0054

Beaver Creek Coal Company
P. O. Box AU
Price, Utah 84501
Telephone 801 637-5050

File ACT/007/016
Copy to Steve
#3

January 3, 1983

Mr. James W. Smith, Jr.
Coordinator of Mined Land Development
Utah Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, UT 84114

JIM
JAN 04 1983

Re: Gordon Creek No. 2 Mine
ACT/007/016
Minor Modification for Waste Rock Storage

Dear Mr. Smith:

Enclosed for your approval are three copies of a proposal to store waste rock at the #2 Mine site.

It is our intent to drive three rock slopes to the southwest, across a fault graben, to access additional reserves on our existing permit area, as well as allowing future access to reserves recently acquired from Valley Camp. These slopes will generate some 13,150 cubic yards of waste rock. We can store about 3800 cubic yards underground, leaving some 9350 cubic yards to be disposed on the surface.

The proposed disposal area will be within the present disturbed area of the #2 Mine. The pile will be constructed in compacted lifts, using an underground loader with final compaction and contouring by a bulldozer. The pile will be protected from runoff and will be reseeded upon completion. Details of the proposal, including all maps, are attached.

This project is necessitated by our need to develop additional reserves at the #2 Mine to allow for an uninterrupted operation. The cost of the project was just recently justified by the acquisition of additional reserves from Valley Camp, and it is our desire to start this fault crossing as soon as possible to provide adequate development ahead of our mining units.

The #2 M&R Plan will be revised by February 1, to reflect both the ACR comments and the additional Valley Camp reserve. But, since the need exists to start this project immediately, it is our hope that this proposal can be handled as a minor modification as indicated by your staff.

I appreciate your consideration in this matter. Please let me know if you have any questions or need any further information.

Respectfully,

BEAVER CREEK COAL COMPANY

Dan W. Guy, P.E.
Permits Manager

DWG/mp
cc: Dick Robison
Scott Raymond
Tom Leonard
Ben Costello/DAT
File #4-3-2M

2 MINE

WASTE ROCK DISPOSAL

UMC 784.19

(a) Maps and cross sections of the proposed disposal site are included with this submittal.

(b)(1) The proposed disposal area is on bedrock, which is the basal sandstone of the Castlegate "A" Seam. No adverse geologic conditions are known to exist in the immediate vicinity of the disposal site.

(b)(2) As shown by the spring and seep surveys in the Gordon Creek No. 2 Mine M and R Plan, the only known seep in the area is located to the south some 200+. This seep flows directly into a catch basin to the south and is carried down to the undisturbed drainage diversion well below the proposed disposal area.

(b)(3) Portions of the #2 Mine area, including the disposal area, have been undermined in the Hiawatha Seam by the old Sweets' Mine. This mine was closed in the 1940's and after some 40 years, no subsidence effects have become evident either outside or inside the #2 Mine. The interburden in this area ranges from 160' to 200' between seams. Due to the amount of interburden and the lack of subsidence effects after 40 years from past mining, it is not expected that there will be any future effect from subsidence in this area. No future mining is planned in the area that could promote future subsidence in the disposal site.

(b)(4) There are no rock chimney cores or rock drainage blankets planned for this disposal.

(b)(5) The disposal area is in an isolated pocket near the #2 Mine West portals. The drainage into this area is minimal as shown on the topo map, and is planned to be routed to the drainage to the north (as it presently is). Runoff will therefore not reach the disposal piles.

The pile will be constructed of waste rock consisting of approximately 80 -85% sandstone and shaley sands, with the remainder shale. Rock size will vary from -¼" to 3' with the average size approximately 6"- 8". This material will be compacted in 3' lifts to ensure stability. The maximum slope on the pile will be 1V:2h with an average slope of 1v:3.4h.

As shown on the cross-sections, the waste rock is to be placed in an existing depression, which will act as a catch for the base. In addition, larger resistant rocks (18" or more) will be placed at the bottom toe of the slope to add to the stability and catch any rubble moved by direct precipitation or other weathering factors.

Due to the method of construction, the small size of the pile, the protection from runoff, and the high strength of the material, a registered engineer has determined the proposed pile to be stable under conditions expected at the site.

(c) Rock toe buttresses and key-way cuts are not considered necessary for a pile of this size and configuration. The rocks to be placed at the toe are not for the purpose of a buttress, but merely to catch small rubble possibly moved by weathering conditions until vegetation can be established.

(c) (1) N/A

(c) (2) N/A

UMC 784.20

Subsidence control and effects have been addressed under 784.19 (b)(3).

Since the disposal site is on disturbed, unvegetated land, no structures or renewable resource lands are to be affected by its construction. Top-soil was not salvaged in the original pre-law disturbance of this area.

UMC 817.71

(a)(1) The chemical anaylses of the waste rock material is forthcoming. It is expected that these analyses will show no toxic or acid potentials; therefore, leachate or runoff from the waste area will not degrade either surface or ground waters in the area. Sample locations are shown on the attached map.

(a)(2) The stability of the fill is calculated to have a factor of safety in excess of 1.5.

(a)(3) The area designated for disposal is an existing depression adjacent to the portal highwall. The rock disposal will actually allow the existing highwall area to blend in a more compatible manner wiht the undisturbed, steep slopes to the north. Upon reclamation the rock fill area will assist in reducing the highwall exposure and allow a more gradual transition from highwall to undisturbed steep slope. This is compatible with the general terrain, since steep slopes, rock outcrops, and cliffs are common to the Gordon Creek area.

(b) The fill has been designed using recognized professional standards and certified by a registered, professional engineer.

(c) Since the proposed disposal site is on pre-law distrubed area, no topsoil or vegetation are available for removal or storage. It is proposed to place the fill material on the existing barren ground and revegetate the pile upon completion.

(d) Slope protection will be provided by existing drainage which carries runnoff to the natural channel to the north. Additional protection will be provided by a berm around the upper side of the pile to assure runoff will be kept from reaching the disposal site. The berm will be as shown on the cross-sections and will be reseeded upon completion.

(e)(1) The disposal area is located in an existing depression with the toe resting on a terrace with a very slight slope This is an area that would need filling upon final reclamation and requires no additional distrubance. It is the only area available for waste disposal on the present disturbed mine site, and is also a site that lends itself to a stable rock fill.

(e)(2) The average slope of the proposed fill will be 1v:3.4h. The slope will approach 1v:2h in some spots, but these will be on the upslope side or over a very short distance and height. The toe of the slope will rest on a terrace cut on the basal sandstone of the Castle Gate "A" Seam. No key-way cuts or rock toe buttresses are planned at the site.

(f) The fill material will be placed in 3' lifts and compacted initially with a 30 ton loader. Final contouring and further compaction will be accomplished with a bulldozer. Upon completion of final contouring, the area will be reseeded.

(g) Since the post-mining land uses are grazing and wildlife habitat, the final configuration of the fill will be compatible for such uses.

(h) Due to the small size of the pile, terraces are not planned.

(i) The fill shall be inspected for stability by a registered engineer or other qualified professional specialist at the following times:

(1) N/A
(2) N/A
(3) During installation of surface drainage systems;
(4) During placement and compaction of fill materials;
(5) Revegetation;
(6) Quarterly throughout construction.

A certified report shall be submitted to the Division within two weeks after each inspection. A copy of the report shall be retained at the mine site or main office.

(j) N/A

(j)(1) N/A

(j)(2) N/A

(j)(3) N/A

(j)(4) N/A

(k) There are no springs, natural or manmade watercourses, or wet weather seeps contained within the disposal area.

(l) The foundation of the fill overlies the basal sandstone of the Castle Gate "A" Coal. This lithology is very resistant and compact. Strength of the foundation material is shown on the attached Table 1. "General Rock Strength for Variour Blackhawk Formation Lithologies".

(m) There are no plans to return the waste from this disposal pile to the underground workings.

UMC 817.72

N/A

UMC 817.73

N/A

UMC 817.74

(a) The waste rock will be transported to the fill area and placed by a 5 cubic yard underground loader. The material will be placed in 3' lifts and initially compacted by the 30 ton weight of the loader. Final compaction and contouring will be accomplished by a bulldozer of the D-7 or D-8 size.

(a)(1) The above placement procedures will ensure mass stability and prevent mass movement of the pile.

(a)(2) It is estimated that 15% of the fill material will be of a clay shale type that will be mixed with the hard rock waste.

(b)(1) Stability analyses of the pile shall be performed by a registered engineer; however, due to the small size and location of the pile, these analyses shall be limited to field reconnaissance and subsurface investigations. Borings and laboratory tests shall be made if the engineer determines they are necessary.

(b)(2) N/A

(c) N/A

(c)(1) N/A

(c)(2) N/A

(c)(3) N/A

(d) Surface water runoff from the areas adjacent to and above the fill shall be directed to the natural drainage to the north by existing channels. Further protection for the fill will be provided by a berm around the area as shown on the attached map and cross sections.

(e) The configuration of the fill area is such that it will have a gentle slope from the upper to the lower end, without a top surface as prescribed by this section. This configuration is far more compatible with the existing terrain, and where the toe is resting on the lower terrace, stability will not be affected. Direct runoff from the pile will be collected in a surface ditch and transported to the sediment ponds as shown on the Surface Facilities Map.

(f) N/A

(g) N/A

(g)(1) N/A

(g)(2) N/A

(g)(3) N/A

*General Rock Strengths for Various Blackhawk Formation Lithologies

Rock Type	Rock Strength psi		
	Compressive	Tensile	Flexural
Mudstone**	2000-7000	200-500	300-800
Siltstone	8000-12000	450-900	600-1400
Sandstone(thin bed)	6500-12500	600-1150	900-1800
Sandstone (fluvial)	4000-9000	300-700	300-1400
Coal	1000-2500	50-250	150-350
Starpoint Sandstone (marine)	4000-6000	200-300	400-500

** wet clay-rich samples exhibit lower values

* Geologic Evaluation of a Central Utah Coal Property, Wasatch Plateau, Emery County, Utah

STABILITY ANALYSIS

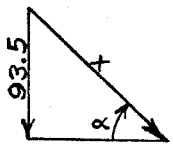
FOR

PROPOSED STORAGE PILE

85% Sandstone; Max. Angle Repose = 40^{o}; wt. = 95 lbs./cu. ft.
15% Shale; Max Angle Repose = 40^{o}; wt. = 93.5 lbs./ cu. ft.

Pile Average Max Angle Repose = 40^{o}; wt. = 93.5 lbs./cu. ft.

Average Slope on Pile = 1v:3.4h = 16.39^{o}
Maximum Slope on Pile = 1v:2h = 26.57^{o}



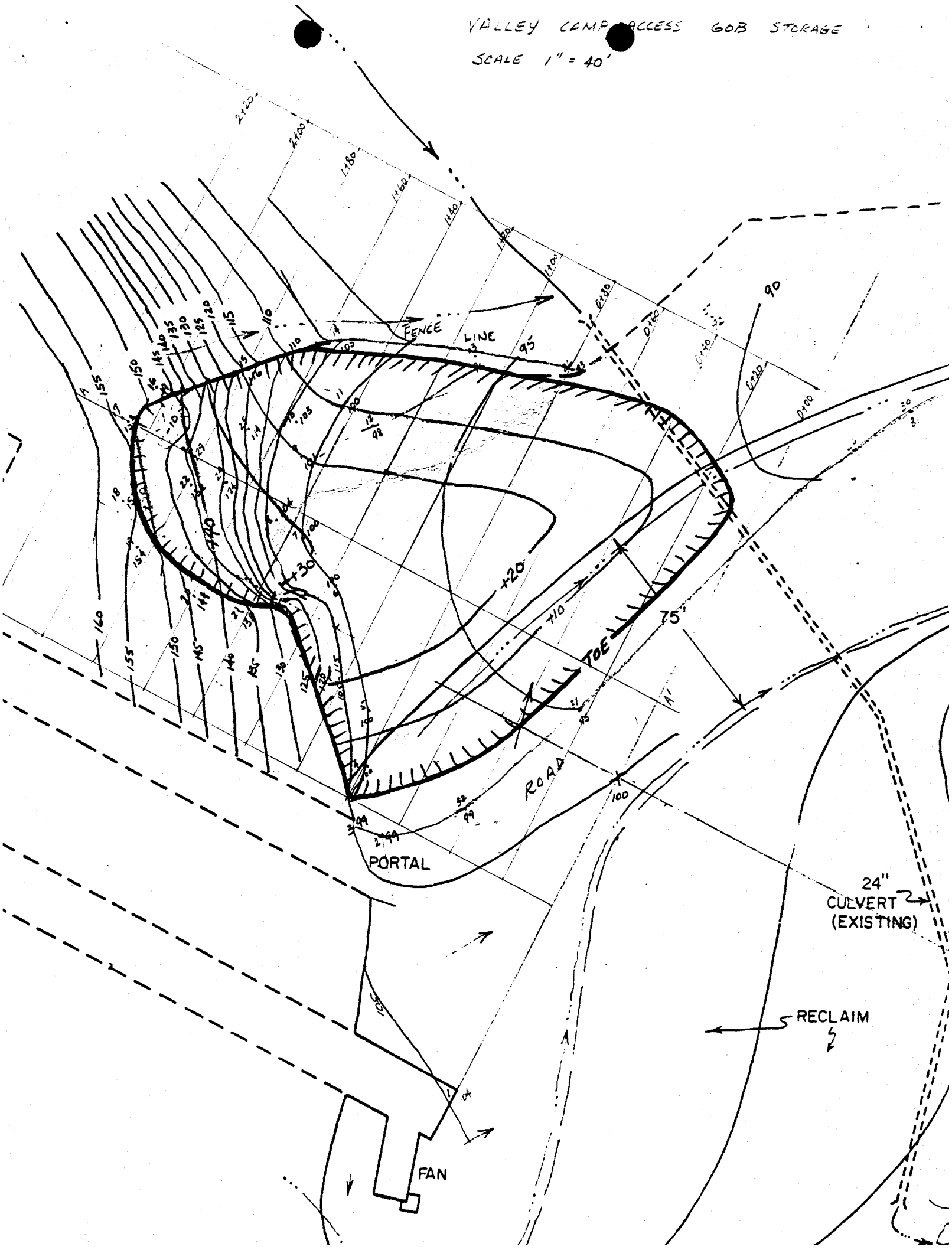
$x = \frac{93.5}{\sin}$; $\propto$ = Angle of Repose
x = Slope Component

@ $\propto = 40^{o}$, x = 145.46
@ $\propto = 26.57^{o}$, x = 249.33
@ $\propto = 16.39^{o}$, x = 519.50

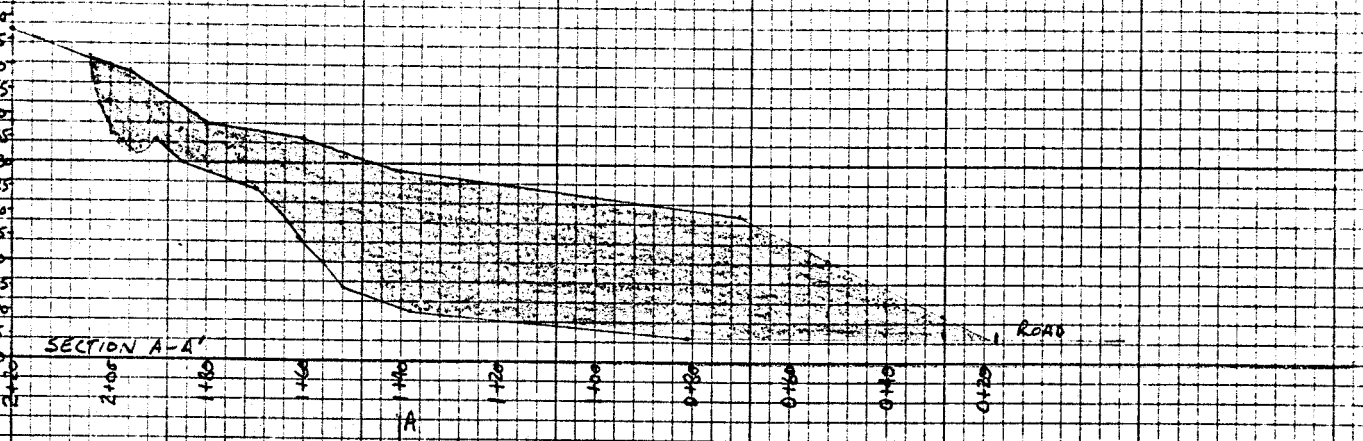
Avg. Slope = 16.39^{o}; Safety Factor = $\frac{519.50}{145.46} = \underline{3.57}$

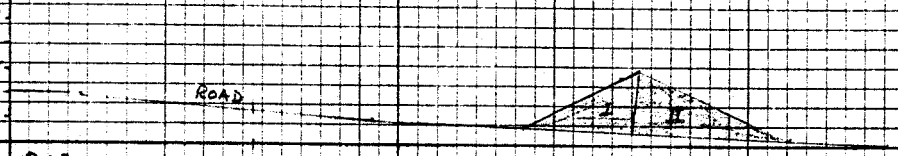
Max. Slope = 26.57^{o}; Safety Factor = $\frac{240.33}{145.46} = 1.71$

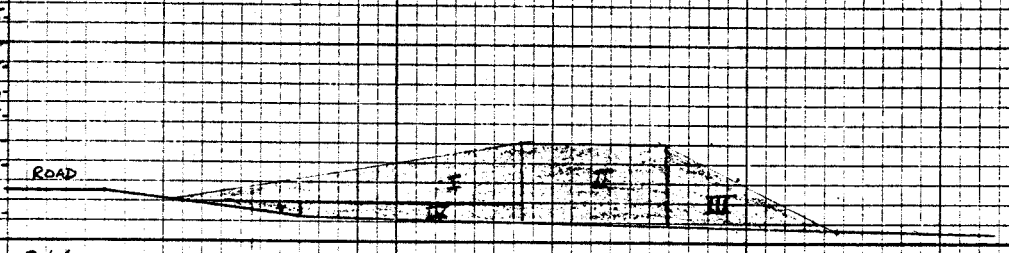
The above figures do not allow for compaction, which will normally increase the density component by a factor of 1.2. Since the figures are based on an uncompacted dry state, it is estimated that the pile will have a minimum safety factor of 1.71 with a maximum, average safety factor of 3.57.

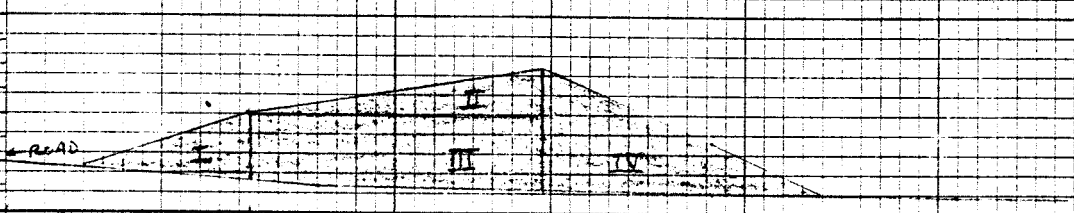

VALLEY CAMP ACCESS GOB STORAGE
SCALE 1" = 40'
FENCE LINE
ROAD
TOE
PORTAL
24" CULVERT (EXISTING)
RECLAIM
FAN

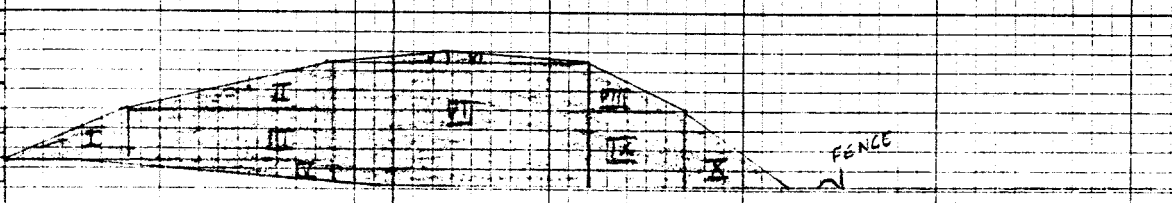
VALLEY CAMP ACCESS GOB STORAGE CROSS-SECTIONS





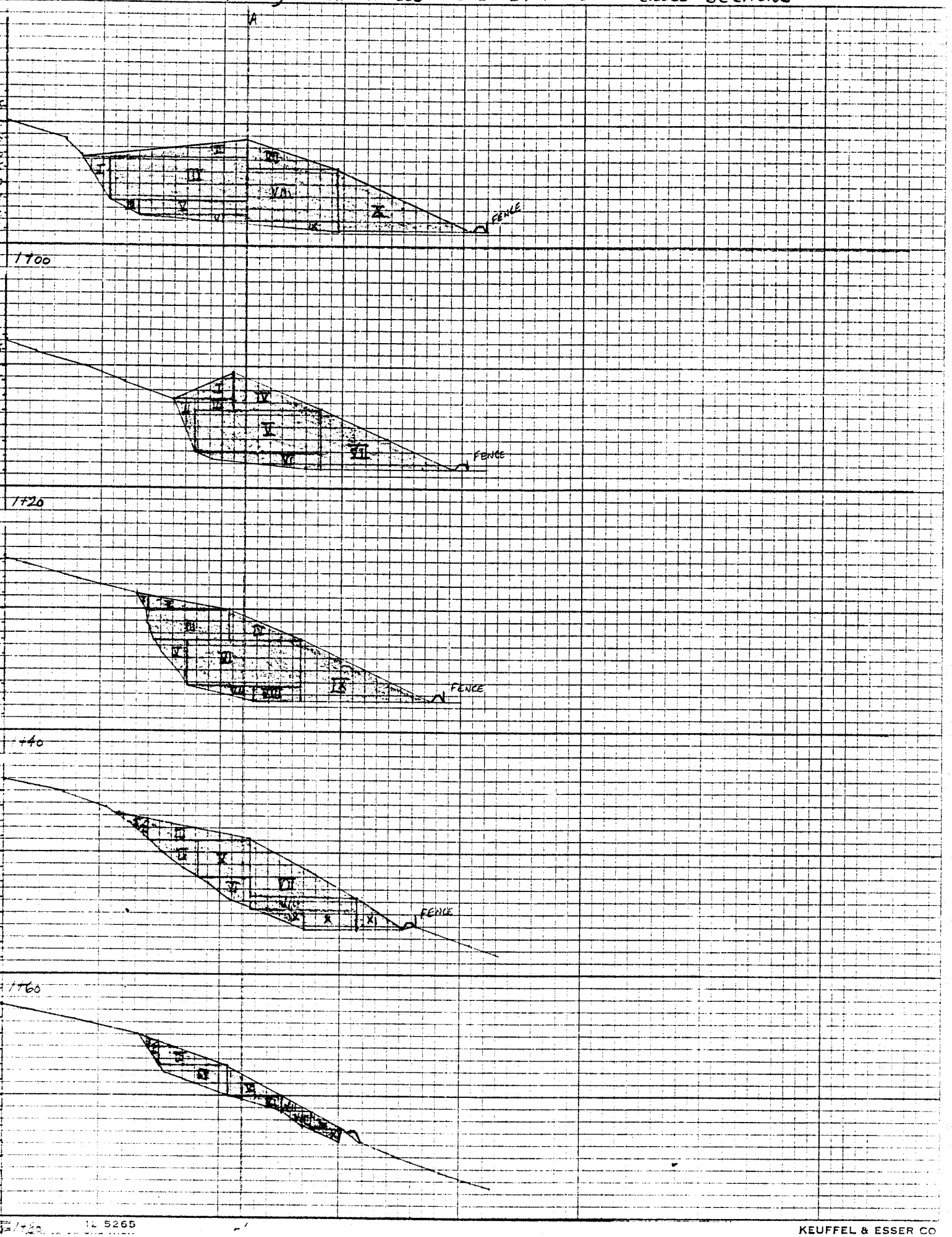




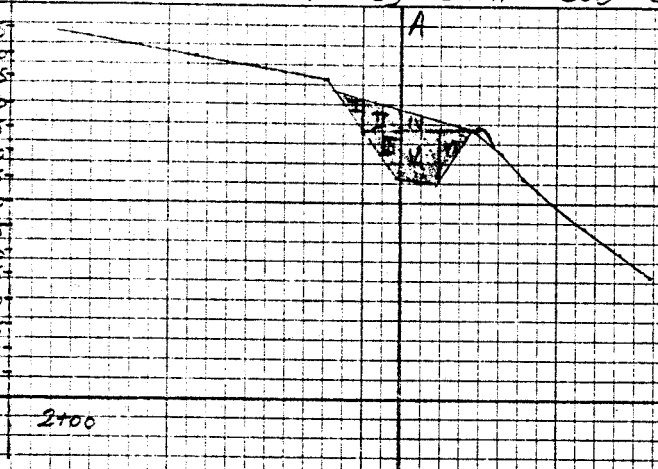


KEUFFEL & ESSER CO.

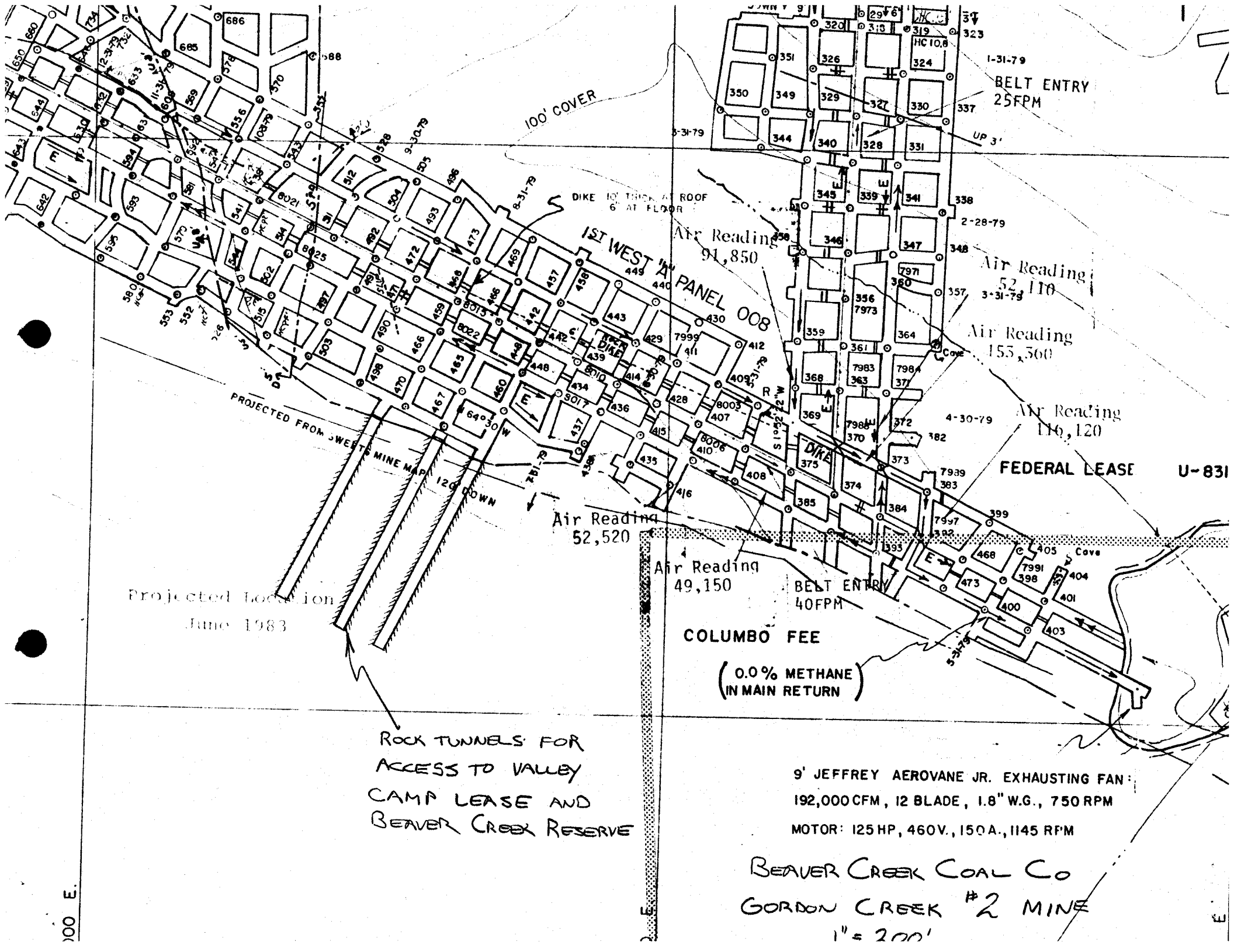
VALLEY CAMP ACCESS GOB STORAGE CROSS SECTIONS



VALLEY CAMP GOB STORAGE CROSS SECTIONS



A'


100' COVER
DIKE 10' THICK AT ROOF
6' AT FLOOR
1ST WEST "A" PANEL 008
Air Reading
91,850
Air Reading
52,110
Air Reading
153,560
Air Reading
116,120
Air Reading
52,520
Air Reading
49,150
PROJECTED FROM SWEET'S MINE MAP
Projected Location
June 1983
BELT ENTRY
25FPM
BELT ENTRY
40FPM
FEDERAL LEASE U-831
COLUMBO FEE
(0.0% METHANE
IN MAIN RETURN)
ROCK TUNNELS FOR
ACCESS TO VALLEY
CAMP LEASE AND
BEAVER CREEK RESERVE
9' JEFFREY AEROVANE JR. EXHAUSTING FAN:
192,000 CFM, 12 BLADE, 1.8" W.G., 750 RPM
MOTOR: 125 HP, 460V., 150A., 1145 RPM
BEAVER CREEK COAL CO
GORDON CREEK #2 MINE
1" = 200'