

Photograph Number 6 - Looking south: D-Primary Road (main access and coal haulage); F-Storage Shed; H-Secondary Road (portal area access); M-Diesel Fuel Storage Tank

Exhibit 14  
RECLAMATION COST CALCULATIONS

## RECLAMATION COST CALCULATIONS

### Area/Volume Estimates

#### Conveyor Structure

300 lf

#### Debris Removal from Portal Pad Area

0.31 acres, 0.5 ft thick = 250 yds<sup>3</sup>

Average push distance - 100 foot level

#### Backfilling and Grading

Grading

Volume = 5,700 LCY

Average push distance - 40 feet uphill 20%

#### Access Road

Volume = 640 x 20 x 3 = 1,422 yds<sup>3</sup>

540 x 10 x 3 = 600 yds<sup>3</sup>

2,022 yds<sup>3</sup>

Average push distance for crawler tractor - 50 feet uphill 3%

#### Portal Backfilling

Backfill portals 10 feet

Volume = (37 yds<sup>3</sup>/portal) x (3 portals) = 111 cubic yards

Caterpillar Wheel Loader push distance - 50 feet level

#### Removal of Culverts

7 culverts

Push distance wheel loader - 50 feet level

#### Removal of Footings and Foundations

Volume - 3,307 cubic yards

Average haul distance = 500 feet

Replacement with wheel loader

Topsoil/Topsoil Substitute Replacement

Volume - 3,307 cubic yards

Average haul distance = 500 feet

Replacement with wheel loader

Scarification

Area - 4.1 acres - 178,596 feet<sup>2</sup>

Scarify on 6 foot centers with crawler tractor with ripper

Mulching, Seeding, and Planting

Area - 4.1 acres

Prepare seed bed with farm implements

Seed

## PRODUCTIVITY ESTIMATES

### Debris Removal from Pad Area

250 yds<sup>3</sup> coal debris

Use D7G crawler tractor with "U" blade and double shanked ripper

Average push distance - 100 foot level

Base productivity - 210 LCY/hr unadjusted

Production factors

Average operator 0.75

Slot dozing 1.20

Job efficiency 0.84 (50 min/hr efficiency)

Swell factor 25%

$(210 \times .75 \times .84 \times 1.20) \div 1.27$  BCY/hr adjusted production

Time = 250 BCY  $\div$  127 BCY/hr - 2 hours

### Backfilling and Grading

Portal pad area and facilities area

Use D7GU crawler tractor with "U" blade and double shanked ripper

450 LCY/hr unadjusted

Production factors

Average operator 0.75

Slot dozing 1.20

Job efficiency 0.84 (50 min/hr efficiency)

Swell factor 25%

Grade .97 (3% uphill)

$(450 \times .75 \times 1.20 \times .84 \times .97) = 393$

Time = 5,700 LCY  $\div$  393 = 15 hours

### Access Road

Utilize D7G dozer with "U" blade

Unadjusted productivity 425 LCY

Production factors

Average operator 0.75

Job efficiency 0.84

Swell factor 25%

Job condition 0.60

$(425 \times .75 \times .84 \times .60) \div 1.25 = 1.29$

Time = 2,022 BCY  $\div$  129 = 16 hours

### Final Grading

Utilize D7G crawler tractor equipped with "U" blade and ripper

Production factors

Average operator	0.75
Job efficiency	0.84
Swell factor	25%
Job condition	0.6

Productivity 12 feet wide pass at 1 mph each = .75 acres/hr

Time = 4.1 acres ÷ .75 acres/hr = 5.5 hrs

### Topsoil Replacement

Utilize Caterpillar 980 C wheel loader

Production factors

Fill factor	0.9
Swell factor	15%
Average travel speed	4 mph
Cycletime	1.0 mph
Capacity	5.0 LCY
Job efficiency	0.84
Average operator	0.75

$(5.0 \times .9 \times .84 \times .75) \div 1.15 = 2.5 \text{ BCY/min} = 150 \text{ BCY/hr}$

Time = 3,307 BCY ÷ 150 BCY/hr = 22 hr

### Scarification

Utilize D7G crawler tractor equipped with "U" blade and ripper

3,200 ft<sup>2</sup>/pass

Speed 1 mph

6 foot center, 200 foot pass length

Cycle time = 4.5 minutes

Production factors

Average operator	0.75
Job efficiency	0.84

$60 \text{ min/hr} \div 4.55 \text{ min/cycle} \times 3,200 \text{ ft}^2/\text{cycle} = 42,195 \text{ ft}^2/\text{hr} = 0.97 \text{ acres/hr}$

Time = 4.1 acres ÷ 0.97 acres/hr = 4 hours

Removal of Footings and Foundations

Caterpillar 980 C wheel loader

1,900 cubic yards ÷ 34 cubic yards/scheduled hr = 59 hours

10 ton truck

Same hours as loader = 59 hours

Removal of Culverts

Caterpillar 980 C wheel loader

7 culverts ÷ 1 culvert/hour = 7 hours

10 ton truck

Same hours as loader - 7 hours

Removal and Disassembly of Buildings

1 40 ton crane - 8 hours

COST ESTIMATE

Conveyor Structure Removal

300 lf @ \$11.47/lf \$ 3,441.00

Debris Removal

1 D7G Dozer @ \$52.74/hr for 2 hours 105.48

Wages - 2 hours @ \$10/hr 20.00

Backfilling and Grading

1 D7G Dozer @ \$52.74/hr for 15 hours 791.10

Wages - 15 hours @ \$10/hr 150.00

Final Grading

1 D7G Dozer @ \$52.74/hr for 5.5 hours 290.07

Wages - 5.5 hours @ \$10/hr 55.00

Topsoil Replacement

1 Caterpillar 980C Wheel Dozer @ \$45.31/hr for 22 hours 996.82

Wages - 22 hours @ \$10/hr 220.00

Scarification

1 D7G Dozer @ \$52.74/hr for 4 hours 210.96

Wages - 4 hours @ \$10/hr 40.00

Mulching, Seeding, and Planting

Farm implements - 6 hours @ \$35.00/hr 210.00

Seed and fertilizer - 4.1 acres @ \$500/acre 2,050.00

Wages - 6 hours @ \$10/hr 60.00

Removal of Footings and Foundations

1 Caterpillar 980C Wheel Dozer @ \$45.31/hr for 59 hours 2,673.29

1 10 ton truck @ \$27.11/hr for 59 hours 1,599.49

Wages - 2 @ \$10/hr for 59 hours 1,180.00

Removal of Culverts

1 Caterpillar 980C wheel loader @ \$45.31/hr for 7 hours	\$	317.17
1 10 ton truck @ \$27.11/hr for 7 hours		189.77
Wages - 2 @ \$10/hr for 7 hours		140.00

Removal and Disassembly of Buildings

1 40 ton crane @ \$63.63 for 8 hours		509.04
Wages - 5 @ \$10/hr for 8 hours		400.00

Site Maintenance

5,000.00

Equipment Mobilization

750.00

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Sub-Total		\$21,399.19
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Contingency (10%)		2,139.92
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Total Cost Estimate		\$23,539.11
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Rounded Off		\$23,600.00
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Exhibit 15  
SOILS INFORMATION

SOIL SURVEY AND INTERPRETATIONS  
PRELIMINARY VEGETATION SURVEY

for

Blazon Mining Company

March 11, 1980

Gary Moreau, District Conservationist

Earl Jensen, Soil Scientist

George Cook, Range Conservationist

The proposed Blazon Mine area is located one mile south of Clear Creek, Utah, in Carbon County. At the request of Joe Harvey representing Blazon Mining Company and the Price River Watershed Soil Conservation District, the Soil Conservation Service performed a soil survey on the proposed mining site. The survey was designed to comply with the Permanent Regulatory Program, Office of Surface Mining Reclamation and Enforcement, Department of Interior.

The soils included in the inventory cover approximately 25 acres of land near Mud Creek and Little Snider Canyons, Section 4, T. 14 S., R. 11 E., SLBM. The soils are shown on the attached map. Each soil is identified with a three letter symbol, and the pattern and extent denoted by the soil boundary lines on the map. All areas having the same symbol are essentially the same kind of soils. There may be small areas of included soils that are slightly different. The soils have not been named or correlated. When the overall county survey is completed, small areas may become inclusions in other map units. Immediately following the soil descriptions is a table pointing out limitations of the soils for a variety of uses.

The vegetation was analyzed using the range site methods of the Soil Conservation Service. Range sites are shown on the attached map. Only preliminary information was obtained before a light snow arrived in the survey area. Another field trip will be required to identify the low growing grasses and forbs, and therefore, to assess present vegetation, productivity, and range condition. Presented in this report are the range site delineations with potential productivity according to favorable and unfavorable precipitation years.

More detailed information is on file in the Price Field Office of the Soil Conservation Service.

## SOIL LEGEND

<u>Soil Symbol</u>	<u>Soil Mapping Unit Name</u>
BIG	BI stony loam, 50 to 70 percent slopes
CIG	CI loam, 40 to 65 percent slopes
DIB	DI Loam, 2 to 5 percent slopes

## DESCRIPTIONS OF THE SOILS

### BIG BI stony loam, 50 to 70 percent slopes

This BI soil is moderately deep and well drained. It occurs on very stony mountain sideslopes along Mud Creek at elevations of 2590 to 2680 meters (8500 to 8800 feet). This soil formed in colluvium and residuum derived mainly from sandstone and shale.

The average annual precipitation is 56 to 64 centimeters (22 to 25 inches). Mean annual air temperature 2 to 3°C (36 to 37°F), mean annual soil temperature is 3 to 4°C (37 to 39°F), and the average freeze-free season is 57 days. Slopes are 50 to 70 percent and east, west, and north facing. They are medium and long in length and concave-convex in shape.

Vegetation is dominantly aspen, Douglas fir, white fir, peavine, blue wildrye.

Included in mapping are small areas of rock outcrop near the foot of the slopes.

In a representative profile the surface layer is dark grayish brown stony loam about 8 centimeters (3 inches) thick. The subsurface layer is light yellowish brown stony sandy loam about 20 centimeters (8 inches) thick. The subsoil is pale brown and light brownish gray, very stony clay loam about 74 centimeters (29 inches) thick over sandstone at a depth of 102 centimeters (40 inches).

Permeability is moderately slow. Available water capacity is about 13 centimeters (5 inches). Organic matter content in the surface layer is 5 to 10 percent. Effective rooting depth is about 102 centimeters (40 inches). Surface runoff is slow and erosion hazard is slight under potential native vegetation and very high if vegetation is removed and the soil is left bare. Erodibility is moderate.

This soil is used for range, wildlife habitat, and woodland.

Taxonomic classification is fine-loamy, mixed typic cryoboralfs.

A representative pedon of BI stony loam, 50 to 70 percent slopes was described near the proposed portal of Blazon Company Mine.

O1—2.5 to 0 centimeter (1 to 0 inch); leaves and fir needles.

A1—0 to 8 centimeters (0 to 3 inches); dark grayish brown (10YR 4/2) stony loam, very dark brown (10YR 2/2) when moist; moderate coarse granular structure; soft, friable, slightly sticky, slightly plastic; many very fine to large roots; 5 percent stones, 5 percent cobbles, 10 percent gravel; neutral reaction (pH 6.8); abrupt wavy boundary.

A2—8 to 30 centimeters (3 to 11 inches); light yellowish brown (10YR 6/4) stony sandy loam, yellowish brown (10YR 5/4) when moist; moderate coarse platy structure; slightly hard, friable, nonsticky, nonplastic; common very fine to medium roots; 5 percent stones, 5 percent cobbles, 10 percent gravel; neutral reaction (pH 6.6); clear smooth boundary.

B21t—30 to 61 centimeters (11 to 24 inches); pale brown (10YR 6/3) stony clay loam, brown (10YR 4/3) when moist; moderate medium subangular blocky structure; extremely hard, very firm, sticky, plastic; common very fine to large roots; common moderately thick clay films; 5 percent gravel, 5 percent cobbles, 10 percent stones; neutral reaction (pH 6.6); abrupt irregular boundary.

B22t—61 to 102 centimeters (24 to 40 inches); light brownish gray (10YR 6/2) very stony clay loam, dark grayish brown (10YR 4/2) when moist; moderate medium subangular blocky structure; hard, firm, sticky, plastic; common very fine to large roots; 10 percent gravel, 20 percent cobbles, 10 percent stones; mildly alkaline (pH 7.8); abrupt irregular boundary.

R—102 centimeters (40 inches); sandstone.

CIG CI loam, 40 to 65 percent slopes

This CI soil is moderately deep and well drained. It occurs on very steep mountain sideslopes on the east side of Mud Creek at elevations of 2560 to 2620 meters (8400 to 8600 feet). This soil formed in local colluvium and residuum derived mainly from shale and sandstone.

The average annual precipitation is 56 to 64 centimeters (22 to 25 inches). Mean annual air temperature is 2 to 3°C (36 to 37°F), mean annual soil temperature is 3 to 4°C (37 to 39°F), and the average freeze-free season is 57 days. Slopes are 40 to 65 percent and west facing. They are medium and long in length and convex-concave in shape.

Vegetation is dominantly aspen, snowberry, blue wildrye, and native bluegrass.

Included in mapping are small areas of rock outcrop near the foot of the slopes.

In a typical profile the surface layer is dark brown loam about 10 centimeters (4 inches) thick. The underlying layer is brown, gravelly loam about 20 centimeters (8 inches) thick. The next layer is very pale brown, stony loam and stony clay loam about 66 centimeters (26 inches) thick. Depth to soft shale is 97 centimeters (38 inches).

Permeability is moderately slow. Available water capacity is 11 to 13 centimeters (4.5 to 5 inches) to a 97 centimeter (38 inch) depth. Organic matter content in the surface layer is 5 to 10 percent. Effective rooting depth is about 97 centimeter (38 inches). Surface runoff is medium and erosion hazard is moderate under potential native vegetation and very high if vegetation is removed and the soil is left bare. Erodibility is moderate.

This soil is used for range and wildlife habitat.

Taxonomic classification is fine-loamy, mixed typic cryoborolls.

A typical pedon of CI loam 40 to 65 percent slopes was described in the excavation east of the junction of Long Canyon and Mud Creek.

A11—0 to 10 centimeters (0 to 4 inches); dark brown (10YR 4/3) loam, very dark brown (10YR 2/2) when moist; moderate medium granular structure; soft, very friable, slightly sticky, slightly plastic; many very fine and fine, common medium and coarse roots; 10 percent gravel; neutral reaction (pH 6.8); abrupt wavy boundary.

A12—10 to 30 centimeters (4 to 12 inches); brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) when moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine, fine and coarse roots; 15 percent gravel, 5 percent cobbles; neutral reaction (pH 6.6); clear wavy boundary.

C1—30 to 81 centimeters (12 to 32 inches); very pale brown (10YR 7/3) stony loam, brown (10YR 4/3) when moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine, fine, and coarse roots; 15 percent gravel, 10 percent cobbles, 10 percent stones; slightly acid (pH 6.4); clear wavy boundary.

C2—81 to 97 centimeters (32 to 38 inches); very pale brown (10YR 7/3) stony clay loam, grayish brown (10YR 5/2) when moist; rock structure; very hard, very firm, very sticky, very plastic; few very fine and fine roots; 15 percent gravel, 10 percent cobbles, 10 percent stones; slightly acid (pH 6.4); abrupt smooth boundary.

C35—97 centimeters (38 inches); soft shale.

DIB DI loam, 2 to 5 percent slopes

This DI soil is very deep and moderately well drained. It occurs on flood plains and alluvial fans at elevations of about 2590 meters (8500 feet). This soil formed in alluvium derived mainly from sandstone, quartzite and shale.

The average annual precipitation is 56 to 64 centimeters (22 to 25 inches). Mean annual air temperature is 2 to 3 C (36 to 37 F), mean annual soil temperature is 3 to 4 C (37 to 39 F), and the average freeze-free season is 57 days. This soil occurs adjacent to Mud Creek.

Slopes are 2 to 5 percent and north facing. They are short in length and concave-convex in shape.

Vegetation is dominantly sedge, slender wheatgrass, and native bluegrass.

Included in mapping are small areas of poorly drained soils with wet meadow vegetation. These areas are located near the stream and may be flooded at times.

In a typical profile the surface layer is dark grayish brown loam about 71 centimeters (28 inches). The underlying layer is brown, very fine sandy loam 43 centimeters (17 inches) thick. The next layer is grayish brown, cobbly very fine sandy loam to a depth of more than 152 centimeters (60 inches). The water table is at a depth of about 114 centimeters (45 inches) for a short time in the spring.

Permeability is moderate. Available water capacity is 20 to 23 centimeters (8 to 9 inches) to a depth of 152 centimeters (60 inches). Organic matter content in the surface layer is 5 to 10 percent. Effective rooting depth is more than 152 centimeters (60 inches). Surface runoff is slow and erosion hazard is slight under potential native vegetation and moderate if vegetation is removed and the soil is left bare. Erodibility is moderate.

This soil is used for range and wildlife habitat.

Taxonomic classification is fine-loamy, mixed cumulic cryoborolls.

A typical pedon of DI loam, 2 to 5 percent slopes was described near the stream bank of Mud Creek about 15 meters (50 feet) south of the junction of Little Snider Canyon and Mud Creek.

A1—0 to 8 centimeters (0 to 3 inches); dark grayish brown (10YR 2/2) loam, very dark brown (10YR 2/2) when moist; moderate medium granular structure; soft, very friable, slightly sticky, slightly plastic; common fine and very fine roots; neutral reaction (pH 6.6); clear smooth boundary.

A12—8 to 61 centimeters (3 to 24 inches); dark grayish brown (10 YR 4/2) loam, very dark brown (10YR 2/2) when moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common fine and very fine roots; neutral reaction (pH 6.8); abrupt smooth boundary.

A13—61 to 71 centimeters (24 to 28 inches); dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) when moist; moderate medium granular structure; slightly hard, friable, slightly sticky, slightly plastic; neutral reaction (pH 7.0); clear smooth boundary.

C1—71 to 114 centimeters (28 to 45 inches); brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) when moist; massive; slightly hard, very friable, slightly sticky, nonplastic; 10 percent gravel; neutral reaction (pH 7.0); clear wavy boundary.

C2—114 to 152 centimeters (45 to 60 inches); grayish brown (10YR 5/2) cobbly very fine sandy loam, very dark brown (10YR 2/2) when moist; massive; soft, very friable, slightly sticky, nonplastic; 15 percent gravel, 20 percent cobbles; neutral reaction (pH 7.0).

Exhibit 16  
NPDES PERMIT APPROVAL

RECEIVED

MAR 26 1982

Utah State Div. Of  
Environmental Health

Permit No.: UT-0023647

Effective Date: Date of Issuance\*

Expiration Date: December 31, 1986

AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended (33 U.S.C. 1251 et. seq.) (hereinafter referred to as "the Act"),

Blazon Company, No. 1 Mine,

is authorized by the United States Environmental Protection Agency,

to discharge from a facility located at Section 4, Township 14 South, Range 7 East, Carbon County, Utah,

to receiving waters named Mud Creek, which is a tributary of the Price River,

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III, hereof.

*Jack W. Hoffbuhr*

*3/22/82*

Authorized Permitting Official

Date

Jack W. Hoffbuhr  
Acting Director  
Water Management Division

Title

\*Thirty (30) days after the date of receipt of this permit by the Applicant.

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\_\_\_\_\_  
Authorized Permitting Official

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

\*Thirty (30) days after the date of receipt of this permit by the Applicant.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Active Mining Operations)

1. During the period beginning immediately and lasting through December 31, 1986 the permittee is authorized to discharge from all point sources associated with active mining operations indicated on the area maps submitted and approved pursuant to Part III, A.1. Such discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATION a/</u>			<u>MONITORING REQUIREMENTS</u>	
	<u>Daily Average</u>	<u>7-Day Average</u>	<u>Daily Maximum</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow - M <sup>3</sup> /Day, gpd	N/A	N/A	N/A	Monthly	Measured a/ c/
Total Suspended Solids	25 mg/l	35 mg/l	70 mg/l	Monthly	Grab
Total Iron	N/A	N/A	2.0 mg/l b/	Monthly	Grab
Total Dissolved Solids	N/A	N/A	500 mg/l	Monthly	Grab

Oil and Grease shall not exceed 10 mg/l and shall be monitored monthly by a grab sample.

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units and shall be monitored twice per month by grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge of sanitary wastes.

2. See Schedule of Compliance. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): At any point which is representative of each discharge prior to its mixing with the receiving stream and as indicated by the solid triangles on the current area maps submitted pursuant to Part III, A.1.

a/ See Part I, C.3.

b/ If any Iron analysis exceeds this limitation, the State of Utah and the permittee shall review the actions necessary to achieve compliance with the limitation and the continued appropriateness of the limitation. In no event shall the discharge exceed a daily maximum limitation for Total Iron of seven (7) milligrams per liter.

c/ For the intermittent discharges, the duration of the discharge shall be reported.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Active Mining Operations)  
(Continued)

3. Any overflow, increase in volume of a discharge or discharge from a bypass system caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour, precipitation event (or snowmelt of equivalent volume) shall comply with the following limitation instead of the Total Suspended Solids limitations contained in Part I.A.1.:

<u>Effluent Characteristic</u>	<u>Daily Maximum</u>
Settleable Solids	0.5 ml/l

Settleable Solids shall be monitored weekly during periods of precipitation.

4. Any overflow, increase in volume of a discharge or discharge from a bypass system caused by precipitation within any 24-hour period greater than the 10-year, 24-hour, precipitation event (or snowmelt of equivalent volume) shall comply with the following limitations instead of the otherwise applicable limitations:

The pH shall not be less than 6.5 standard units nor greater than 9.0 standard units.

5. The alternate limitations provided in Parts I.A.3. and I.A.4., shall apply only if:
- The treatment facility is designed, constructed, operated and maintained to contain at a minimum the volume of water which would drain into the treatment facility during the 10-year, 24-hour, precipitation event (or snowmelt of equivalent volume);
  - The treatment facility is designed, constructed, operated and maintained to consistently achieve the effluent limitations set forth in Part I.A.1., during periods of no precipitation (or snowmelt).
6. The operator shall have the burden of proof that the preceding conditions have been met in order to qualify for the alternate limitations in Parts I.A.3. and I.A.4. The alternate limitations in Parts I.A.3. and I.A.4. shall not apply to treatment systems that treat underground mine water only.

## 8. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:
  - a. If the permittee has not previously submitted Area Map(s) described in Part III, A., such Area Map(s) shall be submitted within 30 days of the effective date of this permit.
  - b. Revised Area Map(s) as described in Part III, A., must be submitted 60 days prior to commencement of the discharge.
2. No later than 14 calendar days following a date identified in the above Schedule of Compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice to the permit issuing authority of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

## C. MONITORING AND REPORTING

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.
2. Monitoring results obtained during the previous three (3) months shall be summarized for each discharge for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on April 28, 1982. Duplicate signed copies of these, and all other reports required herein, (as required by Part II, A.9.) shall be submitted to the Regional Administrator and the Director of the State of Utah Water Pollution Agency at the following addresses:

U.S. Environmental Protection Agency  
Suite 103, 1860 Lincoln Street  
Denver, Colorado 80295  
Attention: Water Division - Permits

Utah Department of Health  
Division of Environmental Health  
Bureau of Water Pollution Control  
P.O. Box 2500  
Salt Lake City, Utah 84110

## 3. Definitions

- a. The "daily average" means the arithmetic average of all the daily determinations made during a calendar month. Daily determinations made using a composite sample shall be the value of the composite sample. When grab samples are used, the daily determination shall be the arithmetic average of all the samples collected during the calendar day. Daily determinations of mass shall be determined by the daily determination of concentration multiplied by the volume of discharge for that day.
- b. The "7-Day Average" limitation shall be determined by the arithmetic mean of a minimum of three (3) consecutive samples taken on separate days in a 7-day period (minimum total of three (3) samples).
- c. The "daily maximum" concentration means the daily determination of concentration for any calendar day.
- d. Measurement of flow shall be performed by a direct flow measurement technique such as a flow meter, weir, or gauge.
- e. A "composite sample" shall consist of at least three grab samples which is representative of the discharge.
- f. "Active mining area" means the areas on and beneath land used or disturbed in activity related to the extraction, removal, or recovery of coal from its natural deposits. This term excludes coal preparation plants, coal preparation plant associated areas and post-mining areas.

## C. MONITORING AND REPORTING (Continued)

## 3. Definitions (Continued)

- g. "Reclamation area" means the surface area of a coal mine which has been returned to required contour and on which revegetation (specifically, seeding or planting) work has commenced.
- h. The term "10-year, 24-hour, precipitation event" shall mean the maximum 24-hour precipitation event with a probable reoccurrence interval of once in 10 years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, and subsequent amendments or equivalent regional or rainfall probability information developed therefrom.
- i. For additional definitions, see Part III, B.

## 4. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304(h) of the Act, under which such procedures may be required.

## 5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling;
- b. The dates the analyses were performed;
- c. The person(s) who performed the analyses;
- d. The analytical techniques or methods used; and,
- e. The results of all required analyses..

## 6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

C. MONITORING AND REPORTING (Continued)

7. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer, if requested by the Regional Administrator or the State of Utah water pollution control agency.

## A. MANGEMENT REQUIREMENTS

## 1. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the environment resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

## 2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Regional Administrator and the State of Utah with the following information, in writing, within five (5) days of learning or being advised of such condition:

- a. A description of the discharge and cause of noncompliance; and,
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge. This written submission shall not be considered as excusing or justifying the failure to comply with the effluent limitations.

## 3. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the permit issuing authority of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

## A. MANAGEMENT REQUIREMENTS (Continued)

## 4. Facilities Operation

- a. The permittee shall at all times maintain in good working order and operate as efficiently as possible, all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.
- b. Dilution water shall not be added to comply with effluent requirements.

## 5. Bypass of Treatment Facilities

## a. Definitions

- (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

## b. Bypass Not Exceeding Limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs c and d of this Section.

## c. Notice

## (1) Anticipated Bypass

If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten (10) days before the date of the bypass.

## (2) Unanticipated Bypass

The permittee shall submit notice of an unanticipated bypass as required in Part II, A.2.

## A. MANAGEMENT REQUIREMENTS (Continued)

## 5. Bypass of Treatment Facilities (Continued)

## d. Prohibition of Bypass

- (1) Bypass is prohibited and the Director may take enforcement action against a permittee for bypass, unless:
  - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,
  - (c) The permittee submitted notices as required under paragraph c of this Section.
- (2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph d.(1) of this Section.

## 6. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of waste waters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the United States.

## 7. Power Failures

No later than 30 days after the effective date of this permit, the permittee shall certify in writing to the permit issuing authority either that:

- a. An alternative mechanical or electrical power source sufficient to operate essential facilities utilized by the permittee to maintain compliance with the terms and conditions of the permit has been or will be installed or,
- b. Upon reduction, loss or failure of one or more of the primary sources of electrical power to essential facilities utilized by the permittee to maintain compliance with the terms and conditions of this permit, the permittee shall halt, reduce, or otherwise control production and/or all discharges in order to maintain compliance with the terms and conditions of this permit.

## A. MANAGEMENT REQUIREMENTS (Continued)

## 8. Delineated Discharges

Any discharge delineated in Part III (Other Requirements) (originating from operations covered by Standard Industrial Classification Codes 1211 and 1213) that commences after the effective date of this permit shall be in compliance with all effluent limitations, monitoring requirements, and other conditions contained herein upon initiation of discharge.

## 9. Signature Requirements

All reports or information submitted pursuant to the requirements of this permit must be signed and certified by a principal official or by a duly authorized representative of that person. Signatory regulations are established in 40 CFR 122.6.

## B. RESPONSIBILITIES

## 1. Right of Entry

The permittee shall allow the head of the State of Utah water pollution control agency, the Regional Administrator, and/or their authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit; and,
- b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any discharge of pollutants.

## 2. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Regional Administrator and the State of Utah water pollution control agency.

## B. RESPONSIBILITIES (Continued)

## 3. Availability of Reports

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Regional Administrator and the State of Utah water pollution control agency. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act.

## 4. Permit Modification

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or,
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

## 5. Toxic Pollutants

Notwithstanding Part II, B.4. above, if a toxic effluent standard or prohibition (including any Schedule of Compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

## 6. Civil and Criminal Liability

Except as provided in permit conditions on "Bypassing" (Part II, A.5.) and "Power Failures" (Part II, A.7.), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

## B. RESPONSIBILITIES (Continued)

## 7. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

## 8. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulations under authority preserved by Section 510 of the Act.

## 9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

## 10. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

## 11. Reapplication

If the permittee desires to continue to discharge, he shall reapply at least one hundred eighty (180) days before this permit expires using the application forms then in use. The permittee should also reapply if he desires to maintain a permit, even though there was not a discharge from the treatment facilities during the duration of this permit.

## A. OTHER REQUIREMENTS

## 1. General Requirements

## a. Area Maps (Acting Mining Operations, Coal Preparation Plant, and Associated Areas)

- (1) Underground mines which have already identified the location of each discharge need not submit an area map.
- (2) The permittee shall submit revised Area Map(s) to show any changes, corrections, or other modifications or adjustments of the location of the point source discharges. The purpose of this requirement is to assure that the Regional Administrator and the State of Utah are kept fully advised as to the current location of such discharges.
- (3) The revised Area Map(s) shall be submitted in the form specified below and shall be made from USGS topographical maps (7.5 or 15-minute series) or other appropriate sources as approved by the Regional Administrator or his designee. Each revised Area Map shall be 8½ inches by 11 inches and shall be in black and white suitable to produce readable copies by rapid printing methods (Xerox, Dennison, Offset printing, etc.) or as approved by the Regional Administrator or his designee. Where additional 8½-inch by 11-inch maps are required to show the area of operation, they shall be numbered and a key shall be shown on the first map. The first map section shall have the company name, mine/job name, address, and NPDES number clearly printed thereon. Also, one line of latitude and one line of longitude shall be marked on each map section. The Area Map(s) shall delineate the following, using the graphics as indicated:

- (a) Existing Area of Operation  (Solid Outline)
- (b) Existing point source  (Solid Triangle)
- (c) The projected area of operation for the next five years  (Dashed Outline)
- (d) Project point source for the next five years  (Opened Triangle)

## A. OTHER REQUIREMENTS .

## 1. General Requirements (Continued)

(e) The monitoring reports must indicate the active-inactive status of all discharge points which are listed on the current area maps. These discharge points shall be assigned numbers 001, 002, 003, etc.

## b. Monitoring of a discharge may be terminated if either:

- (1) Sufficient data has been accumulated to show to the satisfaction of the Regional Administrator or his designee that the untreated discharge from an area where active mining has ceased will meet the limitations herein; or,
- (2) The discharge emanates from an area on which the State of Utah has released the grading bond or has taken other similar action.

## B. ADDITIONAL DEFINITIONS

1. The term "coal preparation plant" means a facility where coal is crushed, screened, sized, cleaned, dried, or otherwise prepared and loaded for transit to a consuming facility.
2. The term "coal preparation plant associated areas" means the coal preparation plant yards, immediate access roads, coal refuse piles, and coal storage piles and facilities.
3. The term "settleable solids" is that matter measured by the volumetric method specified below:

The following procedure is used to determine settleable solids:

Fill an Imhoff cone to the one-liter mark with a thoroughly mixed sample. Allow to settle undisturbed for 45 minutes. Gently stir along the inside surface of the cone with a stirring rod. Allow to settle undisturbed for 15 minutes longer. Record the volume of settled material in the cone as milliliters per liter. Where a separation of settleable and floating material occurs, do not include the floating material in the reading.

Exhibit 17  
MINE SLOPE STABILITY



October 22, 1980

R&M No. 060106  
Blazon Mine Slope Stability

Lee Rowley  
Boyle Engineering Corp.  
268 W. 400 S., Suite 301  
Salt Lake City, UT 84101

Dear Lee:

As requested on October 3, 1980 we have investigated slope stability of the fill material placed directly below the mine portal area under construction at the Blazon Mine near Clear Creek, Utah.

The attached report details our findings based on a visit to the site on October 7, 1980 coupled with lab tests on fill material and subsequent calculations.

Should you have questions, please contact me at your convenience.

Sincerely,

Larry Migliaccio, P.E.  
Director

CW

attch.



BLAZON MINE  
FILL SLOPE STABILITY INVESTIGATION

I. INTRODUCTION

The photos in the Appendix show the new fill material placed over an existing 62% slope below the new mine portal. The fill came primarily from the cut made for the mine portal area and consists of highly decomposed shale with small amounts of silt, sandstone, and occasional large boulders, up to three feet in diameter. Because the existing slope was not completely uniform, an average depth of fill approximately six feet deep has been assumed, however most of the fill is more shallow in depth. The fill slope is irregular with the steepest face measured at approximately 71%.

The fill was placed during the month of September (see photos in Appendix). Since that time most of the large boulders have been removed and the length of the sloping fill face has been reduced by cutting across the top and placing more fill at the toe of the slope. The fill presently conforms to the sketch in the Appendix. It is our understanding that the length of the sloping fill face will be reduced even more by adding another six feet of fill at the toe of the slope.

On October 7, 1980 R&M Consultants, Inc. visited the site and procured samples of fill material and made measurements of actual slope dimensions. Following are the results of the field inspection, lab test data, and conclusions and recommendations concerning stability of the fill slope.

## II. GEOLOGY

Soil at the mine site is of colluvial origin, having formed on the moderate to steep slopes by weathering of the underlying bedrock, together with concurrent movement downslope under the influence of gravity. A minor amount of alluvium is present in the channel of Clear Creek. Colluvial soils are dark and very loose and porous. On the steeper hillsides, these soils appear to be approximately 8 in. to one foot thick. Colluvial soils increase in thickness at the base of the slopes. At the Clear Creek channel, adjacent to the bin site, colluvial soils appear to be over 5 to 6 feet deep and may be admixed with alluvial soil.

Sedimentary bedrock of the Upper Cretaceous age Black Hawk Group underlies the soils at the mine site. As exposed in the area, these rocks consist of locally thin bedded, light and dark colored shales, light colored sandstone beds 6 in. to 3 feet thick, and bituminous coal beds approximately 3 feet thick. Near the surface, these rocks are highly fractured and likely subject to downslope creep, as evidenced by tilted strata and pervasive open jointing. Undisturbed strata have a variable northeast to northwest strike and appear to dip from near-horizontal to about  $15^{\circ}$ S. Bedrock appears to strike northwest and dip about  $15^{\circ}$  out-of-slope at the site of the proposed 500-ton coal bin. At this location, and throughout the mine site, sandstone appears to constitute less than 50% of the total rock volume.

No evidence of bedrock slope instability was noted in the immediate vicinity of the mine site at the time of our investigation.

### III. ANALYSIS

On October 7, 1980 the fill material was found to be in a soft and loose condition with little or no cohesion. For this reason unconfined compressive strength was not measured. Obviously remolded samples would not reflect the fill condition in its present state. Materials were tested and classified as CL and CL-ML as noted in the Appendix. The average in-situ moisture content was 11.4% which was remarkably close to the 9.7% optimum moisture density relationship as determined in the laboratory.

On October 20, 1980 we again visited the site after a significant amount of precipitation had fallen. No evidence of slides was noted. It was noted however, that the fill had consolidated and developed some cohesion due to compaction under its own weight and absorption of moisture.

Calculations for slip circle failures are included in the Appendix. The angle of internal friction for the fill material will range from approximately  $32^{\circ}$  down to a conservative low value of  $10^{\circ}$ . At the low value of  $10^{\circ}$ , cohesion will have developed and will aid as a resisting force against failure. The calculations indicate a factor of safety against sliding of 1.9 which is greater than 1.3 as required in Section 817.102,b.3 of Chapter VII O.S.M. regulations. These calculations are on the conservative side and anticipate the poorest of conditions.

### IV. CONCLUSIONS AND RECOMMENDATIONS

To further insure stability of the fill material and improve safety conditions, the large surface boulders should be removed from the fill face. The fill should then be subjected to a small compactive effort to maximize the angle of internal friction and cohesion values. Water need not be added

because the material is already at an ideal moisture content. The fill surface should then be re-seeded to reduce erosion using normal accepted procedures. Drainage at the top of the slope must be prevented from entering the fill. This would cause immediate loss of the  $\phi$  value with a corresponding reduction in the factor of safety against sliding. This has already been incorporated in the design by the engineer.

We conclude that the fill material does not constitute a safety threat to life or property provided the above recommendations are followed.

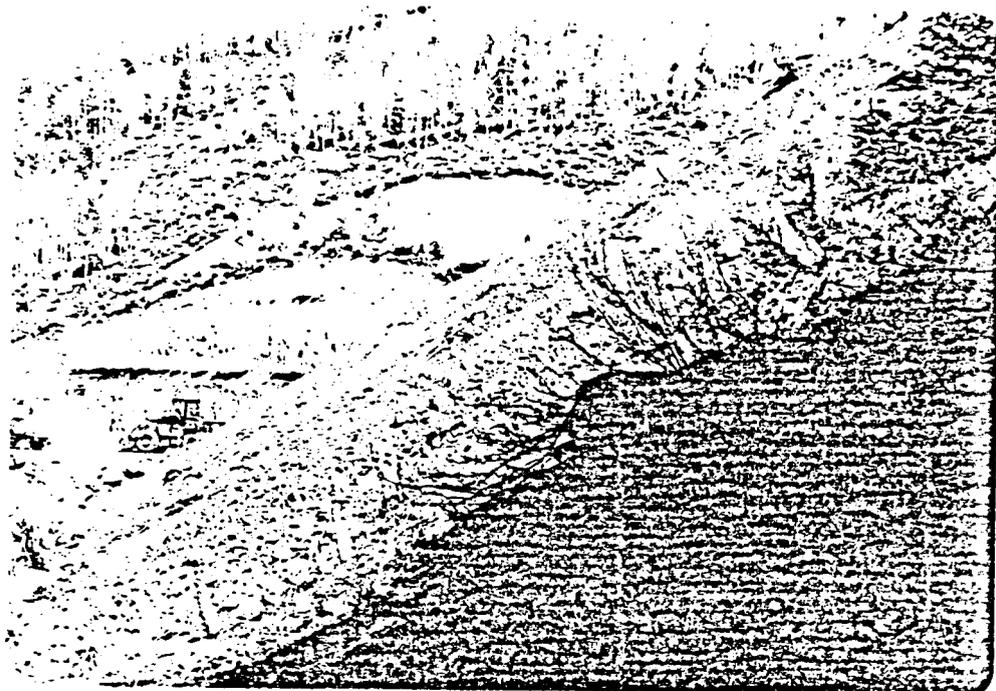
We also recommend that a licensed soils engineer inspect the site at a later date to confirm that fill cohesion has developed and that the fill has consolidated.

APPENDIX

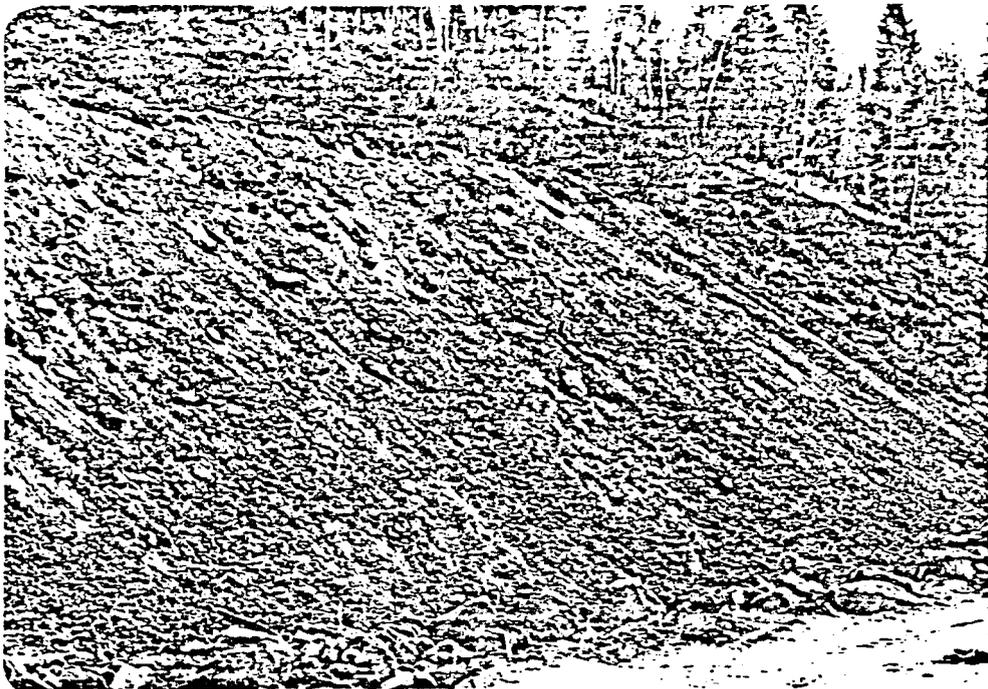
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Looking south at toe of fill slope  
Photo Date: October 7, 1980



Looking north at toe of fill slope  
Photo Date: October 7, 1980



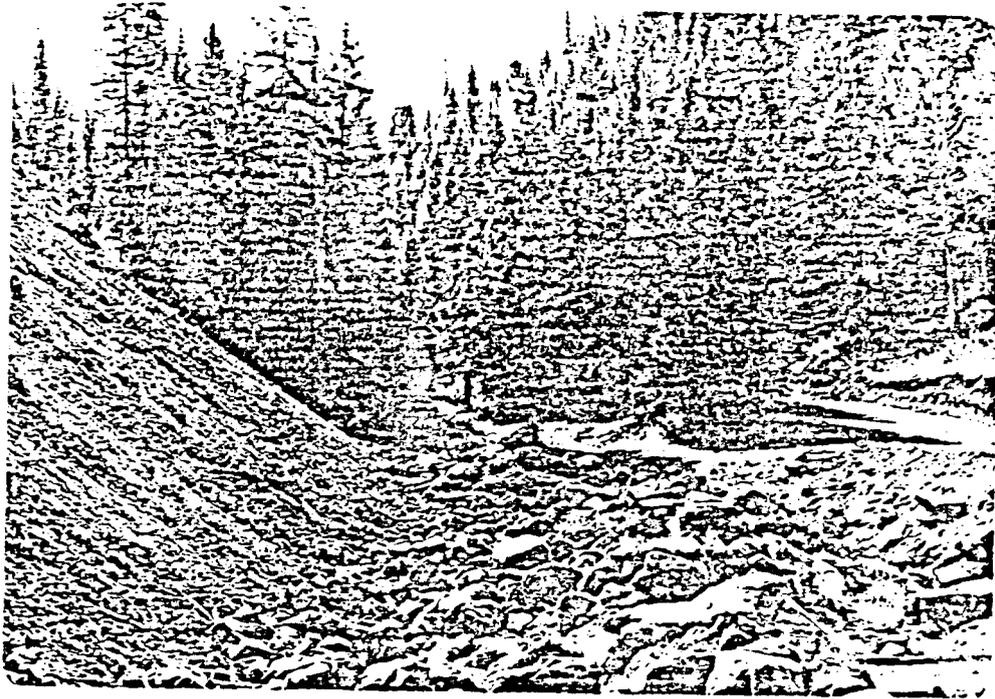
Looking southeast at entire fill slope

Photo Date: October 7, 1980



Looking south at top edge of fill

Photo Date: October 7, 1980



Looking south from middle of slope at toe of slope  
Photo Date: October 7, 1980



North American Property. Existing fill slope approxi-  
mately 15 years old. Situation identical to Blazon  
Mine. No previous slides in evidence.  
Photo Date: October 7, 1980

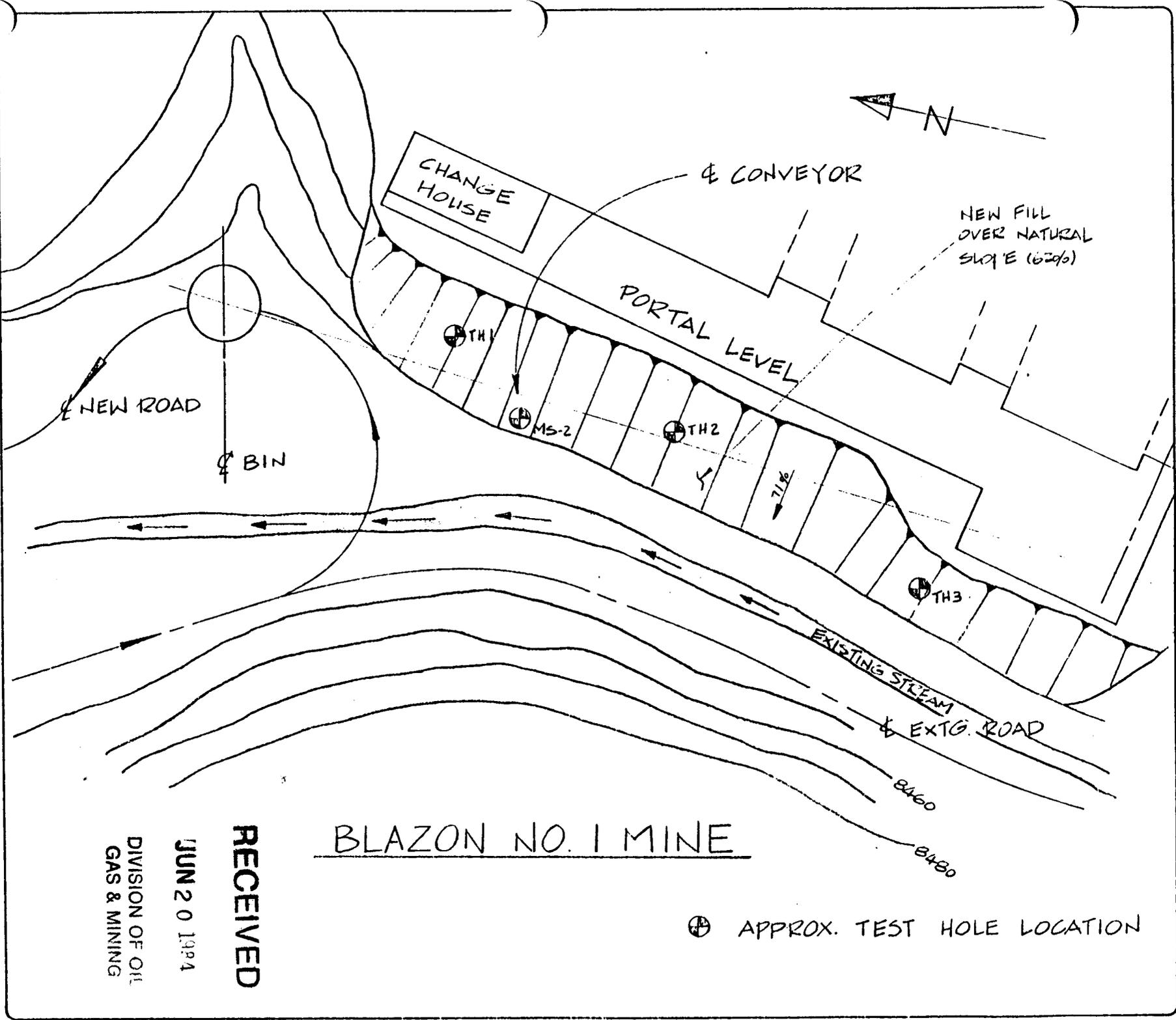


OWN.  
CKD.  
DATE.  
SCALE.

**RSM**  
**RSM CONSULTANTS, INC.**  
 ENGINEERS GEOLOGISTS PLANNERS SUPERVISORS

BLAZON NO. 1 MINE  
 TEST HOLE LOCATION

EA.  
GRID.  
PROJNO. 50115  
DWG. NO.



BLAZON NO. 1 MINE

⊕ APPROX. TEST HOLE LOCATION

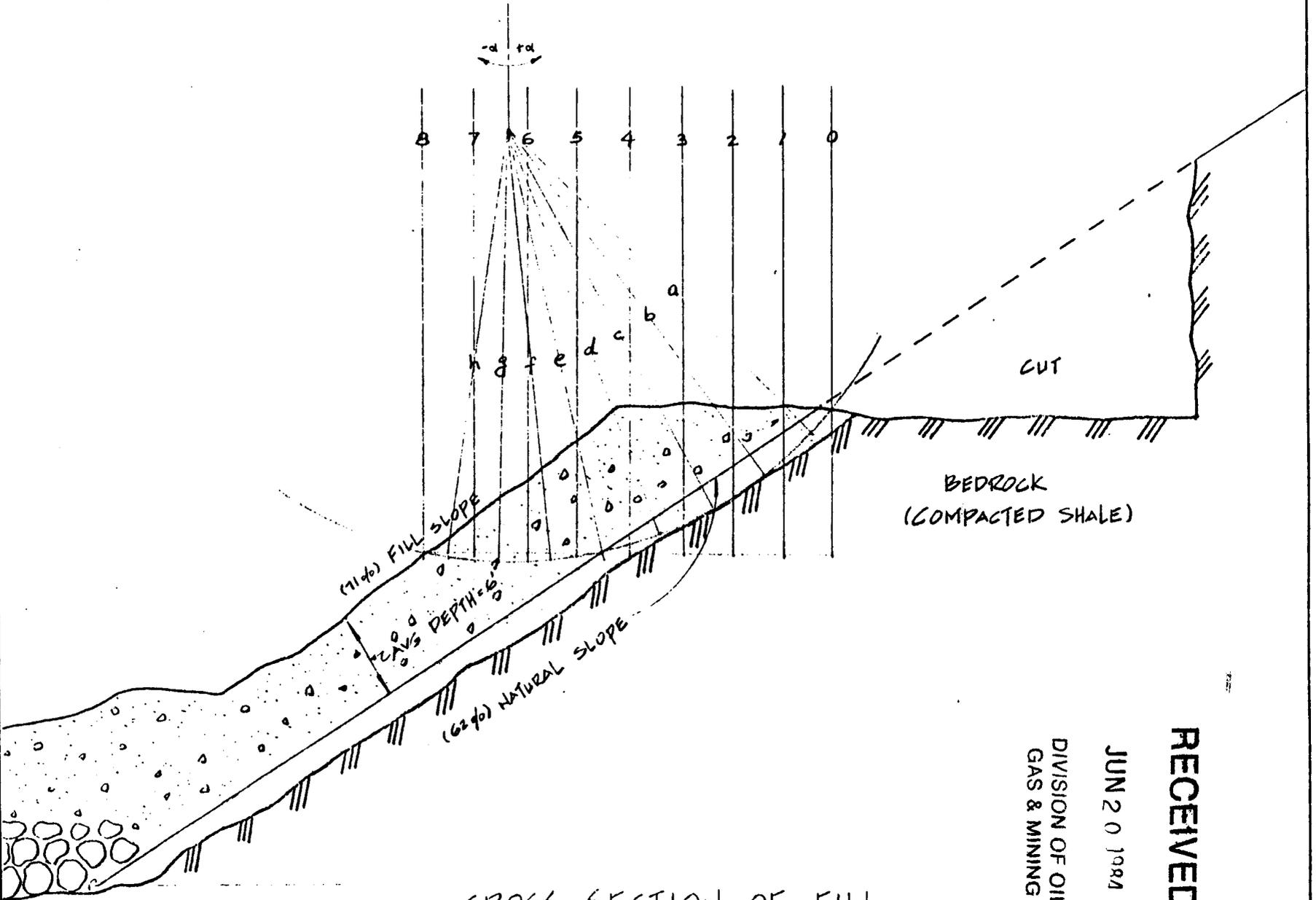
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DWN.  
 CKD.  
 DATE.  
 SCALE.

**R&M CONSULTANTS, INC.**  
 ENGINEERS GEOLOGISTS PLANNERS SURVEYORS

BLAZON MINE  
 SLOPE STABILITY

ES.  
 GRID.  
 PROJ. NO. 252106  
 DWG. NO.



CROSS SECTION OF FILL

SCALE : 1 : 10

NOTE : LENGTH OF FILL IS 200 FT INTO PLANE OF PAPER

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BLAZON MINE  
SLOPE STABILITY

FILE  
GRID  
PROJECT NO. 000130  
DWG. NO.

SLICE	FUTURE CONDITION												PRESENT CONDITION			
	ΔX	ΔW	α	Sind	ΔT	cosα	C	CR	ΔN	φ	Tanφ	$\frac{\Delta W \times \Delta N}{\text{Tan}\phi}$	C	φ	Tanφ	ΔW × Tanφ
0-1	3.8	726	45	0.707	513	0.707	200	1074	513	10°	0.176	90	0	32°	0.62	318
1-2	3.8	1899	37	0.60	1139	0.80	200	950	1519	10°	0.176	267				942
2-3	3.8	2681	28	0.47	1260	0.88	200	863	2359	10°	0.176	415				1462
3-4	3.8	3314	21	0.36	1193	0.93	200	817	3082	10°	0.176	542				1911
4-5	3.8	3277	13	0.22	721	0.97	200	783	3178	10°	0.176	559				1970
5-6	3.8	2514	6	0.10	251	0.99	200	768	2489	10°	0.176	438				1543
6-7	3.8	1638	-1	0.02	-33	1.0	200	760	1638	10°	0.176	288				1015
7-8	3.8	559	-8	0.14	-78	0.99	200	768	553	10°	0.176	97	↓	↓	↓	343
					5032			6783				2696				9504

$$n_{\text{future}} = \frac{6783 + 2696}{5032} = 1.88 > 1.5 \text{ (O.K.)}$$

$$n_{\text{present}} = \frac{9504}{5032} = 1.89 > 1.5 \text{ (O.K.)}$$

$$\delta_d = 98 \text{ pct}$$

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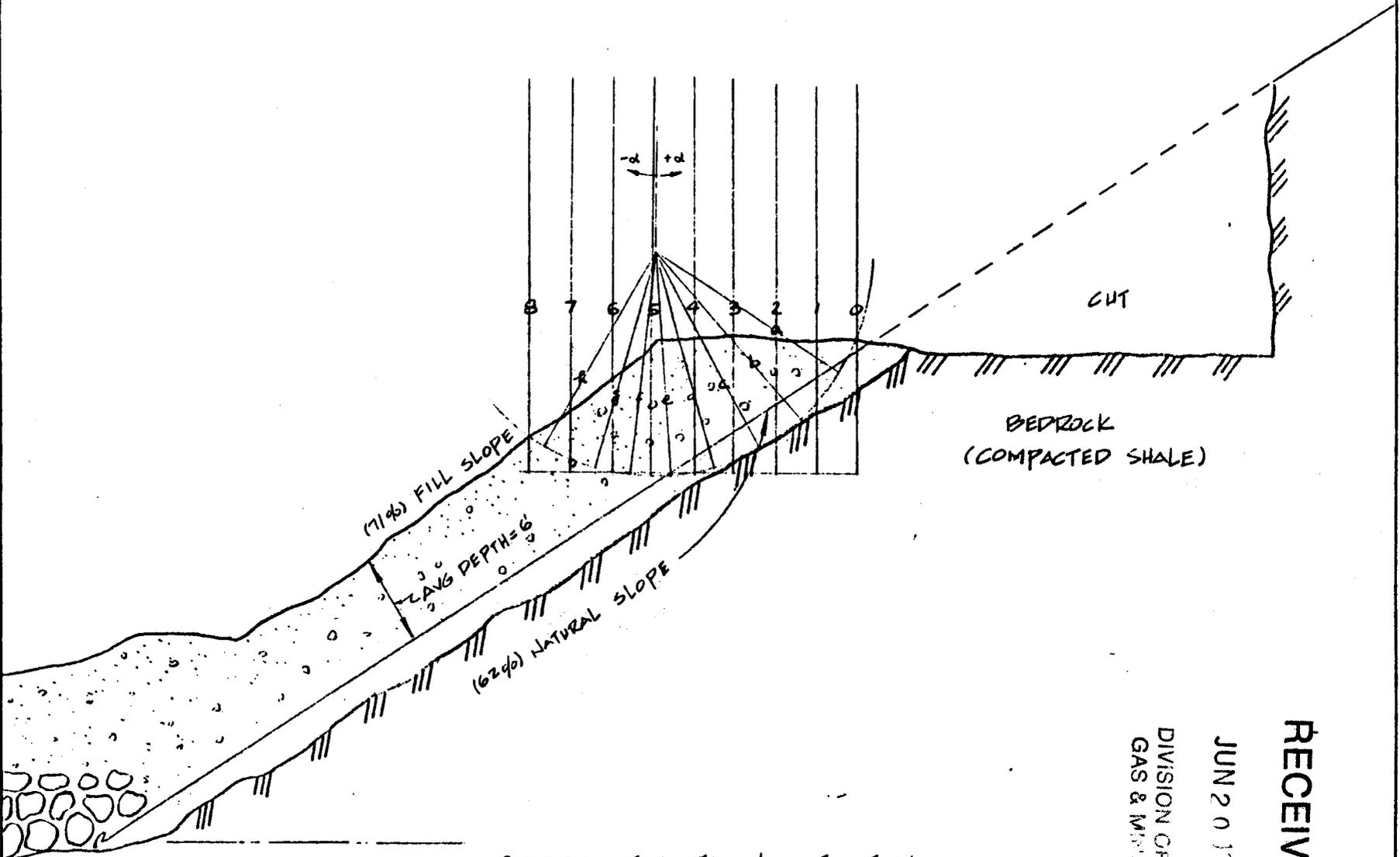
DIVISION OF OIL  
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DWN  
 CKD  
 DATE  
 SCALE

**RSM**  
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 ENGINEERS GEOLOGISTS PLANNERS SURVEYORS

BIAZON MINE  
 SLOPE STABILITY

FB  
 GRID  
 PROJNO 060106  
 DWGNO



CROSS SECTION OF FILL

SCALE : 1 : 10

NOTE : LENGTH OF FILL IS 200 FT INTO PLANE OF PAPER

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SLOPE STABILITY

FB  
GRID  
PROJNO 303106  
DWGNO

SLICE	FUTURE CONDITION							PRESENT CONDITION								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	$\Delta X$	$\Delta W$	$d$	$\sin d$	$\Delta T$	$\cos d$	$C$	$cl$	$\Delta H$	$\phi$	$\tan \phi$	$\frac{\Delta H \times \tan \phi}{C}$	$C$	$\phi$	$\tan \phi$	$\Delta H \times \tan \phi$
0-1	2.8	686	58	0.84	516	0.52	200	291	357	10°	0.18	64	0	32°	0.62	221
1-2	2.8	1427	42	0.67	956	0.74		414	1056			190				654
2-3	2.8	2304	28	0.47	1082	0.88		493	2027			365				1256
3-4	2.8	2332	15	0.26	606	0.96		537	2239			403				1383
4-5	2.8	2470	4	0.10	247	0.99		554	2445			440				1515
5-6	2.8	-2113	-8	0.14	-295	0.99		554	2092			377				1297
6-7	2.8	-1317	-16	0.3	-395	0.96		538	1264			227				783
7-8	2.8	-439	-30	0.5	-219	0.86	↓	482	378	↓	↓	68	↓	↓	↓	234
					3148			3863				2134				7348

$$n_{\text{future}} = \frac{3863 + 2134}{3148} = 1.90$$

$$n_{\text{present}} = \frac{7348}{3148} = 2.33$$

$$V_d = 98 \text{ pcf}$$

DIVISION  
GAS & OIL

JUN 20

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