UtahAmerican Energy, Inc.

Lila Canyon Project
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Utah Division of Oil, Gas & Mining
Utah Coal Program
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, UT 84114-5801

July 28, 2016

Attn: Daron Haddock
Permit Supervisor

Re: Lila Canyon Mine
L16-003 Drainage Revisions Task ID# 5208

Dear Mr. Haddock,

Please find attached a Complete Re-Submittal of the surface drainage at the Lila Canyon Mine's surface facilities.

The Bureau of Land Management (BLM) has jurisdiction regarding the proposed work on the Emery County Road, in lieu of Emery County. UtahAmerican Energy submitted an application for a right-of-way encompassing the proposed road work, and in the area around the dam for Sediment Pond #1, on May 24, 2016. We have yet to receive approval. A copy of the right-of-way approval will be submitted to the Division upon its approval. UtahAmerican Energy recognizes that work cannot commence on the roadway until the right-of-way has been approved.

If you have any questions, or need any additional information regarding this submittal, please contact me directly at 435-888-4026.

Sincerely,

Karin Madsen
Engineering Tech
UtahAmerican Energy, Inc.

APPLICATION FOR PERMIT PROCESSING

Permit Change X	New Permit ☐	Renewal ☐	Transfer ☐	Exploration ☐	Bond Release ☐	Permit Number: ACT/007/013
Title of Proposal: L16-003 Drainage Revisions Task ID #5208						Mine: Lila Canyon
						Permittee: UtahAmerican Energy, Inc.

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

Instructions: *If you answer yes to any of the first 8 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to your reclamation*

☐ Yes	☐ No	1. Change in the size of the Permit Area? ___acres Disturbed Area? _____ acres ☐ increase ☐ decrease.
☐ Yes	☐ No	2. Is the application submitted as a result of a Division Order? DO #
☐ Yes	☐ No	3. Does application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes	☐ No	4. Does application include operations in hydrologic basins other than as currently approved?
☐ Yes	☐ No	5. Does 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 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 calculations?
☐ Yes	☐ No	20. Does the application require or include subsidence control or monitoring?
☐ Yes	☐ No	21. Have reclamation costs for bonding been provided for?
☐ Yes	☐ No	22. Does 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?

X Attach 1 complete 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.

Karin Madsen / Engineering Tech / 7-28-16

Signed - Name - Position - Date

Subscribed and sworn to before me this 28th day of July, 2016.

Notary Public

My Commission Expires: March 27, 2017

Attest: STATE OF Utah

COUNTY OF Carbon

LINDA KERNS
NOTARY PUBLIC • STATE of UTAH
COMMISSION # 663615
COMM. EXP. 03/27/2017

Received by Oil, Gas & Mining

ASSIGNED TRACKING NUMBER

Application for Permit Processing
Detailed Schedule of Changes to the MRP

L15-006 Drainage Revisions	Permit Number: ACT/007/013
	Mine: Lila Canyon
	Permittee: UtahAmerican Energy, Inc.

Provide a detailed listing of all changes to the mining and reclamation plan which will be required as a result of this proposed permit application. Individually list all maps and drawings which are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise the existing mining and reclamation plan. **Include page, section and drawing numbers as part of the description.**

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
☐ ADD	☐ REPLACE	☐ REMOVE	Appendix 7-4 Cover, TOC, 1, 2, 12, 16, 23-31, 42, 53
☐ ADD	☐ REPLACE	☐ REMOVE	Plate 7-6a - Proposed Sediment Pond #1
☐ ADD	☐ REPLACE	☐ REMOVE	Plate 7-6b - Proposed Sediment Pond #2
☐ ADD	☐ REPLACE	☐ REMOVE	Plate 5-2 - As-Built Surface Facilities
☐ ADD	☐ REPLACE	☐ REMOVE	Plate 7-2 - Disturbed Area Hydrology
☐ ADD	☐ REPLACE	☐ REMOVE	Plate 7-5 - Proposed Sediment Control
☐ ADD	☐ REPLACE	☐ REMOVE	Chapter 5 Text pages: TOC, 1, 11, 12, 15, 16, 18, 20, 21, 22 35, 48, 58, 65, 67
☐ ADD	☐ REPLACE	☐ REMOVE	Bonding for Culverts and Ditches and Totals
☐ ADD	☐ REPLACE	☐ REMOVE	Plate 8-1 - Proposed Surface Facilities (Final Configuration)
☐ ADD	☐ REPLACE	☐ REMOVE	Plate 2-3a - Topsoil Salvage Map
☐ ADD	☐ REPLACE	☐ REMOVE	Chapter 2 TOC, pages 9 and 13
☐ ADD	☐ REPLACE	☐ REMOVE	Chapter 7 pages 21, 49, 75, 76, and 88
☐ ADD	☐ REPLACE	☐ REMOVE	Chapter 8 Table of Contents, and page 4
☐ ADD	☐ REPLACE	☐ REMOVE	Appendix 7-3, cover, 1, 4-6, 14-18, 20, 23
☐ ADD	☐ REPLACE	☐ REMOVE	Appendix 7-9 cover, 1-4
☐ ADD	☐ REPLACE	☐ REMOVE	
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Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

Horse Canyon Extension
Lila Canyon Mine

Chapter 2
Soils

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place for redistribution on the topsoil pile. Topsoil material will be removed from those areas of the mine yard where material will be excavated in order to achieve final yard configuration and which have been identified as suitable topsoil for reclamation based on the soil survey. This includes the access road to and around the topsoil pile. This material will be used to construct a berm around the topsoil pile.

The following volumes represent soil resources that may be available for salvage, storage and subsequent redistribution during reclamation. The actual amount salvaged will be reported to DOGM following topsoil removal and stockpiling operations.

AVAILABLE SOIL RESOURCES

Map Unit	Potential Salvage Depth In.	Potential Acres	Potential Estimated Volume YD3	**Actual Salvage Depth In.**	**Actual Salvaged Acres**	**Actual Salvaged Top Soil YD3**
SBG	48	11.83	76343	**18**	**11.61**	**28100**
VBJ	30	9.62	38801	**18**	**3.40**	**8227**
XBS	12	12.09	19505	**12**	**8.81**	**14207**
DSH	40	1.56	8389	**18**	**1.16**	**2809**
RBL	8	9.34	10046	**8**	**2.17**	**2340**
RBT	6	3.79	3057	**6**	**0.56**	**450**
TOTAL(2)		48.23	156141		**27.95**	**56133**
Bank to Loose Cubic Yards *1.18 (Amount topsoil pile is designed to hold.)						(1) **66237**

(1) An additional 800 yd^3 will come from the access road around the topsoil pile. This material will be placed in the berm around the topsoil pile.
(2) The 48.23 acres was taken from a soil survey and does not accurately reflect the operators intention to include 42.6 acres of disturbance within the disturbed area boundary.

The actual areas of topsoil salvage and the respective amounts are found on Plate 2-3a. To date topsoil salvaged is 65,746 cubic yards.

The actual topsoil salvage will consist of removing a surface layer up to 18 inches thick over the disturbed area. If shale is encountered within 18 inches only the soil above the shale will be salvaged. (Plate 2-3). This would cover about 34 acres

232.410. This section is addressed in 232.700.

232.420. This section is addressed in 232.700.

232.500. Topsoil will be considered as the upper 18 inches of soil in most cases. Subsoil ranging in thickness from 12 to 30 inches from cutslope sites will be used as fill material for site development and replaced in an approximate original sequence during reclamation.

In order to verify subsoil depths, soil pedestals or other survey methods will be utilized for proper identification. Pedestals of undisturbed soil will be left at selected locations as reference points to show the type of soil thickness that has been removed from the slope cut areas. Records will be maintained to keep track of what materials are removed and where they are placed (topsoil storage or fill). Pedestals will vary in size depending on depth of cut. They will be designed to maintain stability of the soil column.

These soil pedestals may have to be removed once they have been properly logged to facilitate the mining operation.

An As-Built map will be prepared to show where soil materials have been used as fill material. This will include thickness records for topsoil, subsoil, and substrata. This information will be used to verify subsoil salvage depths according to Salvageable Soils Map Appendix A-2 of Appendix 2-3. Th~~is~~e as~~-~~-built map ~~will be~~for topsoil salvage is incorporated into the Mining Reclamation Plan as Plate 2-3a, "Topsoil Salvage Map."

If shale is encountered in the slope cuts, the shale material will be separated from the other soil and returned to or near its original position upon reclamation.

Subsoils that are stored as pad material will be protected by a surface that is covered by asphalt, concrete, or gravel. The subsoil material will be under parking areas, buildings, roads, and storage sites. Graveled areas will have an impervious membrane placed between the subsoil and gravel. Precautions will be taken to avoid contamination. In the

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Chapter 5
Engineering

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Chapter 5

500. ENGINEERING

510. Introduction

This section presents the engineering portion for the Lila Canyon Extension to the Horse Canyon Mine Reclamation Plan and is based upon previous publications, permit applications for the adjacent Sunnyside and South Lease areas and design which follows basic engineering standards. The objective of this chapter is to provide sufficient engineering design to support the mining and reclamation plan for the Lila Canyon Mine which is part "B" of the Horse Canyon Permit (ACT/007/013) and to satisfy the rules found in R645-301-500. All of the activities associated with the coal mining and reclamation operations are designed, located, constructed, maintained, and reclaimed in accordance with the operation and reclamation plan. The engineering section of the permit application is divided into the introduction, the operation plan, operational design criteria, reclamation plan, and performance standards. All design criteria associated with the operation and reclamation plan have been met.

511. General Requirements.

511.100 The permit application includes a description of the proposed coal mining and reclamation operations with appropriate maps, plans, and cross sections.

511.200 A description of the proposed mining operation and its potential impacts to the environment as well methods and calculations utilized to achieve compliance with design criteria is addressed within this chapter.

511.300 A description of the proposed reclamation plan is included in this chapter.

512. Certification

512.100. Cross Sections and Maps that require certification have been prepared by, or under the direction of, and certified by a qualified, registered, professional engineer, with assistance

surface facility area. The plant will rest on a 15' by 15' slab. Process water will flow through the treatment plant at which time it will be treated and made suitable for potable water uses. The potable water will be stored in the potable water tank until it is used. The location of the water treatment plant can be found on Plate 5-2.

Potable Water Tank

Water treated by the water treatment plant and intended to be used as potable water will be stored in this 15' diameter by 20' high tank. The tank will set on a 15' by 15' concrete pad designed for adequate support of the tank. The location of the potable water tank can be found on Plate 5-2.

Process Water Tank

Process water, water to be used for mine use or to be treated for potable use, will be stored in this tank. The 15' diameter by 20' high process water tank will rest on a 15' by 15' concrete pad. Process water tank will be filled by using mine discharge water or may be hauled in from off site. The location of the process water tank can be found on Plate 5-2.

Sewer Tank

The sewer tank has been designed to facilitate 200 employees working on rotating shifts. The sewer tank will be located under the south end of the office and bathhouse parking area. The location of the sewer tank can be found on Plate 5-2. The design for the Sewer Tank can be found in Appendix 5-4.

Drain Field

The drain field has been designed to facilitate 200 employees working on rotating shifts The drain field will be located at a lower elevation and south of the sewer tank. The location of the drain field can be found on Plate 5-2. The design for the drain field can be found in Appendix 5-4.

Ventilation Fan

The ventilation fan will be located at the Northern Breakouts on #0 Portal. The ventilation fan will be accessed and installed from inside the mine. The need for surface access is not anticipated at this time. A concrete pad will be poured as a permanent support for the north fan. The highwall and approximately 40 feet of slope above the north breakout ledge will be chain-linked and shot-creted for stability. Prior to installing the chainlink

fence, all trees will be cut off, and the vegetation material will be removed off the area and properly disposed. The location of the portal and fan is shown on Plate 5-2.

60-inch Conveyor from tunnels to Coal Stockpile(Main Conveyor)

The Run of Mine underground belt will provide for a means for coal to be conveyed from the working faces to the run of mine coal storage pile on the surface. The belt will provide capacity to convey to the surface, all coal mined in the underground workings. Preliminary design suggests that the conveyor that extends from the bottom of the rock slopes to the stacking tube at the coal storage area, shown on Plates 5-2 and 5-8, will have the following specifications: 60" wide, speed approximately 700 fpm with a length of approximately 810 feet long. Since the ground beneath the conveyor will not be disturbed due to the steepness and remoteness of the area, this conveyor will be completely contained within a tube type structure.

(ROM) Underground Belt from Stockpile to Crusher/ Screen

The Reclaim conveyor will provide for a means for coal to be conveyed from the coal stockpile to the crusher. The belt will provide capacity to convey to the screen and crusher at a suitable rate for crushing and screening. Preliminary design suggests that the reclaim conveyor, shown on Plates 5-2 and 5-8, will have the following specifications: 60" wide, speed approximately 700 fpm with a length of approximately 670 feet long. The portions of the conveyor running on the surface will be covered.

60-inch Conveyor from Crusher to Loadout Bin

The Loadout conveyor will provide for a means for coal to be conveyed from the crusher to the loadout bin. The belt will provide capacity to convey to the loadout at the same rate as the Reclaim conveyor. Preliminary design suggests that the Loadout conveyor, shown on Plates 5-2 and 5-8, will have the following specifications: 60" wide, speed approximately 500 fpm with a length of approximately 230 feet long. The portions of the conveyor running on the surface will be covered.

Coal Storage Bin

The coal storage bin is part of the truck loadout and is shown of Plate 5-2. The coal storage bin is where crushed coal is stored waiting to be loaded into coal haul trucks. The bin provides for surge capacity and allows for better control of crushing time. The coal storage bin provides for a enclosed dry location for temporary crushed coal storage. Coal is delivered from the crusher to the coal storage bin by use of a 60" covered surface conveyor running at a speed of approximately 700 FPM. The preliminary layout is shown on Plates 5-2 and 5-8.

Coal Stacking Tube.

The final design for the coal stacking tube is not yet complete. Preliminary design indicates that the stacking tube will be approximately 15' Diameter and approximately 80 feet high. Standard practice is to construct the tube of either concrete or steel. The preliminary layout is shown on Plates 5-2 and 5-8.

Culverts

A complete list and design for the culverts can be found in Appendix 7-4 Tables 9 and 10, and are shown on Plate 7-2. A summary of the culverts follows:

Culvert	Length	Size
DC-1	60'	18"
DC-2	60'	18"
DC-3	~~65'~~70'	18"
DC-4	27~~0~~4'	24"
DC-5	250'	24"
DC-6	107'	24"
DC-7	155'	24"
DC-8	16~~7~~8'	24"
DC-9	186'	24"
DC-10	60'	24"
DC-11	35'	24"
DC-12a	14~~0~~1'	30"
DC-12b	7~~9~~6'	~~24~~30"
DC-12c	35~~7~~4'	~~24~~30"
DC-12d	9'	30"
DC-13	~~45'~~60'	~~24~~18"

DC-14	25'	~~24~~18"
SP2-1	165'	~~24~~18"
UC-1	480'	60"

Guard Rails

Approximately 1,520 feet of Guard rails will be installed on the mine access road according to the detailed engineering plan being prepared. Appropriate MSHA and UDOT requirements will be taken into consideration.

Underground Pipes

Locations of the underground pipes have yet to be determined. Once detailed engineering design is completed the underground pipes will be added to Plate 5-2 or other appropriate Plates. Under ground pipes will be left in place upon reclamation.

Chain Link Fence

Approximately 1,500' of a six foot high chain link fence will be constructed as shown on Plate 5-2. The fence will be constructed to protect the public, and proved security along the section of county road that runs adjacent to the property.

Non-Coal Waste Area

An area for non-coal waste has been identified on Plate 5-2. Non-coal waste such as papers, timbers, cans, and miscellaneous scrap that is brought to the surface will be disposed of in a metal bin or “dumpster” located in the non-coal waste area identified on Plate 5-2. Metal will be separated from other forms of trash for salvage. Material not salvageable will be transported to the East Carbon Development Corporation (ECDC) dump or other approved disposal site for permanent disposal. Once a dumpster has reached capacity, the full dumpster will be replaced with an empty dumpster, and then the full dumpster will be hauled by a contract hauler to the specified disposal site.

Equipment & Supplies Storage Area

be found in Appendix 7-4 and Plate 7-6. Because the sediment pond does not fit into the requirement of 30 CFR 77.216(a) an MSHA number for the proposed pond is not required. The sediment pond is located on the south-west end of the property and shown on Plate 5-2. Please refer to Chapter 7 for detailed information on drainage reporting to ponds.

Slope Access / Portal Access Road

The slope access road splits off the facility access road near the north-east corner of the equipment and supply storage area, and follows an alignment that takes into consideration grade and direct access. The slope access road will be used to provide access to the rock slopes which in-turn proved access to the underground workings. The slope access road will be used as access for all men, material and equipment need in the mine. Since the slope access road provides for frequent access for men, equipment and materials for a period of six months or longer the slope access road is classified as a primary road and will be paved. The slope access road will be designed, constructed, and maintained according to appropriate R645 regulations. The slope access road is shown on Plate 5-2.

Rock Slopes

Access to the underground workings of the Lila Canyon Mine will be provide by two rock slopes driven from the top of the Mancos shale up-dip to the intersection of the coal seam. One portal will proved for access for men, equipment and material to the mine. The second access slope will contain the run of mine belt line from the underground workings of the mine to the run of mine stock pile. There is a possibility that only one larger slope will be driven and then divided. to provide for two separate entries. The two 1,227 foot long slopes will slope up at approximately 12%, from a starting elevation of approximately 6150'. The intersection of the coal seam and the rock slope will take place at approximately 6,300 feet elevation. The length of the slopes were minimized by taking advantage of the coal seam dip which is approximately 12% to the east. The rock material removed from the slopes will be used as fill material for the surface facilities. The rock slope material / underground development waste will contain mostly shale, sandstone and mudstone. Traces of coal may be found but the amount will be insignificant. There are no known coal seams or significant rider seams found below the Sunnyside Seam in the Lila Canyon Portal Area. The rock slope locations are shown on Plate 5-2.

Powder and Cap Magazines

Powder and cap magazines will be mobile temporary, and supplied by the explosive distributer. Upon reclamation the powder and cap magazines will be returned to the distributer.

As per the approved Air Quality Order all roads will be paved and the pad areas used by mobile equipment will be treated with water or dust suppressant, open stockpiles will be watered as conditions warrant.

521. Included in this section are maps, cross sections, narratives, descriptions and calculations used to satisfy the relevant requirements. This section describes and identifies the lands subject to coal mining and reclamation operations covering the estimated life of the project.

521.100 This application includes the cross sections, maps and plans needed to present the relevant information required by the Division. This information includes the following:

521.110. Plate 5-1 Shows area previously mined and approximate dates of mining.

521.111 Plate 5-1 ~~of part 'B'~~ and 2-2 ~~of part "A"~~ shows the location and extent of known workings of inactive, or abandoned underground mines. The surface portals or mine openings to the surface are shown. Plates 5-1 and 2-2 ~~of part "A"~~ have been prepared and certified by or under the direction of a registered professional engineer.

Doelling lists several coal mines and mining activity in within or adjacent to the permit area. Doelling lists the Calkins prospect, the Lila Canyon prospect, and the Prentiss prospect. In addition Doellng lists several coal mines Prentiss, Utah Blue Diamond, Blue Diamond and Heiner Mines. The research has shown that the Prentiss, Utah Blue Diamond, Blue Diamond and Heiner Mines were engulfed by the Book Cliffs mine. The Lila Canyon prospect refers to the old Lila Canyon mine fan portals used to ventilate the Geneva (Horse Canyon mine. The Calkins prospect is believed to have been engulfed by the

Geneva mine.

An outcrop fire has been detected in an area north of the exiting permit area “A”. The fire is off the permit area and located in an area that has been sealed from the old horse canyon works. The outcrop fire is not anticipated to cause any problems with mining at the Lila Canyon Mine.

521.112 No surface mined areas are found within the permit area. Therefore, this section does not apply.

521.120 Three existing structures, a 48" and a 60" CMP culvert located near the new proposed sediment pond, and the Little Park Road can be found at the Lila Canyon Mine. The existing culverts are shown on plate 5-1A and the road on Plate 5-1. —Existing Horse ~~Canyon facilities~~Canyonfacilities are discussed in part “A” of this plan.

521.121 There are no buildings within 1000 feet of the proposed permit area ~~for~~except those used as part of the Lila Canyon ~~Mine, Part “B”~~mining operation.

521.122 There are no subsurface man-made features, other than the culverts discussed in 521.200, within, passing through, or passing over the proposed permit area ~~for Part “B”~~.

521.123 Plate 4-1, as well as others, shows the existing county road 126 which is located partly within 100 feet of the proposed permit area. In Addition, the Little Park road is located above the surface facilities within the permit area. The Little Park road is also shown on plate 4-1

521.124 There are no known existing areas of spoil, waste, coal development waste, or non-coal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities ~~within part “B” of the proposed permit area. This section is not~~

~~Applicable~~except those used as part of the mining operation.

521.125 There are no existing sedimentation ponds, permanent water impoundment, coal processing waste banks or coal processing waste dams near or within the permit area.

521.130 Landowner and right of entry maps are included in the permit application. These maps and cross sections show the following:

521.131 Plate 4-1 shows the surface ownership and Plate 5-4 shows the coal ownership of land included in or contiguous to the permit area.

521.132 The applicant has the legal right to enter and begin coal mining and reclamation operations on all areas shown within the permit area. The permit area is shown on Plates 5-3 and 5-4 as well as others.

521.133 Coal mining or reclamation operations are planned within 100 feet of a public road. There are no plans to relocate public roads.

521.133.1 Emery County has given permission to conduct coal mining or reclamation operations within 100 feet of the county road. (See Appendix 1-4)

521.133.2 The current permit does not propose any relocation of public roads. Therefore, this section is not applicable.

521.140 Mine maps and permit area maps and or cross-sections will clearly indicate the following:

521.141 Plate 5-1 shows the permit boundary and Plate 5-2 shows the disturbed area boundary. Additional subareas that might require additional permits are addressed in Section 112.800 and 4-1B.

521.142 The underground workings are shown on Plate 5-

525.110 Plate 5-3 shows the location of State appropriated water and 5-3 (Confidential) shows the eagle nests that potentially could be diminished or interrupted by subsidence.

525.120 SUBSIDENCE POTENTIAL ~~(See also Section 5.4 of Part "A")~~

A review of renewable resources in and adjacent to the permit area found resources consisting of ground water, grazing, timber, and recharge areas. Subsidence from underground coal mines has been believed to affect overlying forest and grazing resource lands in the following ways:

- Formation of surface fissures which intercept near surface soil moisture thus draining the water away from the root zone with deleterious effects.

- Alterations in ground slope and destabilization of critical slopes and cliffs.

- Modification of surface hydrology due to the general downward migration of surface water through vertical fractures.

- Modification of groundwater hydrology including connection of previously separated aquifers, reduction in flows of seeps and springs which rely upon tight aquitards for their flow, and changes in recharge mechanisms.

- Emissions of methane originating from the coal seam through open fissures to the surface or at least the base of the surficial soil which has been known to have deleterious effects on woody plants.

Because these renewable resources exist with and adjacent to the permit area, a subsidence control plan is required. This plan is presented in Section 525.400.

A great deal of baseline data is available from many mining settings to develop subsidence damage criteria for surface structures (Bhattacharya et al. 1984). The formation of cracks and fissures are the general effects of subsidence and can have minor deleterious effects on groundwater resources without any fissuring to the surface. In the arid areas of Utah,

provide for mitigation of any lost water rights as per Chapter 7 Section 727.

525.490. Other information specified by the Division as necessary to demonstrate that the operation will be conducted in accordance with R645-301-525.300 will be provided.

525.500. Repair of damage.

525.510. If effects of subsidence are confirmed, any material damage to the surface lands will be restored to the extent technologically and economically feasible. The land will be restored to a condition capable of maintaining the value and reasonable foreseeable uses which it was capable of supporting before the subsidence.

525.520. Since no structures exist within or adjacent to the permit area which could be damaged by subsidence, should it occur, this section does not apply.

525.530. The Little Park Road exists in the subsidence zone. In the unlikely event the road is damaged by subsidence, UEI will repair the damage as per Section 525.120.

525.600. Public Notice.

At least six months prior to mining, or within that period if approved by the Division, the underground mine operator will mail a notification to all owners and occupants of surface property and structures above the underground workings. The notification oil include, at a minimum, identification of specific areas in which mining will take placce, dates that specific areas will be undermined, and the location or locations where the operator's subsidence control plan may be examined.

526. A narrative explaining the construction, modification, use, maintenance and removal of the mine facilities follows. Additional information can be found in Appendix 5-4 and Chapter 8.

526.100 Mine Structures and Facilities.

526.110 The only existing structures are found in Horse Canyon ~~(Part "A" of this permit)~~ and are the remains of the United States Steel operation. Horse Canyon has received phase II bond release and the remaining

77.216(a) this section does not apply.

533.200 T~~he only impoundment~~wo impoundments are planned for this site~~ is the sediment pond~~:Pond #1 and Pond #2.~~-~~ The sediment ~~pond is~~ponds are temporary structures. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1; and on Plate~~ 7-6~~s 7-6a and 7-6b.

533.210 The sediment ponds will be incised, except for the dam/road embankment. This embankment will be reconstructed and compacted to at least 95%. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1; and on Plate ~~7-6~~s 7-6a and 7-6b.

533.220 Where fill is to be placed, natural ground shall be removed 12" below the structure. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1; and on Plate~~ 7-6~~s 7-6a and 7-6b.

533.300 Rip-rap or other protection (culverts, concrete) will be placed at all inlets and outlets to prevent scouring. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1. Also see Plate~~ 7-6~~s 7-6a and 7-6b.

533.400 External slopes of the impoundment will be planted with an approved seed mix to help prevent erosion and promote stability. ~~A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1.~~ A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1; and on Plate~~ 7-6~~s 7-6a and 7-6b.

533.500 This section does not apply, there are no vertical highwalls associated with this impoundment.

533.600 Since no impoundments are planned that meet the criteria of MSHA, 30 CFR 77.216(a) this section does not apply.

553. The operator will comply with all regulations applicable to underground mining activities relative to backfilling and grading as required by R645 regulations.

Some minor cut slopes along the reclaimed road may be left after reclamation due to the difficulty and inability to reclaim all material pushed over the side while making the road cut. See plate 5-7B-2 cross section 16+00 for details. UEI will make reasonable efforts to minimize the cut slopes being left.

553.100. Disturbed Areas. Disturbed areas will be backfilled and graded to:

553.110 The operator will obtain a post mining topography similar in form as what existed premining.

553.120 Since Lila Canyon is an underground operation, no spoil piles will be created. Minor highwalls may be created with the development of the rock slope portals. Upon completion of mining, these entries will be sealed as per Closure for Mine Openings Appendix 5-6, and all highwalls will be eliminated during the reclamation phase of the operation. Plate 5-9 shows the proposed portal plan. During reclamation, the fans will be dismantled and either salvaged or taken underground. The chainlink bolts will be cut off 6 inches below the surface and the shot-crete and mesh will be disposed of underground. The concrete will be burried during highwall reclamation and suitable material will be placed against the portals. This material will be shaped to eliminate the highwall and to bring the slope back to the approximate original contour.

553.130 All fill slope will have a static safety factor of 1.3 as shown in Appendix 5-5.

553.140 Erosion and water pollution will be minimized on

does not apply.

553.230 All recontoured areas will be compacted to minimize slippage. The area will then be over laid with topsoil and ripped. In addition the area will be "pock-marked" to minimize the potential for erosion as well as enhance revegetation establishment. It is not anticipated that soil will be disturbed in areas to steep for equipment to operate.

553.240 The structural fill area will have slopes of less than 8% upon final recontouring and revegetated to enhance the post mining land use of grazing and wildlife habitat.

553.250 A need for a refuse pile at Lila Canyon is not anticipated.

553.260 The operator will commit to all applicable R645 regulations relative to disposal of coal processing waste.

553.300 All underground development waste brought to the surface will be placed in the temporary rock pile and then blended back into the ROM product for sale. There will be no coal processing waste generated on the surface. Any oversized from the screens will be crushed and put back into the ROM stream.

553.400 Cut-and-fill terraces may be allowed by the Division

553.410 No cut and fill terraces will be required.

553.420 No terraces will be required for post mining land use.

553.500-540 and 553.600-553.650.500

The only area that falls under these provisions are the reclaimed Horse Canyon mine which lies in the north west portion of the lease area and is addressed under approved MRP Act #0013 ~~(Part "A")~~.

553.700-553.900

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Lila Canyon Mine

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where surface fractures intersect the topographic highs where the upper zone formations outcrop. The rate of recharge to the lower zone is very slow. The lack of a significant recharge source results in limited discharge areas. The largest portion of recharge to the lower zone is in the Castlegate Sandstone and upper member of the Blackhawk Formation with some leakage from the upper zone where the greatest number of springs are identified.

The Sunnyside fault zone is the major feature throughout much of the ~~Sunnysdie~~Sunnyside Mining District. Having a north-northwest strike, the fault zone extends from West Ridge to the Horse Canyon Mine. South of the Horse Canyon Mine the faults are not mapped at the surface. South of Horse Canyon, the faults are believed to be east of the Lila Canyon extension.

At the south end of the Lila Canyon Extension, a series of east-west trending faults have been mapped. These faults form the structure known as the Central Graben. The graben is a down dropped block relative to the adjacent strata.

Faults may effect flow, direction and magnitude of both lateral and vertical flows. However, the area is abundant with plastic or swelling clays that can seal faults and fractures inhibiting both lateral and vertical flows. As discussed in the mine inflow section, significant groundwater was only encountered in the Horse Canyon Mine as mining approached the Sunnyside fault zone. To prevent such inflows at the Lila Canyon extension, the mining plan attempts to avoid the fault zone. Also, exploratory mining by U.S. Steel, during the period 1952 to 1960, encountered the east-west trending Entry fault in the proposed Lila Canyon area. After extensive exploration, no significant water was encountered from the east-west trending fault.

Assuming mass-balance and stable hydrologic conditions, recharge will equal discharge over the long term. The relatively rapid groundwater discharge from the upper zone formations as compared with the underlying lower zone formations suggest that the stratigraphically-higher water discharges are local and are not hydraulically connected with the lower zone. Waddell et al. (1986) conclude that the perched nature of the upper zone formations protect them from the influence of dewatering of the coal-bearing zone unless the upper zone is influenced by subsidence.

Groundwater resources in the permit area are limited due to the small surface area and low recharge rates. There is not enough base flow from groundwater discharge to maintain a perennial flow in Horse Canyon Creek or Lila Canyon.

disturbed area runoff to ~~a~~ sediment ponds for final treatment prior to discharge.

This permit application includes a plan, with maps and descriptions, indicating how the relevant requirements of R645-301-730, R645-301-740, R645-301-750 and R645-301-760 will be met. Each of these sections are addressed in this Chapter, along with relevant Maps and Appendices.

731.100 Hydrologic-Balance Protection

731.110 Ground-Water Protection In order to protect the hydrologic balance, coal mining and reclamation operations will be conducted according to the plan approved under R645-301-731 and the following:

731.111 Ground-Water Quality Ground-water quality will be protected by the plan described in Section 731 and the following:

(1) Minimizing surface disturbance and proper handling of earth materials to minimize acidic, toxic or other harmful infiltration to ground-water systems. Appendix 6-2 of the MRP presents acid and toxic results from a series of roof and floor samples from the areas north and south of the proposed mine. The samples of the S-24 and S-25 drillholes show the quality of the roof and floor strata located to the south of the proposed operation, while the Lila Fan Portal roof and floor samples show the quality of the strata north of the proposed mine. These samples identified only minor issues with one or two samples for revegetation issues. The recommendations were that these samples would not be a problem when mixed with the surrounding rock. No acid conditions were identified in any of the rock samples. As these samples bracket the mine property and the quality is similar to quality found at other mines along the Book Cliffs and none of these mines have an acid or toxic issue, then it is likely that the rock in the proposed mine area will have the same characteristics.;

(2) Testing (as-necessary) to ensure stockpiled materials are non-acid and non-toxic;

culverted crossings over ephemeral drainages. There are no plans to alter or relocate any intermittent or perennial drainages in conjunction with road construction.

Road construction and design details are provided in Chapter 5 of this P.A.P. Road drainage and culvert design details are provided in Appendix 7-4.

732.420 Culverts Culvert details are provided in Appendix 7-4. All undisturbed culvert inlets will be provided with headwall protection, consisting of inlet sections, rock or concrete.

733. Impoundments The only water impoundment proposed for this site is the sediment pond. Design details for the pond are provided in Appendix 7-4 and on Plates 7-6a &b.

733.100 General Plans The general plan for this site is to drain runoff from the disturbed area into ~~a single~~two sedimentation ponds for treatment prior to discharge. Site drainage and design details are described in Appendix 7-4. The general plan includes the following, at a minimum:

733.110 Certification The sediment control plan and proposed sediment pond designs have been prepared and certified by a Registered Professional Engineer, State of Utah.

733.120 Maps and Cross Sections Sediment pond locations, design plans and cross sections are provided on Plates 7-5 and 7-6a & b, respectively.

733.130 Narrative A complete description of the proposed sediment pond along with volumes and design/construction details in provided in Appendix 7-4.

733.140 Survey The proposed sediment pond ~~is~~s are not located within a potential subsidence area from past underground mining operations.

733.150 Hydrologic and Geologic Information Relevant hydrologic and geologic information for the sediment pond ~~is~~s are provided in Appendix 7-4.

733.160 Certification Statement All proposed sediment pond structures are provided with this submittal. The structure will be constructed prior to construction of the mine site area, but not before receiving Division approval.

733.200 Permanent and Temporary Impoundments As indicated earlier, the proposed sediment pond is classed as temporary.

733.210 Design Requirements The proposed sediment pond ~~is~~s are temporary; therefore, the pond ~~is~~s are not designed to meet requirements of MSHA 30 CFR 77.216.

The proposed pond ~~is~~s are not located where failure would expect to cause loss of life or serious property damage. As shown in Appendix 7-4, the proposed pond embankments will have a minimum of 3H : 1V on the inside slope and 2H : 1V on the outside. These slopes, along with the 95% compaction requirement, will ensure a static safety factor in excess of 1.3, as required.

733.220 Permanent Impoundment Section 733.220 is not applicable since the impoundment will be temporary.

733.230 Temporary Impoundment The proposed sediment pond is a temporary impoundment, and will be removed when reclamation sediment control and revegetation criteria are met, in accordance with Phase II Bond Release criteria.

733.240 Inspections/Potential Hazards As indicated under Section 515.200, if any examination or inspection shows a potential hazard exists, the person who examined the impoundment will promptly notify the Division of the finding and emergency procedures formatted for public protection and remedial action.

734. Discharge Structure All discharges from sedimentation ponds, diversions and culverts will be protected from erosion by the use of adequately sized rip-rap, concrete or other approved protection. Details for outlet protection for all drainage control structures are provided in appendix 7-4. All discharge structures have been designed according to standard engineering design procedures.

747.200 As shown on Plates 5-2B and 7-5, the proposed noncoal mine waste storage area is in a designated site, free of springs or seeps, and drained to the sediment pond.

747.300 There are no plans to dispose of noncoal mine waste within the permit area, except concrete during reclamation. The concrete will be buried beneath a minimum of 2' of non-acid, non-toxic material, and will not degrade surface or ground water.

748. Casing and Sealing of Wells There are only three ground water piezometers on the site IPA-1, IPA-2 and IPA-3. They will be reclaimed according to the requirements of the Division's Performance Standards. If any additional wells are required in the future, requirements of this section will be met.

750. Performance Standards

751. Water Quality Discharges of water from this operation will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U. S. Environmental Protection Agency set forth in 40 CFR Part 434. See Sections 731 and 742.

The current General UPDES Permit allows one million gallons of discharge (total) from Sediment Pond #1 and from the Mine Portal into Grassy Wash. UtahAmerican Energy is considering an individual permit for the potential of increased volume of mine portal water discharge. UtahAmerican Energy will inform the Division if/when an individual permit is issued.

752. Sediment Control Measures Sediment control measures will be located, maintained, constructed and reclaimed according to plans and designs described under Sections 732, 742, 760 and Appendix 7-4.

752.100 Siltation Structures Siltation structures and diversions will be located, maintained, constructed and reclaimed according to plans and designs described under Sections 732, 742, 763 and Appendix 7-4.

Appendix 7-4
Lila Canyon Mine
Sedimentation and Drainage Control Plan

Revised

January 2001
October 2002 RJM
February 2007 TJS
April 2008 TJS
July 2008 TJS
June 2009 TJS
January 2010 TJS
January 2012 TJS
October 2014 TJS
~~December~~July 201~~5~~6 KM-PJ

SEDIMENTATION AND DRAINAGE CONTROL PLAN

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SEDIMENTATION AND DRAINAGE CONTROL PLAN

1- Introduction

The Sedimentation and Drainage Control Plan for the Lila Canyon Mine has been designed according to the State of Utah R645- Coal Mining Rules, November 1, 1996. All design criteria and construction will be certified by a Utah Registered Professional Engineer.

This plan has been divided into the following three sections:

1) Design of Drainage Control Structures for the Proposed Construction

2) Design of Sediment Control Structures

3) Design of Drainage Control Structures for Reclamation

The general surface water control plan for this project will consist of the following:

(a) This is a new site construction. All areas proposed for disturbance will be sloped to drain to surface ditches and/or culverts where runoff will be carried to two sediment ponds. All minesite drainage controls and watersheds are shown on Plate 7-5 "Proposed Sediment Control Map"~~:~~
and Plate 7-2 "Disturbed Area Hydrology and Watershed Map" respectively.

1. Disturbed area drainage currently sheet flows to open ditches, then the water travels through a system of ditches and culverts to either Pond #1 or Pond #2. Due to water flowing to Pond #2 that is intended for Pond #1, and to accommodate the forthcoming inclusion of discharged mine water to the surface, revisions are required to the existing ditches and culverts. These changes are as follows:

   A. Remove existing culvert DC-9 from approximately 100 feet west of the access to the Lower Pad ,and daylight the opening. The water will then discharge from existing culvert DC-9 to the new ditch DD-7, then to the new culvert DC-10, then to the new ditch DD-8, then to the new culvert DC-11, then to the new ditch DD-9, then to new culvert DC-12a along the existing Emery County Road RS-2477, then to a new 4' diameter manhole, then to new culvert DC-12b, then to a new 4' diameter manhole, then to new culvert DC-12c, then to a new 4' diameter manhole, then to new culvert

DC-12d, which discharges into new ditch DD-16 that extend along the north side of Pond #1, then into Sediment Pond #1. See Plate 7-5, "Proposed Sediment Control," for more details. This new series of ditches and culverts will collect and deliver the vast majority of surface water in the disturbed areas to Pond #1. Furthermore, the forthcoming discharged mine water will report to Pond #1 through new and existing ditches and culverts. New ditch DD-16 is designed to allow the water to enter at the top of pond, thereby allowing for maximum settling time prior to discharge.

B. Raise the elevation of the top of Sediment Pond #1 and raise the elevation of the spillway and emergency spillway structures to allow for added water storage within the sediment pond for mine water discharge.

C. Replace the removed section of the existing culvert DC-9 with new ditch DD-17 along the south side of the Mine Access Road. This new ditch will report to the existing culvert DC-14, then to Pond #2. Now, Pond #2 will only receive surface water from a section of roadway below the access to the Lower Pad to the edge of the disturbed area, and surface water from the Storage Pad; thus making Pond #2 of adequate size for the respective water storage requirements.

2. The drainage areas are color-coded on Plate 7-2, "Disturbed Area Hydrology and Watershed Map," depending upon the pond that receives the surface water from which area.

(b) The majority of undisturbed runoff will be diverted around the minesite and/or beneath the ~~s~~Sediment ~~p~~Pond #1 by properly sized culverts. Undisturbed diversion culvert UC-1, is located on the ~~northwest~~southwest end of the site. This diversion will allow the majority of undisturbed runoff from the Right Fork of Lila Canyon to bypass the mine area beneath ~~s~~Sediment ~~p~~Pond #1. All undisturbed diversions are designed to carry runoff from a 100 year - 6 hour precipitation event. UC-1 is oversized at 60" diameter.

(c) Two adequately sized sediment ponds will be constructed at the lower end of the site. These ponds are sized to contain and treat the runoff from all of the disturbed area and any contributing undisturbed areas for a 10 year - 24 hour precipitation event. The ponds will be equipped with C.M.P. culvert principle spillway and decant and CMP culvert emergency spillway sized to safely pass runoff from a 25 year - 6 hour precipitation event. The spillways from sediment

2.9 Culverts

Culverts have been sized according to the calculations previously described, and are shown on Plate 7-5, “Proposed Sediment Control”. Culverts carrying undisturbed drainages are designated with UC- Letters (i.e. UC-1). All undisturbed area drainage culverts will be fitted with trash racks to minimize plugging by rocks or other debris.

Trash racks will be provided at the inlet for all undisturbed drainage culverts. These will consist of 3/4" steel bars welded on 6" centers across the flared inlet structures of each culvert. Bars will be sloped from the front of the inlet structure up to the top of the culvert. This ramp configuration will allow trash, branches and other potential obstructions to be swept up and away from the inlet rather than being impinged against the grates during a flow event. Rip rap will be placed around the flared inlet structure and above it to a height of at least 6" above the required headwall for each culvert. (See Figure 4 for details). Trash racks will be checked on a routine schedule and following precipitation events and all trash, branches and other obstructions will be removed.

It should be noted that all undisturbed area culverts are adequately sized to handle the expected runoff from a 100 year - 6 hour event for maximum protection of the mine area, sediment pond and undisturbed drainage. This is well in excess of the 10 year - 6 hour event required by the regulations and is proposed as an extra measure of safety.

Disturbed area culverts and ditches are shown on the “Proposed Sediment Control”, Plate 7-5. Culverts carrying disturbed drainage are designated with a DC-number (i.e. DC-1). Calculations for all disturbed area culverts and ditches are also included with this report, along with design criteria. Disturbed drainage areas draining to culverts and ditches are marked with a DA-number (i.e. DA-1). It should be noted that at culvert DC-5, there is accomodation for the introduction of discharge of mine water at a rate of 4.5 cfs (2,020 gpm). If mine water discharge exceeds the rate of 4.5 cfs (2,020 gpm), the design of Sediment Pond #1, Culvert DC-5, and all downstream ditches and culverts will be recalculated.

Culverts will be inspected regularly, and cleaned as necessary to provide for passage of drainage flows. Inlets and outlets shall also be maintained so as to prevent plugging or undue restriction of water flow.

All disturbed area culverts are temporary, and will be removed upon final reclamation.

2.10 Main Canyon Culvert - Outlet Structure

The outlet of culvert UC-1 has been designed to flow onto a rip-rap apron to protect against scouring and to allow for energy dissipation. The rip-rap apron is designed to fit the natural channel configuration as closely as possible, and will allow runoff to re-enter the natural channel at a reduced velocity which is no greater than natural flow conditions.

TABLE 2

Disturbed Watershed Summary		
Watershed	Drains To	Final
DA-1	DD-1	Sediment Pond
DA-2	DD-2	Sediment Pond
DA-3	DD-3	Sediment Pond
DA-4	DD-4	Sediment Pond
DA-5	DD-5a	Sediment Pond
DA-6a	DC-6	Sediment Pond
DA-6b	DC-6	Sediment Pond
DA-7	DC-7	Sediment Pond
DA-8	DC-8	Sediment Pond
DA-9	DC-9	Sediment Pond
DA-10	DD-7	Sediment Pond
DA-11	DD-7	Sediment Pond
DA-12	DD-8	Sediment Pond
DA-13a	DD-15	Sediment Pond
DA-13b	DD-9	Sediment Pond
DA-14a	DD-10	Sediment Pond
DA-14b	DD-15	Sediment Pond
DA-15a	DD-11a	Sediment Pond
DA-15b	DD-11b	Sediment Pond
DA-16	DD-13	Sediment Pond
DA-17	POND 2	Sediment Pond
DA-18	DD-17	Sediment Pond
DA-19	~~DD-18~~Sediment Pond 2	Sediment Pond
Fan Portal	ASCA Area	Right Fork Lila Canyon
TS-1	Topsoil Berm	Sediment Pond
POND 1	Sediment Pond	Sediment Pond
POND 2	Sediment Pond	Sediment Pond

TABLE 6

Runoff Control Structure Watershed Summary		
Structure	Type	Contributing Watersheds/Structures
DC-12a	Culvert	DD-9
DC-12b	Culvert	DC-12a
DC-12c	Culvert	DC-12b
DC-12d	Culvert	DC-12c
DD-10	Ditch	DA-14a
DD-11a	Ditch	DA-15a
DD-11b	Ditch	DA-15b
DD-12	Ditch	DD-11a, DD-11b
DD-13	Ditch	DA-16
DD-14	Ditch	DD-12, DD-13, UA-5a
DD-15	Ditch	DD-14, DA-13a, DA-14b, UA-5b
DD-16	Ditch	DC-12d, DD-10, DD-15
DD-17	Ditch	DA-18
~~DD-18DitchDA-19~~ DC-13	Culvert	~~DD-18~~DA-17
DC-14	Culvert	~~DC-13~~DA-18, ~~DD-17~~DA-19

TABLE 7

Runoff Control Structure Flow Summary					
Structure	Type	10yr. / 6hr. Peak Flow-cfs	25yr. /6hr. Peak Flow-cfs	10yr. / 24hr. Peak Flow-cfs	100yr. / 6hr. Peak Flow-cfs
DC-12d	Culvert	12.83	0.12	22.11	- -
DD-10	Ditch	0.29	3.71	0.60	- -
DD-11a	Ditch	0.79	0.05	1.60	- -
DD-11b	Ditch	1.56	0.05	3.20	- -
DD-12	Ditch	2.35	1.68	4.80	- -
DD-13	Ditch	0.12	1.68	0.23	- -
DD-14	Ditch	2.51	0.62	5.49	- -
DD-15	Ditch	3.54	1.56	8.03	- -
DD-16	Ditch	16.66	2.18	30.74	- -
DD-17	Ditch	0.25	3.86	0.50	- -
~~DD-18Ditch0.274.500.56- -~~ DC-13	Culvert	0.27	4.50	0.56	- -
DC-14	Culvert	0.52	4.74	1.73	- -
POND 1	Pond	19.66	24.81	39.74	- -
POND 2	Pond	1.10	1.41	1.17	- -

* UC-1flow values includes sum of peak flows for UA-1 from Table 4 and 25yr-6hr Sediment Pond 1 peak flow of 24.81 cfs & Fan Portal flow from Table 5- 0.27cfs.

TABLE 8						
Disturbed Ditch Design Summary						
Ditch	DD-1	DD-2	DD-3	DD-4	DD-5a	DD-5b
Slope (%)	1~~3~~2.~~01~~82	11.~~98~~64	1.11	13.~~56~~85	3.33	~~55.45~~54.54
Length (ft.)	6~~07~~21	33~~4~~7	180	29~~5~~9	390	1~~10~~26
Manning's No.	0.035	0.035	0.03	0.035	0.03	0.04
Side Slope (H:V)	3:1	3:1	2:1	2:1	2:1	2:1
*Bottom Width (ft.)	2.00	2.00	0.00	2.00	2.00	2.00
Peak Flow 10/6 (cfs)	1.66	2.08	0.13	2.47	1.48	1.48
Peak Flow 10/24 (cfs)	4.11	5.15	0.26	5.94	3.00	3.00
Flow Depth (ft.) 10/6	0.17	0.19	0.24	0.21	0.21	0.11
Flow Depth (ft.) 10/24	0.27	0.32	0.31	0.35	0.32	0.17
Flow Area ($ft.^2$) 10/6	0.41	0.49	0.11	0.51	0.52	0.25
Flow Area ($ft.^2$) 10/24	0.77	0.93	0.18	0.93	0.84	0.40
Velocity (fps) 10/6	4.03	4.22	1.17	4.86	2.84	5.93
Velocity (fps) 10/24	5.35	5.55	1.39	6.39	3.55	7.58
Rip-Rap Req'd (Y/N)	N	N	N	N	N	Y
Rip-Rap D_{50}	-	-	-	-	-	3"
Note: Slope/Lengths from Plate 7-2.						

TABLE 8 (Continued)

Disturbed Ditch Design Summary							
Ditch	DD-6	DD-7	DD-8	DD-9	DD-10	DD-11a	DD-11b
Slope (%)	4.74	7.~~508.11~~ 28	2.22	3.10	6.00	0.97	0.51
Length (ft.)	2~~00~~12	1~~48~~51	142	265	417	206	394
Manning's No.	0.03	0.035	0.03	0.035	0.03	0.03	0.03
Side Slope (H:V)	2:1	2:1	2:1	2:1	2:1	2:1	2:1
*Bottom Width (ft.)	0.00	2.00	2.00	2.00	0.00	0.00	2.00
Peak Flow 10/6 (cfs)	0.09	9.63	11.79	12.83	0.29	0.79	1.56
Peak Flow 10/24 (cfs)	0.18	15.53	19.99	22.11	0.60	1.60	3.20
Flow Depth (ft.) 10/6	0.14	0.52	0.74	0.77	0.23	0.48	0.37
Flow Depth (ft.) 10/24	0.63	0.66	0.97	1.01	0.31	0.62	0.55
Flow Area ($ft.^2$) 10/6	0.04	1.56	2.58	2.72	0.11	0.45	1.03
Flow Area ($ft.^2$) 10/24	0.07	2.21	3.80	3.47	0.19	0.77	1.72
Velocity (fps) 10/6	2.18	6.16	4.56	4.71	2.68	1.74	1.52
Velocity (fps) 10/24	2.59	7.04	5.26	5.45	3.22	2.08	1.87
Rip-Rap Req'd (Y/N)	N	Y	N	N	N	N	N
Rip-Rap D_{50}	-	3"	-	-	-	-	-
Note: Slope/Lengths from Plate 7-2.							

TABLE 8 (Continued)

Disturbed Ditch Design Summary							
Ditch	DD-12	DD-13	DD-14	DD-15	DD-16	DD-17	~~DD-18~~
Slope (%)	30.86	5.~~16~~63	1~~1~~0.~~015.97~~67	6.50	2.29	~~8.43~~7.~~75~~85	
Length (ft.)	8~~1~~5	1~~55~~60	3~~27~~30	7~~2~~10	260	4~~15~~34	~~710~~
Manning's No.	0.04	0.03	0.032	0.03	0.03	0.03	~~0.03~~
Side Slope (H:V)	2:1	2:1	2:1	2:1	2:1	2:1	~~2:1~~
*Bottom Width (ft.)	0.0	2.0	2.0	2.0	4.0	0.0	~~0.0~~
Peak Flow 10/6 (cfs)	2.35	0.12	2.51	3.54	16.66	0.25	~~0.27~~
Peak Flow 10/24 (cfs)	4.80	0.23	5.49	8.03	30.74	0.50	~~0.56~~
Flow Depth (ft.) 10/6	0.17	0.17	0.21	0.30	0.66	0.21	~~0.22~~
Flow Depth (ft.) 10/24	0.26	0.22	0.33	0.47	0.92	0.27	~~0.28~~
Flow Area ($ft.^2$) 10/6	0.41	0.06	0.52	0.77	3.51	0.09	~~0.09~~
Flow Area ($ft.^2$) 10/24	0.66	0.10	0.89	1.38	5.39	0.14	~~0.16~~
Velocity (fps) 10/6	5.74	2.03	4.84	4.57	4.75	2.94	~~2.90~~
Velocity (fps) 10/24	7.26	2.39	6.18	5.84	5.70	3.49	~~3.48~~
Rip-Rap Req'd (Y/N)	Y	N	N	N	N	N	~~N~~
Rip-Rap D_{50}	3"	-	-	-	-	-	~~-~~
Note: Slope/Lengths from Plate 7-2.							

TABLE 9

Disturbed Culvert Design Summary						
Culvert	DC-1	DC-2	DC-3	DC-4	DC-5	DC-6
Slope (%)	11.67	10.00	53.85	9.~~81~~19	4.~~60~~38	28.~~04~~97
Length (ft.)	60	60	~~65~~70	27~~0~~4	250	107
Manning's No.	0.024	0.024	0.024	0.024	0.024	0.024
Peak Flow 10/6 (cfs)	1.66	2.08	0.13	2.47	6.07	8.94
Peak Flow 10/24 (cfs)	2.85	3.37	0.21	0.17	0.17	0.17
Diam. Proposed (ft.)	1.5	1.5	1.5	2.0	2.0	2.0
Velocity (fps) 10/6	6.72	6.79	5.32	6.86	6.80	14.50
Rip-Rap D_{50}	3"	3"	3"	3"	3"-	-*
Note: Slope/Lengths from Plate 7-5. Velocity: (Haestad Methods, Flowmaster Program)						

* Discharge is into manhole - no riprap needed

TABLE 9 (Continued)

Disturbed Culvert Design Summary						
Culvert	DC-7	DC-8	DC-9	DC-10	DC-11	DC-12a
Slope (%)	~~7~~5.~~74~~84	5.~~99~~35	~~5~~8.~~912.27~~06	3.~~31~~33	4.00	0.~~48~~71
Length (ft.)	155	16~~7~~8	186	60	35	14~~0~~1
Manning's No.	0.024	0.024	0.024	0.024	0.024	0.015
Peak Flow 10/6 (cfs)	9.06	9.27	9.43	9.63	11.79	12.83
Peak Flow 10/24 (cfs)	14.38	14.81	15.13	15.53	19.99	22.11
Diam. Proposed (ft.)	2.0	2.0	2.0	2.0	2.0	2.5
Velocity (fps) 10/6	9.18	8.41	8.41	5.94	7.20	5.15
Rip-Rap D_{50}	3"	3"	3"	3"	3"	-*
Note: Slope/Lengths from Plate 7-5. Velocity: (Haestad Methods, Flowmaster Program)						

* Discharge is into manhole - no riprap needed

TABLE 9 (Continued)

Disturbed Culvert Design Summary						
Culvert	DC-12b**	DC-12c**	DC-12d	DC-13	DC-14	SP2-1*
Slope (%)	1.~~55~~32	2.~~46~~54	-0.12	29.~~22~~10	11.2	0.50
Length (ft.)	7~~9~~6	35~~7~~4	9	~~45~~60	25	165
Manning's No.	0.015	0.015	0.015	0.024	0.024	0.024
Peak Flow 10/6 (cfs)	12.83	12.83	12.83	0.27	0.52	-
Peak Flow 10/24 (cfs)	22.11	22.11	22.11	0.56	1.06	2.72*
Diam. Proposed (ft.)	2.~~0~~5	2.~~0~~5	2.5	1.5	1.5	1.50
Velocity (fps) 10/6	8.80	10.65	4.74	2.72	5.80	2.45
Rip-Rap D_{50}	3"	3"	-	-	3"	-
Note: Slope/Lengths from Plate 7-5. Velocity: (Haestad Methods, Flowmaster Program)						

* SP2-1 Peak Flow is a 25/6 event

** Discharge is into a manhole - no riprap required

3.1 Design and Construction Specifications for Sedimentation Pond

- All construction of sedimentation ponds will be performed under the direction of a qualified, registered professional engineer.

- The sediment pond #1 will be located in an existing low area where the Right Fork of Lila Canyon passes beneath the existing road. The existing road fill and culvert will be removed, and the pond embankment (road fill) will be reconstructed and compacted. The existing culvert will be replaced with UC-1 which will extend approximately 400' up the Right Fork of Lila Canyon. This culvert will be equipped with an inlet section and trash rack, and will allow undisturbed runoff and treated access road drainage to pass beneath the sediment pond. The majority of the pond will be in an existing channel area, and is therefore considered incised. The pond will be equipped with a culvert riser principal spillway with an oil skimmer, a decant, and a second culvert riser emergency spillway with an oil skimmer. Both spillways will discharge to the oversized (60") CMP culvert running beneath the pond.

- The area of pond constructed shall be examined for topsoil, and where present in removable quantities, such soil shall be removed separately and stored in an approved topsoil storage location.

- In areas where fill is to be placed for the pond impoundment structures, natural ground shall be removed to at least 12" below the base of the structure.

- Native materials shall be used where practical. Fill will be placed in lifts not to exceed 6" and compacted prior to placement of next lift. Compaction of all fill materials shall be at least 95%.

- Rip-rap or other protection (culverts, concrete, etc.) will be placed at all pond inlets to prevent scouring. Rip-rap will consist of substantial, angular (non-slaking) rock material of adequate size.

- Decanting of the pond, as required, will be accomplished by use of a decant pipe with an inverted inlet as shown on Plate ~~7-6~~s 7-6a and 7-6b. Samples will be collected prior to decanting of the pond. If the quality of the water meets the requirements of the U.P.D.E.S. Permit, decanting will proceed. Discharge samples will be collected as per the approved U.P.D.E.S. Discharge Permit.

- Slopes of the embankments shall not be steeper than 2h:1v, inside or outside, with a total of the inslope and outslope not less than 5h:1v, except where areas of the pond are incised.

3.4 Sediment Pond Summary

a) The sedimentation ponds have been designed to contain the disturbed area (and contributing undisturbed area) runoff from a 10 year-24 hour precipitation event, along with multiple years of sediment storage capacity. Runoff to the ponds will be directed by various ditches and culverts as described in the plan.

b) The required volume for Sediment Pond #1 is calculated at 6.04 acre feet, including 3.5 years of sediment storage. The proposed sediment pond size will have a volume of approximately 13.0~~4~~1 acre feet (at the principal spillway), which is more than adequate. The extra storage 7 acre-foot in Pond 1 will be used for optional mine water handling. The required volume for Sediment Pond #2 is calculated at 0.39 acre feet, including 3 years of sediment storage. The proposed sediment pond size will have a volume of approximately ~~1~~0.~~36~~57 acre feet (at the principal spillway), which is more than adequate.

c) The ponds will meet a theoretical detention time of 24 hours. Both are equipped with a decant, a culvert principal spillway and a culvert emergency spillway. Any discharge from the ponds will be in accordance with the approved UPDES Permit.

d) The pond inlets will be protected from erosion, and the spillways will discharge into the natural drainages in a controlled manner.

e) The ponds are temporary, and will be removed upon final reclamation of the property.

f) The ponds will be constructed according to the regulations and under supervision of a Registered, Professional Engineer.

Horse Canyon Extension
Lila Canyon Mine

Chapter 8
Bonding & Insurance

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Plate 8-1 Final Construction Plan

will be specified in detail.

820.330. Isolated and clearly defined portions of the permit area requiring extended liability may be separated from the original area and bonded separately with the approval of the Division. Such areas will be limited in extent and not constitute a scattered, intermittent, or checkerboard pattern of failure. Access to the separated areas for remedial work may be included in the area under extended liability if deemed necessary by the Division.

820.340. If the Division approves a long-term, intensive agricultural postmining land-use, in accordance with R645-301-413, the applicable five- or ten-year period of liability will commence at the date of initial planting for such long-term agricultural use.

820.350. General.

820.351. The bond liability of the permittee will include only those actions which he or she is obligated to take under the permit, including completion of the reclamation plan, so that the land will be capable of supporting the postmining land use approved under R645-301-413.

820.352. Implementation of an alternative postmining land-use approved under R645-301-413.300 which is beyond the control of the permittee need not be covered by the bond. Bond liability for prime farmland will be as specified in R645-301-880.320.

830. Determination of Bond Amount.

830.100. The amount of the bond required for each bonded area will:

830.110. Be determined by the Division;

~~**830.120. The bonding**~~ **830.120.** Plate 8-1 shows the final construction plan for Lila Canyon Mine. Used to calculate the bond. Bonding calculations provided in Appendix 8-1 of this chapter are based on the proposed permit and reclamation plan.

830.130. Bonding Calculations provided are based on probable

Appendix 7-3

Probable Hydrologic Consequences Determination

Updated ~~January~~June 20~~07~~16

Probable Hydrologic Consequences Determination

General

The best available adjacent area data to assist in making a determination of probable hydrologic consequences of the proposed operation comes from the adjacent Horse Canyon Mine, and Columbia Mines. The Columbia Mine has been closed since the late 1960's, and the Horse Canyon Mine has been closed since the mid-1980's. The Horse Canyon Mine has also been reclaimed under SMCRA.

Data gathered from these mines and the surrounding hydrologic regime has been used in this determination, as well as baseline data gathered in the area of the proposed Lila Canyon Mine Extension.

Pertinent water monitoring data for the Horse Canyon Mine and Lila Canyon Extension is included in Appendices 7-1, 7-2, and 7-6 of this application and Appendix VII-1 of the Horse Canyon MRP. Additional recent monitoring data are available from the DOGM electronic database. Baseline geologic information is presented in Chapter 6 of this P.A.P. Baseline hydrologic information, descriptions of the function of the streams and groundwater systems, and discussions of various issues regarding the data are presented in Sections 724.100 and 724.200 of this P.A.P. To ensure that this document addresses these issues, these data, descriptions, and discussions are ~~referecned~~referenced and should be considered a part of this document.

Mining in the Horse Canyon area began in the late 1930's. Detailed hydrologic information was first gathered in the late 1970's. It is impossible to precisely describe the area's pre-mining hydrology due to the adjacent historical mining. The conditions represented by these data help to define the hydrology about the time SMCRA was passed.

Analysis of Data

Potential impacts of coal mining on the quality and quantity of surface and groundwater flow may include:

- Contamination from acid- or toxic-forming materials;
- Increased sediment yield from disturbed areas;
- Increased total dissolved solids concentrations;

appropriate locations to minimize potential contributions of sediment to the Right Fork of Lila Canyon. These measures will reduce the amount of erosion from the reclaimed areas, thereby precluding adverse impacts to the environment.

Acidity, Total Suspended Solids, and Total Dissolved Solids. Probable impacts of mining and reclamation operations on the acidity and total suspended solids concentrations of surface and groundwater in the permit and adjacent areas were addressed previously in this section. Since the proposed Lila Canyon Mine has not started, there is no specific data available on Lila mine water. Therefore, quality information was obtained from the adjacent Horse Canyon Mine workings was used to be representative of the water quality expected in the Lila Cayon Mine. This is due to the mines being adjacent to each other and the same geologic strata being mined..

Data presented in Appendices 7-1 and 7-6 and summarized in Section 724.100 of this P.A.P. indicate that the TDS concentration of water in the Blackhawk Formation (as measured in inflow to the nearby Horse Canyon Mine) ranged from approximately 1400 to 2400 mg/l and is of the sodium-bicarbonate type. As noted in Section 724.200, the TDS concentration of water in the Right Fork of Lila Canyon is unknown, but likely to be similar to the flows in Horse Canyon Creek which are in the range from 1200 to 1500 mg/l. This comparison is justified due to the ~~simial~~similar exposures of strata that both stream flow across and the similarity in the watershed conditions. The dominant ions in this water are calcium and bicarbonate during high-flow periods, whereas the dominant ions during low-flow periods are sodium, magnesium, sulfate, and bicarbonate.

These data suggest that the TDS concentration of water in the Right Fork of Lila Canyon can be expected to increase by a factor of 1.5 for the water discharged from the mine to the drainage. This concentration is similar to concentrations found in other streams along the Book Cliffs a~~re~~s described by Waddell, et. ~~A~~al. (1986). It should be noted that it is anticipated that differnet than many of the historic mines in the Book Cliffs, the Lila Canyon Mine will use powdered limestone or dolomite (i.e., calcium-magnesium-carbonate) for rock dust. ~~It is not anticipated that~~The historic mines used gypsum rock dust (calcium-sulfate) ~~will be used in~~which raised the ~~mine~~TDS of the discharge water. Hence, dissolution of rock dust by water in the mine should not influence the chemical type and concentration of water in the drainage if mine water is discharged to the Right Fork of Lila Canyon.

As indicated in the P.A.P., the total iron and manganese concentrations in potential discharges from the mine are not significantly elevated to an effect downstream uses. Also, as discussed in Appendix 7-9, the worst case mine water discharge rate ~~specified by the Division~~ is expected to affect only ~~the 3~~8.~~4~~5 miles downstream from the mine.

Lila Canyon drainage, as part of the lower Price River basin, is classified according to Section R317-2-13 of the Utah Administrative Code (Standards of Quality for Waters of the State) as a class 2B (secondary contact recreation use), 3C (nongame fish and other aquatic life use), and 4 (agricultural use) water. No TDS standards exist for class 2B and 3C water. The TDS standard for class 4 water is 1,~~200~~500 mg/l. Hence, if discharges occur from the Lila Canyon Mine to the Right Fork of Lila Canyon, the data indicate that the TDS concentration of these discharges will slightly exceed the agricultural use water-quality standard.

As there is limited agricultural use in the area, this TDS exceedance is not considered significant. The major usable water resources in the area that could potentially be affected are springs and ephemeral channels. These water sources are used by wildlife and livestock. Most of these sources are locate upstream of the proposed discharge point. Therefore, there would be no impact to these existing sources. Additionally, the quality of water discharge from the mine is expected to be significantly better than the other waters which occurs from the Mancos Shale which downstream agriculture currently uses (TDS ranging from 2200 to 4800 mg/l).

Concerns have been raised that there might be impacts of increased salinity from the solution of salts from the Mancos Shale. While it is likely that a small increase in TDS from salts picked up from the Mancos Shale, this is not expected to be a significant problem. Appendix 7-9 includes a calculation of how far a worst case constant mine discharge ~~of 500 gpm~~ would be expected to flow. This flow rate is thought to be higher than the expected discharge amount, but it does provide a worse case estimate. Because of infiltration ~~and~~, evapotranspiration, and percolation, the mine discharge effect is limited to a distance of ~~3~~8.~~4~~5 miles and is not expected to reach the Price River. Therefore, it is not expected that any salinity increase would affect downstream perennial waters.

It should also be noted that the dissolved iron standard for class 3C water is 1.0 mg/l. No dissolved iron standard exists for class 2B or 4 waters. The data presented above indicate that potential discharge water from the mine will not exceed the dissolved iron standard of Lila Canyon. No standards exist in the R317 regulations for total iron, dissolved manganese, or total manganese. However, the data presented above indicate that potential discharges from the mine to the Right Fork of Lila Canyon will meet the effluent limitations of 40 CFR 434.

No hydrologic impacts have been noted at the adjacent Horse Canyon Mine due to subsidence. Although tension cracks may locally divert water into deeper formations, resulting in increased leaching of the formation and increased TDS concentrations, the potential of this occurring is considered minimal. This conclusion is based on experience at the Horse Canyon Mine and on the fact

that the shale content of the North Horn Formation, the Price River Formation, and the Blackhawk Formation should cause these subsidence cracks to heal quickly where they are saturated by groundwater flow. Thus, potential impacts on TDS concentrations would be minor and not of significant concern.

Flooding or Streamflow Alteration. Runoff from all disturbed areas will flow through a sedimentation pond or other sediment-control device prior to discharge to the Right Fork of Lila Canyon. Three factors indicate that these sediment-control devices will minimize or preclude flooding impacts to downstream areas as a result of mining operations:

1. The sedimentation pond has been designed and will be constructed to be geotechnically stable. Thus, the potential is minimized for breaches of the sedimentation pond to occur that could cause downstream flooding.

2. The flow routing that occurs through the sedimentation pond and other sediment-control devices reduces peak flows from the disturbed areas. This precludes flooding impacts to downstream areas.

3. By retaining sediment on site in the sediment-control devices, the bottom elevations of the Right Fork of Lila Canyon downstream from the disturbed area will not be artificially raised. Thus, the hydraulic capacity of the stream channel will not be altered.

The volume of streamflow will increase in the Right Fork of Lila Canyon if water is discharged from the mine to the drainage. Potential impacts to the drainage channel could include the displacement of fines on the channel bottom, and minor widening of the channel. However, the degree of widening will likely be minimized by the increased vigor and quantity of vegetation which will be sustained along the stream channel by the increased availability of water. In particular, it is anticipated that a phreatophyte streambank vegetative community will develop as a result of mine-water discharges. This effect will occur for the distance downstream that surface flows can be sustained above channel transmission losses. Based on the maximum anticipated estimate of mine water discharge, it is unlikely that any flooding will occur to the downstream channel as the flows (1.1cfs and 4.63cfs) ~~is~~are significantly below the bankfull conditions of the channel. Care will be taken during discharge of this water to avoid erosion at the discharge point or flooding of downstream areas. Once mining ceases, the mine will be sealed and no discharges will occur. The streamflow in the Right Fork of Lila Canyon will then return to pre-mining discharge levels. Downstream impacts from such discharge will be limited to the establishment of a temporary riparian area along the stream channel. The flows are expected to be below the flow threshold to result in changes to the stream channel.

not meet the definition of an aquifer as indicated above (see discussion in Section 724.100 of MRP).

Potential for Increased Stream Flows

If sufficient water is encountered in the Lila Canyon Mine workings to require discharge of that water to the surface, the flow of the Right fork of Lila Canyon will be increased. This flow could be ultimately to the Price and Green Rivers. The impact of such discharge by the development of the Lila canyon extension would be quite limited.

The majority of water discharged from the mine would be water held in storage in the saturated zones above the coal seam. It is unlikely that any water below the coal seam would be affected or drained by the mine workings.

It is difficult to estimate the maximum potential discharge from the mine, however, DOGM has determined that a maximum long-term discharge rate of 500 gpm should be used for design purposes. Additionally, UEI has determined that when crossing the Horse Canyon entries storage groundwater will be encountered and a worst case temporary discharge of 2,080 gpm may be released for a period. Appendix 7-9 estimates that a worst case constant ~~500gpm~~2,080gpm discharge would ~~exxtend a maximum of 3.4~~extend as surface flow for about 3 miles downstream and as subsurface flow a maximum of 8.5 miles downstream of the mine.

Under the absolute worst case conditions, if this discharge were to extend to reach the Price River, based on this discharge rate, during the life of the operation, the water extracted would be ~~22~~100,~~600~~580 ac-ft of water or approximately ~~800~~3,350 ac-ft per year. Discharge for the Price River at Woodside has a mean annual flow of 88,000 ac-ft/yr. Discharge for the Green River at Green River has a mean annual flow of 4,484,000 ac-ft/yr. Therefore the average discharge at ~~500~~2,080 gpm from the mine would be ~~0~~3.~~9%~~8% of the Price River flow volume and 0.0~~2~~75% of the Green River flow volume. Given the standard fluctuations in the stream flows, this small flow addition would have little effect on the streams.

It should be emphasized that the ~~500~~2,080 gpm estimate is considered to be conservatively high. The adjacent Horse Canyon Mine had a maximum discharge of 90 gpm. While the Soldier Canyon Mine farther to the north in the Book Cliffs, the rate of water discharged was estimated to be 15,000,000 gallons per year (approximately 30 gpm).

If water does need to be discharged, it will be sampled and discharged in accordance with the approved UPDES Discharge Permit. If the quality parameters of the mine water do not meet UPDES standards, the water will be treated prior to discharge. Treatment may include holding/settling in the mine, pumping to retaining or sediment ponds, chemical treatment or other approved means to prevent non-compliant discharge.

Based on the results of the evaluation presented in Appendix 7-9, the discharge of this amount of water from the mine is not expected to have a significant impact on the downstream resources. Based on the results from Appendix 7-9, the mine discharge flow will be lost due to evapotranspiration, transmission losses, and percolation within ~~3~~8.~~4~~5 miles from the discharge point. Therefore, the discharge will not reach the Price, Green, or Colorado Rivers. The discharge of the water will have a temporary positive impact on the vegetation and wildlife of the area by providing a fairly constant supply of water along this limited reach of the channel.

Based on comparison of upstream and downstream data gathered on Horse Canyon Creek which incorporates the analysis from past mine discharges to the channel, water quality will not be drastically affected in the intermittent drainage in the event of discharge of mine water into the channel. The expected impacts to the channels of the Lila Canyon area are very likely to be similar to those at Horse Canyon due to the close proximity, and similarities of mining and drainage conditions.

Concerns have been raised regarding the character of the streams in the area. Utah still uses the Office of Surface Mining two part definition of intermittent streams -

> "means (a) a stream, or reach of a stream, that drains a watershed of at least one square mile, or (b) a stream, or reach of a stream, that is below the local water table for at least some part of the year and obtains its flow from both surface runoff and groundwater discharge." Utah Admin Code R645-100 (2006)

The first part is an arbitrary size determination, while the second part is a scientific definition. While the drainage areas of several of the streams within the proposed permit area are greater than one square mile, the character of the flows in all the channels are ephemeral in nature. Colorado, Montana, New Mexico, and Wyoming regulatory programs have changed their rules to use the scientific definition for an intermittent stream and do not use an arbitrary size to determine the flow condition of a stream.

The stream channels on and adjacent to the Lila Canyon Mine permit area have been characterized in Appendix 7-1, Appendix 7-7, Appendix 7-10, Table 7-1A , Table 7-2 and Table 7-1C to be naturally ephemeral. Perennial and intermittent

streams yield a flow that is mostly continuous and dependable, known as baseflow. Baseflow is a water supply from groundwater that keeps flow in the stream channels after snowmelt and rainfall runoff has ended. Perennial stream channels have a baseflow year around, while intermittent streams maintain a baseflow during part of the year, usually during spring and early summer. A stream with baseflow has a more dependable water source that can support more vegetation, wildlife, agriculture and industry. Ephemeral stream channels do not have a baseflow. They do not support lush vegetation, wildlife, agriculture or industry. All the stream channels draining from the Lila Canyon permit area do not have a baseflow, except immediately next to springs, as discussed earlier. There are no water rights filed down stream of the mine site that can be impacted from mining operations.

Appendix 7-7 presents the characteristics of the channels within the proposed permit area. The characterization is based on the definition of ephemeral streams in the DOGM rules. Reaches of these streams flow only in response to direct precipitation and based on monthly monitoring at no point in the year does the groundwater table extend above the bottom of the channel to provide baseflow to the channel. Therefore, the channels fit the criteria for ephemeral drainages. While DOGM rules for drainages greater than one square mile stipulate that these drainages are to be considered intermittent in nature, that does not change the flow characteristics of the drainages.

The intermittent stream definition creates a problem of expectation. An intermittent stream is expected to have flow for a period of the year when the water table is above the ground surface. As such a standard monthly surface water monitoring program should and would be able to sample the flows. An ephemeral stream which does not flow as a general rule, but only in direct response to precipitation events or significant snowmelt, would be expected to be dry. Therefore, a standard monthly monitoring program would not result in flow data except on a very infrequent basis.

As a result, concerns regarding the lack of flow data have been raised for the intermittent streams within the permit area. For these are intermittent streams, it has become an issue as to why no flow and water quality data has been collected. As indicated above, these streams may be defined as intermittent, but they function as ephemeral drainages. For ephemeral streams, the standard condition for the channel is dry. The monthly monitoring has provided data which document the lack of flow. The flow modeling, described in the MRP section 724.200 for the watersheds within the permit area, suggests that for short duration, frequent storms (2 to 10 yr), while the watershed would be wetted, no generally concentrated flow would be evident. Higher frequency, longer duration events (10yr +) would result in increasing amounts of runoff. Therefore, for a

short period (less than 10 years), the expected flow condition for an ephemeral character stream would be no flow.

Based on the data from the Western Regional Climate Center, presented in MRP section 724.400, the probability of precipitation events capable of generating runoff is very low. Table 7-1C shows that the probability of a 1-day event with more than 0.5" of runoff is less than 5 percent. According to the flow simulations in section 724.200, runoff is not common in storms with less than 1.2 inches of rainfall (10 year event).

Also, the lack of monthly water monitoring data for the period of December and January for most years was raised as a concern. Generally, the access to the sites is prevented by snow. This is not considered a significant problem due to the general lack of precipitation and flow during this period. Average precipitation at Sunnyside during December and January is generally under 2 inches of precipitation of the annual average of over 14 inches (see Table 7-1B). Average maximum temperatures during December and January at Sunnyside are reported to be around freezing (see Table 7-1B). At the mine site, the elevation is higher, therefore, the temperatures would be lower. Thus, any precipitation would generally be in the form of snow which would not result in a runoff event. Any snow melt which might occur would be at a very slow rate which would also not result in runoff, but would likely ripen the snowpack and locally infiltrate into the soil.

Further, a concern regarding the identification of seasonal variation in flows and water quality has been raised. Based on the monthly monitoring, there has been no consistent or seasonal flows identified in any of the drainages in the proposed permit area. Thus, the modeling presented in the MRP section 724.200 is representative of the flows in the drainages. These are characterized by infrequent runoff events from isolated, heavy precipitation occurrences with very limited durations. Based on these types of runoff events, the drainages are ephemeral in nature and the use of the downstream waters is very limited. This is evidenced by the limited number of State appropriated waters in the downstream drainages (see Plate 7-3). There are no water rights with flow diversions found on the downstream drainages which collect water from the proposed permit area. A series of stock ponds are found within the Grassy Wash drainage. Information from the BLM presented on Plate 7-3 show the stock ponds and the associate water rights. A series of four ponds have been constructed for which there are no water rights. As discussed in Section 724.200,of these ponds, only one had a diversion structure on the main stream channels that flow from the permit area. Based on a site visit in January 2004, a pond, labeled Blaine’s Folley reservoir, was found silted in, though a new diversion works had been constructed at the confluence of the Right Fork of Lila

Canyon and Grassy Wash. In checking with the BLM personnel, the pond improvements were not part of agency range improvements. Recent site visits have shown that the diversion structure in the Right Fork of Lila Canyon have been breached. This will result in very limited flow reaching this pond. Given the lack of flow from the permit area to these ponds, there is little impact that could be caused by the mining activities.

Potential Hydrocarbon Contamination. Diesel fuel, oils, greases, and other hydrocarbon products will be stored and used at the site for a variety of purposes. Diesel and oil stored in above-ground tanks at the mine surface facilities may spill onto the ground during filling of the storage tank, leakage of the storage tank, or filling of vehicle tanks. Similarly, greases and other oils may be spilled during use in surface and underground operations.

The probable future extent of the contamination caused by diesel and oil spillage is expected to be small for three reasons. First, because the tanks will be located above ground, leakage from the tanks will be readily detected and repaired. Second, spillage during filling of the storage or vehicle tanks will be minimized to avoid loss of an economically valuable product. Finally, the Spill Prevention Control and Countermeasure Plan which will be developed for the site will provide inspection, training, and operation measures to minimize the extent of contamination resulting from the use of hydrocarbons at the site. This plan is not required to be submitted. However, a copy will be maintained at the mine site as required by the Utah Division of Water Quality.

Road Salting. No salting of roads will occur within the permit area. Hence, this impact is not a significant concern.

Coal Haulage. Coal will be hauled over the county road from the mine portal area to Utah Highway 6 and thence to its ultimate destination. In the event of an accident which causes coal to spill from the trucks, residual coal following cleanup of the spill may wash into local streams during a runoff event. Possible impacts to the surface water are increased total suspended solids concentrations and turbidity from the fine coal particulates. The probability of a spill occurring in an area sufficiently close to a stream channel to introduce coal to the stream bed is considered small.

In addition to spills, wind may carry coal dust or small pieces of coal from the open top of the coal trucks into drainages near the roads. The impact from fugitive coal dust is considered to be insignificant due to the small amounts lost during haulage in the permit and adjacent areas.

Alluvial Aquifer Abstractions into Mines - There will be no water infiltrations from alluvial systems into the mine.

Postmining Inflow to Workings - Postmining all openings will be sealed and backfilled. The proposed mine openings for Lila Canyon are at an elevation where no surface inflow is possible. This coupled with the sealing plan for the portals makes postmining inflows virtually impossible.

Coal Moisture Loss - It has been estimated that coal moisture loss or usage to be estimated at 4.5 gallons per ton of coal mined (see Table 2). Using the estimated usage for mining with an estimated production of 4.5 Million tons per year a usage of 20,250,000 gal per year or 62.12 acre feet can be estimated. It should be noted that due to the extremely low hydraulic conductivity rates measured in the general area, that groundwater movement is very slow. Using the average hydraulic conductivity measured for Blackhawk Sandstone (3.0×10^{-6} cm/sec) (see Table 1) which is equal to 0.1 inch per day. Therefore, water encountered underground would take approximately 1,736 years to travel one mile. This water is considered relatively immobile. The water encountered and used underground would not reach the Colorado Drainage in any reasonable time, if ever, and thus water consumed underground cannot negatively effect the Colorado River Basin.

Surface Dust Suppression It has been estimated that usage on the surface for dust suppression will be approximately 10,000 gallon per day or 3,650,000 gallons per year. This results in a usage of 11.20 acre feet per year.

Direct Diversions - no consumption.

Adding the four losses due to mining equals to 80.81 acre feet which is below the mitigation level of 100 acre feet. UEI does hold 362.76 acre feet of underground water rights to offset any consumption. Therefore, it is the opinion of UtahAmerican Energy, Inc. that water consumption by underground coal mining operation will NOT jeopardize the existence of or adversely modify the critical habitat of the Colorado River endangered fish species.

The Permittee is aware that regardless of state-appropriated water rights held by the Permittee, ay water consumption over 100 acre-feet per year is subject to a per acre-foot fee payable to the USFWS. And, that the actual water consumption reported in the annual report once mining operations have commenced, might be subject to a Section 7 consultation with the USFWS.

Conclusion

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APPENDIX 7-9

Right Fork of Lila Canyon
Flow and Geomorphic Evaluation

~~**Hydrologic Design**~~

~~**Thomas J. Suchoski**~~

Modified ~~March~~June 20~~07~~16

INTRODUCTION:

~~On January 31, 2004 a~~A stream evaluation was conducted of the Right Fork of Lila Canyon and other drainages downstream of the proposed mine facilities toward the Price River. The purpose of the study was to determine the impact of a continuous discharge ~~of 500 gpm~~ from the mine would have on the downstream channel. ~~A~~

The evaluation started with a series of cross-section measurements were taken to characterize the channel configuration and the channel bed and bank materials. At each cross-section a series of station and elevation shots were taken with a Trimble 4800 GPS unit. These shots were intended to provide a base condition description of the channel cross-section shape and width of the channel for input into the stream transmission loss modeling. No graphical cross-sections were prepared of the data. ~~Additionally, p~~Photographs were taken of each cross-section location looking upstream and downstream to help visualize the conditions at the cross-section. Additional photographs of the bed and bank materials were taken to aid in classifying the material type. The photographs are presented in Attachment #1 to this Appendix. A listing of the survey points is presented in Attachment #2.

Figure 1 shows the location of the cross-section sites. The original plan was to collect cross-sections at one-half mile spacings along the channel alignment between the mine site and the Price River. However, at the third cross-section location, a recent diversion structure was found which diverted the normal flow of the Right Fork of Lila Canyon. Previously, the flow from the Right Fork joined with the flows from Grassy Wash. However, with the diversion, the entire flow of the Right Fork was diverted to a diversion channel. The location of the diversion dam and alignment of the diversion channel is presented in Figure 1. Ultimately, the diversion channel will convey the flow to a stock pond located in the SW/4, SW/4 of Section 28, T. 16 S., R. 14 E.

This stock pond was assumed to be a BLM pond. The work appeared to be part of implementation of a range improvement program in the area of the pond. As part of this program, the embankment had been improved and raised, the outlet riprapped, and the diversion structure moved upstream and improved to collect additional flows. However, the pond area was still filled with silt or sediment.

The result of this range improvement project was that the flows from the Right Fork of Lila Canyon would be diverted to the stock pond. If the pond fills, any excess water will be released back to Grassy Wash. Based on the size of the pond, if cleaned, it appears that the pond will hold about 5 to 7 acre-feet.

Subsequent to the field work, discussions were held with the BLM regarding the diversion and stock pond improvements. They indicated that they had no knowledge of them. A few months following the meeting, during other field work in the area, it was discovered that the diversion on the Right Fork of Lila Canyon had been breached and the flow channel reestablished to Grassy Wash.

Results:

Channel sections

The Right Fork of Lila Canyon is an ephemeral channel which is incised into the pediment surface below the Book Cliffs. At cross-section location 1, the channel is incised about 25 to 30 feet and has a top width of approximately 75 to 100 feet. The channel has a low-flow component that consists of a general trapezoidal shape with ~~1V:~~1.5 to 2H:1V slopes, a bottom width of about 5 feet, and a low flow channel depth of almost 1.5 feet. Channel material consists of fine to coarse gravels and fine sands and few silts.

At cross section location 2, the channel is transitioning from the incised section to a broader section at the confluence of the Right Fork with Grassy Wash. In this reach, the channel is incised about 10 to 15 feet and has a top width of approximately 250 to 300 feet. The channel has a low-flow component that consists of a swale shape with gentle sideslopes, a bottom width of about 7.5 to 10 feet, and a low flow channel depth of almost 1.0 foot. Channel material consists of fine to coarse gravels and fine sands and silts.

Upstream of the confluence, at cross-section 3, Grassy Wash consists of a braided channel with several flow channels. The predominant channel has a top width of 10 to 12 feet with a bottom width of 8 or 9 feet and steep side slopes. The depth of this channel is approximately 2.5 feet deep. The overall channel is approximately 50 to 75 feet wide. Channel material consists of fine to coarse gravels and fine sands and silts.

Downstream of the confluence with the Right Fork, at cross-section 4, Grassy Wash is again an incised channel. The channel is approximately 10 to 15 feet wide with a depth of 5 to 6 feet. The channel bends to the west and flow is directed against the outer bank. This results in a steep slope on the outer bank and a gentler slope on the inner bank. Channel materials consist of fine to coarse gravels and fine sands and silts.

Downstream of the pond at cross-section 5, Grassy Wash is a moderately incised channel. The channel is approximately 10 to 15 feet wide with a depth of 4

to 5 feet. Channel materials consist of fine to coarse gravels and fine sands and silts.

Stream Transmission Loss Modeling

~~Based on the DOGM estimate for mine discharge, an evaluation was conducted~~Originally, DOGM required an evaluation for an estimated mine discharge of 500 gpm, to determine if this flow would reach the Price River. ~~This~~Subsequent to that evaluation, UEI has determined that the old Horse Canyon workings in the area that the mine will cross during development are flooded. To safely cross these workings it is necessary to drain the water. Based on the anticipated water head identified in the workings, an worst case flow rate of approximately 2080 gpm (3.0MGD) is estimated. Once the initial volume of water stored in the Horse Canyon workings is drained, it is anticipated that the flow rate from the old workings will decrease. However, the duration of that decrease is unknown. Therefore, this evaluation is based on an assumed constant flow rate using the concepts presented in the U.S. Soil Conservation Service National Engineering Handbook Chapter 19 - Transmission Losses (~~1985~~2007). The actual method is based on regression equations derived from Arizona and New Mexico conditions. While the current site is similar to the area developed from, the specific conditions were different. Therefore, the current site was modeled using similar concepts.

The estimated mine discharge was assumed to be introduced to the channel immediately below the mine site. The soil designations of the channel area were determined from preliminary soils maps developed by the NRCS Price Office for the Emery County Soil Survey (personnel communication, Leland Sasser, 2004) (a copy of the preliminary map is presented in Attachment 3). The length of channel crossing each different soil type was determined from this map. Permeability estimates of the soils were determined from the SCS Emery and Carbon County Soil Survey, engineering properties table. Estimates of channel width and depth and valley fill width and depth were derived from the photos and cross-section information. The depth of the valley fill was determined during field investigations based on the site conditions. These data along with the length of soil sections and permeability data were input into the spreadsheet presented in Table 1. ~~No evaporation was assumed to provide a conservative estimate.~~ Based on the discharge to the channel and the estimates of infiltration, evaporation, and permeability loss over the flow length, an estimate of the distance that the flow would be conveyed was determined.

Given the soils in the area, the constant ~~500~~2,080 gpm flow from the mine would be expected to have surface flow for a distance of approximately 1~~8~~5,~~300~~950 feet or 3 miles.~~4~~ The subsurface flow would be expected to extend and additional

29,060 feet or 5.5 miles. Thus, the total flow distance of the mine water is estimated to be about 8.5 miles. All values used for the modeling, presented in Table 1 including the mine water discharge rate, are considered to be conservative values. The distance to the Price River from the mine is about ~~9~~12.~~5~~7 miles. Therefore, the flow from the mine will not reach the Price River.

Flow Characteristics

The results of the calculations channel capacity calculations (Attachment 4) show that both the 500 gpm (1.1 cfs) and the 2,080 gpm (4.63 cfs) constant mine ~~discharge (1.1 cfs)~~discharges would have a flow depth at cross-section 1 of about 0.8 feet and 1.5 feet, respectively. ~~This is~~These are significantly less than the bank full condition~~s~~ flow depth expected at this cross-section below the mine site (2.55 feet).

Many reseachers consider the bankfull flow to be the major channel forming flow, due to its probability of occurrence and its channel forming energy. Given the fact that the mine water flow is significantly below this flow, its is not likely that the mine discharge flow will have any significant negative impact on the channel conditions.

The cross-section data has been collected as a baseline to comply with the statement under Section 728.333. UEI has a concern that subsequent surveys made to determine the impact of the mine water discharge on the channel form and shape would not necessarily show that the mine water was impacting the stream channel. This would be not be a viable approach as natural rainfall runoff events would likely have a higher peak flow, based on the flow simulations that have been conducted in Appendix 7-10 and in Appendix 7-4. These higher flows would likely result in channel form and shape changes that had nothing to do with the mine water discharge flows. Therefore, there would be no way to differentiate the changes in the channel between mine water and runoff induced changes.

It is likely that the constant low flow condition within the channel will result in the establishment of a vegetative community adjacent to the channel for the short distance that flow will exist above ground. Additionally, the development of such a community, would increase the evapotranspiration along the flow corridor which would decrease the available flow and ultimately result in a shorter flow distance below the mine.

Table 3.4/3.5
INTERIM AND FINAL RECLAMATION SEED MIX
Recommended Seed Mix for Lila Canyon Mine

Species	Latin Name	Seeds/lb	# Seeds per Acre Planted	%Mix Planted	Seeding Rate Lbs / acre	Seeds / ft²
Grasses						
Needle And Thread	Stipa Comata	115,000	230,432	5	2.00	5.3
Indian Ricegrass	Achnatherum humenoides	141,000	282,269	6	2.00	6.5
Basin Wild Rye	Leymus cinereus	130,000	129,373	3	1.00	3.0
Galleta	Hilaria jamesii	314,500	313,632	6	1.00	7.2
Bluebunch Wheatgrass	Pseudoroegneria spicata	140,000	139,392	3	1.00	3.2
Slender Wheatgrass	Elymus trachycaulus	159,000	317,968	6	2.00	7.3
Blue Gamma	Bouteloua gracilis	825,000	827,640	17	1.00	19.0
Subtotal						51.4
Forbs						
Blue Flax	Linum lewisii	293,000	294,030	6	1.00	6.8
Palmer Penstemon	Penstemon palmeri	610,000	152,460	3	0.25	3.5
Globemallow	Sphaeralcea ambigua	500,000	250,470	5	0.50	5.8
Indian Paintbrush	Castilleja linariaefolia	4,915,000	479,160	10	0.10	11.0
Fringed Sage	Artemisia frigida	4,536,000	435,600	9	0.10	10.0
Subtotal						37.0
Shrubs						
Wyoming Big Sage	Artemisia tridentata	2,576,000	653,400	13	0.25	15.0
Green Rabbitbrush	Chrysothamnus nauseosus	400,000	41,382	1	0.10	1.0
Fourwing Saltbush	Atriplex canenscens	52,000	43,560	1	0.84	1.0
Winterfat	Ceratoides lanata	56,700	56,628	1	1.00	1.3
Shadscale	Antriplex confertifolia	64,900	64,904	1	1.00	1.5
Cliffrose	Cowania mexicana	64,600	64,469	1	1.00	1.5
Black Sage	Artemisia nova	907,200	230,868	5	0.25	5.3
Subtotal						26.5
TOTAL PER ACRE			**16,789,900**	**5,007,658**	**100**	**16.39**	**115**

NCORPORATE
EC 2 3 2013

TOPSOIL MOVEMENT & CONSTRUCTION RECORD

UTAHAMERICAN ENERGY

LILA CANYON MINE

December 2008-June 2015

Report Updated June 2015

Prepared by

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Scope of Work

EIS Environmental & Engineering Consulting (EIS) was hired by UtahAmerican Energy, Inc (UEI) to monitor the removal of topsoil from the Lila Canyon Mine for Phase I construction activities.

Phase I consisted of the following activities:

- Construct stormwater detention ponds. These ponds are needed to contain all runoff coming from disturbed areas.

- Construct portal access road. Due to the length of time required to construct the underground rock slopes, it was necessary to construct the portal access road during Phase I of the construction activities.

- Remove topsoil from the west portion of the coal stockpile area. This area was needed to provide storage space for material generated during the construction of the underground rock slopes.

- Remove topsoil from the warehouse pad area. This area was also needed to provide storage space for material generated from the rock slope construction work.

- Construct employee parking and temporary bathhouse area. This area was needed to provide parking space and bathhouse facilities for the crews developing the rock slopes.

During Phase I activities the follow amounts of topsoil were generated from the various locations:

LOCATION	LOADS	VOLUME (Yd^3)
Employee Parking Lot	378	12,110
Portal Road	238	7,622
Storm Water Detention Pond	154	4,943
Small Detention Pond	61	1,940
Coal Stockpile	269	8,601
Warehouse Pad	137	4,385
Topsoil Area	Push with Dozer	646
TOTAL		**40,247 Yd^3**

LILA CANYON MINE
TOPSOIL & CONSTRUCTION ACTIVITY RECORD

December 24, 2008 (Mel Coonrod & Matt Serfustini)

The following activities were observed during this visit:

1. Fill material was being removed from the stormwater detention pond. Some topsoil still remains to be removed from the pond area.
2. Work on portal access road was proceeding.
3. Topsoil was being removed from employee parking area.
4. Topsoil had been removed from west end of coal pile area.

PHOTOGRAPHS

LOOKING SOUTH TOWARDS TOPSOIL STORAGE AREA

MATERIAL REMOVED FROM TOPSOIL STORAGE SITE

PORTAL ACCESS ROAD TOPSOIL NORTH OF COAL STOCKPILE, PHOTO TAKEN LOOKING EAST

SOIL PROFILE ON PORTAL ACCESS ROAD LOOKING NORTH, TAKEN ADJACENT TO PRIOR PHOTOGRAPH

TOPSOIL REMOVAL SOUTH END OF EMPLOYEE PARKING LOT LOOKING SOUTH EAST

SOUTH OF LOADOUT STATION LOOKING NORTH

SOUTH OF LOADOUT STATION LOOKING SOUTH

SOIL PROFILE AT THE SAME LOCATION AS THE TWO PREVIOUS PHOTOGRAPHS

BOULDER REMOVAL SOUTH OF LOADOUT STATION LOOKING NORTH

EMPLOYEE PARKING AREA LOOKING SOUTH

December 30, 2008(Tom Paluso)

The following activities were observed during my site visit:

1. Fill material was being removed from portal access road. Contractor was working on side slopes on the portal access road.
2. Topsoil was being removed from employee parking area and delivered to the topsoil storage area.
3. Contractor was breaking large rocks on west end of coal storage pile. The large rocks were being reduced to make it easier to obtain necessary compaction with fill material being deposited in this area.

PHOTOGRAPHS

TOPSOIL REMOVAL FROM EMPLOYEE PARKING AREA

LOOKING SOUTHWEST OVER PROJECT AREA

<u>January 7, 2009 (Tom Paluso)</u>

The following activities were observed during site visit:

1. Contractor was transporting topsoil from office area to topsoil site.
2. Portal access road grade was being lowered northeast of employee's parking area.
3. Hydraulic hoes were working on portal area.

The stormwater detention pond still has approximately 15 percent of the topsoil to be removed. This material is located in the southeast corner of the pond. According to Shane Campbell this material was intentionally left to provide work during bad weather conditions. Shane also mentioned that topsoil removal at the warehouse site should probably start on January 15 or 16.

PHOTOGRAPHS

TOPSOIL REMOVAL FROM OFFICE AREA

BOULDERS BEING SEPARATED FROM TOPSOIL MATERIAL

LOWER PORTAL ACCESS ROAD GRADE

FILL MATERIAL BEING REMOVED FROM PORTAL ACCESS ROAD

HYDRAULIC BACKHOES WORKING ON PORTAL AREA

<u>January 15, 2009 (Tom Paluso)</u>

The following activities were observed during site visit:

1. Large boulders are being crushed to make gravel for this project.
2. Boulders are being stockpiled at future coal stockpile site. These boulders will be crushed into gravel.
3. Work on the portal area is still in progress.

PHOTOGRAPHS

BOULDERS BEING CRUSHED INTO GRAVEL

CRUSHED GRAVEL PILE

BOULDERS BEING STOCKPILED FOR CRUSHING

<u>January 28, 2009 (Tom Paluso)</u>

The following activities were observed during site visit:

1. Removing material from north end of parking lot.
2. Removing topsoil from stacking tube area.
3. Employee parking lot grading.

PHOTOGRAPHS

PARKING LOT MATERIAL REMOVAL

FINAL GRADING WEST END OF EMPLOYEE PARKING AREA

EMPLOYEE PARKING LOOKING NORTH WITH CRUSHED GRAVEL PILE

BOULDER REMOVAL FROM STACKING TUBE AREA LOOKING EAST

TOPSOIL REMOVAL FROM STACKING TUBE AREA LOOKING NORTH

STACKING TUBE AREA LOOKING EAST TOWARDS PORTALS

EAST OF STACKING TUBE LOOKING WEST

<u>January 29, 2009 (Tom Paluso)</u>

The following activities were observed during site visit:

1. Removing material from north end of parking lot.
2. Removing topsoil from stacking tube area.
3. Employee parking lot grading.

PHOTOGRAPHS

TOPSOIL PROFILE BY STACKING TUBE AREA

CLOSE-UP OF TOPSOIL PROFILE

February 6, 2009 (Tom Paluso)

The following activities were observed during site visit:

1. Removing topsoil from shop-warehouse area.
2. Completing work around silo area.

PHOTOGRAPHS

LOOKING SOUTHEAST FROM SILO AREA, TOPSOIL IS BEING COLLECTED

COLLECTING BOULDERS AND VEGETATION

LOOKING NORTHEAST FROM SILO AREA, TOPSOIL HAS BEEN REMOVED

February 18, 2009 (Tom Paluso)

The following activities were observed during site visit:

1. Removing topsoil from small Stormwater Detention Pond.
2. Removing remaining topsoil from large Stormwater Detention Pond.
3. Working on final grade for Portal Access Road

PHOTOGRAPHS

SIGN LOCATED BY CONSTRUCTION OFFICE & NEAR SMALL STORMWATER DETENTION POND

COLLECTING TOPSOIL AT SMALL STORMWATER RETENTION POND (SRP)

COLLECTING TOPSOIL AT SMALL SRP

REMOVING BOULDER FROM SMALL SRP

NORTHEAST SOIL PROFILE

SOUTHEAST SOIL PROFILE

REMOVE REMAINING MATERIAL FROM LARGE STORMWATER RETENTION POND (SRP)

WEST END LARGE SRP

FINAL WORK ON PORTAL ROAD

TOPSOIL PILE LOOKING NORTHEAST

TOPSOIL PILE LOOKING SOUTH EAST

FOR TOPSOIL TRACKING PURPOSES, PHASE I OPERATIONS ENDS HERE

September 30, 2009 (Tom Paluso)

Lila Canyon Mine is in the process of installing a temporary coal conveyor belt that will be used to remove coal from the mine while the permanent conveyor belt is installed. According to Jay Marshall, this temporary conveyor belt may be used for up to five years while the permanent system is completed.

The construction of this temporary conveyor belt will require concrete supports for bent installations. Topsoil removal at this point is necessary to provide access for equipment required for bent construction. During this phase of topsoil removal 9,324 cubic yards of topsoil was salvaged.

REMOVAL OF TOPSOIL NEAR PORTAL

SOIL PROFILE

TOPSOIL BEING DELIVERED TO TOPSOIL PILE

April 28, 2010 (Tom Paluso)

Scamp Excavation was removing topsoil from the warehouse pad and temporary coal pad. During this section of topsoil removal, 3,772 cubic yards of topsoil was salvaged.

TOPSOIL REMOVAL NEAR PORTAL ROAD

CLOSEUP VIEW OF TOPSOIL MATERIAL

DISTRIBUTION OF TOPSOIL AT TOPSOIL STORAGE AREA

May 26, 2010 (Tom Paluso)

Nielson Construction is removing topsoil from the substation pad area. Approximately 2,100 cubic yards of topsoil was salvaged from this area.

TOPSOIL PROFILE

SUBSTATION PAD LOOKING TOWARDS PORTAL

TOPSOIL PILE AT SUBSTATION SITE

VEGETATION REMOVED FROM TOPSOIL AT SUBSTATION SITE

<u>July 15, 2010 (Tom Paluso)</u>

Scamp Excavation salvaging topsoil at stockpile pad and warehouse pad. Both of these pads are being enlarged to accommodate next phase of construction activities. A total of 6,930 cubic yards of topsoil was salvaged during this section of topsoil removal.

WAREHOUSE PAD BELOW PORTALS

VEGETATION SEPARATION AT SITE

TOPSOIL PLACED AT TOPSOIL PILE

TOPSOIL AT TOPSOIL PILE

June 23, 2014 (Tom Paluso)

Scamp Excavation removed topsoil from the Portal Borrow Area. This area is adjacent to portal road. The area on which the topsoil was removed was approximately 120' x 100'. A total of 333 cubic yards were removed and placed in the topsoil pile. Refer to the pictures below.

TOPSOIL REMOVAL PORTAL BORROW AREA (JULY 23, 2014)

LOOKING TOWARDS LILA CANYON

SOIL PROFILE AT TOP OF CUT

August 20, 2014 (Tom Paluso)

Scamp Excavation from August 20 through August 22, 2014, removed topsoil from the south end of the Upper Pad Area and the Middle Pad Area. A total of 1040 cubic yards were removed from these two areas. The pH of the soil was 7.1. The Upper Pad Area is approximately 500' long.

On August 25- 26, topsoil removal was moved to the Truck Loop Area. The Truck Loop Area is north and adjacent to the Access Road going to the portals. A total of 720 cubic yards were removed and sent to the topsoil pile.

UPPER PAD AREA LOOKING SOUTH WEST

UPPER PAD AREA LOOKING SOUTHEAST

TRUCK LOOP AREA LOOKING TOWARDS PORTAL

TRUCK LOOP AREA CLOSER TO PORTALS

<u>March 30, 2015 (Tom Paluso</u>

Topsoil removal on the Future Parking Lot and Material Storage area was started on March 30, 2015. This area is located between the material storage yard and the west sediment pond. Removal of the large boulders and stockpiling of the topsoil was handled by foreman Mike Allred. This work continued until April 23, 2015, when Scamp Excavation hauled the topsoil and placed it into the topsoil storage area. A total of 32 truckloads or 1280 cubic yards of topsoil was moved to the topsoil storage area.

An access road leading to the west sediment pond, previously had topsoil removed. This road provided access to the west sediment pond from the material storage yard. This road was inside of this topsoil removal project.

LOOKING EAST AT STORAGE AREA FROM WEST SEDIMENT POND

LOOKING WEST FROM STORAGE YARD

LOOKING NORTH

ROCK PILE

LOOKING NORTH WEST OF MATERIAL STORAGE YARD

LOKING WEST AFTER TOPSOIL HAS BEEN REMOVED

TOTAL TOPSOIL REMOVAL TABLE AS OF JUNE 2015

LOCATION	LOADS	VOLUME (Yd^3)
Employee Parking Lot	378	12,110
Portal Road	238	7,622
Storm Water Detention Pond	154	4,943
Small Detention Pond	61	1,940
Coal Stockpile/Warehouse pads	793*	33,012
Topsoil Area	Push with Dozer	646
Substation Area	*	2,100
Portal Borrow Area	*	333
Upper & Middle Pod	26	1,040
Truck Loop Area	18	720
Future Truck Loop/Storage Yd.	32	1280
TOTAL		**65,746**

*** Total Truck Count Not Reported**

APPENDIX 1

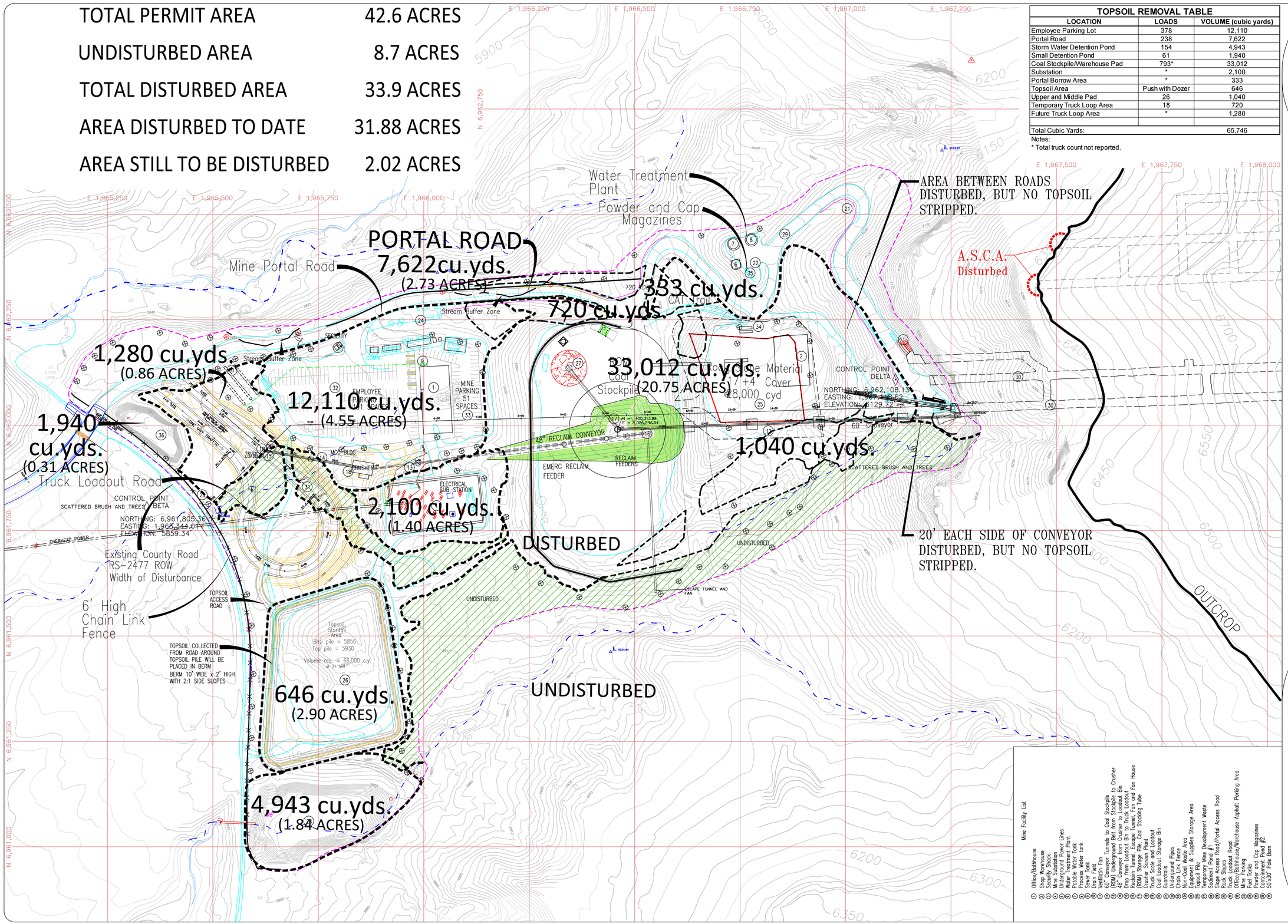
TOPSOIL REMOVAL MAP

TOTAL PERMIT AREA	42.6 ACRES
UNDISTURBED AREA	8.7 ACRES
TOTAL DISTURBED AREA	33.9 ACRES
AREA DISTURBED TO DATE	31.88 ACRES
AREA STILL TO BE DISTURBED	2.02 ACRES

TOPSOIL REMOVAL TABLE

LOCATION	LOADS	VOLUME (cubic yards)
Employee Parking Lot	378	12,110
Portal Road	238	7,622
Storm Water Detention Pond	154	4,943
Small Detention Pond	61	1,940
Coal Stockpile/Warehouse Pad	793*	33,012
Substation	*	2,100
Portal Borrow Area	*	333
Topsoil Area	Push with Dozer	646
Upper and Middle Pad	26	1,040
Temporary Truck Loop Area	18	720
Future Truck Loop Area	*	1,280
Total Cubic Yards:		65,746

Notes:
* Total truck count not reported.



Mine Facility List

1. Office/Bathhouse
2. Shop Warehouse
3. Security Shack
4. Mine Substation
5. Underground Power Lines
6. Water Treatment Plant
7. Potable Water Tank
8. Process Water tank
9. Sewer Tank
10. Portal Fan
11. Ventilation Fan
12. 60" Conveyor Tunnels to Coal Stockpile
13. 48" Conveyor from Crusher to Loadout Bin
14. Reclaim Tunnel, Escape Tunnel, Fan and Fan House
15. Reclaim Tunnel, Escape Tunnel, Fan and Fan House
16. (ROM) Storage Pile, Coal Stacking Tube
17. Crusher Screen Plant
18. Truck Scale and Loadout
19. Coal Loadout Storage Bin
20. Guardrails
21. Underground Pipes
22. Chain Link Fence
23. Water Storage Area
24. Equipment & Supplies Storage Area
25. Topsoil Pile
26. Temporary Mine Development Waste
27. Sediment Pond #1
28. Sediment Pond #2
29. Stockpile Access Road/Portal Access Road
30. Rock Slopes
31. Truck Loadout Road
32. Office/Bathhouse/Warehouse Asphalt Parking Area
33. Mine Parking
34. Employee Parking
35. Powder and Cap Magazines
36. Containment Pond #2
37. 50'x30' Pole Barn

LEGEND:

- UNDISTURBED WITHIN THE DISTURBED AREA
- PROJECTED DISTURBED AREA BOUNDARY
- CURRENT DISTURBED AREA BOUNDARY
- NATURAL DRAINAGE
- TEMP. REFUSE PILE (COAL MINE WASTE)
- TOPSOIL BERM
- 6' HIGH CHAIN LINK FENCE
- Stream Buffer Zone
- INCIDENTAL ROCK DISTRIBUTION
- Ditch
- STREAM BUFFER ZONE SIGNS
- Culvert

NOTES:
(1) REFER TO PLATE 5-7A&B FOR CROSS-SECTIONS.

R 14 E, T 16 S

0' 100' 200'
50' 0' 50'

REVISION DATE:

DATE	BY	DATE	BY
JUNE 2011	PJJ		
February 2015	RJM		
JUNE 2015	PJJ		

LILA CANYON MINE

TOPSOIL REMOVAL MAP

DATE: 19 July 2010 | DRAWN BY: P. Jensen | PLATE #: 1 of 1 | SCALE: AS SHOWN

UTAH REGISTERED PROFESSIONAL ENGINEER #152606 R. Jay Marshall

APPENDIX 8-A

COST FIGURES

EIS ENVIRONMENTAL & ENGINEERING CONSULTING

435-472-3814 / 800-641-2927 / FAX 435-472-8780 /tompaluso@preciscom.net / 31 NORTH MAIN STREET HELPER, UTAH 84526

MEMO

MEMO TO: **PJ Jensen**

MEMO FROM: **Gary E. Taylor**

DATE: **19May 2016**

SUBJECT: Bidding on Reclamation Items

A number of companies were contacted to provide costs for the different items concerning the bond calculation for Lila Canyon Mine. The following is a brake down of that information:

Portal Sealing

JennCehm submitted cost figures.
Wall Contractors would not provide cost unless work was involved.
Kiewit did not response.
Frontier-Kemper did not response.

JennCehm was used to develop portal sealing costs.

Earthwork

Scamp submitted cost figures.
Nielson did not response.
W. W. Clyde did not response.

Scamp was used to develop earthwork costs. R. S. Means figures were used if equipment was not found in Scamp's equipment list.

Vegetation and Trees

The Maple Leaf Co. submitted cost figures to both the primary and secondary requests.
Granite Seed submitted cost figures on the primary request but not the secondary request.
Lawyer Nursery Inc. submitted cost figures.
Blake Nursery could not supply all of the seed mix.
Native Plant could not supply all of the seed mix.
West Scape Nursery did not response.

Maple Leaf and Lawyer were used to develop vegetation and tree costs.

Concrete

Nielson Concrete submitted cost figures.
Geneva Rock submitted cost figures
Christensen Ready Mix did not response.

Nielson Concrete was used to develop well plugging costs.

Helicopter

Mountain West Helicopter submitted cost figures.
Classic Aviation submitted cost figures.
Aerial Crane Enterprises submitted cost figures.

Attn: Gary Taylor

Subject: JSEAL Cement Budgetary Estimates

Thank you for your interest in JENNCHEM Products. Below is the pricing requested for installation JENNCHEM's JSEAL product. Please review and respond with any questions.

Scope of work: Below is a rate schedule and budgetary estimate for JSEAL cement. Actual costs to be determined according to specific scope of project.

Terms/ Conditions:

Mine Provides:

- Water at the site
- Power at the work site (480 or 575V)
- Formwork for containing the JSEAL cement

JENNCHEM Provides:

- JSEAL material delivered to the mine
- JSEAL pump
- Technical Support
- Labor (if needed)
- Supply hoses for pump (if needed)

<u>Rate Schedule/ Project Estimate</u>:

- Mobilization: determined by project scope
- JSEAL- 45lb bags (Part # 3JSEALMIX45) : $18.00/bag
    - *Customer will be billed for JSEAL bags as they arrive to the mine*
    - *Full pallets may be returned at the end of the project for full credit*
    - *There are 48 bags per pallet and a maximum 20 pallets per truck*
    - *Volume is estimated based on a 9 bag per yard mixture*
    - *Price is FOB Toole Utah*
- Supervisor Labor: standard time = $65.00/standard hr each. OT = $85.00 /hr per each.

    - Time in excess of the standard 40 hour week will be considered overtime. Also all weekend and holiday work will be billed at OT rates.
    - A perdiem/ hotel fee of $150.00 per night per technician will apply.
    - Labor will be charged weekly.
- Technician Labor: standard time = $50.00/standard hr each. OT = $70.00 /hr per each.
    - Time in excess of the standard 40 hour week will be considered overtime. Also all weekend and holiday work will be billed at OT rates.
    - A perdiem/ hotel fee of $150.00 per night per technician will apply.
    - Labor will be charged weekly.
- Equipment and supplies: determined by project scope

Estimated material price per yard: $260.00 per yard
Total material cost for 8.6'x20'x2.6' plug: $4,320.00
****Mobilization, labor and equipment costs to be determined by project scope. For labor estimation, a five person crew can pump approximately 7-10 cubic yards per hour depending on site conditions.***

Pump distances:

- JENNCHEM requires a 2000 foot maximum pump distance.

Shift Reporting:

- JENNCHEM foremen will not only communicate with the customer representative on a daily basis but he will also complete a comprehensive report at the end of each shift detailing the activities performed, delays encountered, the daily safety training log, hours worked by each man, and any other relevant information.
- This report will be distributed to mine management and any other required party.

Shift Time:

- JENNCHEM anticipates each crew working 40 hours per week.
- If the mine requires the JENNCHEM crew to work overtime weekends, or holidays, they will be subject to additional charges of $20.00/ hr to cover time and a half pay.

Shift Cancellation:

- If a shift is canceled less than 12 hours from start time, a show up time of 2 hours per crew member will apply.
- If a shift is canceled on short notice and JENNCHEM has deliveries in route to be delivered on the canceled shift, any demurrage, additional freight, cancelation, or restocking fees that result can be billed back to the mine at cost.

Volumes/ Material Required

- If more material than anticipated is required, the material will be invoiced at the bag price listed above. Labor for installing the additional material will be billed at the hourly rates listed.

JENNCHEM Labor:

- JENNCHEM will outfit and provide their employees working at customer locations with the basic PPE to legally perform their job based on the standards set forth by MSHA. This includes, protective clothing, safety glasses, hardhats, gloves, boots, miners light, self rescuer, and gas monitors. If a mine requires JENNCHEM to outfit their crews with additional equipment outside of what is listed above, then the cost of doing so will be charged to the mine.

Change of Scope:

- If the crews encounter any unforeseen conditions that cause JENNCHEM to incur additional expenses beyond what is expected, JENNCHEM reserves the recover these costs at 10% markup via change order.
- Mine personnel will be promptly notified before any change order requests are submitted.

Terms and Conditions:

- The pricing in this quotation is based on the above terms and conditions. If these conditions change during the project causing JENNCHEM to incur additional expenses, JENNCHEM reserves the right to bill for these expenses at cost plus 10%.

Quote valid 30 days from issue date above

For Questions Please Contact:

Dave Cunningham

JENNCHEM Manager

dcunningham@jennmar.com

412-352-3871 cell

412-963-9071 office

Dee Ann:

The following is the information that you requested.

Western Yarrow- $45.00

Blue bunch- $9.00

Mountain brome- $4.00

Lewis flax- $10.00

Yellow clover- $2.50

Small burnett- $4.00

Kentucky Bluegrass- $3.00

Louisiana Sage- $100.00

Northern Sweetvetch- 70.00

Sandburg bluegrass- 8.00

Snowberry- 75.00

Skunk bush- $45.00

Curl leaf mahogany- $55.00

Bitter brush- $25.00

Western Wheatgrass- $6.00

Native Aster- $90.00

Orchard grass- $4.00

Range alfalfa- $4.00

Rocky Mtn. Penstemon- $32.00

Shower Goldeneye- $75.00

Slender wheatgrass- $4.00

Basin sage- $45.00

Reed canary- $10.00

Sweet anise- $30.00

Woods rose- $32.00

Service berry- $70.00

Rabbit brush- $45.00

Blue elderberry- N/A

Prices are for pls pounds of each

Ryan Timoney

Granite Seed Company

THE MAPLE LEAF CO.
SEED DIVISION

450 South 50 East
Ephraim, Utah, 84627
P) 435.283.4400
F) 435.283.6872
maplelf@cut.net

EIS Environmental and Engineering
31 North Main Street
Helper Utah 84526

Mel, Dee
Following are current PLS prices on seeds you requested. Prices should be good 2016. However, please be aware that prices can change due to collection and weather conditions.

Western Yarrow	$ 28.00
Western wheatgrass	$6.75
Blue bunch	$ 7.50
Indian Rice Grass	$7.75
Great Basin Wildrye	$10.50
Redtop	$5.00
Buffalo Berry	Sold out until new crop
Native Aster	$52.00
Mountain Brome	$4.75
Orchard Grass	$3.25
Lewis Flax	$7.50
Range Alfalfa	$3.25
Yellow Clover	$2.25
Rocky Mtn. Penstemon	$32.00
Small Burnett	$2.45
Shower Goldeneye	$58.00
Kentucky Bluegrass	$2.00
Slender wheatgrass	$2.75

Louisiana Sage	$40.00
Mountain Big Sage	$45.00
Basin Sage	$40.00
Norther Sweetvetch	$65.00
Reed Canary	$7.50
Sandburg Bluegrass	$7.90
Sweet Anise	$22.00
snowberry	$65.00
Woods rose	$14.00
Skunk bush	$28.00
Service berry	$55.00
Curl leaf Mahogany	$39.00
Mountain Mahogany	$40.00
Rabbit brush	$39.00
Bitter brush	$26.00
Blue Elderberry	$36.00

If we can help with another information please do not hesitate to give us a call

Lloyd Stevens
Maple Leaf Seed
Ephraim, Utah

To: Lloyd Stevens

From : Gary Taylor

Date: 3 may 2016

Subject: Seed Cost

Listed below are seeds I would like you to determine the cost per pound.

ALL Prices are PLS

Thank you for your help

Needle and Thread	36.00
Basin Wild Rye	10.50
Galleta	24.50
Bluebunch Wheatgrass	7.50
Blue Gamma	16.00
Blue Fax	7.50
Palmer Penstemon	29.50
Globemallow	60.00
Indian Paintbrush	160.00
Fringed Sage	48.00
Wyoming Big Sage	40.00
Fourwing Saltbuxh	12.50
Winterfat	22.00
Shadscale	11.50
Cliffrose	36.00
Black Sage	48.00
Alpine bluegrass	— Not Avail
Thickspike Wheatgrass	— 5.60
Timothy	— 2.40
Red Fescue	— 2.00

Northern - Utah Source
Uintah BASN

Hard Fescue	3.75
Cereal Rye	.35¢
Triticale	.35¢
American vetch	N/A
Prairie Sage	45.00

LAWYER NURSERY INC - QUOTATION - 01/13/16

DEE ANN FINGER
ENVIRONMENTAL INDUSTRIAL SERVICES

31 NORTH MAIN ST
HELPER UT 84526
(435) 472-3814
Fax: (435) 472-8780

Quote #: 5585

Salesman: MJ
Ship Date:

Expiration:
Page : 1

Loc	Description	Size	Bundle Qty	Qty	Price	Price
W	POPULUS TREMULOIDES P-1	6-12"	25	1575	1.1000	1,732.50
M	CORNUS SERICEA 2-0	3-4'	10	10	1.9000	19.00
M	POPULUS ANGUSTIFOL. C-1	12-18"	50	0	1.6000	.00
W	POPULUS TRICHOCARPA P-1	2-3'	10	1550	1.1500	1,782.50
	STOCK SUB FOR AVAILABILITY					
M	SALIX EXIGUA C-1	3-4'	10	30	3.2000	96.00
W	ACER NEGUNDO 1-0	12-18"	50	550	.7500	412.50
M	PRUNUS VIRGINIANA 2-0	2-3'	25	550	.8500	467.50
W	QUERCUS GAMBELII P-2	3-6"	25	550	1.4000	770.00
W	ROSA WOODSII 2-0	6-12"	100	1200	.5500	660.00
W	SHEPHERDIA ARGENTEA 2-0	6-12"	100	1000	.8500	850.00

Comments
WE ARE UNABLE TO SUPPLY UNLISTED ITEMS

PRICES ARE EX-WAREHOUSE PLAINS,MT and/or OLYMPIA,WA

OFFER SUBJECT TO CROP GRADEOUT AND PRIOR SALE

$6,790.00	Subtotal:
$679.00	Est_ P&F:
	Sales Tax:
==========	
$7,469.00	Total:

Scamp Excavation, Inc.
PO Box 50, Wellington, UT 84542
"24 hours a day, 7 days a week/Have transport will travel"

Rate Sheet
May 2016

Customer:
EIS Environmental Engineering

Equipment	Rate Per Hour	Equipment	Rate per Hour
750 Excavator 85 ton	$165.00	50 ton Lowboy Transport	$95.00
350L Excavators	$155.00	75 ton Lowboy Transport	$150.00
420 Excavators	$140.00	Water Trucks	$90.00
330 Excavators w/Hammer	$140.00	6x6 Water Trucks	$90.00
330 Excavators	$110.00	Vacuum Water Trucks	$90.00
300 Excavators w/Hammer	$135.00	Vacuum Water Trailers	$100.00
200 Series Excavators	$100.00	2 - 80 BBL Water Tankers (w/PUP)	$120.00
Mini Excavator w/Hammer Attach	$100.00	621 Water Wagon	$120.00
Mini Excavators	$75.00	Rock Trucks 40 Ton	$150.00
D10-N Bulldozers	$220.00	Rock Trucks 30 Ton	$130.00
D9L Bulldozers	$210.00	10 Wheeler Dump Trucks	$85.00
D9R Bulldozers	$185.00	End Dump Trailers	$90.00
D9G & D155 Bulldozers	$140.00	Belly Dump Trailers	$90.00
Cat 834 Wheeled Bulldozer	$120.00	Crane: 20 Ton	$90.00
D6 - 6 Way Bulldozer	$95.00	Pipe Truck	$60.00
D5 - 6Way Bulldozer	$90.00	Service Trucks	$75.00
Volvo Grader	$110.00	Pilot Trucks	$50.00
163H Graders	$100.00	6x6 Military Truck	$55.00
Champion/Wabco Graders	$90.00	Pick Up Trucks	$40.00
631 Scrapers	$200.00	Hydra Seeder	$100.00
13 cuyd Scrapers	$160.00	Jumping Jack	$35.00
988B Loader	$120.00	Pump	$20.00
Mega 500 Loader	$120.00	Laser	$20.00
Mega 400 Loader	$100.00	Air Shovel	$45.00
Loaders	$95.00		
416B Backhoe	$75.00		
Breaker Bobcat	$90.00		
Skid Steer	$55.00		
Forklifts	$85.00		
Small Trencher	$70.00		
48" Compactor	$75.00		
80" Compactor	$80.00		
Fuser Machine: 2" to 8"	$60.00		
Fuser Machine: 10" to 18"	$70.00		

Rates include Operator
For other equipment not listed, rates are available upon request
Rates are subject to change without notice

EIS for Crandall Canyon and Tower

Nielson Concrete

Building a Better Tomorrow……Today.

Concrete Plant Manager: Justin Jeffs
E-Mail: Justinj@nielsonconstruction.com

Concrete Dispatch: 435-613-6833
Mobile: 435-749-9466
FAX: 435-613-1133

Concrete	Unit	Price
Slurry 2 mix	Per Yard	**$125.00**
Delivery (Crandall and Tower Mines)	Per Yard	**$45.00**
Environmental Fee	Per Load	**$15.00**

Additives	Unit	Price
Solomon Colors	Call for Pricing	
Non-Chloride Accelerator	Per Percent	**$6.00**
Micro / Synthetic Fiber	Per Yard	**$4.50**
Structural Fiber	Per Yard	**$6.00**
Hot Water	Per Yard	**$4.00**
Delay Set	Per Hour / Yard	**$4.50**
High Range Water Reducer	Per Yard	**$9.25**

Other	Unit	Price
Small load Charge	Under 3 Yards	**$80.00**
Truck Delay Charge	Per Hour	**$135.00**
Saturday / Holiday / Late Delivery	Per YD	**$5.00**
Tire Chain-up fee	Per truck	**$50.00**

*Unloading time

5 minutes per yard of concrete then **$135.00** per hour truck delay charge.

*Please have designated wash out area onsite.
Notify driver of location.

**Also please give dispatch 36 Hrs advance notice in order for us to provide you with quality service.

*Sales tax not included

**All Tickets must be signed before driver will unload.

GENEVA ROCK

An EEO/AA Employer

READY-MIX CONCRETE • SAND & GRAVEL • ASPHALT PAVING

CONCRETE MATERIALS QUOTE

302 W. 5400 S., SUITE 200
Murray, UT 84107 Fax: (801) 281-0076

TOOELE COUNTY	(435) 833-9116
SALT LAKE COUNTY	(801) 281-7900
UTAH COUNTY	(801) 765-7800
DAVIS/WEBER COUNTY	(801) 771-7981
SUMMIT/WASATCH COUNTY	(435) 649-3033
CARBON/EMERY COUNTY	(435) 472-3466
CACHE VALLEY	(435) 713-0700

SUBMITTED TO: EIS
CONTACT: Gary Taylor
SUPERINTENDENT:
JOB NAME: Well Capping
JOB ADDRESS: Carbon / Emery Counties
GENERAL CONTRACTOR:
CONTRACT TERM DATE:
TAX EXEMPT Y N (ATTACH FORM)

DATE: 1/22/16
PHONE:
FAX:
E-MAIL:
MOBILE:
ACCT#: **PROJECT #:**
B.P. #:
YARDAGE:

PRODUCT CODE	DESCRIPTION	UNIT	PRICE	ESCALATION	
1019A	10 BAG SAND/ SLR	CY	$200.00		-
					-
					-
					-
	BUDGET PRICING ONLY				-
					-
					-
					-
					-
					-
					-
					-

A $30.00 /CYD, NON-TAXABLE, DELIVERY CHARGE IS INCLUDED IN THE ABOVE PRICING. • ALL PRICES ARE SUBJECT TO CREDIT APPROVAL AND SALES TAX.

NOTE: $3.00 ADDITIONAL FOR EACH HALF BAG / $4.00 ADDITIONAL FOR STRAIGHT CEMENT DESIGNS.

ADDITIONAL CHARGES ON CONCRETE

CALCIUM PER 1%	$5.00	/CYD	**PART LOAD DELIVERY CHARGE: 1 TO 4¾ CYDS**	$100.00	/LOAD
NON-CHLORIDE 1%	$7.00	/CYD	**DELAY UNLOADING DELIVERY CHARGE:** 5 minutes per yard free unloading time. Excess unloading time will be charged at:	$2.00	/MIN
WINTER CONCRETE Winter (hot water)	$5.00	/CYD			
SYNTHETIC FIBER (1 BAG)	$7.00	/CYD	**OPENING FEE DELIVERY CHARGE:** Opening fees for pours commencing between 6 PM & 4 AM Weekdays and on Sat., Sun., & Holidays are Negotiated.		
H.R.W.R.	$7.00	/CYD			
HEATED AGGREGATE & H20	N/A	/CYD	**ADDITIONAL DELIVERY CHARGES:** Orders scheduled between 5:00pm-4:00am Weekdays: **$50.00/LOAD** Orders scheduled on Saturdays, Sundays: **$50.00/LOAD** Loads scheduled on Holidays**$50.00/LOAD**		
ENVIRONMENTAL / DELIVERY SURCHARGE	$15.00	/LOAD			

CONDITION OF SALE: All accounts due 15th of the month following date of purchase. In the event payment is not made by the 15th of the month following purchase, I or we agree to pay if collection is made, by suit or otherwise, a reasonable attorney's fee, plus a **FINANCE CHARGE OF 1.5% per month (ANNUAL PERCENTAGE RATE OF 18.00%)**, and hereby waive all rights to claim exemption under state laws. Signature by owner or agent constitutes acceptance of the above. FORCE MAJEURE: Geneva Rock Products, Inc. shall not be liable for any delay or failure in performance results from any event of Force Majeure. The term "Force Majeure", as used in this Agreement, means cause or causes which are not within the control of the party or parties claiming Force Majeure, and includes, but is not limited to acts of God, including fire, flood, frosts, landslide, washout, atmospheric disturbances, lightning, storm, tornado, earthquake, acts of public enemy, including war, riot, blockage, insurrection, civil disturbances, strikes, lockouts, or material shortages. The customer will maintain all haul roads and furnish wash out area.

NOTIFICATION OF ACCEPTANCE MUST BE MADE WITHIN 14 DAYS OR THIS QUOTE WILL BE VOID AND PRICES WILL NEED TO BE RENEGOTIATED.

To Confirm your acceptance of these prices, as quoted, please return one signed copy to our Murray Office.

Due to the uncertain market conditions, this material quote will serve as the written supply agreement between the buyer and seller and will supersede all purchase orders and contracts.

GENEVA ROCK:

BY: *Dave Halverson* ***DATE:***

TITLE:
Concrete Plant Manager - Carbon/Emery

CUSTOMER ACCEPTANCE:

BY: ***DATE:***

TITLE: ***SIGNATURE:***

WHITE=CUSTOMER GREEN=SALES PINK=OFFICE YELLOW=BILLING
Quote

GRP Concrete Materials

Mine Rehab

Price Utah

Location: Lat 39.426998 Long -110.344002 1 mile turns from site to staging.

Project: 80,000 LBS of equipment to be removed.

Estimates based off load size weight

Aircraft Type and load capacity	Total estimated Price for equip removal
AS350 B3 load capacity of 2000LBS max	$29,660.00
KMAX load Capacity of 4000 LBS max	$67,210.00

Price Quote includes Pilot Fuel Truck and ground crews for hooking loads to aircraft. Weather and temperature conditions can change the max load performance of the aircraft and increase the estimated quote.

Should you have any further questions feel free to call us.

Regards

Travis Wayland

Operations

Aerial Crane Enterprises

twayland@upheli.com

385-321-3590

From: "Bryan Burr" <bjburr@mwheli.com>
Subject: Re:
Date: Thu, May 19, 2016 10:01 am
To: "Gary Taylor" <gtaylor@emerytelcom.net>

Gary,
Here is the email I sent you on April 28, 2016. Please let me know you received this message.

If possible I would try to package your loads in 2,000 pound loads and use the Bell Uh-1H "Huey" or 5,000 pound loads and use the KMAX. Our Astar is leaving for a 150 day fire contract next week and won't be available until October. The quote below was for the KMAX.

Thanks,
Bryan Burr
President
Mountain West Helicopters

Gary,

Thank you for contacting Mountain West Helicopters. We discussed moving about 40 tons of material and equipment at a mine location near Price, Utah. We have the following aircraft in our fleet:

Kaman K-MAX Lift Capacity 5,500 lbs. Rate per Hour $4,200.00. Daily Minimum 3 flight hours.
Bell Uh-1H "Huey" Lift Capacity 2,500 lbs. Rate per Hour $2,500.00 Daily Minimum 3 flight hours.
Airbus AS350B3e "Astar" Lift Capacity 1,900 lbs. Rate per hour $1,950 per hour. Daily Minimum 3 flight hours.

Using the Kmax helicopter and estimating the flight distance for your project you could expect to make 10-15 trips per hour. This is based on each load being rigged and ready for flight and no delays being experienced in the hook up of the load. Assuming each load is 5,000 pounds you could move 50,000 pounds per hour. It would take about 2 hours to move the 40 tons. We would have ferry time from Provo, Utah to your location and return. You could expect the total cost estimate to be $16,000 to $20,000.

You can use the same trips per hour for each helicopter but have to make the appropriate adjustments for weight. You may have some loads that can't be reduced below 5,000 pounds so you may want to plan on the Kmax helicopter.

We have contracts with the US Forest Service for fire fighting that begin July 7 and go for 90 days. So we would not be available at that time.

Please let me know if there is anything else I can do for you.

Sincerely,

Bryan J. Burr
President
Mountain West Helicopters
(801)216-4001

CLASSIC HELICOPTERS

CLASSIC HELICOPTER GROUP, LLC
2244 South 1640 West
Woods Cross, Utah 84087
www.classichelicopterservices.com
P - (801) 295-5700
F - (801) 295-5795

Date: April 28, 2016

QUOTE PREPARED FOR:

Company: EIS Environmental & Engineering Consulting

Name: Gary E. Taylor, Engineer

Job Description: Move 40 tons of equipment 1,000 lbs per load, I mile flying distance

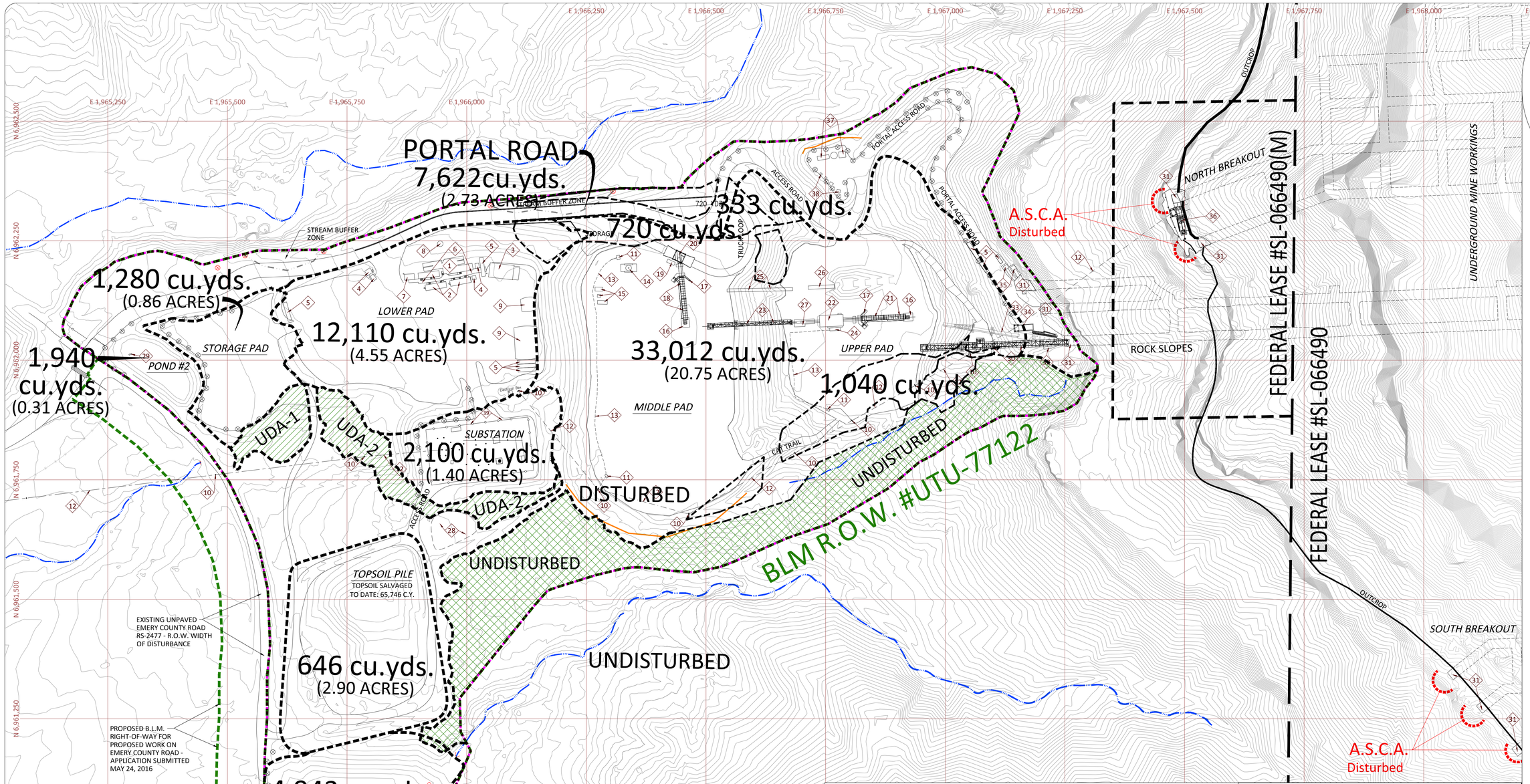
Estimated Usage	Asset	Price	Price Details	Line Total
2.7 hours	Mobe WX-Green River-WX	$ 1,450.00	per flight hour	$ 3,915.00
380 miles	Fuel supoport vehicle	$ 1.50	per mile	$ 570.00
2 days	Fuel Support Vehicle	$ 500.00	per day	$ 1,000.00
80 loads	40 tons of material	$ 77.50	per load	$ 6,200.00
2	Overnight Pilot & Driver	$ 140.00	pre-position to Green River	$ 280.00
	Price does not include the containers used to transport the material, truck mileage while on site and wait times for			
		Subtotal		$ 11,965.00
		Sales Tax		
		Total		**$ 11,965.00**

Quotation prepared by: Orin 'Spike' Kinghorn

Thank you for your business!

Bond Amount

Direct Costs		
Subtotal Demolition and Removal	$308,834	
Subtotal Backfill and Grading	$337,648	
Subtotal Vegetation	$325,470	
Subtotal Direct Costs	$971,951	
Indirect Costs		
Mob/Demob	$97,195	10.0%
Contingency	$48,598	5.0%
Engineering Redesign	$24,299	2.5%
Main Office Expense	$66,093	6.8%
Project Management Fee	$24,299	2.5%
Subtotal Indirect Costs	$260,483	26.8%
SubTotal	$1,232,434	
Total	$1,232,434	
Escalation Factor		0.012
Number of Years		3
Escalation	$44,368	
Total	$1,276,802	
Reclamation Cost 2018	$1,276,802	
Bond Amount (rounded to nearest $1,000)	$1,277,000	



KEYED MINE FACILITIES

1. TEMPORARY BATH HOUSE
2. TEMPORARY OFFICE TRAILER
3. TEMPORARY OFFICE / SHOP BUILDING
4. TEMPORARY STORAGE SHED (WOODED)
5. TEMPORARY STORAGE BUILDING (METAL)
6. TEMPORARY CONCRETE WALKWAY
7. TEMPORARY OFFICE BUILDING (CONCRETE)
8. TEMPORARY WATER TANK (METAL)
9. TEMPORARY STORAGE TENT W/ CONC. FLOOR
10. POWER POLE
11. ELECTRICAL TRANSFORMER
12. OVERHEAD POWER TRANSMISSION LINE
13. BURIED POWER TRANSMISSION LINE
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33. DISABLED CONVEYOR STRUCTURE
34. MINE MCC BUILDING / ELECTRICAL TOWER
35. BACKUP FAN
36. MAIN MINE BLOWING FAN
37. WATER TREATMENT PLANT
38. POWDER AND CAP MAGAZINES
39. CHAIN-LINK FENCE

TOTAL PERMIT AREA	42.6 ACRES
UNDISTURBED AREA	8.7 ACRES
TOTAL DISTURBED AREA	33.9 ACRES
AREA DISTURBED TO DATE	31.88 ACRES
AREA STILL TO BE DISTURBED	2.02 ACRES

TOPSOIL REMOVAL TABLE

LOCATION	LOADS	VOLUME (cubic yards)
Employee Parking Lot	378	12,110
Portal Road	238	7,622
Storm Water Detention Pond	154	4,943
Small Detention Pond	61	1,940
Coal Stockpile/Warehouse Pad	793*	33,012
Substation	*	2,100
Portal Borrow Area	*	333
Topsoil Area	Push with Dozer	646
Upper and Middle Pad	26	1,040
Temporary Truck Loop Area	18	720
Future Truck Loop Area	*	1,280
Total Cubic Yards:		65,746

Notes:
* Total truck count not reported.

TOPSOIL REMOVAL PROJECT AREA
AREA TO REMAIN UNDISTURBED

ESTIMATED PROJECT TOPSOIL

NAME	AREA (ACRES)	ESTIMATED SALVAGED TOPSOIL
UDA-1	0.36	883 cubic yards
UDA-2	0.73	1,721 cubic yards
TOTALS:	1.09	2,604 cubic yards

*SALVAGED TOPSOIL TO BE STORED AT SOUTHWEST CORNER OF TOPSOIL PILE.

NOTE: AS-BUILT SALVAGED AMOUNTS OF TOPSOIL WILL BE PROVIDED UPON PROJECT COMPLETION.

LILA CANYON MINE

TOPSOIL SALVAGE MAP

DATE: 19 JULY 2010 | DRAWN BY: UEI
SCALE: AS SHOWN | SHEET #: 2-3a

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs

REVISION DATE:

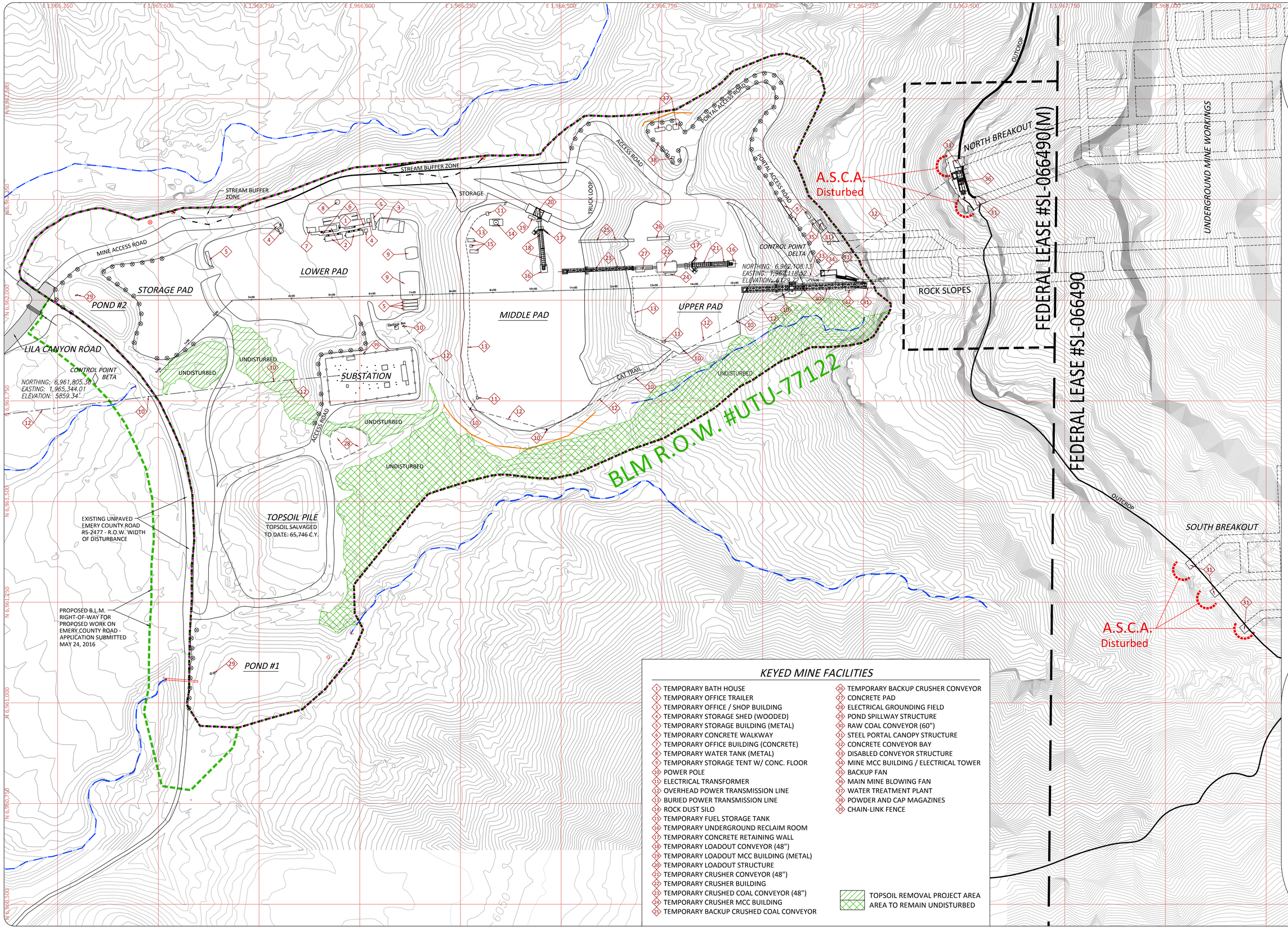
DATE	BY
JUNE 2011	PJJ
FEB. 2015	PJJ
JUNE 2015	PJJ
JULY 2016	PJJ

R 14 E, T 16 S

50' 0' 100' 200'

LEGEND:

DISTURBED AREA BOUNDARY:
NATURAL DRAINAGE:
6' HIGH CHAIN LINK FENCE
INCIDENTAL ROCK DISTRIBUTION:
STREAM BUFFER ZONE SIGNS:
SURFACE CONTOURS (5' INTERVALS):
TEMPORARY ROADWAYS:
BLM R.O.W. BOUNDARY LINE:
LEASE BOUNDARY LINES:



KEYED MINE FACILITIES

1. TEMPORARY BATH HOUSE
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35. BACKUP FAN
36. MAIN MINE BLOWING FAN
37. WATER TREATMENT PLANT
38. POWDER AND CAP MAGAZINES
39. CHAIN-LINK FENCE

TOPSOIL REMOVAL PROJECT AREA
AREA TO REMAIN UNDISTURBED

LILA CANYON MINE

AS-BUILT SURFACE FACILITIES

DATE: APRIL 2016	DESIGNED BY: R. Jay Marshall
SCALE: AS SHOWN	PAGE #: 5-2

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 Jared R. Hobbs

NOTE:
CONTROL POINT COORDINATE SYSTEM IS U.S. STATE PLANE 1983 – UTAH CENTRAL (4302) ADJUSTED TO SEA LEVEL.

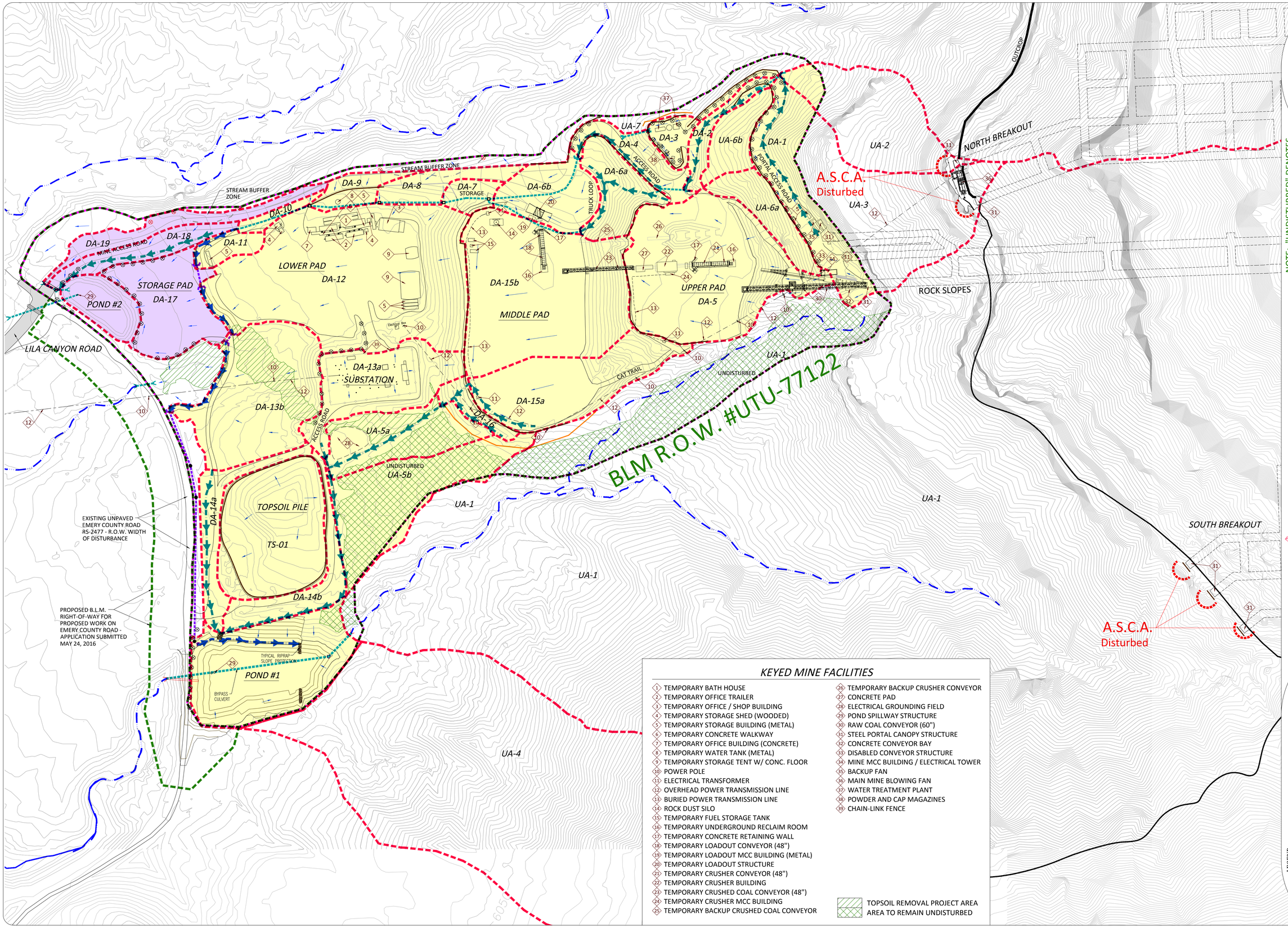
REVISION DATE:

DATE:	BY:	DATE:	BY:
JAN 2008	RJM	JUNE 2011	PJJ
APRIL 2009	PJJ	JAN. 2012	PJJ
DEC. 2009	PJJ	MAR. 2014	PJJ
AUGUST 2010	PJJ	JULY 2014	PJJ
SEPT. 2010	PJJ	DEC. 2015	PJJ
APRIL 2011	PJJ	JUNE 2016	PJJ
MAY 2011	PJJ		

LEGEND:

- UNDISTURBED WITHIN THE DISTURBED AREA
- DISTURBED AREA BOUNDARY:
- NATURAL DRAINAGE:
- 6' HIGH CHAIN LINK FENCE
- INCIDENTAL ROCK DISTRIBUTION:
- STREAM BUFFER ZONE SIGNS:
- SURFACE CONTOURS (5' INTERVALS):
- TEMPORARY ROADWAYS:
- BLM R.O.W. BOUNDARY LINE:
- STRUCTURAL FILL:
- TOPSOIL BERM:
- LEASE BOUNDARY LINES:

NOTES: 1. REFER TO PLATE 5-7AAB FOR CROSS-SECTIONS.


STREAM BUFFER ZONE
DA-9
DA-8
DA-7
STORAGE
DA-6b
DA-6a
ACCESS ROAD
TRUCK LOOP
UA-7
DA-4
DA-3
DA-2
UA-6b
DA-1
PORTAL ACCESS ROAD
UA-6a
UA-3
UA-2
NORTH BREAKOUT
OUTCROP
A.S.C.A.
Disturbed
ROCK SLOPES
DA-10
DA-19
MINE ACCESS ROAD
DA-18
DA-11
LOWER PAD
DA-12
STORAGE PAD
DA-17
POND #2
LILA CANYON ROAD
DA-15b
MIDDLE PAD
UPPER PAD
DA-5
DA-13a
SUBSTATION
DA-13b
DA-15a
DA-16
CAT TRAIL
UA-1
UNDISTURBED
BLM R.O.W. #UTU-77122
UA-5a
UNDISTURBED
UA-5b
TOPSOIL PILE
TS-01
DA-14a
DA-14b
EXISTING UNPAVED EMERY COUNTY ROAD RS-2477 - R.O.W. WIDTH OF DISTURBANCE
PROPOSED B.L.M. RIGHT-OF-WAY FOR PROPOSED WORK ON EMERY COUNTY ROAD - APPLICATION SUBMITTED MAY 24, 2016
TYPICAL RIPRAP SLOPE PROTECTION
POND #1
BYPASS CULVERT
UA-4
SOUTH BREAKOUT
A.S.C.A.
Disturbed
R 14 E, T 16 S
OFF-SITE FOOTPRINT:
1" = 2000'
UA-2
UA-6&6b
UA-1
UA-4
200'
100'
0'
50'
NOTE: "UNDISTURBED" DENOTES DRAINAGE AND IS NOT APPLICABLE TO SOILS.
LILA CANYON MINE
DISTURBED AREA HYDROLOGY AND WATERSHED MAP
DATE: January 2008
DRAWN BY: R. Jay Marshall
SCALE: AS SHOWN
PAGE #: 7-2
REVISION DATE:
DATE | BY
JAN 2008 | RJM
APR 2008 | TJS
JUL 2008 | TJS
JUN 2009 | TJS
JAN 2010 | TJS
Dec. 2010 | RJM
Nov. 2013 | PJJ
DATE | BY
Aug. 2014 | PJJ
Dec. 2015 | PJJ
JUNE 2016 | PJJ
JULY 2016 | PJJ
LEGEND:
UNDISTURBED WITHIN THE DISTURBED AREA
DISTURBED AREA BOUNDARY:
NATURAL DRAINAGE:
6' HIGH CHAIN LINK FENCE
INCIDENTAL ROCK DISTRIBUTION:
STREAM BUFFER ZONE SIGNS:
WS Area Boundary:
Earthen Berm:
EXISTING DITCH:
NEW DITCH:
New Buried Culvert:
Existing Buried Culvert:
TEMPORARY ROADWAYS:
BLM R.O.W. BOUNDARY LINE:
EXISTING DROP BOX:
NEW MANHOLE:
DRAINAGE REPORTING TO POND #1:
DRAINAGE REPORTING TO POND #2:
UNDISTURBED DRAINAGE:
UNSHADED
NOTES:
(1) REFER TO PLATE 5-7A&B FOR CROSS-SECTIONS.
KEYED MINE FACILITIES
1 TEMPORARY BATH HOUSE
2 TEMPORARY OFFICE TRAILER
3 TEMPORARY OFFICE / SHOP BUILDING
4 TEMPORARY STORAGE SHED (WOODED)
5 TEMPORARY STORAGE BUILDING (METAL)
6 TEMPORARY CONCRETE WALKWAY
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9 TEMPORARY STORAGE TENT W/ CONC. FLOOR
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12 OVERHEAD POWER TRANSMISSION LINE
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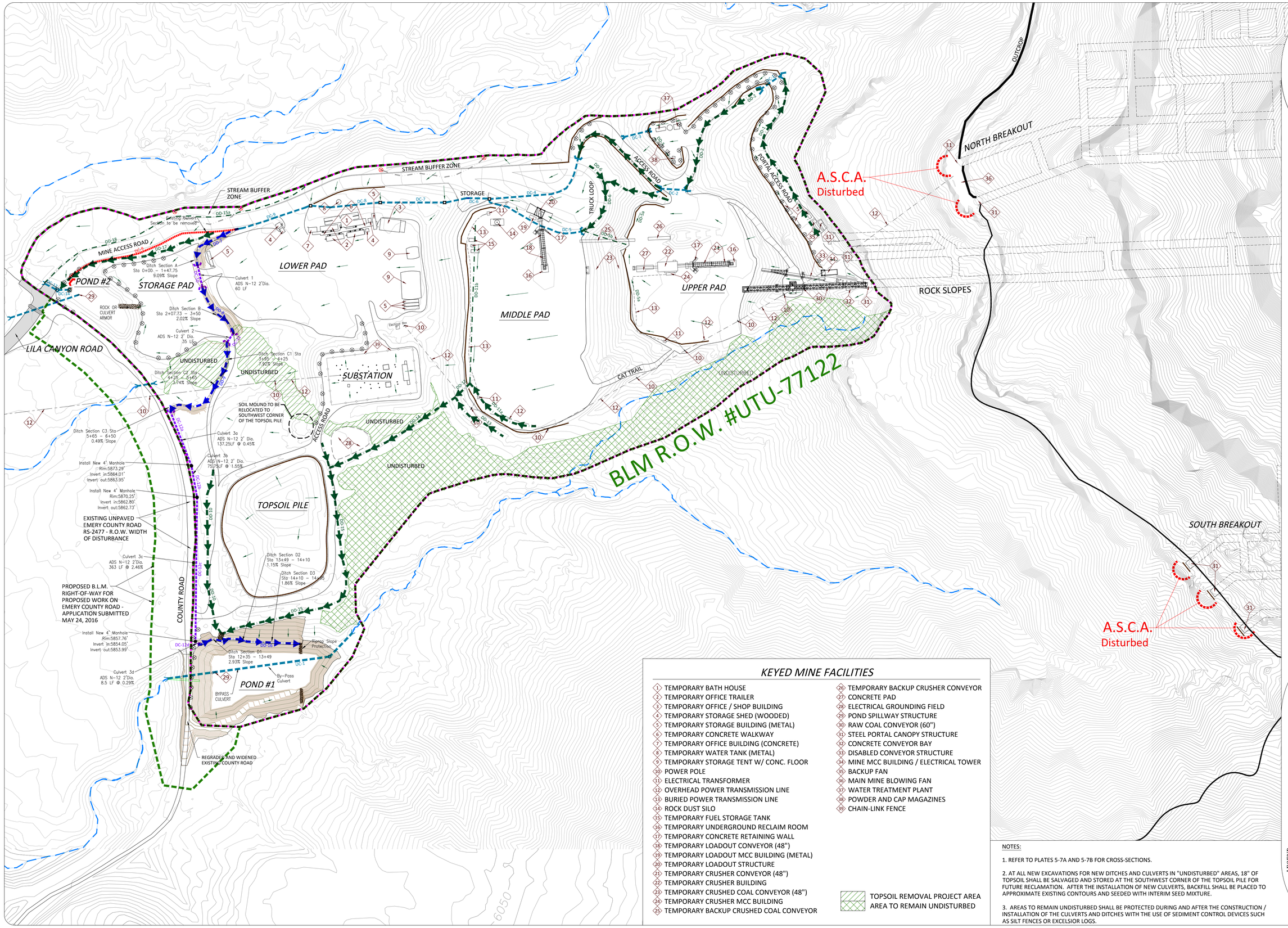
35 BACKUP FAN
36 MAIN MINE BLOWING FAN
37 WATER TREATMENT PLANT
38 POWDER AND CAP MAGAZINES
39 CHAIN-LINK FENCE
TOPSOIL REMOVAL PROJECT AREA
AREA TO REMAIN UNDISTURBED



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37. WATER TREATMENT PLANT
38. POWDER AND CAP MAGAZINES
39. CHAIN-LINK FENCE

TOPSOIL REMOVAL PROJECT AREA
AREA TO REMAIN UNDISTURBED

NOTES:

1. REFER TO PLATES 5-7A AND 5-7B FOR CROSS-SECTIONS.

2. AT ALL NEW EXCAVATIONS FOR NEW DITCHES AND CULVERTS IN "UNDISTURBED" AREAS, 18" OF TOPSOIL SHALL BE SALVAGED AND STORED AT THE SOUTHWEST CORNER OF THE TOPSOIL PILE FOR FUTURE RECLAMATION. AFTER THE INSTALLATION OF NEW CULVERTS, BACKFILL SHALL BE PLACED TO APPROXIMATE EXISTING CONTOURS AND SEEDED WITH INTERIM SEED MIXTURE.

3. AREAS TO REMAIN UNDISTURBED SHALL BE PROTECTED DURING AND AFTER THE CONSTRUCTION / INSTALLATION OF THE CULVERTS AND DITCHES WITH THE USE OF SEDIMENT CONTROL DEVICES SUCH AS SILT FENCES OR EXCELSIOR LOGS.

LEGEND:

UNDISTURBED WITHIN THE DISTURBED AREA
DISTURBED AREA BOUNDARY:
NATURAL DRAINAGE:
6' HIGH CHAIN LINK FENCE
INCIDENTAL ROCK DISTRIBUTION:
STREAM BUFFER ZONE SIGNS:
Earthen Berm:
TEMPORARY ROADWAYS:
NEW CONTOURS (5' INTERVALS)
NEW CONTOURS (1' INTERVALS)
EXISTING CONTOURS (5' INTERVALS)
NATURAL DRAINAGE
EXISTING DITCH
EXISTING CULVERT
REMOVED CULVERT
NEW DITCH
NEW CULVERT
SHEET FLOW DRAINAGE
EXISTING DROP BOX
NEW MANHOLE
BLM R.O.W. BOUNDARY

NOTE:
UNDISTURBED DENOTES DRAINAGE AND IS NOT APPLICABLE TO SOILS.

R 14 E, T 16 S

50' 0' 100' 200'

REVISION DATE:

DATE:	BY:	DATE:	BY:	DATE:	BY:
OCT 1998	WJ	NOV 2003	RJM	JAN. 2012	PJJ
JAN 1999	WJ	JAN 2005	RJM	NOV. 2013	PJJ
MAR 2000	BHE	APR 2008	TJS	OCT. 2014	TJS
SEP 2000	BHE	JUL 2008	TJS	DEC. 2015	TJS
JAN 2001	BHE	JUN 2009	TJS	JUNE 2016	PJJ
MAR 2001	BJ	JAN 2010	TJS	JULY 2016	PJJ
NOV 2002	RJM	Dec 2010	RJM		

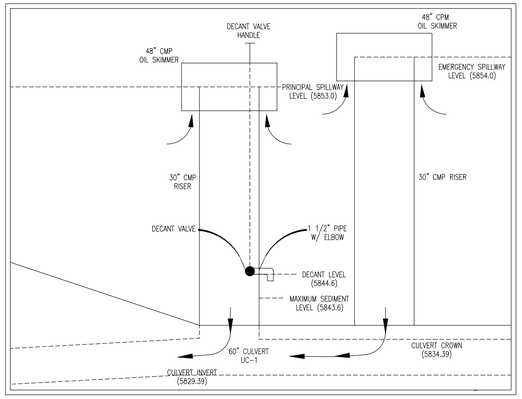
LILA CANYON MINE

PROPOSED SEDIMENT CONTROL

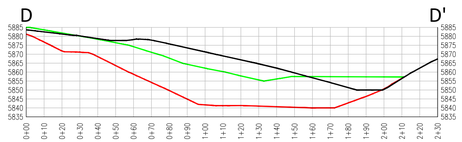
DATE: JUNE 1998 | DESIGNED BY: BLACKHAWK ENG.
SCALE: AS SHOWN | PAGE #: 7-5

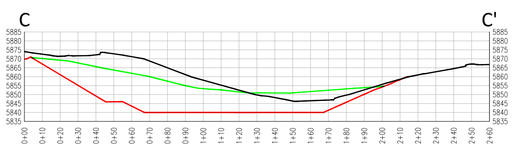
I CERTIFY THIS MAP IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

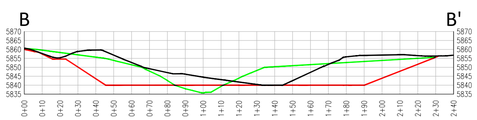
UTAH REGISTERED PROFESSIONAL ENGINEER #6149561 David W. Hibbs



DETAIL A





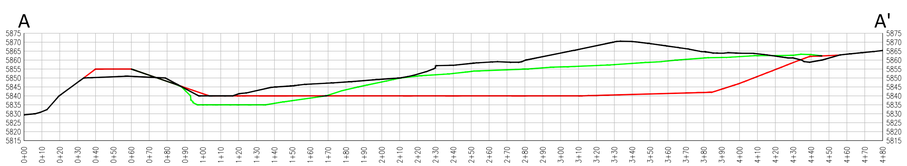


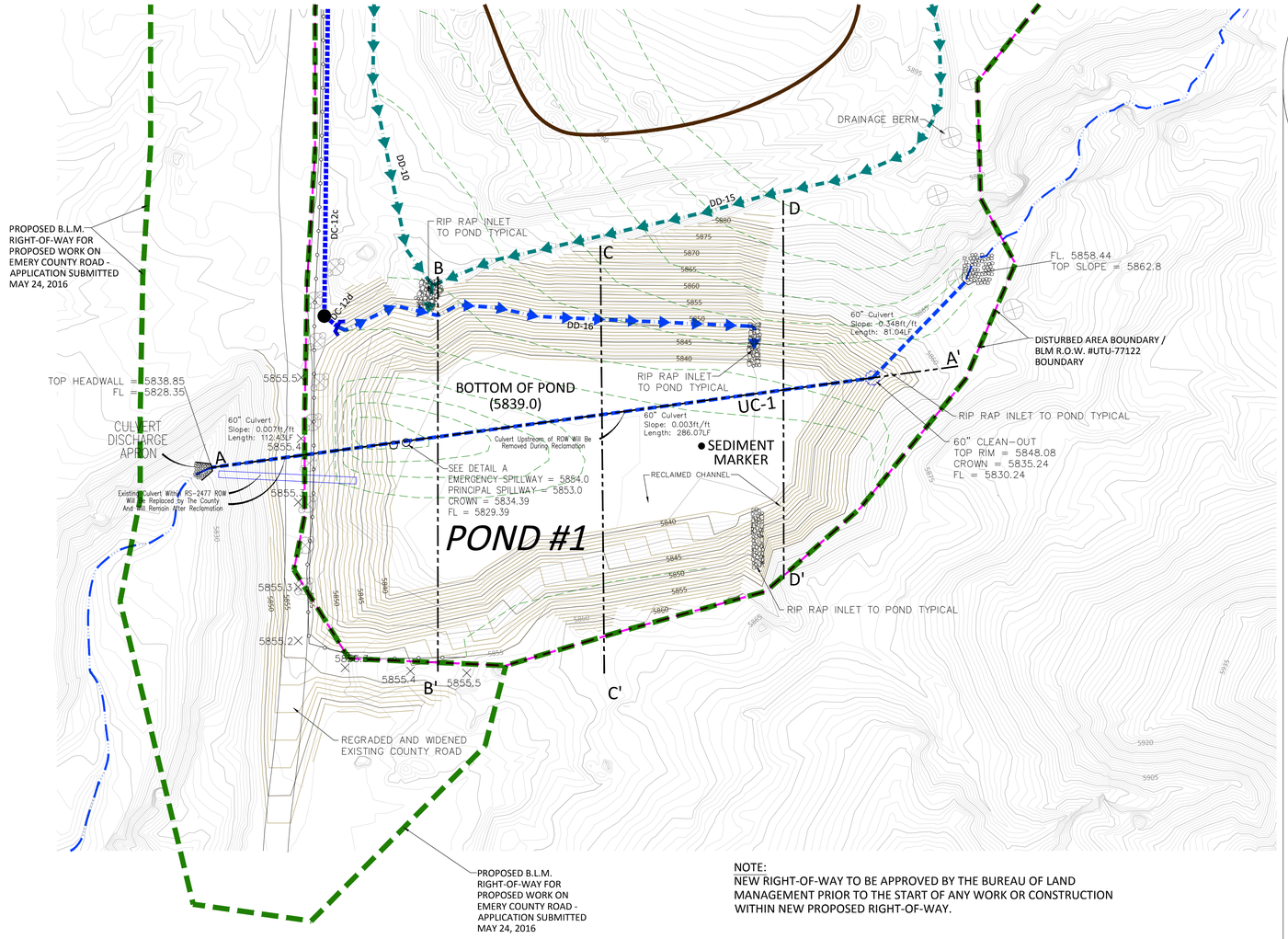
SECTIONS KEY

WORKING SURFACE:

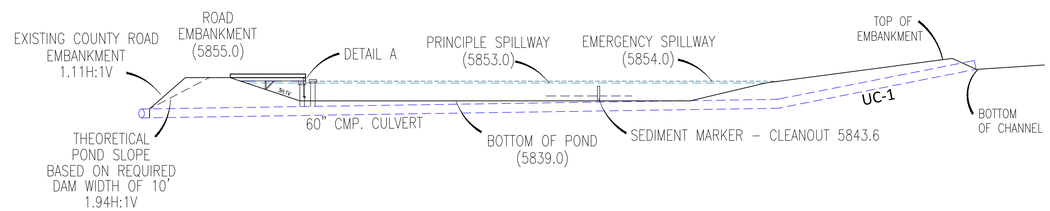
PRE-MINING SURFACE:

RECLAIMED SURFACE:





NOTE:
NEW RIGHT-OF-WAY TO BE APPROVED BY THE BUREAU OF LAND MANAGEMENT PRIOR TO THE START OF ANY WORK OR CONSTRUCTION WITHIN NEW PROPOSED RIGHT-OF-WAY.



CULVERT UC-1 DETAIL

LILA CANYON MINE

PROPOSED SEDIMENT POND #1

DESIGNED BY: HYDROLOGIC DESIGN

PAGE #: 7-6a

DATE: APRIL 2008

SCALE: AS SHOWN

I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs

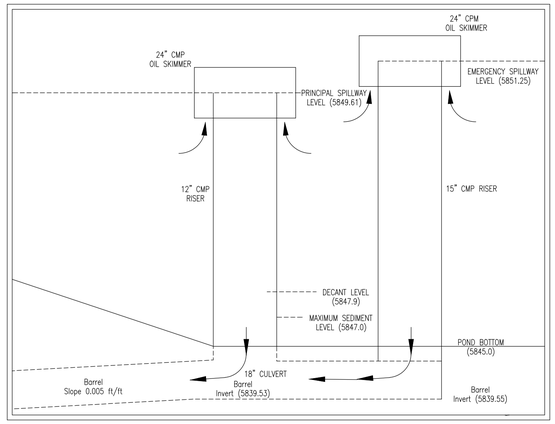
REVISION DATE:

DATE:	BY:	DATE:	BY:
Apr. 2008	TJS		
Apr. 2009	TJS		
Jul 2015	TJS		
Oct 2015	TJS		
JUNE 2016	PJJ		

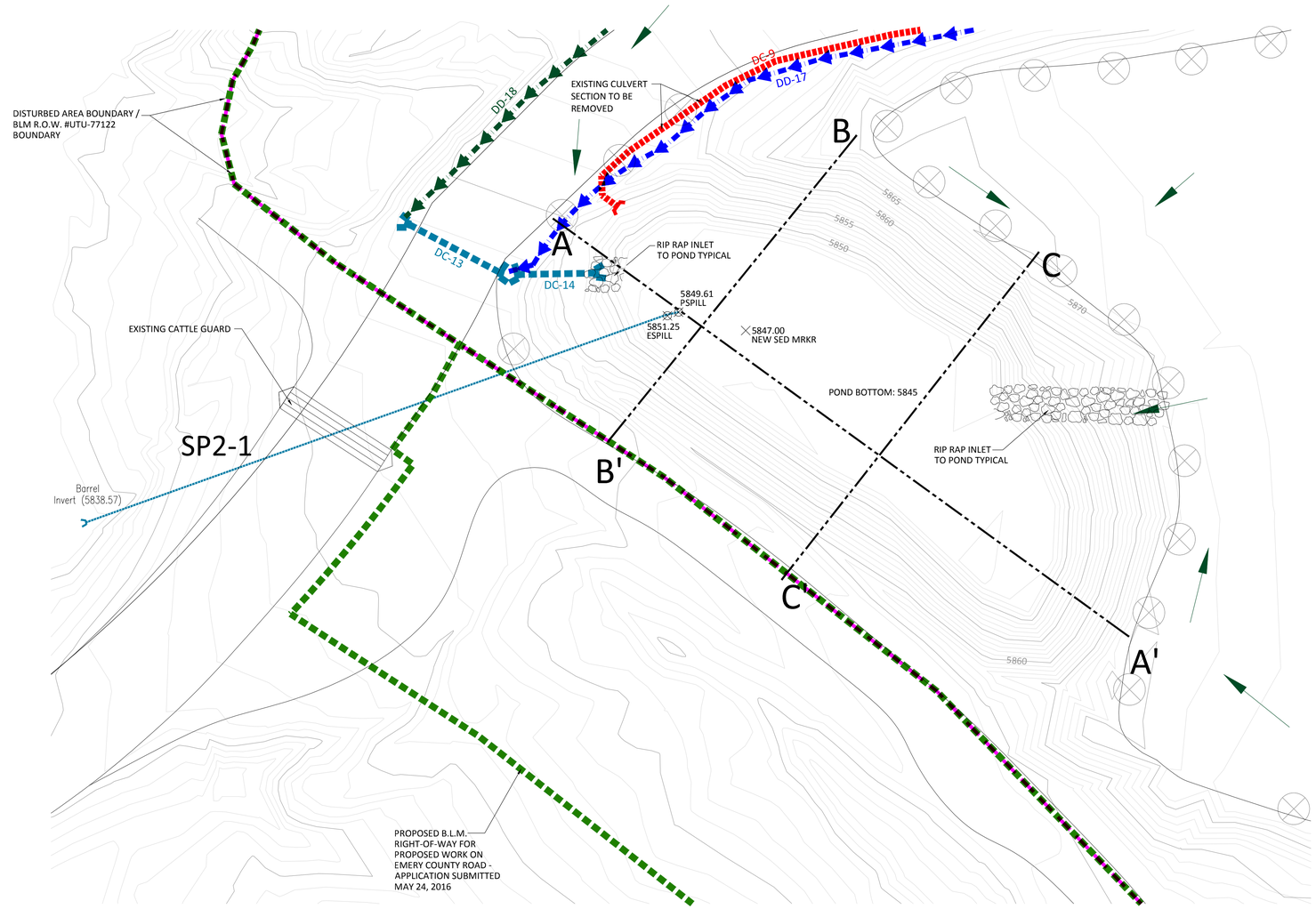
R 14 E, T 16 S

LEGEND:

PROPOSED CONTOURS:
EXISTING CONTOURS:
RECLAIMED CONTOURS:
DISTURBED AREA BOUNDARY:
BLM RIGHT-OF-WAY BOUNDARY:
NEW 4' MANHOLE:
NEW CULVERTS:
NEW DITCH:
EXISTING DITCH
NEW FENCE LINE:
BERM (DURING OPERATIONS):
UNDISTURBED DRAINAGE:



DETAIL A

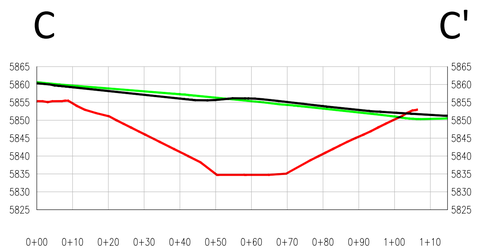


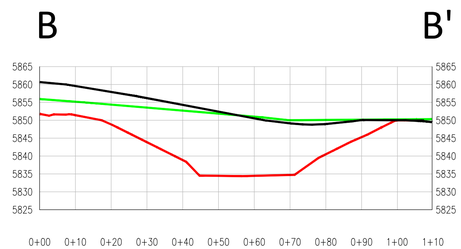
SECTIONS KEY

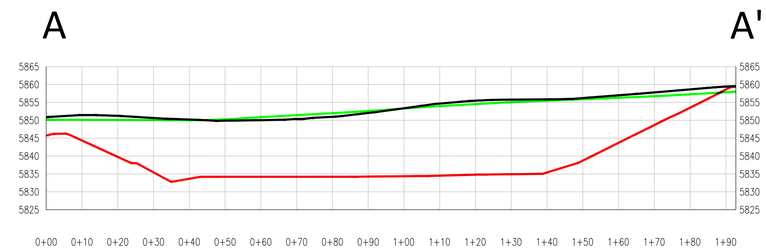
WORKING SURFACE:

PRE-MINING SURFACE:

RECLAIMED SURFACE:







LILA CANYON MINE

PROPOSED SEDIMENT POND #2

DATE:	DESIGNED BY:	SHEET #
APRIL 2008	HYDROLOGIC DESIGN	7-6b
SCALE:		
AS SHOWN		

I CERTIFY THIS MAP IS AN TRUE AND CORRECT REPRESENTATION OF MY WORK

UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 David W. Hibbs

REVISION DATE:

DATE:	BY:	DATE:	BY:
Apr. 2008	TJS		
Jun. 2009	TJS		
Dec. 2015	PJJ		
JUNE 2016	PJJ		

R 14 E. T 16 S

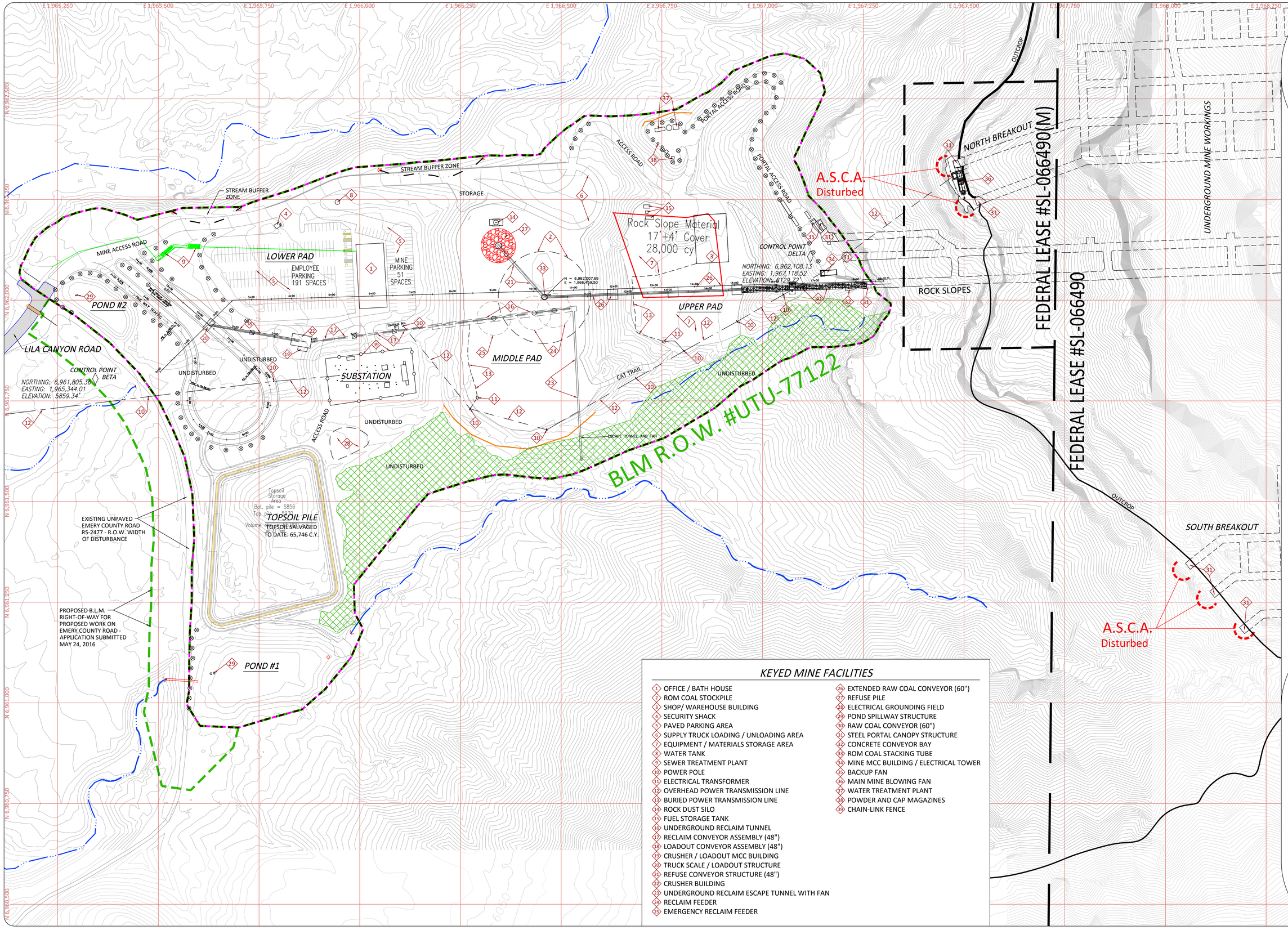
N

0 10 20 40 FEET

LEGEND:

DISTURBED AREA BOUNDARY:
6' HIGH CHAIN LINK FENCE
INCIDENTAL ROCK DISTRIBUTION:
TEMPORARY ROADWAYS:
EXISTING CONTOURS (5' INTERVALS)
EXISTING CONTOURS (1' INTERVALS)

EXISTING DITCH
EXISTING CULVERT
REMOVED CULVERT
NEW CULVERT
SHEET FLOW DRAINAGE
BLM R.O.W. BOUNDARY


LILA CANYON MINE
PROPOSED SURFACE FACILITIES
(FINAL CONFIGURATION)
DATE: JUNE 2016
DRAWN BY: R. Jay Marshall
SCALE: AS SHOWN
PAGE #: 0-1
(CONCEPT PLATE 5-2)
REVISION DATE:
DATE: BY:
DATE: JUNE 2016 BY: PJJ
NOTE:
CONTROL POINT COORDINATE SYSTEM IS U.S. STATE PLANE 1983 – UTAH CENTRAL (4302) ADJUSTED TO SEA LEVEL.
UTAH REGISTERED PROFESSIONAL ENGINEER #6449561 Jared W. Hobbs
I CERTIFY THIS MAP TO BE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.
R 14 E, T 16 S
0' 100' 200'
50'
N
LEGEND:
UNDISTURBED WITHIN THE DISTURBED AREA
DISTURBED AREA BOUNDARY:
NATURAL DRAINAGE:
6' HIGH CHAIN LINK FENCE
INCIDENTAL ROCK DISTRIBUTION:
STREAM BUFFER ZONE SIGNS:
SURFACE CONTOURS (5' INTERVALS):
TEMPORARY ROADWAYS:
BLM R.O.W. BOUNDARY LINE:
STRUCTURAL FILL:
TOPSOIL BERM:
LEASE BOUNDARY LINES:
NOTES: 1. REFER TO PLATE 5-7AAB FOR CROSS-SECTIONS.
KEYED MINE FACILITIES
1 OFFICE / BATH HOUSE
2 ROM COAL STOCKPILE
3 SHOP/ WAREHOUSE BUILDING
4 SECURITY SHACK
5 PAVED PARKING AREA
6 SUPPLY TRUCK LOADING / UNLOADING AREA
7 EQUIPMENT / MATERIALS STORAGE AREA
8 WATER TANK
9 SEWER TREATMENT PLANT
10 POWER POLE
11 ELECTRICAL TRANSFORMER
12 OVERHEAD POWER TRANSMISSION LINE
13 BURIED POWER TRANSMISSION LINE
14 ROCK DUST SILO
15 FUEL STORAGE TANK
16 UNDERGROUND RECLAIM TUNNEL
17 RECLAIM CONVEYOR ASSEMBLY (48")
18 LOADOUT CONVEYOR ASSEMBLY (48")
19 CRUSHER / LOADOUT MCC BUILDING
20 TRUCK SCALE / LOADOUT STRUCTURE
21 REFUSE CONVEYOR STRUCTURE (48")
22 CRUSHER BUILDING
23 UNDERGROUND RECLAIM ESCAPE TUNNEL WITH FAN
24 RECLAIM FEEDER
25 EMERGENCY RECLAIM FEEDER
26 EXTENDED RAW COAL CONVEYOR (60")
27 REFUSE PILE
28 ELECTRICAL GROUNDING FIELD
29 POND SPILLWAY STRUCTURE
30 RAW COAL CONVEYOR (60")
31 STEEL PORTAL CANOPY STRUCTURE
32 CONCRETE CONVEYOR BAY
33 ROM COAL STACKING TUBE
34 MINE MCC BUILDING / ELECTRICAL TOWER
35 BACKUP FAN
36 MAIN MINE BLOWING FAN
37 WATER TREATMENT PLANT
38 POWDER AND CAP MAGAZINES
39 CHAIN-LINK FENCE
E 1,965,250
E 1,965,500
E 1,965,750
E 1,966,000
E 1,966,250
E 1,966,500
E 1,966,750
E 1,967,000
E 1,967,250
E 1,967,500
E 1,967,750
E 1,968,000
E 1,968,250
N 6,962,500
N 6,962,250
N 6,962,000
N 6,961,750
N 6,961,500
N 6,961,250
N 6,961,000
N 6,960,750
N 6,960,500
STREAM BUFFER ZONE
STREAM BUFFER ZONE
STORAGE
ACCESS ROAD
PORTAL ACCESS ROAD
PORTAL ACCESS ROAD
MINE ACCESS ROAD
LOWER PAD
EMPLOYEE PARKING 191 SPACES
MINE PARKING 51 SPACES
POND #2
LILA CANYON ROAD
CONTROL POINT BETA
NORTHING: 6,961,805.30
EASTING: 1,965,344.01
ELEVATION: 5859.34'
UNDISTURBED
SUBSTATION
ACCESS ROAD
UNDISTURBED
UNDISTURBED
Rock Slope Material
17'+4' Cover
28,000 cy
N = 6,962,007.69
E = 1,966,499.50
MIDDLE PAD
UPPER PAD
CAT TRAIL
ESCAPE TUNNEL AND FAN
UNDISTURBED
UNDISTURBED
CONTROL POINT DELTA
NORTHING: 6,962,108.13
EASTING: 1,967,118.52
ELEVATION: 6129.72'
ROCK SLOPES
A.S.C.A.
Disturbed
NORTH BREAKOUT
OUTCROP
UNDERGROUND MINE WORKINGS
FEDERAL LEASE #SL-066490(M)
FEDERAL LEASE #SL-066490
OUTCROP
SOUTH BREAKOUT
A.S.C.A.
Disturbed
BLM R.O.W. #UTU-77122
Topsoil Storage Area
Bot. pile = 5856
Top pile = 5870
Volume = 65,746 cy
TOPSOIL PILE
TOPSOIL SALVAGED TO DATE: 65,746 C.Y.
EXISTING UNPAVED EMERY COUNTY ROAD RS-2477 - R.O.W. WIDTH OF DISTURBANCE
PROPOSED B.L.M. RIGHT-OF-WAY FOR PROPOSED WORK ON EMERY COUNTY ROAD - APPLICATION SUBMITTED MAY 24, 2016
POND #1