir area. This also means that all internal slopes within Phases 1-4 shall not be

- 3 -

steeper than 3H:1V at any time in the mining process unless bond is posted to reslope active mining areas to 3H:1V – please acknowledge.

Response: Acknowledged.

Broken Arrow Investments, LLC appreciates your consideration of these adequacy review responses and looks forward to your review of the information.

Please feel free to contact me with any questions or comments.

Sincerely,

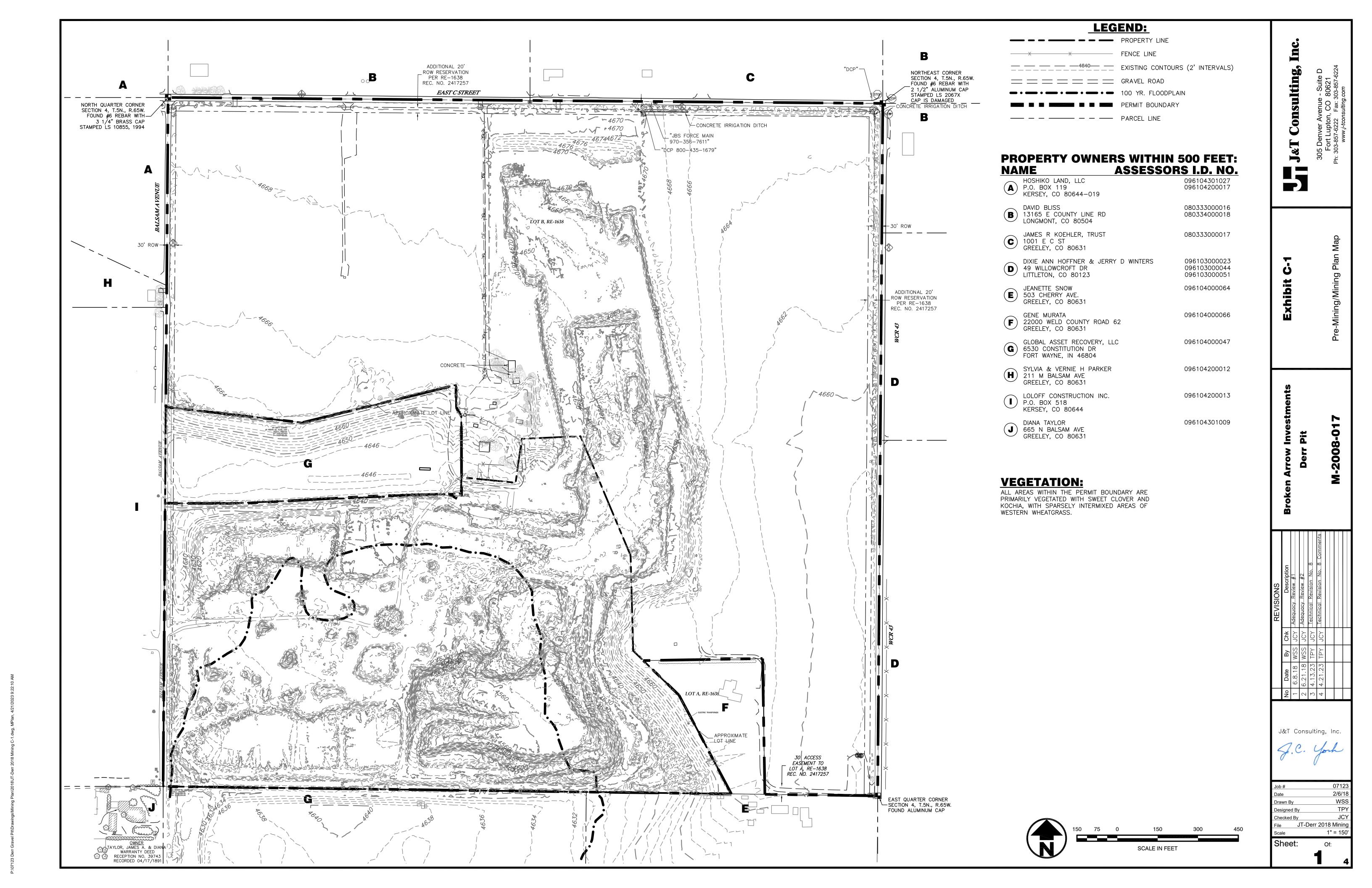
J.C. York, P.E.

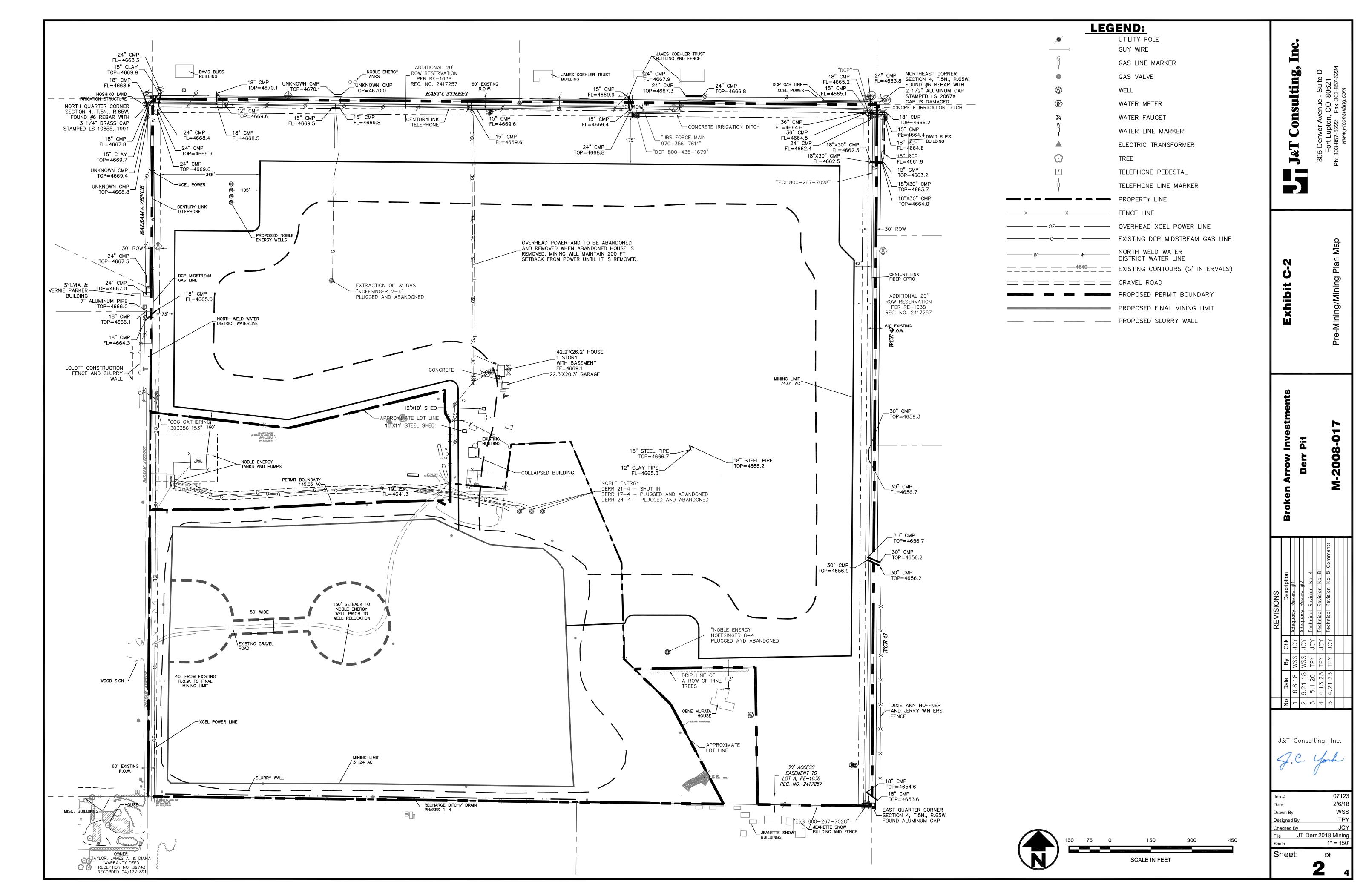
J&T Consulting, Inc.

Attachments:

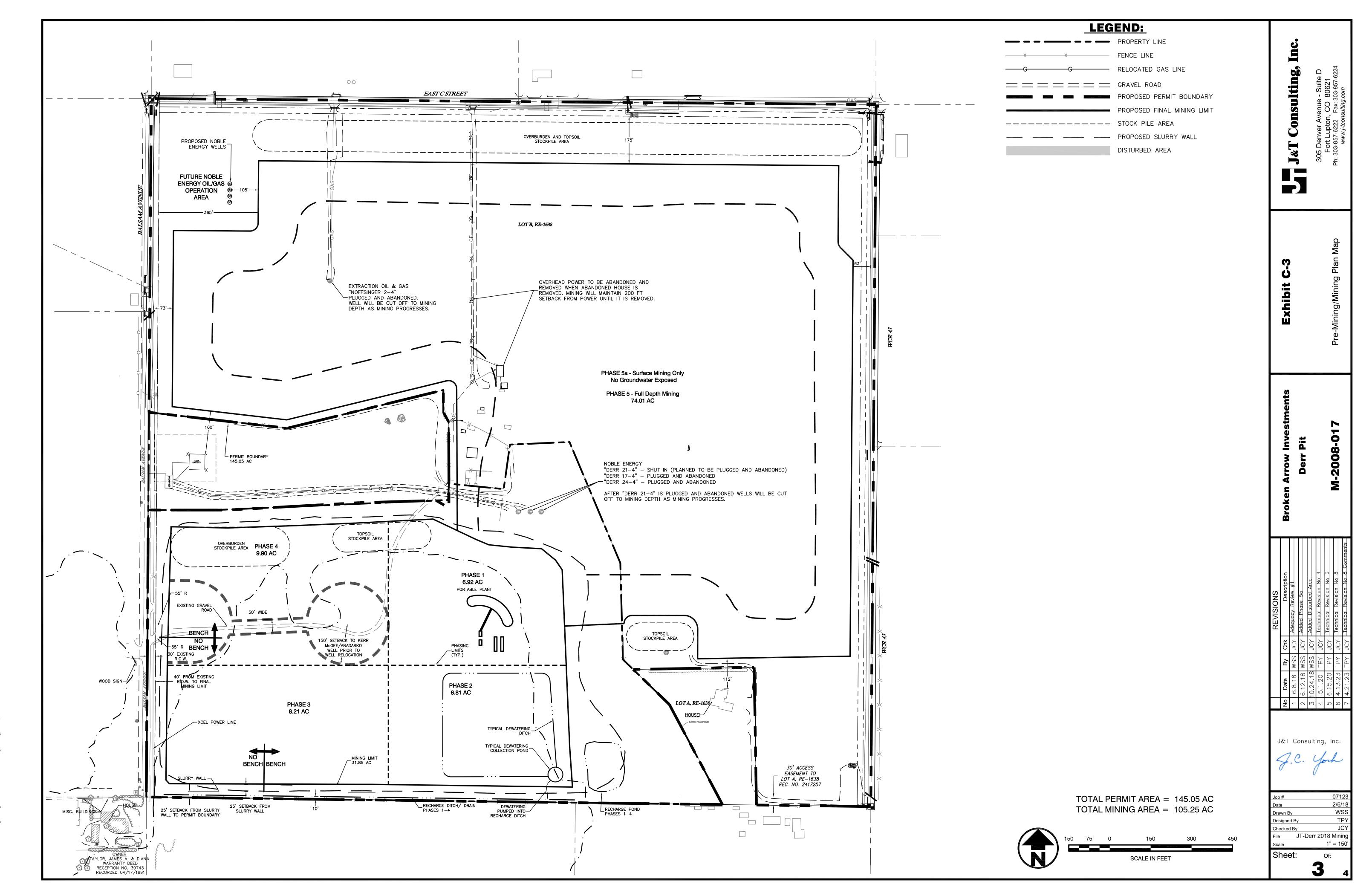
- 1. Updated Exhibit C Pre-Mining/Mining Plan Maps and Details
- 2. Updated Exhibit F Reclamation Plan Maps
- 3. Updated Exhibit L Bond Calculations
- 4. Cut/Fill Volumes for Slopes generated by Civil 3D
- 5. Slurry Wall Final Pay App for Phases 1-4
- 6. DWR Provisional Leak Test Approval

cc: Broken Arrow Investments, LLC File

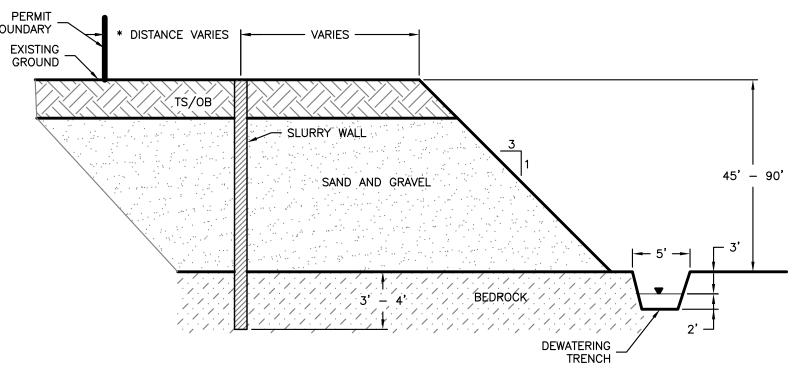




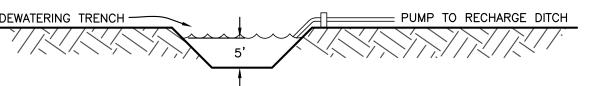
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SOUTH CELL
TYPICAL MINING SECTION - NO BENCH

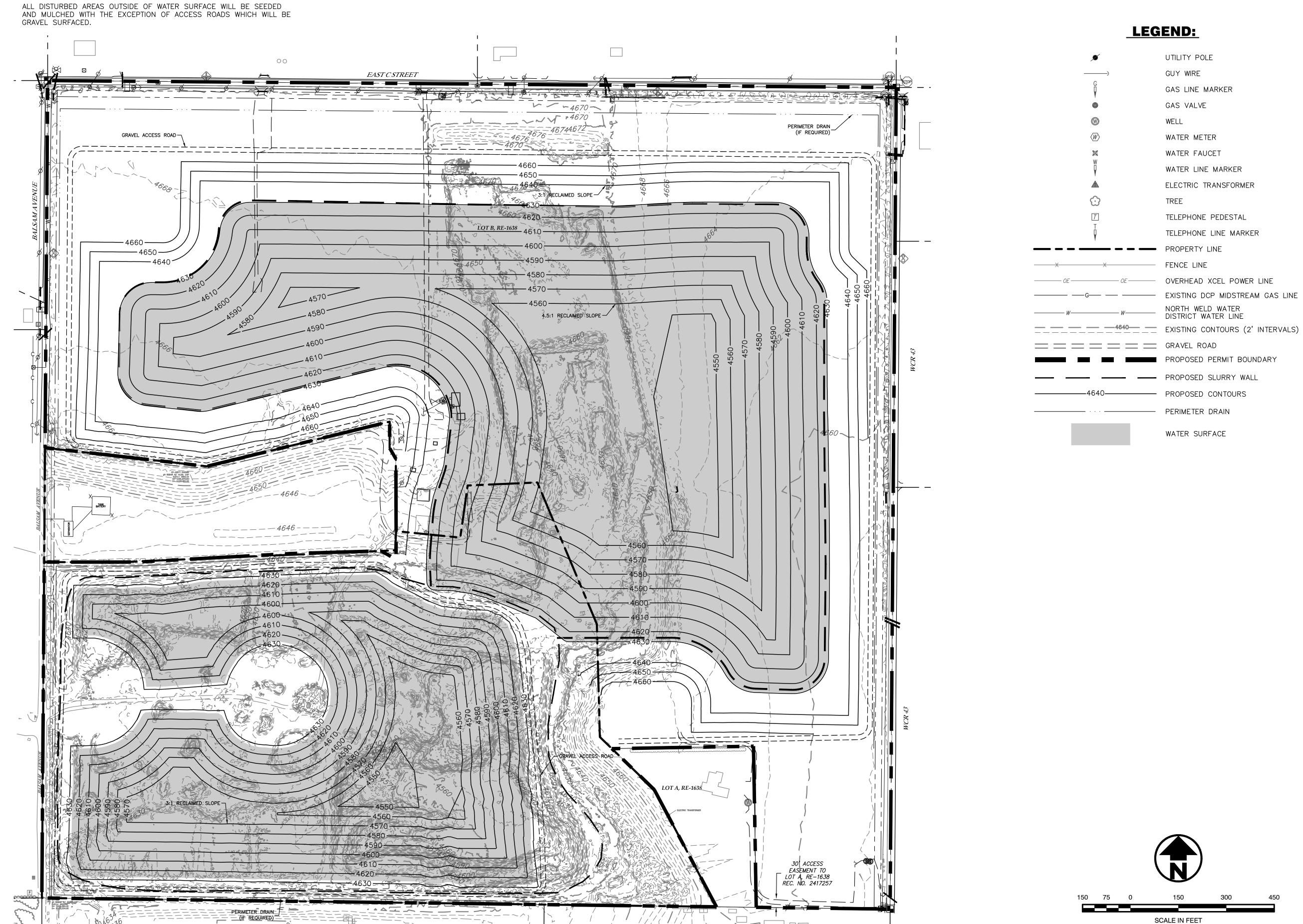


J&T Consulting, Inc.

JT-Derr 2018 Mining

DEWATERING COLLECTION POND

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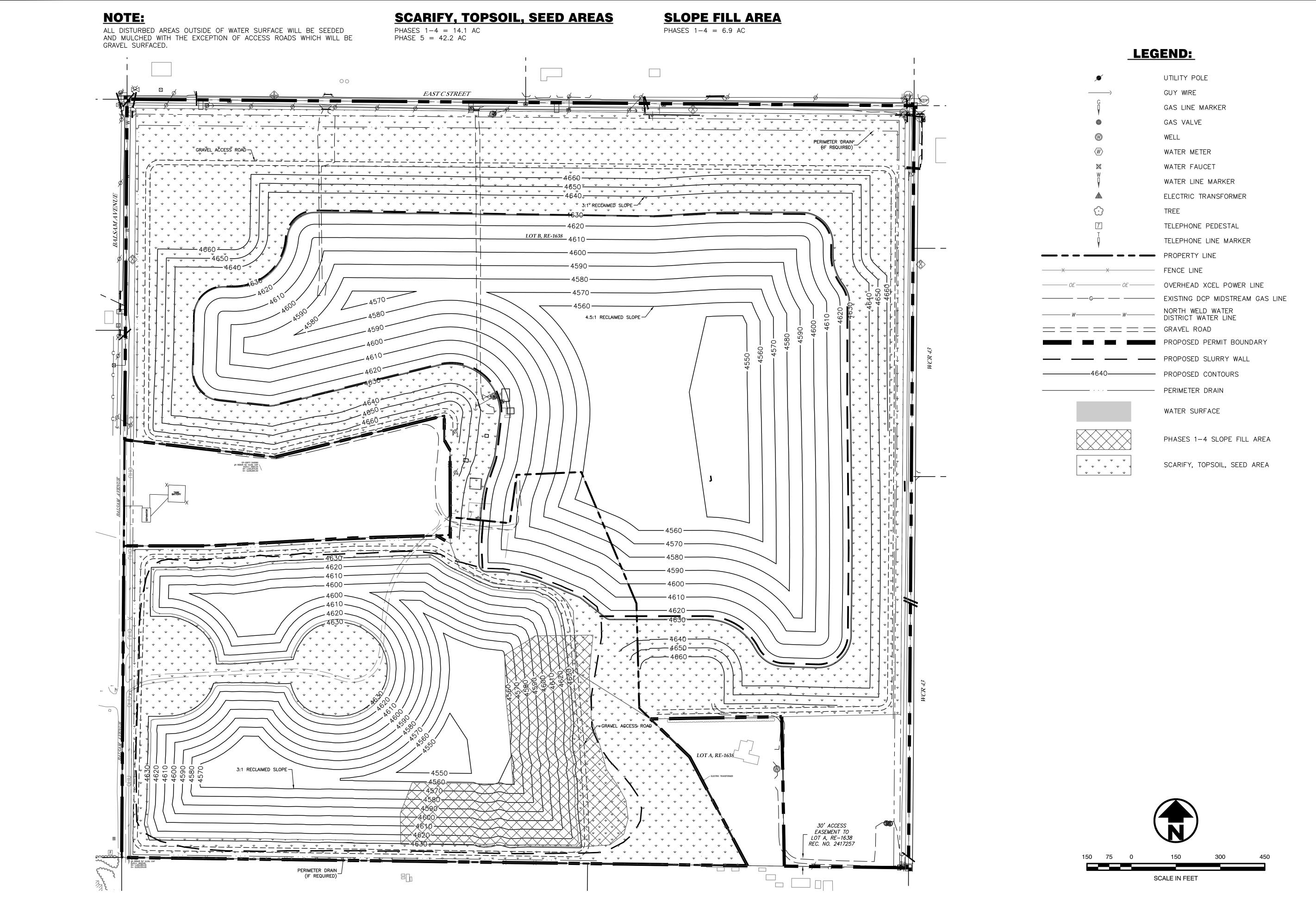
NOTE:

TELEPHONE LINE MARKER

OVERHEAD XCEL POWER LINE — EXISTING DCP MIDSTREAM GAS LINE

J&T Consulting, Inc.

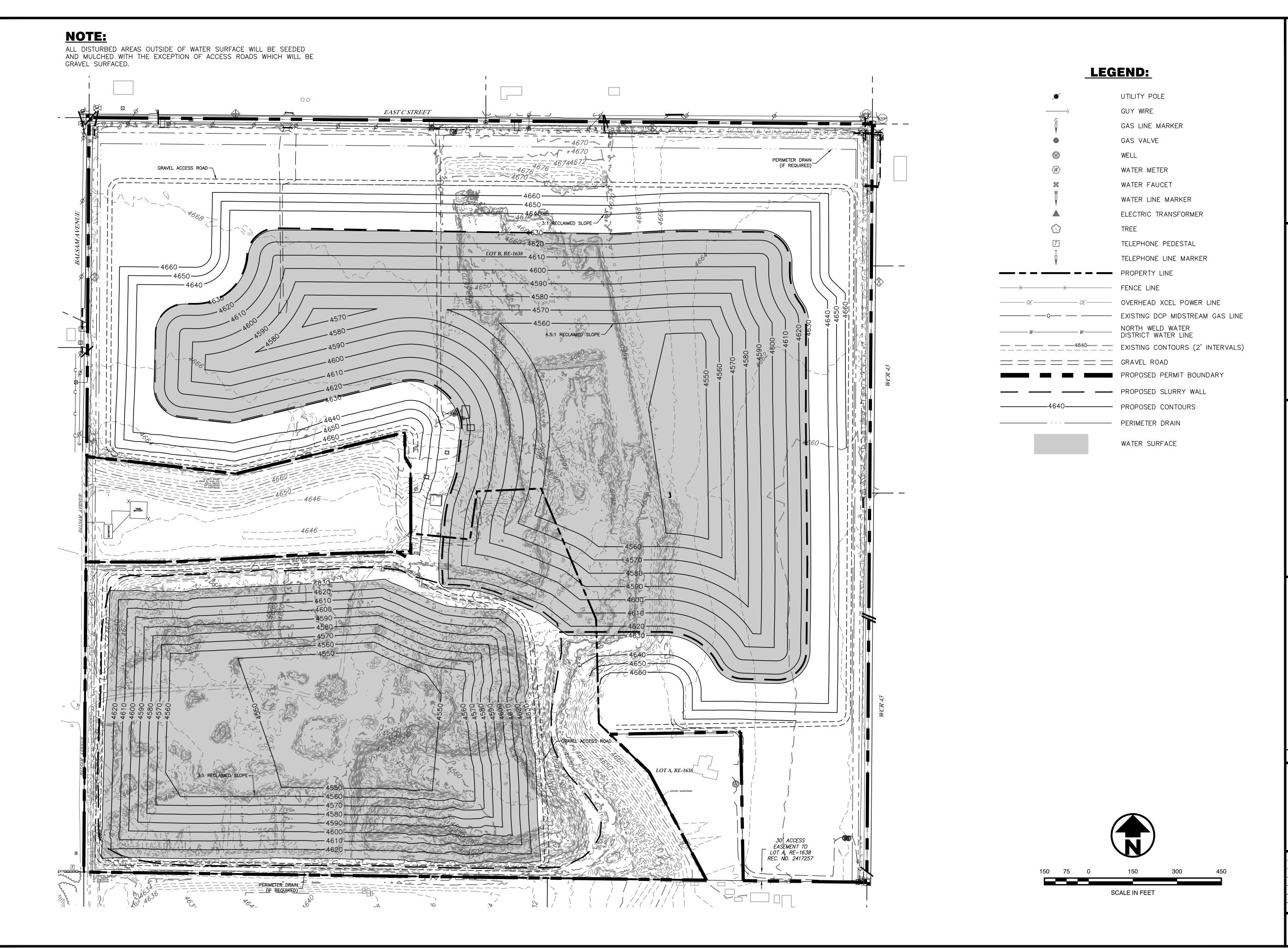
JT-Derr 2020 Red Sheet:



J&T Consulting, Inc.

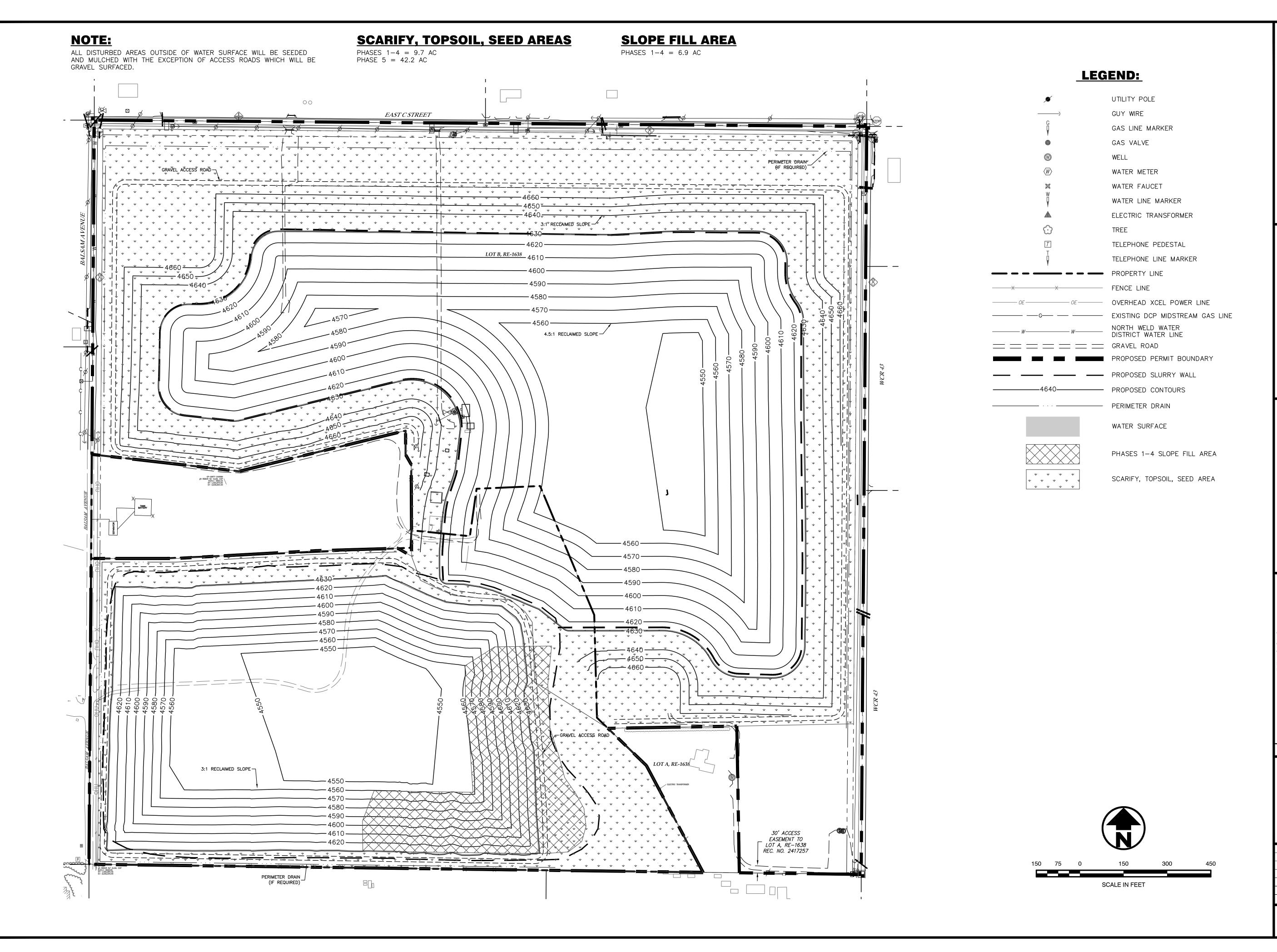
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Of:



J&T Consulting, Inc.

JT-Derr 2020 Red Of:



J&T Consulting, Inc.

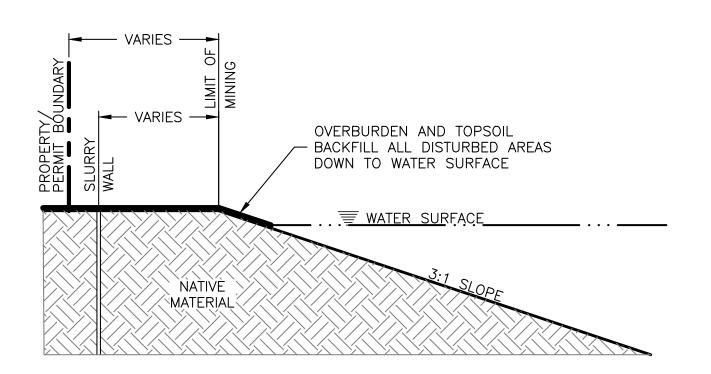
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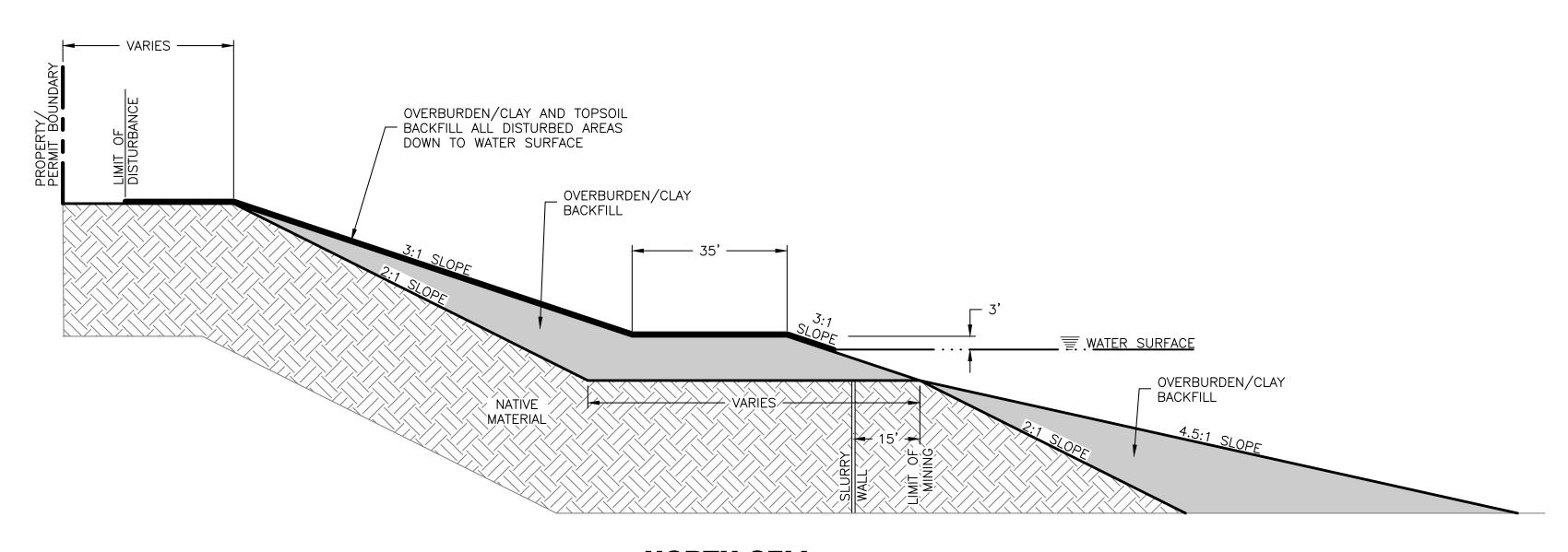
W

BACKFILL EXISTING TRENCH WITH NATIVE MATERIALS 1.5' TYP. — VARIES ASTM C33-7 CONCRETE. AGGREGATE _. (MIN). ASTM C33 CONCRETE SAND -(IF REQUIRED) SAND AND GRAVEL .05' (TYP.) 1.5 _ (TYP.) TYP.

PERIMETER DRAIN DETAIL (TYPICAL SECTION IF REQUIRED)



SOUTH CELL TYPICAL BACKFILL SECTION



NORTH CELL
TYPICAL BACKFILL SECTION

SLURRY WALL NOTES:

1. <u>Bentonite Specifications</u> YP/PV ratio API Std. 13A

YP/PV ratio API Std. 13A less than 3
Viscometer greater than 30
Filtrate Loss less than 15 cm3
Moisture Content ASTM D 2216 less than 10 percent

Test results for each lot of bentonite must be provided.

2. <u>Water Specifications</u>

pH 6-8
Hardness less than 200 ppm
Total Dissolved Solids less than 500ppm
Oil, organics, acids, alkali less than 50 ppm each Chloride report

3. <u>Bentonite Slurry General Specifications</u>

The initial bentonite slurry must be tested prior to placement in the trench. The slurry may be mixed in high shear mixers or mixed and hydrated in slurry hydration ponds. In general, a minimum hydration time of 8 hours will allow the bentonite slurry to meet all criteria. A minimum bentonite content of 6 percent in the slurry by weight is required.

4. Bentonite Slurry Testing Specifications before Placement

Viscosity Measured w/ Marsh Funnel (API RP 13B-1) less than 40 sec

Density less than 64 pcf
Filtrate Loss less than 20 cm3

6.5 to 10

The tests listed above should be run 1 or 2 times per shift and at least once per batch of slurry. The slurry must be further tested after placement in the trench. The tests conducted are for viscosity, density, sand content, and pH. Two sets of tests per shift at two locations in the trench (approximately 2 feet below the slurry surface and 2 feet above the bottom of the trench) are required. If the density of the slurry in the trench exceeds 85 pcf the excess solids must be removed by desanding or the slurry replaced with fresh slurry. The slurry level must be maintained at least 3 feet above the ground water elevation and no more than 2 feet below the top of the working platform.

5. <u>Bentonite Slurry Testing Specifications after Placement</u>
Unit Weight 1.03 to 1.40 gm/cm3
Sand Content ASTM D 4381-84(1993)e10 to 20 percent by volume

6. <u>Soil-Bentonite Backfill Specifications</u> S-B backfill slump ASTM C 143 1 set per 100 cu. yds.

mp 2-6 inches

S—B backfill gradation 1 set per 300 cu. yds.

Screen (US Standard) Percent by Dry Weight
3 inch 100
4 40-80
#40 25-60
#200 20-40

Minimum Plasticity Index of 10

7. Key Trench and Slurry Wall Cap Specifications
During excavation, soundings should be obtained to determine the elevations of the top of the key layer, the bottom of the excavation, and the bottom of the trench prior to backfilling. If sediments in excess of 2 inches have accumulated it is necessary to clean the trench bottom by airlift pumps or excavation equipment to remove the sand and sediment that has settled. The trench bottom should be cleaned, as a minimum, at the beginning of each shift. Soundings should be obtained approximately every 20 feet.

Adequate keying in the S-B backfill to an impermeable layer at the base of the wall will be required and specified in the final design report for the slurry wall. The design documents will include a description of the key in layer and describe how trench cuttings or other observations will be used to assure that the slurry wall will be adequately keyed. Temporary slurry wall protection will be required in the form of a noncompacted soil cover placed within one day over each backfilled 100 foot reach. The temporary cover is removed after settlement (approximately 2 weeks) and replaced with a compacted clay cover over the completed slurry wall.

Post Construction Testing
 Post construction testing will be conducted in accordance with the "Colorado State Engineer's Office."

9. Above specifications (notes 1—8) are provided as a general guideline for permitting purposes. Final specifications and design criteria will be developed during the final design of the slurry wall.

Broken Arrow Investments, LLC

Derr Pit 4/21/2023

Reclamation Bond Quantities and Costs © 2023 **J&T Consulting, Inc.**

Summary of Unit Costs

<u>Direct costs</u>			
Re-applying topsoil 6" thick		\$1,800.00	/ acre
Revegetating disturbed area		\$1,000.00	/ acre
Dewatering full pit		\$200.00	/ million gallons
Slurry Wall Cost (75 foot average depth @ \$6.00/ft)		\$450	/ linear foot
Perimeter Drain		\$20	/ linear foot
Scarifying Ground		\$200	/ acre
Grading and Backfill of Reclamation Slopes		\$2.00	/ cy
Mobilization		\$2,500	lump sum
Overhead and Profit Costs Liability insurance		1.55%	of direct cost
Performance bond		1.05%	of direct cost
Profit		10.00%	of direct cost
	Total Overhead Cost	12.60%	of direct cost
Project Management			
Engineering and bidding		4.25%	of direct cost
Management and administration		5.00%	of direct cost
•	Total Additional Cost	9.25%	of direct cost

Current Financial Warranty Held For Derr Pit

\$753,487

Derr Pit 4/21/2023

Reclamation Bond Quantities and Costs © 2023 JAT Consulting, Inc.

Phase 1

Reclamation Operation	Quantity	Unit	Unit Cost	Cost		
Active Mining Area						
Reclaimed Slope Grading and Backfill	30,000	су	\$2.00	\$60,000		
Scarifying Disturbed Area	3.5	ac	\$200	\$704		
Topsoil Placement Disturbed Area	3.5	ac	\$1,800	\$6,336		
Revegetate Disturbed Area	3.5	ac	\$1,000	\$3,520		
Slurry Wall Required to Close Phases 1-4 Construction Cost by Forgen -						
USE 20% because leak test passed (Construction Cost = \$2,002,183.32)	4,974	lf	LS	\$400,437		
Perimeter Drain	3,450	lf	\$20	\$69,000		
<u>Mobilization</u>	1.00	ls	\$2,500	\$2,500		
		Т	otal Direct Cost	\$542,497		
	Overhead	and Profit	t Cost (12.60%)	\$68,355		
·			Contract Cost	\$610,851		
	Proj	Project Management (9.25%)				
Financial Warranty Required For Phase 1				\$667,355		

Phase 2 (6.81 acres)

Reclamation Operation	Quantity	Unit	Unit Cost	Cost	
Active Mining Area					
Reclaimed Slope Grading and Backfill	70,000	су	\$2.00	\$140,000	
Scarifying Disturbed Area	3.5	ac	\$200	\$704	
Topsoil Placement Disturbed Area	3.5	ac	\$1,800	\$6,336	
Revegetate Disturbed Area	3.5	ac	\$1,000	\$3,520	
<u>Mobilization</u>	1.00	ls	\$2,500	\$2,500	
		To	otal Direct Cost	\$153,060	
	Overhead and Profit Cost (12.60%)				
	Contract Cost				
	Proj	ect Manag	ement (9.25%)	\$15,942	
Additional Financial Warranty Required For Phase 2				\$188,288	
Cummulative Financial Warranty Required For Phases 1-2				\$855,643	

Phase 3 (8.21 acres)

Reclamation Operation	Quantity	Unit	Unit Cost	Cost	
Active Mining Area					
Scarifying Disturbed Area	3.5	ac	\$200	\$704	
Topsoil Placement Disturbed Area	3.5	ac	\$1,800	\$6,336	
Revegetate Disturbed Area	3.5	ac	\$1,000	\$3,520	
<u>Mobilization</u>	1.00	ls	\$2,500	\$2,500	
		To	otal Direct Cost	\$13,060	
	Overhead and Profit Cost (12.60%)				
			Contract Cost	\$14,706	
	Project Management (9.25%)				
Additional Financial Warranty Required For Phase 3				\$16,066	
Cummulative Financial Warranty Required For Phases 1-3				\$871,708	

Phase 4 (9.90 acres)

Reclamation Operation	Quantity	Unit	Unit Cost	Cost
Active Mining Area				
Scarifying Disturbed Area	3.6	ac	\$200	\$720
Topsoil Placement Disturbed Area	3.6	ac	\$1,800	\$6,480
Revegetate Disturbed Area	3.6	ac	\$1,000	\$3,600
<u>Mobilization</u>	1.00	ls	\$2,500	\$2,500
		To	otal Direct Cost	\$13,300
	Overhead	\$1,676		
		\$14,976		
	Proj	\$1,385		
Additional Financial Warranty Required For Phase 4				\$16,361
Cummulative Financial Warranty Required For Phases 1-4				\$888,069



Derr Pit 4/21/2023

Reclamation Bond Quantities and Costs © 2023 **J&T Consulting, Inc.**

Phase 5a (74.01 acres)

Reclamation Operation	Quantity	Unit	Unit Cost	Cost	
Active Mining Area	-				
Reclaimed Slope Grading and Backfill	303,400	су	\$2.00	\$606,800	
Scarifying Disturbed Area	74.01	ac	\$200	\$14,802	
Topsoil Placement Disturbed Area	74.01	ac	\$1,800	\$133,218	
Revegetate Disturbed Area	74.01	ac	\$1,000	\$74,010	
<u>Mobilization</u>	1.00	ls	\$2,500	\$2,500	
		To	tal Direct Cost	\$831,330	
	Overhead and Profit Cost (12.60%)				
		\$936,078			
	Proj	\$86,587			
Additional Financial Warranty Required For Phase 5a				\$1,022,665	
Cummulative Financial Warranty Required For Phases 1-4 and 5a	•		•	\$1,910,734	

Phase 5

Reclamation Operation	Quantity	Unit	Unit Cost	Cost
Active Mining Area				
Credit Scarifying Disturbed Area	(31.81)	ac	\$200	(\$6,362)
Credit Topsoil Placement Disturbed Area	(31.81)	ac	\$1,800	(\$57,258)
Credit Revegetate Disturbed Area	(31.81)	ac	\$1,000	(\$31,810
Reclaimed Slope Grading and Backfill	1,289,100	су	\$2.00	\$2,578,200
Slurry Wall	6,620	Ιf	\$450	\$2,979,000
Perimeter Drain (if required)	5,430	If	\$20	\$108,600
Dewatering of Phase 5 Area	797.8	Mil. Gal.	\$200	\$159,560
<u>Mobilization</u>	1.00	Is	\$2,500	\$2,500
		Tot	al Direct Cost	\$5,827,860
	Overhead	\$734,310		
			Contract Cost	\$6,562,170
	Pro	\$607,001		
Additional Financial Warranty Required For Phase 5				\$7,169,171
Cummulative Financial Warranty Required For Phases 1-5				\$9,079,905

Cut/Fill Report

Generated: 2023-04-12 14:00:56

By user: Todd Yee

P:\07123 Derr Gravel Pit\Drawings\Plan Sheets\North IHCS Mining Layout\P:\07123

Drawing: Derr Gravel Pit\Drawings\Plan Sheets\North IHCS Mining Layout\JT-IHC North

Mining.dwg

Volume	Volume Summary										
Name	Type	Cut Factor	Fill Factor	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)				
VOL- Mining- North- Rec- North	full	1.000	1.000	3179024.08	5.68	1592596.56	1592590.88 <fill></fill>				
VOL- Mining- North- Rec- North- Bench to Floor	bounded	1.000	1.000	2035616.69	0.13	1289194.41	1289194.28 <fill></fill>				

Totals				
	2d Area (Sq. Ft.)	Cut (Cu. Yd.)	Fill (Cu. Yd.)	Net (Cu. Yd.)
Total	5214640.77	5.81	2881790.97	2881785.16 <fill></fill>

^{*} Value adjusted by cut or fill factor other than 1.0

Total Reclaimed Bank Volume = 1,592,596 cyd

Reclaimed Bank Volume Above Slurry Bench = 303,402 cyd

Reclaimed Bank Volume Below Slurry Bench = 1,289,194 cyd

	, ÁQ;ç^•(d ^}•dÊÄŠŠÔÁ	PROJECT:	Derr Pit		APPLICATION NO:	200012A-9	Distribution to:	
OWNER: Ì∉FÂ, ớg Âù dễ Â Õ¦^^ ^Ê ÎÔU,	^ŒÂÛ¢ÁFH€Á ÂÍÐÍHF				PERIOD TO: PROJECT NOS.:	2/28//2022	OWNER ARCHITECT	
FROM CONTRACTOR: Forgen 6558 Lonetree Blvd. 95765 ROCKLIN CA		VIA ARCHIT	FECT:		CONTRACT DATE:		□ CONTRACTO □ □	
CONTRACT FOR: Derr F	Pit							
PAYMENT Application is made for pay	OR'S APPLICAT yment, as shown below, in conner ocument G703, is attached.			mation and belief the	tractor certifies that to the b Work covered by this Applic e Contract Documents, that or which previous Certificate	cation for Payment all amounts have b	has been completed been paid by the	
1. ORIGINAL CONTRACT	r sum		2,099,443.11	ments received from	the Owner, and that current	payment shown he	erein is now due.	
2. Net change by Change	e Orders		0.00	CONTRACTOR:	Forgen			
3. CONTRACT SUM TO D	DATE		2,099,443.11	Ву:			Date:	
4. TOTAL COMPLETED 8	S STORED TO DATE		2,002,183.32	State of: County of: Subscribed and swor	n to before			
5. RETAINAGE:				me this	da	ay of		
a. 0% of Completed Wo				Notary Public: My Commission expi	res:			
b. 0% of Stored Materia	al			ARCHITEC [*]	T'S CERTIFICA	TE FOR P	AYMENT	
Total Retainage 6. TOTAL EARNED LESS	S RETAINAGE		2,002,183.32	comprising this applic	e Contract Documents, bas cation, the Architect certifies	to the Owner that	to the best of the	
7. LESS PREVIOUS CER	TIFICATES FOR PAYMENT		1,947,900.10	quality of the Work is	e, information and belief the in accordance with the Con	ntract Documents, a		
8. CURRENT PAYMENT	DUE		54,283.22		t of the AMOUNT CERTIFIE	ED.	54,283.22	
9. BALANCE TO FINISH, CHANGE ORDER	SUMMARY ADDIT	TIONS DEDUC	97,259.79 CTIONS	(Attach explanation it all figures on this App	IOUNT CERTIFIED Fach explanation if amount certified differs from the amount application and on the Continuation Sheet that a			
Total changes approved by owner				conform to the amount	nt certified.)			
Total approved this mont				: -			Doto:	
NET CHANGES by Chan	TOTALS nge Order				negotiable. The AMOUNT		•	

prejudice to any rights of the Owner of Contractor under this Contract.

CONTINUATION SHEET

PAGE

2

AIA Document G703, APPLICATION AND CERTIFICATE FOR PAYMENT,

containing Contractor's signed Certification is attached.

In tabulations below, amounts are stated to the nearest dollar.

Use Column I on Contacts where variable retainage for line items may apply.

APPLICATION NO.: 200012-9
APPLICATION DATE: 3/17/2022

PERIOD TO: GEO EGG

ARCHITECT'S PROJECT NO.:

Α	В	С	D	E	F	G		Н	I	
ITEM		SCHEDULED	WORK COM	MPLETED	MATERIALS	TOTAL COMPLETED		BALANCE TO		
NO.	DESCRIPTION OF WORK	VALUE	FROM PREVIOUS APPLICATION	THIS PERIOD	PRESENTLY STORED	AND STORED TO DATE	%	FINISH	RETAINAGE	
1	Project Mobilization / Demobilization	230,000.00	230,000.00	0.00	0.00	230,000.00	100	0.00	0.00	
2	Slurry Wall Mix Design	5,700.00	5,700.00	0.00	0.00	5,700.00	100	0.00	0.00	
3	SW Below Benched Platform (75ft Depth	1,640,065.92	1,635,065.02	24,139.50	0.00	1,659,204.52	101	-19,138.60	0.00	
4	Additional 1% of Dry Addition - Bentonite	130,892.11	0.00	0.00	0.00	0.00	0	130,892.11	0.00	
5	Treatment of Source-Water (As Needed)	43,735.08	43,735.08	243.72	0.00	43,978.80	101	-243.72	0.00	
6	Post Construction Services	34,800.00	19,150.00	15,650.00	0.00	34,800.00	100	0.00	0.00	
7	Cutoff Wall Reclamation Bond	14,250.00	14,250.00	14,250.00	0.00	28,500.00	200	-14,250.00	0.00	
		2,099,443.11	1,947,900.10	54,283.22	0.00	2,002,183.32		97,259.79	0.00	



February 9, 2022

J & T Consulting Inc. J.C. York, P.E. 305 Denver Avenue, Suite D Fort Lupton, Co 80621

Transmission via Email: jcyork@j-tconsulting.com

RE: SLURRY WALL LINER APPROVAL (PROVISIONAL)
DERR PIT RESERVOIR (WDID 0303513)
DERR PIT, DRMS M-2008-017 (WDID 0303035)
NE1/4 SECTION 4, T5N, R65W

WATER DIVISION 1, WATER DISTRICT 3, WELD COUNTY

Dear Mr. York:

The purpose of this letter is to provisionally approve the lining of the Derr Pit Reservoir. The Derr Pit Reservoir is primarily located in the NE1/4 of Section 4, Township 5 North, Range 65 West of the 6th P.M., and is part of the Derr Gravel Pit (DRMS M-2008-17). The Derr Pit Reservoir was lined with a soil bentonite slurry wall. The site is partially mined. The slurry wall liner leak test commenced on September 9, 2021 and concluded on December 31, 2021. A site inspection was performed by our office on October 26, 2021 to review site conditions and the leak test plan.

Your report dated January 21, 2022 provides the liner summary and leak test results. The test data provided indicates that the <u>liner meets the design standard</u> referenced in the August 1999 State Engineer Guidelines for Lining Criteria for Gravel Pits (1999 SEO Guidelines). Meeting the design standard requires that during reservoir operations all water inflows and outflows for the liner perimeter enclosed area be accounted for on a <u>monthly</u> basis.

This liner approval is applicable only during mining operations at the site and does not classify the structure as a reservoir capable of water storage. However, for the remainder of mining operations, water within the liner boundary is now classified as trapped native ground water. The trapped native ground water may be removed from within the lined area and returned to the stream system through surface flow or ground water recharge without the need for replacement so long as the operator does not put the water to beneficial use. All native trapped ground water remaining that is put to beneficial use (except for the water removed in product) must be replaced by the operator. All inflow of water into the liner boundary from any source, including precipitation and ground water inflows shall be removed by the pit operator so as not to cause out-of-priority storage. In order for the liner to be approved for water storage the operator must perform a final leak test once mining is complete and the site is at final grade. The final leak test will be allowed to have a modified duration of 45 to 60 days as long as the liner continues to satisfactorily operate during mining operations.

Please contact me at 303-866-3581 x8246 if you have any questions.

Sincerely,

Ioana Comaniciu, P.E. Water Resource Engineer

Ec: Mark Simpson, District 3 Water Commissioner (<u>Mark.Simpson@state.co.us</u>)
Louis Flink, Diversion Records Coordinator (<u>Louis.Flink@state.co.us</u>)

WDID File (0303513 & 0303035)

