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 correl 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.

Coal Pile Road

The Coal Pile Road Is shown on plate 5-2. The Coal Pile Road will be 15' wide and will follow the existing contours approximately 400' from the Portal Access Road to the ROM coal pile. The Coal Pile Road is an ancillary road due to its infrequently used by a front end loader or pickup truck.

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:

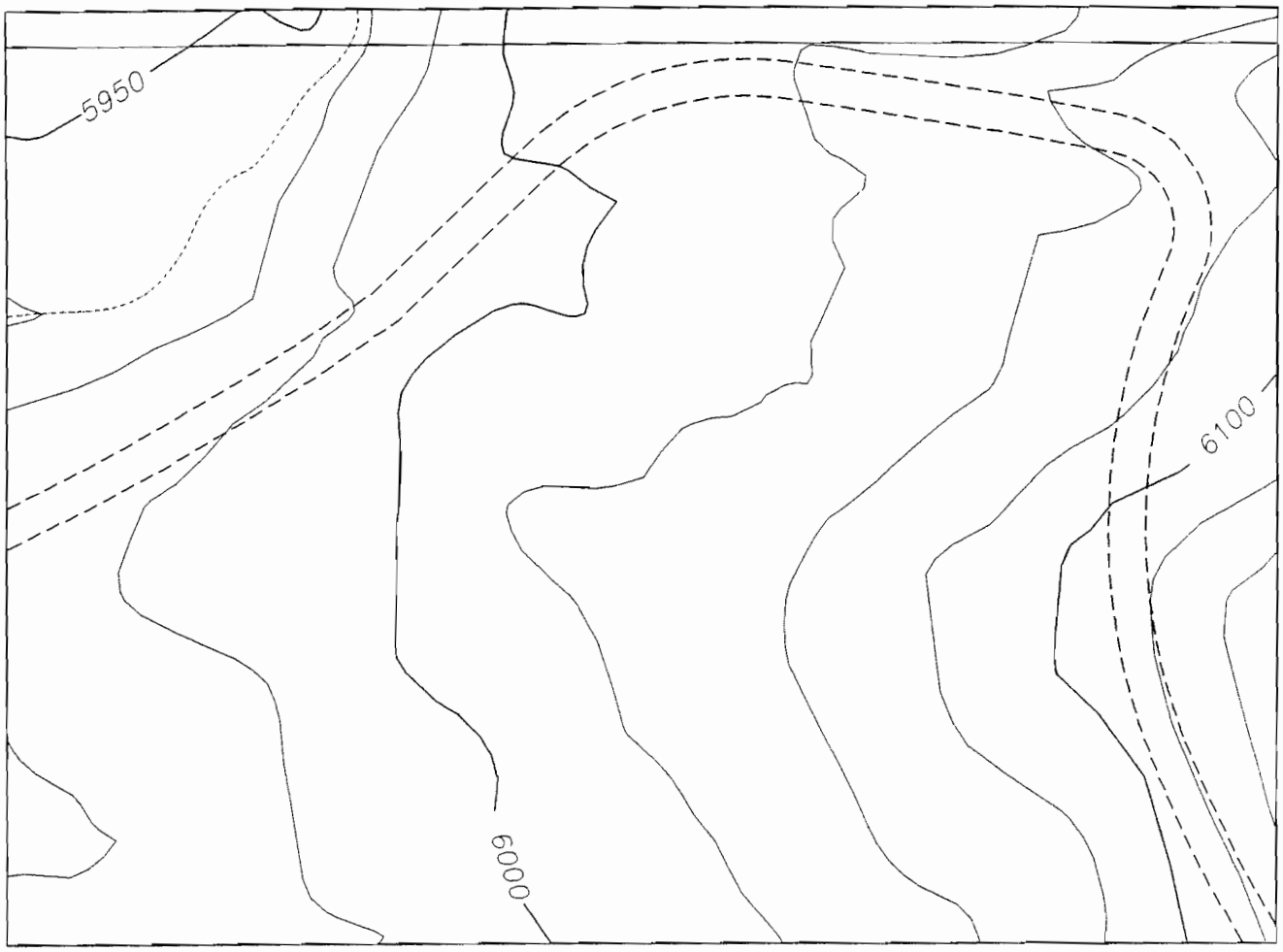
Several vehicle ways off from the Little Park road are used by UEI for water monitoring. UEI will continue to use these vehicle ways frequently for water and subsidence monitoring. The vehicle ways vary from 5 to 15 feet wide. These ways are located either in dry stream channels, or are old drilling 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.

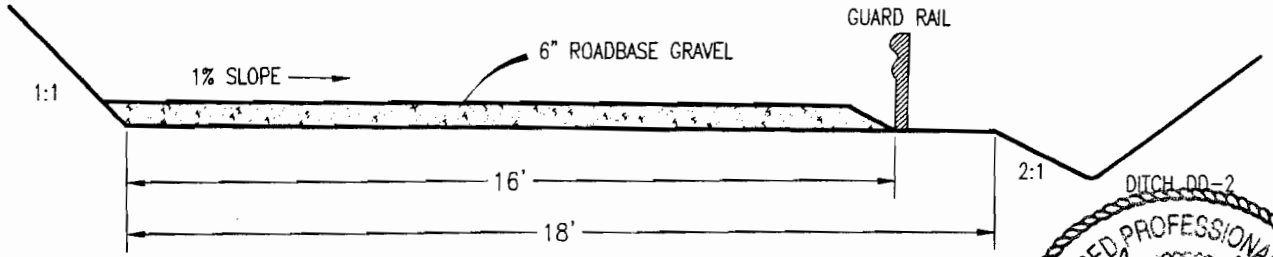
Table 1 Mass Balance Proposed Construciton				
***Section**	**Cut**		**Fill**	
	Area (ft^2)	**Volume (cu. yds.)**	**Area (ft^2)**	**Volume (cu. yds.)**
0+00	0.00	0.00	0.00	0.00
2+00	0.00	0.00	0.00	0.00
4+00	1784.85	6610.56	964.22	3571.19
6+00	207.65	13990.19	983.96	10786.67
8+00	0.00	14759.26	726.82	17122.89
10+00	1523.94	20403.48	1616.00	25800.00
12+00	2165.36	34067.56	315.45	32953.52
14+00	0.00	42087.41	427.55	35705.37
16+00	0.00	42087.41	38.00	37429.63
18+00	26.39	42185.15	586.22	39741.56
20+00	0.00	42282.89	308.89	43056.78
22+00	0.00	42282.89	0.00	44200.81
24+00	0.00	42282.89	0.00	44200.81
26+00	0.00	42282.89	0.00	44200.81
Totals		**42282.89**		****44200.81**

* See Plates 5-2, 5-7A, and 5-7B.

** Includes 27,540 cu. yds. from rock slopes.

TYPICAL ROAD SECTION





(NOT TO SCALE)

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MARSHALL
6/10/05
STATE OF UTAH

Figure 1

New Slope Access / Portal Access Road
Main Mine Road

DESIGN

See Appendix 5-4 and Plate 5-2 for additional information:

Main Mine Road Profile
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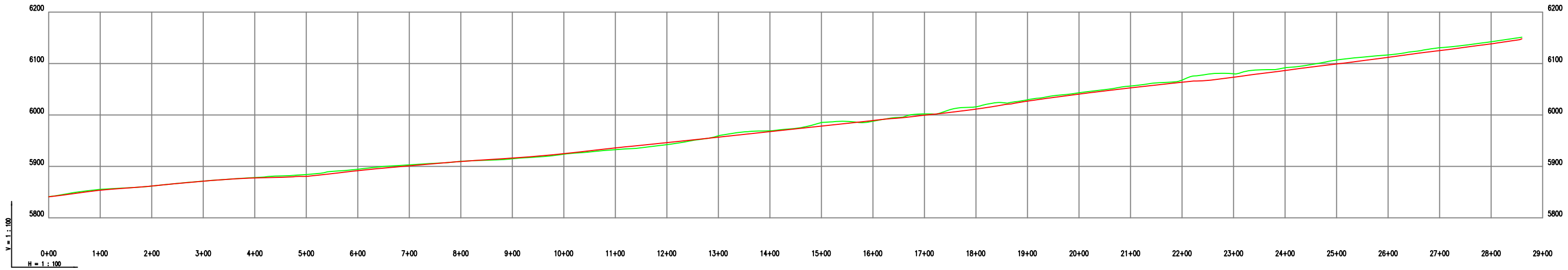
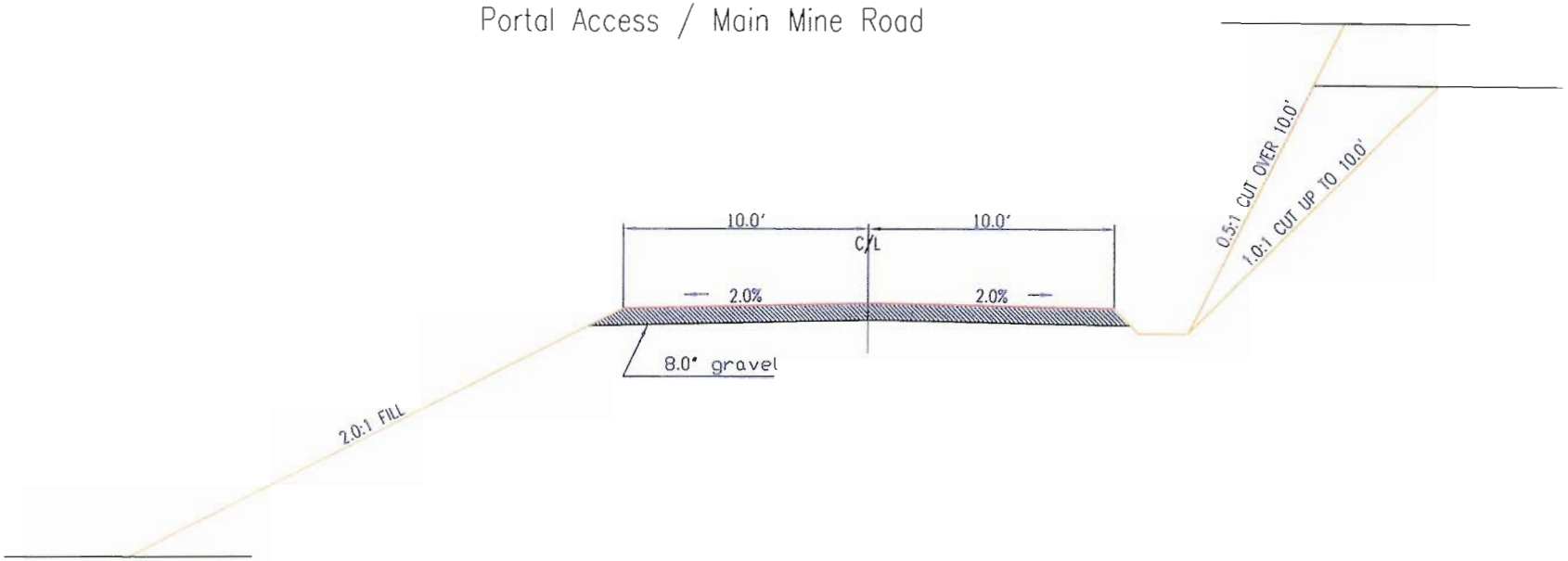


Typical Crossection

Portal Access / Main Mine Road



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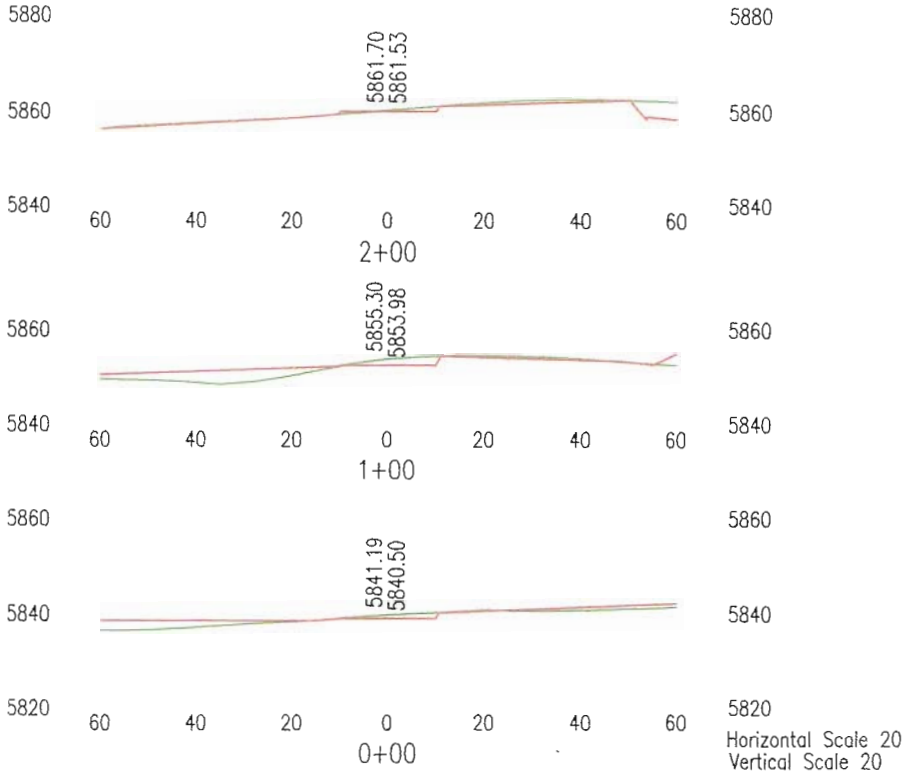
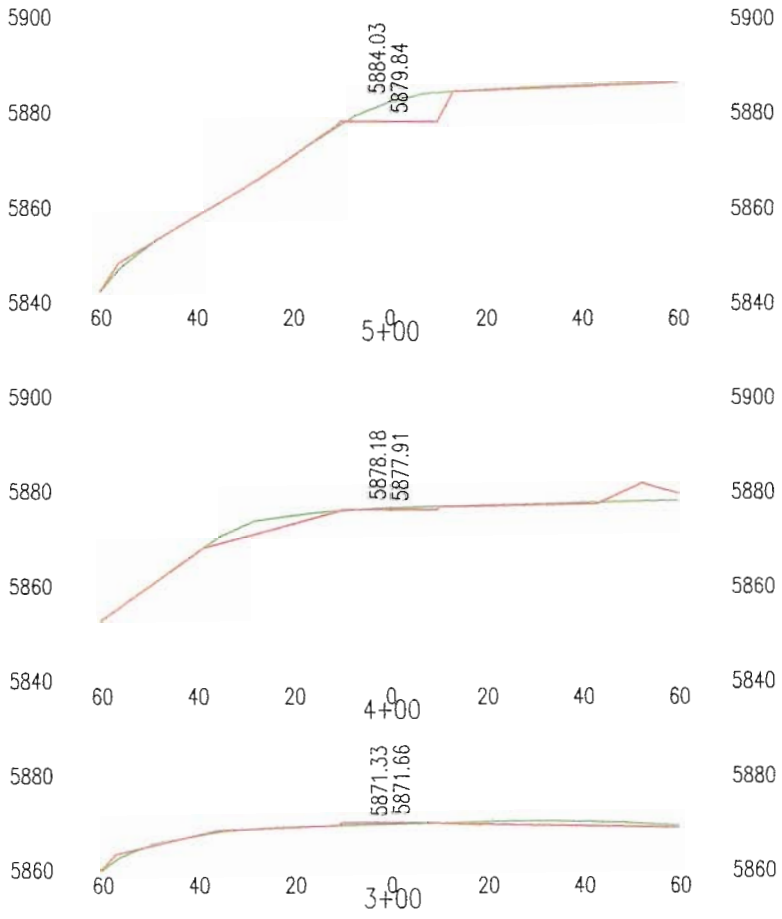


Page 1
Scale 1'=40'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3+00

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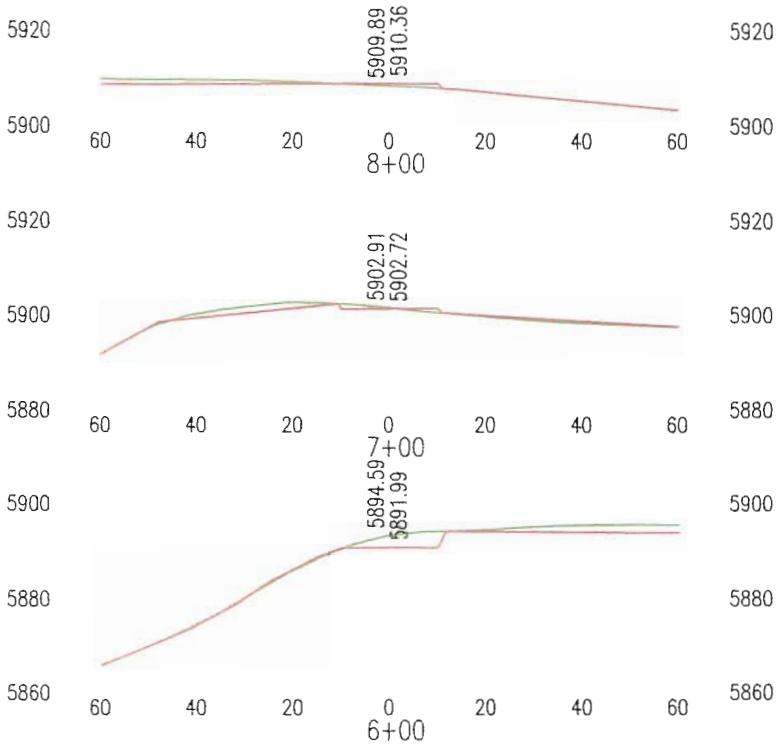
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7+00
5900
5880
5860
5894.59
5891.99
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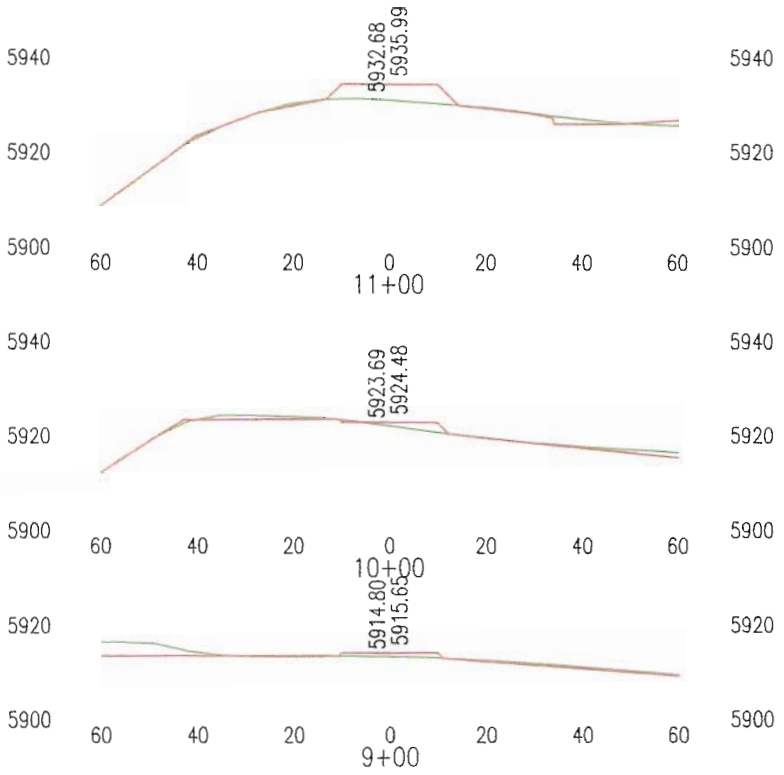

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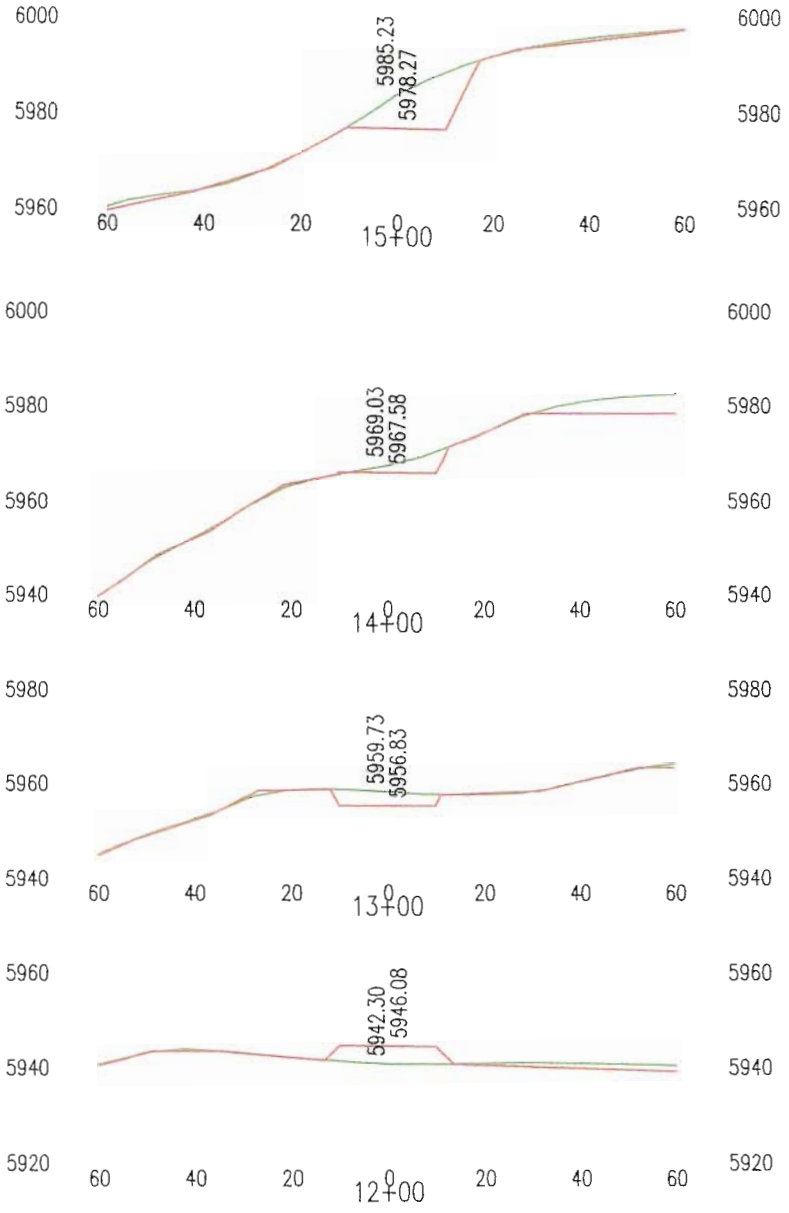
STATE OF UTAH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5959.73
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13+00
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5940
5920
5942.30
5946.08
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Scale 1"=40'


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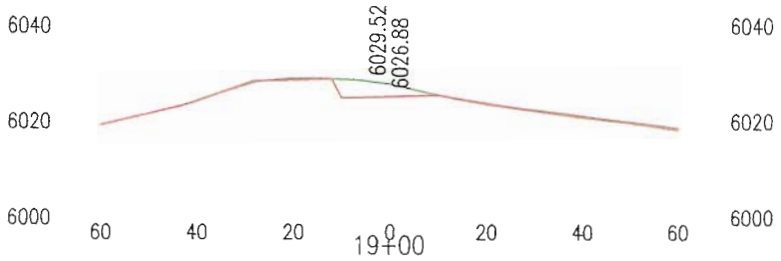
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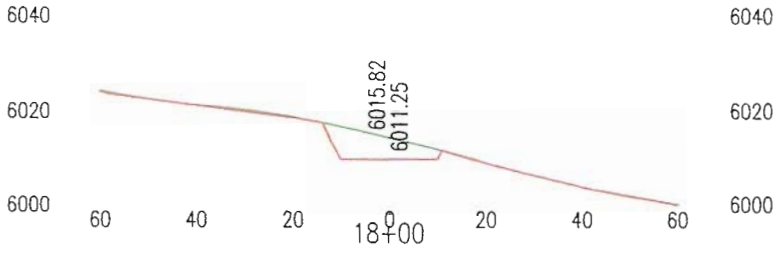
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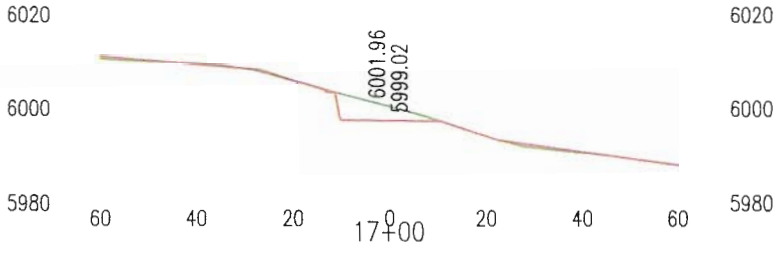
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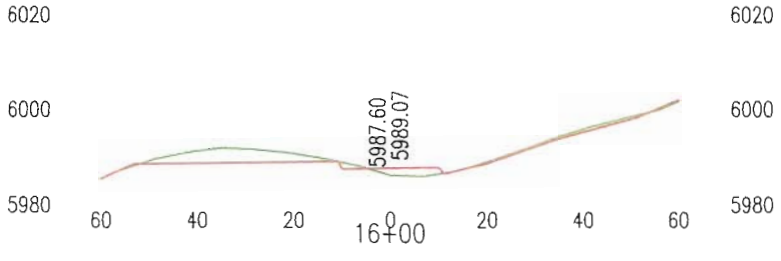
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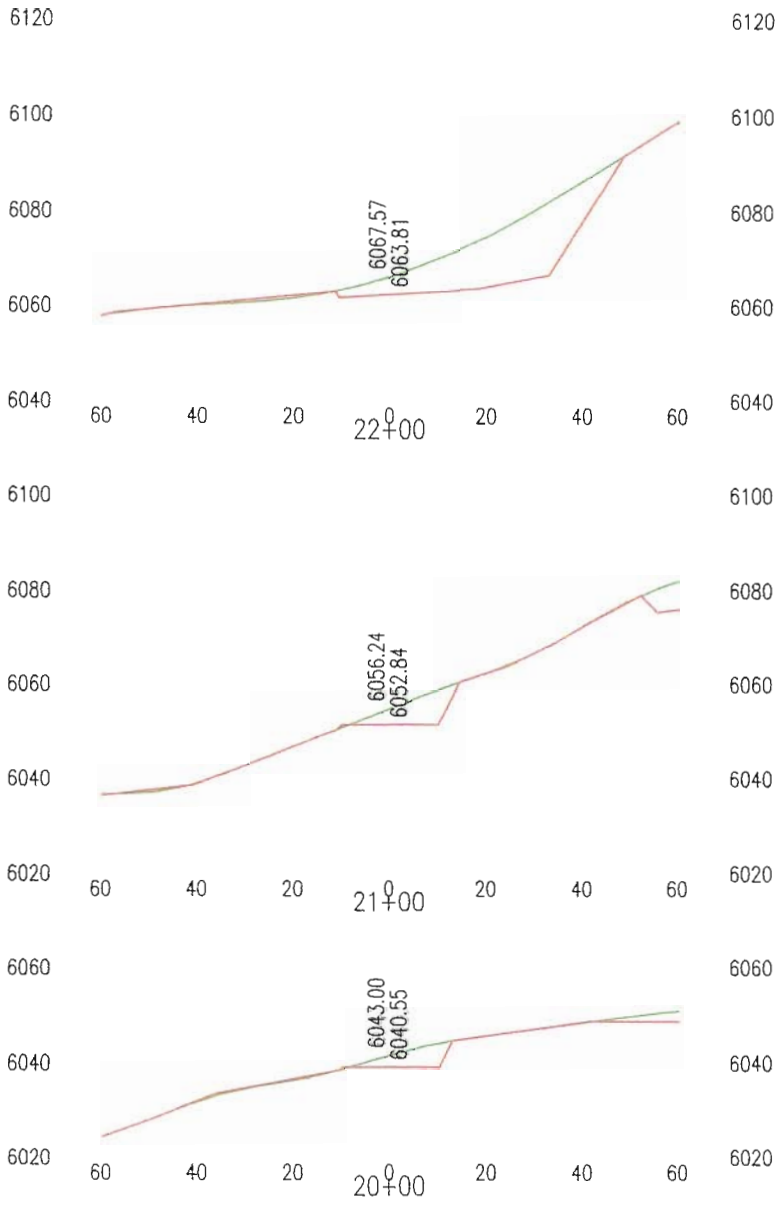

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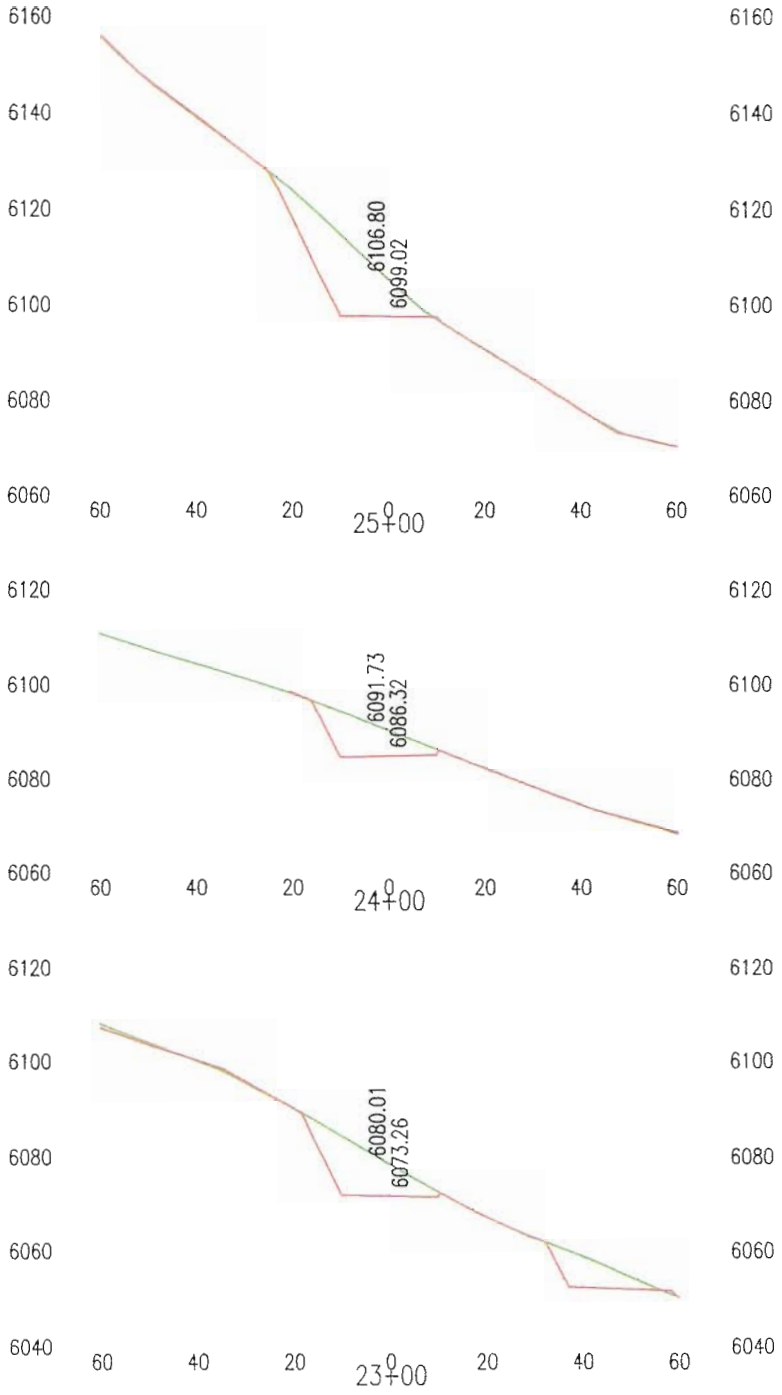

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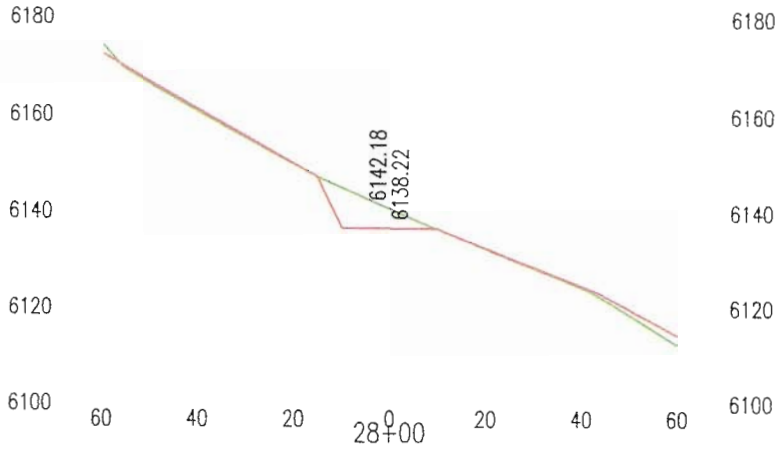
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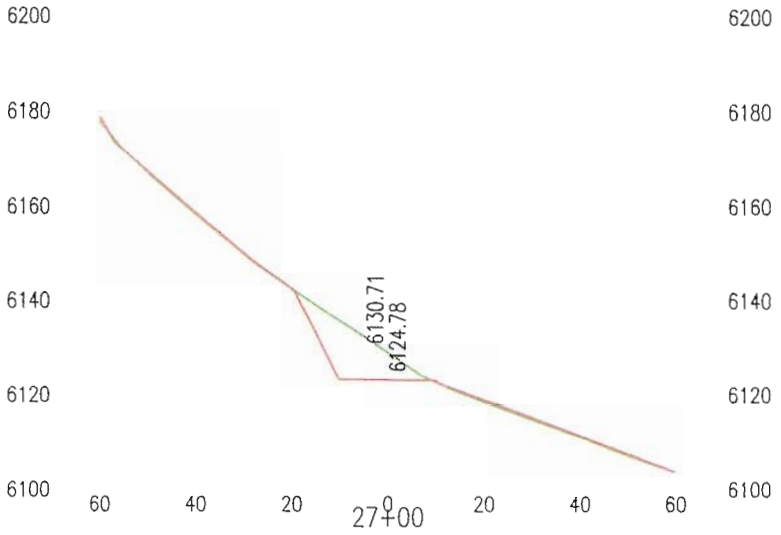
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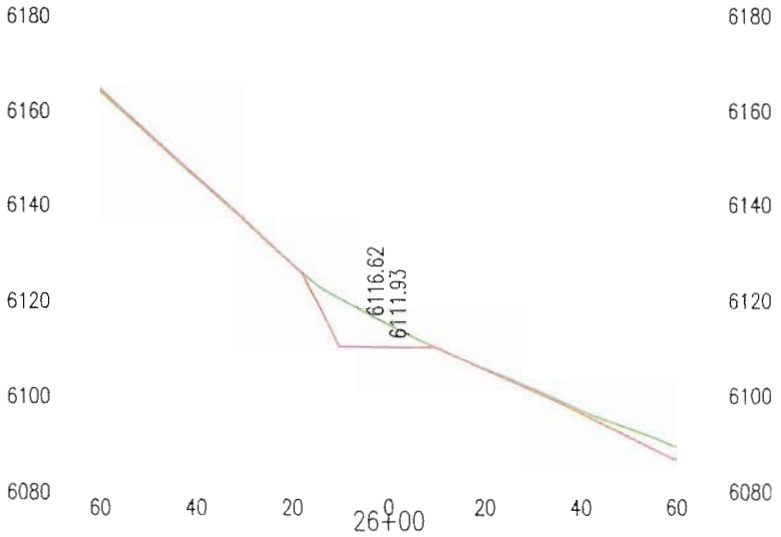
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Scale 1"=40'


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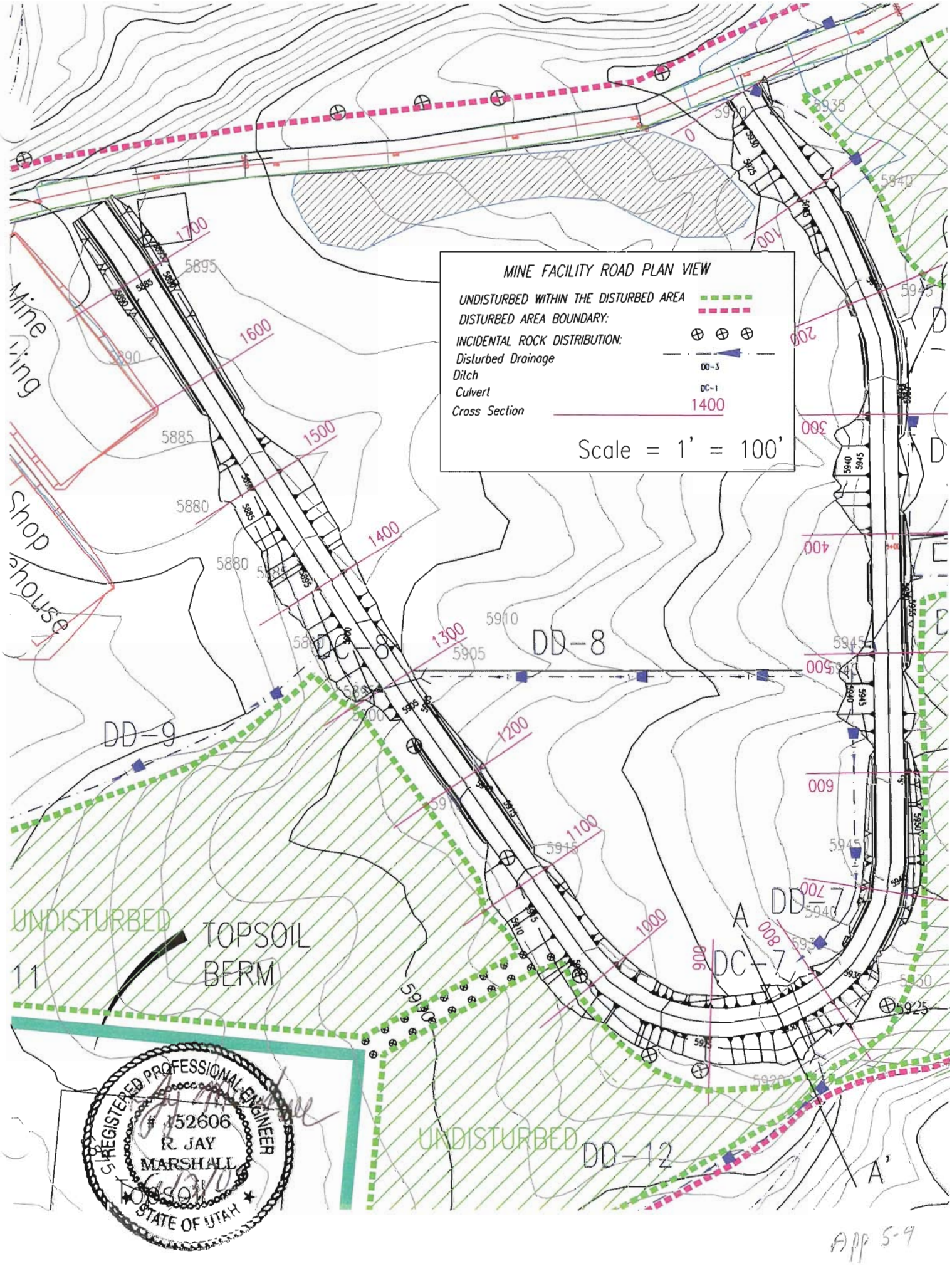
Mine Facility Road

DESIGN

See Appendix 5-4 and Plate 5-2 for additional information:


MINE FACILITY ROAD PLAN VIEW
UNDISTURBED WITHIN THE DISTURBED AREA
DISTURBED AREA BOUNDARY:
INCIDENTAL ROCK DISTRIBUTION:
Disturbed Drainage
DD-3
Ditch
Culvert
DC-1
Cross Section
1400
Scale = 1' = 100'
DD-8
DD-9
DD-7
DD-12
DC-8
DC-7
A
A'
UNDISTURBED
TOPSOIL BERM
UNDISTURBED
TOPSOIL
Mine
Shop
Shop
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
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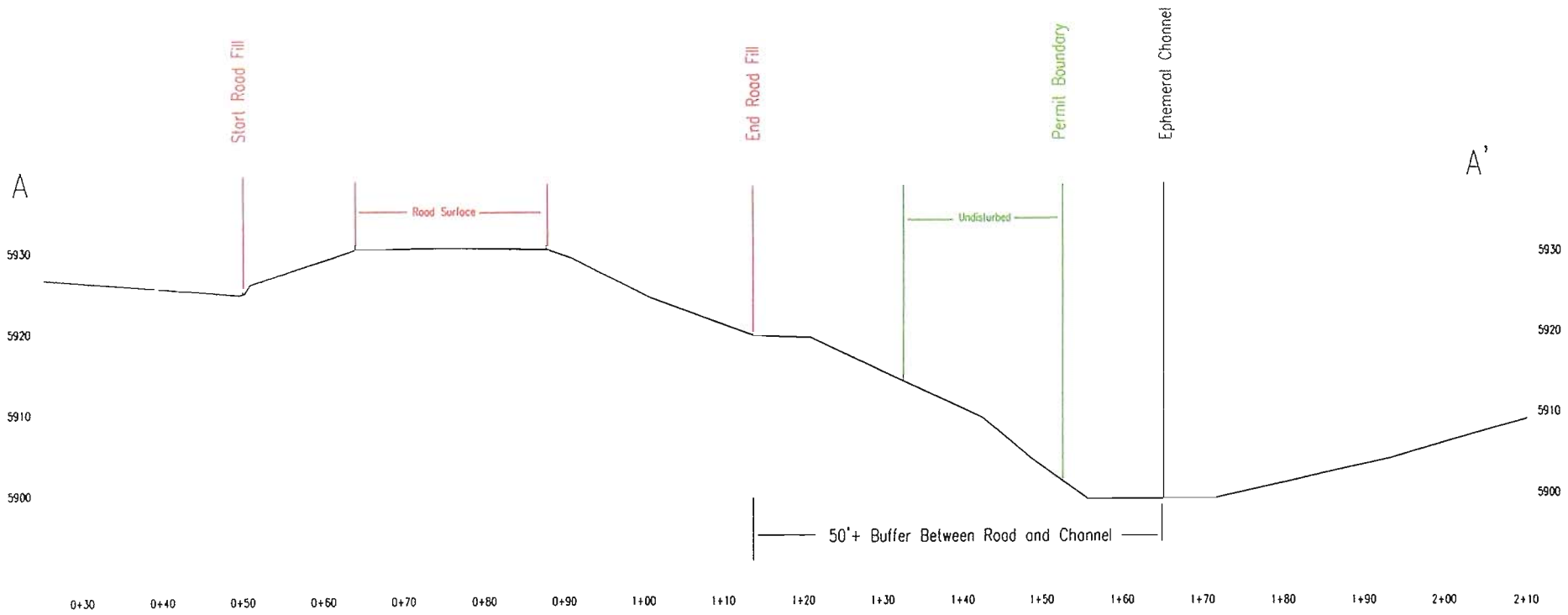
App 5-4



Section A – A'

Scale = 1"=20'

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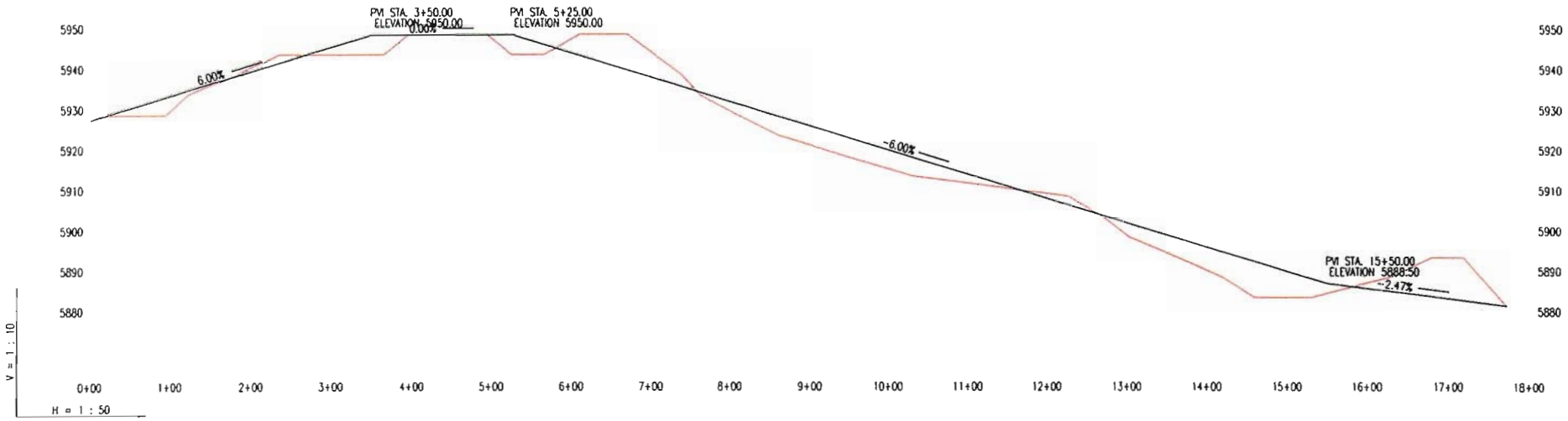
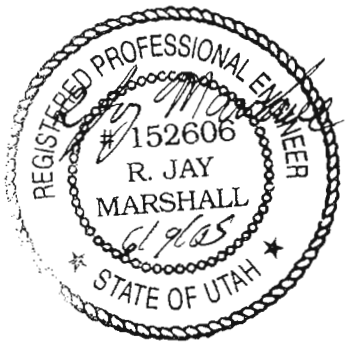
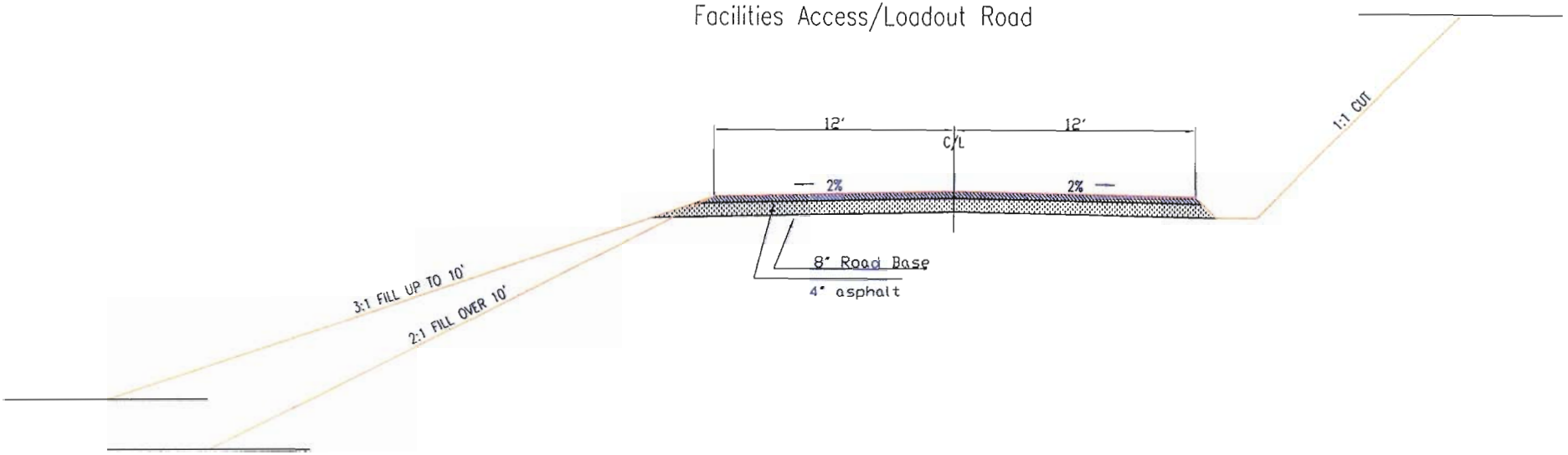
Loadout Road Profile
1"=200'





Typical Crossection

Facilities Access/Loadout Road



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Horizontal Scale 50
Vertical Scale 25

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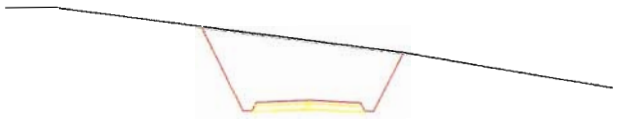
0

7 + 00

5955
5945
5935



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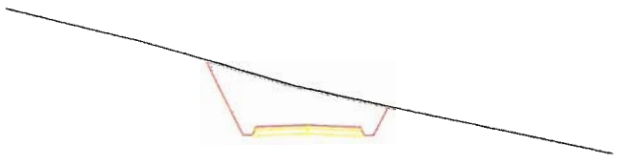

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Horizontal Scale 50
Vertical Scale 25

Horizontal Scale 50
Vertical Scale 25

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6/9/08
STATE OF UTAH

Horizontal Scale 50
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REGISTERED PROFESSIONAL ENGINEER
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6/9/03
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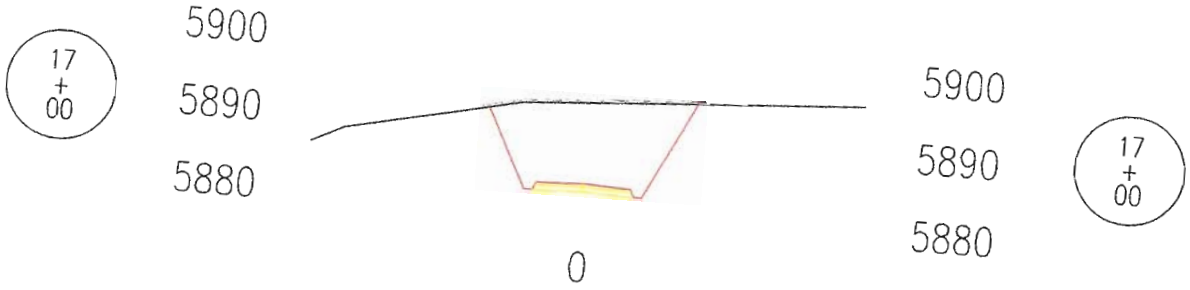

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Vertical Scale 25

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^2/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^2/day
Area = 4900 gpd/1.00 gal/ft^2/day = 4900 ft^2

Calculations

Q = 140 x 35 = 4900 gpd
Tank = V = 1125 + 0.75 Q = 4800 gallons
Seepage Trench = Allowable Q = 1.00 gal/ft^2/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^2

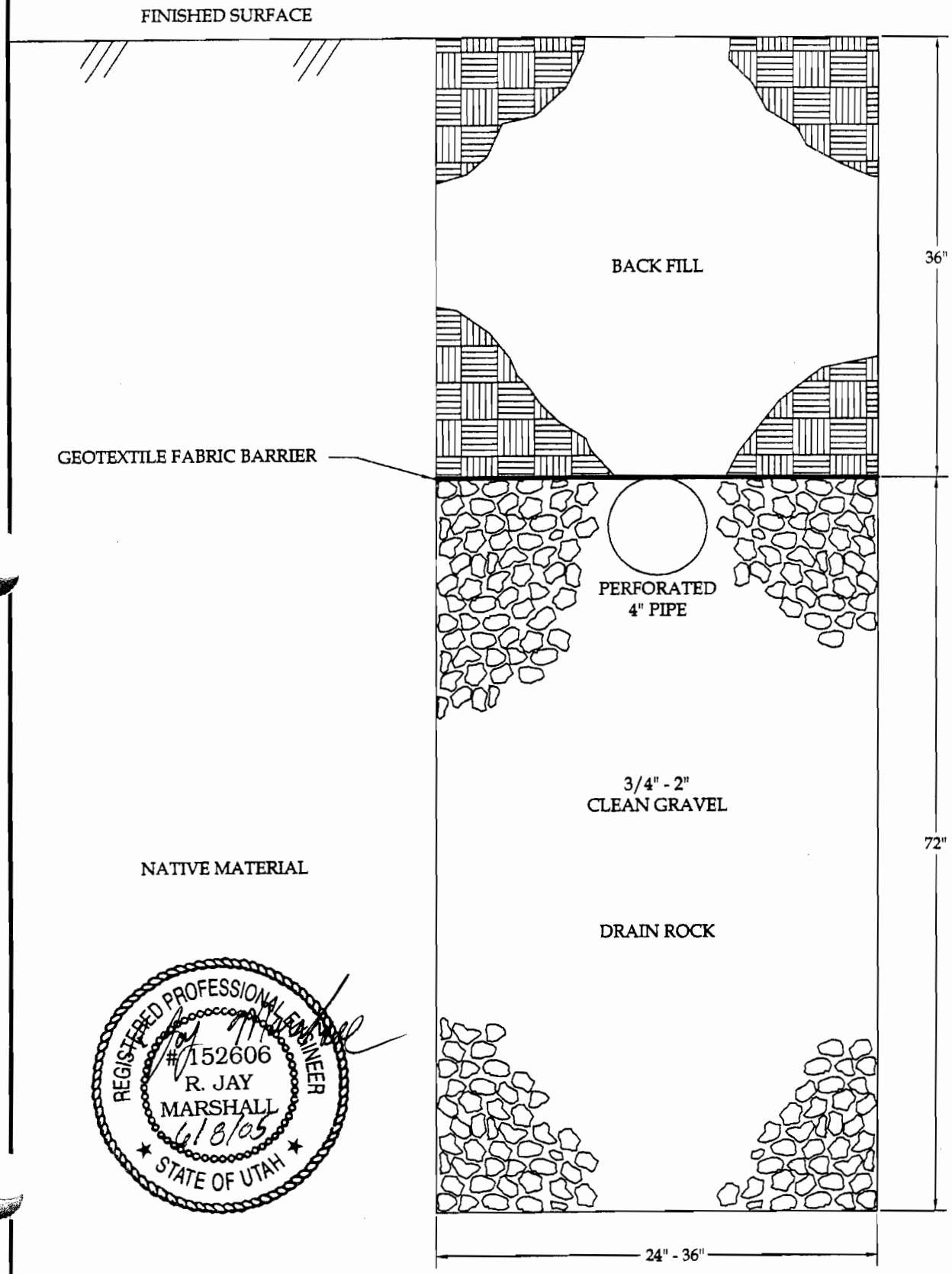
Summary

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

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

EXHIBIT 1

SEEPAGE TRENCH
TYPICAL SECTION



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R. JAY
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