C/015/0009
Received 2/14/18
Task #5610

February 13, 2018

Permit Supervisor, Utah Coal Regulatory Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, UT 84114-5801

Re: Property Boundary and Legal Description Change, Fossil Rock Mine, Fossil Rock Resources, LLC, Canyon Fuel Company, LLC, Permit Number C/015/0009,
Dear Sirs:

Please find attached to this letter a copy of the amendment related to changing the property boundary line between the Fossil Rock and Cottonwood (PacifiCorp) mines.

By moving the land ownership boundary from the center of the Cottonweed Creek to the middle of the county road that is adjacent to the mine site a parcel of 2.86 acres (fee property) was acquired by the permittee. The permittee has chosen to move the permit boundary along the western edge of the road which increases the permit area 1.73 acres. The disturbance area and boundary will remain the same.

As part of this amendment the bond has been revised to include the construction of a splash apron, additional soil testing, and fertilizer at reclamation.

Clean copies of this amendment will contain correct pagination and an updated table of content if needed.

If you have questions or need additional information, please contact Bryant Bunnell at (435) 286-4490 or Vicky Miller at (435) 286-4481.

CANYON FUEL COMPANY, Fossil Rock Mine

Rick Parkins
General Manager

Encl.

cc: DOGM Correspondence File

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ■ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC

Mine: Fossil Rock Mine, Fossil Rock Resources, LLC. **Permit Number:** C/015/0009

Title: Legal Description and Boundary Change Amendment

Description, Include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☒ Yes ☐ No 1. Change in the size of the Permit Area? Acres: 1.73 Disturbed Area: 0 ■ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☒ Yes ☐ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☒ Yes ☐ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☒ Yes ☐ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☒ Yes ☐ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes ☒ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes ☒ No 15. Does the application require or include soil removal, storage or placement?
☐ Yes ☒ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes ☒ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☒ Yes ☐ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☒ Yes ☐ No 21. Have reclamation costs for bonding been provided?
☒ Yes ☐ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach one (1) review copy of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

John D. Byars
Print Name

Gen mgr. 2-13-18
Sign Name, Position, Date

Subscribed and sworn to before me this 13 day of February, 20 18

Notary Public

My commission Expires: _____, 20____}
Attest: State of _____} ss:
County of _____

JACQUELYN NEBEKER
Notary Public
State of Utah
My Commission Expires 03/24/2019
COMMISSION NUMBER 681827

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Canyon Fuel Company, LLC
Mine: Fossil Rock Mine, Fossil Rock Resources, LLC. **Permit Number:** C/015/0009
Title: Amendment to address changes in boundaries and other needed changes, Task#5494

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	■ Replace	☐ Remove	Chapter 2, Page 3
■ Add	☐ Replace	☐ Remove	Chapter 2, Appendix 2-1
☐ Add	■ Replace	☐ Remove	Chapter 3, Pages vii, viii, 12, 19, 62
☐ Add	■ Replace	☐ Remove	Chapter 3, Plates 3-1, 3-4, 3-5, 3-7
■ Add	☐ Replace	☐ Remove	Chapter 3, Plate 3-4A
☐ Add	■ Replace	☐ Remove	Chapter 3, Appendix 3-1
■ Add	☐ Replace	☐ Remove	Chapter 3, Appendix 3-11
☐ Add	■ Replace	☐ Remove	Chapter 7, Pages v, 44
■ Add	☐ Replace	☐ Remove	Chapter 7, Appendix 7-18
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	**Received by Oil, Gas & Mining**

CHAPTER 2

LEGAL AND FINANCIAL

FOSSIL ROCK MINE
LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

This application for a mining and/or reclamation permit is submitted to the State of Utah, Department of Natural Resources, Division of Oil, Gas and Mining, in accordance with the Utah Coal Mining and Reclamation Act, Title 40, Chapter 10, U.C.A., 1953 (as amended); the applicable rules and regulations adopted thereunder; the Surface Mining Control & Reclamation Act of 1977, and applicable regulations adopted thereunder (30 CFR 770, et seq.), the Cooperative Agreement between the State of Utah and the United States Secretary of Interior, and other applicable laws and regulations.

R645-301-100 GENERAL CONTENTS

Additional Legal and Financial Information pertaining to the Fossil Rock Mine is located in the Supplemental Volume entitled: GENERAL CHAPTER 1

Business Entity: Fossil Rock Resources, LLC is a Limited Liability Company organized under the laws of Delaware on August 29, 2014 and is owned 100% by Canyon Fuel Company, LLC. Canyon Fuel Company LLC a Limited Liability Company organized under the laws of Delaware in December 1996 which in turn is owned 100% by Bowie Resource Partners, LLC a Delaware Limited Liability Company. Refer to General Chapter 1 for addition organizational structure.

Applicant: Operations, Administration, Permit Revisions and Amendments
Fossil Rock Resources, LLC
225 North 5th Street, 9th Floor
Grand Junction, CO 81501
Telephone: (970)263-5130

Operator: Fossil Rock Resources, LLC (See information above)

Resident Agent: CSC Lawyers Incorporating Service Company
421 West Main
Frankfort, KY 40601
(800) 927-9800

Contact Person: Eugene E. DiClaudio
Canyon Fuel Company, LLC
225 North 5th Street, 9th Floor
Grand Junction, CO 81501
Telephone: (970) 263-5130

Person Who Will Pay Abandoned Mine Reclamation Fees:

Eugene E. DiClaudio
Canyon Fuel Company, LLC
225 North 5th Street, 9th Floor
Grand Junction, CO 81501
Telephone: (970) 263-5130

Employer ID#: 47-1742876

The legal description associated with the 2.86 acres acquired by the permittee can be found in Exhibit A of the Special Warranty Deed document (See Appendix 2-1).

APPENDIX 2-1

Ent 412586 Page 1 of 3
Date: 16-Jun-2016 01:26PM
Fee: $14.00
Filed By: CJ
Connie Jensen, Recorder
EMERY COUNTY CORPORATION
For: FIRST AMERICAN TITLE INSURANCE

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

Stoel Rives, LLP
Attn: Richard R. Hall
201 S. Main St., Suite 1100
Salt Lake City, Utah 84111

(Space Above For Recorder's Use)

SPECIAL WARRANTY DEED

Tax Parcel No. L3-0011-0003
Trail Mountain Mine Sliver Parcel

PACIFICORP, an Oregon corporation, having a mailing address of 1407 West North Temple, Suite 310, Salt Lake City, Utah 84116, as "***Grantor***", hereby conveys and warrants, against all those claiming by, through or under Grantor, but not otherwise, to FOSSIL ROCK RESOURCES, LLC, a Delaware limited liability company, having a mailing address of 6100 Dutchmans Lane, 9th Floor, Louisville, Kentucky 40205, as "***Grantee***," for the sum of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable consideration, that certain parcel of real property located in Emery County, State of Utah, together with any and all interests, rights and appurtenances thereto, as well as any and all improvements thereon (if any), as more particularly described in Exhibit A attached hereto (described hereinafter as the "***Real Property***").

Subject to: (i) any state of facts that an accurate and complete ALTA/ACSM Land Title Survey might disclose, (ii) all zoning regulations, restrictions, rules and ordinances, land use regulations, building restrictions, and other laws and regulations now in effect or hereafter adopted by any governmental authority having jurisdiction, and (iii) reservations, easements, rights-of-way, declarations, covenants, conditions, restrictions, encroachments, liens, and encumbrances and all other matters of record or enforceable at law or in equity.

IN WITNESS WHEREOF, the said Grantor has executed this Special Warranty Deed as of this 24 day of May, 2016.

PACIFICORP,
an Oregon corporation

Cindy A. Crane
President/CEO - PacifiCorp dba Rocky Mountain Power

STATE OF UTAH)
:ss
COUNTY OF SALT LAKE)

The forgoing instrument was acknowledged before me this 24 day of May, 2016, by Cindy A. Crane, the President/CEO of the PacifiCorp dba Rocky Mountain Power, an Oregon corporation.

Witness my hand and official seal.

Notary Public
SALLY HILL
Commission #659027
My Commission Expires
September 17, 2016
State of Utah

Sally Hill
Notary Public

My Commission expires: 9-17-2016

Residing at: Salt Lake City, UT

Exhibit A

Parcel East of Cottonwood Creek and West of Cottonwood Canyon Road

Legal Description:

That certain parcel of land located in Emery County, State of Utah, as more particularly described as follows:

Beginning at a point which is West, 116 Rods, more or less from the Northeast corner of the Southeast quarter of the Northeast quarter of Section 25, Township 17 South, Range 6 East, SLB&M (S 89°46'01" W, 1898.88 feet along 40 acre line by survey), said point being at the center of Cottonwood creek and running thence in a Southerly direction along center of said Creek to a point 84 Rods more or less, West of the Southeast corner of the Northeast quarter of the Southeast quarter of said Section 25 (S 89°20'20" W, 1482.82 feet along 40 acre line by survey); thence N 89°20'20" E, 68.64 feet to the centerline of Cottonwood Canyon Road; thence N 18°32'22" W, 211.65 feet along centerline of said road; thence N 18°00'23" W, 236.55 feet along centerline of said road; thence N 13°36'45" W, 219.23 feet along centerline of said road; thence N 10°17'37" W, 104.54 feet along centerline of said road; thence N 08°20'49" W, 350.40 feet along centerline of said road; thence N 10°33'11" W, 476.22 feet along centerline of said road; thence N 24°01'08" W, 163.55 feet along centerline of said road; thence N 20°01'04" W, 87.46 feet along centerline of said road; thence N 10°00'01" W, 150.85 feet along centerline of said road; thence N 02°27'38" W, 152.52 feet along centerline of said road; thence N 01°54'03" E, 211.25 feet along centerline of said road; thence N 00°12'51" W, 242.02 feet along centerline of said road; thence N 10°41'22" E, 106.12 feet along centerline of said road to the north line of the South half of the Northeast quarter of said Section 25; thence S 89°46'01" W, 48.79 feet along 40 acre line to the point of beginning.

Containing 2.86 acres more or less.

CHAPTER 3

ENGINEERING

LIST OF PLATES

Plate No.	Description
3-1	Surface Facilities
3-1A	Plot Plan, Gravel Road @ Mine Loadout
3-1B	Typical Road Cross Section @ Mine Loadout
3-2	Mining Plan
3-3	Areas of Coal Recovery
3-4	Lease Boundary and Site Location
3-4A	Permit Boundary
3-5	Post Mining Contour Maps (2) – Reclamation Phase I and Phase II
3-6	Existing and Post Mining Cross-Sections (2)
3-7	Contemporaneous Reclamation
3-8	Abandoned Equipment and Discharge Water Pipelines

LIST OF APPENDICES

Appendix No.	Description
3-1	Stability Analysis and Reclamation Bond
3-2	Multiple Seam Consideration
3-3	BLM Approval of Resource Recovery Protection Plan
3-3(L)	BLM Approval of Resource Recovery Protection Plan for New Lease
3-4	Operation Plan for Existing Structures
3-5	Cottonwood Canyon Road
3-6	Technical Data Information
3-7	Proposed New Ventilation Portal
3-8	Proposed New Coal Handling Facilities
3-9	Proposed New Bathhouse and Culinary Water
3-10	Facility Modifications and Additions
3-11	Municipality Correspondence

3.3 OPERATION PLAN

During the operational phase of Trail Mountain, the mine employed a maximum of approximately 300 people to conduct its underground mining activities. Underground mining consisted of longwall retreat mining and continuous miner development. Production ranged from 3,500,000 to 5,000,000 tons per year. Coal was conveyed to the surface at approximately 16" x 0" run of mine product. It was then conveyed through an overland tube conveyor (demolished in September 2014) to the Cottonwood Mine Portal on the opposite canyon side. It then traveled underground until it reached the Cottonwood Mine Facility, where it was crushed to a 6" x 0" run of mine product before shipment via triple trailers to the Hunter Power Plant. Coal could also be crushed to 6" x 0" run of mine product at the existing Mine facilities and shipped via double trailers.

3.3.1 Mining Plans

The approximate location of mining facilities and boundary information can be found on Plate 3-4 and 3-4A. The layout of the mine are shown on Plate 3-2. Historically, first and second mining occurred in the areas within the southern end of Trail Mountain. Those areas have been mined out and the leases have been relinquished backed to the federal agencies who manage the surface and subsurface resources.

3.3.1.1 Orientation and Multiple Seam Considerations

As shown on Plate 3-2, the original mains were driven north to south, with panels being driven off the mains in an east to west orientation. This mine layout was developed prior to the Act. Longwall section development was in an east to west orientation. Surface exploration drilling, along with geologic mapping, have been utilized to document the coal resources of the Trail Mountain area. (United States Department of the Interior. Memorandum Resource Recovery Report,

3.3.2.1 Protection of Oil and Gas Wells

Presently no oil or gas wells exist in the areas of underground mining activities. However, should any well be drilled, a barrier of 300 feet in diameter will be left unless a variance from MSHA is obtained to leave a smaller barrier.

3.3.2.2 Protection of Surface Structures and Streams

No surface structures or perennial stream beds will be undermined during the life of the mine.

3.3.2.3 Boundaries

Lease, permit, and adjacent area boundaries are designated in accordance with both State and Federal mining regulations. See Section 3.3.1 for more information.

3.3.2.4 Outcrop Protection

Outcrop protection is provided by leaving a minimum barrier of 200' between mine workings and the coal outcrop. One exception to the above is the eastern most entry of the 3-entry system driven north and northeast to the ventilation portal. The eastern entry is located within the 200' barrier for a distance of approximately 240' and at no time comes closer than 160' from the outcrop. The 3-entries were necessary to meet MSHA regulations and provide adequate ventilation. The location of this variance is in the side canyon approximately 1700' south of the forth portal, and is shown on Figure A-3-7-2, Appendix 3-7. Outcrop protection is further addressed in the geotechnical chapter of this permit.

Sections will also be removed, and the remaining disturbed area will be reseeded. Additional sediment controls, such as straw bales, silt fences, berms, etc., will be placed as needed to ensure protection for the stream during this final phase of reclamation (Phase II).

A perpetual discharge from the sealed Cottonwood mine portals is located on the east side of the mine site. This discharge flows under the county road via a culvert and connects to the bypass culvert. See Section 7.5.2 for more information regarding reclamation at this location.

3.5.4 Backfilling and Grading Plan

The surface of this area was originally disturbed in the 1940's by a previous owner. The surface is all privately owned. Since no major effort was made at that time to save or store any topsoil or other material, restoration to approximately original contour is highly impractical. However, it is the intent of the permittee is to restore the area to a topography acceptable to the Division and compatible with the post-mining land use, using such materials that are available at the site.

In general, the backfilling and regrading will proceed as follows:

a) After sealing of the portals and removal of all structures, a backhoe will be brought to the upper (portal road) terrace. The backhoe will begin by reaching down over the fill bank and retrieving as much material as can be reached. This material will be placed on the terrace.

b) A Cat will work with the backhoe where possible, taking the retrieved material and spreading and compacting it from the cut outward to reach a configuration as shown on Plate 3-5, Post-Mining Topography.

c) The mine yard will then be re-sloped to drain as shown. A rock-lined natural drainage will be restored in the main and side channels as previously described.

APPENDIX 3-1
RECLIMATION BOND

Direct Costs

Subtotal Demolition and Removal	$393,872.49	
Subtotal Demolition and Removal - WRDS	$10,885.16	
Subtotal Backfilling and Grading	$114,654.70	
Subtotal Backfilling and Grading - WRDS	$180,218.10	
Subtotal Revegetation	$91,033.80	
Subtotal Revegetation - WRDS	$131,262.69	
Direct Costs (2017 Dollars)	$921,926.94	

Indirect Costs

Mob/Demob	$92,193.00	10.0%
Contingency	$46,096.00	5.0%
Engineering Redesign	$23,048.00	2.5%
Main Office Expense	$62,691.00	6.8%
Project Management Fee	$23,048.00	2.5%
Subtotal Indirect Costs	$247,076.00	26.8%
Total Cost	$1,169,002.94	
Escalation factor for 2017		0
Number of years		5
Escalation Amount	$0.00	
Reclamation Cost Escalated (2021 Dollars)	$1,169,002.94	
Bond Amount (rounded to nearest $1,000) 2021 Dollars	$1,169,000.00	
Posted Bond August 2015	$1,154,152.00	
Difference Between Cost Estimate and Bond	-$14,848.00	
Percent Difference	-1.29%	

Rock Dust Tank and Fence Removal										
Description Rock Dust Tank	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						5				
	01 54 33 20 0300	Ecavator		1			8.0	hr	$ 140.38	$ 1,123.04
	Equipment Operator, Medium		Eqmd	1			8.0	hr	$ 81.00	$ 648.00
	Foreman Average, Outside		Foreman	1			8.0	hr	$ 82.25	$ 658.00
	Common Building Labor		CLAB	1			8.0	hr	$ 60.00	$ 480.00
Transportation Costs (Ref. 5)										
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			1.0	hr	$ 44.78	$ 44.78
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			1.0	hr	$ 15.12	$ 15.12
	Truck Driver, Heavy		Drhv	1			1.0	hr	$ 68.70	$ 68.70
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				5		ton		
					10			cy	$ 14.00	$ 140.00
Net Fence Removal (Ref. 4)	02 41 13.60 1600		CLAB	2			64.0	HR	$ 60.00	$ 7,680.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			2.0	hr	$ 12.00	$ 24.00
	01 54 33 40 6410	Toilet, portable chemical		1			2.0	hr	$ 1.76	$ 3.52
Total										$ 10,885.16

Reference Information
4 - Net Fence, 3500 linear feet. Demoliton prosuction rate is 430 lf/day
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 21)

Earthwork - Dozer/Track-Hoe Work

Reference Number	Station Location/Type Equipment	Source	Hourly Equipment Cost	Hourly Operating Cost	Operator's Hourly Wage Rate	Equipment Overhead	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
PHASE 1																	
9-61	924G EROPS - Loader	2H 2017 Rental Rate Blue Book	$ 38.00	$ 23.70	$ 81.00	$ 0.10	$ 148.87	1	$ 148.87	$/HR	54,500.0	CY	158.0	CY/HR	344.9	HR	$ 51,345.26
10-33	CAT 325CL Excavator	2H 2017 Rental Rate Blue Book	$ 120.00	$ 58.60	$ 81.00	$ 0.10	$ 277.46	1	$ 277.46	$/HR			(see note)		172.45	HR	$ 47,847.98
PHASE 2																	
9-61	924G EROPS - Loader	2H 2017 Rental Rate Blue Book	$ 38.00	$ 23.70	$ 81.00	$ 0.10	$ 148.87	1	$ 148.87	$/HR	6,233.0	CY	158.0	CY/HR	39.4	HR	$ 5,865.48
10-33	CAT 325CL Excavator	2H 2017 Rental Rate Blue Book	$ 120.00	$ 58.60	$ 81.00	$ 0.10	$ 277.46	1	$ 277.46	$/HR			(see note)		19.7	HR	$ 5,465.96
ACCESS ROAD																	
10-33	CAT 325CL Excavator	2H 2017 Rental Rate Blue Book	$ 120.00	$ 58.60	$ 81.00	$ 0.10	$ 277.46	1	$ 277.46	$/HR	1,435.0	LF	200.0	LF/Day	57.4	HR	$ 15,926.20
													(see note)				
	Sub-Totals																$ 126,450.88
Miscellaneous																	
PHASE 1																	
	Foreman Average, Outside						$ 71.20	1	$ 82.25	$/HR					344.9	HR	$ 28,368.00
01 54 3+A17:R173 40 7200	Pickup Truck - 3/4 ton 4x4						$ 12.00	1	$ 12.00	$/HR					344.9	HR	$ 4,139.00
PHASE 2																	
	Foreman Average, Outside						$ 71.20	1	$ 82.25	$/HR					39.4	HR	$ 3,241.00
01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4						$ 12.00	1	$ 12.00	$/HR					39.4	HR	$ 473.00
ACCESS ROAD																	
	Foreman Average, Outside						$ 71.20	1	$ 82.25	$/HR					57.4	HR	$ 4,721.00
01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4						$ 12.00	1	$ 12.00	$/HR					57.4	HR	$ 689.00
	Sub-Totals																$ 41,631.00
Riprap Channels																	
9-61	924G EROPS - Loader	2H 2017 Rental Rate Blue Book	$38.00	$23.70	$81.00	$0.10	$148.87	1	$148.87	$/HR	660.0	LF	50	LF/HR	13.2	HR	$1,965.08
10-33	CAT 325CL Excavator	2H 2017 Rental Rate Blue Book	$120.00	$58.60	$81.00	$0.10	$277.46	1	$277.46	$/HR					13.2	HR	$3,662.47
	Sub-Totals																$ 5,627.56
Miscellaneous																	
31 37 13.10 0100	Riprap & Rock Lining (Incl. O&P)	RS Means 2017	$ 11.93	$ 11.00	$ 12.40	$ 31.42	$ 66.75				660.0	LF	62.0	LF/HR	13.2	HR	$ 881.10
	Sub-Totals																$ 6,508.66
Earthwork Total																	$ 180,218.10

Notes: Track-hoe is utilized to support Dozer activities. Usage is dictated by 1/2 Dozer hours.

Fossil Rock Mine Revegetation

Pocking	Reference Number	Equipment Rental (hr) (Includes O & P)	Operator's Hourly Wage	Material Cost	Labor Hourly Cost	Unit	Number	Area (AC)	Quantity	Units	Production Rate	Units	Time	Units	Cost
Excavator, 2 CY	01 54 33 20 0300 (RSM 2017)	$140.38	$81.00												
								18.0		AC					
Volume									6120.0	CY	340	CY/AC			
		$140.38	$81.00				1				180	CY/HR	34.0	HR	$7,527
Soil Testing (2 per acre)	Inter-Mountain Labs &			$ 132.00		ea			36						$4,752
Subtotal															$12,279
Seeding/Planting															
Seed Mix - Grassland/Shrub	Stevenson Intermountain Seed			$ 730.06		$/AC	1	18	378.0	LBS					$ 13,141.08
Intermediate Total															$ 13,141.08
Add 25% Reseeding Cost															$ 3,285.27
Subtotal															$ 16,426.35
Mulching									18	AC					
Hay, Large Power Mulcher*****	32 91 13.16 0350	$ 7.00	$ 1.50	$ 57.00		msf			784.08	EA					$ 51,357.24
Flatbed Truck & Driver ****															
CLAB****															
Hydromulcher, 3000 gal*****	32 92 19.14 5000 $	$ 19.93	$ 13.09	$ 29.28		msf			784.08	EA					$ 48,848.18
Flatbed Truck & Driver ****															
Additional Fertilizer	$$			$ 3.00		msf			784	EA					$ 2,352.00
Wood Fiber Mulch****															
CLAB****															
Subtotal															$ 102,557.42
Total															$ 131,262.89

* Seed mix prices based on Stevenson Intermountain Seed Prices quoted in November 2017. See attached.
*** Included
***** 18 acres = 784080 sf RS Means Units M.S.F. or 1,000 sf (784080 /1000 =784.08)
Hay Quantity (4000 LBS/AC)
$ Water Soluble Fertilizer, included in hydro mulch solution
$$ Addition of Fertilizer to Fertilizer included with hydro mulch solution (per jeatchel DOGM 2018)
& Inter-Mountain Labs (Sheridan, Wyoming) Analytical Invoice 2017

Demolition Cost Summary		
Item #	Description	Cost
1	Substation, Powerline, & Poles	$ 4,459.38
2	Shop, Bathhouse	$ 21,587.22
3	Water Treatment Plant, Tanks, Fuel	$ 5,232.74
4	Sewer System	$ 4,653.24
5	Miscellaneous Concrete	$ 25,233.10
6	Concrete Pads	$ 32,925.74
7	Waste and Salt Bunkers	$ 3,461.68
8	Truck Loadout and Silo	$ 26,738.46
9	Chutes and Trusses	$ 24,227.92
10	Mine Fan	$ 33,373.98
11	Storage Shed	$ 3,965.40
12	ROM Transfer Building	$ 34,062.88
13	ROM Overland Conveyor	$ 24,523.54
14	Loading Dock and Tank Farm	$ 9,215.32
15	Coal Pile Retaining Wall	$ 4,231.44
16	Sediment Pond	$ 1,185.56
17	Replaced by Sheet 19	$ -
18	Culvert Removal	$ 34,296.84
19	Portal Framework and Liners	$ 53,223.26
20	Gunite/Shotcrete Removal	$ 4,766.74
21	Rock Dust Tank	$ 1,376.92
22	Fence Removal	$ 3,950.62
23	Asphalt Removal	$ 37,180.51
	Total	$ 393,872.49

01 - Substation, Powerline, & Poles										
Description Substation, Powerline, & Poles	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						15				
	01 54 33 20 0300	Excavator - 2.0 CY		1			4.0	hr	$ 140.38	$ 561.52
	01 54 33 20 0342	Bucket Thumb		1			4.0	hr	$ 21.75	$ 87.00
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	Foreman Average, Outside		Foreman	1			4.0	hr	$ 82.25	$ 329.00
	Common Building Labor		CLAB	2			4.0	hr	$ 60.00	$ 480.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			4.0	hr	$ 21.30	$ 85.20
Concrete Demolition Cost (Ref. 2,3)					98.8					
	01 54 33 20 0300	Excavator - 2.0 CY		1			2.0	hr	$ 140.38	$ 280.76
	01 54 33 20 0347	Hydraulic Hammer		1			2.0	hr	$ 47.03	$ 94.06
	Equipment Operator, Medium Equipment		Eqmd	1			2.0	hr	$ 81.00	$ 162.00
	Foreman Average, Outside		Foreman	1			2.0	hr	$ 82.25	$ 164.50
	Common Building Labor		CLAB	2			2.0	hr	$ 60.00	$ 240.00
	01 54 33 40 0700	Compressor - 600 CFM		1			2.0	hr	$ 61.00	$ 122.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			2.0	hr	$ 21.30	$ 42.60
Transportation Costs										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			4.0	hr	$ 80.33	$ 321.32
	Truck Driver, Heavy		Drhv	1			4.0	hr	$ 68.70	$ 274.80
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 tons = 8 CY				15		ton		
					10			cy	$ 14.00	$ 140.00
Demolished Concrete Handling (Ref. 6)					128.44					
	01 54 33 20 4810	Loader - 8 CY		1			2.0	hr	$ 245.88	$ 491.76
	Equipment Operator, Medium Equipment		Eqmd	1			2.0	hr	$ 81.00	$ 162.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			6.0	hr	$ 12.00	$ 72.00
	01 54 33 40 6410	Toilet, portable chemical		1			6.0	hr	$ 1.76	$ 10.56
Total										**$ 4,459.38**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 01)
(Concrete Ref - 01)

02 - Office, Shop, Bathhouse, Warehouse										
Description Shop, Bathhouse	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						30				
	01 54 33 20 0300	Excavator - 2.0 CY		1			16.0	hr	$ 140.38	$ 2,246.08
	01 54 33 20 0342	Bucket Thumb		1			16.0	hr	$ 21.75	$ 348.00
	Foreman Average, Outside		Foreman	1			16.0	hr	$ 82.25	$ 1,316.00
	Common Building Labor		CLAB	3			16.0	hr	$ 60.00	$ 2,880.00
	Equipment Operator, Medium Equipment		Eqmd	1			16.0	hr	$ 81.00	$ 1,296.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			16.0	hr	$ 21.30	$ 340.80
Concrete Demolition Cost					259					
	01 54 33 20 0300	Excavator - 2.0 CY		1			10.0	hr	$ 140.38	$ 1,403.80
	Foreman Average, Outside		Foreman	1			10.0	hr	$ 82.25	$ 822.50
	Common Building Labor		CLAB	2			10.0	hr	$ 60.00	$ 1,200.00
	Equipment Operator, Medium Equipment		Eqmd	1			10.0	hr	$ 81.00	$ 810.00
	01 54 33 20 0347	Hydraulic Hammer		1			10.0	hr	$ 47.03	$ 470.30
	01 54 33 20 0342	Bucket Thumb		1			10.0	hr	$ 21.75	$ 217.50
	Equipment Operator, Medium Equipment		Eqmd	1			10.0	hr	$ 81.00	$ 810.00
	01 54 33 40 0700	Compressor - 600 CFM		1			10.0	hr	$ 61.00	$ 610.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		4				ea	$ 4.10	$ 16.40
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			10.0	hr	$ 21.30	$ 213.00
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		2			16.0	hr	$ 80.33	$ 2,570.56
	Truck Driver, Heavy		Drhv	2			16.0	hr	$ 68.70	$ 2,198.40
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 200	12 tons = 8 CY				30		ton		
					20.0			cy	$ 14.00	$ 280.00
Demolished Concrete Handling (Ref. 3)					336.7					
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			16.0	hr	$ 12.00	$ 192.00
	01 54 33 40 6410	Toilet, portable chemical		1			16.0	hr	$ 1.76	$ 28.16
Total										**$ 21,587.22**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 02)
(Concrete Ref - 02)

03 - Water Treatment Plant, Water StorageTanks and Fuel Storage Facility										
Description Water Treatment Plant, Tanks, Fuel	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						10				
	01 54 33 20 0300	Aeriel Lift, 60 feet		1			4.0	hr	$ 140.38	$ 561.52
	01 54 33 60 2500	Crane - 25 ton		1			4.0	hr	$ 84.23	$ 336.92
	Equipment Operator, Crane or Shovel		Eqhv	1			4.0	hr	$ 84.25	$ 337.00
	01 54 33 20 0300	Excavator - 2.0 CY		1			4.0	hr	$ 140.38	$ 561.52
	01 54 33 20 0342	Bucket Thumb		1			4.0	hr	$ 21.75	$ 87.00
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	Foreman Average, Outside		Foreman	1			4.0	hr	$ 82.25	$ 329.00
	Common Building Labor		CLAB	2			4.0	hr	$ 60.00	$ 480.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			4.0	hr	$ 21.30	$ 85.20
Concrete Demolition Cost	(Refer to Sheet 05 - Concrete Pads)									
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			2.0	hr	$ 80.33	$ 160.66
	Truck Driver, Heavy		Drhv	2			2.0	hr	$ 68.70	$ 274.80
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			4.0	hr	$ 44.78	$ 179.12
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			4.0	hr	$ 15.12	$ 60.48
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 tons = 8 CY				10		ton		
					6.64			cy	$ 14.00	$ 92.96
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			4.0	hr	$ 12.00	$ 48.00
	01 54 33 40 6410	Toilet, portable chemical		1			4.0	hr	$ 1.76	$ 7.04
Total										$ 5,232.74

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 03)
(Concrete Ref - 05)

04 - Sewer Collection and Pumping System										
Description Sewer System	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						15				
	01 54 33 60 2500	Crane - 25 ton		1			4.0	hr	$ 84.23	$ 336.92
	Equipment Operator, Crane or Shovel		Eqhv	1			4.0	hr	$ 84.25	$ 337.00
	Foreman Average, Outside		Foreman	1			4.0	hr	$ 82.25	$ 329.00
	Common Building Labor		CLAB	2			4.0	hr	$ 60.00	$ 480.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			4.0	hr	$ 21.30	$ 85.20
Concrete Demolition Cost (Ref. 2, 3)					30.4					
	01 54 33 20 0300	Excavator - 2.0 CY		1			2.0	hr	$ 140.38	$ 280.76
	01 54 33 20 0347	Hydraulic Hammer		1			2.0	hr	$ 47.03	$ 94.06
	Equipment Operator, Medium Equipment		Eqmd	1			2.0	hr	$ 81.00	$ 162.00
	Foreman Average, Outside		Foreman	1			2.0	hr	$ 82.25	$ 164.50
	Common Building Labor		CLAB	2			2.0	hr	$ 60.00	$ 240.00
	01 54 33 40 0700	Compressor - 600 CFM		1			2.0	hr	$ 61.00	$ 122.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			2.0	hr	$ 21.30	$ 21.30
Transportation Costs (Ref. 5)				1						
	01 54 33 40 6500	Dump Truck - 3 axle, 12 CY		1			4.0	hr	$ 80.33	$ 321.32
	Truck Driver, Heavy		Drhv	1			4.0	hr	$ 68.70	$ 274.80
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 tons = 8 YD						ton		
Demolished Concrete Handling (Ref. 6)					39.52					
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			6.0	hr	$ 12.00	$ 72.00
	01 54 33 40 6410	Toilet, portable chemical		1			6.0	hr	$ 1.76	$ 10.56
Total										$ 4,653.24

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 04)
(Concrete Ref - 04)

05 - Miscellaneous Concrete										
Description Miscellaneous Concrete	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost										
Concrete Demolition Cost (Ref. 2,3)					596.3					
	01 54 33 20 0300	Excavator - 2.0 CY		1			40.0	hr	$ 140.38	$ 5,615.20
	01 54 33 20 0342	Bucket Thumb		1			40.0	hr	$ 21.75	$ 870.00
	Equipment Operator, Medium Equipment		Eqmd	1			40.0	hr	$ 81.00	$ 3,240.00
	Foreman Average, Outside		Foreman	1			40.0	hr	$ 82.25	$ 3,290.00
	Common Building Labor		CLAB	1			40.0	hr	$ 60.00	$ 2,400.00
	01 54 33 40 0700	Compressor - 600 CFM		1			40.0	hr	$ 61.00	$ 2,440.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			40.0	hr	$ 21.30	$ 852.00
Transportation Costs (Ref. 5)				1						
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			40.0	hr	$ 80.33	$ 3,213.20
	Truck Driver, Heavy		Drhv	1			40.0	hr	$ 68.70	$ 2,748.00
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200					0		ton		
Demolished Concrete Handling (Ref. 6)					775.19					
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			40.0	hr	$ 12.00	$ 480.00
	01 54 33 40 6410	Toilet, portable chemical		1			40.0	hr	$ 1.76	$ 70.40
Total										$ 25,233.10

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet

06 - Pumphouse, Tanks, and Concrete Pads										
Description Concrete Pads	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						55				
	01 54 33 40 0190	Aeriel Lift, 60 feet		1			40	hr	$ 60.71	$ 2,428.40
	01 54 33 60 2500	Crane - 25 ton		1			40	hr	$ 84.23	$ 3,369.20
	Equipment Operator, Crane or Shovel			1			40	hr	$ 84.25	$ 3,370.00
	01 54 33 20 0300	Excavator - 2.0 CY		1			4	hr	$ 140.38	$ 561.52
	01 54 33 20 0342	Bucket Thumb		1			4	hr	$ 21.75	$ 87.00
	Equipment Operator, Medium Equipment			1			4	hr	$ 81.00	$ 324.00
	Foreman Average, Outside			1			40	hr	$ 82.25	$ 3,290.00
	Common Building Labor	CLAB		3			40	hr	$ 60.00	$ 7,200.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			40	hr	$ 21.30	$ 852.00
Concrete Demolition Cost (Ref. 2,3)					151.3					
	01 54 33 20 0300	Excavator - 2.0 CY		1			8.0	hr	$ 140.38	$ 1,123.04
	01 54 33 20 0347	Hydraulic Hammer		1			8.0	hr	$ 47.03	$ 376.24
	Equipment Operator, Medium Equipment		Eqmd	1			8.0	hr	$ 81.00	$ 648.00
	Foreman Average, Outside		Foreman	1			8.0	hr	$ 82.25	$ 658.00
	Common Building Labor	CLAB	CLAB	2			8.0	hr	$ 60.00	$ 960.00
	01 54 33 40 0700	Compressor - 600 CFM		1			8.0	hr	$ 61.00	$ 488.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			8.0	hr	$ 21.30	$ 170.40
Transportation Costs (Ref. 5)				1						
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			6.0	hr	$ 80.33	$ 481.98
	Truck Driver, Heavy		Drhv	2			15.0	hr	$ 68.70	$ 2,061.00
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			24.0	hr	$ 44.78	$ 1,074.72
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			24.0	hr	$ 15.12	362.88
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				55		ton		
				36.67				cy	$ 14.00	$ 513.38
Demolished Concrete Handling (ref. 6)					196.69					
	01 54 33 20 4810	Loader - 8 CY		1			6.0	hr	$ 245.88	$ 1,475.28
	Equipment Operator, Medium Equipment		Eqmd	1			6.0	hr	$ 81.00	$ 486.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			40.0	hr	$ 12.00	$ 480.00
	01 54 33 40 6410	Toilet, portable chemical		1			40.0	hr	$ 1.76	$ 70.40
Total										**$ 32,925.74**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 06)
(Concrete Ref - 06)

07 - Non Coal Waste and Salt Bunkers										
Description Waste and Salt Bunkers	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						30				
	01 54 33 60 2500	Crane - 25 ton		1			2.0	hr	$ 84.23	$ 168.46
	Equipment Operator, Crane or Shovel		Eqhv	1			2.0	hr	$ 84.25	$ 168.50
	Foreman Average, Outside		Foreman	1			2.0	hr	$ 82.25	$ 164.50
	Common Building Labor		CLAB	2			2.0	hr	$ 60.00	$ 240.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			2.0	hr	$ 21.30	$ 42.60
Concrete Demolition Cost (Ref. 2,3)					16.7					
	01 54 33 20 0300	Excavator - 2.0 CY		1			2.0	hr	$ 140.38	$ 280.76
	01 54 33 20 0347	Hydraulic Hammer		1			2.0	hr	$ 47.03	$ 94.06
	Equipment Operator, Medium Equipment		Eqmd	1			2.0	hr	$ 81.00	$ 162.00
	Foreman Average, Outside		Foreman	1			2.0	hr	$ 82.25	$ 164.50
	Common Building Labor		CLAB	2			2.0	hr	$ 60.00	$ 240.00
	01 54 33 40 0700	Compressor - 600 CFM		1			2.0	hr	$ 61.00	$ 122.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			2.0	hr	$ 21.30	$ 42.60
Transportation Costs (Ref. 5)				1						$ -
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY					4.0	hr	$ 80.33	$ 321.32
	Truck Driver, Heavy		Drhv	1			4.0	hr	$ 68.70	$ 274.80
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				30		ton		
				20				cy	$ 14.00	$ 280.00
Demolished Concrete Handling (Ref. 6)					21.71					
	01 54 33 20 4810	Loader - 8 CY		1			2.0	hr	$ 245.88	$ 491.76
	Equipment Operator, Medium Equipment		Eqmd	1			2.0	hr	$ 81.00	$ 162.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			2.0	hr	$ 12.00	$ 24.00
	01 54 33 40 6410	Toilet, portable chemical		1			2.0	hr	$ 1.76	$ 3.52
Total										**$ 3,461.68**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 07)
(Concrete Ref - 07)

08 - Truck Loadout and Silo										
Description Truck Loadout and Silo	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						30				
	01 54 33 60 2500	Crane - 25 ton		1			40.0	hr	$ 84.23	$ 3,369.20
	Equipment Operator, Crane or Shovel		Eqhv	1			40.0	hr	$ 84.25	$ 3,370.00
	Foreman Average, Outside		Foreman	1			40.0	hr	$ 82.25	$ 3,290.00
	Common Building Labor		CLAB	3			40.0	hr	$ 60.00	$ 7,200.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		2			40.0	hr	$ 21.30	$ 1,704.00
Concrete Demolition Cost (Ref. 2,3)					22.8					
	01 54 33 20 0300	Excavator - 2.0 CY		1			4.0	hr	$ 140.38	$ 561.52
	01 54 33 20 0347	Hydraulic Hammer		1			4.0	hr	$ 47.03	$ 188.12
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	Foreman Average, Outside		Foreman	1			4.0	hr	$ 82.25	$ 329.00
	Common Building Labor		CLAB	2			4.0	hr	$ 60.00	$ 480.00
	01 54 33 40 0700	Compressor - 600 CFM		1			4.0	hr	$ 61.00	$ 244.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			4.0	hr	$ 21.30	$ 85.20
Transportation Costs (Ref. 5)										
	01 54 33 40 6500	Dump Truck - 3 axle, 12 CY		1			8.0	hr	$ 80.33	$ 642.64
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			8.0	hr	$ 44.78	$ 358.24
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			16.0	hr	$ 15.12	$ 241.92
	Truck Driver, Heavy		Drhv	2			16.0	hr	$ 68.70	$ 2,198.40
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				30		ton		
					20			cy	$ 14.00	$ 280.00
Demolished Concrete Handling (Ref. 6)					29.64					
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			40.0	hr	$ 12.00	$ 480.00
	01 54 33 40 6410	Toilet, portable chemical		1			40.0	hr	$ 1.76	$ 70.40
Total										**$ 26,738.46**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 08)
(Concrete Ref - 08)

09 - Chutes and Trusses from Crusher										
Description Chutes and Trusses	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						30				
	01 54 33 60 2500	Crane - 25 ton		1			40.0	hr	$ 84.23	$ 3,369.20
	Equipment Operator, Crane or Shovel		Eqhv	1			40.0	hr	$ 84.25	$ 3,370.00
	Foreman Average, Outside		Foreman	1			40.0	hr	$ 82.25	$ 3,290.00
	Common Building Labor		CLAB	3			40.0	hr	$ 60.00	$ 7,200.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		2			40.0	hr	$ 21.30	$ 1,704.00
Transportation Costs (Ref. 5)										
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			16.0	hr	$ 44.78	$ 716.48
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			16.0	hr	$ 15.12	$ 241.92
	Truck Driver, Heavy		Drhv	2			16.0	hr	$ 68.70	$ 2,198.40
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				30		ton		
					20			cy	$ 14.00	$ 280.00
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			40.0	hr	$ 12.00	$ 480.00
	01 54 33 40 6410	Toilet, portable chemical		1			40.0	hr	$ 1.76	$ 70.40
Total										**$ 24,227.92**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 09)

10 - Mine Fan										
Description Mine Fan	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						30				
	01 54 33 60 2500	Crane - 25 ton		1			40.0	hr	$ 84.23	$ 3,369.20
	Equipment Operator, Crane or Shovel		Eqhv	1			40.0	hr	$ 84.25	$ 3,370.00
	Foreman Average, Outside		Foreman	1			40.0	hr	$ 82.25	$ 3,290.00
	Common Building Labor		CLAB	3			40.0	hr	$ 60.00	$ 7,200.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		2			40.0	hr	$ 21.30	$ 1,704.00
Concrete Demolition Cost (Ref. 2,3)					158.7					
	01 54 33 20 0300	Excavator - 2.0 CY		1			16.0	hr	$ 140.38	$ 2,246.08
	01 54 33 20 0347	Hydraulic Hammer		1			16.0	hr	$ 47.03	$ 752.48
	Equipment Operator, Medium Equipment		Eqmd	1			16.0	hr	$ 81.00	$ 1,296.00
	Foreman Average, Outside		Foreman	1			16.0	hr	$ 82.25	$ 1,316.00
	Common Building Labor		CLAB	2			16.0	hr	$ 60.00	$ 1,920.00
	01 54 33 40 0700	Compressor - 600 CFM		1			16.0	hr	$ 61.00	$ 976.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			16.0	hr	$ 21.30	$ 340.80
Transportation Costs (Ref. 5)										
	01 54 33 40 6500	Dump Truck - 3 axle, 12 CY		1			8.0	hr	$ 80.33	$ 642.64
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			8.0	hr	$ 44.78	$ 358.24
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			16.0	hr	$ 15.12	$ 241.92
	Truck Driver, Heavy		Drhv	2			16.0	hr	$ 68.70	$ 2,198.40
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				30		ton		
					20			cy	$ 14.00	$ 280.00
Demolished Concrete Handling (Ref. 6)					206.31					
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			40.0	hr	$ 12.00	$ 480.00
	01 54 33 40 6410	Toilet, portable chemical		1			40.0	hr	$ 1.76	$ 70.40
Total										**$ 33,373.98**

Reference Information

2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
4 - Added 5% for larger size compressor.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 10)
(Concrete Ref - 10)

11 - Storage Shed										
Description Storage Shed	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						15				
	01 54 33 20 0300	Excavator - 2.0 CY		1			4.0	hr	$ 140.38	$ 561.52
	01 54 33 20 0342	Bucket Thumb		1			4.0	hr	$ 21.75	$ 87.00
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	Foreman Average, Outside		Foreman	1			4.0	hr	$ 82.25	$ 329.00
	Common Building Labor		CLAB	2			4.0	hr	$ 60.00	$ 480.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			4.0	hr	$ 21.30	$ 85.20
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			4.0	hr	$ 80.33	$ 321.32
	Truck Driver, Heavy	Truck Driver, Heavy	Drhv	1			4.0	hr	$ 68.70	$ 274.80
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				15		ton		
					10				$14.00	$ 140.00
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			4.0	hr	$ 12.00	$ 48.00
	01 54 33 40 6410	Toilet, portable chemical		1			4.0	hr	$ 1.76	$ 7.04
Total										**$ 3,965.40**

Reference Information

2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 11)

12 - ROM Transfer Building										
Description ROM Transfer Building	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						50				
	01 54 33 60 2200	Crane, 115 ton		1			40.0	hr	$ 228.30	$ 9,132.00
	Equipment Operator, Crane or Shovel		Eqhv	3			40.0	hr	$ 84.25	$ 10,110.00
	Foreman Average, Outside		Foreman	1			40.0	hr	$ 82.25	$ 3,290.00
	Common Building Labor		CLAB	1			40.0	hr	$ 60.00	$ 2,400.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		2			40.0	hr	$ 21.30	$ 1,704.00
Transportation Costs (Ref. 5)										
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			16.0	hr	$ 44.78	$ 716.48
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			16.0	hr	$ 15.12	$ 241.92
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			8.0	hr	$ 80.33	$ 642.64
	Truck Driver, Heavy		Drhv	2			16.0	hr	$ 68.70	$ 2,198.40
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				50		ton		
					33			cy	$ 14.00	$ 462.00
	01 54 33 20 4810	Loader - 8 CY		1			8.0	hr	$ 245.88	$ 1,967.04
	Equipment Operator, Medium Equipment		Eqmd	1			8.0	hr	$ 81.00	$ 648.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			40.0	hr	$ 12.00	$ 480.00
	01 54 33 40 6410	Toilet, portable chemical		1			40.0	hr	$ 1.76	$ 70.40
Total										**$ 34,062.88**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 12)

13 - ROM Overland Tube Conveyor										
Description ROM Overland Conveyor	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						30				
	01 54 33 60 2200	Crane, 115 ton		1			28.0	hr	$ 228.25	$ 6,391.00
	Equipment Operator, Crane or Shovel		Eqhv	1			28.0	hr	$ 84.25	$ 2,359.00
	Foreman Average, Outside		Foreman	1			28.0	hr	$ 82.25	$ 2,303.00
	Common Building Labor		CLAB	1			28.0	hr	$ 60.00	$ 1,680.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		2			28.0	hr	$ 21.30	$ 1,192.80
Concrete Demolition Cost (Ref. 2,3)					88.5					
	01 54 33 20 0300	Excavator - 2.0 CY		1			8.0	hr	$ 140.38	$ 1,123.04
	01 54 33 20 0347	Hydraulic Hammer		1			8.0	hr	$ 47.03	$ 376.24
	Equipment Operator, Medium Equipment		Eqmd	1			8.0	hr	$ 81.00	$ 648.00
	Foreman Average, Outside		Foreman	1			8.0	hr	$ 82.25	$ 658.00
	Common Building Labor		CLAB	2			8.0	hr	$ 60.00	$ 960.00
	01 54 33 40 0700	Compressor - 600 CFM		1			16.0	hr	$ 61.00	$ 976.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			16.0	hr	$ 21.30	$ 340.80
Transportation Costs (Ref. 5)										
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			8.0	hr	$ 44.78	$ 358.24
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			8.0	hr	$ 15.12	$ 120.96
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			8.0	hr	$ 80.33	$ 642.64
	Truck Driver, Heavy		Drhv	2			8.0	hr	$ 68.70	$ 1,099.20
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				30		ton		
					20			cy	$ 14.00	$ 280.00
Demolished Concrete Handling (Ref. 6)					115.05					
	01 54 33 20 4810	Loader - 8 CY		1			8.0	hr	$ 245.88	$ 1,967.04
	Equipment Operator, Medium Equipment		Eqmd	1			8.0	hr	$ 81.00	$ 648.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			28.0	hr	$ 12.00	$ 336.00
	01 54 33 40 6410	Toilet, portable chemical		1			28.0	hr	$ 1.76	$ 49.28
Total										**$ 24,523.54**

Reference Information

2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
4 - Added 5% for larger size compressor.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 13)
(Concrete Ref - 13)

14 - Loading Dock and Tank Farm										
Description Loading Dock and Tank Farm	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						5				
	01 54 33 20 0300	Excavator - 2.0 CY		1			2.0	hr	$ 140.38	$ 280.76
	01 54 33 20 0342	Bucket Thumb		1			2.0	hr	$ 21.75	$ 43.50
	Equipment Operator, Medium Equipment		Eqmd	1			2.0	hr	$ 81.00	$ 162.00
	Foreman Average, Outside		Foreman	1			2.0		$ 82.25	$ 164.50
	Common Building Labor		CLAB	1			2.0	hr	$ 60.00	$ 120.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			2.0	hr	$ 21.30	$ 42.60
Concrete Demolition Cost (Ref. 2,3)					49.3					
	01 54 33 20 0300	Excavator - 2.0 CY		1			8.0	hr	$ 140.38	$ 1,123.04
	01 54 33 20 0347	Hydraulic Hammer		1			8.0	hr	$ 47.03	$ 376.24
	Equipment Operator, Medium Equipment		Eqmd	1			8.0	hr	$ 81.00	$ 648.00
	Foreman Average, Outside		Foreman	1			8.0	hr	$ 82.25	$ 658.00
	Common Building Labor		CLAB	2			8.0	hr	$ 60.00	$ 960.00
	01 54 33 40 0700	Compressor - 600 CFM		1			8.0	hr	$ 61.00	$ 488.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			8.0	hr	$ 21.30	$ 170.40
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			8.0	hr	$ 80.33	$ 642.64
	Truck Driver, Heavy		Drhv	1			8.0	hr	$ 68.70	$ 549.60
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				5		ton		
					3.33				$ 14.00	$ 46.62
Demolished Concrete Handling (Ref. 6)					64.09					
	01 54 33 20 4810	Loader - 8 CY		1			8.0	hr	$ 245.88	$ 1,967.04
	Equipment Operator, Medium Equipment		Eqmd	1			8.0	hr	$ 81.00	$ 648.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			8.0	hr	$ 12.00	$ 96.00
	01 54 33 40 6410	Toilet, portable chemical		1			8.0	hr	$ 1.76	$ 14.08
Total										**$ 9,215.32**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 14)
(Concrete Ref - 14)

15 - Coal Pile Retaining Wall

Description Coal Pile Retaining Wall	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						5				
Concrete Demolition Cost (Ref. 2,3)					29.6					
	01 54 33 20 0300	Excavator - 2.0 CY		1			4.0	hr	$ 140.38	$ 561.52
	01 54 33 20 0347	Hydraulic Hammer		1			4.0	hr	$ 47.03	$ 188.12
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	Foreman Average, Outside		Foreman	1			4.0	hr	$ 82.25	$ 329.00
	Common Building Labor		CLAB	2			4.0	hr	$ 60.00	$ 480.00
	01 54 33 40 0700	Compressor - 600 CFM		1			4.0	hr	$ 61.00	$ 244.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			4.0	hr	$ 21.30	$ 85.20
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			4.0	hr	$ 80.33	$ 321.32
	Truck Driver, Heavy		Drhv	1			4.0	hr	$ 68.70	$ 274.80
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				5		ton		
				3.33				cy	$ 14.00	$ 46.62
Demolished Concrete Handling (Ref. 6)					38.48					
	01 54 33 20 4810	Loader - 8 CY		1			4.0	hr	$ 245.88	$ 983.52
	Equipment Operator, Medium Equipment		Eqmd	1			4.0	hr	$ 81.00	$ 324.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			4.0	hr	$ 12.00	$ 48.00
	01 54 33 40 6410	Toilet, portable chemical		1			4.0	hr	$ 1.76	$ 7.04
Total										$ 4,231.44

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 15)
(Concrete Ref - 15)

16 - Sediment Pond										
Description Sediment Pond	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						5				
	01 54 33 20 0300	Excavator - 2.0 CY		1			2.0	hr	$ 140.38	$ 280.76
	01 54 33 20 0342	Bucket Thumb		1			2.0	hr	$ 21.75	$ 43.50
	Equipment Operator, Medium Equipment		Eqmd	1			2.0	hr	$ 81.00	$ 162.00
	Foreman Average, Outside		Foreman	1			2.0	hr	$ 82.25	$ 164.50
	Common Building Labor		CLAB	1			2.0	hr	$ 60.00	$ 120.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			2.0	hr	$ 21.30	$ 42.60
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			2.0	hr	$ 80.33	$ 160.66
	Truck Driver, Heavy		Drhv	1			2.0	hr	$ 68.70	$ 137.40
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				5		ton		
					3.33			cy	$ 14.00	$ 46.62
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			2.0	hr	$ 12.00	$ 24.00
	01 54 33 40 6410	Toilet, portable chemical		1			2.0	hr	$ 1.76	$ 3.52
Total										**$ 1,185.56**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 16)

17 - Portal

Replaced with Demolition Sheet 19- Portal Liners and Earthwork Sheet Dozer/Track-Hoe Work

18 - Culvert Removal										
Description Culvert Removal	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						104.5				
	01 54 33 20 0300	Excavator - 2.0 CY		1			40.0	hr	$ 140.38	$ 5,615.20
	01 54 33 20 0342	Bucket Thumb		1			40.0	hr	$ 21.75	$ 870.00
	Equipment Operator, Medium Equipment		Eqmd	1			40.0	hr	$ 81.00	$ 3,240.00
	Foreman Average, Outside		Foreman	1			40.0	hr	$ 82.25	$ 3,290.00
	Common Building Labor		CLAB	2			40.0	hr	$ 60.00	$ 4,800.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			40.0	hr	$ 21.30	$ 852.00
Transportation Costs (Ref. 5)										
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			8.0	hr	$ 44.78	$ 358.24
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			8.0	hr	$ 15.12	$ 120.96
	Truck Driver, Heavy		Drhv	1			8.0	hr	$ 68.70	$ 549.60
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				104.5		ton		
					69.66			cy	$ 14.00	$ 975.24
	01 54 33 20 4810	Loader - 8 CY		1			40.0	hr	$ 245.88	$ 9,835.20
	Equipment Operator, Medium Equipment		Eqmd	1			40.0	hr	$ 81.00	$ 3,240.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			40.0	hr	$ 12.00	$ 480.00
	01 54 33 40 6410	Toilet, portable chemical		1			40.0	hr	$ 1.76	$ 70.40
Total										**$ 34,296.84**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 18)

19 - Portal Liners										
Description Portal Framework and Liners	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Concrete Demolition Cost (Ref. 2,3)	8 - Portals				82					
	01 54 33 20 0300	Excavator - 2.0 CY		1			48.0	hr	$ 140.38	$ 6,738.24
	01 54 33 20 0347	Hydraulic Hammer		1			48.0	hr	$ 47.03	$ 2,257.44
	Foreman Average, Outside		Foreman	1			48.0	hr	$ 82.25	$ 3,948.00
	Common Building Labor		CLAB	2			48.0	hr	$ 60.00	$ 5,760.00
	Equipment Operator, Medium Equipment		Eqmd	1			48.0	hr	$ 81.00	$ 3,888.00
	01 54 33 40 0700	Compressor - 600 CFM		1			48.0	hr	$ 61.00	$ 2,928.00
	01 54 33 40 0930	Air tools, breaker, pavement, 60 lb.		1				ea	$ 10.20	$ 10.20
	01 54 33 40 1100	Hose w/couplings 50 ft., 1" dia.		1				ea	$ 4.10	$ 4.10
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			48.0	hr	$ 21.30	$ 1,022.40
Miscellaneous										
Portals Sealing -Wall construction	04 27 10 30 0850	216 sf each x 8 portals		1728				sf	$ 15.05	$ 26,006.40
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			48.0	hr	$ 12.00	$ 576.00
	01 54 33 40 6410	Toilet, portable chemical		1			48.0	hr	$ 1.76	$ 84.48
Total										**$ 53,223.26**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Notes: Portal liner is based on (2) wing walls 8'x12'x8" either side portal opening and 1 header 2'x28'x12" across the top of the wing wall (3 portals),
Bond sheet adjusted in 2017 to include 5 additional portals for 8 total
For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet

20 - Gunite/Shotcrete Removal										
Description Gunite/Shotcrete Removal	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						5				
	01 54 33 20 0300	Excavator - 2.0 CY		1			8.0	hr	$ 140.38	$ 1,123.04
	01 54 33 20 0342	Bucket Thumb		1			8.0	hr	$ 21.75	$ 174.00
	Foreman Average, Outside		Foreman	1			8.0	hr	$ 81.00	$ 648.00
	Common Building Labor		CLAB	1			8.0	hr	$ 82.25	$ 658.00
	Equipment Operator, Medium Equipment		Eqhv	1			8.0	hr	$ 60.00	$ 480.00
	01 54 33 40 0190	Aeriel Lift, 60 feet		1			8.0	hr	$ 60.71	$ 485.68
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			8.0	hr	$ 21.30	$ 170.40
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			4.0	hr	$ 80.33	$ 321.32
	Truck Driver, Heavy		Drhv	2			4.0	hr	$ 68.70	$ 549.60
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				5		ton		
				3.33				cy	$ 14.00	$ 46.62
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			8.0	hr	$ 12.00	$ 96.00
	01 54 33 40 6410	Toilet, portable chemical		1			8.0	hr	$ 1.76	$ 14.08
Total										$ 4,766.74

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 20)

21 - Rock Dust Tank										
Description Rock Dust Tank	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						15				
	01 54 33 60 2200	Crane, 115 ton		1			2.0	hr	$ 228.30	$ 456.60
	Equipment Operator, Crane or Shovel		Eqhv	1			2.0	hr	$ 84.25	$ 168.50
	Foreman Average, Outside		Foreman	1			2.0	hr	$ 82.25	$ 164.50
	Common Building Labor		CLAB	1			2.0	hr	$ 60.00	$ 120.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			2.0	hr	$ 21.30	$ 42.60
Transportation Costs (Ref. 5)										
	01 54 33 40 7300	Tractor, 4x2, 220hp		1			2.0	hr	$ 44.78	$ 89.56
	01 54 33 40 6500	Trailer, platform, flush deck, 2 axle, 25 ton		1			2.0	hr	$ 15.12	$ 30.24
	Truck Driver, Heavy		Drhv	1			2.0	hr	$ 68.70	$ 137.40
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				15		ton		
					10			cy	$ 14.00	$ 140.00
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			2.0	hr	$ 12.00	$ 24.00
	01 54 33 40 6410	Toilet, portable chemical		1			2.0	hr	$ 1.76	$ 3.52
Total										**$ 1,376.92**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 21)

22 - Fence Removal										
Description Fence Removal	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Steel Demolition Cost						10				
	01 54 33 40 0470	Back-hoe 112hp		1			8.0	hr	$ 86.08	$ 688.64
	Equipment Operator, Medium Equipment		Eqmd	1			8.0	hr	$ 84.25	$ 674.00
	Foreman Average, Outside		Foreman	1			8.0	hr	$ 82.25	$ 658.00
	Common Building Labor		CLAB	2			8.0	hr	$ 60.00	$ 960.00
	01 54 33 40 6360	Torch, cutting, acetylene-oxygen 150' hose		1			8.0	hr	$ 21.30	$ 170.40
Transportation Costs (Ref. 5)										
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		1			4.0	hr	$ 80.33	$ 321.32
	Truck Driver, Heavy		Drhv	1			4.0	hr	$ 68.70	$ 274.80
Miscellaneous										
Disposal Fee - Metal	02 41 19 18 0200	12 ton = 8 CY				10		ton		
					6.67			cy	$ 14.00	$ 93.38
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			8.0	hr	$ 12.00	$ 96.00
	01 54 33 40 6410	Toilet, portable chemical		1			8.0	hr	$ 1.76	$ 14.08
Total										**$ 3,950.62**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of steel demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip.
6 - A swell factor of 1.3 is used for crushed concrete.

Note: For concrete volumes and steel weights, refer to Concrete and Steel Estimations sheet
(Steel Ref - 22)

23 - Asphalt Removal										
Description Asphalt Removal	Means Reference Number (2017 Heavy Construction Cost Data)	Equipment	Labor	Quantity (number)	Volume (cy)	Weight (tons)	Time (hr)	Unit	Cost	Total Cost
Transportation Costs (Ref. 5,6)					838.37					
	01 54 33 20 5300	Dump Truck - 3 axle, 12 CY		3			36.0	hr	$ 80.33	$ 8,675.64
	Truck Driver, Heavy		Drhv	3			36.0	hr	$ 68.70	$ 7,419.60
Miscellaneous										
	01 54 33 20 4810	Loader - 8 CY		1			36.0	hr	$ 245.88	$ 8,851.68
	Equipment Operator, Medium Equipment		Eqmd	1			36.0	hr	$ 81.00	$ 2,916.00
Disposal Fee - Asphalt (Ref. 7)	02 41 19.18 0400				644.9	1131.8		cy	$ 13.68	$ 8,822.23
	01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4		1			36.0	hr	$ 12.00	$ 432.00
	01 54 33 40 6410	Toilet, portable chemical		1			36.0	hr	$ 1.76	$ 63.36
Total										**$ 37,180.51**

Reference Information
2 - Concrete rubble disposed of as fill or permanently backfilled inside portals.
3 - Base on a concrete demolition production of 200 cubic yards per 8 hour shift. (Reference: http://www.indeco-breakers.com). Time increases depending on complexity of job.
5 - For haul of asphalt demolition material to Nielsen's landfill. Distance is approximately 16.0 miles one-way. Time estimate is 1.5 hours for one round trip. Transportation dictates all machinery and labor times.
6 - A swell factor of 1.3 is used for asphalt.
7 - Assume weight of crushed asphalt is approximately 3510 lbs/cy (Ref. US Federal Highway Administration, Publication Number: FHWA-RD-97-148). Original quantity is 644.9 cy.
Asphalt will be hauled to Nielson Construction landfill and permanently disposed (Ref. personal communication with Nielson Construction). This landfill is a class 1 landfill.

Earthwork Cost Summary	
Description	**Cost**
Earthwork	$ 95,958.88
Riprap	$ 18,695.82
Total	$ 114,654.70

Earthwork - Dozer/Track-Hoe Work

Reference Number	Station Location/Type Equipment	Source	Hourly Equipment Cost	Hourly Operating Cost	Operator's Hourly Wage Rate	Equipment Overhead	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dia.	Units	Cost
9-61	924G EROPS - Loader	2H 2017 Rental Rate Blue Book	$ 38.00	$ 23.70	$ 81.00	$ 0.10	$ 148.87	1	$ 148.87	$/HR	39,710.0	CY	158.0	CY/HR	251.3	HR	$ 37,411.03
10-33	CAT 325CL Excavator	2H 2017 Rental Rate Blue Book	$ 120.00	$ 58.60	$ 81.00	$ 0.10	$ 277.46	1	$ 277.46	$/HR			(see note)		125.65	HR	$ 34,862.85
9-61	924G EROPS - Loader	2H 2017 Rental Rate Blue Book	$ 38.00	$ 23.70	$ 81.00	$ 0.10	$ 148.87	1	$ 148.87	$/HR	256.0	CY	158.0	CY/HR	1.6	HR	$ 238.19
10-33	CAT 325CL Excavator	2H 2017 Rental Rate Blue Book	$ 120.00	$ 58.60	$ 81.00	$ 0.10	$ 277.46	1	$ 277.46	$/HR			(see note)		0.8	HR	$ 221.97
	Sub-Totals																$ 72,273.88
Miscellaneous																	
	Foreman Average, Outside						$ 71.20	1	$ 82.25	$/HR					251.3	HR	$ 20,669.00
01 54 33 40 7200	Pickup Truck - 3/4 ton 4x4						$ 12.00	1	$ 12.00	$/HR					251.3	HR	$ 3,016.00
	Total Earthwork																$ 95,958.88

Notes: Track-hoe is utilized to support Dozer activities. Usage is dictated by 1/2 Dozer hours.
Backfill Portals (12 X 18 X 4 feet) 32 cy each - 8 portals = 256 cy

Earthwork - RipRap Work																	
Reference Number	Station Location/Type Equipment	Source	Hourly Equipment Cost	Hourly O & P Cost	Operator's Hourly Wage Rate	Material	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
9-61	924G EROPS - Loader	2H 2017 Rental Rate Blue Book	$38.00	$23.70	$81.00	$0.10	$148.87	1	$148.87	$/HR	1,989.0	CY	50	LF/HR	39.78	HR	$4,611.25
10-33	CAT 325CL Excavator	2H 2017 Rental Rate Blue Book	$120.00	$58.60	$81.00	$0.10	$277.46	1	$277.46	$/HR					39.78	HR	$11,459.10
10-33	CAT 325CL Excavator (Splash Apron	2H 2017 Rental Rate Blue Book	$120.00	$58.60	$81.00	$0.10	$277.46	1	$277.46	$/HR					1	HR	$277.46
	Sub-Totals																$ 16,347.81
Miscellaneous																	
31 37 13.10 0100	Riprap & Rock Lining (Incl. O&P)	RS Means 2017	$ 11.93	$ 11.00	$ 12.40	$ 31.42	$ 66.75				1,989.0	CY	62.0	LFCY/HR	32.08	HR	$ 2,141.34
03 31 13.25 0140	Splash Apron (incl. O&P)	RS Means	$ 1.31	$ 1.75	$ 2.17	$ 3.66	$ 8.89				48.6	CF	135.0	CF/day	3	HR	$ 26.67
CLAB	Splash Apron	RS Means			$60.00										3	HR	$ 180.00
	Total Earthwork																$ 18,695.82

Notes:
Splash Apron 1.8 CY = 48.6 CF

Fossil Rock Mine Revegetation

Pocking	Reference Number	Equipment Rental (hr) (Includes O & P)	Operator's Hourly Wage	Material Cost	Labor Hourly Cost	Unit	Number	Area (AC)	Quantity	Units	Production Rate	Units	Time	Units	Cost
Excavator, 2 CY	01 54 33 20 0300 (RSM 2017)	$140.38	$81.00												
								10.4		AC					
Volume									3532.6	CY	340	CY/AC			
		$140.38	$81.00				1				180	CY/HR	19.6	HR	$4,345
Subtotal															**$4,345**
Seeding/Planting															
Seed Mix - Riparian	Stevenson Intermountain Seed			$ 479.18		$/AC	2	0.78	26.5	LBS					$ 747.52
Seed Mix - Grassland/Shrub	Stevenson Intermountain Seed			$ 730.06		$/AC	2	9.61	403.6	LBS					$ 14,031.75
Container plants**				$ 2.17					1006	Containers					$ 2,183.02
CLAB					$ 60.00		4				48	Cont/HR	20.96		$ 5,030.00
Intermediate Total															$ 21,992.29
Add 25% Reseeding Cost															$ 5,498.07
Subtotal															**$ 27,490.37**
Mulching									10.39	AC					
Hay, Large Power Mulcher*****	32 91 13.16 0350	$ 7.00	$ 1.50	$ 57.00		msf			452.58	EA					$ 29,643.99
Flatbed Truck & Driver ****															
CLAB****															
Hydromulcher, 3000 gal*****	32 92 19.14 5000 $	$ 19.93	$ 13.09	$ 29.28		msf			452.58	EA					$ 28,195.73
Flatbed Truck & Driver ****															
Additional Fertilizer	$$			$ 3.00		msf			453	EA					$ 1,359.00
Wood Fiber Mulch****															
CLAB****															
Subtotal															**$ 59,198.72**
Total															**$ 91,033.80**

* Seedmix prices based on Stevenson Intermountain Seed Prices quoted inNovember 2017. See attached.
** Seedling tree prices based on Lawyer and Montanta Conservation Nurserys Prices in November 2017. See attahed.
*** Included
***** 10.39 acres = 4,525,884 sf RS Means Units M.S.F. or 1,000 sf (4,525,884 /1000 = 452.58)
Hay Quantity (4000 LBS/AC)
$ Water Soluable Fertilizer, included in hydro mulch solution
$$ Addition of Fertilizer to Fertilizer included with hydro mulch solution (per jeatchel DOGM 2018)

APPENDIX 3-11
MUNICIPALITY CORRESPONDENCE

EMERY COUNTY

Road Department

February 4, 2015

PacifiCorp
15 North Main Street
P. O. Box 310
Huntington, Utah 84528
Dennis Oakley
Senior Mine Engineer

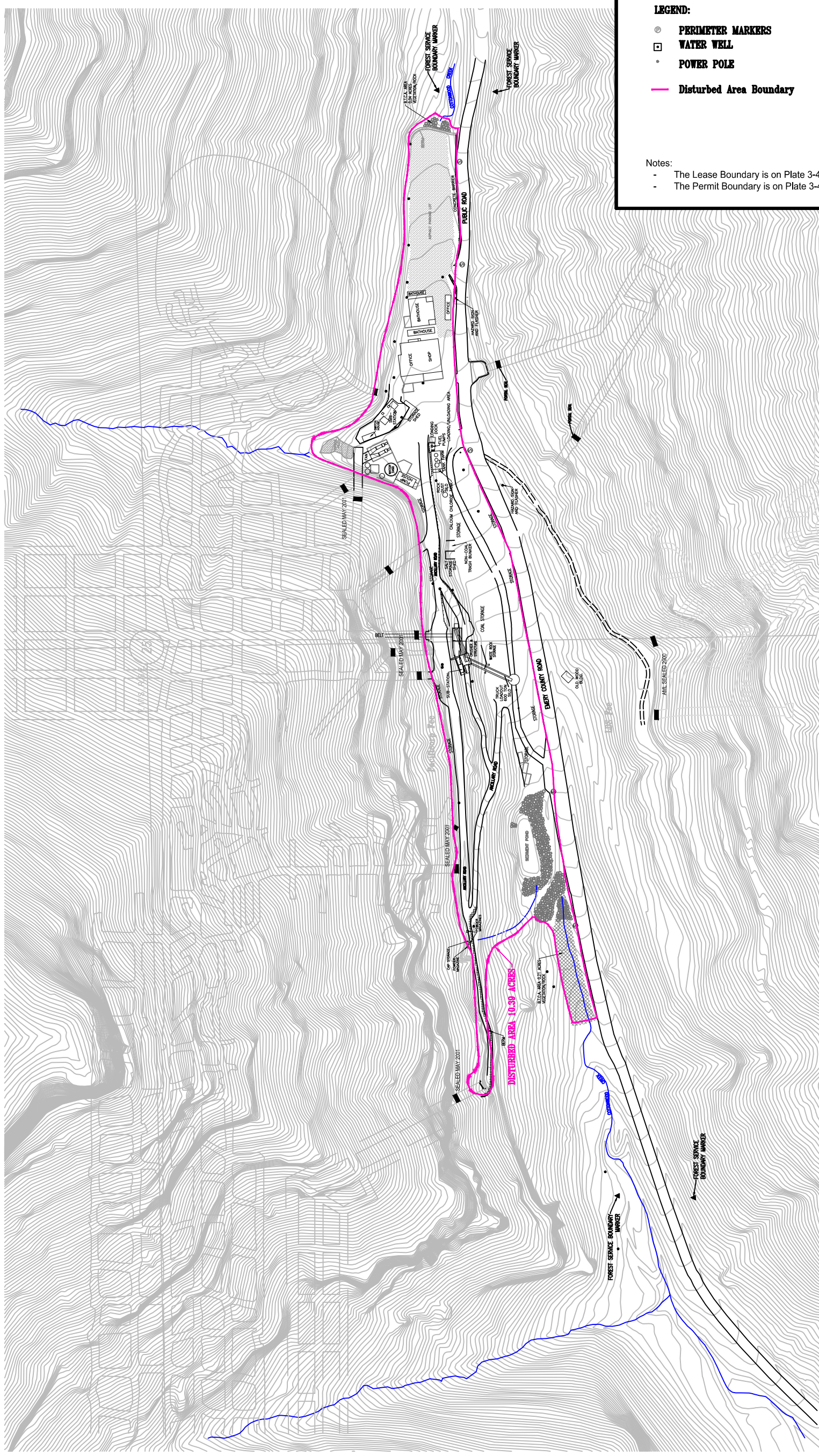
Mr. Oakley,

PacifiCorp has a water discharge line draining from the Cottonwood Mine/Trail Mt. access portal. Currently this line is buried under the bar ditch and draining into a drop box and culvert structure crossing county road #506. Emery County Road Department wishes to leave this in place as is to better facilitate maintenance. Leaving the line underground will keep ice from building up in the winter. Emery County will maintain this line as our own from now on.

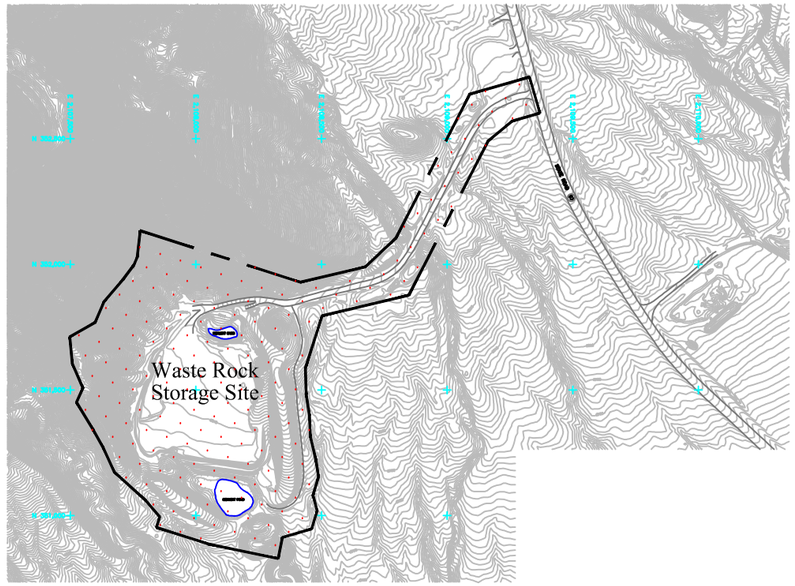
Sincerely,

Wayde S. Nielsen
Emery County Road Supervisor

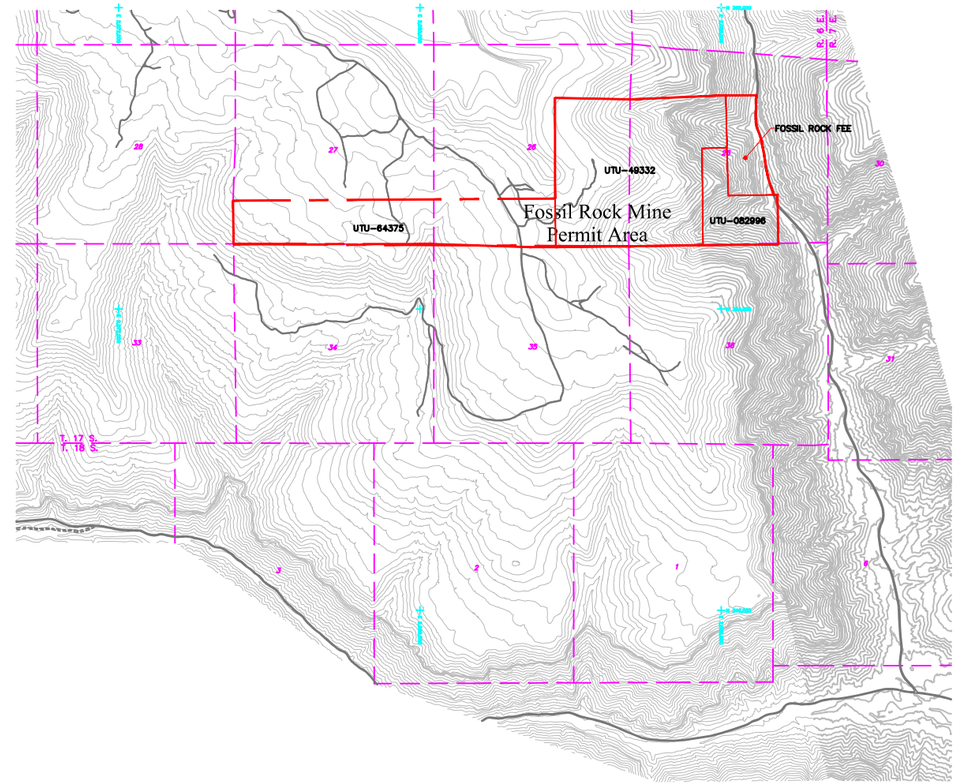
P.O. Box 889 300 West SR29 Castle Dale, Utah 84513 Telephone (435) 381-3510 FAX (435) 381-5239



REV. 6	Fossil Rock Resources, LLC Fossil Rock Mine 597 South SR 24 - Salina, UT 84654 (435) 286-4880 Phone (435) 286-4499 Fax	Surface Facilities			SHEET NO. Plate 3-1
		SCALE: 1" = 250'	DATE: 02/08/2018	DRAWN BY: BR	
		ENGINEER: JS	CHECKED BY: BB	PROJ: ####	
		FILE NAME: H:\DRAWINGS\Trail Mountain\Permit and Drawings August 2015\Permit Maps\PLATE 3-1.dwg			

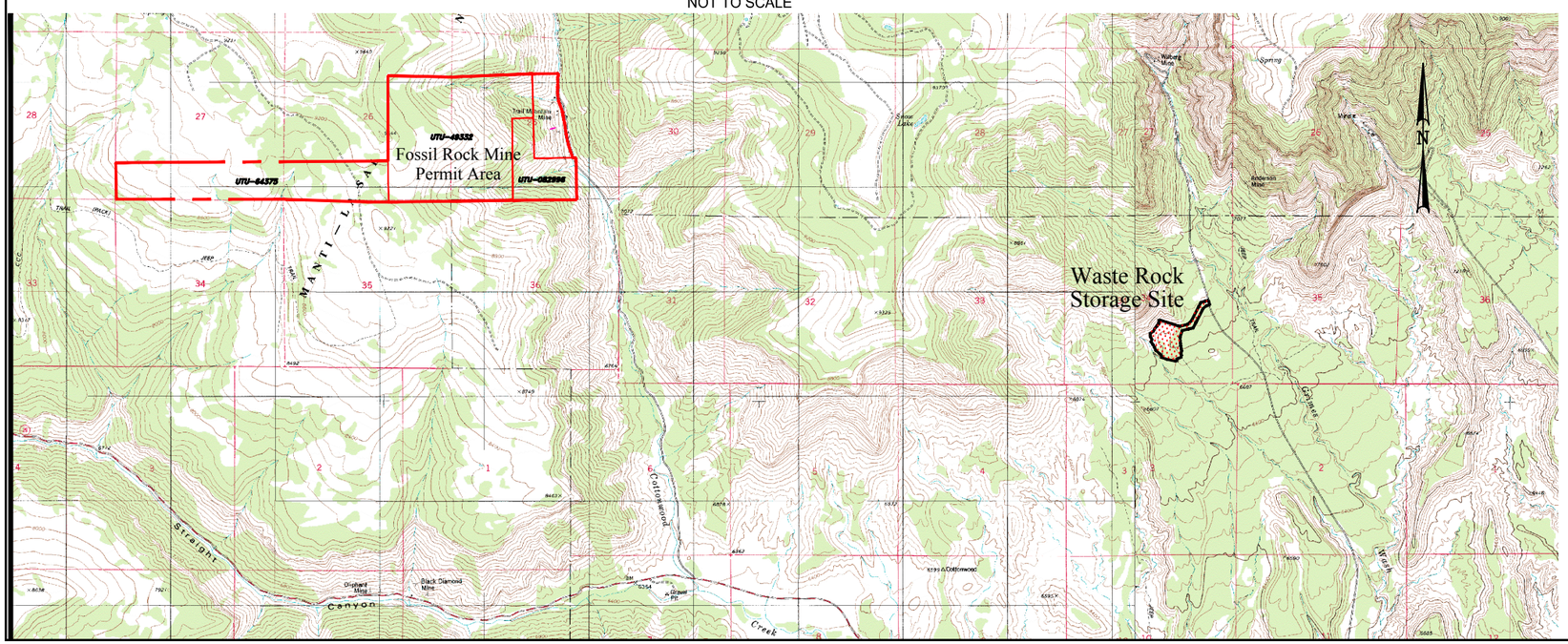


WASTE ROCK STORAGE SITE
1" = 300 '



FOSSIL ROCK MINE LEASE BOUNDARY
1" = 2000'

GENERAL LOCATION MAP
NOT TO SCALE



LEGEND

93-1088 FEDERAL COAL LEASE NUMBER

Mine Site Lease Boundary

Waste Rock Site
Permit Area Boundary

PROFESSIONAL ENGINEER
No. 9073261
JACOB D. SMITH
STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

REVISIONS

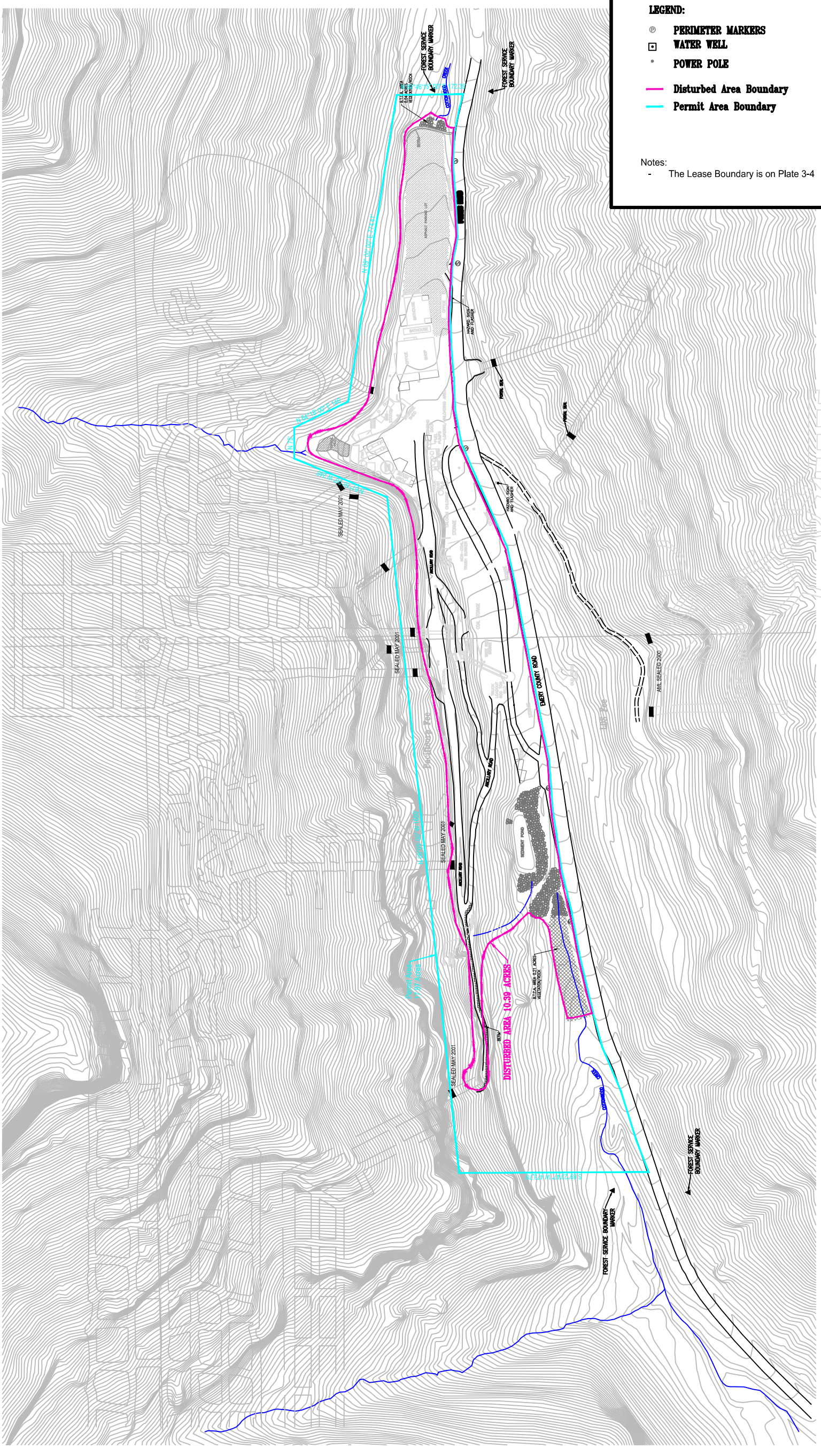
NO.	DATE	REQ. BY	DWG. BY	REMARKS
2	02/13/2018	B.B.	B.R.	Updated the Map Lease Boundary

FOSSIL ROCK RESOURCES, LLC
A SUBSIDIARY OF BOWIE RESOURCE PARTNERS, LLC

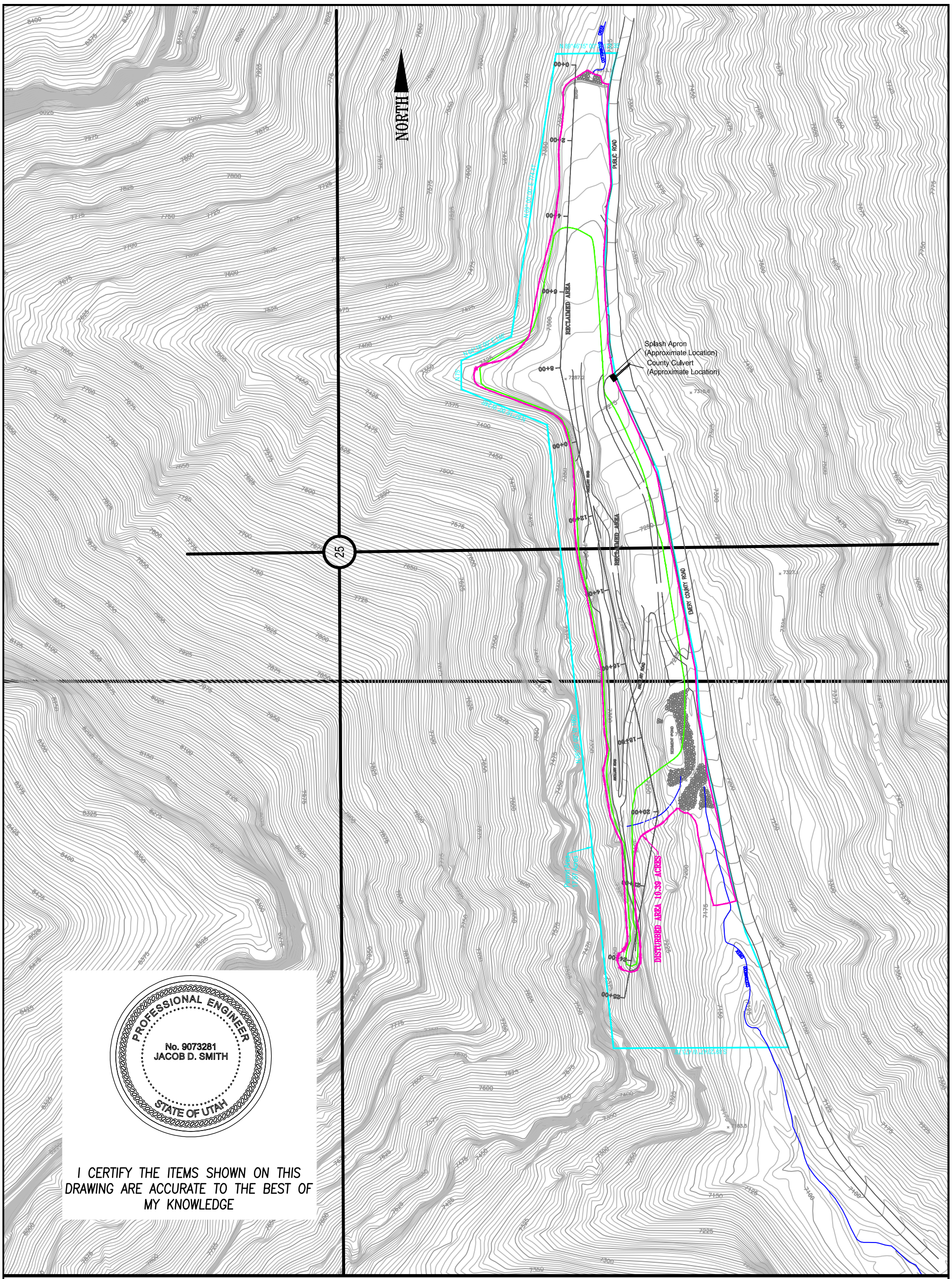
Lease Boundary & Site Location Map

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_1Stndrd-SUFENP1.ctb	VARIES	02/13/2018	BR	B.B.		Plate 3-4
SHT SET: . / PROJECT NUMBER: 0715-001						

FILE NAME: H:\DRAWINGS\Trail Mountain\Permit and Drawings August 2015\Permit Maps\Plate 3-4.dwg



REV. 1	Fossil Rock Resources, LLC Fossil Rock Mine 597 South SR 24 - Salina, UT 84654 (435) 286-4880 Phone (435) 286-4499 Fax	Mine Permit Area			SHEET NO.
		SCALE: 1" = 250'	DATE: 02/08/2018	DRAWN BY: BR	Plate 3-4A
		ENGINEER: JS	CHECKED BY: BB	PROJ: ####	
		FILE NAME: H:\DRAWINGS\Trail Mountain\Permit and Drawings August 2015\Permit Maps\			PLATE 3-4A.dwg

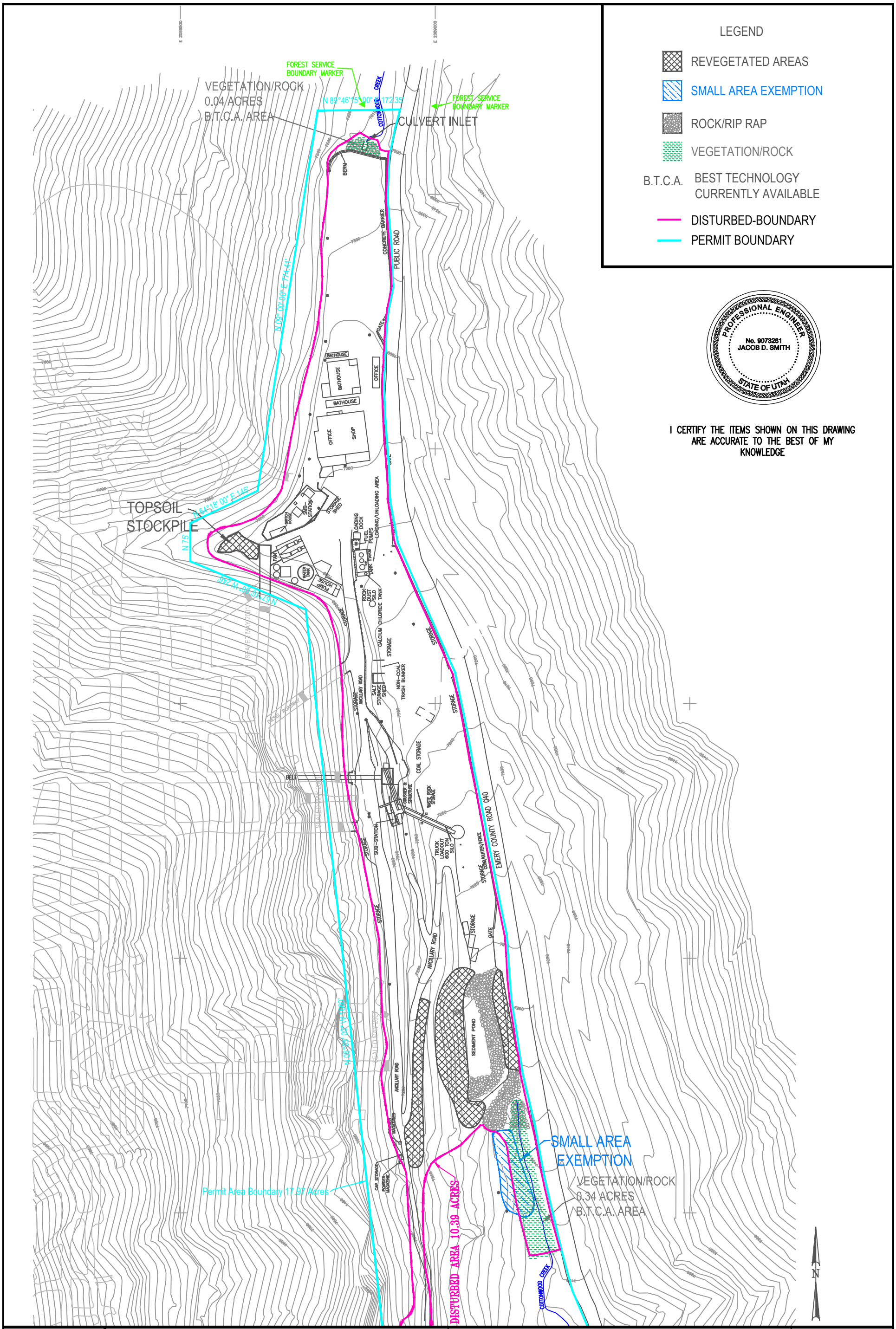


LEGEND:

- DISTURBED AREA PERIMETER
- RESTORED CHANNEL
- PRE 1977 DISTURBANCE
- 16+00 CROSS SECTION STATION
- PERMIT AREA

Fossil Rock Resources, LLC
Fossil Rock Mine
597 South SR 24 - Salina, UT 84654
(435) 286-4880 Phone
(435) 286-4499 Fax

Fossil Rock Mine			SHEET NO.
Post Mining Contour Map Reclamation Phase 1			**Plate 3-5**
SCALE: 1" = 250'	DATE: 11/06/2017	DRAWN BY: BR	
ENGINEER: JS	CHECKED BY: VM	PROJ:	
FILE NAME: H:\DRAWINGS\Trail Mountain\Permit and Drawings August 2015\Permit Maps\Plate 3-5.dwg			



REVISION NO.			SHEET NO.
1	*Fossil Rock Resources, LLC* *Fossil Rock Mine* *597 South SR 24 - Salina, UT 84654* *(435) 286-4880 Phone* *(435) 286-4499 Fax*	**Fossil Rock Mine** **Contemporaneous Reclamation**	**Plate 3-7**
		SCALE: 1" = 175' / DATE: 08/04/2016 / DRAWN BY: B.R.	
		ENGINEER: J.S. / CHECKED BY: V.M. / PROJ:	
		FILE NAME: H:\DRAWINGS\Trail Mountain\Permit and Drawings August 2015\Permit Maps\Plate 3-7.dwg	

CHAPTER 7
HYDROLOGY

LIST OF APPENDICES

Appendix No.	Description
7-1	Water Monitoring Program
7-2	Water Quality Monitoring Data
7-3	Hydrologic Conveyance Facilities
7-4	Rip-Rap Design
7-5	Mine Inflow Calculations
7-6	Exchange of Water Rights
7-7	Well Approval
7-8	Water Shares
7-9	Spring Inventories - 1981/1985
7-10	Probable Hydrologic Consequences
7-11	UPDES Permit
7-12	Macroinvertebrate Study
7-13	Agency Approvals for Culvert Extension
7-14	Trail Mountain TM-3 Monitoring Well
7-14(L)	Water Rights
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7-18	Splash Apron Diagram

7.5 RECLAMATION HYDROLOGY

7.5.1 General

Reclamation hydrology will take place in two phases. Phase I reclamation will consist of removal of all diversions and the majority of the culverts, restoration of the main and side canyon channels, and redirection of the reclaimed area runoff to the sediment pond. Phase II reclamation will consist of the removal of the sediment pond and all remaining culverts after revegetation standards have been reached.

It is proposed to use a 2-Phase reclamation program with a sediment pond remaining through Phase I because of the close proximity of the site to an intermittent stream and the resulting difficulty in controlling both runoff and sediment by other means. Another advantage to this approach is that by leaving some culverts in place, access is provided for required maintenance by equipment.

The following sections will describe each of the major hydrologic items involved in reclamation, along with details on design, operation and final disposition.

7.5.2 Cottonwood Canyon Channel

During Phase I of the reclamation, the 66-inch culvert that presently carries the main canyon drainage beneath the site will be removed. The 96-inch to 66-inch transition and trash rack will be relocated to a point just above the sediment pond, as shown on Plate 3-5. The stream channel will be reconstructed through the property, down to the new culvert inlet near the pond.

It is expected that the reconstructed channel will be on bedrock and, for that reason, it was proposed that only the channel sides be protected by riprap. Since the bottom conditions are unknown, the permittee commits to place an appropriately sized riprap and filter blanket on the channel side and bottom, unless the bottom is found to be on bedrock.

Riprap, filter blanket and flow designs and calculations are detailed in Appendices 7-3 and 7-4. Design criteria are summarized in Table 7-11 in this Chapter. See Plate 3-5 for structure locations. The reclaimed main channel slope is projected to be a consistent 6% as shown in Table 7-11 and on Plates 3-5 and 3-5A.

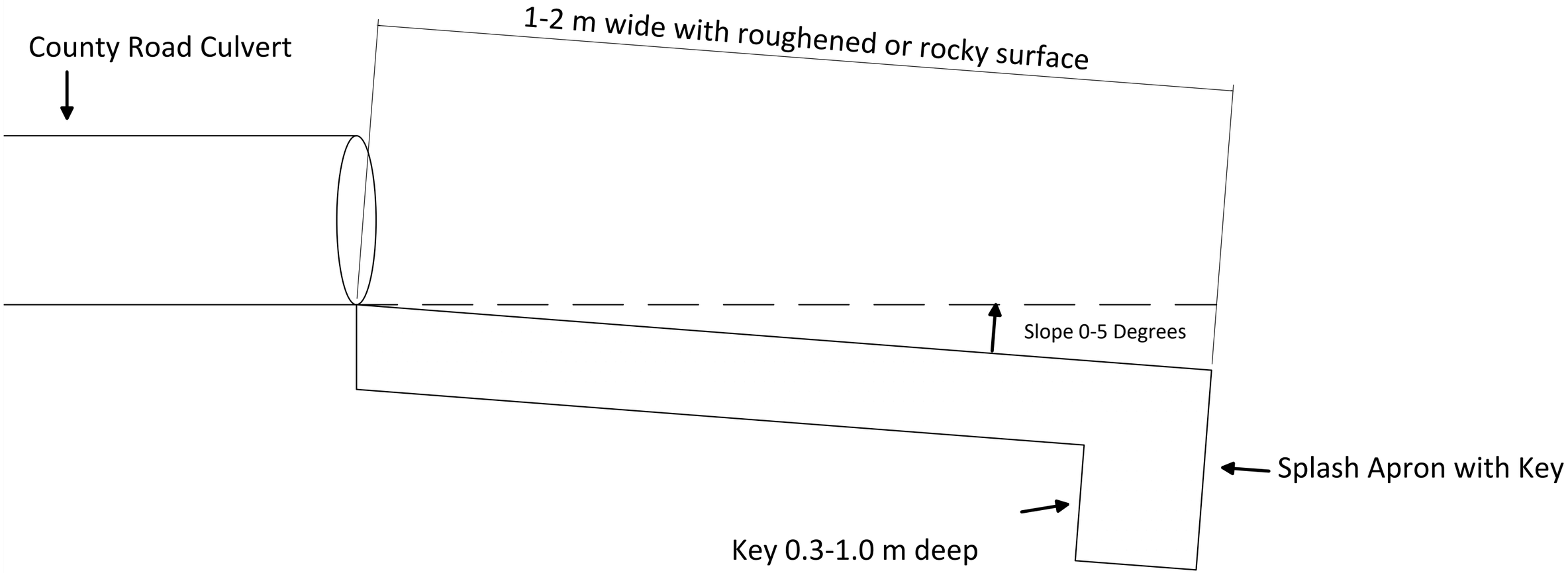
The reclaimed area runoff will be prevented from reaching the restored channel by installation of an earthen berm on the reclamation side of the channel. The berm will direct disturbed runoff to the sedimentation pond. A typical section of the restored channel (and berm) is shown on Figure 7-12.

When the revegetation standards have been met, the second phase of reclamation will begin. It will consist of removal of the sedimentation pond and all remaining culvert sections. The remaining channel area will be restored as in Phase I, and all newly disturbed areas will be reseeded. Additional sediment and/or erosion controls, such as strawbales, silt fence, berms, etc., will be installed if necessary to protect the restored channel and stream.

During reconstruction of the main channel, it is proposed to divert the Cottonwood Creek flow around the mine site. This will be accomplished by installation of a small, temporary dam in the channel with a pump diverting the flow into a flexible culvert (or other conveyance structure), which will discharge either back into the culvert below or into the channel below the pond.

A perpetual discharge from the sealed Cottonwood Mine portals (Owned by PacifiCorp as of February of 2018) is located on the east side of the mine site. This discharge flows under the county road via a culvert and connects to the Cottonwood Creek bypass culvert. Emery County accepts ownership and all accompanied maintenance of this culvert (See Appendix 3-11). At reclamation, the permittee will install an outfall structure (splash apron) that will receive the discharge from the culvert into the creek (See Appendix 7-18). The location of the splash apron can be found on Plate 3-5. Due to the lack of information regarding the exact location and orientation of the culvert, it is assumed that the culvert projects exactly perpendicular to the road and is exactly level with the effluent entry point. The design accounts for these assumptions. The permittee accepts no responsibility for the quality of the discharge water at this location. It is assumed that the UPDES permit holder of this discharge point (PacifiCorp) takes all responsibility for the quality of the discharge according to their permit.

APPENDIX 7-18
SPLASH APRON DIAGRAM



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Appendix 7-18

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Cottonwood Mine Discharge Water Catchment

Detail of Splash Apron with Scour Cutoff Key

SCALE:	DATE: 6/23/17	DRAWN BY: BB	ENGINEER: BB	CHECKED BY: JS
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SHEET NO.
Sheet 1