

# LILA CANYON MINOR REVISION

## 007/013

### CHAPTERS 1 - 5

### COPY 2 of 3



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Refer to Record No 0035 Date 07/15/2009  
In CI 0070013 2009 Impending  
For additional information

## JULY 15, 2009

0035

UtahAmerican Energy, Inc.



**COPY**

*C/007/013 Incoming*

Lila Canyon Project  
P. O. Box 910  
East Carbon, Utah 84520  
Phone: (435) 888-4000  
(435) 650-3157  
Fax: (435) 888-4002

#3351

*Q*

July 15, 2009

Daron Haddock  
Permit Supervisor  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

**RECEIVED**

**JUL 15 2009**

DIV. OF OIL, GAS & MINING

Re: UtahAmerican Energy, Inc. Horse Canyon Mine 09-003 C/007/013. Response to Deficiencies Task ID #3017 Surface Design Changes Lila Canyon Mine

Dear Mr. Haddock,

Attached you will find two (3) copies of revision 09-003 which responds to the deficiencies in the surface design change submittal.

The perimeter of disturbed area remains the same at 42.6 acres. The islands of undisturbed have been reduced resulting in the number of undisturbed within the disturbed decreasing from 33.9 to 25.3

The number of pads remain the same but the locations have been changed. The material storage pad is now the bathhouse pad, the bathhouse pad is now the coal pile pad, and the coal pile pad is now the material storage pad.

C1 and C2 forms, redline strikeouts, and CD's containing the complete submittal are included.

Should you have any questions please call.

Sincerely,

*R. Jay Marshall*  
R. Jay Marshall  
Chief Engineer/Project Manager

File in:  
C/0070013 2009. Incoming

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  - Expandable

*07152009*

# APPLICATION FOR PERMIT PROCESSING

Permit Change   
  New Permit   
  Renewal   
  Transfer   
  Exploration   
  Bond Release   
 Permit Number: ACT/007/013

Title of Proposal: Surface change deficiencies Task ID #3017 09-003

Mine: Horse Canyon

Permittee: UtahAmerican Energy, Inc.

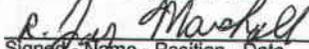
Description, include reason for application and timing required to implement:

**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

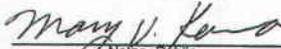
- |                              |                             |  |
|------------------------------|-----------------------------|--|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | 1. Change in the size of the Permit Area? _____ acres Disturbed Area? _____ acres <input type="checkbox"/>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

**X Attach 3 complete copies 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.

  
 Signed - Name - Position - Date

Subscribed and sworn to before me this 13 day of July, 2009.

  
 Notary Public  
 My Commission Expires May 16, 2012  
 STATE OF Utah  
 COUNTY OF Carbon



Received by Oil, Gas & Mining

**RECEIVED**

JUL 15 2009

DIV. OF OIL, GAS & MINING

ASSIGNED TRACKING NUMBER

## Application for Permit Processing Detailed Schedule of Changes to the MRP

Surface change deficiencies Task ID #3017 09-003

Permit Number: ACT/007/013

Mine: Horse Canyon "Part B" 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
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 1 Text Page 13
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 1-1 Murray Energy Holdings Information to End of Section 1
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 1-3 (All)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 1-2
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 2 Text Pages TOC, 9, 10, 12, and 14
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-1
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-2
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-3
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 2-4
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 3 Text Pages 19, 20, and 39
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<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 4 Text Page 3
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 4-3 (Air Quality)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 5 Text (all)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-4 (All)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-7 (All)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 5-8 Text Page 1
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-1A
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-2 (Tom)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-5

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

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Surface change deficiencies Task ID #3017 09-003

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			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-6
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-7 A1
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-7 A2
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-7 A3
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-7 A4
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-7 B1
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<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 5-8
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 6-2 end (rock slope material analysis)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Chapter 7 Text Pages: TOC, 1-94. Keep Pages 95-End"
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-3 Page 21
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 7-4 (ALL)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Plate 7-2, 7-5, 7-6A 7-6B
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	Appendix 8-1 (all)
<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	
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<input type="checkbox"/> ADD	<input type="checkbox"/> REPLACE	<input type="checkbox"/> REMOVE	

Any other specific or special instructions required for insertion of this proposal into the Mining and Reclamation Plan?

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**116. Permit Term.**

**116.100.** The anticipated starting and termination dates of the coal mining and reclamation operation are as follows:

<u>Phase</u>	<u>Begin</u>	<u>Complete</u>
Mining Pad, Support Structures, and Portals	June 2005	Dec. 2005
Begin Underground work	June 2005	
Terminate Mining	Dec. 2019	

Reclamation operation dates can be found in Table 3-3.

Approximately 5,992.07 surface acres, which include federal, state and private lands are included within the permit area. These surface acres are described in Table 4-2, and coal acres are shown on Table 4-2A.

The perimeter of the disturbed area contains approximately 42.6 surface acres within the disturbed area but only 33.9 acres will be disturbed leaving 8.7 acres of undisturbed islands within the disturbed area.

**116.200.** The initial permit application is for a five year term with anticipated successive five year permit renewals.

**116.210** Since the initial permit application is for a term of five years this section does not apply.

**116.220** Since the initial permit application is for a term of five years this section does not apply.

**117. Insurance, Proof of Publication and Facilities or Structures Used in Common**

**117.100.** The Certificate of Liability Insurance is included as Appendix 8-2.

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 Confidential Shelf Expandable

Refer to Record No \_\_\_\_\_ Date \_\_\_\_\_

In C/\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

For additional information



Section 2

29325 Chagrin Boulevard, Suite 300  
Pepper Pike, Ohio 44122

**MURRAY ENERGY HOLDINGS CO.**

Officers:

Robert E. Murray	President & CEO	6/30/03	11/29/05
Scott Boyle	President & CEO	11/29/05	12/20/05
Michael D. Loiacono	President & CEO	1/10/05	4/23/07
Robert D. Moore	President & CEO	4/23/07	
Michael D. Loiacono	Treasurer	1/10/05	
		6/30/03	
Michael O. McKown	Secretary	6/30/03	

Incorporation Information:

State of Incorporation Delaware;  
Charter No. 3676958

Date of Incorporation June 27, 2003

ID # 20-0100463

Shareholders:

Robert Eugene Murray  
Robert Edward Murray  
Jonathan Robert Murray  
Ryan Michael Murray  
Fifth Third Bank of  
Northeast Ohio, Trustee

Directors:

Robert E. Murray	6/30/03	
Michael D. Loiacono	6/30/03	4/23/07
Michael O. McKown	6/30/03	
Robert D. Moore	4/23/07	

## **VIOLATION INFORMATION**

### **APPENDIX 1-3**

Information updated to April , 2009

Name of Operation		Identifying number for operation	Federal or State Permit Number	MSHA ID Number
Centennial			007/019	42-01750 42-01474 42-02028 42-01864

Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal Y or N
9/27/2006	10000	DOGM			Failure to renew	9/29/2006	terminated	N
10/6/2006	10002	DOGM			Failure to submit fan plan	12/4/2006	terminated	N
2/7/2007	10003	DOGM			Non coal Waste	2/12/2007	terminated	N
7/6/2007	10007	DOGM			Vehicle in ditch	7/06/07	terminated	N
8/27/2007	10008	DOGM			vehicle in ditch	8/28/2007	terminated	N
8/27/2007	10009	DOGM			no sed pond inspection	8/27/07	terminated	N
6/18/2007	10024	DOGM			non coal waste	6/18.08	terminated	N
10/28/2008	10030	DOGM			guard shack		terminated	N

Name of Operation		Identifying number for operation		Federal or State Permit Number	MSHA ID Number			
Crandall				015/032	42-01715			
Date issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term. etc.)	Abatement Action	Appeal or N
8/19/2004	Nov4-49-4-1	DOGM			Parking in Forest	Term	moved vehicle	N
9/13/2004	Nov4-49-5-1	DOGM			non-coal waste	Term	moved waste	N
9/8/2005	Nov5-49-2-1	DOGM			Failure annual subsidence	Term		N
10/4/2006	#10001	DOGM			Culvet Plugged	Term	Unplugged	N
9/6/2007	10014	DOGM			no sed pond inspection	TERM	Inspected	N
9/10/2007	10015	DOGM			plugged culvert	term	unplugged	N
1/14/2008	10016	DOGM			mine water stored in pond	Term	rerouted water	N
1/14/2008	10017	DOGM			grvity flow fro m portals	Term	stopped flow	N
2/06/2008	10019	DOGM			failure to request permit renewal	Term	submitted renewal	N

5/28/2008 10021 DOGM Plugged culverts Term Unplugged N  
 5/28/2008 10022 DOGM Failure to maintain silt fence Term Cleaned fence N

Name of Operation		Identifying number for operation			Federal or State Permit Number	MSHA ID Number		
West Ridge					007/041	42-02233		
Date Issued	Violation Number	Name of Issuing Agency	Person Issued To	Permit Number	Brief Description of Violation	Status (Abated, Term, etc.)	Abatement Action	Appeal Y or N
1/22/2004	Nov4-49-1-1	DOGM			Failure to request renewal	Term		N
4/6/2005	Nov5-39-1-1	DOGM			Failure to submit 4qtr water	Term		N
7/31/2008	10025	DOGM			coal pushed on topsoil	Term		N
1/29/2009	10033	DOGM			sediment in stream	Pending		N



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### List of Plates

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Plate 2-2	Detailed Soils Map of Mine Facilities Site
Plate 2-3	Soil Salvage and Replacement Map
Plate 2-4	Removed from Permit

### List of Appendixes

Appendix 2-1	Prime Farm Land Determination
Appendix 2-2	Soil Descriptions NRCS
Appendix 2-3	Soil Survey (1998)
Appendix A1	Detailed Soil Survey Map
Appendix A2	Salvaged Soils Map

**232. Topsoil and Subsoil Removal**

**232.100** Prior to topsoil removal, eight five gallon buckets of screened 1/4" cryptobiotic soil will be recovered and stored in a cool dry 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
<b>TOTAL<sup>(2)</sup></b>		<b>48.23</b>	<b>156141</b>		<b>27.95</b>	<b>56133</b>
<b>Bank to Loose Cubic Yards *1.18 (Amount topsoil pile is designed to hold.)</b>						<b>(1) 66237</b>

(1) An additional 800 yd<sup>3</sup> 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 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 where soil would be salvaged and stored in the topsoil stockpile.

Total volumes of soil stored in the topsoil pile would be approximately 56,000 bank cubic yards. Removal of stones and boulders would be considered in volume estimates where they are part of the soil layer removed.

The stockpile has been sized to allow for bulking or swell of the soil as it is removed from the bank state to the loose state. A bulking number of 1.18 has been used. The area allowed for topsoil storage is 56,000 bank cubic yards x 1.18 which equals 66,000 loose cubic yards to be placed on the topsoil pile.

Boulders of approximately three feet in diameter and larger will be separated from the topsoil and piled or placed at appropriate locations such as adjacent to roads, pads etc. No attempt will be made to collect the large boulders into common piles. Boulders above ground level are in addition to topsoil volumes and may account for approximately 10,000 cubic yards.

UEI is not stockpiling large stones "boulders". Boulders will be pushed to the side and left during construction and then upon reclamation the boulders will be pushed back into the approximate location from which they came. Rocks of 36" or less will be stored in the topsoil pile with the soil and will be redistributed with the soil.

The approximate 66,000 loose cubic yards of topsoil will be stored in a topsoil pile as shown on Plate 5-2. This topsoil pile will be approximately 350' long and 250' wide with 2:1 slopes. The height of topsoil pile needed is approximately 31 feet. The pile as designed has the capability of storing well over the required 60,000 cubic yards. See Figure 1 for topsoil pile calculations.

Soil from the proposed exhaust fan site near the coal outcrop may not be stored in the topsoil stockpile. At this small site detached from the main facilities, available soil would probably be stored at the edge of the area to be disturbed for fan

### Lila Canyon Topsoil Calculations

Pile Elevation In Feet	Pile Length In Feet	Pile Width In Feet	Volume L X W CYDS	Volume Ends CYDS	Total Volume Cumulative Cubic Yards
	350	250	3240.74		3240.74
1	346	246	3152.44	22.07	6415.26
2	342	242	3065.33	21.78	9502.37
3	338	238	2979.41	21.48	12503.26
4	334	234	2894.67	21.19	15419.11
5	330	230	2811.11	20.89	18251.11
6	326	226	2728.74	20.59	21000.44
7	322	222	2647.56	20.30	23668.30
8	318	218	2567.56	20.00	26255.85
9	314	214	2488.74	19.70	28764.30
10	310	210	2411.11	19.41	31194.81
11	306	206	2334.67	19.11	33548.59
12	302	202	2259.41	18.81	35826.81
13	298	198	2185.33	18.52	38030.67
14	294	194	2112.44	18.22	40161.33
15	290	190	2040.74	17.93	42220.00
16	286	186	1970.22	17.63	44207.85
17	282	182	1900.89	17.33	46126.07
18	278	178	1832.74	17.04	47975.85
19	274	174	1765.78	16.74	49758.37
20	270	170	1700.00	16.44	51474.81
21	266	166	1635.41	16.15	53126.37
22	262	162	1572.00	15.85	54714.22
23	258	158	1509.78	15.56	56239.56
24	254	154	1448.74	15.26	57703.56
25	250	150	1388.89	14.96	59107.41
26	246	146	1330.22	14.67	60452.30
27	242	142	1272.74	14.37	61739.41
28	238	138	1216.44	14.07	62969.93
29	234	134	1161.33	13.78	64145.04
30	230	130	1107.41	13.48	65265.93
31	226	126	1054.67	13.19	66333.78
32	222	122	1003.11	12.89	67349.78
33	218	118	952.74	12.59	68315.11
34	214	114	903.56	12.30	69230.96
35	210	110	855.56	12.00	70098.52

Figure 1

Precautions will be taken to avoid contamination. In the unlikely event visual observations indicate that subsoil has become contaminated from oil and grease, salts, or other visual contaminants, the contaminated soil will be disposed of at a sanitary landfill site (probably East Carbon).

**232.600.** Topsoil will be removed from excavation areas and stockpiled prior to construction activity. Vegetation and boulders that might interfere with topsoil salvage will be removed prior to removal and stockpiling of the topsoil.

**232.700.** It is anticipated that topsoil can be salvaged on areas to be disturbed. Approximate thickness of subsoil by Soil Map Unit are: SBG - 30 inches, DSH - 22 inches, and VBJ - 12 inches.

**232.710.** Soil removal from some local sites may be difficult due to rockiness and steep slopes. The area between the rock slopes and the ROM coal stockpile is an area of concern. In the area between the rock slopes and ROM coal stockpile the disturbance is minimal. The topsoil will not be removed from this area due to steep slopes. To protect this area from coal contamination the conveyor will be enclosed. Jersey Barriers will be installed to prevent the coal stockpile from encroaching this area. Topsoil will be removed in all areas of disturbance except for the area between the ROM coal pile and the rock slopes where either one or two bents will be constructed. Available underlying soils will be salvaged from stony disturbed areas. Areas too steep and rocky for equipment and where it would be unsafe or impractical for construction activities (approximately 5.95 Acres) will not be included in the site development plan.

**232.720.** No substitute soil materials will be needed.

### **233. Topsoil Substitutes and Supplements.**

into the annual safety training for all employees.

4. Possible restrictions on firearms on the mine site, and restrictions on off road vehicle usage to lessen disturbance.
5. The Operator will ensure that DWR surveys for cliff nesting raptors within proposed facilities areas at least two years prior and one year following construction. The Operator will conduct annual raptor surveys.

As part of normal mining operation requirements, the Permittee must submit all results of the raptor surveys to the Division in Annual Reports and must immediately contact the Division, BLM, and USFWS following any raptor survey that shows that eagles are tending nests or nesting. The agencies will immediately coordinate to determine if the Permittee must implement appropriate measures. If the agencies recommend mitigation, the Permittee must submit all plans to the Division for incorporation into Appendix 3 of the MRP.

6. An active golden eagle nest, with young, was documented during the 1999 spring raptor survey. The nest is located in the left fork of Lila Canyon within the 1-mile buffer zone. (See Plate 3-1). A consultation with USF&W, BLM, and UDWR was held in the fall of 1999. Line of site and potential mitigation was addressed during this meeting. The results of this consultation are addressed in Sec 322.220 and the Lila Canyon EA. This nest was not active in 2000, 2001, 2002, or 2003. A survey was not done in 2004. In 2005 nest 946 contained a possibly dead chick. (See Appendix 3-5 for updated inventories)
7. The Operator will adhere to exclusionary periods when initiating construction and final reclamation projects. The exclusionary periods include: raptors (Feb 1 - July 15), Bighorn sheep lambing

(May 1 - June 15), and Pronghorn (May15 - June 20).

In the event of unforeseen changes in construction or mine plans, or in the case of emergency situations that may force the Permittee to conduct activity near or within the 0.5 mile buffer zone of raptor nest and during raptor exclusionary periods (February 1 to July 15 for golden eagles), the Permittee will immediately contact the Division, BLM, DWR, and USFWS. The agencies will immediately coordinate to determine appropriate measures that may include conducting ground surveys, in coordination with DWR, to determine if birds are tending nests or nesting and possibly determine the life stage of the offspring; developing a mitigation plan, in coordination with the agencies, for possible impacts to nests or birds; or ceasing operations until the end of breeding season to avoid 'take'. If the agencies recommend surveys, the Permittee must submit all survey results to the Division in Annual Reports. If the agencies recommend mitigation, the Permittee must submit all mitigation plans to the Division for incorporation into Appendix 3 of the MRP.

The Applicant does not plan to monitor any wildlife species during the life of the operation with the exception of raptors. Spring raptor surveys will be conducted at a minimum of a 1-mile radius around any new or potentially disruptive mining activity, 2-years prior and annually after the proposed activity. The Operator will contact the USFWS and the Division immediately following raptor surveys if raptors are observed tending nests or nesting.

The mine will emphasize their commitment to legal requirements of firearm and off-road vehicle-use by employees. This type of program has been adopted by the operator and will continue throughout the operation. An education program aimed at minimizing potential negative impacts by employees will be presented

Prior to any new surface disturbance a raptor inventory will be conducted to ensure that no raptors or their nests or young would be adversely impacted through any mining or mine related activity. A copy of historical raptor data as well as current survey results are attached as Appendix 3-5.

A one-half mile buffer zone of no new disturbance during critical nesting periods will be maintained during that portion of the year that the nest sites are active.

As part of normal mining operation requirements, the Permittee must submit all results of the raptor surveys to the Division in Annual Reports and must immediately contact the Division, BLM, and USFWS following any raptor survey that shows that eagles are tending nests or nesting. The agencies will immediately coordinate to determine if the Permittee must implement appropriate measures. If the agencies recommend mitigation, the Permittee must submit all plans to the Division for incorporation into Appendix 3 of the MRP.

In the event of unforeseen changes in construction or mine plans, or in the case of emergency situations that may force the Permittee to conduct activity near or within the 0.5 mile buffer zone of raptor nest and during raptor exclusionary periods (February 1 to July 15 for golden eagles), the Permittee will immediately contact the Division, BLM, DWR, and USFWS. The agencies will immediately coordinate to determine appropriate measures that may include conducting ground surveys, in coordination with DWR, to determine if birds are tending nests or nesting and possibly determine the life stage of the offspring; developing a mitigation plan, in coordination with the agencies, for possible impacts to nests or birds; or ceasing operations until the end of breeding season to avoid 'take'. If the agencies recommend surveys, the Permittee must submit all survey results to the Division in Annual Reports. If the agencies recommend mitigation, the Permittee must submit all mitigation plans to the Division for incorporation

Appendix 5-8. Includes areas of undisturbed within the disturbed area.

Top Soil removal / Actual Disturbance:

33.86 Acres discussed in Section 232.100" This is the actual area anticipated to be disturbed for the life of the mine.

The permit area for the Lila Canyon mine is depicted on Plate 4-1. Included in this map are: the boundary of the permit area, the area which will include surface facilities, and the new portals. Existing roads, power lines, and railroads are identified. Private, federal, and state ownership are also identified on this plate. Wildlife habitats have been identified on Plate 3-1 and grazing allotment boundaries are depicted on Plate 4-2.

Table 4-1 lists the various owners of land within and around the permit area. The permit area is approximately 5992.07 acres. Within the permit area, 1446.64 acres comprise private land and 289.06 acres comprise state lands. The remaining 4,256.37 acres is federal land owned and managed by the United States Bureau of Land Management (BLM). Table 4-2 describes the surface ownership and Table 4-2A describes the coal ownership of the permit and surrounding area.

Lila Canyon lies within a region identified by the BLM as the Range Valley Mountain Habitat Management Plan Area ( U-6-WHA-T4). This region was designated as such by a technical committee comprising state, federal, local government agencies and private citizens. This Habitat Management Plan area was established in September 1991 to provide management for the wildlife species of the area, including federally protected wildlife and plant species, big game, upland and small game waterfowl, unique and limited high value wildlife habitat, and access management. Big game and raptor habitat within the Lila Canyon Mine permit area, along with the Range Valley Mountain HMA, have been identified on Plate 3-1.



State of Utah

Department of  
Environmental Quality

Richard W. Sprott  
*Executive Director*

DIVISION OF AIR QUALITY  
Cheryl Heying  
*Director*

JON M. HUNTSMAN, JR.  
*Governor*

GARY HERBERT  
*Lieutenant Governor*

DAQE-AN0121850002-08

October 23, 2008

R. Jay Marshall  
UtahAmerican Energy, Inc.  
P.O. Box 910  
Price, Utah 84520

Dear Mr. Marshall:

Re: Approval Order: Approval Order Modification to Increase Coal Production from 1.5 to 4.5 Million Tons Per Year, Emery County – CDS SM; ATT; NSPS; TITLE V Minor  
Project Code: N012185-0002

The attached document is the Approval Order for the above-referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any questions you may have on this project to Mr. Maung Maung. He may be reached at (801) 536-4153.

Sincerely,

M. Cheryl Heying, Executive Secretary  
Utah Air Quality Board

MCH:MM:sa

cc: Southeastern Utah District Health Department  
Mike Owens, EPA Region VIII

**STATE OF UTAH**

**Department of Environmental Quality**

**Division of Air Quality**

**APPROVAL ORDER: Approval Order Modification to Increase  
Coal Production from  
1.5 to 4.5 Million Tons Per Year**

**Prepared By: Maung Maung, Engineer  
(801) 536-4153  
Email: mmaung@utah.gov**

**APPROVAL ORDER NUMBER**

**DAQE-AN0121850002-08**

**Date: October 23, 2008**

**UtahAmerican Energy, Inc.**

**Source Contact  
R. Jay Marshall  
(435) 888-4000**



**M. Cheryl Heying  
Executive Secretary  
Utah Air Quality Board**

### Abstract

UtahAmerican Energy, Inc. has requested a modification to their existing Approval Order DAQE-702-99, dated August 27, 1999, to effect the following changes:

- 1) The corporate office location should be changed to:  
  
Physical Address: UtahAmerican Energy, Inc.  
794 "C" Canyon Road  
East Carbon, Utah 84520  
  
Mailing Address: P.O. Box 910  
Price, Utah 84520  
  
Phone Number: (435) 888-4000  
Fax Number: (435) 888-4002
- 2) The anticipated maximum coal production level has been increased from 1.5 million to 4.5 million tons per year.
- 3) The mine traffic road will be paved. In the approved plan this road was gravel.
- 4) The coal haul road has been shortened from 0.68 miles (3590 feet) to 0.154 (815 feet).
- 5) The coal stockpile has been enlarged to a maximum of 4.5 acres to reflect the increased production.
- 6) By lengthening the run of mine conveyer the company eliminated the belt transfer.
- 7) A new coal screen to screen all the produced coal has been proposed.
- 8) By installing the screen, only a portion of the coal will go through the crusher approximately 50%.
- 9) The refuse pile has been eliminated. All the refuse will be either buried or transported off site. The pile is no longer needed.

Emery County is an Attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants. New Source Performance Standards (NSPS) 40 CFR subpart Y applies to this source. Therefore, Title V applies to this source. National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Achievable Control Technology (MACT) regulations do not apply to this source.

The emissions, in tons per year, will change as follows:  $PM_{10} = 2.75$ ,  $NO_x = 3.71$ ,  $SO_2 = 0.24$ ,  $CO = 6.40$ ,  $VOC = 0.57$ .

The changes in emissions will result in the following, in tons per year, potential to emit totals:  $PM_{10} = 7.72$ ,  $NO_x = 23.10$ ,  $SO_2 = 1.52$ ,  $CO = 10.58$ ,  $VOC = 2.15$ .

The project has been evaluated and found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). A public comment period was held in accordance with UAC R307-401-7 and no comments were received. This air quality Approval Order authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

**General Conditions:**

1. This Approval Order applies to the following company:

Site Office

UtahAmerican Energy, Inc.  
794 "C" Canyon Road  
East Carbon, Utah

Phone Number (435) 888-4000

Fax Number (435) 888-4002

The equipment listed in this Approval Order shall be operated at the following location:

From Price go East on Highway 6/191 approximately 40 miles to Horse Canyon turnoff (Highway 125). Turn left on 125 and travel east approx. 4.5 miles to the junction of 125/126. Turn right on 126 and travel south on 126 approx 2.3 miles to the site.

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27  
4,364.4 kilometers Northing, 557.0 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this Approval Order (AO) conform to those used in the UAC R307 and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.
4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401.
5. All records referenced in this AO or in applicable NSPS standards, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request. Records shall be kept for the following minimum periods:
  - A. Emission inventories Five years from the due date of each emission statement or until the next inventory is due, whichever is longer
  - B. All other records Five years

6. UtahAmerican Energy, Inc. shall operate the Lila Canyon Mine in accordance with the terms and conditions of this AO as requested in the Notice of Intent (NOI) submitted to the Division of Air Quality (DAQ) on February 29, 2008, and additional information submitted to the DAQ on June 9, 2008 and September 2, 2008.
7. This AO shall replace the AO (DAQE-702-99) dated August 27, 1999.
8. The approved installations shall consist of the following equipment or equivalent\*:
  - A. One enclosed crusher\* rated at 500 tons per hour
  - B. One screen\* model #45, manufactured by Jeffery
  - C. One truck loading facility\* with enclosed 450 tons surge bin and sprays as needed
  - D. One stacking tube with associated coal stockpile
  - E. One under-pile reclaim system
  - F. Associated conveyors, mobile diesel equipment

\* Equivalency shall be determined by the Executive Secretary.

9. UtahAmerican Energy, Inc. shall notify the Executive Secretary in writing when the installation of the equipment listed in Condition #8.B has been completed and is operational. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If the construction and/or installation has not been completed within 18 months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO in accordance with R307-401-18.

10. Visible emissions from the following emission points shall not exceed the following values:
  - A. Enclosed crusher exhaust - 20% opacity
  - B. All conveyor transfer points - 20% opacity
  - C. All diesel engines - 20% opacity
  - D. Conveyor drop points - 20% opacity
  - E. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

For sources that are subject to NSPS, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.

11. Visible emissions from any stationary point or fugitive emission source associated with the source or with the control facilities shall not exceed 20% opacity. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9.

For sources that are subject to NSPS, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.

12. Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity at any point. Visible emission determinations shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Visible emissions shall be measured at the densest point of the plume but at a point not less than 1/2 vehicle length behind the vehicle and not less than 1/2 the height of the vehicle.

13. The following production and/or consumption limits shall not be exceeded:

- A. 4,500,000 tons of coal per rolling 12-month period
- B. 75,970 gallons of diesel fuel consumed per rolling 12-month period
- C. 1,383 gallons of gasoline consumed per rolling 12-month period

To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records of consumption/production shall be kept for all periods when the plant is in operation. Production of coal shall be determined by sales records of final product shipped. Diesel fuel and gasoline consumptions shall be determined by fuel purchase records. The records of consumption/production shall be kept on a daily basis.

#### **Roads and Fugitive Dust**

14. All unpaved roads and other unpaved operational areas that are used by mobile equipment shall be water sprayed and/or chemically treated to control fugitive dust. The application of water or chemical treatment shall be used. Treatment shall be of sufficient frequency and quantity to maintain the surface material in a damp/moist condition. The opacity shall not exceed 20% during all times the areas are in use or unless it is below freezing.

Records of water and chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items:

- A. Date
- B. Number of treatments made, dilution ratio, and quantity

C. Rainfall received, if any, and approximate amount

D. Time of day treatments were made

Records of treatment shall be made available to the Executive Secretary upon request.

15. The haul road limitations shall be:

A. 0.68 miles in length of paved road

B. 15 miles per hour

The haul road speed shall be posted.

16. Control of disturbed or stripped areas is required at all times for the duration of the project/operation until the area is reclaimed. Records of treatment and/or reclamation shall be kept for all periods when the plant is in operation. Records of treatment and/or reclamation shall be made available to the Executive Secretary or Executive Secretary's representative upon request.

17. The 0.68 miles of haul road shall be paved and shall be swept or sprayed clean daily or as determined necessary by the Executive Secretary. Records of cleaning paved roads shall be kept and shall be made available to the Executive Secretary or the Executive Secretary's representative upon request.

18. Water sprays or chemical dust suppression sprays shall be installed at the following points to control fugitive emissions:

A. Enclosed crusher exhaust

B. All conveyor transfer points

The sprays shall operate whenever dry conditions warrant or as determined necessary by the Executive Secretary. Water sprays are not required during freezing weather conditions.

19. The moisture content of the material passing a #40 U.S. Standard Sieve shall be maintained at a minimum of 7.0% by weight. The moisture content shall be tested if directed by the Executive Secretary using the appropriate American Society of Testing and Methods (ASTM) method.

20. The storage piles shall be watered to minimize generation of fugitive dusts, as dry conditions warrant or as determined necessary by the Executive Secretary. Records of water and/or chemical treatment shall be kept for all periods when the plant is in operation. Records of water and/or chemical treatment shall be made available to the Executive Secretary or Executive Secretary's representative upon request.

21. The coal fines content of the stored coal shall not exceed 5.1% by weight and that of the haul roads and pile area shall not exceed 10% by weight. The coal fines content shall be determined if directed by the Executive Secretary using the appropriate ASTM method. The coal fines content is defined as all material passing a #200 U. S. Standard Sieve.

**Fuels**

22. The owner/operator shall use only #2 fuel oil as a primary fuel.
23. The sulfur content of any fuel oil or diesel burned shall not exceed 0.5 percent by weight. Sulfur content shall be decided by ASTM Method D2880-71 or D-4294-89, or approved equivalent. The sulfur content shall be tested if directed by the Executive Secretary. The percent by weight of the sulfur contained in the fuel can be obtained from the fuel oil certifications. Certification of fuels shall be either by Utah American Energy, Inc.'s own testing or test reports from the fuel marketer. Records of test reports on sulfur content shall be available on-site for each load delivered.

**Federal Limitations and Requirements**

24. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, NSPS<sup>1</sup> Subpart A, 40 CFR 60.1 to 60.18 and Subpart Y, 40 CFR 60.250 to 60.254 (Standards of Performance for Coal Preparation Plants) apply to this installation. The facility must operate in accordance with the most current version of 40 CFR 60 applicable to this plant.
25. For sources that are subject to NSPS, opacity standards shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9. For purposes of determining initial compliance, the minimum total time of observations shall be three hours (thirty six-minute averages) for the performance test or other set of observations (meaning those fugitive-type emission sources subject only to an opacity standard). It is the responsibility of the owner/operator of the source to supply these observations to the Executive Secretary. A currently certified observer must be used for these observations. Emission points that are subject to the initial observations are:
  - A. Enclosed crusher exhaust
  - B. Coal processing and conveying equipment
  - C. Coal storage systems
  - D. Coal transfer and loading systems
  - E. All conveyor transfer points

---

<sup>1</sup> NSPS = New Source Performance Standards

**Records & Miscellaneous**

26. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on the information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on the equipment authorized by this AO shall be recorded.
27. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.
28. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the DAQ. The UAC R307 rules used by DAQ, the NOI guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

<http://www.airquality.utah.gov/>

The annual emissions estimations below include point source, fugitive emissions, fugitive dust, road dust, etc. and do not include tail pipe emissions, grandfathered emissions, etc. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, Maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential To Emit (PTE) emissions for this source (the Lila Canyon Mine) are currently calculated at the following values:

<u>Pollutant</u>	<u>Tons/yr</u>
A. PM <sub>10</sub> .....	7.72
B. SO <sub>2</sub> .....	1.52
C. NO <sub>x</sub> .....	23.10
D. CO.....	10.58
E. VOC.....	2.15

**Horse Canyon Extension  
Lila Canyon Mine**

**Chapter 5  
Engineering**

**Volume 4 of 7**

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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

from experts in related fields when needed. Cross Sections and Maps will be updated as needed or required by the Division. Listed below are some of the maps and cross sections that have been certified by a qualified registered professional engineer.

- 512.110.** A map showing the extent of known existing mine workings and the approximate year mined has been included and certified by a qualified registered professional engineer and included as Plate 5-1.
- 512.120.** All Surface facilities and operations are shown on the appropriate maps and have been certified by a qualified registered professional engineer.
- 512.130** Maps showing final surface configuration with cross sections have been included and certified by a qualified registered professional engineer. (See Plate 5-6, 5-7c, and Appendix 5-4)
- 512.140** Appropriated hydrology drawings and cross sections have been certified by a qualified registered professional engineer. (See Chapter 7)
- 512.150** Geologic cross sections and maps that are required to be, have been certified by a qualified registered professional engineer. See Chapter 6 and Plate 7-1B.
- 512.200** Plans and Engineering Designs which may include: Excess spoil piles, durable rock fills, coal mine waste, impoundments, primary roads and variances from approximate original contour. These Plans and Designs have been certified by a qualified registered professional engineer if appropriate.
- 512.210** Lila Canyon Mine is an underground operation, therefore it is anticipated that no excess Spoil will be produced. This section does not apply.
- 512.220** The professional engineer experienced in the design of earth and rock fills has certified that the durable rock fill

design will ensure the stability of the fill and that the fill meets design requirements.

- 512.230** The professional engineer experienced in the design of coal mine waste piles has certified the design of the coal mine waste disposal facility. (See Appendix 5-7)
- 512.240** Prudent engineering practices was used in the design and construction of impoundments in the permit area. The impoundment designs have been certified by a qualified registered professional engineer. (See Plate 7-6)
- 512.250** The professional engineer has certified the design and construction or reconstruction of primary roads as meeting the appropriate design criteria.
- 512.260** The operator is not requesting a variance from the approximate original contours (AOC).

### **513. Compliance With MSHA Regulations and MSHA Approvals.**

- 513.100** Neither Coal processing waste dams or embankments are anticipated during the term of this permit. Therefore, this section is not applicable.
- 513.200** Planned impoundments and sedimentation ponds do not meet the size or other qualifying criteria of MSHA, 30 CFR 77.216(a). Therefore, this section is not applicable.
- 513.300** Underground development waste transported to the surface, coal processing waste and excess spoil will not be disposed of underground. However, material such as overcast material, rock falls, and slope material, not transported to the surface, may be disposed of underground according to the appropriate MSHA regulations.
- 513.400** Refuse piles meet the requirements of MSHA, 30 CFR 77.214 and 30 CFR 77.215 and all appropriate R645 regulations. (See Appendix 5-7)
- 513.500** Shafts, drifts, adits, tunnels, exploratory holes, entryways or other opening to the surface from the underground will be capped, sealed, backfilled or otherwise properly managed

consistent with MSHA, 30 CFR 75.1711.

- 513.600** Surface water discharges into the underground mine workings is not anticipated or planned, Therefore, this section is not applicable.
- 513.700** Surface mining within 500 feet to an active underground mine is not planned nor anticipated. Therefore, this section does not apply.
- 513.800** Coal mine waste fires plans will be submitted to MSHA and the Division for their approval prior to extinguishing any coal mine waste fires. (See Appendix 5-3)

#### **514. Inspections**

All engineering inspections, except the quarterly inspections of impoundments not subject to MSHA, will be conducted by a qualified registered professional engineer or other qualified professional specialist under the direction of the professional engineer.

- 514.100** Lila Canyon is an underground operation and it is not anticipated that any spoil will be produced. Therefore, this section does not apply.
- 514.200** Refuse Piles. A professional engineer or specialist experienced in the construction of similar earth and waste structures will inspect the refuse pile during construction.
- 514.210** Regular inspections by the engineer or specialist will also be conducted during placement and compaction of coal mine waste materials. If it has been determined that a danger of harm exists to the public health and safety or the environment, more frequent inspections will be conducted. Inspections will continue until the refuse pile has been finally graded and revegetated or until a later time as required by the Division.
- 514.220** The refuse pile inspections will be performed at least quarterly throughout construction and during the following construction periods:
- 514.221** In addition to quarterly inspections, an inspection

will be performed during foundation preparation which includes the removal of all organic material and topsoil;

**514.222** Since no under-drain or protective filter systems are planned, this section is not applicable.

**514.223** In addition to quarterly inspections, an inspection will be performed during the installation of the final surface drainage systems.

**514.224** In addition to quarterly inspections, an inspection will be performed after the final grading and the facility has been revegetated.

**514.230** The division will be provided a certified report prepared by, or under the supervision of, the qualified registered professional engineer after each inspection. The report will certify that the refuse pile has been constructed and maintained as designed and in accordance with the approved plan and R645 Rules. This report will include statements stating the appearances of instability, structural weakness, and other hazardous conditions if found. (See Appendix 5-1)

**514.240** Since protective filters and under-drain are not required in the current design criteria this section is not applicable.

**514.250** Required refuse pile reports will be retained at or near the mine site in an area convenient to the resident agent and the qualified registered professional engineer. Appendix 5-1 is an example of the refuse pile inspection form.

**514.300** Impoundments

**514.310** A professional engineer or specialist experienced in the construction of impoundments will inspect impoundments.

**514.311** During construction inspections will be made on a regular basis and upon completion of the pond the inspections will be performed at least yearly. Inspections will continue yearly until the pond is removed or the performance bond is released.

**514.312** After each inspection the qualified registered professional engineer will promptly provide to the Division, a certified report. This report will state that the impoundment has or has not been constructed and maintained as designed and in accordance with the approved plan and the R645 Rules. The report will include a discussion of any appearances of instability, structural weakness or other hazardous conditions. All so included in the report will be the depth and elevation of any impounded waters, existing storage capacity, any existing or required monitoring procedures and instrumentation and any other aspects of the structure affecting stability.

**514.313** Required impoundment inspection reports will be retained at or near the mine site in an area convenient to the resident agent and the qualified registered professional engineer. Appendix 5-2 is an example of the impoundment inspection form.

**514.320** Since the pond contained in the Lila Canyon Project is less than 20 feet high and stores less than 20 acre-feet of water it is not subject to MSHA, 30 CFR 77.216. Therefore, this section does not apply.

## **515. Reporting and Emergency Procedures.**

**515.100** If a slide occurs, the operator will telephone DOGM to notify them of the situation and recommend remedial measures to be taken to alleviate the problem. Additional remedial measures required by DOGM will be implemented.

**515.200** During impoundment inspections any potential hazards noted

will be reported to DOGM along with measures to be implemented to eliminate the hazard.

**515.300** In the case of temporary cessation of operations the following will apply:

**515.310** All provisions of the approved permit will be complied with during temporary cessation or abandonment.

**515.311** In case of temporary cessation the operator will support and maintain all surface access openings to underground operations, and secure surface facilities in areas in which there are no current operations, but operations are to be resumed under an approved permit.

**515.312** Since Lila Canyon Mine is an underground operation this section does not apply.

**515.320** Prior to a temporary cessation of coal mining and reclamation operations which is expected to last longer than 30 days, or when a temporary cessation is extended longer than 30 days, the operator will submit to the Division a notice of intention to cease or abandon operations. The following will be included in the notice of temporary cessation.

**515.321** The temporary cessation notice will contain the exact number of surface acres and the horizontal and vertical extent of subsurface strata included in the permit area. In addition a description of the reclamation activities accomplished and activities such as backfilling regrading, revegetation, environmental monitoring, underground opening closures and water treatment activities that will continue during the temporary cessation.

**515.322** Since the Lila Canyon Mine is an underground operation this section does not apply.

**516. Prevention of Slides:** Since the Lila Canyon Mine is an underground

operation this section does not apply.

## 520. Operation Plan.

At first glance it would appear to a non-mining person that the best access to UEI's leases would be from the existing (sealed) Horse Canyon portals using the current Horse Canyon surface disturbance. However, the existing Horse Canyon site is not suitable for a large longwall operation. The old Horse Canyon Mine was not designed to produce 4.5 million tons as will be Lila. Some strategic pillars in the old mains were extracted upon retreat preventing any future access. The number of entries in the old works are not adequate for ventilation purposes. Portions of the old mine are flooded preventing reentry. The distance from the old portals to the current leases would result in unacceptable travel times for crews and supplies. Rehabilitating and maintaining an old mine is extremely hazardous and expensive. As a result of the conditions described above it has been determined that new portals at the Lila Canyon site is the most logical and only feasible access to the permittee's coal leases.

## Mine Facilities List Lila Canyon Mine

A list of new structures and facilities follows:

### Buildings

- 1) Office/Bathhouse
- 2) Shop Warehouse
- 3) Security Shack

### Utilities

- 4) Mine Substation
- 5) Under Ground Power Lines
- 6) Water Treatment Plant
- 7) Potable Water Tank
- 8) Process Water tank
- 9) Sewer Tank
- 10) Drain Field

### Mine Facilities

- 11) Ventilation Fan

- 12) 60-inch Conveyor from tunnels to Coal Stockpile
- 13) (ROM) Underground Belt from Stockpile to Crusher
- 14) 48-inch Conveyor from Crusher to Loadout Bin
- 15) Drop from Loadout Bin to Truck Loadout
- 16) Reclaim Tunnel, Escape Tunnel, Fan and Fan House
- 17) ROM Storage Pile, Coal Stacking Tube
- 18) Crusher Screen Plant
- 19) Truck Scale and Loadout
- 20) Coal Loadout Storage Bin
- 21) Guardrails
- 22) Underground Pipes
- 23) Chain Link Fence

#### **Support Facilities**

- 24) Non-Coal Waste Area
- 25) Equipment & Supplies Storage Area
- 26) Topsoil Pile
- 27) Refuse Pile
- 28) Sediment Pond
- 29) Slope Access Road / Portal Access Road
- 30) Rock Slopes
- 31) Mine Facilities Road / Truck Loadout Road
- 32) Office/Bathhouse/Warehouse Asphalt Parking Area
- 33) Mine Parking
- 34) Fuel Tanks
- 35) Powder and Cap Magazines
- 36) Culvert locations are shown on Plate 7-2.

A description of new structures and facilities:

#### **Office/Bathhouse**

The office and bathhouse building is shown on Plate 5-2. This building will jointly house all support personnel such as accounting, administration, engineering, and safety and will provide a comfortable office environment for all employees. Bathhouse and toilet facilities will be found for all employees at this location. The bathhouse will provide a location for underground miners to change from clean street clothes to clothing suitable for underground use. The area will provide showers for employees for use after their scheduled work shifts so they can clean up prior to returning home. Both the bathhouse and office buildings will be of prefab construction and will rest on a concrete pad. The pad dimensions will be approximately 150' by

100' by 12". The facility will be designed to accommodate up to 200 employees working rotating shifts.

### **Shop Warehouse**

The shop warehouse building is shown on plate 5-2. Parts and supplies consumed during the mining process will be stored in the warehouse to be issued as needed. The shop area will be used to perform minor equipment repairs and overhauls. The shop warehouse will be a prefab modular type building approximately 100' by 150' and will rest on a 4" concrete pad.

### **Security Shack**

The Security Shack shown of Plate 5-2, when used will provide security to the mine site. The security shack will be used primarily at times when the mine is not in production. Security may be provided to protect the public from hazards associated with a mine site and to protect company property from unauthorized use. The security shack will be approximately 10' by 20' by 8" and will be of prefab construction and will rest on a 4" concrete slab.

### **Mine Substation**

The mine substation will be located as shown on Plate 5-2 will provide power to surface and underground areas of the mine property. The substation will comprise of approximately four transformers setting on a concrete pad approximately 20' by 20' by 12" and fully fenced. The total area of the substation is approximately 40' by 40'. Power will be fed into the transformers at 46 KVA and will be transformed down to usage voltages for both the surface and underground facilities. It is anticipated that voltages of 110, 220, 440 will be used on the surface and 12,470 volts will be utilized underground. The mine substation will be constructed in a way to fulfill all appropriate MSHA regulations.

### **Underground Power Lines**

Within the disturbed area it is anticipated all power lines will be underground. Underground lines will be run where feasible. As builds will be provided. Underground Power Lines will be left in place upon reclamation.

### **Water Treatment Plant**

The water treatment plant is located on the north-east side of the 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 accessed and installed from underground. The ventilation portal will be driven from underground and broken from inside out. The location of the portal and fan is shown on Plate 5-2. Fan power will be run underground. Fan access for maintenance and monitoring will be from the underground works. The need for surface fan access is not

anticipated at this time, access will be from underground.

### **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.

### **Drop from Loadout Bin to Truck Loadout**

Coal will be dropped from the loadout bin to the trucks being loaded. The drop rate will provide capacity to the trucks at a rate suitable for truck

loading.

### **Reclaim Tunnel, Escape Tunnel, Fans**

Design for the escape and reclaim tunnels is not complete. Standard practice is to construct the tunnels from either concrete or corrugated metal. The reclaim tunnel is approximately 350' long with a 14' diameter. The escape tunnel will be approximately 300' long with a diameter of 4'. Appropriate safety and environmental concerns will be addressed upon detailed design. The preliminary layout is shown on Plates 5-2 and 5-8.

### **ROM Storage Pile**

The run of mine storage pile receives coal directly from the underground works and provides storage for the coal until it is crushed and loaded into trucks for transportation to a unit train loadout. The coal from the underground run of mine belt will be dropped into a stacking tube located in the center of the run of mine storage pile. This tube will help reduce any fugitive dust. The stacking tube will be approximately 80' high and will allow for approximately 200,000 tons of open storage in the run of mine storage pile. The run of mine storage pile is shown on Plates 5-2 and 5-8.

### **Crusher**

The enclosed crusher will crush coal from the 8" minus down to a 2" minus size, at the rate of approximately 1000 tons per hour. The coal will be first screened then the oversized will be crushed. Crushed coal will be stored temporarily in a 500 ton storage bin located above the truck loadout. The crusher and screen locations are shown in Plates 5-2 and 5-8.

### **Truck Scale and Loadout**

Coal will be reclaimed from the coal storage bin, weighed and then loaded into coal haul trucks for transportation to the various unit train loadouts. A small loadout shack will be constructed to provide cover and protection for the various equipment and controls need for the coal loading process. The truck scale and loadout are shown on Plates 5-2 and 5-8.

### Coal Storage Bin

The coal storage bin is part of the truck loadout and is shown on 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 an 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:

<u>Culvert</u>	<u>Length</u>	<u>Size</u>
DC-1	30'	18"
DC-2	65'	18"
DC-3	33'	18"
DC-4	135'	18"
DC-5	50'	18"
DC-6	80'	24"
DC-7	110'	18"
DC-8	85'	24"
DC-9	35'	18"
DC-10	55'	18"
DC-11	65'	18"
DC-12	50'	18"
DC-13	30'	24"
DC-14	60'	18"
DC-15	60'	18"
DC-16	60'	18"

DC-17	75'	18"
DC-18	35'	18"
DC-19	40'	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**

The equipment and supply storage area is approximately 350' by 400'. This storage area will be used to store mine supplies and equipment from the time of delivery until they are needed underground. Supplies such as timbers, bolts, plates, rock-dust, pipes, resin, screens, concrete blocks, steel, cables, and numerous other materials may be stored in this area. Equipment both new and used will be stored in this area. Many various longwall pieces such as shields, pan-lines, shears, chains, head and or tail drives, transformers, belt drives, pumps and numerous other material will be stored in this storage area. This secure area provides for a good storage area for diesel, gasoline, hydraulic, and roadway chemicals. All oil tanks will have appropriately designed berms or retaining walls. The equipment and supplies storage area is shown on Plate 5-2. Any explosives will be stored here according to appropriate MSHA regulations. Rock dust bins will be located in this area.

### **Topsoil Pile**

The topsoil pile has been located on the south west end of the surface facilities. The pile has been designed to contain adequate topsoil for redistribution according to the reclamation plan found in Chapter 5. The proposed location provides for good protection from wind contamination as well as protection from mine related activities. The location of the topsoil pile is shown on Plate 5-2.

### **Mine Development Waste Pile**

A temporary mine development waste area has been designed to provide a location for the storage of underground development waste that is brought to the surface. Any underground development waste, other than rock slope material, will be placed in the temporary pile then transported to an approved disposal site. The rock slope material will be used as fill as per Appendix 5-7. The capacity of the temporary pile will only be a few hundred tons. The area for the rock slope material is shown on Plate 5-2.

### **Sediment Pond**

The sediment pond has been design to provide for adequate sediment protection for the project area. All water running off the disturbed area will be routed into the sediment pond for treatment. The sediment pond has been designed according to the appropriate R645 regulations and the designs can

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 southwest end of the property and shown on Plate 5-2.

### **Slope Access / Portal Access Road**

The slope access road splits off the facility access road near the northeast 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 provide 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 provided by two rock slopes driven from the top of the Mancos shale up-dip to the intersection of the coal seam. One portal will provide 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 6,150'. 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.

### **Mine Facilities Road / Truck Loadout Road**

The mine facility road shown on Plate 5-2 begins at the edge of County Road 164 and allows for access to the various surface facilities. The road has been located in the most practical location taking into consideration grade, stability, and alignment. Employees will use this road to access the office & bathhouse facilities. Coal haul trucks will use this road to access the scales and truck loadout. All supplies will be hauled on a short portion of this road from the supply storage area to the slope access road. The road will be paved during construction of the facilities and before coal mining operations begin in order to minimize dust and provide good surface for heavy truck traffic as well as facility access. The facility access road will be approximately 24' wide to provide for two lane traffic and will have the appropriate drainage controls to insure long term life and low maintenance. The road has been constructed and will be maintained according to the appropriate R645-534 and R645-527 regulations.

#### **Office/Bathhouse/Visitor Parking Area**

Parking will be as shown on Plate 5-2. Parking facilities for office, mine, and warehouse employees will be provided jointly as shown. This area will also provide parking for all vendors, and visitors. The surface of the 220' by 350' area will be paved. The parking area is located and designed to allow for convenient and safe parking of personal vehicles. The sewer tank and drain field will be located on the north end of this parking area.

#### **Mine Parking**

A mine parking area will be provided as shown on Plate 5-2. The mine parking area is where all mine and mine related mobile equipment will be parked when on the surface. This is the location where the underground work crews will be loaded into man trips for transportation to the various work areas. The mine parking area will be paved. The mine parking area will be approximately 70' by 220'.

#### **Fuel Tanks**

Fuel tanks will be located in the Equipment & Supplies Storage Area and be installed as discussed under Equipment & Supplies Storage Area. A 1,500 gallon diesel tank, 500 gallon hydraulic tank and a 500 gallon gasoline tank will be needed.

#### **Powder and Cap Magazines**

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

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 Doelling 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 are discussed in part "A" of this plan.

**521.121** There are no buildings within 1000 feet of the proposed permit area for the Lila Canyon Mine, Part "B".

**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.

**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 5-5.
  - 521.143** The proposed disposal site for placing the slope rock is shown on Plate 5-2 as well as other appropriate plates.

- 521.150** Plates 6-2, 6-3, and 6-4, show surface contours that represent the existing land surface configuration of the proposed permit area.
- 521.151** The Plates show the surface contours for all areas to be disturbed as well as over the total permit area. The Plates showing the surface contours has been prepared by or under the supervision of a registered engineer.
- 521.152** No previously mined areas are included within Part "B". Therefore this section does not apply.
- 521.160** The maps, plates, and cross sections associated with this chapter clearly show:
- 521.161** Proposed buildings, utility corridors, and facilities are shown on Plate 5-2 as well as others.
- 521.162** Area of land affected according to the sequence of mining and reclamation is shown on the appropriate plates.
- 521.163** Land for which a performance bond will be posted is shown on the appropriate plate. Plate 5-2 as well as others show the area for which the performance bond will be posted. All disturbed areas within the permit boundary has been bonded.
- 521.164** Coal storage and loading areas are shown on Plate 5-2 and certified as required. Additional information can be found in Appendix 5-4.
- 521.165** Topsoil, and waste piles are shown on Plate 5-2 as well as others.
- 521.166** The waste disposal areas are shown for non-coal waste and underground mine waste on Plate 5-2.
- 521.167** No explosives are expected to be stored on site. However, if explosives are stored they will be stored as discussed in Section 520. on Plate 5-2.

- 521.168** Since Lila Canyon mine is an underground operation this paragraph is not applicable.
- 521.169** The refuse pile is shown on Plate 5-2 and discussed in Appendix 5-7.
- 521.170** Transportation facility maps describing roads, and conveyor maintained within the permit is shown with descriptions of roads, embankments, culverts, and drainage structures are presented in section 520 and are shown on Plates 5-2, and 7-2.
- 521.180** Support facilities are described in section 520 and are shown on Plate 5-2. Plate 5-2 is the official disturbed area boundary map.
- 521.190** Other relevant information required by the Division will be addressed.
- 521.200** Signs and markers will:
- 521.210** Signs and markers will be posted maintained, and removed by the person who conducts the coal mining and reclamation operations.
- 521.220** Signs and markers will be of uniform design that can be easily seen and read and be made of durable material and conform to local laws and regulations.
- 521.230** Signs and marker will be maintained during all activities to which they pertain.
- 521.240** Mine and Permit Identification Signs.
- 521.241** Mine and permit identification signs will be displayed at each point of access from public roads to areas of surface operations and facilities on permit areas.
- 521.242** Since Lila Canyon Mine is an underground operation, this section is not applicable.
- 521.243** Mine and permit identification signs where required, will show the name, business address,

and telephone number of the permittee and the identification number of the permanent program permit authorizing coal mining and reclamation operations.

**521.244** Mine and permit identification signs will be retained and maintained until after the release of all bonds for the permit area.

**521.250** Perimeter Markers

**521.251** The perimeter of all areas affected by surface operations or facilities before beginning mining activities will be clearly marked with perimeter markers.

**521.252** Since Lila Canyon Mine is an underground operation this section is not applicable.

**521.260** Buffer Zone Markers

**521.261** Signs will be erected to mark buffer zones as required and will be clearly marked to prevent disturbance by surface operations and facilities.

**521.262** Since Lila Canyon Mine is an underground operation this section is not applicable.

**521.270** Topsoil Markers. Markers will be erected to mark where topsoil or other vegetation-supporting material is physically segregated and stockpiled.

**522. Coal Recovery**

Additional Details can be found in the R2P2 on file at the BLM Office.

Effective barrier and pillar designs are essential for safe and productive underground mining. Barrier pillars will be sized according to accepted engineering practices. One or more of the following methods may be used to properly size barrier pillars: Dunn's Rule, the Old English Barrier Pillar Law, Pennsylvania Mine Inspector's Formula, Ash and Eaton Impoundment Formula, Pressure Arch Method, British Coal Rule of Thumb, North American Method, Holland Rule of Thumb, or Holland Convergent Method.

Regardless of the methods or care taken to properly size barrier pillars the true effectiveness on any design can only be determined by conducting full-scale in-mine performance evaluations. Mine experience and history in the local area will have as much influence on pillar sizes as does the engineering formulas.

Barrier pillars will be utilized to isolate the abandoned Horse Canyon Mine from the new Lila Canyon Mine. Barrier pillars will also be used to simplify ventilation, to provide independent escape routes and to possibly retain large quantities of mine water. Barrier pillars will be employed along the outcrop in order to maintain ventilation courses.

A barrier pillar where no second mining will be allowed within the barrier will be used to protect the escarpments. The width of the escarpment barrier will be determined by implementing a 21.5° angle of draw project downward from the surface to the coal seam. Development mining or first mining will be allowed within the escarpment barrier.

For longwall mining applications the abutment loading is of prime importance. Initial longwall pillars will be designed using the ALPS method. Again mine experience and history in the local area will have as much influence on pillar sizes as does the engineering formulas.

Mine pillars will be sized taking into consideration the coal strength, depth of cover, width and height of pillars using one or more of the following methodologies: Obert-Duvall, Holand-Graddy, Holland, Salamon-Munro, or Bieniawski. Again mine experience and history in the local area will have as much influence on pillar sizes as does the engineering formulas.

### **523. Mining Methods:**

Mining will begin in Section 15, T16S, R14E, in the Sunnyside seam. Development of the Sunnyside seam will be in a down dip direction toward the east. The seam will be accessed by two 1,200 foot slopes driven up at 12% from the base of the cliffs.

Production during the first year is estimated to be 200,000 tons, the second through the fifth year production should be between 1,000,000 and 1,500,000 using continuous mining methods. If and when tonnage demand increases to justify longwall mining, production could peak as high as 4,500,000 tons a year and continue at that level for the life of the mine.

Mine production will begin with the slope construction. Once the coal is encountered development will continue using continuous miners and various haulage types. Battery, cable, or continuous haulage may be used in conjunction with continuous miners in development. Continuous miners will account for all the production during the first two to five years. Mining will consist of driving mains, developing room and pillar panels and gate entries for future longwall mining.

The majority of the second mining will be performed using longwall equipment. However, in isolated areas room and pillar type of mining may be used in areas not suitable for longwall mining. Longwall panels are sited approximately parallel lengthwise to the strike with a slight up dip orientation to provide drainage for the development faces. This practice will be applied to the continuous miner panels wherever possible. (See plate 5-5)

Roof control and ventilation plans will be submitted to MSHA and approved prior to any underground mining activities.

An air quality permit from the State Division of Air Quality has been obtained and will be modified as needed.

Ventilation of the mine will be by an exhaust and or blowing type system. It has been estimated that 900,000 cfm will be required at full production. Intake air will be supplied by slopes and entries from the surface.

A water supply system will be installed. Potable water from an approved source will be hauled by truck and stored in a mine site storage tank located near the man and coal slope portals. Alternative sources for potable water are being considered. A treatment plant may be indicated. Process water will be hauled from the Price River or other approved source by truck and stored in another mine site storage tank. It is anticipated that once the old two entry development panel is encountered that adequate process water may be obtained from the old works. This process water will provide for dust control, water to the mine and fire suppression. Mine water will be used with the process water. See Appendix 7-3 (PHC) for water usage calculations.

Dust suppression will be accomplished by the use of sprays on all underground equipment as required. Sprays will also be used along sections of the conveyors and at transfer points.

No major de-watering concerns are anticipated at this property. The workings are expected to produce some water with more water being produced as the

depth of mining increases. Part of this water will be used for dust suppression. The remainder will be collected in sumps and pumped to mined out sections of the mine or to the surface and treated when necessary.

Underground mining equipment to be used at Lila Canyon is typical of most room-and-pillar and longwall mine. A list of major equipment which may be used underground is listed below additional equipment not on the list may be used as needed.

- Continuous Miners
- Roof Bolters
- Battery Shuttle Cars
- Electric Shuttle Cars
- Diesel Ram Cars
- Feeder Breakers
- Continuous Haulage Units
- Battery Scoops
- Diesel Scoops
- Diesel Service Vehicles
- Diesel Material Haulers
- Diesel
- Belts and Terminal Groups
- Battery and Diesel Man Trips
- Longwall Shields
- Longwall Pan-lines
- Longwall Shears
- Longwall Stage-loaders
- Longwall Pumps
- Various Water Pumps
- Various Transformers and Switches
- Rock Drills
- Loaders

**523.100** No Surface Coal Mining and Reclamation Activities are proposed to be conducted within the permit area within 500 feet of an underground mine, therefore this section is not applicable.

**523.200** No Surface Coal Mining and Reclamation Activities are proposed with 500 feet of an underground mine, therefore this section is not applicable.

**523.210** No Surface Coal Mining and Reclamation Activities are

proposed to be conducted within the permit area within 500 feet of an underground mine, therefore this section is not applicable.

**523.220** No Surface Coal Mining and Reclamation Activities are proposed to be conducted within the permit area within 500 feet of an underground mine, therefore this section is not applicable.

**524. Blasting and Explosives:** Surface blasting activities incident to underground coal mining is planned for the Lila Canyon mine during construction of the access slopes only.

**524.100** Steps have been taken to achieve compliance with the blaster certification program and is described in this permit application.

**524.110** Surface blasting involving 5 lbs of explosives or more will be conducted under the direction of a certified blaster.

**524.120** Blasting certificates will be carried by the blasters or will be on file at the permit area during blasting operations.

**524.130** The blaster and at least one other person will be present at the firing of a blast.

**524.140** Persons responsible for blasting operations at a blasting site will be familiar with the blasting plan, if required, and site-specific performance standards and give on-the-job training to persons who are not certified and who are assigned to the blasting crew or assist in the use of explosives.

**524.200** Since the planned blasting does not meet the requirements of 524.211 or 524.212 a blast design is not included in the permit application. If in the future blasting falls under section 524.200 then a plan will be submitted to Division for approval.

**524.210** Since the planned blasting does not meet the requirements of 524.211 or 524.212 anticipated blast designs are not required.

**524.300** Since planned blasting requires more than 5 lbs of explosives the preblasting survey is addressed where applicable in this

permit application.

- 524.310** There are no dwellings or other structures located within one-half mile of the permit area owned by anyone but the operator. The operator will prepare the preblast survey if required. Notification procedures implied in this section are not applicable.
- 524.320** Since the operator is the only owner of structures and no dwelling exist within one-half mile of any part of the permit area this section is not applicable.
- 524.330** Because the operator is the only owner of structures or dwellings within one-half mile of any part of the permit area, this section is not applicable.
- 524.340** Because the operator is the only owner of structures or dwellings within one-half mile of any part of the permit area, this section is not applicable.
- 524.350** Because the operator is the only owner of structures or dwellings within one-half mile of any part of the permit area, this section is not applicable.
- 524.400** The blast schedule is as follows:
- 524.410** Since there are no residents within one-half mile of the projected blasting site this section does not apply.
- 524.420** All surface blasting will be conducted between sunrise and sunset unless nighttime blasting is approved by the Division.
- 524.430** Since there are no residents within one-half mile of the projected blasting site this section does not apply.
- 524.440** Since there are no residents within one-half mile of the projected blasting site a flexible blasting schedule is allowable. Surface blasting may take place anytime during daylight hours, unless approved differently by the Division.
- 524.450** Because of the remote location of the Lila Canyon Mine,

over six miles from the nearest locality (Columbia), this section does not apply.

**524.460** Since the town of Columbia is the nearest locality, and is over six miles distance from the permit area, this section does not apply.

**524.500** The blasting signs, warnings and access control is described below.

**524.510** Blasting signs will meet the specifications of R645-301-521.200. The following will apply.

**524.511** Signs reading "Blasting Area" will be conspicuously placed at the point where any road provides access to the blasting area.

**524.512** The signs posted at all entrances to the permit area from public roads, or highways will be placed in a conspicuous location and will state "Warning! Explosives in Use" and will clearly list and describe the meaning of the audible blast warning and all clear signals that are in use.

**524.520** Audible warning and all-clear signals of different character or pattern will be given. Each person within the permit area will be trained in the meaning of the signals.

**524.530** Access within the blasting area will be controlled until an authorized person has reasonably determined the following:

**524.531** No unusual hazards, such as imminent slides or undetonated charges, exist; and

**524.532** Access to and travel within the blasting area can be safely resumed.

**524.600** Adverse blasting effects are described as follows:

- 524.610** Blasting will be conducted to prevent injury to persons, damage to public or private property outside the permit area, adverse impacts on any underground mine, and change in the course, channel, or availability of surface or ground water outside the permit area.
- 524.620** Airblast Limits
- 524.621** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.622** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.630** Monitoring: Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.640** Ground Vibration: Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.650** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.660** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.670** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.
- 524.680** Since all structures are either owned by the permittee

and not leased to another person or are located over six miles distance from the permit area, this section does not apply.

**524.690** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, sections 524.620 through 524.632 and 524.640 through 524.680 do not apply.

**524.700** Records of blasting operations will be maintained at the mine site for at least three years and will be available for inspection by the Division or the public. Blasting records will contain the following information.

**524.710** Blasting records will include.

**524.711** The name of the operator will be on the blasting record.

**524.712** The location, date, and time of the blast will be recorded on the blasting record.

**524.713** The name, signature, and certification number of the blaster will be recorded on the blasting record.

**524.720** Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area, this section does not apply.

**524.730** Weather conditions will be recorded on the blasting record.

**524.740** A record of the blast will include the following:

**524.741** The type of material blasted will be recorded on the blasting record.

**524.742** Sketches of the blast pattern including number of holes, spacing, burden, decks, and delay pattern will be recorded on the blasting record.

- 524.743 The diameter and depth of holes will be recorded on the blasting record.
- 524.744 The type of explosives used will be recorded on the blasting record.
- 524.745 The total weight of the explosives used per hole will be recorded on the blasting record.
- 524.746 The maximum weight of explosives detonated in an eight-millisecond period will be recorded on the blasting record.
- 524.747 Information on the initiation system will be recorded on the blasting record.
- 524.748 The type and length of the stemming will be recorded on the blasting record.
- 524.749 Mats or other protections used will be recorded on the blasting record.
  
- 524.750 Since all structures are either owned by the permittee and not leased to another person or are located over six miles distance from the permit area a record of seismographic and airblast information is not required.
  
- 524.760 Since a blasting schedule is not required this section does not apply.
  
- 524.800 The operator will comply with the various appropriate State and Federal laws and regulations in the use of explosives.

**525. Subsidence:** The permittee will comply with the appropriate R645-301-525 requirements.

**525.100** Subsidence Control Plan

- 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:

- o Formation of surface fissures which intercept near surface soil moisture thus draining the water away from the root zone with deleterious effects.
- o Alterations in ground slope and destabilization of critical slopes and cliffs.
- o Modification of surface hydrology due to the general downward migration of surface water through vertical fractures.
- o 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.
- o 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, impacts to and modification of the groundwater regime can be disruption of flow from natural seeps and springs which rely on the permeability contrast of interbedded sandstones and shale for their flows. These water resources are generally near

surface occurrences and are essentially surface waters and subject to the same limiting damage criteria as surface water bodies. Subsidence damage to surface water bodies has been studied by a number of workers including Dunrud (1976), Wardell and Partners (1976), and U.S. Bureau of Mines (1977). The results of the Wardell and Partners studies of subsidence effects in a number of countries indicates that the limiting strain for the onset of minor impacts to surface waters is approximately  $5 \times 10^{-3}$ . The SME Mining Engineering Handbook also suggests a limiting extension strain value of  $5 \times 10^{-3}$  for pasture, woodland, range or wildlife food and cover.

Table 10.6.19 in the Mining Engineers Handbook suggests that the minimum safe cover required for total extraction of the coal resources under surface waters is approximately 60 times the seam thickness for coal beds at least 6 feet thick or approximately 450 feet. In their review of the foregoing, Singh and Bhattacharya (1984) recommended that the same limiting safe strain values and cover thickness ratios be used for protecting groundwater resources and recharge areas over coal mines. Where extension strain is greater than this limiting value, it is likely that surface fissures and cracks may develop. As the strain value decreases below the limiting value, the potential for surface damage decreases.

Figure 1 in Appendix 7-3 shows a typical subsidence profile. As shown in Figure 1, the zones are: a caved zone that occurs in the 6 to 10 times the thickness of the coal seam, a fractured zone which occurs 10 to 30 times the thickness of the coal seam, and deformation zone which occurs 30 to 60 times the thickness of the coal seam, and finally, a soil zone which occurs on the ground surface. The cover thickness of 1,000 to over 2,000 feet, over most of the mine area is also much greater than the limiting thickness of 630 feet recommended by International Engineers Inc. (1979) ( $10.5' \times 60$ ).

The Lila Canyon mine will be a longwall operation. As projected, 15 longwall panels at various depths will be mined. The longwall panels are laid out with the gate roads running along the strike roughly north-south, which will result in the longwall shear cutting up and down the dip. The depth of cover over the longwall panels approaches but never gets less than 500 feet toward the southwest and increases to over 2500 feet

in the northeast. Only three of the 13 planned longwall panels are under less than 1,000 feet of cover. The remaining 10 panels are under 1,000 plus feet of cover. Maximum subsidence is expected to be approximately 9.5 feet in the areas approaching 500 feet of cover and less than 3' in the deeper cover areas. Extension strain varies from  $12.4 \times 10^{-3}$  in the 500 foot cover areas to  $.9 \times 10^{-3}$  in the 2,500 foot cover areas. Extension strain values of  $5.0 \times 10^{-3}$  and above occurs in areas of approximately 1000' of cover and less.

A typical longwall panel at the Lila Canyon Mine will have dimensions of approximately 950 feet wide and up to 7,000 feet long and 2,000 feet deep. Using the methods described in the National Coal Board's *Subsidence Engineers' Handbook*, the S/m ratio for this geometry would be 0.38 where "S" is the maximum subsidence and "m" is the seam extraction thickness. For an average seam extraction thickness of 10.5 feet, the total subsidence would be 4.0 feet. However, as described above, the major impacts of this subsidence are due to extension strains and not total vertical subsidence. The prediction of average extension strain is accomplished with the use of the formula:

$$+E = 0.75 S/h \text{ where } S=\text{subsidence, and } h=\text{depth of cover}$$

**NOTE:** The .75 factor is only an average. The factor changes with various w/h ratios. Figure 15 found in NCB's Subsidence Engineers Handbook takes into account the w/h ratio.

The solution of this equation for the Lila Canyon Mine configuration discussed above produces a predicted, average extension strain of  $1.5 \times 10^{-3}$  which is less than the limiting strain of  $5 \times 10^{-3}$  for protecting surface waters, groundwater sources, pasture, woodland, range or wildlife food and cover. Thus, it is unlikely that the gradual compression expected over much of the subsidence area will have any deleterious effects on the overlying renewable surface resources.

The table below shows the expected subsidence amount and expected extension strain for longwall panels at various mining depths. These calculations were done for a flat multiple seam mining. There are adjustments for single seam mining and for dipping seams. However, these adjustments are minor and are not expected to result in significant changes in values.

**Maximum Subsidence  
& Expected Extensive  
Strain (NCB 1975)**

		Feet	Meters				
Panel Width =		900	274				
Seam Height =		10.5	3				
Depth of Cover		Width to Depth (a)		Maximum Subsidence(S)		Factor NCB Fig. 15	Extension Strain (E)
<u>Feet</u>	<u>Meters</u>	<u>Ratio</u>	<u>Feet</u>	<u>Meters</u>	<u>Factor</u>	<u>x 10<sup>3</sup></u>	
500	152	0.9	9.5	2.9	.65	12.4	
1000	305	0.75	7.9	2.4	.66	5.2	
1100	335	0.71	7.5	2.3	.68	4.6	
1200	366	0.68	7.1	2.2	.70	4.1	
1300	396	0.65	6.8	2.1	.70	3.7	
1400	427	0.59	6.2	1.9	.75	3.3	
1500	457	0.54	5.7	1.7	.78	3.0	
2000	610	0.38	4.0	1.2	.82	1.6	
2500	762	0.28	2.9	0.9	.80	0.9	

The most favored technique until recently has been the use of the empirical charts developed by the National Coal Board (NCB). The above calculations were obtained using the empirical charts developed by the National Coal Board (NCB). Comparisons, as stated in the SME handbook, of US subsidence data with NCB predictions highlight the following differences between coalfields in the US and UK: Most of the studies in the US are limited to the Eastern US coalfields with a very limited data base applicable to western conditions.

With the exception of Illinois, maximum subsidence factors observed in US coalfields are less than predicted by NCB.

The limit (draw angles in the US coalfields tend to be less than the 35 degree value generally accepted by NCB.

The points of inflection of the subsidence profiles over US coal mines are generally closer to the panel centerline compared to the NCB profile. This effect is dependent not only on the percentage of competent strata in the overburden but also on their locations relative to the ground surface and their thickness.

Surface strains and curvatures observed over US longwall panels have been shown to be significantly higher than NCB predictions, almost four times larger in many cases.

The pace at which subsidence occurs depends on many controls including the type and speed of coal extraction, the width, length and thickness of the coal removed, and the strength and thickness of the overburden. Observations of subsidence by Dunrud over the Geneva and Somerset Mines indicate that subsidence effects on the surface occurred within months after mining was completed, and the maximum subsidence was essentially completed within 2 years of the completion of retreat mining.

Dr. Roy Sidle found in his study of Burnout Creek that subsidence impacts to streams are temporary and self healing.

The Sidle Study is representative of the conditions found in the Lila area because:

- the lithology is very similar between the Book Cliffs and the Wasatch Plateau
- the cover thickness ranges from 600 - 800 feet which falls within the range expected at Lila, and
- the seam thickness of 8-10 feet is in the same range expected at Lila.

An Executive Summary of his study and published findings follows:

**Title : Stream response to subsidence from underground coal mining in central Utah**

5. Authors: Sidle-RC Kamil-I Sharma-A Yamashita-S

Short-term geomorphic and hydrologic effects of subsidence induced by longwall mining under Burnout Creek, Utah were evaluated. During the year after longwall mining, 0.3-1.5 m of subsidence was measured near impacted reaches of the mountain stream channel. The major channel changes that occurred in a 700-m reach of Burnout Creek that was subsided from 1992 to 1993 were: (1) extent glides; (2) increases in pool length, numbers and volumes;

(3) increases in median particle diameter of bed sediment in pools; and (4) some constriction in channel geometry. Most of the changes appeared short-lived, with channel recovery approaching pre-mining conditions by 1994. In a 300-m reach of the South Fork drainage that was subsided from 1993 to 1994, only channel constriction was observed, although any impacts on pool morphology may have been confounded by heavy grazing in the riparian reaches during the dry summer of 1994. Similar near-channel sedimentation and loss of pool volume between 1993 and 1994 were noted throughout Burnout Creek and in adjacent, unmined James Creek. Subsidence during the 3-year period had no effect on baseflows or near-channel landslides.

No major impacts of subsidence to the surface, caused by the underground mining methods proposed during the permit term are anticipated.

The coal seam is approximately 12.5 feet thick with only about 10.5 feet being extracted, and the depth of cover ranges from 0' to approximately 2,500'. The rocks overlaying the coal seam are sandstones and mudstones with some thin bands of coal. Due to the strength of the overburden, and depth of workings, even with full seam extraction, only minimal subsidence, if any, is anticipated.

Some surface expressions of tension cracks, fissures, or sink holes may be experienced but should be insignificant. The chances of subsidence-related damage to any perceived renewable resource is minimal.

All dirt roads above the mine are in areas in excess of 1,000 feet of cover or in areas where mining will not take place. The chance of subsidence negatively effecting these dirt roads is minimal. However, in the unlikely event that cracks, fissures or sink holes are observed as a result of subsidence, the road will remain accessible by regrading and filling in the cracks, fissures or sinkholes.

The unnamed ephemeral channel in the southwest corner of the permit area is located in an area where no mining is planned or over the top of a bleeder system that will not be second mined. The chance of

subsidence negatively effecting this ephemeral channel is minimal. However, in the unlikely event that cracks, fissures or sink holes are observed as a result of subsidence the channel will be regraded and the cracks, fissures or sinkholes will be filled in by hand methods due to its inaccessibility.

A small portion of Little Park Wash, which is ephemeral, has less than 1,000 feet of cover in the southwest corner of the permit area. The portion with less than 1,000 feet of cover runs diagonally across one longwall panel and then parallel to the bleeder system in the second longwall panel. In the unlikely event that cracks, fissures or sink holes are observed as a result of subsidence the channel will be regraded and cracks, fissures or sinkholes will be filled in. Since this stream channel is accessible and is traversable by 4 wheel drive, access for repairs would not be a problem. If any subsidence repairs cannot be fixed using hand methods, small earth moving equipment could be used.

DWR and BLM Wildlife Biologists, in consultation with the Division, have determined that any loss of snake dens to subsidence would be random and a minor impact to the population of snakes.

**525.130**

A survey was conducted within the proposed permit area and adjacent area and it was determined that limited renewable resource lands exist within the area surveyed. Limited areas were found which contribute to the long-range productivity of water supply or fiber products. No structures exist within the permit area in which subsidence, if it occurred, could cause material damage or diminution for reasonably foreseeable use. See Plates 5-5 and 5-3 for areas of potential subsidence. Identification and data for the State appropriated water supplies can be found in chapter 7 section 727.

All State Appropriated water rights within the maximum limit of subsidence that could be affected, are either owned by the Operator or by the BLM. The BLM has been notified of the water rights survey by means of the

submission of the permit application.

According to Mark Page (State Water Rights), there is not a water conservation district associated with Lila Canyon Mine.

**525.200. Protected Areas**

**525.210.** Since there are no public buildings or other facilities such as churches, school or hospitals, and since there are no impoundments with a storage capacity of more than 20 acre-feet, this section does not apply.

**525.220.** Since R645-301-525.210 does not apply, this section does not apply.

**525.230.** Since there are no planned operations under urbanized areas, cities, towns, and communities, or adjacent to industrial or commercial buildings, major impoundments, or perennial streams this section does not apply.

**525.240.** A detailed plan of the underground workings, including maps and descriptions of significant features of the underground mine, including the size, configuration, and approximate location of pillars and entries, extraction ratios, measures taken to prevent or minimize subsidence and related damage, and areas of full extraction can be found in the R<sup>2</sup>P<sup>2</sup> on file with the BLM local and state offices.

**525.300. Subsidence control.**

**525.310. Measures to prevent or minimize damage.**

**525.311** No attempt will be made to prevent subsidence in any area except where the escarpment near the outcrop is to be protected and to insure that subsidence remains within the permit area. The use of continuous miners in a pillar section as well as longwall technology provides for planning subsidence in a predictable and controlled manner. Some surface expressions of tension

cracks, fissures, or sink holes may be experienced but should be insignificant. The chances of subsidence related damage to any perceived renewable resource is minimal. The value and foreseeable use of the surface lands will not be affected by potential subsidence.

**525.312** Since there are no buildings or occupied residential dwellings or structures within the Lila Canyon project area this section does not apply.

**525.313** Room-and-pillar mining in addition to longwall methods will be used at the Lila Canyon Mine.

**525.400.** Since state-appropriated water supplies exist on the surface, 525.400 has been addressed.

**525.410** Coal will be removed using a combination of continuous miner and long wall methods as described in sections 522 and 523. Sequence and timing for the development of underground workings are also discussed in sections 522 and 523.

**525.420** Plate 5-5 shows the underground workings and depicts areas where first mining or partial mining will be utilized to protect the escarpment and raptor nests that may exist on the escarpment, and to insure that subsidence remains within the permit area. State-appropriated water rights are shown on Plates 5-3, 5-5 as well as Plate 7-1.

**525.430** No major impacts of subsidence to the surface caused by the underground mining methods proposed during the permit term are anticipated.

The coal seam is approximately 12.5 feet thick with only about 10.5 feet being extracted, and the depth of cover ranges from 0' to approximately 2,300'. The rocks overlaying the coal seam are sandstones and mudstones with some thin bands of coal. Due to the strength of the overburden and depth of workings, even with full seam extraction, only minimal subsidence if any is anticipated.

**525.440**

Aerial subsidence monitoring will be done annually while the significant subsidence is taking place. The subsidence monitoring will be initiated in an area prior to any 2<sup>nd</sup> mining being done within that area. Initially a 200 foot grid along with baseline photograph will be established prior to any 2<sup>nd</sup> mining. Approximately 12-16 control points will be needed to cover the total mining area. Six of these points will be located outside of the subsidence zone. The accuracy of this survey will be plus or minus 6" horizontally and vertically. From this data a map will be created that will show subsided areas. Once per year a follow up aerial will be performed to determine the extent and degree of active subsidence. Subsidence monitoring will continue for a minimum of 5 years after the mining ceases. If at the end of the 5 year period the annual subsidence in any of the 3 prior years measures more than 10 percent of the highest annual subsidence amount, subsidence monitoring will continue until there are 3 consecutive years where the annual subsidence amount is less than 10 percent of the highest annual subsidence amount. If for three years in a row the subsidence is measured to be less than 10% of the highest subsidence year, subsidence will be determined to be complete, and no additional monitoring for that area will be required.

A ground survey of the general mine permit area will be performed in conjunction with the quarterly water monitoring program. During the ground surveys any cracks observed will be noted and reported to DOGM.

Two areas of the permit have stream reaches with less than 1,000 feet of cover over the coal seam. As discussed in Section 525.120, it is not envisioned that subsidence will negatively impact these areas. During periods of 2<sup>nd</sup> mining under areas of intermittent or perennial streams, a ground survey will be conducted of the stream channels every two weeks. These ground surveys will be continued for a period of 3 months following the 2<sup>nd</sup> mining.

The ground survey will consist of walking and photographing the various areas of the surface over the mine where subsidence might occur. If evidence of

subsidence is identified, the area of subsidence will be surveyed and the extent of the disruption identified. Depending on the extent and location of the damage, mitigation measures will be reviewed and implemented. Due to the fact that mitigation options change with time as new technology and measures are developed, better options may be implemented in the future. However, UEI provides a commitment that where subsidence damage affects uses of the surface, 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. The surface effects will be repairs as described in Section 525.500.

**525.450** Subsidence control measures.

- 525.451.** No backstowing or backfilling of voids used as a subsidence control measure is planned at this time. Therefore, this section is not applicable.
- 525.452.** Support pillars as a subsidence control measure is not anticipated at this time. However, an area of partial mining where an unmined coal block will be left for subsidence control is shown on Plate 5-5. First mining indicates an area where a block of coal is roomed leaving pillars for support with no mining of the remaining pillars. Partial mining as shown on Plate 5-5 indicates an area where a block of coal has been isolated without the rooms being developed. Both first mining and partial mining will leave support that can be used to control subsidence. If the partially mined area shown on Plate 5-5 is ever roomed out, the area now defined as partially mined would become an area defined as being first mined.
- 525.453.** An outcrop barrier of coal will be left to protect the escarpments at the outcrop. As per the R2P2 only first mining will be allowed within 200' of the outcrop. Mains, submains, and ventilation portals will be allowed within the outcrop.
- 525.454** No measures will be taken on the surface to prevent material damage or lessening of the

value or reasonable foreseeable use of the surface.

**525.460.** Anticipated effects of planned subsidence may include tension cracks, fissures, or sink holes. Areas of minimal ground lowering may be anticipated. The chances of subsidence-related damage to any perceived renewable resource is minimal.

**525.470.** Since no urbanized areas, cities, towns, public buildings, facilities, churches, schools, or hospitals exist within the permit area this section does not apply.

**525.480.** There are no plans to change or modify the mining plan to protect any springs or seeps. Springs with water rights will be monitored for flow and quality as described in Chapter 7 Section 731.211. UEI has committed to 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 will include, at a minimum, identification of specific areas in which mining will take place, 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 structures have been left in place for future use. Only three existing structures, a 60" and a 48" CMP culverts located near the new proposed surface facilities, and the County road on top of Little Park, can be found within the Lila Canyon Permit. The existing culvert is shown on plate 5-1A. The existing road on Little Park can be found on Plate 5-1 as well as most other plates showing the surface area of the Lila Canyon Permit. Several vehicle ways will be used for water and subsidence monitoring. These ways branch off the Little Park Road and generally follow the ephemeral drainages. The ways are shown on Plate 5-1 as well as most other plates showing the surface area of the Lila Canyon Permit. More detail of the existing Little Park Road can be found in Appendix 5-4.

**526.111** The location of the existing culverts is shown on Plate 5-1A.

**526.112** Most of the existing 48" culvert is outside the permit boundary and is the Counties responsibility. UEI will grade the site so that during reclamation and operations surface flows will be directed away from the 48" culvert. The 60" culvert is in poor condition and will be replaced by the county. UEI will add on to the

culvert during the operation and reclamation phase. The bottom 30' is the responsibility of the County, the upper portion is the responsibility of UEI.

**526.113** It is believed that the existing culverts were installed with the road construction around 1940.

**526.114** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply.

**526.115** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. The County road and the culvert within the disturbed area boundary will be modified or reconstructed by the County.

**526.115.1.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.115.2.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.115.3.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.115.4.** Since the existing culvert is going to be removed upon construction of the sediment pond this section does not apply. See Appendix 5-4 for existing road details.

**526.116** The only coal mining and reclamation operations that are planned within 100 feet of the County Road are office complex, sediment pond, topsoil

pile, and security shack. The permit area adjacent to the county road will be fenced to protect the public from the sediment pond and other mine associated buildings. Other than fencing no additional measures are planned after the construction phase. During construction measures to control traffic on the County Road will be taken to protect the public from construction-related hazards.

**526.116.1.** A cooperative agreement with Emery County as stated in Appendix 1-4 requires a six foot chain link fence to be constructed adjacent to the Lila Canyon Road to provide safety to the general public in the proximity to the mine site and mine related structures and activities.

**526.116.2.** At the current time there are no plans to relocate any public road.

**526.200** Utility Installation and Support Facilities.

**526.210** All coal mining and reclamation operations will be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells, oil, gas, and coal-slurry pipelines, railroads, electric and telephone lines, and water and sewage lines which may pass over, under, or through the permit area, unless otherwise approved by the owner of those facilities and the Division. Since no existing services are found within the projected disturbed area, no negative impact to any service is anticipated.

**526.220** The new support facilities are described in section 520 and in Appendix 5-4 and shown on plate 5-2 and will be operated in accordance with the mine reclamation plan. Plans and drawings for each support facility to be constructed, used or maintained within the permit area are found in Appendix 5-4, Plates 5-7A, 5-7B, and 5-8.

**526.221** The new facilities designs shown in Appendix 5-4

prevents or controls erosion and siltation, water pollution, and damage to public or private property, and:

**526.222** The new facilities designs shown in Appendix 5-4 minimizes damage to fish, wildlife, and related environmental values; and minimizes additional contributions of suspended solids to stream flow or runoff outside the permit area to the extent possible by using the best technology currently available.

Islands of undisturbed areas within the permit area will be visually monitored for coal fines deposition. If monitoring reveals coal fine deposition, then water sprays on the area from which the fines are originating will be warranted as per August 27, 1999 Approval Order.

**526.300** Water pollution control facilities consist of sedimentation control and properly designed sewage systems.

The sedimentation control is accomplished by containing all disturbed area runoff in a properly sized sedimentation pond. Complete designs are presented in Appendix 7-4 and on Plate 7-6.

The sewage system will consist of a septic tank and drainfield. The system is shown on Plate 5-2. Complete designs are presented in Appendix 5-4.

The drain field design and layout is shown on plate 5-2 and details are shown in Appendix 5-4.

**526.400** Since Lila Canyon Mine is an underground operation this section does not apply.

#### **527. Transportation Facilities.**

**527.100** All new roads within the disturbed area have been classified as primary.

**527.110** See Sections 527.120 and 527.130.

**527.120** The Slope Access Road / Portal Access Road and  
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the Mine Facilities Road / Truck Loadout Road will be used frequently for access for a period in excess of six months, and or will transport coal, they are classified as primary roads.

**527.121** See 527.120 above.

**527.122** See 527.120 above.

**527.123** Since none of the new roads planned within the disturbed area will be retained for an approved postmining land use this section does not apply.

**527.130** There are no ancillary roads within the disturbed area. .

**527.200** A detailed design and description for each road, and conveyor to be constructed used, and maintained within the proposed permit area is included in Appendix 5-4. The roads are show on Plate 5-2.

**527.210** The specifications for each road width, road gradient, road surface, road cut, fills, embankments culverts, drainage ditches and drainage structures are shown on Plate 5-2 and in Appendixes 5-4 and 7-4.

**527.220** Since no alteration or relocation of natural drainage ways is anticipated this section is not applicable.

**527.230** Roads shall be maintained in manner that allows them to meet their design standards throughout their use.

**527.240** If any of the roads on the disturbed area is damaged by a catastrophic event, the road will be repaired as soon as practical after the damage has occurred.

**527.250** Steep cut slopes or requests for alternative specifications are not anticipated at this time therefore this section does not apply.

**528. Handling and Disposal of Coal, Overburden, etc:**

A narrative explaining the construction modifications, use, maintenance and removal of coal, overburden, excess spoil and coal mine waste.

**528.100** Coal will be mined using continuous miners and longwall equipment. The coal will be transported from the face and

deposited on the underground mine belts using shuttle cars or continuous haulage equipment. The coal will be transported by a series of conveyor belts from the section to the run of mine stockpile. The coal will be removed from the run of mine stockpile by a reclaim belt to an enclosed crusher/screen. Once crushed the coal will be conveyed to a storage bin from which it will be loaded in to coal haul trucks for transportation to a unit train loadout.

- 528.200** Overburden: Lila Canyon is an underground operation and it is not anticipated that any material that overlays the coal seam, consolidated, or unconsolidated, other than topsoil, will be disturbed. Therefore, this section does not apply.
- 528.300** Spoil, coal processing waste, mine development waste, and noncoal waste removal, handling, storage, transportation, and disposal areas and structures are discussed below.
- 528.310** Excess Spoil: Since Lila Canyon is an underground operation it is not anticipated than any spoil will be generated. Therefore this section does not apply.
- 528.320** Coal Mine Waste: Coal processing waste and underground development waste brought to the surface, will be placed in disposal areas within the permit area which are approved by the Division for this purpose. Rock removed from the access slopes will be placed in the rock slope material disposal area. Portions of this material, not containing coal, will be used as structural fill for the shop/warehouse. The temporary refuse pile and slope rock disposal area are shown on Plate 5-2 and in Appendix 5-7.
- 528.321** Coal processing waste produced from the crusher will not be returned to any abandoned underground workings. Any and all of the coal processing waste from the crusher will be deposited in the temporary refuse pile shown on plate 5-2 and in Appendix 5-7 and then transported to UEI's Wildcat loadout for permanent disposal.
- 528.322** Refuse Piles. Each pile will meet the requirements of MSHA, 30 CFR 77.214 and 30 CFR 77.215,

meet the design criteria of R645-301-210, R645-301-512.230, R645-301-513.400, R645-301-514.200, R645-301-515.200, R645-301-528.320, R645-301-536 through R645-301-536.200, R645-301-536.500, R645-301-536.900, R645-301-542.730, R645-301-553.250, R645-301-746.100, R645-301-746.200, and any other applicable requirements.

**528.323** Burning and Burned Waste Utilization.

**528.323.1.** Coal mine waste fires will be extinguished by the person who conducts coal mining and reclamation operations, in accordance with a plan approved by the Division and MSHA. The plan will contain, at a minimum, provisions to ensure that only those persons authorized by the operator, and who have an understanding of the procedures to be used, will be involved in the extinguishing operations. The coal mine waste fire plan can be found in Appendix 5-3. MSHA approval is not required unless you have an actively burning fire. (Phone conversation with Billy Owens MSHA Denver 5/31/05)

**528.323.2.** No burning or burned coal mine waste will be removed from the permitted disposal area.

**528.330** Noncoal Mine Waste.

**528.331** Noncoal mine wastes including, but not limited to, grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber and other combustible materials generated during mining activities will be placed and stored in a controlled manner in a designated portion of the permit area. The noncoal mine waste will be placed in dumpsters and emptied on a as needed basis. The designated noncoal waste area is shown on Plate 5-2.

- 528.332** It is anticipated that final disposal of noncoal mine wastes will be at the ECDC facility near East Carbon City. Concrete will be disposed of in a specified area, refer to Plate 5-6 for this location. The disposal site will be located under the reclaimed coal stockpile. This area will receive the maximum fill during reclamation. Placement of this fill around the concrete will help to eliminate runoff. This will ensure that leachate and drainage does not degrade surface or underground water. The noncoal mine waste will be placed in dumpsters and emptied on a as needed basis.
- 528.333** The noncoal mine waste will be disposed of at the ECDC facility near East Carbon City.
- 528.334** Notwithstanding any other provision to the R645 Rules, any noncoal mine waste defined as "hazardous" under 3001 of the Resource Conservation and Recovery Act (RCRA) (Pub. L. 94-580, as amended) and 40 CFR Part 261 will be handled in accordance with the requirements of Subtitle C of RCRA and any implementing regulations.
- 528.340** A description of the disposal methods for placing underground waste and excess spoil generated at surface areas according to R645-301-211, R645-301-212, R645-301-412.300, R645-301-512.210, R645-301-512.220, R645-301-514.100, R645-301-528.310, R645-301-535.100 through R645-301-535.130, R645-301-535.300 through R645-301-535.500, R645-536.300, R645-301-536.600, R645-301-542.720, R645-301-553.240, R645-301-745.100, R645-301-745.300, and R645-301-745.400 is covered in sections 535, and 536.
- 528.350** A description of measures to be employed to ensure that all debris, acid-forming and toxic-forming materials, and materials constituting a fire hazard are disposed of in accordance with R645-301-528.330, R645-301-537.200, R645-301-542.740, R645-301-553.100 through R645-301-553.600, R645-301-553.900, and R645-301-747 is included.

- 528.400** Dams, embankments and other impoundments.  
See Section 700 and Appendix 7-4.

**529. Management of Mine Openings:**

The permit application includes a description of the measures to be used to seal or manage the openings within the proposed permit area. New slope or drift openings required to be sealed shall be sealed with solid, substantial, noncombustible material for a distance of at least 25 feet into such openings. The closure design for portals, slopes, and drifts, can be found in Appendix 5-6.

- 529.100** Shafts or other exposed underground opening when no longer in use will be cased, lined, or otherwise managed as approved by the Division. All openings exposed by mining operations within the permit area will be permanently closed unless approved for water monitoring.

- 529.200** For the purposes of Underground Coal Mining and Reclamation Activities:

- 529.210** Mine entries which are temporarily inactive, but have a further projected useful service under the approved permit application, will be protected by barricades or other covering devices, fenced, and posted with signs, to prevent access into the entry and to identify the hazardous nature of the opening. These devices will be periodically inspected and maintained in good operating condition by the person who conducts the activity.

- 529.220** Since no portals are projected to return underground development waste, coal processing waste or water to the mine, this section does not apply. There is no current need to return any waste to the underground workings.

- 529.300** Section 529 does not apply to holes drilled and used for blasting.

- 529.400** No openings have been identified for use to return coal processing waste to underground workings. Therefore this section is not applicable.

**530. Operational Design Criteria and Plans.**

- 531.** General plans for the sediment pond and refuse pile are found within this section.
- 532.** Sediment control measures can be found in Chapter 7.
- 532.100** The smallest practicable area will be disturbed during the life of the project. Progressive backfilling, grading, and prompt revegetation of applicable will be completed as per R645-301-353.200.
- 532.200** Backfilled material will be stabilized to promote a reduction of the rate and volume of runoff in accordance with R645-301-537.200, R645-301-552 through R645-301-553.230, R645-301-553.260 through R645-301-553.420, R645-301-553.600, and R645-301-553.900.
- 533.** Impoundments.
- 533.100** Since no impoundments meeting the criteria of 30 CFR 77.216(a) this section does not apply.
- 533.200** The only impoundment planed for this site is the sediment pond. The sediment pond is a temporary structure. A detailed design for the Sediment ponds can be found in Appendix 7-4, Section 3.1 and on Plate 7-6.
- 533.210** The sediment pond 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.
- 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.
- 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.

- 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.
- 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.
- 533.700** Design and construction requirements, as well as operation and maintenance requirements are detailed in Appendix 7-4, Section 3.1.

**534. Roads.** The designs for surface roads can be found in Appendix 5-4.

- 534.100** The roads have been designed, located, constructed and will be maintained to:

  - 534.110** The roads have been designed, located, constructed and will be maintained to prevent or control damage to public or private property.
  - 534.120** Nonacid or nontoxic-forming substances will be used in road surfacing.
  - 534.130** The designs for the roads can be found in Appendix 5-4.
  - 534.140** The reclamation plan for the roads can be found in section 542.600.
  - 534.150** The roads have been designed to prevent or control erosion, siltation and air pollution.
- 534.200** Appropriate limits for grade, width, and surface materials have been used in the design of the roads.

**534.300** Primary Roads. Primary roads will meet the requirements of R645-301-358, R645-301-527.100, R645-301-527.230, R645-301-534.100, R645-301-534.200, R645-301-542.600, R645-301-542.600, and R645-301-762, any necessary design criteria established by the Division, and the following requirements. Primary roads will:

**534.310** The roads will be located insofar as practical, on the most stable available surfaces.

**534.320** The roads will be surfaced with rock, crushed gravel, asphalt, or other material approved by the Division as being sufficiently durable for the anticipated volume of traffic and the weight and speed of vehicles using the road;

**534.330** The roads will be routinely maintained to include repairs to the road surface, blading, filling potholes and adding replacement gravel or asphalt. It will also include revegetating, brush removal, and minor reconstruction of road segments as necessary.

**534.340** Culverts if required will be designed, installed, and maintained to sustain the vertical soil pressure, the passive resistance of the foundation, and the weight of vehicles using the road.

**535. Spoil:** It is anticipated that no spoil will be produced at the Lila Canyon Mine therefore this section is not applicable.

**536. Coal Mine Waste:** The proposed Lila Canyon Mine will produce 2 separate types of coal mine waste:

1. Normal coal processing waste or refuse and;
2. Underground development waste (rock slope material).

The rock slope material / underground development waste will be examined and tested as necessary to determine acid- or toxic-forming potential.

Coal Processing waste and any underground development waste containing too much coal to leave underground, will be

disposed of in the refuse storage area as described further in this chapter and in Appendix 5-7.

It is not anticipated that any underground waste other than the rock slope material / underground development waste will be brought to the surface. Coal processing waste and underground development waste brought to the surface will be placed in a controlled manner and have a design certifications describe under R645-301-512 if appropriate.

- 536.100** The refuse pile at Wildcat has been designed using current prudent engineering practices and will meet design criteria established by the Division.
- 536.110** The refuse pile will be designed to attain a minimum long-term slope stability safety factor of 1.5. See Appendix 5-7.
- 536.120** The refuse pile will be constructed on natural ground once the topsoil has been removed according to section 230.232. There are no underground mine workings in the immediate area of the refuse pile. All mine workings are found at a higher elevation than the refuse pile.
- 536.200** Underground development waste brought to the surface and coal processing waste deposited in the refuse pile will be deposited according to the plan described in Appendix 5-7.
- 536.210** Refuse Pile construction described in Appendix 5-7, will ensure mass stability and prevent mass movement during and after construction;
- 536.220** Refuse Pile construction per the plan in Appendix 5-7 will not create a public hazard; and
- 536.230** Will prevent combustion.
- 536.300** Since no spoil fills will be generated this section does not apply.
- 536.400** Since there will not be any impounding structures constructed of coal mine waste this section does not apply.

- 536.500** As discussed in Section 536 and 536.300, it is proposed to dispose of the rock slope material / underground development waste within the rock disposal area and be used as structural fill as shown on Plate 5-2.
- 536.510** It is not anticipated that coal mine waste materials from activities located outside the permit area be disposed of in the permit area. Therefore this section does not apply.
- 536.520** It is not anticipated that coal mine waste will be brought to the surface then taken back underground for disposal therefore this section does not apply.
- 536.600** In areas where slope rock or coal processing waste is deposited, the topsoil will be removed and stored in the topsoil stockpile area until reclamation.
- 536.700** It is not anticipated that coal processing waste will be returned to abandoned underground workings therefore this section does not apply
- 536.800** Since no coal processing waste banks, dams, or embankments are planned for the Lila Canyon Mine therefore, this section does not apply.
- 536.900** Refuse Piles. (See Appendix 5-7) The refuse pile is designed to meet the requirements of R645-301-210, R645-301-512.230, R645-301-513.400, R645-301-514.200, R645-301-515.200, R645-301-528.322, R645-301-528.320, R645-301-536 through R645-301-536.200, R645-301-536.500, R645-301-536.900, R645-301-542.730, R645-301-553.250, R645-301-746.100 through R645-301-746.200, and the requirements of MSHA, 30 CFR 77.214 and 30 CFR 77.215.

### **537. Regraded Slopes.**

- 537.100** Each application will contain a report of appropriate geotechnical analysis, where approval of the Division is required for alternative specifications or for steep cut slopes under R645-301-358, R645-301-512.250, R645-301-527.100, R645-301-527.230, R645-301-534.100, R645-301-534.200, R645-301-534.300, R645-301-542.600, R645-301-742.410, R645-301-742.420, R645-301-752.200, and R645-301-762.

**540. Reclamation Plan.** (See Appendix 5-8 for reclamation plan.)

**541. General.**

- 541.100.** The operator is committed to performing all reclamation as in accordance with R645 rules.
- 541.200.** N/A. The operator is not involved in surface mining activities.
- 541.300.** The operator is committed to the removal of all equipment facilities and structures upon cessation of mining activities.
- 541.400.** The operator will address all reclamation activities as referenced in Chapter 5 of this document.

**542 Narratives, Maps and Plans.**

- 542.100.** See Table 3-3 time table based on project reserves markets and life of mine.
- 542.200.** The perimeter of the disturbed area contains approximately 42.6 surface acres within the disturbed area but only 33.86 acres will be disturbed leaving 8.74 acres of undisturbed islands within the disturbed area. The following R645 regulations will give detailed description and reclamation procedures to address these areas of disturbance. The reclamation plan for the sediment pond and drainage control structures can be found in Appendix 7-4.

Topsoil amounts can be found in Section 232.100 and are calculated from Plate 203. Concrete amounts can be calculated from the text in Section 520. Coal Mine Waste volumes can be found in Appendix 5-7. Volumes were calculated using a Cad system.

- 542.300.** Included.
- 542.310.** Included. (See Plates 5-6 & 7-7)

- 542.320.** There will not be any surface facilities left post mining.
- 542.400.** Not applicable. No surface facilities will remain post bond liability period.
- 542.500.** A reclamation time table is included as Table 3-3.
- 542.600.** All roads within the disturbed area will be reclaimed immediately after they are no longer needed for mining and reclamation operations.
- 542.610.** The time table of reclamation activities will enable the roads to be removed concurrently with reclamation activities. So, no closures specific to traffic would be anticipated.
- 542.620.** All bridges and culverts will be removed concurrent with reclamation.
- 542.630.** All disturbed areas will be ripped and top soiled prior to revegetation activities in compliance with all applicable R645 regulations. (See Appendix 5-8)
- 542.640.** Road surfacing materials such as sand and gravel, which are not suitable for revegetation establishment will be buried on site and covered with a minimum of two feet of material that would support vegetation. Concrete will be disposed of in the designated area and covered with four feet of cover. Asphalt will be disposed of off site, either in a landfill or sent to a recycling facility.
- 542.700.** Final Abandonment of Mine Openings and Disposal Areas.
- 542.710.** Appendix 5-6 depicts a typical seal that will be constructed at all mine openings.
- 542.720.** No excess spoil is anticipated at this time.

**542.730.** All coal mine waste will be placed in the waste disposal area as shown on Plate 5-2 or sent to the Wildcat loadout, and reclaimed in accordance with R645 regulations.

**542.740.** Disposal of Noncoal Mine Wastes.

**542.741.** All non coal waste will be temporarily stored on site in approved waste bins and commercially picked up and transported to an approved disposal site. Non Coal waste generated during reclamation (such as concrete structure, buried culverts, utility lines, septic systems etc.) will be buried in the refuse disposal area and covered with a minimum of four feet of fill.

**542.742.** No noncoal waste will be stored on site or disposed of on site during the life of the mine.

**542.800.** A detailed cost break down is included in Chapter 8. Appendix 8-1 relative to bonding.

**550 Reclamation Design Criteria and Plans.** Each permit application will include site specific plans that incorporate the following design criteria for reclamation activities.

**551.** All underground openings will be sealed as detailed in Appendix 5-6.

**552.** Permanent Features.

**552.100.** In course of reclamation, areas that have been recontoured and top soiled will be "pock-marked" creating small basins that will facilitate vegetation establishment as well as minimizing erosion.

**552.200.** No permanent impoundments will be left post reclamation.

**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 seal 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, 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. A Cat model 216/226 or equivalent will be used to complete the final grading of the fan portal. After final grading the 216/226 will be airlifted out using a KMAX helicopter or equivalent.

**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 site by the use of drainage control structures (burms, channels and silt fence) and the use of small depression, soil tackifiers, mulch and sediment pond design. No water is anticipated leaving the reclaimed site prior to adequate treatment in the form of retention and/or filtration that does not meet and/or exceed UPDES standards.

**553.150** The post mining land use of wildlife and domestic grazing should be enhanced to some degree with the revegetation of a more desirable seed mix and a vegetative cover in excess of what was present premining.

**553.200** Spoil and Waste.

**553.210** All underground development waste brought to the surface will be placed in the coal mine waste (rock slope material) disposal area and reclaimed in accordance with R645 regulations. Coal processing waste generated on the surface as a result of coal processing will be shipped to ECDC.,

**553.220** Since no spoil will be produced this section does not apply.

**553.221** All vegetation and /or organic material will be removed prior to any coal mine waste being stored.

**553.222** All useable topsoil or topsoil substitute will be removed from the structural fill and refuse areas prior to use. Table 2-1 shows estimates of salvageable soil by soil type based on current NRCS soil inventories. The location of the soil storage are shown on Plate 5-2. This material will be spread over the recontoured structural fill and refuse areas prior to seeding and mulching.

**553.223** Since no spoil will be produced this section 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** Any combustible materials or acid and toxic forming materials exposed used or produced during mining will be treated as refuse and hauled to ECDC. This material will be covered by four feet of fill. Noncoal waste will be disposed of as described in Section 528.331.
- 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**  
This operation will only involve underground mining and as such the above referenced regulations do not apply.
- 560.** Performance Standards. Coal mining and reclamation operations will be conducted in accordance with the approved permit and requirements of R645-301-510 through R645-301-553.

**APPENDIX 5-4**

**NEW FACILITY DESIGN**

Information for Appendix 5-4 is mostly hard copies. Electronic copies do not exist for all information contained within the Appendix.

## **APPENDIX 5-4**

### **ROADS**

#### Existing Lila Canyon Road: (County Road 126)

The Lila Canyon road runs from the Horse Canyon Mine to the proposed Lila Canyon surface facilities then continues from the Lila Canyon surface to U.S. Highway 191/6. This road was constructed in the early 1940's to provide access to coal reserves south of the Horse Canyon Mine. The road extends south from Horse Canyon following the base of the Book Cliffs escarpment then turns south connecting to Highway 191/6. The road right-of-way consists of a total width of 100 feet. A small portion of this road is on BLM surface and a BLM right-of-way was issued to Kaiser Steel Corporation and is now owned by UEI. The portions of this road is on private property owned by UEI and William Marsing. Emery County also claims the road under the RS-2477 federal road designation. Any constructed facilities, including the 6 foot chain link fence, would not be placed on the county road right-of-way. County road 126 has been used for years by residents of Carbon and Emery Counties for recreation, ranching, and hunting purposes. Over the last 50 years, the majority portion of this road received little, if any maintenance. However, the first 2.5 miles from U.S. 191/6 to the corral has received frequent maintenance.

Main access to the mine site will be from U.S. Highway 191/6. The proposed access road will be constructed by Emery County and will be designated as Lila Canyon Road 126. Some areas of the road will be upgraded others areas will be

realigned. This road will be a two lane, 30 foot wide gravel surface Class B road, totaling approximately 4.7 miles in length. The proposed road reconstruction and realignment will be designed for a maximum speed of 45 miles per hour, would be constructed according to the standards of the American Department of Transportation 1992 Standard Specifications for Road and Bridge Construction. The realigned and reconstructed road will provide a safer and more direct route to the mine from U.S. Highway 191/6. The road will follow closely the existing RS-2477 road. Only the section of county road 126 from U.S. Highway 191/6 to Lila Canyon surface will be improved and or reconstructed. The county has no current plans to upgrade the section of 126 from Lila Canyon to Horse Canyon. All engineering, construction and maintenance on the reconstructed and realigned road will be implemented and controlled by the Emery County Road Department. Emery County will also control all necessary rights-of-way.

New Mine Facility Road:

The mine facility road shown on Plate 5-2 begins at the edge of County Road 126 and allows for access to the various surface facilities. The road has been located in the most practical location taking into consideration grade, stability, and alignment. Employees will use this road to access the office & bathhouse facilities. Coal haul trucks will use this road to access the scales and truck loadout. All supplies will be hauled on a short portion of this road from the supply storage area to the slope access road. The road will initially be graveled but will be paved in the long term to minimize dust and provide good surface for heavy truck traffic as well as facility access. The facility access road will be approximately 24' wide to provide

for two lane traffic and will have the appropriate drainage controls to insure long term life and low maintenance. The has been constructed and will be maintained according to the appropriate R645-534 and R645-527 regulations.

#### New 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. 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.

#### Existing Little Park Road:

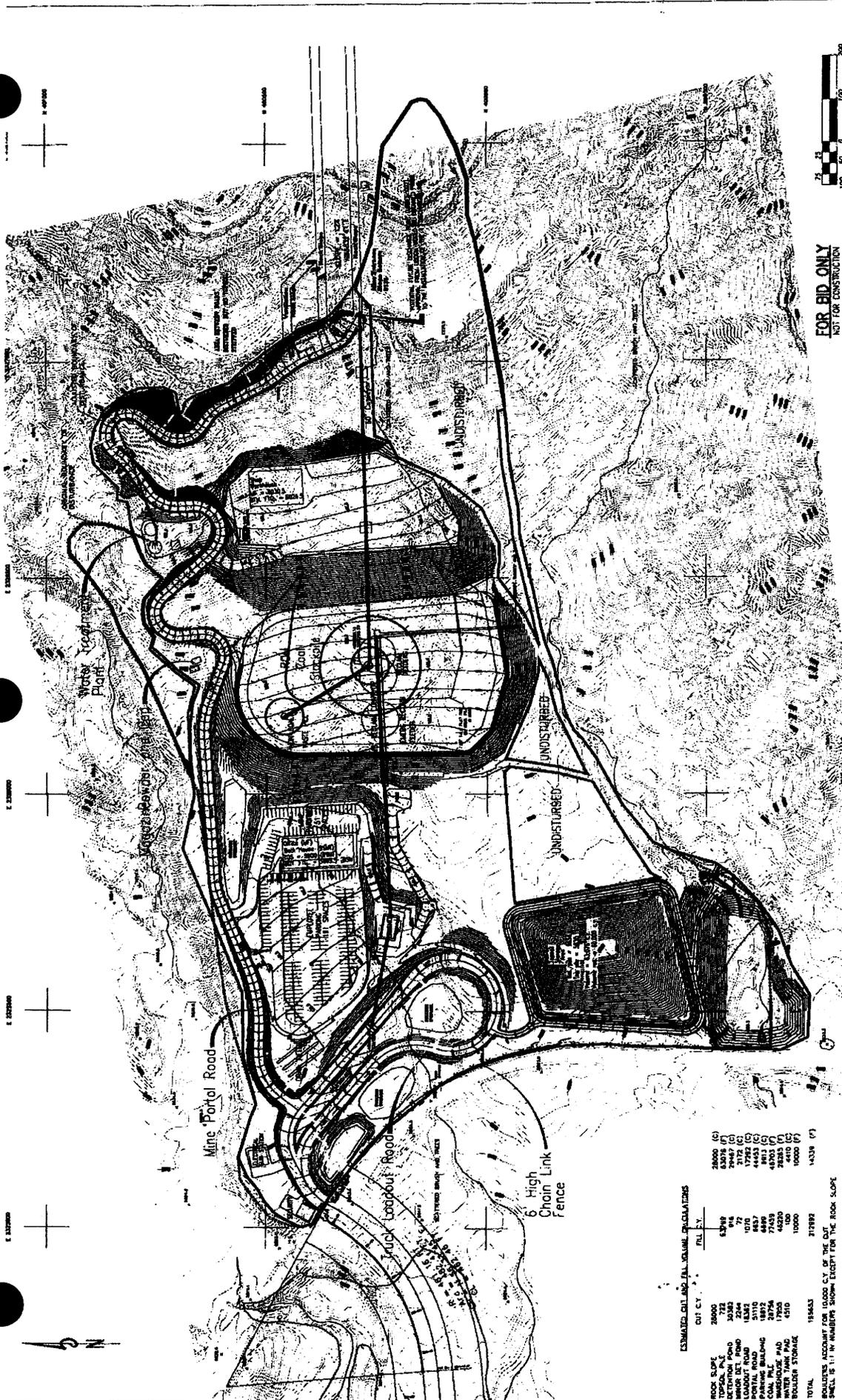
The Little Park road runs from the Horse Canyon Mine, up to the top of Little Park, and across Little Park to Turtle Canyon, then down Turtle Canyon to the Green River. This road has been used for years by residents of Carbon and Emery Counties for recreation, ranching, and hunting purposes. It is a public road and is maintained by either the BLM and or Emery County. The road is "Cherry Stemed" by the new BLM wilderness reinventories. The road is used by UEI to monitor water

and will continue to be used on a frequent basis for subsidence monitoring and water monitoring. Plate 5-1 as well as others show the location of the Little Park road.

Existing Vehicle Ways:

Several vehicle ways off from the Little Park road are used by UEI for water monitoring. UEI will continue to use these vehicle ways frequently for water and subsidence monitoring. The vehicle ways vary from 5 to 15 feet wide. These ways are located either in dry stream channels, or are old drilling roads both accessed by ATV. No future maintenance is projected for these vehicle ways. Plate 5-1 as well as others show the location of the vehicle ways used by UEI.





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LILA CANYON COAL MINE

SCALE: 1" = 100'  
LILA CANYON COAL MINE  
JOB NO. 2006022-1100.dwg  
1 OF 4 2006022-1100.dwg  
2006022-C-100

PRECISION SYSTEMS INC.  
ENGINEERING, INC.  
8842 South 300 West  
Aurora, Utah 84003 USA

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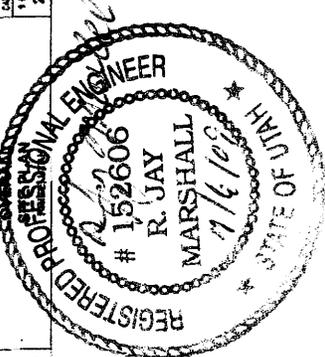
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ESTIMATED CUT AND FILL VOLUME QUANTITIES

ITEM	EST. VOL. (CY)	EST. VOL. (CY)
ROCK SLOPE	28000	63749
TOPSOIL PLE	10728	71
MINOR BET. ROAD	2204	1070
LOADOUT ROAD	18382	4887
PAVING BALDING	18012	7459
COAL PLE	28756	46220
WATER TANK PAD	4310	10000
BRICKLIER STORAGE	15843	317892
TOTAL	15843	317892

BRICKLIER ACCOUNT FOR 10,000 CY OF THE ROCK SLOPE  
SMALLER IN NUMBER SHOWS EXCEPT FOR THE ROCK SLOPE

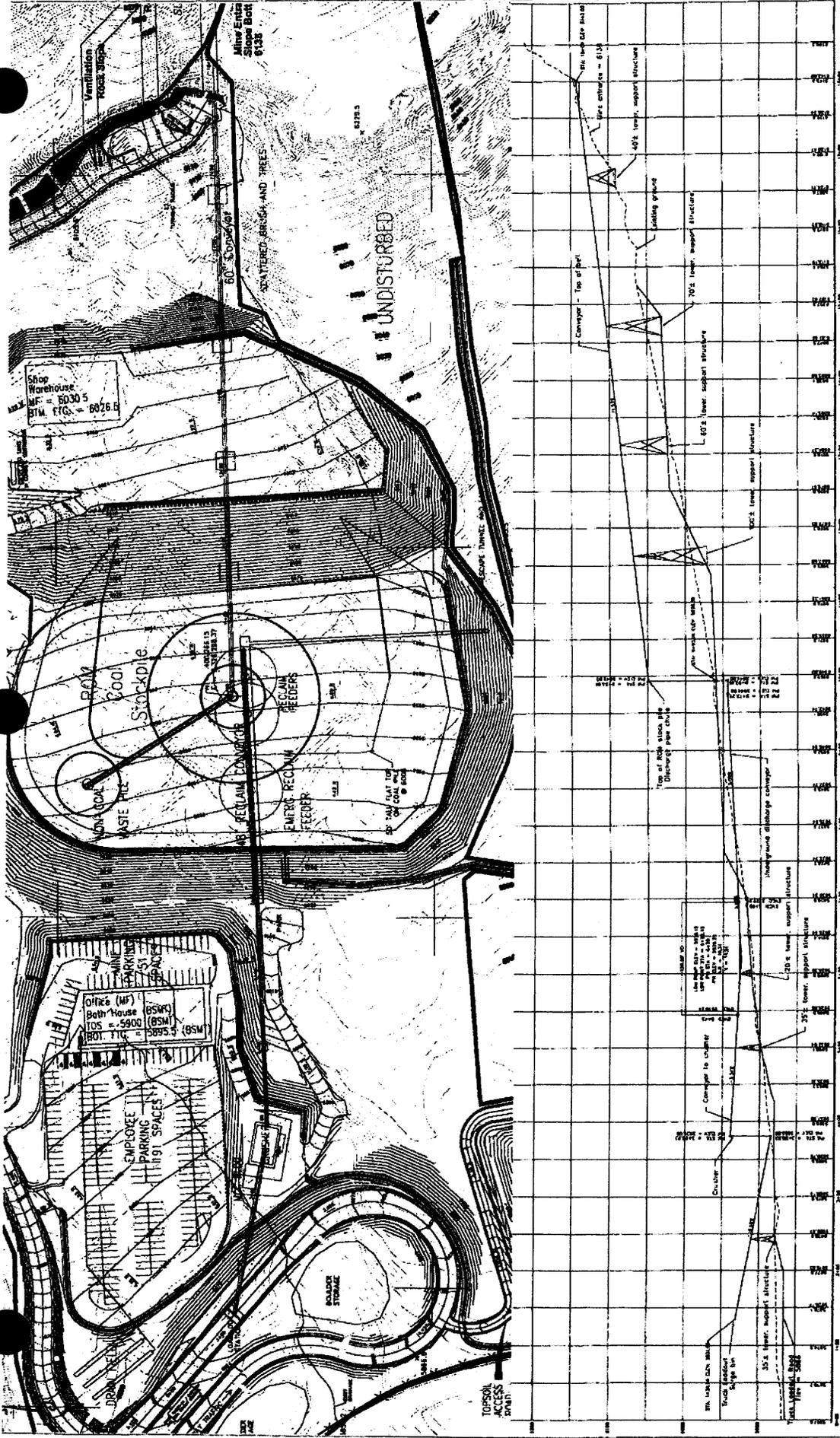












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LILA CANYON COAL MINE  
CONVEYOR BELT  
PLAN AND PROFILE

PRECISION SYSTEMS  
ENGINEERING, INC.  
1000 South 500 West  
Sandy, Utah 84070 USA



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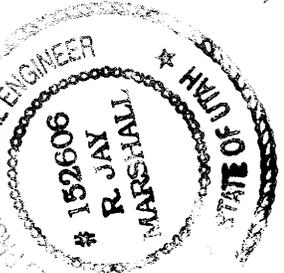
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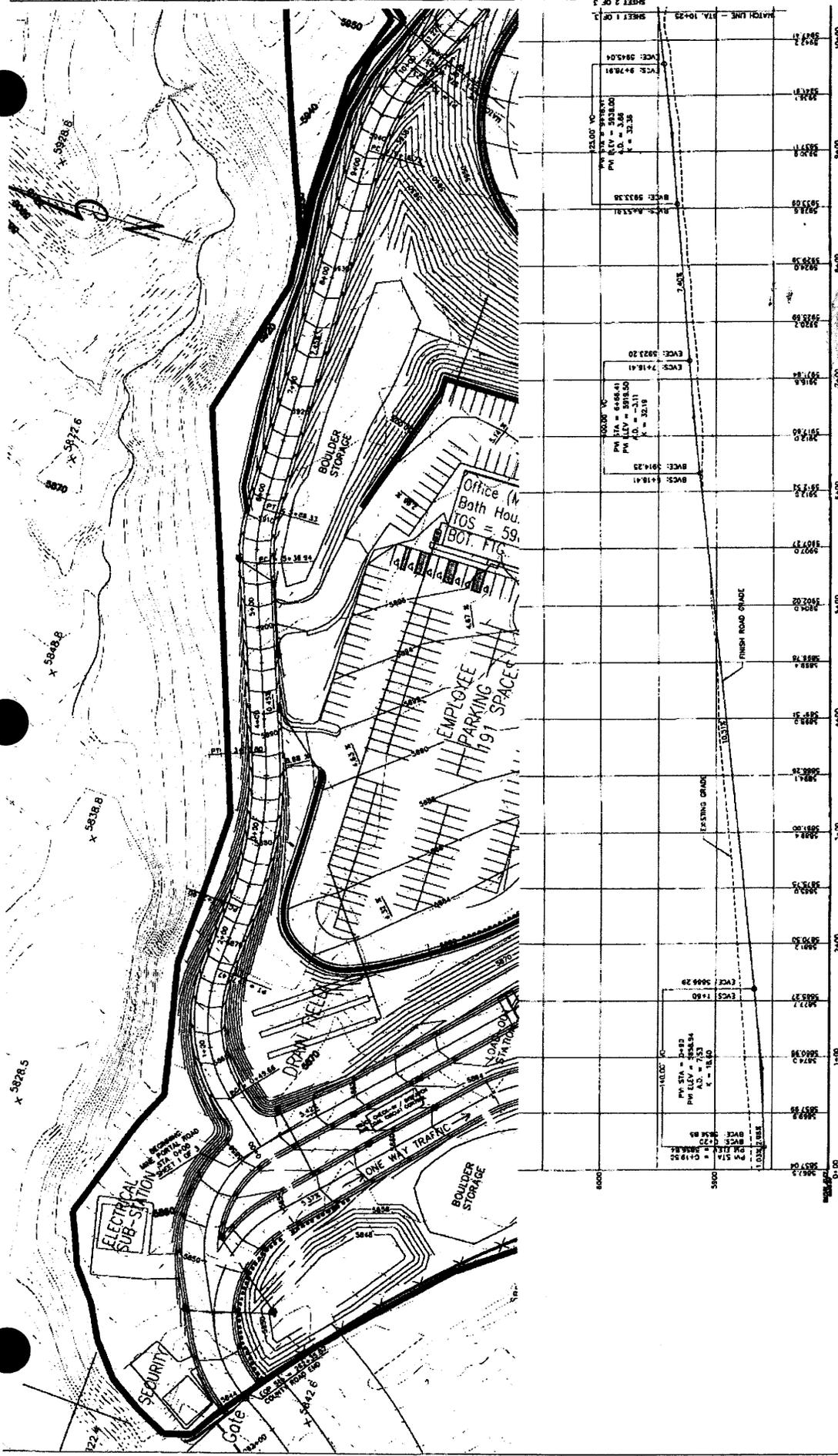
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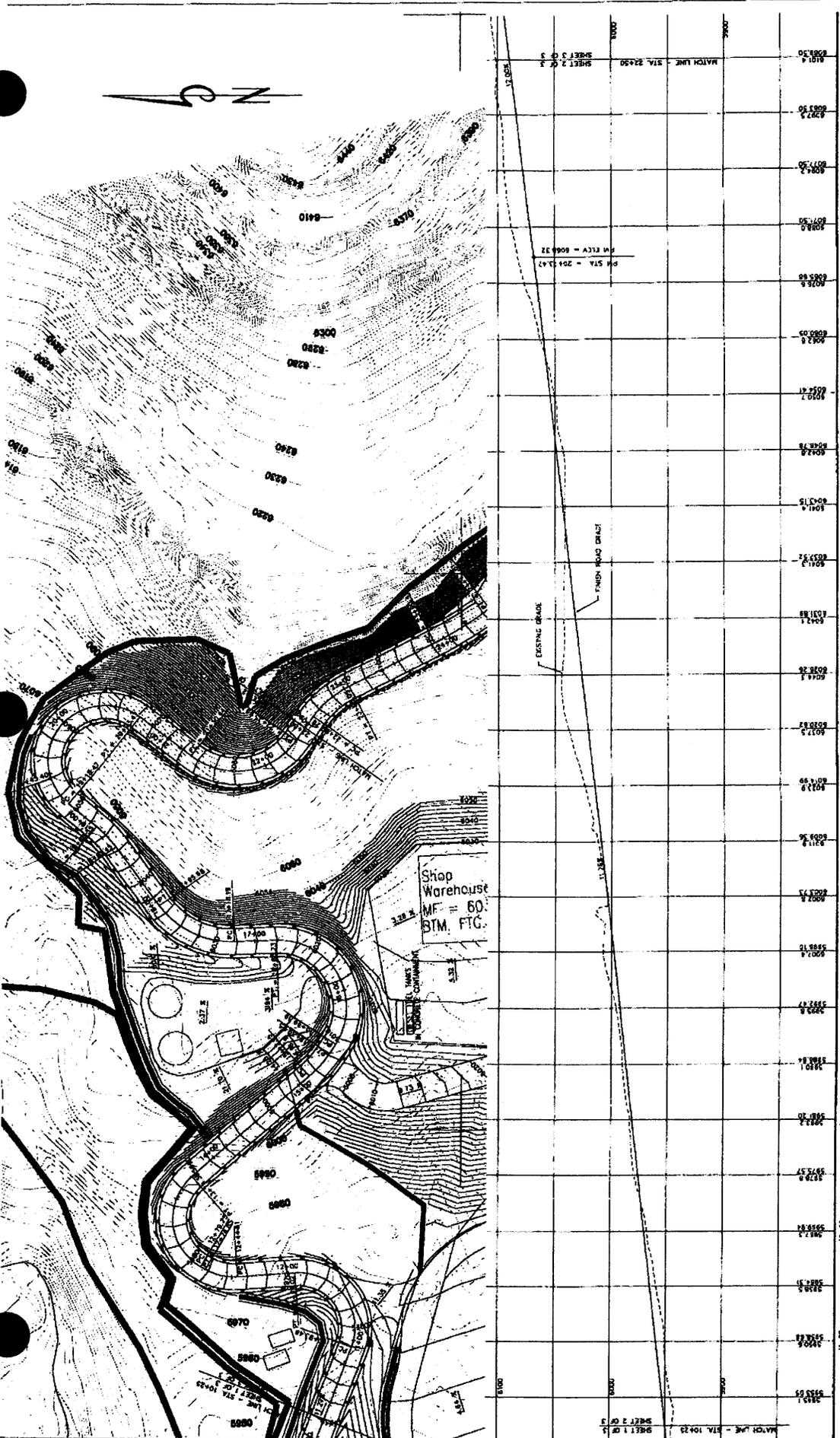
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**FOR BID ONLY**  
**PROFESSIONAL ENGINEER**  
 JAY MARSHALL  
 15260 ONE CORRAL ROAD  
 R. JAY PLAN # 15260  
 MARSHALL  
 STATE OF UTAH

PRECISION SYSTEMS  
 ENGINEERING, INC.  
 8889 South 500 West  
 Sandy, Utah 84070  
 801-875-1111  
 www.precision-engineering.com

SCALE: 1" = 40'  
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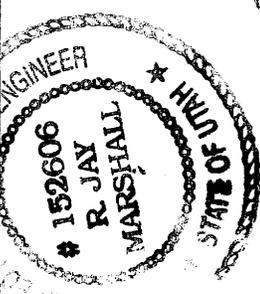
LILA CANYON COAL-MINE  
MINE PORTAL ROAD  
PLAN AND PROFILE

SCALE: HORIZ. 1" = 100.00'  
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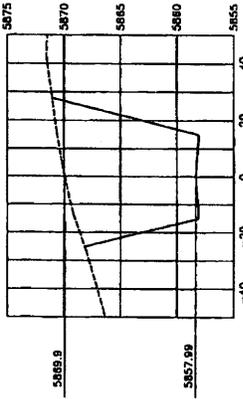
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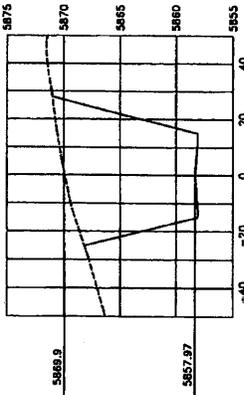
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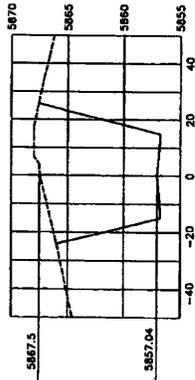




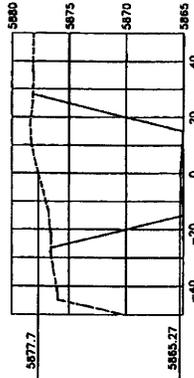
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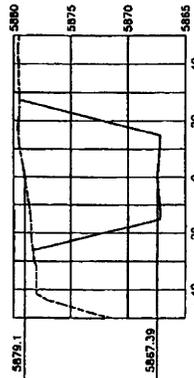
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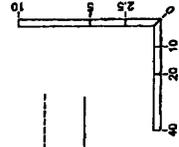
STATION 1+70.47



STATION 1+50



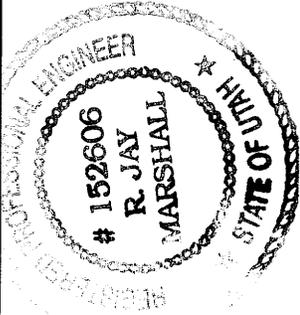
STATION 1+00

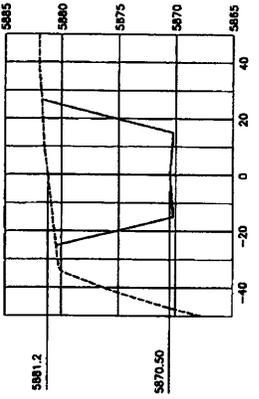


EXISTING GRADE  
FINISHED GRADE

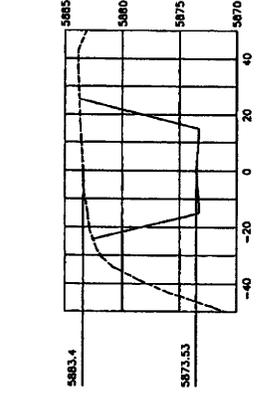
FOR BID ONLY  
NOT FOR CONSTRUCTION

PRECISION SYSTEMS ENGINEERING, INC. 3103 South 500 West Bandy, Utah 84708 USA		LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PROJECT, UTAH	
DATE	SCALE	DATE	SCALE
10/20/07	1"=20'	10/20/07	1"=20'
PROJECT NO.	PROJECT NAME	PROJECT NO.	PROJECT NAME
2006022-C-111-01	LILA CANYON COAL MINE	2006022-C-111-01	LILA CANYON COAL MINE
DRAWN BY	CHECKED BY	DRAWN BY	CHECKED BY
...	...	...	...

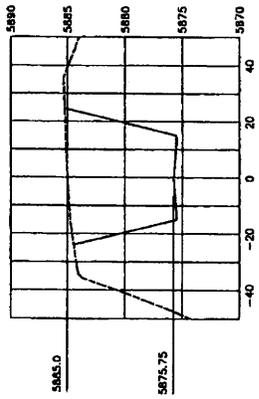




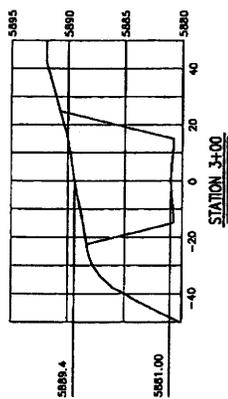
STATION 2+00



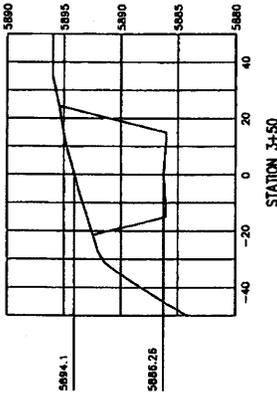
STATION 2+28.90



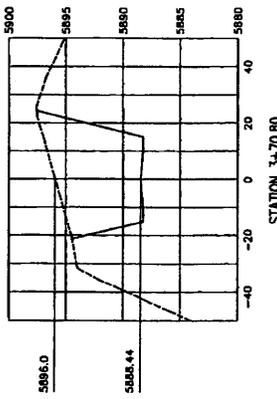
STATION 2+50



STATION 3+00



STATION 3+50



STATION 3+70.80

EXISTING GRADE -----  
FINISHED GRADE -----

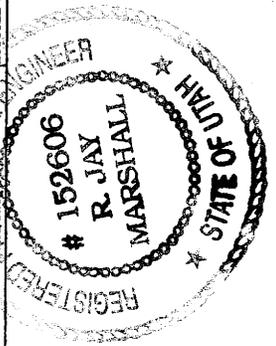
FOR BID ONLY  
NOT FOR CONSTRUCTION

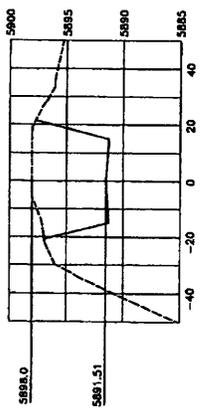
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2+28.90	12/15/07	JRM	ISSUED FOR BIDDING
2+50	12/15/07	JRM	ISSUED FOR BIDDING
3+00	12/15/07	JRM	ISSUED FOR BIDDING
3+50	12/15/07	JRM	ISSUED FOR BIDDING
3+70.80	12/15/07	JRM	ISSUED FOR BIDDING

PRECISION SYSTEMS  
ENGINEERING, INC.  
Blanding, Utah 84007 USA

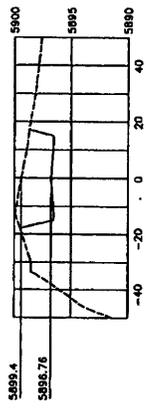
U.I.A. CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS

SCALE 1"=20'  
PROJECT NO. 2006072  
JOB NO. 060522-C-111.dwg  
3 OF 30  
2006022-C-111-02

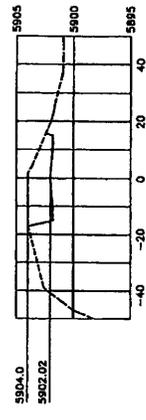




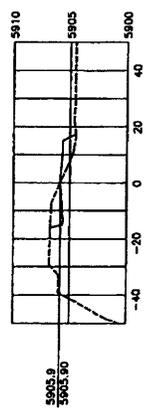
STATION 4+00



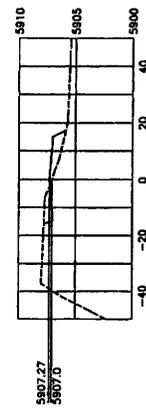
STATION 4+50



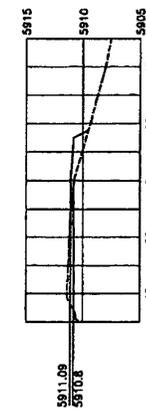
STATION 5+00



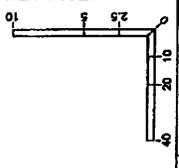
STATION 5+36.94



STATION 5+50



STATION 5+86.33



EXISTING GRADE -----  
FINISHED GRADE \_\_\_\_\_

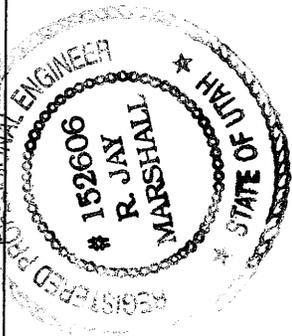
FOR BID ONLY  
NOT FOR CONSTRUCTION

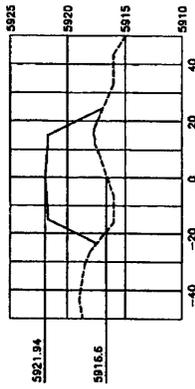
NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
1	DESIGN	11-13-07	J. J. [unclear]	[unclear]	[unclear]
2	REVISIONS				
3					
4					
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6					
7					
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PRECISION SYSTEMS  
ENGINEERING, INC.  
Sandy, Utah 84072 USA

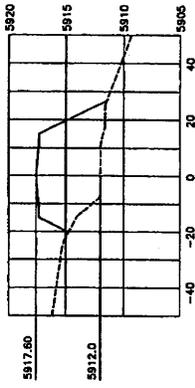
UCLA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
sheet 07/04

SCALE 1"=20'  
PROJECT NO. 2006022  
DATE 10.05.07 C-111.dwg  
3 of 28  
2006022-C-111-03

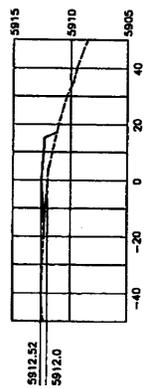




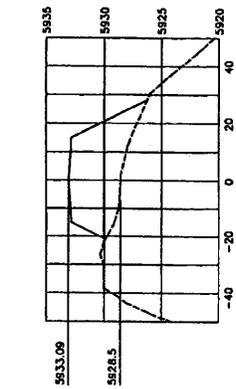
STATION 7+00



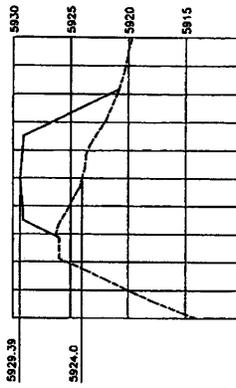
STATION 6+50



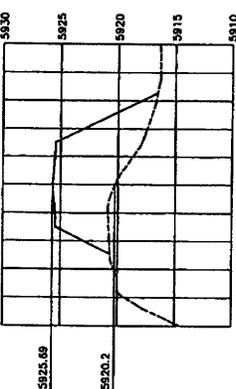
STATION 6+00



STATION 8+50



STATION 8+00



STATION 7+50

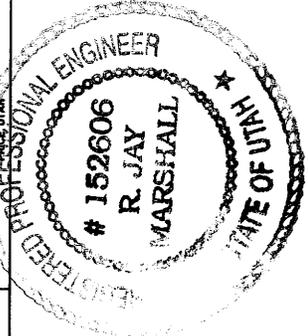
EXISTING GRADE  
FINISHED GRADE

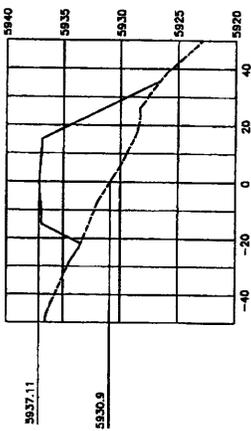
FOR BID ONLY  
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
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2	REVISED	11/30/07	JRM		
3	REVISED	11/30/07	JRM		
4	REVISED	11/30/07	JRM		
5	REVISED	11/30/07	JRM		
6	REVISED	11/30/07	JRM		
7	REVISED	11/30/07	JRM		
8	REVISED	11/30/07	JRM		
9	REVISED	11/30/07	JRM		
10	REVISED	11/30/07	JRM		
11	REVISED	11/30/07	JRM		
12	REVISED	11/30/07	JRM		
13	REVISED	11/30/07	JRM		
14	REVISED	11/30/07	JRM		
15	REVISED	11/30/07	JRM		
16	REVISED	11/30/07	JRM		
17	REVISED	11/30/07	JRM		
18	REVISED	11/30/07	JRM		
19	REVISED	11/30/07	JRM		
20	REVISED	11/30/07	JRM		
21	REVISED	11/30/07	JRM		
22	REVISED	11/30/07	JRM		
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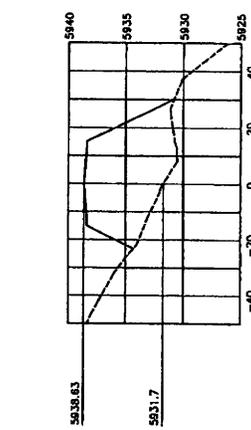
LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PROJECT NO. 200602  
DATE 11/30/07  
SCALE 1"=20'

PRECISION SYSTEMS  
ENGINEERING  
8885 South 400 West  
Sandy, Utah 84070 USA

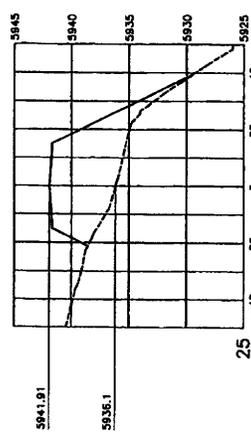




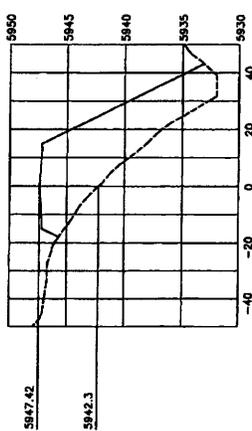
STATION 9+00



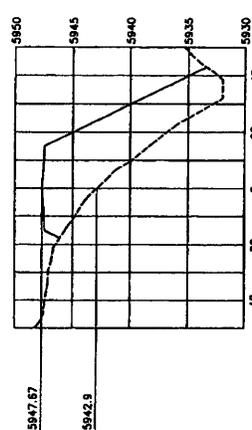
STATION 9+16.72



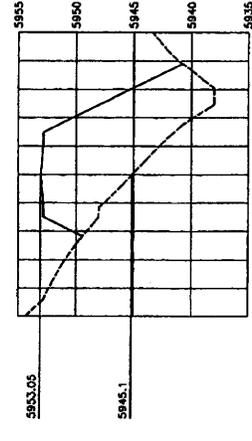
STATION 9+50



STATION 10+00



STATION 10+02.23

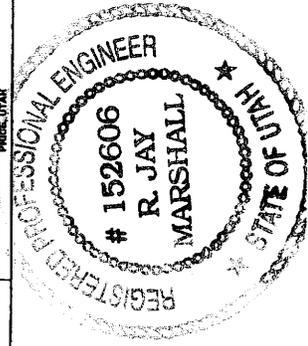


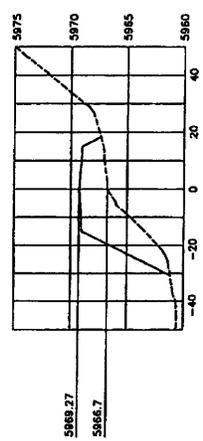
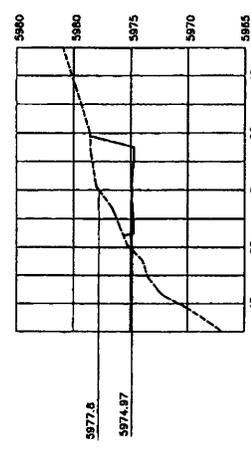
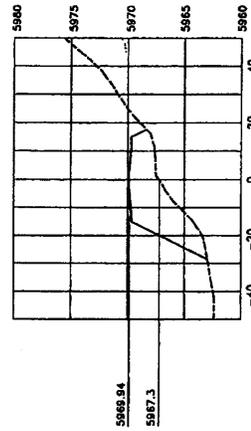
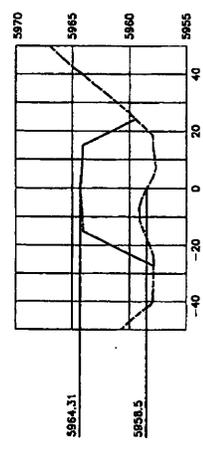
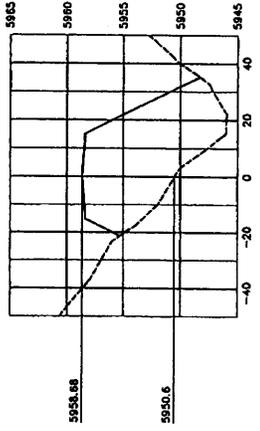
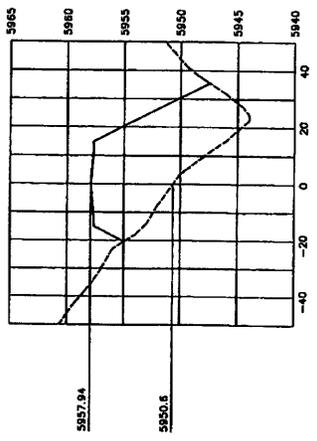
STATION 10+50

EXISTING GRADE -----  
FINISHED GRADE -----

FOR BID ONLY  
NOT FOR CONSTRUCTION

PRECISION SYSTEMS 11111 S. 1100 E. SUITE 100 SANDY, UTAH 84070 USA		LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PRICE, UTAH	
DATE	SCALE	PROJECT NO.	2006022
12-20-07	1"=20'	JOB NO.	06022-C-111.dwg
12-20-07		SHEET NO.	5 OF 20
12-20-07		DATE PLOTTED	12-20-07
12-20-07		DATE PRINTED	12-20-07
12-20-07		DATE CHECKED	12-20-07
12-20-07		DATE APPROVED	12-20-07





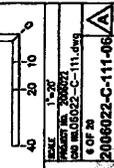
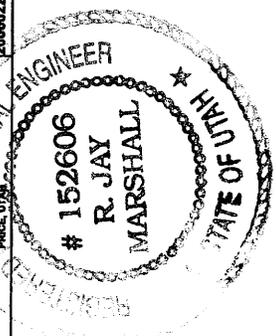
EXISTING GRADE -----  
FINISHED GRADE \_\_\_\_\_

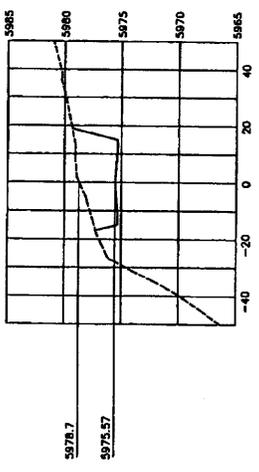
FOR BID ONLY  
NOT FOR CONSTRUCTION

NO.	DESCRIPTION	QUANTITY	UNIT	AMOUNT	TOTAL
1	GRAVEL	1200	CY	1200	1200
2	CONCRETE	100	CY	100	100
3	STEEL	50	TON	50	50
4	WOOD	200	CU YD	200	200
5	PAVEMENT	100	CU YD	100	100
6	LANDSCAPING	50	CU YD	50	50
7	UTILITIES	100	CU YD	100	100
8	EROSION CONTROL	50	CU YD	50	50
9	DEMOLITION	100	CU YD	100	100
10	ASPHALT	100	CU YD	100	100
11	BRICK	100	CU YD	100	100
12	CEMENT	100	CU YD	100	100
13	AGGREGATE	100	CU YD	100	100
14	PAINT	100	CU YD	100	100
15	GLASS	100	CU YD	100	100
16	ROOFING	100	CU YD	100	100
17	MECHANICAL	100	CU YD	100	100
18	ELECTRICAL	100	CU YD	100	100
19	PLUMBING	100	CU YD	100	100
20	HEATING	100	CU YD	100	100
21	Cooling	100	CU YD	100	100
22	INSULATION	100	CU YD	100	100
23	DRY WALL	100	CU YD	100	100
24	CEILING	100	CU YD	100	100
25	FLOORING	100	CU YD	100	100
26	WALLS	100	CU YD	100	100
27	ROOF	100	CU YD	100	100
28	FOUNDATION	100	CU YD	100	100
29	CONCRETE	100	CU YD	100	100
30	STEEL	100	CU YD	100	100
31	WOOD	100	CU YD	100	100
32	PAVEMENT	100	CU YD	100	100
33	LANDSCAPING	100	CU YD	100	100
34	UTILITIES	100	CU YD	100	100
35	EROSION CONTROL	100	CU YD	100	100
36	DEMOLITION	100	CU YD	100	100
37	ASPHALT	100	CU YD	100	100
38	BRICK	100	CU YD	100	100
39	CEMENT	100	CU YD	100	100
40	AGGREGATE	100	CU YD	100	100
41	PAINT	100	CU YD	100	100
42	GLASS	100	CU YD	100	100
43	ROOFING	100	CU YD	100	100
44	MECHANICAL	100	CU YD	100	100
45	ELECTRICAL	100	CU YD	100	100
46	PLUMBING	100	CU YD	100	100
47	HEATING	100	CU YD	100	100
48	Cooling	100	CU YD	100	100
49	INSULATION	100	CU YD	100	100
50	DRY WALL	100	CU YD	100	100
51	CEILING	100	CU YD	100	100
52	FLOORING	100	CU YD	100	100
53	WALLS	100	CU YD	100	100
54	ROOF	100	CU YD	100	100
55	FOUNDATION	100	CU YD	100	100
56	CONCRETE	100	CU YD	100	100
57	STEEL	100	CU YD	100	100
58	WOOD	100	CU YD	100	100
59	PAVEMENT	100	CU YD	100	100
60	LANDSCAPING	100	CU YD	100	100
61	UTILITIES	100	CU YD	100	100
62	EROSION CONTROL	100	CU YD	100	100
63	DEMOLITION	100	CU YD	100	100
64	ASPHALT	100	CU YD	100	100
65	BRICK	100	CU YD	100	100
66	CEMENT	100	CU YD	100	100
67	AGGREGATE	100	CU YD	100	100
68	PAINT	100	CU YD	100	100
69	GLASS	100	CU YD	100	100
70	ROOFING	100	CU YD	100	100
71	MECHANICAL	100	CU YD	100	100
72	ELECTRICAL	100	CU YD	100	100
73	PLUMBING	100	CU YD	100	100
74	HEATING	100	CU YD	100	100
75	Cooling	100	CU YD	100	100
76	INSULATION	100	CU YD	100	100
77	DRY WALL	100	CU YD	100	100
78	CEILING	100	CU YD	100	100
79	FLOORING	100	CU YD	100	100
80	WALLS	100	CU YD	100	100
81	ROOF	100	CU YD	100	100
82	FOUNDATION	100	CU YD	100	100
83	CONCRETE	100	CU YD	100	100
84	STEEL	100	CU YD	100	100
85	WOOD	100	CU YD	100	100
86	PAVEMENT	100	CU YD	100	100
87	LANDSCAPING	100	CU YD	100	100
88	UTILITIES	100	CU YD	100	100
89	EROSION CONTROL	100	CU YD	100	100
90	DEMOLITION	100	CU YD	100	100
91	ASPHALT	100	CU YD	100	100
92	BRICK	100	CU YD	100	100
93	CEMENT	100	CU YD	100	100
94	AGGREGATE	100	CU YD	100	100
95	PAINT	100	CU YD	100	100
96	GLASS	100	CU YD	100	100
97	ROOFING	100	CU YD	100	100
98	MECHANICAL	100	CU YD	100	100
99	ELECTRICAL	100	CU YD	100	100
100	PLUMBING	100	CU YD	100	100

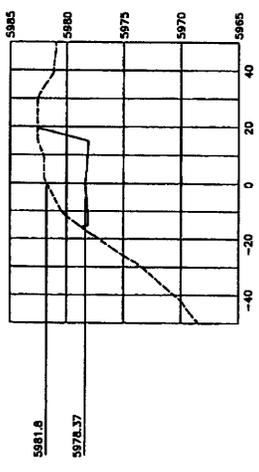
LILA CANYON COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE: UTM

PRECISION SYSTEMS  
10000  
8000 South 500 West  
Sandy, Utah 84070 USA

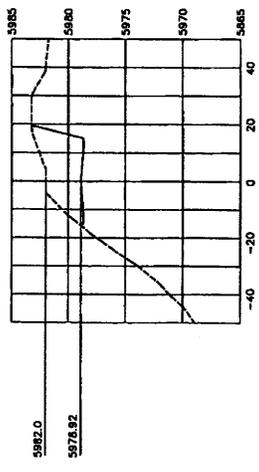




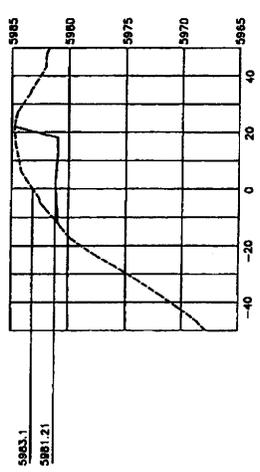
STATION 12+50.00



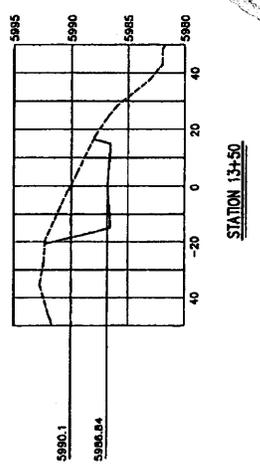
STATION 12+74.85



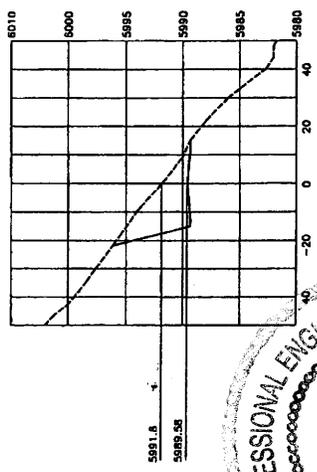
STATION 12+79.75



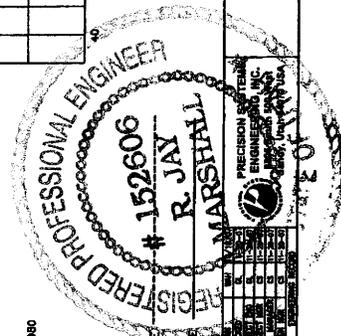
STATION 13+00.00



STATION 13+50.00

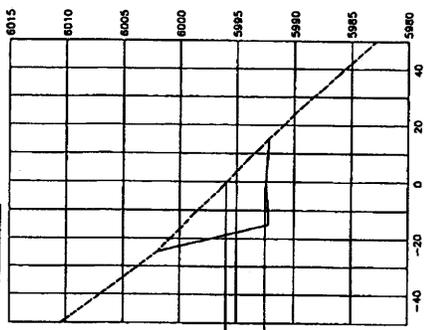


STATION 13+74.35



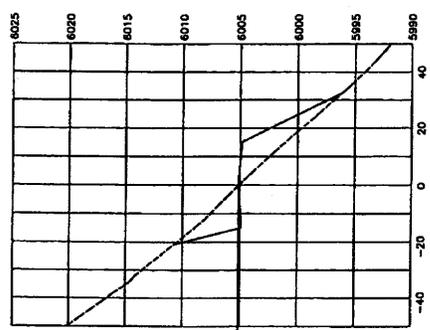
FOR BID ONLY  
NOT FOR CONSTRUCTION

LILA CANYON COAL MINE MINE PORTAL ROAD CROSS SECTIONS PRICE, UTAH	
DATE	11/27/07
SCALE	1"=20'
DRAWN BY	ML/MSD/C-111.dwg
TITLE	7 OF 20
PROJECT NO.	2006022-C-111-07
REVISION	
NO.	DESCRIPTION
1	ISSUED FOR BIDDING
2	ISSUED FOR CONSTRUCTION
3	ISSUED FOR AS-BUILT
4	ISSUED FOR RECORD
5	ISSUED FOR FINAL



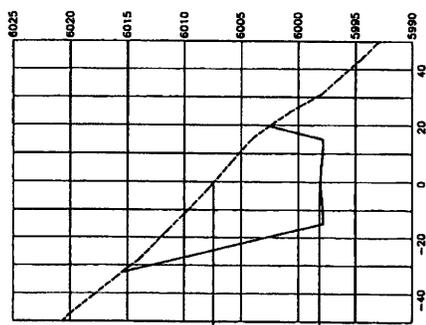
5995.8  
5992.47

STATION 14+00



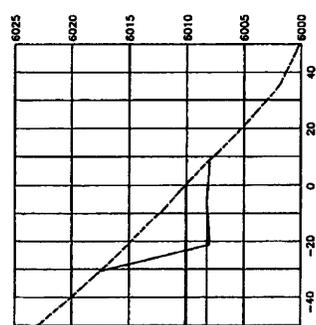
6005.15  
6005.1

STATION 15+12.65



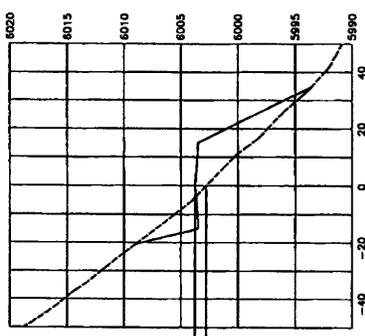
6007.4  
5996.10

STATION 14+50



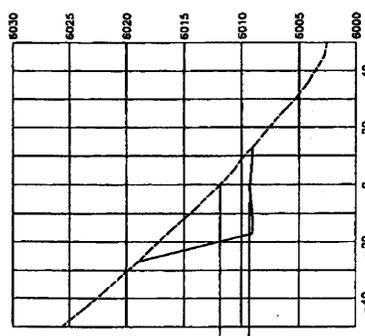
6010.1  
6008.22

STATION 15+39.85



6003.73  
6002.8

STATION 15+00



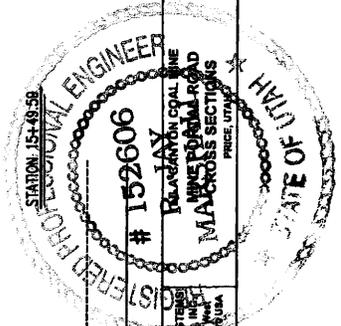
6011.9  
6009.32

STATION 15+49.50

EXISTING GRADE  
FINISHED GRADE

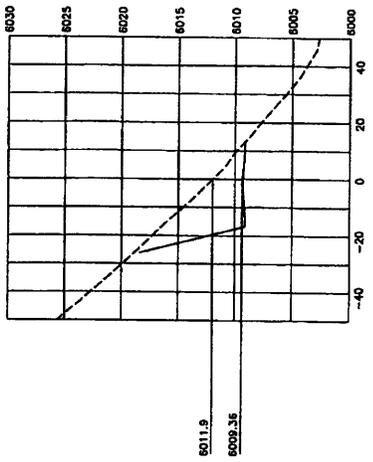
FOR BID ONLY  
NOT FOR CONSTRUCTION

SCALE 1"=20'  
PROJECT NO. 200607  
SHEET NO. 200607-11.dwg  
DATE 11/30/07  
2006022-C-111-08

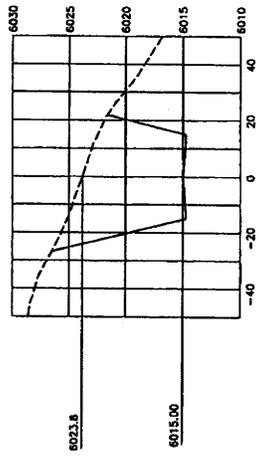


PRECISION SURVEYING & ENGINEERING INC.  
3000 South 650 West  
Sandy, Utah 84088 USA

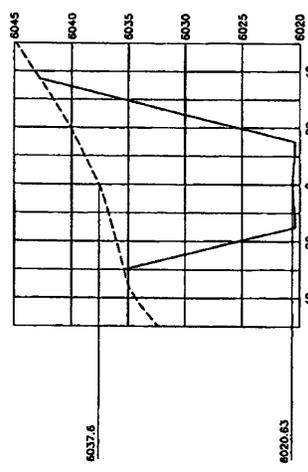
NO.	DATE	BY	CHKD	DESCRIPTION
1	11/30/07	AM		ISSUED FOR BIDDING
2	11/30/07	AM		ISSUED FOR CONSTRUCTION
3	11/30/07	AM		ISSUED FOR CONSTRUCTION
4	11/30/07	AM		ISSUED FOR CONSTRUCTION
5	11/30/07	AM		ISSUED FOR CONSTRUCTION
6	11/30/07	AM		ISSUED FOR CONSTRUCTION
7	11/30/07	AM		ISSUED FOR CONSTRUCTION
8	11/30/07	AM		ISSUED FOR CONSTRUCTION
9	11/30/07	AM		ISSUED FOR CONSTRUCTION
10	11/30/07	AM		ISSUED FOR CONSTRUCTION



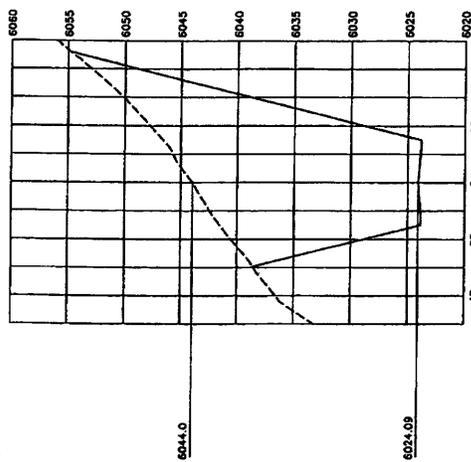
STATION 15+50



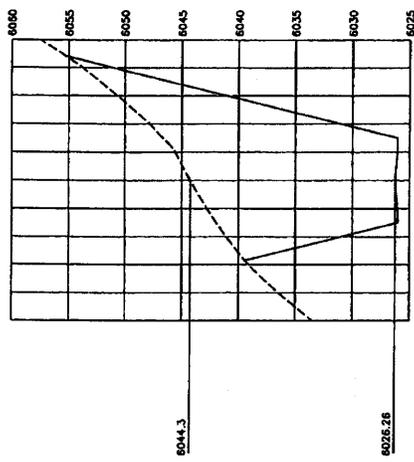
STATION 16+00



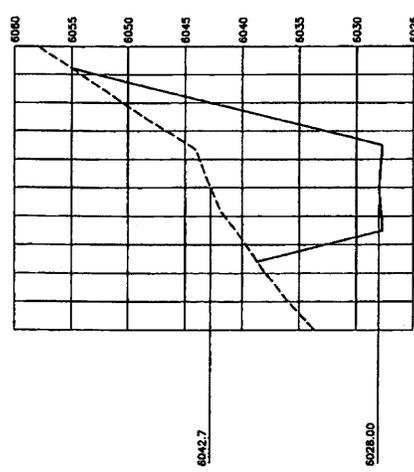
STATION 16+50



STATION 16+80.73



STATION 17+00



STATION 17+15.47

FOR BID ONLY  
NOT FOR CONSTRUCTION

STATION	EXISTING GRADE	FINISHED GRADE	DEPTH	WIDTH	AREA	VOLUME
15+50	6011.9	6009.36	2.54	10	25.4	25.4
16+00	6023.8	6015.00	8.8	10	88.0	88.0
16+50	6037.6	6020.63	16.97	10	169.7	169.7
16+80.73	6044.0	6024.09	19.91	10	199.1	199.1
17+00	6044.3	6026.26	18.04	10	180.4	180.4
17+15.47	6042.7	6028.00	14.7	10	147.0	147.0

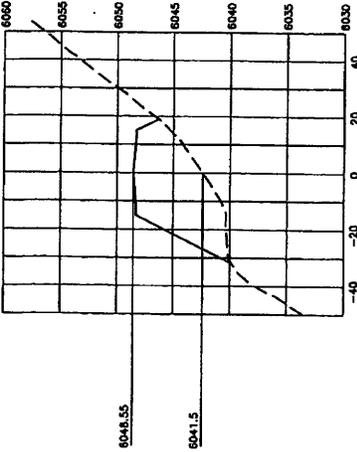
PRECISION SYSTEMS  
ENGINEERING, INC.  
1100 N. UNIVERSITY  
SUITE 100  
DALLAS, TEXAS 75208  
TEL: 972.241.1111  
WWW.PRECISIONSYSTEMS.COM

PROFESSIONAL ENGINEER  
R. JAY  
# 152606  
MARS, ILL.

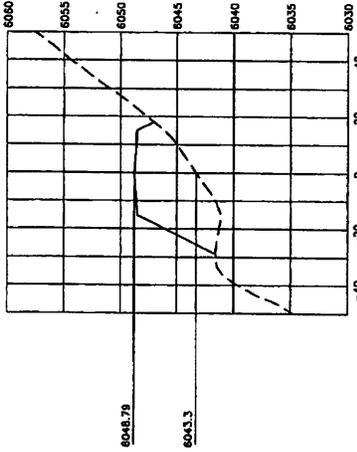
OKLAHOMA COAL MINE  
MINE PORTAL ROAD  
CROSS SECTIONS

SCALE 1"=20'  
PROJECT NO. 200602  
JOB NO. 05092-C-111.dwg  
3 OF 26  
2006022-C-111-09/A

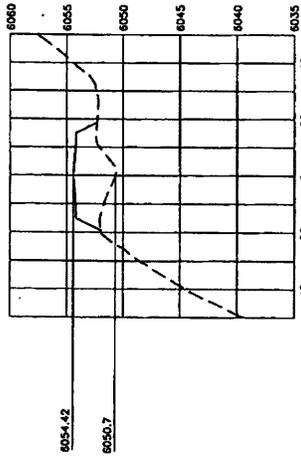




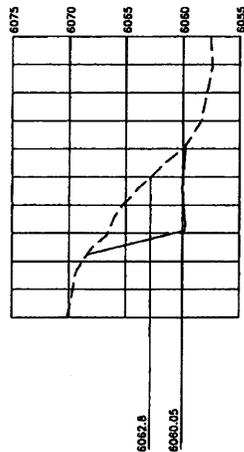
STATION 18+97.89



STATION 19+00

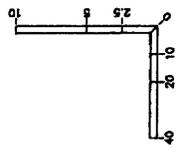


STATION 19.50

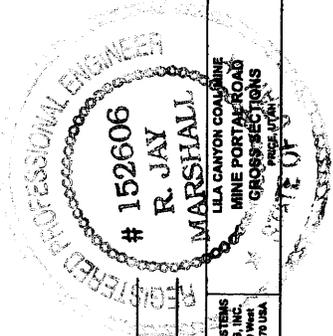


STATION 20+00

EXISTING GRADE  
FINISHED GRADE



SCALE 1"=20'  
PROJECT NO. 2006022  
SHEET NO. D0622-C-11B.dwg  
11 OF 20  
2006022-C-11-11



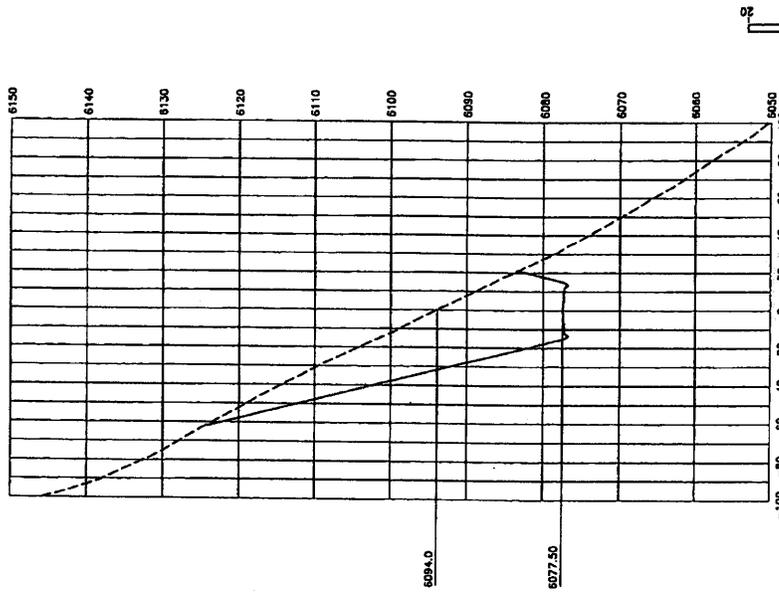
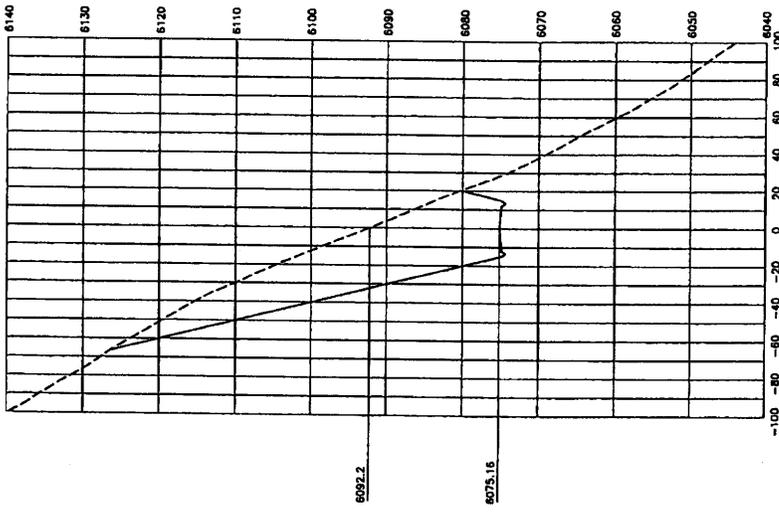
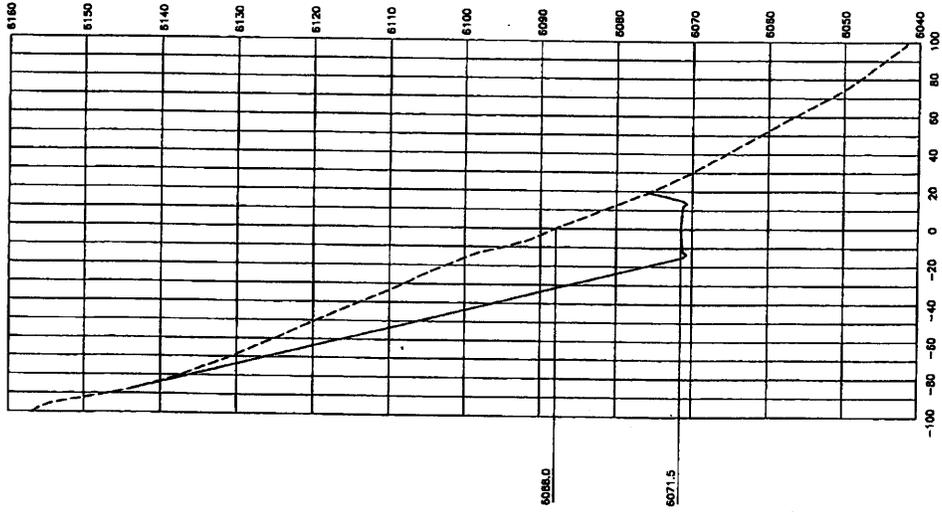
U/LA CANYON COALMINE  
MINE PORTALS ROAD  
GROSS SECTIONS  
Prec. 11/11/07

PRECISION SYSTEMS  
ENGINEERING, INC.  
3800 SOUTH 1000 WEST  
SANDY, UTAH 84070 USA

NO.	DATE	DESCRIPTION	BY	CHKD.
1	11/11/07	ISSUE FOR PERMITS	JRM	JRM
2	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
3	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
4	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
5	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
6	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
7	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
8	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
9	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
10	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
11	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
12	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
13	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
14	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
15	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
16	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
17	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
18	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
19	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM
20	11/11/07	ISSUE FOR CONSTRUCTION	JRM	JRM

FOR BID ONLY  
NOT FOR CONSTRUCTION





PRECISION SYSTEMS  
ENGINEERING, INC.  
3043 South 500 West  
Sandy, Utah 84070 USA

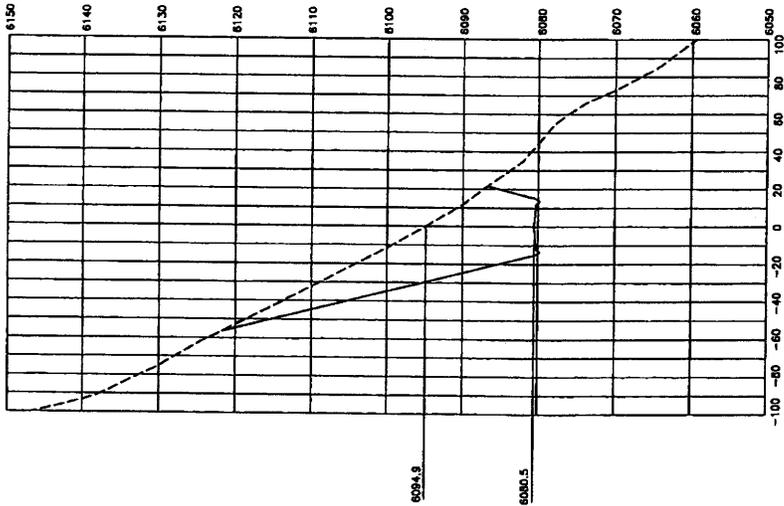
SCALE: 1"=30'  
PROJECT NO: 2006022  
JOB NO: 06022-C-111B.dwg  
13 OF 20  
2006022-C-111-13

REGISTERED PROFESSIONAL ENGINEER  
# 152606  
JAMES G. HALL  
JAMES G. HALL  
MINNESOTA  
CROSS SECTIONS  
PRICEL, UTAH

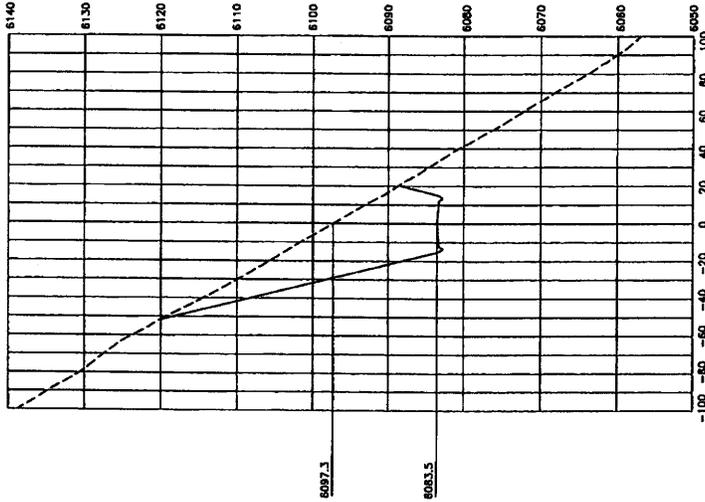
STATE OF UTAH

NO.	DATE	BY	CHKD	DESCRIPTION
1	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
2	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
3	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
4	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
5	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
6	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
7	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
8	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
9	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
10	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
11	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
12	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
13	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
14	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
15	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
16	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
17	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
18	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
19	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION
20	11-30-07	JGH	JGH	ISSUED FOR CONSTRUCTION

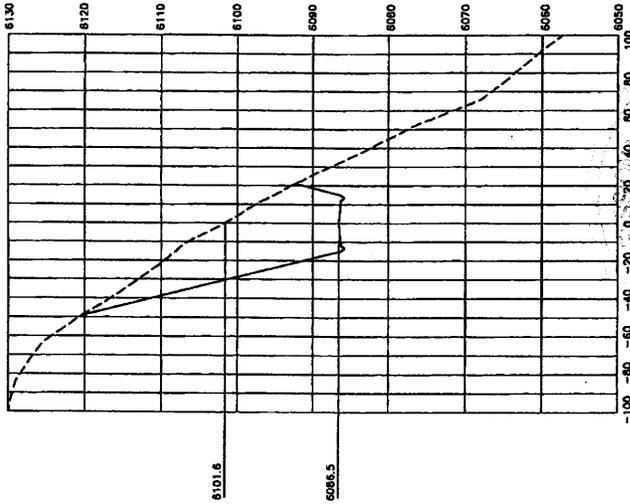
EXISTING GRADE  
FINISHED GRADE



STATION 21+75



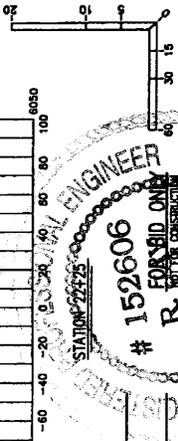
STATION 22+00



STATION 22+75

EXISTING GRADE

FINISHED GRADE

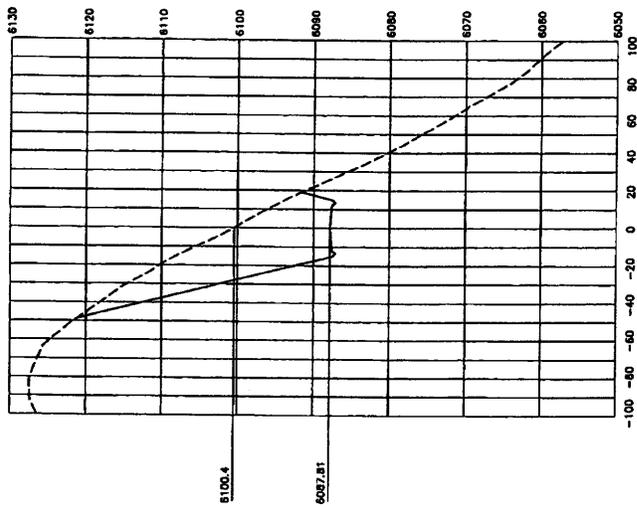


PRECISION SYSTEMS  
ENGINEERING, INC.  
Sandy, Utah 84070 USA

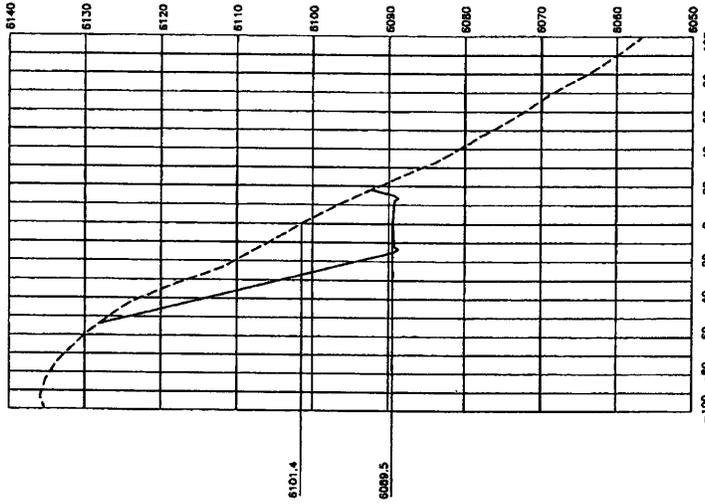
STATE OF UTAH  
LICENSED PROFESSIONAL ENGINEER  
# 152606  
R. FORBID ONE  
NOT FOR CONSTRUCTION

NO.	DATE	BY	CHKD	DESCRIPTION
1	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
2	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
3	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
4	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
5	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
6	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
7	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
8	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
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46	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
47	11/30/07	RF	RF	ISSUED FOR CONSTRUCTION
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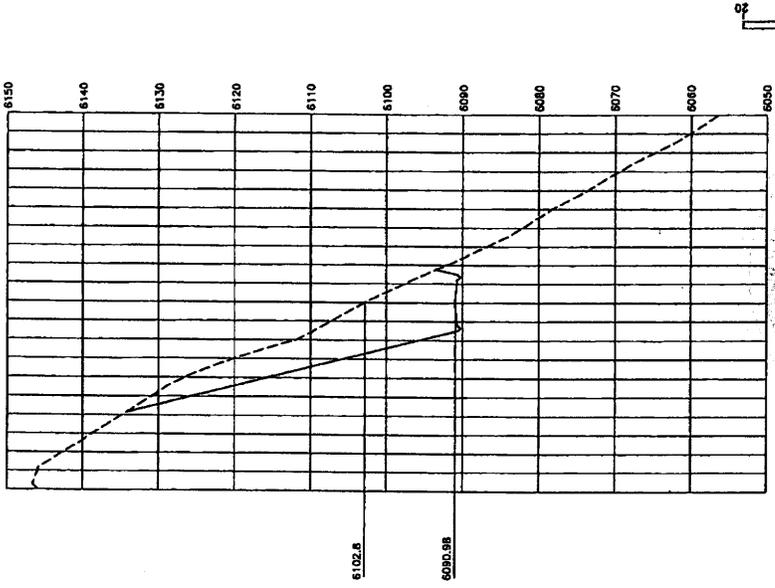
SCALE: 1"=30'  
 SHEET NO. 2006022  
 JOB NO. 06022-C-1118.dwg  
 14 OF 20  
 2006022-C-111-14



STATION 22+35.83



STATION 22+50



STATION 22+62.99

EXISTING GRADE  
FINISHED GRADE

REGISTERED ENGINEER  
# 152606  
R. FORNIBID ONLY  
FOR THE STATE OF UTAH

PRECISION SYSTEMS  
ENGINEERING, INC.  
8833 South 500 West  
Sandy, Utah 84070 USA

NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

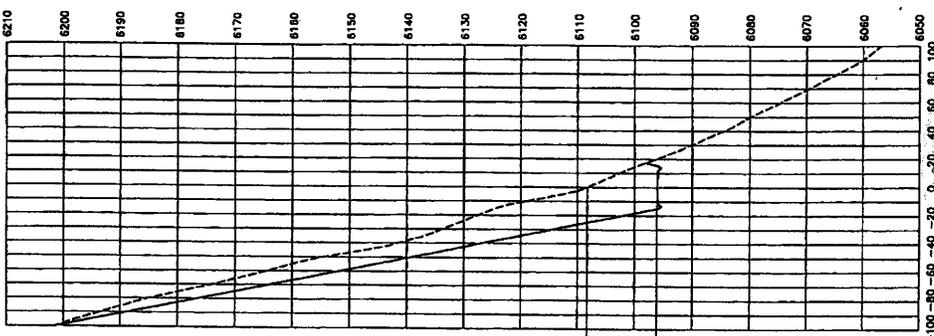
NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

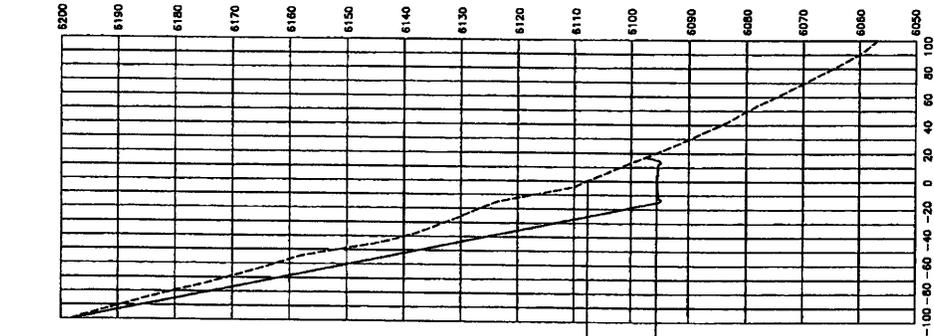
NO.	DATE	BY	CHKD BY	DESCRIPTION
1	11/30/07			ISSUED FOR CONSTRUCTION
2	11/30/07			REVISIONS
3	11/30/07			REVISIONS
4	11/30/07			REVISIONS
5	11/30/07			REVISIONS
6	11/30/07			REVISIONS
7	11/30/07			REVISIONS
8	11/30/07			REVISIONS
9	11/30/07			REVISIONS
10	11/30/07			REVISIONS

STATE OF UTAH  
2008022-C-111-15

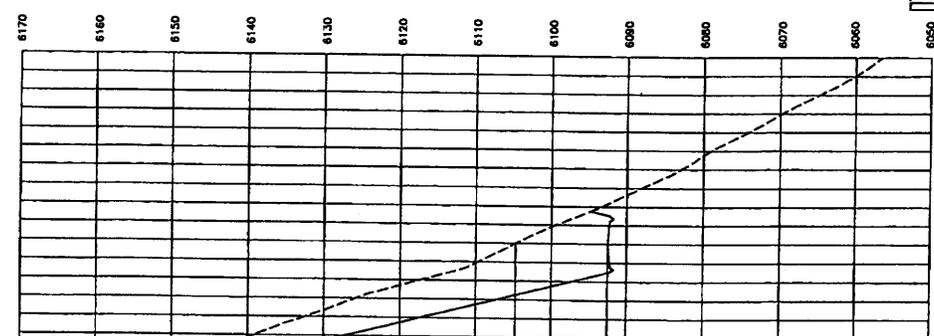
ULA CANYON CROSSING  
MINE MORTAL ROAD  
CROSS SECTIONS  
SANDY, UTAH



STATION 22+75



STATION 23+00



STATION 23+00

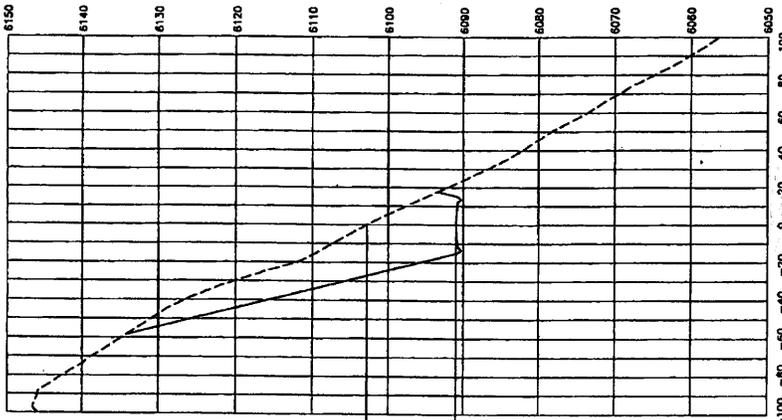
PROFESSIONAL ENGINEER  
 # 152606  
 R. JAY FORBES  
 NOT FOR CONSTRUCTION

SCALE: 1" = 20' HORIZONTAL  
 1" = 10' VERTICAL  
 DATE: 06/22/07  
 18 OF 23  
 2006022-C-111-16/A

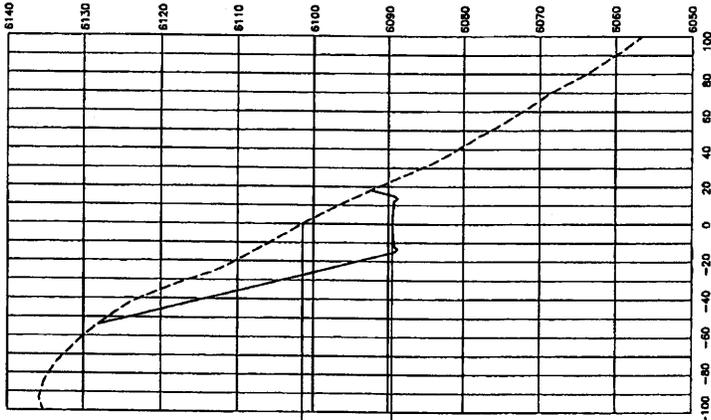
ULA CANYON COAL MINE  
 MINE PORTAL ROAD  
 CROSS SECTIONS  
 PRICE, UTAH

PRECISION SYSTEMS  
 ENGINEERING, INC.  
 8800 South 500 West  
 Sandy, Utah 84070 U.S.A.

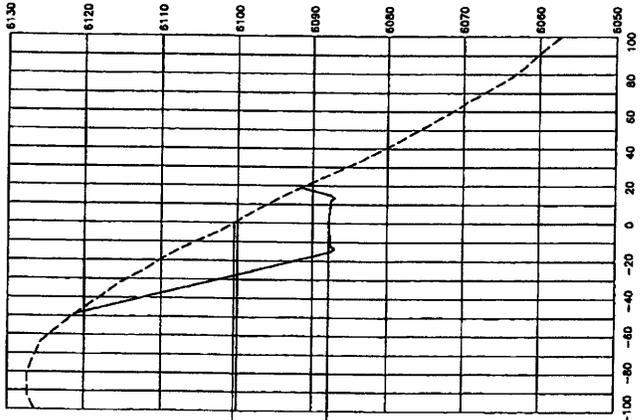
NO.	DATE	BY	CHKD	DESCRIPTION
1	06/22/07	RJF		ISSUED FOR CONSTRUCTION
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STATION 22+35.93



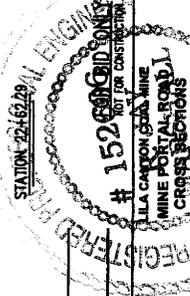
STATION 22+50



STATION 22+62.29

EXISTING GRADE

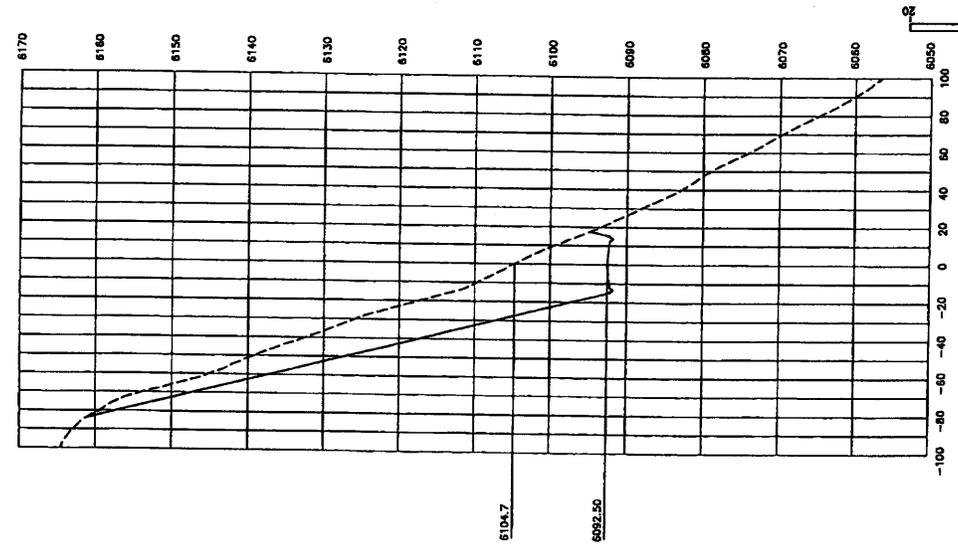
FINISHED GRADE



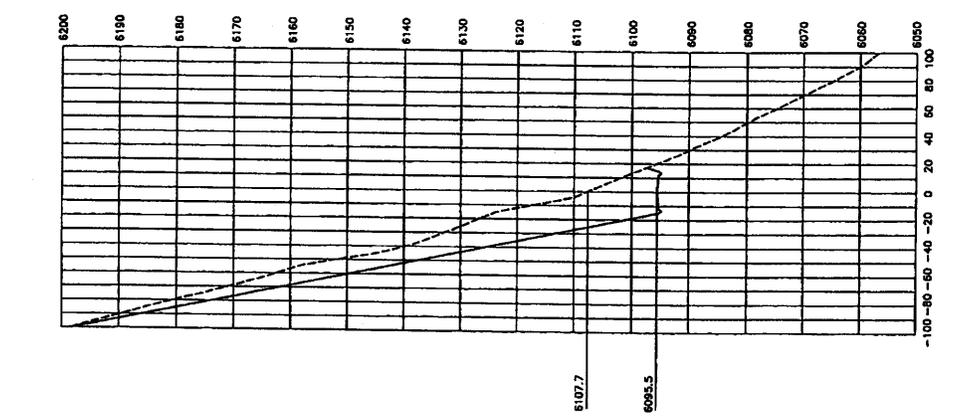
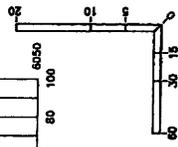
PRECISION SYSTEMS  
ENGINEERING, INC.  
8905 South 200 West  
Sandy, Utah 84070 USA

LA CANYON (S&A) MINE  
MINE PORTAL ROAD  
CROSS SECTIONS  
PRICE, UTAH

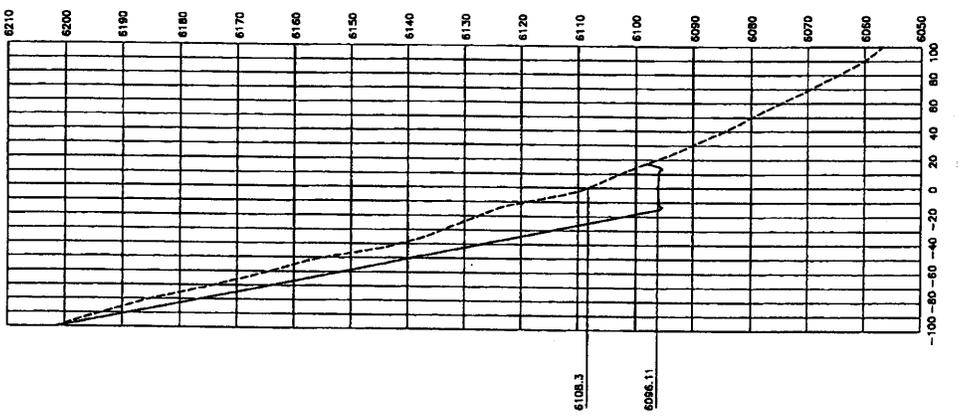
SCALE: 1"=30'  
DATE: 06/22/07  
DRAWN: 06/22/07  
18 OF 20  
2006022-C-111-15/A



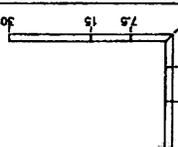
STATION 22+75



STATION 23+00



STATION 23+05.05

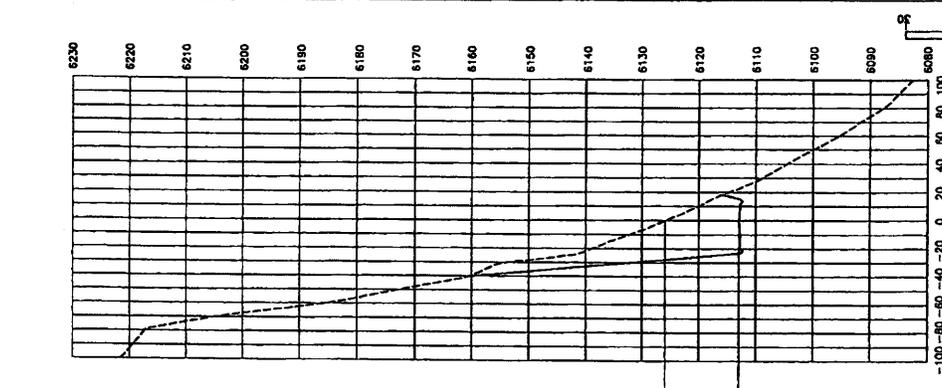
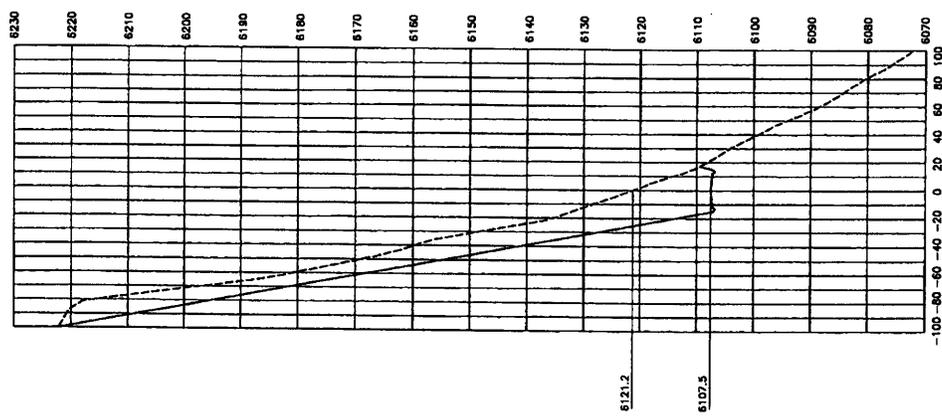
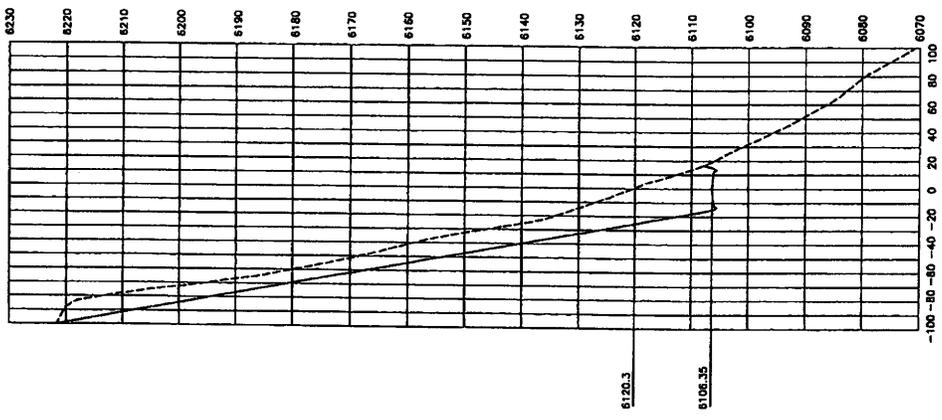
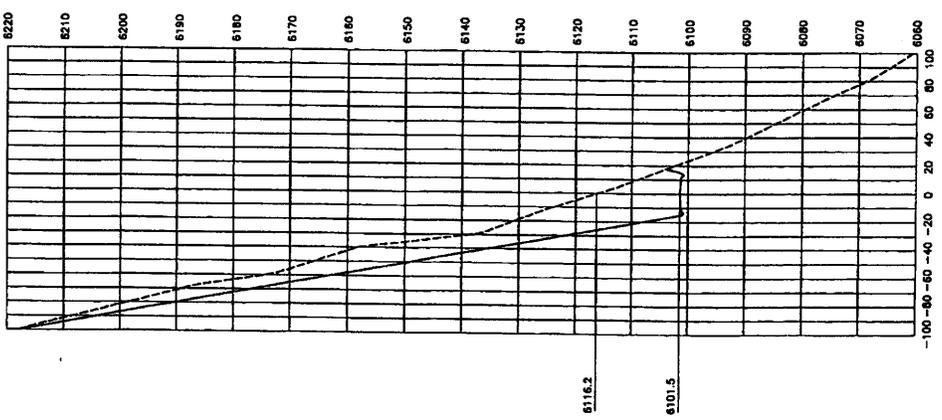


PRECISION SYSTEMS, INC.  
ENGINEERING, INC.  
8001 South 900 West  
Sandy, Utah 84070 USA

NO.	DATE	BY	CHKD.	DESCRIPTION
1	11/20/07	JL	JL	ISSUED FOR CONSTRUCTION
2	11/20/07	JL	JL	REVISED
3	11/20/07	JL	JL	REVISED
4	11/20/07	JL	JL	REVISED
5	11/20/07	JL	JL	REVISED
6	11/20/07	JL	JL	REVISED
7	11/20/07	JL	JL	REVISED
8	11/20/07	JL	JL	REVISED
9	11/20/07	JL	JL	REVISED
10	11/20/07	JL	JL	REVISED

REGISTERED PROFESSIONAL ENGINEER  
# 180000000  
NOT FOR CONSTRUCTION  
ALLA CARRON STATE MINE  
MINE PORTION  
CROSS SECTIONS  
PRICE, UTAH

SCALE: 1"=30' & 1"=60'  
DATE: 06/22/07  
JOB NO.: 06022-C-1118.dwg  
18 OF 20  
2006022-C-111-18/A



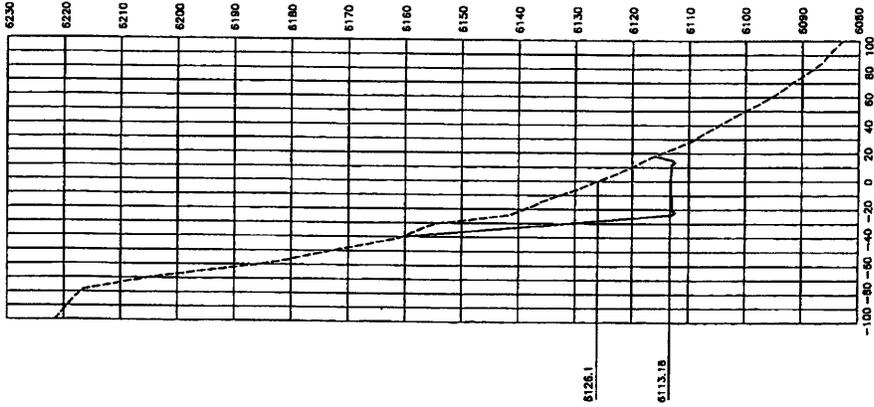
PRECISION ENGINEERING  
 # 15260880 ONLY  
 NOT FOR CONSTRUCTION

SCALE 1"=40'  
 SHEET NO. 00802  
 PROJECT NO. 08022-C-111B.dwg  
 DATE 11/02/07  
 2008022-C-111-47

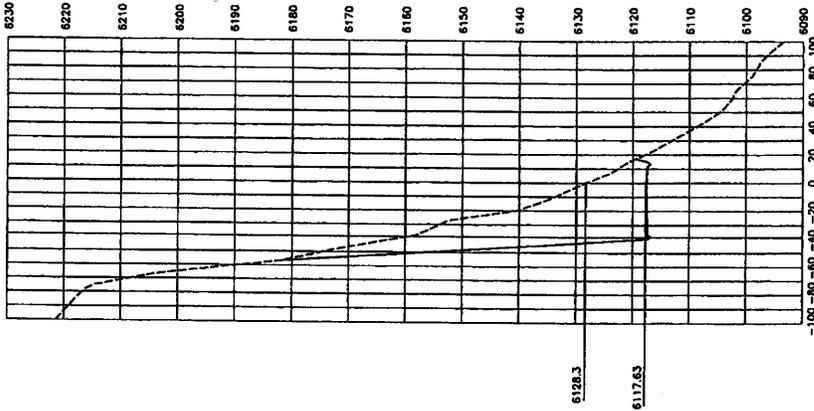
PRECISION SYSTEMS  
 ENGINEERING, INC.  
 8885 South 900 West  
 Sandy, Utah 84070 USA

NO.	DATE	BY	CHKD	DESCRIPTION
1	11/30/07	...	...	...
2	11/30/07	...	...	...
3	11/30/07	...	...	...
4	11/30/07	...	...	...
5	11/30/07	...	...	...
6	11/30/07	...	...	...
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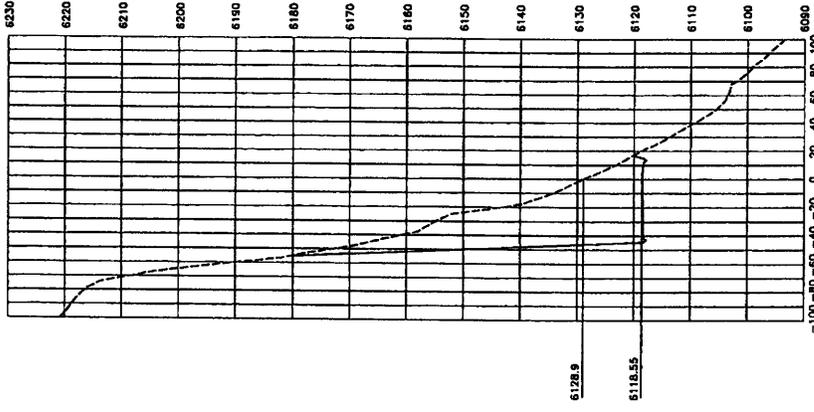




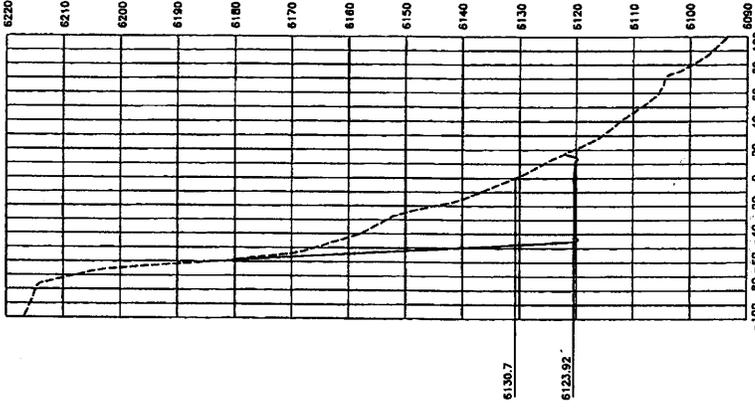
STATION 24+50



STATION 24+91.45



STATION 25+00



STATION 25+17.06

EXISTING GRADE  
FINISHED GRADE

# 152606 FOR BID ONLY  
R. R. ARCHER ENGINEER  
STATE OF UTAH  
2008022-C-111-118

PRECISION SYSTEMS  
ENGINEERING, INC.  
895 South 900 West  
Sandy, Utah 84071 USA

NO.	DATE	BY	DESCRIPTION
1	11-27-07	J.L.	AS BIDDING
2	11-27-07	J.L.	FOR BIDDING
3	11-27-07	J.L.	FOR BIDDING
4	11-27-07	J.L.	FOR BIDDING
5	11-27-07	J.L.	FOR BIDDING
6	11-27-07	J.L.	FOR BIDDING
7	11-27-07	J.L.	FOR BIDDING
8	11-27-07	J.L.	FOR BIDDING
9	11-27-07	J.L.	FOR BIDDING
10	11-27-07	J.L.	FOR BIDDING

PROJECT: LIA CANYON CORRAL  
MINERAL ROAD  
CROSS SECTIONS  
PROJECT: UTAH  
SCALE: 1"=40'

PLANT NO. 2008022-C-111B.dwg  
DATE: 11/27/07  
DRAWN BY: J.L.  
CHECKED BY: J.L.  
SCALE: AS SHOWN

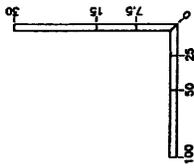
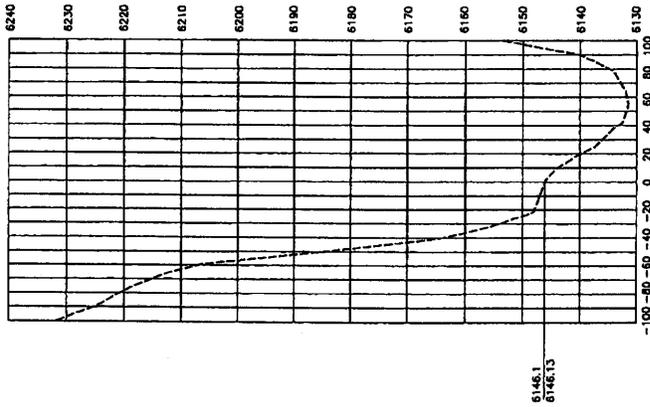
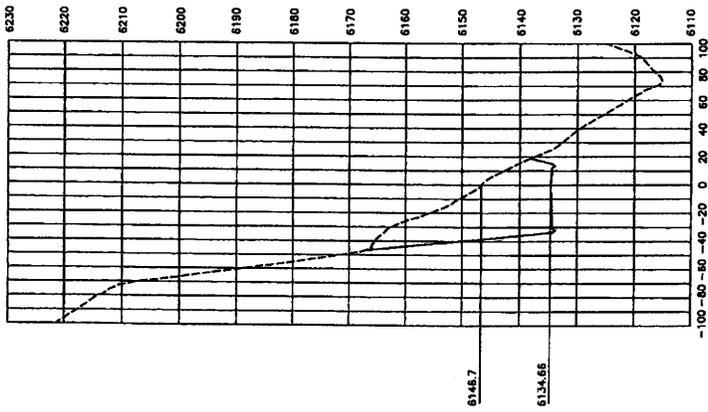
PROJECT: LIA CANYON CORRAL  
MINERAL ROAD  
CROSS SECTIONS  
PROJECT: UTAH  
SCALE: 1"=40'

PLANT NO. 2008022-C-111B.dwg  
DATE: 11/27/07  
DRAWN BY: J.L.  
CHECKED BY: J.L.  
SCALE: AS SHOWN

PROJECT: LIA CANYON CORRAL  
MINERAL ROAD  
CROSS SECTIONS  
PROJECT: UTAH  
SCALE: 1"=40'

PLANT NO. 2008022-C-111B.dwg  
DATE: 11/27/07  
DRAWN BY: J.L.  
CHECKED BY: J.L.  
SCALE: AS SHOWN



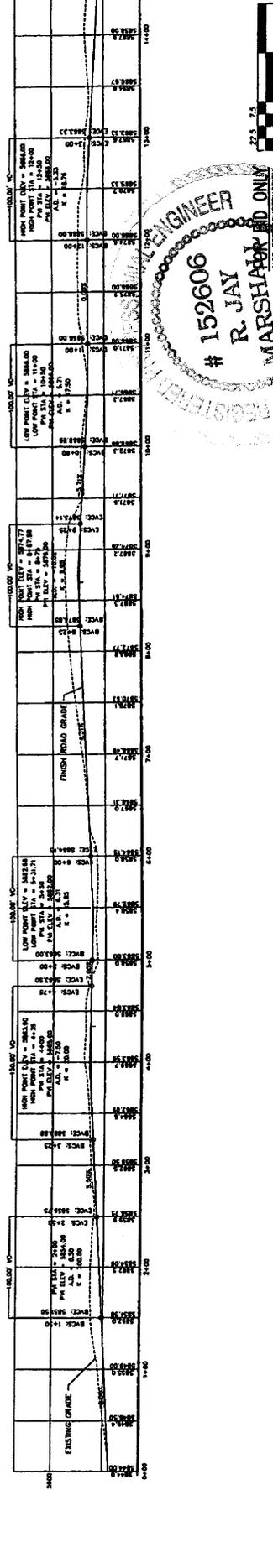
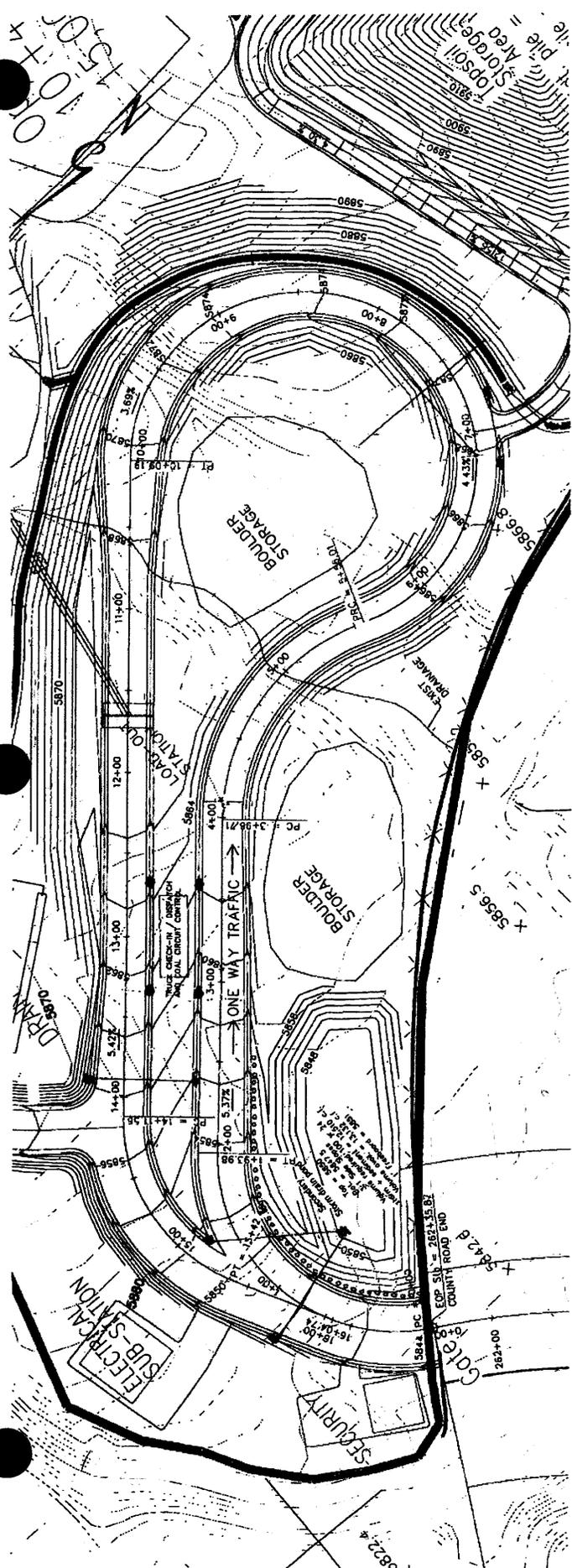


FOR BID ONLY  
 PROFESSIONAL ENGINEER  
 CIVIL ENGINEER  
 LICENSE NO. 2006022-C-1118-2007  
 STATE OF UTAH

152006  
 JAY CROSS SECTIONS  
 STATE OF UTAH



NO.	DESCRIPTION	AMOUNT	TOTAL
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NO.	DATE	BY	CHKD.	REVISIONS
1	11-14-07	RS	RS	ISSUED FOR PERMIT
2	11-15-07	RS	RS	REVISED
3	11-29-07	RS	RS	REVISED
4	12-04-07	RS	RS	REVISED
5	12-04-07	RS	RS	REVISED
6	12-04-07	RS	RS	REVISED
7	12-04-07	RS	RS	REVISED
8	12-04-07	RS	RS	REVISED
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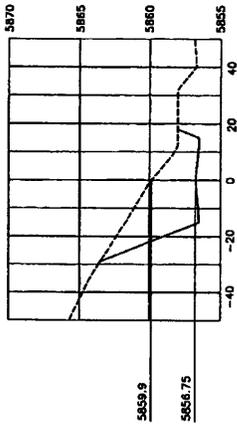
**# 152606**  
**R. JAY**  
**MARSHALL**  
 REGISTERED PROFESSIONAL ENGINEER  
 NOT FOR CONSTRUCTION

LILA CANYON LOCAL WIRE  
 TRUCKS AND ROAD  
 PLAN AND PROFILE  
 STATE ENGINE, UTAH  
 PROJECT NO. 2006022-1100.dwg  
 DWG NO. 2006022-1100.dwg  
 1 OF 2  
 2006022-C-120-01

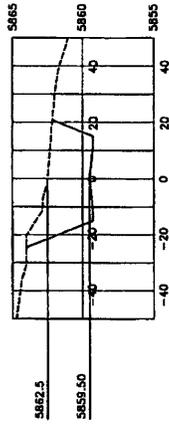
**PRECISION SYSTEMS**  
**ENGINEERING, INC.**  
 8845 South 800 West  
 Sandy, Utah 84070 USA



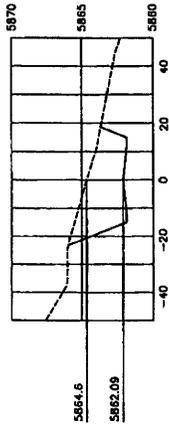




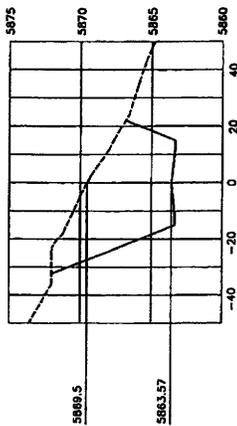
STATION 24+50



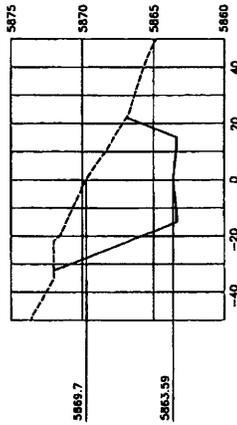
STATION 3+00



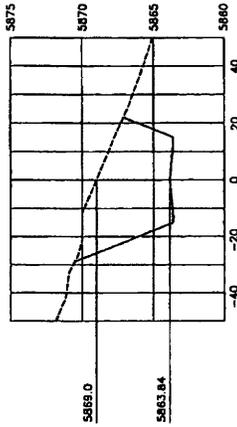
STATION 3+50



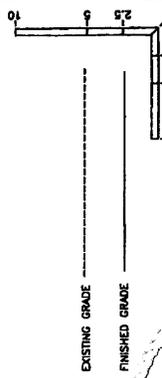
STATION 3+98.71



STATION 4+00



STATION 4+50



NO.	DATE	BY	CHKD	DESCRIPTION
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PRECISION SYSTEMS  
ENGINEERING, INC.  
1800 West 10th Street  
Tulsa, Oklahoma 74103  
Tel: 918.436.8800  
Fax: 918.436.8801  
www.precision-systems.com

UT AMERICAN LIFE CANYON  
LA CANYON ROAD  
ROCKY MOUNTAIN  
SECTION 1  
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SECTION 50

FOR BID ONLY  
NOT TO BE CONSTRUCTION

UT AMERICAN LIFE CANYON  
LA CANYON ROAD  
ROCKY MOUNTAIN  
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UT AMERICAN LIFE CANYON  
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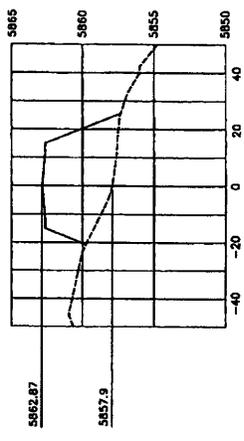
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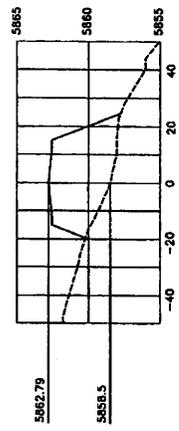
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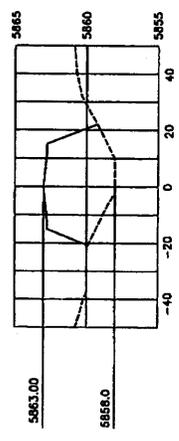
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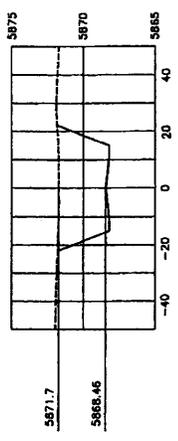
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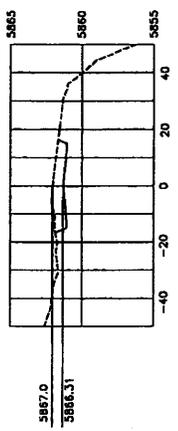
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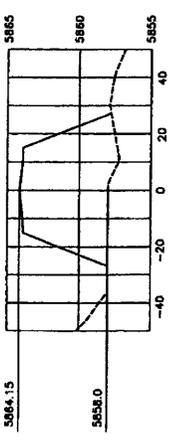
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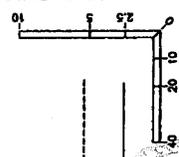
STATION 7+00



STATION 6+50



STATION 6+00



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PROPOSED GRADE  
FOR BID ONLY  
#1 CRIB ROAD IMPROVEMENT

NO.	DATE	BY	CHKD	DESCRIPTION
1	11-29-07	JL	MS	ISSUED FOR BIDDING
2	11-29-07	JL	MS	REVISED
3	11-29-07	JL	MS	REVISED
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18	11-29-07	JL	MS	REVISED
19	11-29-07	JL	MS	REVISED
20	11-29-07	JL	MS	REVISED

PRECISION SYSTEMS  
ENGINEERING, INC.  
1808 South 900 West  
Provo, Utah 84601 USA



PROJECT: LIA CANYON COAL MINE TRUCK LEADOUT ROAD CROSS SECTIONS  
DATE: 11/29/07

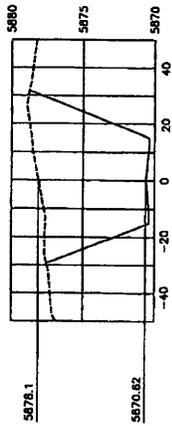
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SHEET NO. 0622-C-121.dwg  
3 OF 7  
2006022-C-121-03

FOR BID ONLY

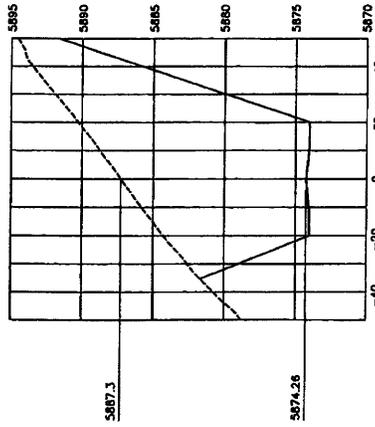
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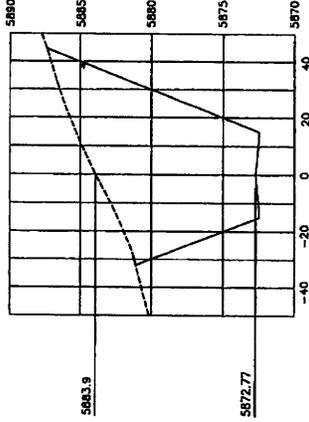
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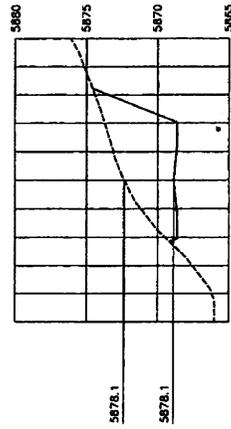
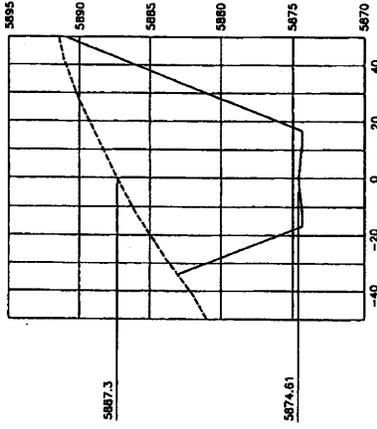
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STATION 8+00



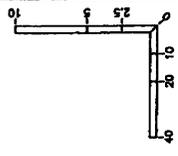
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STATION 9+00



STATION 9+50



FOR BID ONLY  
 NOT FOR CONSTRUCTION

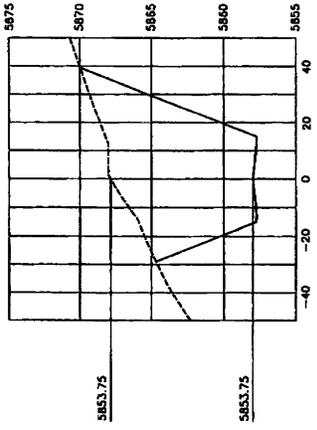
LLA CANYON ROAD  
 TRUCK LOADOUT ROAD  
 CROSS SECTIONS

PRECISION SYSTEMS  
 ENGINEERING, INC.  
 1000 W. 1000 S.  
 SALT LAKE CITY, UT 84119

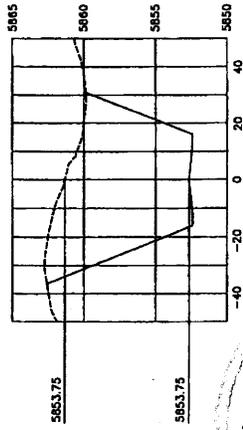
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PROJECT NO. 2006022  
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 4 OF 7  
 2006022-C-121-04/A

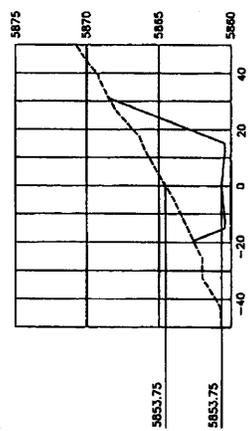




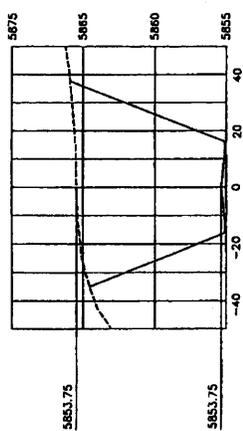
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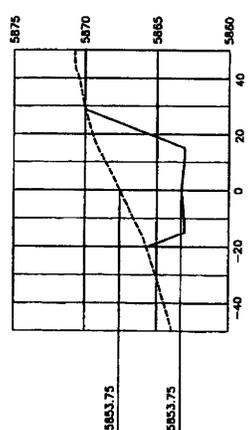
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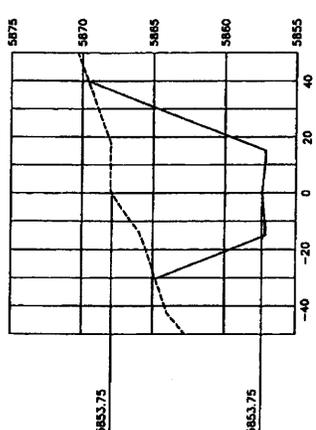
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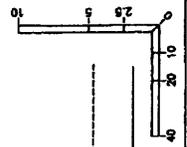
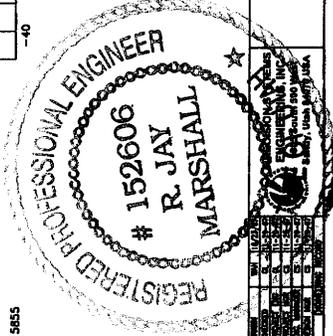
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STATION 13+00



STATION 14+11.56



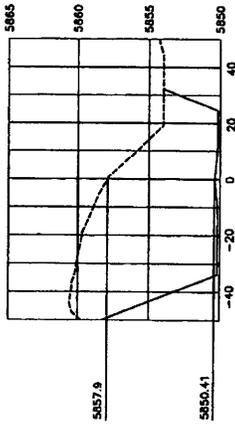
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FOR BID ONLY  
NOT FOR CONSTRUCTION

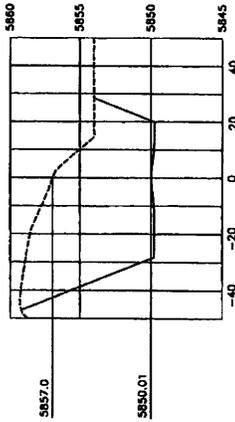
LILA CANYON COAL MINE  
TRUCK LOADOUT ROAD  
CROSS SECTIONS  
PARCEL UTM

DATE: 11-29-07  
DRAWN: 06022-C-121.dwg  
8 OF 7  
2008022-C-121-06

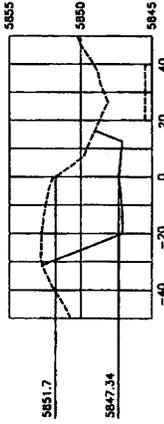
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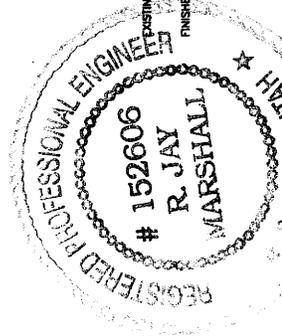
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STATION 16+00



FOR BID ONLY  
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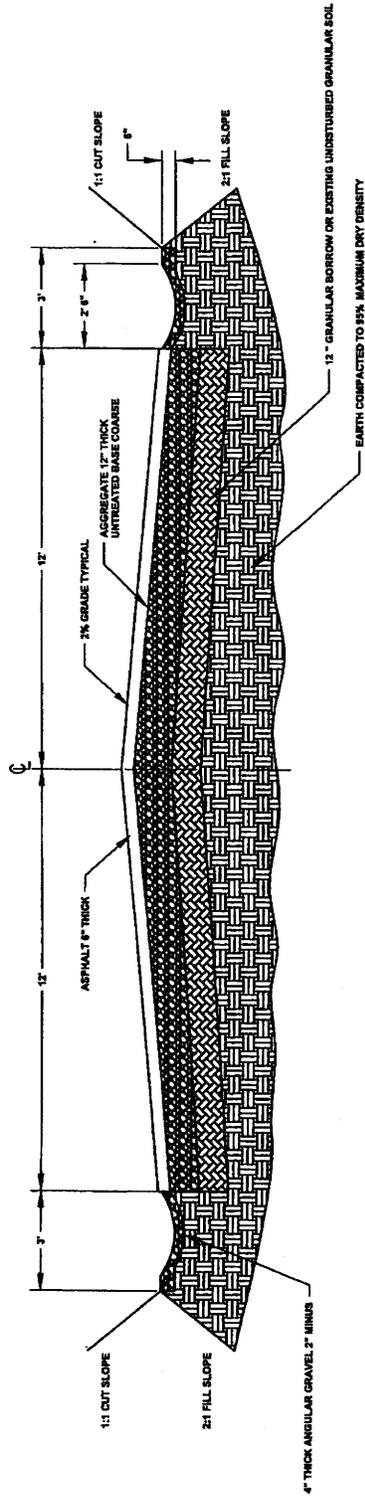
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2006022-C-121-07/A

LILA CANYON COAL MINE  
TRUCK LOADOUT ROAD  
CROSS SECTIONS  
PRICE, UTAH

PRECISION SYSTEMS  
PRECISION SYSTEMS, INC.  
1000 South 500 West  
Sandy, Utah 84070 USA

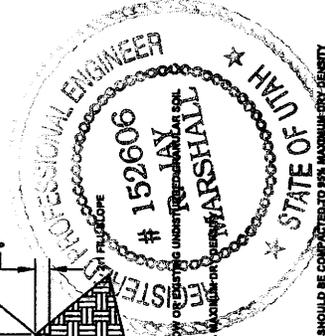
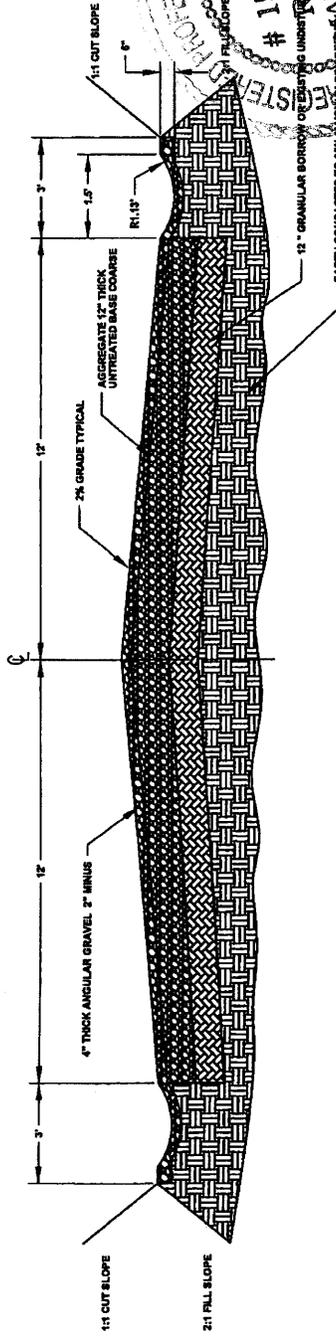
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**TRUCK LOADOUT ROAD**  
TYPICAL SECTION



\*NOTES: WIDTH VARIES FOR LOADOUT ROAD IN CURVES. SEE CROSS-SECTION AND PLAN VIEW DRAWINGS

**MINE PORTAL ROAD**  
TYPICAL SECTION

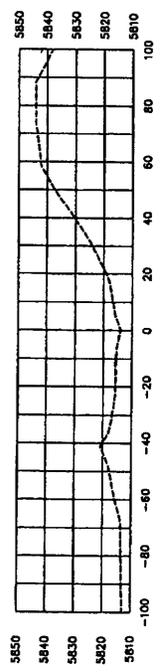


\*ALL FILL TO BE PLACED UNDER ROADWAY SHOULD BE COMPACTED TO 95% MAXIMUM DRY DENSITY FOR BID ONLY NOT FOR CONSTRUCTION

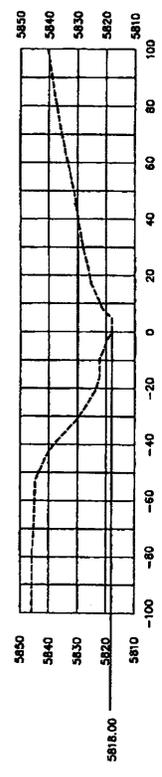
PRECISION SYSTEMS ENGINEERING, INC. 3905 South 500 West Steady, Utah 84078 USA		LILA CANYON COAL MINE ROADWAY DETAILS PRICE, UTAH	
1 OF 1		06022-C-130	



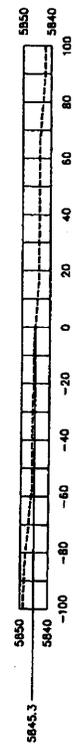




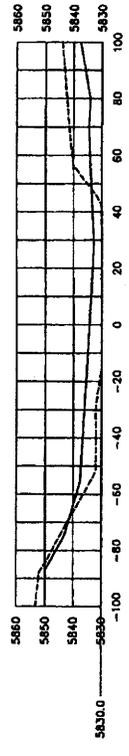
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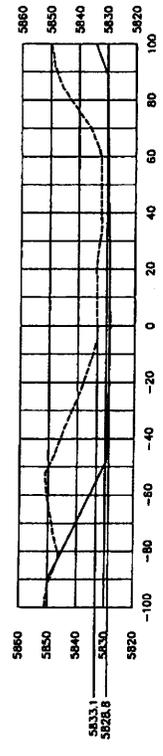
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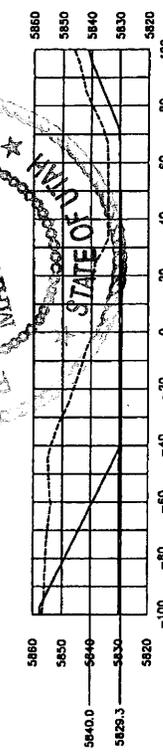
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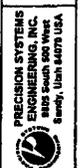
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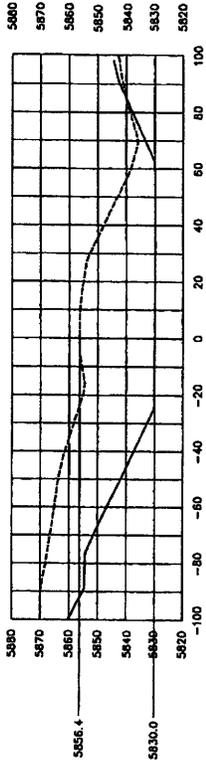
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DATE: 11/17/07  
PROJECT: LILA CANYON COAL MINE  
DRAWN BY: J. J. JONES  
CHECKED BY: J. J. JONES  
DATE: 11/17/07

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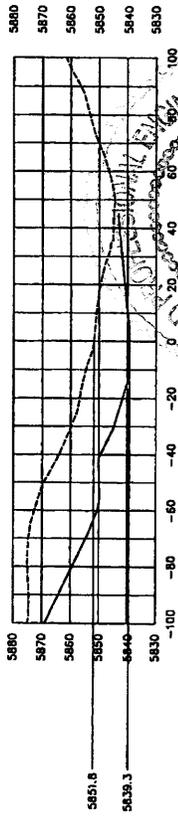
LILA CANYON COAL MINE  
STORM WATER DETENTION POND  
CROSS SECTIONS  
PRICE, UTAH



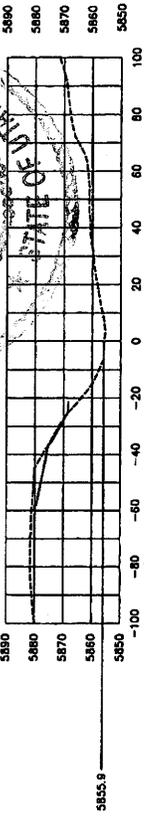
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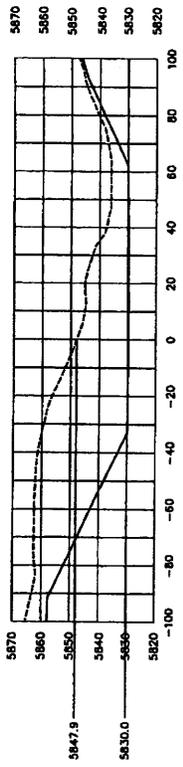
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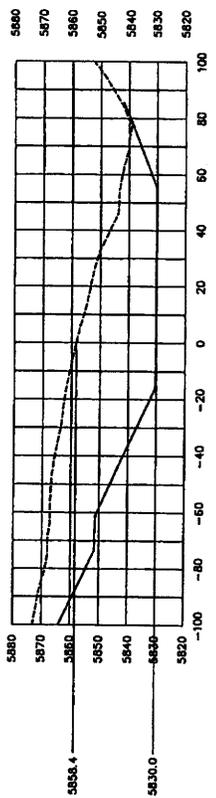
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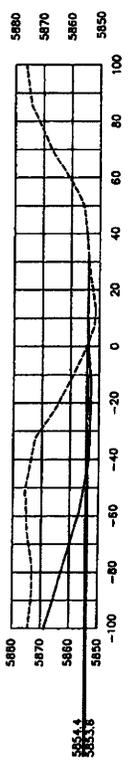
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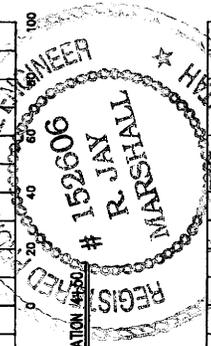
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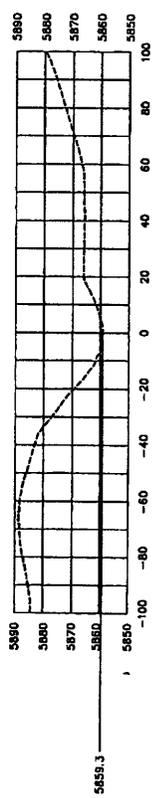
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2 OF 2

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STORM WATER DETENTION POND  
CROSS SECTIONS  
PHELPS, UTAH

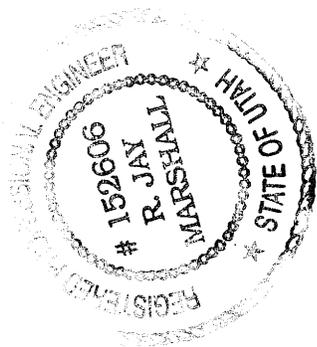
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3803 South 800 West  
Bandy, Utah 84701 USA

06022-C-211-02

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LILA CANYON COAL MINE  
STORM WATER DETENTION POND  
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PAGE: 07/01



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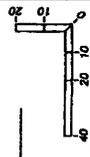
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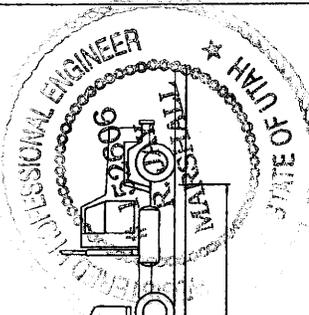
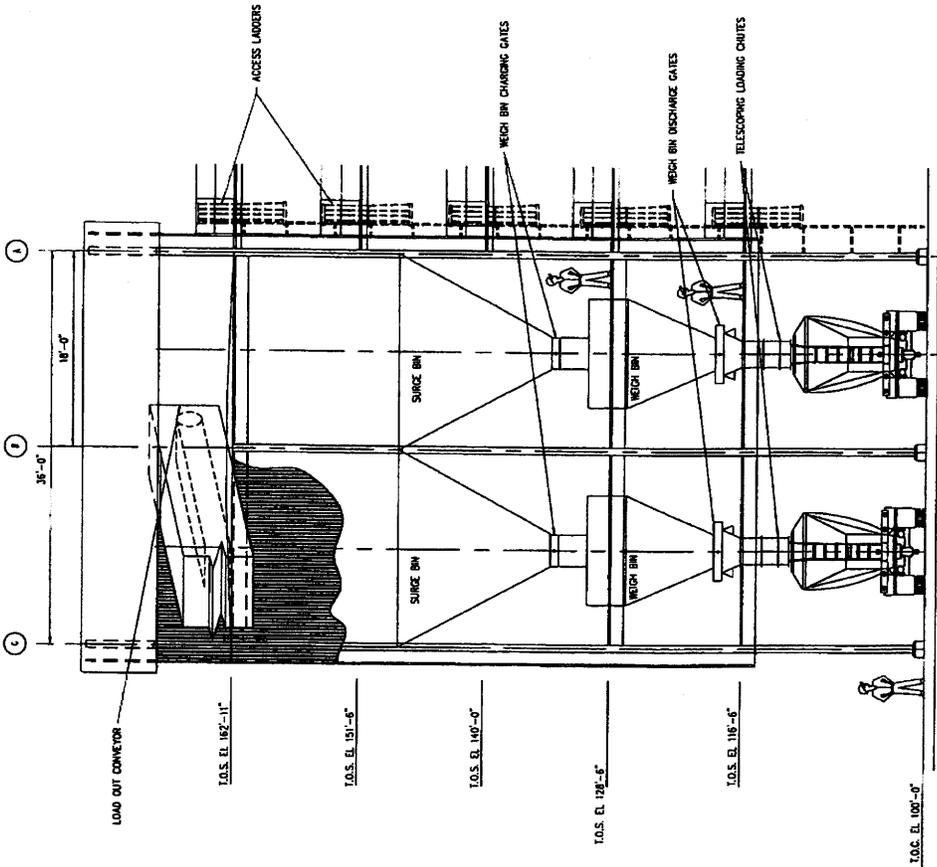
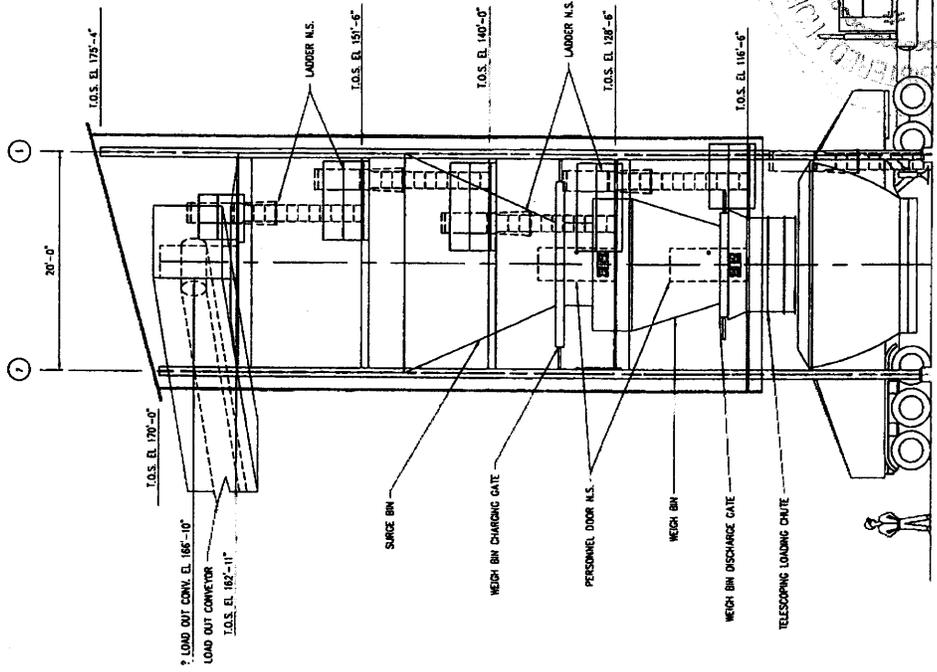
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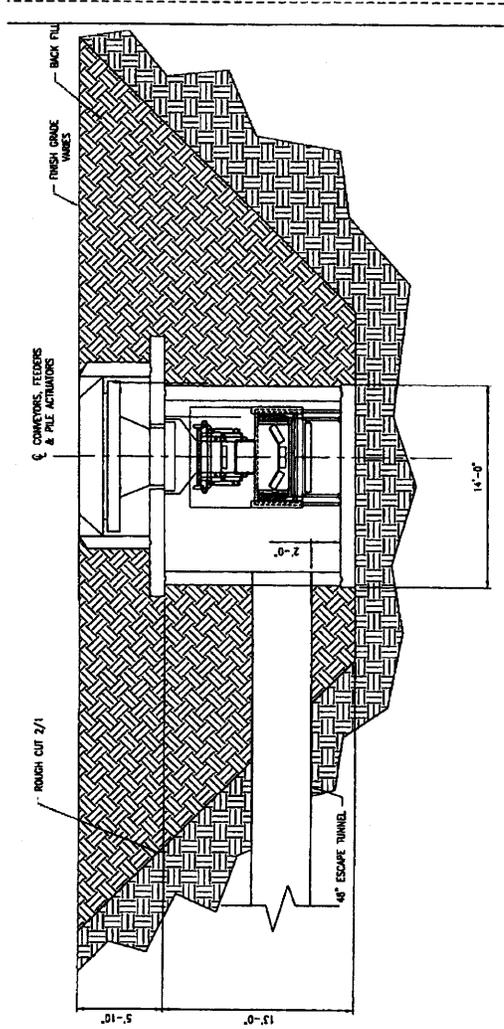
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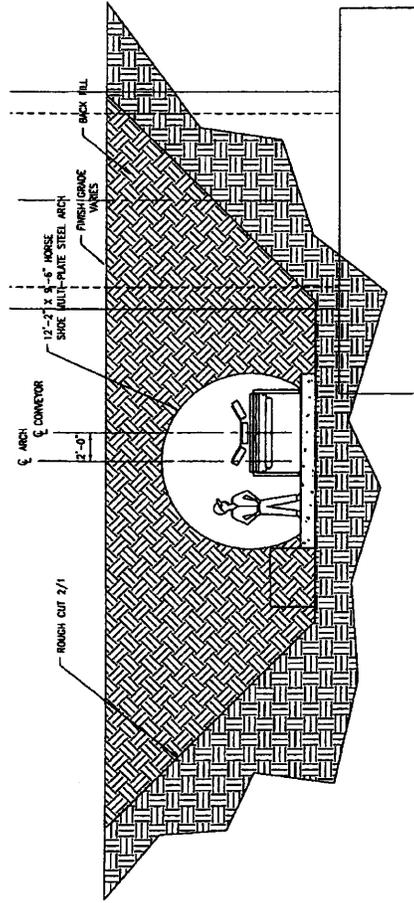


UTAH AMERICAN ENERGY LILA CAYON MINE LOAD OUT STRUCTURE ELEVATIONS PRICE, UT		PRECISION SYSTEMS ENGINEERING, INC. 8188 South 300 West Sandy, Utah 84070 USA	DRAWN BY: 10/17/06 CHECKED BY: [blank] PROJECT NO: [blank] DATE: [blank] SCALE: [blank] REVISIONS: [blank]
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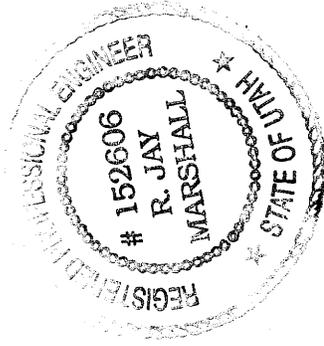




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SECTION C  
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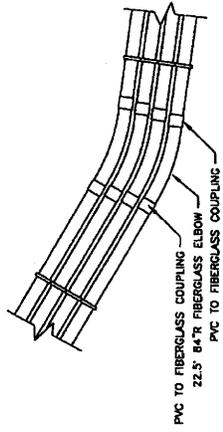


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DATE	08/22/07
SHEET NO.	1 OF 1
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ENGINEER	R. JAY MARSHALL
REGISTERED PROFESSIONAL ENGINEER	STATE OF UTAH
LICENSE NO.	# 152606
PRECISION SYSTEMS	PRECISION SYSTEMS INC. 1000 S. 1000 W. SANDY, UTAH 84070 USA
DATE	08/22/07
BY	RJM
CHECKED BY	
APPROVED BY	
REVISIONS	

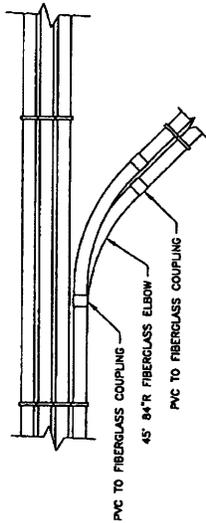




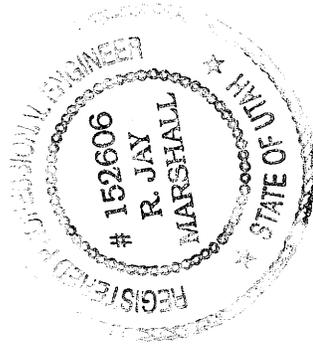
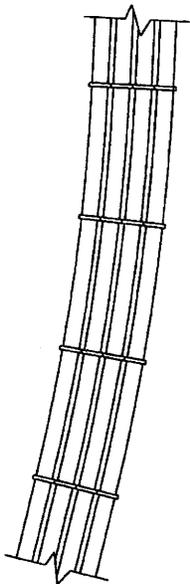




**DETAIL #3**  
AT RECLAIM TUNNILE OPENING



**DETAIL #2**  
TAKE OFF TO CRUSHER



SCALE: NONE  
 DRAWING NO.:  
 JOB NO.: power route 2.dwg  
 1 OF 1  
**CABLE PLAN 2**

UTAH AMERICAN ENERGY  
 LILA CANYON MINE  
 ELECTRICAL CABLE TRENCH DETAILS  
 PRICE, UTAH

PRECISION SYSTEMS  
 ENGINEERING, INC.  
 3800 South 500 West  
 Sandy, Utah 84070 USA

NO.	DATE	BY	CHKD.	APP'D.	REVISION
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WASTEWATER DISPOSAL SYSTEM

TEMPORARY BATHHOUSE TRAILER EXPANSION

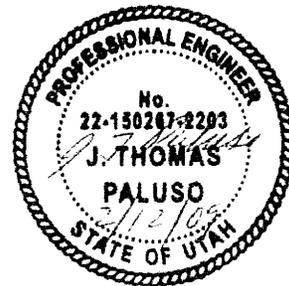
UTAH AMERICAN ENERGY

LILA CANYON MINE

February 2009

Plan **APPROVED** (04)  
NOT FINAL APPROVAL  
A FINAL ON SITE INSPECTION IS REQUIRED  
BEFORE SYSTEM IS CONVERED

DATE Feb 11, 2009 BY *Alvin D. Bjork*



Prepared by

J. T. Paluso, P. E.

EIS ENVIRONMENTAL & ENGINEERING CONSULTING

31 North Main, Helper, Utah 84526

## **INTRODUCTION**

### **Scope of Work**

This report contains the design of a proposed wastewater disposal system at the Lila Canyon Mine, which is located south of the Horse Canyon Mine in Section 15, Township 16 South, Range 14 East. The Lila Canyon Mine is operated by Utah American Energy and is proposing to install a temporary bathhouse trailer that will accommodate 40 new employees. These 40 employees will be split over two shifts.

This facility will be used during the construction of two 1200-foot inclined rock slopes. These rock slopes will provide access to the coal seams located east and above the surface facilities. It is anticipated to take up to 18 months to complete construction of these rock slopes.

This report includes data collected through subsurface exploration, field-testing, and detailed engineering. Based upon these results and the standards set by the Department of Environmental Quality, Division of Water Quality (DWQ) and Rule R317-4. Onsite Wastewater Systems, the following recommendations and guidelines are provided for:

- Disposal method and site suitability
- Design of septic tank and drainfield

### **Description of Wastewater Disposal Facilities**

The system will start with a 2,500-gallon concrete septic tank or equivalent. All solids will remain in the septic tank with the effluent going to the drainfield located south of the proposed bathhouse trailer. Refer to the attached drawing in Appendix A.

## **FIELD INVESTIGATION**

### **Exploration Pits**

Two ten-foot deep exploration pits were excavated at the proposed drainfield site. The purpose of the pits was to explore for ground water, bedrock, and existing soil conditions. The exposed soil layers were logged. The location of the test pits are shown on the "Proposed Temporary

Drainfield “ drawing located in Appendix A. The field logs for the test pits (TP) are shown in Appendix B and the two percolation tests (P-1 and P-2) are shown in the Appendix C.

There were no signs of bedrock or ground water in the two pits. The material in both test pits was a silty loam and was very similar and homogeneous throughout the entire test pit. The material in each pit had approximately 30 percent of 1-foot diameter sandstone rock throughout the total depth. Refer to the Soil Description in the Appendix B.

### **Percolation Tests**

Percolation tests were conducted at both test pit locations at the drainfield site. The percolation holes were located near the test pits. P-1 reached a depth of 72 inches and P-2 was 60 inches deep. The material encountered in each percolation test hole was logged and recorded. The location of the percolation test holes are shown on the “Proposed Temporary Drainfield “ drawing located in Appendix A.

The test procedure for sandy or granular soils was not used for these tests due to the soil classification. Each hole was filled with clear water to a depth of 12 inches for 4 hours (saturation period). Following the saturation period, the soil was allowed to swell for 23 hours (swelling period). Immediately following the swelling period, the percolation rate measurements were started. The percolation rate for P-1 was 31.25 minutes/inch and P-2 was 27.78 minutes/inch. The average of the two percolation tests was 29.52 minutes/inch. The results of the percolation tests are shown in the Appendix C.

## **DESIGN AND ANALYSIS**

### **Septic Tank Design**

The septic tank was designed according to the Administrative Rules for Onsite Wastewater Systems R317-4-7:

- Design Discharge (Q) (40 x 35 gpd) 1,400 gpd
- For  $Q < 1,500$  gpd, Liquid Volume (V) =  $1.5 \times Q$  2,100 gallons

Dura-Crete or an equivalent manufacturer will provide the 2,500-gallon concrete septic tank.

## Absorption Trench Design

The following design is per the Administrative Rules for Onsite Wastewater Systems R317-4-9

Deep Wall Trenches:

- Design Discharge (Q) 1,400 gpd
- Average Percolation Rate 29.52 minutes/inch
- Maximum Rate of Application (q) (R317-4-9. Table 7) .80 gpd/sq. ft. <sup>(1)</sup>
- Sidewall Area Required (A):  $A = Q/q = 1,400/.8$  1,750 sq. ft.
- Trench Required @ 3' gravel:  $A/\text{Trench sidewall area} = 1,750/6$  300 feet <sup>(2)</sup>

<sup>(1)</sup> Application rate suggested by Claron Bjork to provide additional safety factor.

<sup>(2)</sup> Rounded up to 300 feet.

The drainfield will consist of six laterals 50 feet long. These laterals will be installed parallel to the surface slope. This will allow each line to be laid level without exceeding safe working depths. The distance between trench centerlines will be 20 feet. This will bring the total drainfield perforated pipe to 300 feet (6 x 50').

A junction box will be installed at the north end of each lateral. Dur-crete or an equal supplier will provide these concrete boxes. The junction box will be installed in a manner that will require the water in the first lateral to build up to 2 inches before it flows to the next lateral. The pipe between junction boxes will not be perforated. A drawing of a typical Junction Box is shown in Appendix A.

## **SPECIFICATIONS**

### **Site Preparation and Excavation**

- The bottom of each trench shall be level throughout to ensure a uniform distribution of effluent.
- Excavation equipment, such as a backhoe or bulldozer, shall not travel excessively in the drainfield area and must not be driven over the areas being excavated to minimize compaction and possible reduction of the percolation rate.
- The bottom and sidewalls of the excavated trench shall be left as rough surfaces with any smeared or compacted areas being carefully removed.

### **Backfilling**

- The clean gravel, 3/4 to 12 inches in diameter, used to fill the trench shall be carefully lowered and laid over the bottom instead of being dumped by truck to help avoid any compaction of soil or gravel contamination.
- Thirty-six inches of gravel shall be placed below and two inches above the distribution pipes. This will give an effective 2-inch thick layer above the crown of the 4-inch diameter distribution pipe.
- A thin layer of crushed rock or gravel ranging from 3/4 to 2 1/2 inches in diameter and free from sand, clay or organic material, shall cover stone to permit leveling of the distribution pipe.
- Breathable, non-woven, geotextile polypropylene filter fabric or two inches of straw shall be placed over the gravel. This fabric shall weigh a minimum of 6 ounces per square yard. The purpose of the fabric is to prevent the migration of unconsolidated backfill from entering the gravel. The fabric seams shall be overlapped a minimum of 6 inches.

## **Septic Tank**

- The tank shall be installed level. The outlet of the tank will be lower than the inlet.
- Access to inlet and outlet devices shall be provided through properly placed openings not less than 18 inches in minimum horizontal dimensions.
- The top of the tank shall be at least 6 inches below finished grade.
- If the top of the tank is located more than 18 inches below finished grade, all access openings shall be extended to within 18 inches of the finished grade. Maximum depth to the top of tank will not exceed 30 inches.
- The tank shall be installed in accordance with the manufacturer's recommendations.
- The elevation of the septic tank and drainfield will depend on the final trailer foundation elevation. A grade of 1/4 inch per foot will be maintained in this system from the trailer to the septic tank.
- One cleanout will be installed between the bathhouse trailer and septic tank and another cleanout will be installed after the septic tank.

## **System Requirements**

- To prevent system failure, the drainfield area shall be roped off or fenced to prevent equipment from traveling on or over this area.
- Prior to backfilling the septic tank and laterals in the drainfield, Claron Bjork from the Department of Health will have to make an inspection of these facilities. There will be a \$200 fee for this inspection.

**APPENDIX A**

**DRAWINGS**

**APPENDIX B**  
**SOIL DESCRIPTION**





**APPENDIX C**  
**PERCOLATION TESTS**

RECORD SHEET FOR CONDUCTING SOIL PERCOLATION TESTS  
Utah Division of Water Quality

Name of Project or Development: TEMPORARY SYSTEM Date of Test: 1/29/09

Location of Property: LILA CYN MINE (SE PARKING LOT)

Name of Person Performing Test: TOM PALUSO

Percolation Test No. P-1

Period of time hole was saturated <u>4 HR</u>	Time interval used for measuring water drop <u>30 MIN</u>	Hole width or diameter <u>12"</u>
Total depth of hole <u>72"</u>	Period of time soil permitted to swell <u>23 HR</u>	Depth of water table <u>NONE</u>

Successive Percolation Tests	Initial Depth to (FT) Water	Beginning Time	Final Depth to Water	Ending Time	Distance Water Dropped in Inches	Elapsed Time in Minutes	Perc Rate in Minutes/Inch
1	0.15	11:50	0.42	12:20	3.24	30	9.26
2	0.42	12:20	0.61	12:50	2.28	30	13.16
3	0.61	12:50	0.75	1:20	1.68	30	17.85
4	0.75	1:20	0.87	1:50	1.44	30	20.83
5	0.87	1:50	0.95	2:20	.96	30	31.25
6	0.95	2:20	1.03	2:50	.96	30	31.25
7							
8							

Final Stabilized Percolation Rate: 31.25 minutes/inch

Descriptive log of soil exploration hole No. \_\_\_\_\_

Thickness of Each Stratum

surface to: 72"  
 \_\_\_\_\_ to: \_\_\_\_\_  
 \_\_\_\_\_ to: \_\_\_\_\_

Description and Texture of Each Stratum

SILTY LOAM  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

RECORD SHEET FOR CONDUCTING SOIL PERCOLATION TESTS  
Utah Division of Water Quality

Name of Project or Development: TEMPORARY SYSTEM Date of Test: 1/29/09

Location of Property: LILACYN MINE (SE PARKING)

Name of Person Performing Test: TOM PALUSO

Percolation Test No. P-2

Period of time hole was saturated <u>4 HR</u>	Time interval used for measuring water drop <u>30 MIN</u>	Hole width or diameter <u>12"</u>
Total depth of hole <u>60"</u>	Period of time soil permitted to swell <u>23 HR</u>	Depth of water table <u>NONE</u>

Successive Percolation Tests	Initial Depth to Water	Beginning Time	Final Depth to Water	Ending Time	Distance Water Dropped in Inches	Elapsed Time in Minutes	Perc Rate in Minutes/Inch
1	0.11	11:45	0.23	12:15	1.44	30	20.83
2	0.23	12:15	0.33	12:45	1.20	30	25.00
3	0.33	12:45	0.42	1:15	1.08	30	27.78
4	0.42	1:15	0.51	1:45	1.08	30	27.78
5	0.51	1:45	0.58	2:15	.84	30	35.71
6	0.58	2:15	0.67	2:45	1.08	30	27.78
7	0.67	2:45	0.76	3:15	1.08	30	27.78
8	0.76	3:15					

Final Stabilized Percolation Rate: 27.78 minutes/inch

Descriptive log of soil exploration hole No. \_\_\_\_\_

Thickness of Each Stratum

surface to: 60"  
 \_\_\_\_\_ to: \_\_\_\_\_  
 \_\_\_\_\_ to: \_\_\_\_\_

Description and Texture of Each Stratum

SILTY LOAM  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**LILA CANYON MINE  
PROPOSED SEWAGE SYSTEM**



**Lila Canyon Mine**  
**Proposed Sewage System**

**Introduction**

The Lila Canyon Mine facilities will be located in the Right Fork of Lila Canyon, which is in the Book Cliffs of Carbon County, approximately 10 miles south of Sunnyside, Utah. Due to the remote location, no sewage treatment facilities are available; therefore, it is proposed to treat wastewater with septic tank/drainfield systems.

Lila Canyon is an ephemeral drainage, flowing only in response to rainfall or snowmelt. There are no streams, springs or water wells located within 1500 feet of the proposed treatment facilities. Undisturbed drainage above the minesite is carried around the minesite in natural channels and beneath the sediment pond in a large culvert. Runoff from the mine site is directed to a sedimentation pond where it is held and treated as necessary to meet effluent standards according to the U.P.D.E.S. Discharge Permit.

The proposed drainfield will be in a soil type known as the Strych, which is a stony, fine, sandy loam. Complete soil descriptions are provided in Chapter 2 and on Plate 2-1. Test holes in the area to a depth of 10 feet show no evidence of bedrock or ground water.

**General**

Due to area restrictions and available depth for absorption, it is proposed to use seepage trenches for the drainfield. This allows the main trenches to be installed in native soil beneath the unpaved parking area.

Since the mining permit has not been approved at this time, and the proposed drainfield is in a cut area which would require disturbance, it is not possible to conduct actual percolation tests for the design. Based on recent discussions with the Southeastern Utah Health Department District Engineer, and evaluation of soil types in the area, an allowable volume of 1.0 gal/ft<sup>2</sup>/day is considered acceptable for design of the seepage trenches.

It should be noted that the seepage trenches will be constructed per Exhibit 1. Septic tanks, yard boxes and junction boxes will be standard from Dura-Crete, Inc.

## Design

The septic system has been designed according to R317-5 regulations for Large Underground Wastewater Disposal Systems. Water quantities have been estimated at 35 gallons per day per person based on Table 5.2 (Industrial Buildings). The design for each of the separate facilities is based on the expected maximum number of people using the site. Based on 140 people, the system is designed for 4900 gallons per day.

### Facilities Area

(Includes Office, Shop, Bathhouse and Warehouse)

#### Criteria

140 people

35 gallons/day/person

Allowable Q = 1 gal/ft<sup>2</sup>/day

Area = 4900 gpd/1.00 gal/ft<sup>2</sup>/day = 4900 ft<sup>2</sup>

#### Calculations

---

Q = 140 x 35 = 4900 gpd

Tank = V = 1125 + 0.75 Q = 4800 gallons

Seepage Trench = Allowable Q = 1.00 gal/ft<sup>2</sup>/day

#### Design

Septic Tank - 5000 gallon

Main Drainfield - 4 trenches x 100' long x 6' deep; 18' c-c; Trenches level and connected.

Sidewall Area = 4800 ft<sup>2</sup>

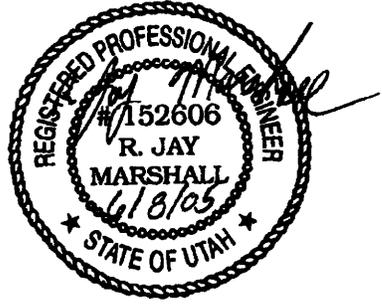
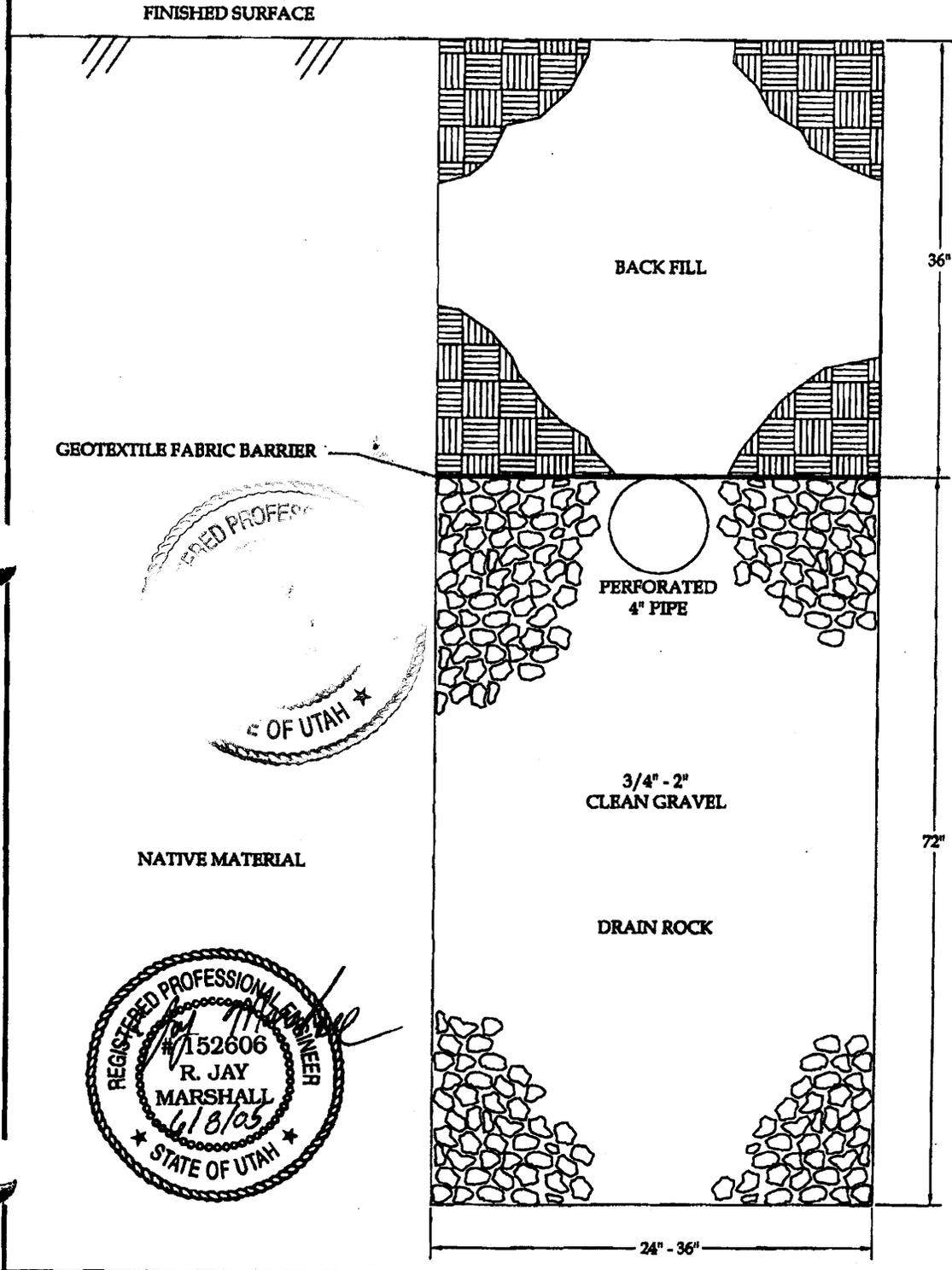
**Summary**

The following is a summary of the separate wastewater disposal system design proposed for this minesite:

<b>Location</b>	<b>Main Facilities</b>
<b>Number of People</b>	<b>140</b>
<b>Septic Tank (gal. Required)</b>	<b>4900</b>
<b>Septic Tank (gal. Proposed)</b>	<b>5000</b>
<b>Drainfield (ft<sup>2</sup> Required)</b>	<b>4800</b>
<b>Drainfield (ft<sup>2</sup> Proposed)</b>	<b>4800</b>
<b>Number of Trenches</b>	<b>4</b>
<b>Trench Length (ft.)</b>	<b>100</b>
<b>Trench Depth (ft.)</b>	<b>6</b>

# EXHIBIT 1

## SEEPAGE TRENCH TYPICAL SECTION



# ESTIMATE

Project: Lila Canyon Coal Project

Sheet 1 of 13

Job No.: 2006022

Date: 8-Nov-07

Area No.: Summary

By: CES

PAGE NO.	DESCRIPTION	U M	EST QTY	MATERIALS		LABOR		EQUIPMENT		SUB CONTRACT		TOTALS
				UN COST	EXT COST							
2	Contractor Mobilization & Indirects			\$2,191.00		\$138,614.00		\$4,527.00		\$382,709.59		\$528,042
3	Clear & Grub, Boulder Clearing					\$18,255.00		\$25,663.00				\$43,918
4	Topsoil Stripping					\$58,179.63		\$154,129.28				\$212,309
5	Subgrade Preparation			\$12,874.00		\$297,029.48		\$684,038.49		\$27,380.00		\$1,021,322
9	Burial of Rock Slope Stone			\$10,450.00								\$10,450
10	Roadbase, Gravel & Paving			\$214,603.40		\$11,089.58		\$13,343.36				\$239,036
11	Storm Water Ditches & Culverts			\$110,491.00		\$65,926.92		\$33,255.59				\$209,674
12	Barriers & Guard Rails			\$107,240.00		\$17,900.00		\$28,700.00				\$153,840
13	Underground Utilities			\$12,874.00		\$6,132.10		\$627.55				\$19,634
	Totals			\$470,723.40		\$613,126.71		\$944,284.27		\$410,089.59		\$2,438,223.96
	Location Factor - labor 48.4% of av.		Discounted			\$316,373.38		\$10,387.13				\$326,761
	Location Factor - Mat' 100.8% of av.		Add	\$3,765.79								\$3,766
	Totals			\$474,489		\$296,753		\$933,897		\$410,090		\$2,111,463

# ESTIMATE

Project: Lila Canyon Coal Project

Job No.: 2006022

Area No.: Contractor Mobilization & Indirects

Sheet 2 of 13

Date: 8-Nov-07

By: CES

ITEM NO.	DESCRIPTION	U M	EST QTY	MATERIALS		LABOR		EQUIPMENT		SUB CONTRACT		TOTALS
				UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	
	Mobile Office	WK	12							\$41.25	\$495.00	\$495
	Generator	WK	12							\$110.00	\$1,320.00	\$1,320
	Project Manager	WK	6	\$2,750.00	\$16,500.00							\$16,500
	Superintendent	WK	12	\$2,575.00	\$30,900.00							\$30,900
	Field Engineer	WK	12	\$1,700.00	\$20,400.00							\$20,400
	Field Clerk	WK	12	\$545.00	\$6,540.00							\$6,540
	Safety	WK	12	\$1,800.00	\$21,600.00							\$21,600
	Night Watchman Security	WK	12	\$2,240.00	\$26,880.00							\$26,880
	Vehicles	WK	36	\$250.00	\$9,000.00							\$9,000
	Toilets	WK	36							\$30.00	\$1,080.00	\$1,080
	Surveying	DY	90							\$1,050.00	\$94,500.00	\$94,500
	Insurance	LT	1							\$120,000.00	\$120,000.00	\$120,000
	Mobilize Equipment	EA	9	\$158.00	\$1,422.00	\$384.00	\$3,456.00					\$4,878
	Main Office Overhead	%	8							\$152,814.59		\$152,815
	Silt Fence	FT	5,100	\$0.41	\$2,091.00	\$0.72	\$3,672.00	\$0.21	\$1,071.00			\$6,834
	Straw Bales	LT	1	\$100.00	\$100.00	\$200.00	\$200.00					\$300
	SWPP Maintenance / Inspections	LT	1			\$1,500.00	\$1,500.00					\$1,500
	Compaction Inspections	LT	1							\$12,500.00	\$12,500.00	\$12,500
	Page Totals			\$2,191	\$138,614	\$4,527	\$382,710	\$528,042				\$528,042



# ESTIMATE

Project: Lila Canyon Coal Project

Sheet 4 of 13

Job No.: 2006022

Date: 8-Nov-07

Area No.: Topsoil Stripping

By: CES

ITEM NO.	DESCRIPTION	U M	EST QTY	MATERIALS		LABOR		EQUIPMENT		SUB CONTRACT		TOTALS
				UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	
	<b>TOPSOIL STRIPPING</b>											
	Pond Area	CY	3,483			\$0.86	\$2,995.38	\$1.21	\$4,214.43			\$7,210
	haul 550 ft and stockpile	CY	3,483			\$0.55	\$1,922.62	\$1.26	\$4,388.58			\$6,311
	Loadout Loop	CY	7,163			\$0.41	\$2,936.83	\$1.60	\$11,460.80			\$14,398
	haul 525 ft and stockpile	CY	7,163			\$0.55	\$3,953.98	\$1.26	\$9,025.38			\$12,979
	Employee Parking & Office	CY	10,500			\$0.41	\$4,305.00	\$1.60	\$16,800.00			\$21,105
	haul 925 ft and stockpile	CY	10,500			\$0.74	\$7,728.00	\$1.68	\$17,640.00			\$25,368
	Coal Pile	CY	10,430			\$0.41	\$4,276.30	\$1.60	\$16,688.00			\$20,964
	haul 1300 ft and stockpile	CY	10,430			\$0.83	\$8,636.04	\$1.89	\$19,712.70			\$28,349
	Warehouse Pad	CY	7,496			\$0.41	\$3,073.36	\$1.60	\$11,993.60			\$15,067
	haul 1750 ft and stockpile	CY	7,496			\$0.83	\$6,206.69	\$1.89	\$14,167.44			\$20,374
	Mine Roadway to 18+00	CY	4,023			\$0.41	\$1,649.43	\$1.60	\$6,436.80			\$8,086
	haul 1500 ft av and stockpile	CY	4,023			\$0.83	\$3,331.04	\$1.89	\$7,603.47			\$10,935
	Mine Roadway 18+00 to Portal	CY	1,575			\$1.72	\$2,709.00	\$2.42	\$3,811.50			\$6,521
	haul 2600 ft and stockpile	CY	1,575			\$1.84	\$2,898.00	\$4.20	\$6,615.00			\$9,513
	Water System Pad	CY	581			\$0.41	\$238.21	\$1.60	\$929.60			\$1,168
	haul 1960 ft and stockpile	CY	581			\$0.92	\$534.52	\$2.10	\$1,220.10			\$1,755
	Secondary Pond	CY	492			\$0.86	\$423.12	\$1.21	\$595.32			\$1,018
	haul 850 ft and stockpile	CY	492			\$0.74	\$362.11	\$1.68	\$826.56			\$1,189
	Topsoil other in ponds and upper mine road to be stripped by 450 hp Dozer, loaded onto trucks with front end loader, hauled to storage pile, and spread w/ small dozer											
	Topsoil in ponds and upper mine road to be stripped with excavator directly into trucks											
	<b>Page Totals</b>		<b>44,002</b>				<b>\$58,180</b>		<b>\$154,129</b>			<b>\$212,309</b>

# ESTIMATE

Project: Lila Canyon Coal Project

Job No.: 2006022

Area No.: Subgrade Preparation

Sheet 5 of 13

Date: 8-Nov-07

By: CES

ITEM NO.	DESCRIPTION	U M	EST QTY	MATERIALS		LABOR		EQUIPMENT		SUB CONTRACT		TOTALS
				UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	
	Assumptions:											
	Excavation of the ponds and the highest section of the mine road are done by 2 CY Excavator and loaded directly into trucks. Mine road after 19+50 costs are 2X. 31 23 16.42 0200											
	Haulage is by 24 CY Articulated Haul Trucks.											
	All other excavation is done by D10R Dozer and excess cut is pushed into piles at each area for pickup & transport to areas requiring fill.											
	Fill from cuts within 200 ft is included with the cut costs. Compaction of such fill is by Padded Single Drum Compactors w/ blades											
	Hauling is by loading with 966G Front End Loader from piles pushed up by Dozer above, hauled by 24 CY Articulated Haul Truck											
	Compaction of hauled fill is by Padded Single Drum Compactors w/ blades											
	Final Grading is by Motor Grader and final compaction of finish surface by smooth drum compactors											
	Cut/Fill Pond											
	Cut (after topsoil stripped)	CY	26,056	\$0.99	\$25,795.44	\$1.39	\$36,217.84					\$62,013
	Place & Compact Fill	CY	916	\$0.40	\$366.40	\$0.92	\$842.72					\$1,209
	Haul Excess Spoil 1600 ft to Coal Pad	CY	25,140	\$1.02	\$25,642.80	\$2.30	\$57,822.00					\$83,465
	Cut/Fill Loadout Loop											
	Cut (after topsoil stripped)	CY	16,762	\$0.48	\$7,961.95	\$1.88	\$31,428.75					\$39,391
	Overexcavate for roadbase	CY	1,720	\$0.48	\$817.00	\$1.88	\$3,225.00					\$4,042
	Place & Compact Fill	CY	826	\$0.82	\$680.62	\$1.92	\$1,585.92					\$2,267
	Haul Excess Spoil 1700 ft to Coal Pad	CY	17,656	\$0.74	\$12,994.82	\$1.68	\$29,662.08					\$42,657
	Page Total				\$22,454.39		\$65,901.75					\$235,043
	Totals forwarded from page 6				\$12,874.00		\$618,136.74					\$932,966
	Totals Subgrade Preparation				\$12,874.00		\$684,038.49					\$1,168,009

# ESTIMATE

Project: Lila Canyon Coal Project  
 Job No.: 2006022  
 Area No.: Subgrade Preparation

Sheet 6 of 13  
 Date: 8-Nov-07  
 By: CES

ITEM NO.	DESCRIPTION	U M	EST QTY	MATERIALS		LABOR		EQUIPMENT		SUB CONTRACT		TOTALS
				UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	
	Cut/Fill Parking / Office Area					\$0.48		\$1.88				
	Cut (after topsoil stripped)	CY	6,546			\$0.48	\$3,109.35	\$1.88	\$12,273.75			\$15,383
	16" Overexcavate for roadbase & gravel	CY	5,845			\$0.48	\$2,776.38	\$1.88	\$10,959.38			\$13,736
	Place & Compact Fill	CY	832			\$0.82	\$685.57	\$1.92	\$1,597.44			\$2,283
	Haul Excess Spoil 1270 ft to Coal Pad	CY	11,559			\$0.92	\$10,634.28	\$2.10	\$24,273.90			\$34,908
	Cut/Fill Secondary Pond											
	Cut (after topsoil stripped)	CY	1,533			\$0.86	\$1,318.38	\$1.21	\$1,854.93			\$3,173
	Place & Compact Fill	CY	72			\$0.82	\$59.33	\$1.92	\$138.24			\$198
	Haul Excess Spoil 1820 ft to Coal Pad	CY	1,461			\$0.92	\$1,344.12	\$2.10	\$3,068.10			\$4,412
	Cut/Fill Mine Road 0+00 to 5+50											
	Cut (after topsoil stripped)	CY	4,542			\$0.48	\$2,157.45	\$1.88	\$8,516.25			\$10,674
	16" Overexcavate for roadbase & gravel	CY	776			\$0.48	\$368.60	\$1.88	\$1,455.00			\$1,824
	Place & Compact Fill	CY	1			\$0.82	\$0.82	\$1.92	\$1.92			\$3
	Haul Excess Spoil 400 ft to Mine Road	CY	5,317			\$0.92	\$4,891.64	\$2.10	\$11,165.70			\$16,057
	Cut/Fill Mine Road 5+50 to 12+00											
	Cut (after topsoil stripped)	CY	-			\$0.48		\$1.88				
	16" Overexcavate for roadbase & gravel	CY	680			\$0.48	\$323.00	\$1.88	\$1,275.00			
	Place & Compact Fill	CY	4,765			\$0.82	\$3,926.36	\$1.92	\$9,148.80			
	Page Total						\$31,595.28		\$85,728.41			\$102,651
	Totals forwarded from page 7						\$242,980		\$532,408			\$815,642
	Totals Forwarded to previous page						\$274,575		\$618,137			\$918,293

# ESTIMATE

Project: Lila Canyon Coal Project

Job No.: 2006022

Area No.: Subgrade Preparation

Sheet 7 of 13

Date: 8-Nov-07

By: CES

ITEM NO.	DESCRIPTION	U M	EST QTY	MATERIALS		LABOR		EQUIPMENT		SUB CONTRACT		TOTALS
				UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	
	Cut/Fill Mine Road 12+00 to 18+00											
	Cut (after topsoil stripped)	CY	6,687	\$0.48	\$3,176.33	\$1.88	\$12,538.13					15714.45
	16" Overexcate for roadbase & gravel	CY	798	\$0.48	\$379.05	\$1.88	\$1,496.25					\$1,875
	Place & Compact Fill	CY	-	\$0.82		\$1.92						
	Haul Excess Spoil 300 ft to Coal Pad	CY	4,625	\$0.92	\$4,255.00	\$2.10	\$9,712.50					\$13,968
	Haul Excess Spoil 60 ft to Warehouse	FCY	6,965	\$0.92	\$6,407.80	\$2.10	\$14,626.50					\$21,034
	Push Excess Spoil to 18+00 to 19+50	CY	520	\$0.92	\$478.40	\$2.10	\$1,092.00					\$1,570
	Cut/Fill Mine Road 18+00 to 19+50											
	Cut (after topsoil stripped)	CY	-	\$0.48		\$1.88						
	16" Overexcate for roadbase & gravel	CY	177	\$0.48	\$84.08	\$1.88	\$331.88					\$416
	Place & Compact Fill	CY	380	\$0.82	\$313.12	\$1.92	\$729.60					\$1,043
	Cut/Fill Mine Road 19+50 to 26+81											
	Cut (after topsoil stripped)	CY	35,151	\$1.72	\$60,459.72	\$2.42	\$85,065.42					\$145,525
	16" Overexcate for roadbase & gravel	CY	864	\$1.72	\$1,486.08	\$2.42	\$2,090.88					\$3,577
	Place & Compact Fill	CY	-	\$0.82		\$1.92						
	Haul Excess Spoil 1170 ft to Warehouse	CY	36,015	\$0.92	\$33,133.80	\$2.10	\$75,631.50					\$108,765
	Cut/Fill ROM Coal Pad											
	Cut (after topsoil stripped)	CY	28,756	\$0.48	\$13,659.10	\$1.88	\$53,917.50					\$67,577
	Place & Compact Fill	CY	77,459	\$0.82	\$63,826.22	\$1.92	\$148,721.28					\$212,547
	Page Total				\$12,874	\$187,658.69	\$405,953.43					\$593,612
	Totals forwarded from page 8				\$55,321	\$27,380	\$126,455					\$222,030
	Totals Forwarded to pervious page				\$12,874	\$242,980	\$532,408					\$815,642







# ESTIMATE

Project: Lila Canyon Coal Project

Sheet 11 of 13

Job No.: 2006022

Date: 8-Nov-07

Area No.: Storm Water Ditches & Culverts

By: CES

ITEM NO.	DESCRIPTION	U	M	EST QTY	MATERIALS		LABOR		EQUIPMENT		SUB CONTRACT		TOTALS
					UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	UN COST	EXT COST	
	2" Gravel in all roadway ditches	TN		884	\$18.50	\$16,354.00							\$16,354
	Place, grade and compact Gravel	SY		2,854			\$0.36	\$1,027.44	\$0.55	\$1,569.70			\$2,597
	18" Corrugated Metal Drain Culvert, Galv.	FT		890	\$17.30	\$15,397.00	\$7.15	\$6,363.50	\$1.19	\$1,059.10			\$22,820
	Culvert End Sections 18"	EA		32	\$110.00	\$3,520.00	\$48.50	\$1,552.00	\$8.10	\$259.20			\$5,331
	60" Pond Bypass Culvert	LF		516	\$110.00	\$56,760.00	\$22.50	\$11,610.00	\$13.60	\$7,017.60			\$75,388
	60" Culvert End Sections	EA		2	\$1,100.00	\$2,200.00	\$350.00	\$700.00	\$212.00	\$424.00			\$3,324
	60" Culvert Tees	EA		3	\$1,100.00	\$3,300.00	\$350.00	\$1,050.00	\$212.00	\$636.00			\$4,986
	6 Rip Rap Culverts	SY		100			\$16.50	\$1,650.00	\$6.95	\$695.00			\$2,345
	6" Rip Rap ditches	SY		1,835			\$16.50	\$30,277.50	\$6.95	\$12,753.25			\$43,031
	Excavate culverts - F.E.L	CY		2,986			\$0.53	\$1,582.58	\$0.44	\$1,313.84			\$2,896
	Backfill & compact culvert	CY		2,986			\$1.15	\$3,433.90	\$0.15	\$447.90			\$3,882
	Excavate Dam for Bypass Culvert	CY		4,000			\$0.29	\$1,160.00	\$0.51	\$2,040.00			\$3,200
	Place Backfill	CY		4,000			\$1.06	\$4,240.00	\$0.52	\$2,080.00			\$6,320
	Compact Backfill	CY		4,000			\$0.32	\$1,280.00	\$0.74	\$2,960.00			\$4,240
	Granular bedding	TN		810	\$16.00	\$12,960.00							\$12,960
	<b>Page Totals</b>					\$110,491		\$65,927		\$33,256			\$209,674





**APPENDIX 5-7**

**LILA CANYON MINE**

**ROCK SLOPE MATERIAL**  
**(Mine Development Waste)**

Appendix 5-7  
Rock Slope Material  
Mine Development Waste

General

The proposed Lila Canyon Mine includes a site and plan for permanent disposal of the rock slope material which by definition is considered "Underground Development Waste. The underground development waste, (rock slope material) will be generated by the construction of the rock slopes. The rock slope material differs from typical underground development waste in that the rock slope material does not contain any coal and consists of siltstone, mudstone and sandstone. Coal and carbonaceous shale are not found in the rock slope material. The rock slope material does not show an acid or toxic potential and is not considered acid and toxic forming material.

The rock slope work will generate approximately 18,660 bank cubic yards of underground development waste (rock slope material). Using a 1.5 bulking or swell factor, the total amount of loose yard of rock slope material to be disposed of in the refuse area is estimated to be 28,000 yd<sup>3</sup>.

The shop/warehouse will be constructed on the material removed from the rock slopes which will contain a very insignificant amount of coal, if any. Under no circumstances will the material removed from the rock slopes contain enough combustibles to induce or continue combustion.

Plate 5-2 shows the location of both a temporary mine development waste (rock pile) and the location where the rock slope material will be buried.

Although washing of coal is not proposed, it is likely that some coal processing waste will be generated by the operation of the screening plant and from the mine itself. Underground development waste, other than the rock slope material, will be temporarily stored in the location shown on Plate 5-2.

The amount of coal processing waste that will be generated by the operation of the screening plant and from the mine itself is difficult to predict but expected to be very insignificant. Once enough material has been collected the material will be transported by truck to ECDC or other approved location, for permanent disposal. Permanent disposal of "Coal Mine Waste" other than the rock slope material, will be at the ECDC site.

The following sections will describe the ground preparation, placement, and reclamation procedures for the rock slope material. All the rock slope material will be placed in an incised area.

#### Ground Preparation

Vegetation and topsoil will be removed from the proposed rock slope storage area and stored in the topsoil pile as shown on Plate 5-2.

#### Placement of Underground Development Waste (Rock Slope Material)

Rock slope material will be dumped and compacted on the material supply pad. The material will be placed on the pad compacted in 24" lifts using a front end loader. Once all the rock slope material is placed and compacted.

The dumping (placing) of material on the pad is NOT the same as "end dumping". End Dumping is defined by the Bureau of Mines as "Process in which earth is pushed over the edge of a deep fill and allowed to roll down the slope."

#### Testing of the Rock Slope Material

Material from the rock slope portals will be tested five times that will take place as follows: during the initial start up, at the 1/4 mark, the 1/2 mark, the 3/4 mark and near completion of the rock slopes. Analysis of the first test is included at the end of Appendix 6-2 with other acid and toxic analysis.

Testing parameters for the rock slope material will be as per Table 1.

### Spreading and Compaction

Compaction will take place using a wheeled loader during the filling operation. Upon final reclamation the topsoil will be redistributed over the rock slope storage area and reclaimed as per chapter 3. The total cover over the rock slope material area, when considering the subsoil and topsoil, will be a minimum of 4' if the material is found to be acid or toxic forming.

### Pad Configuration and Drainage

Runoff from the rock slope storage area will be directed into the Sediment Pond as shown on Plate 7-5.

### Site Inspection

The rock slope material storage area will be inspected under the supervision of a qualified registered professional engineer during construction.

If such inspection discloses a potential hazard, the inspector will immediately notify the regulatory authority of the hazard and the emergency procedures to be implemented.

### Reclamation

Upon completion of the active mining operation, the rock slope material disposal area will be covered with topsoil and seeded according to the approved plan. Runoff from the reclaimed disposal area will continue to flow to the sediment pond until Phase II Bond Release requirements for the reclaimed site are met.

## TABLE 1

### Rock Slope Material

List of  
Test Parameters for Acid & Toxic Material  
(As per personal conversation with Priscilla 12/29/04)

Ph  
EC  
SAR  
Available Boron  
Soluble Selenium  
Acid Base Potential  
Texture  
Water Holding Capacity  
Total Nitrogen  
Nitrate as Nitrogen  
% Organic Carbon

## **Reclamation and Enhancement Plan Associated with the Lila Canyon Mine Site**

### **I. Description of Existing Area**

The Lila Canyon Mine constitutes approximately 42.6 acres within the disturbed area boundary. For the purpose of reclamation, the total area is divided into two units. The upper unit consists of the water treatment area and the portal pad. The lower unit consists of the majority of the facilities; bath house, parking, shop, and coal handling structures, (See Plate 5-2 Surface Facilities). In addition to the above, there is a spoil/refuse disposal area and a sediment pond. The actual disturbance, pads, silos, coal processing structures, parking constitute a total of 33.86 acres. The pond is the only structure that will remain through phase 2 bond liability.

This new disturbance constitutes a loss of approximately 40 acres of critical high value big game winter range. In addition, it distracts from the general aesthetics of the upper reaches of Lila Canyon.

The following reclamation plan is designed to rehabilitate this area to such a degree that the appearance would be aesthetically compatible with the adjacent undisturbed area and reestablish a desirable and diverse vegetative cover that will enhance wildlife habitat and domestic grazing.

### **II. Demolition and Clean Up**

After abandonment the area will be cleared of all mine related material and structures. The majority of the coal handling equipment; belt lines, conveyors, and some of the metal fab buildings, will be sold as used equipment and removed prior to demolition. The balance of the structures will be demolished utilizing heavy equipment such as; dozers, loaders, trackhoes, various shears for steel dismantling etc. The trash (non metal, non concrete material) will be removed from the site and hauled to an approved land fill. Any contaminated soil or debris, such as coal refuse, that has petroleum additives would be hauled to an approved disposal site. The balance of the non-combustible, non-ferrous debris such as concrete would be buried on site.

All material with salvage value would be removed by a licensed salvage company.

### **III. Reclamation Plan**

Following the cessation of mining, the portal cuts can be brought back to approximate original contours.

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**Plant and Animal Science  
 Department**

Name Uath American Energy, Inc.  
 Street 794 N. 'C' Canyon Rd  
East Carbon UT 84520  
 City State Zip

**SOIL TEST REPORT  
 AND  
 RECOMMENDATIONS**

Date: 24-Apr-09  
 Telephone: 435-888-4000  
 Fax: 435-888-4002

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Rock Slope Material	Turf	8.07	63.72	23.72	12.56	Sandy Loam		0.09

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Nitrate-Nitrogen ppm N	20.55			X			apply 60 lbs of N/ac
Selenium ppm Se	1.53						
Boron ppm B	0.45						
Salinity-ECE dS/m	8.40					X	salinity a problem for most crops
Moisture % 1/3 bar	10.72						
Moisture % 15 bar	2.50						
Moisture % Avail.	8.22						
SAR-Sodium Absorption Ratio	6.67		X				no sodium hazard
Calcium-SAR ppm Ca	552.00						
Magnesium SAR ppm Mg	344.50						
Sodium SAR ppm Na	814.08						
Sulfur % S	0.02						apply 20 lbs of S/ac
Ca Carbonate %CaCO3	6.33						
Total N ppm total N	0.00						
Acid-Base pot. tons/1000 tons	64.32						No Problem