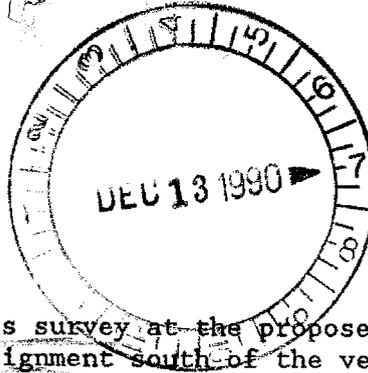


0035

December 11, 1990

Mr. John Pappas
 Soldier Creek Coal Company
 P.O. Box 1
 Price, Utah 84501



EarthFax
 EarthFax
 Engineering Inc.
 Engineers/Scientists
 7324 South 1300 East
 Suite 100
 Midvale, Utah 84047
 Telephone 801-561-1555

Subject: Topsoil thickness survey at the proposed Soldier Canyon Road realignment south of the ventilating fan facility.

Dear John:

On December 10, 1990, we conducted a topsoil thickness survey at the proposed Soldier Canyon Road realignment south of the ventilating fan facility. The survey was conducted by hand augering ten holes (AH-1 through AH-10) into the subsurface soil at the locations presented in Figure 1 (attached). Subsurface rocks precipitated penetration refusal at the contact between the topsoil and the underlying soil layer. Supplemental information was added by measuring the topsoil thickness at four locations (B-1 through B-4 in Figure 1) along the exposed banks north, west, and south of the proposed excavation area. Topsoil thickness measurements are presented in Table 1 (attached).

According to Table 1, the topsoil thickness was very erratic and typically increased at the north and west banks. Due to this erratic nature, the survey area in Figure 1 has been divided into two zones with approximately equal topsoil thicknesses. The average topsoil thickness in Zone 1 was 7.4 inches, whereas the Zone 2 topsoil consists of an average thickness of 47.5 inches. The Zone 1 topsoil thickness extends upslope for an undetermined distance. Much of the Zone 2 topsoil had accumulated through slope wash and alluvial processes. The topsoil was typically underlain by poorly sorted deposits of sand, gravel, and cobbles. The exposed north and west banks indicate that the transition between the shallow and thick topsoil deposits is abrupt.

A site reconnaissance in Zone 1 revealed that abundant gravels though boulders are present on the surface. Some of the boulders are in excess of 8 feet across. According to Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining written by the Utah Division of Oil, Gas, and Mining (UDOGM), recommended rock fragment percentages for substitute topsoil are presented in Table 2 (attached). Field observations indicate that the rock volume in localized areas of the proposed excavation often exceeds the unacceptable limit values presented in Table 2. Therefore, it is unlikely that much topsoil can be stripped from Zone 1 by heavy equipment. Any attempt to strip the Zone 1 soil will require screening.

The vegetation in the study area consists of scattered pinyon pine and juniper, sagebrush, rabbit brush, scrub oak, and grasses. Several of the trees were in excess of 10 feet tall.

During the process of removing the large vegetation, some topsoil will inevitably be lost. In addition, since a significant rock volume is intermixed with the topsoil, rock removal will decrease the projected topsoil volume. Based on the above considerations and the limit of stripping in Zone 2, the anticipated volume

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of soil which can be stripped from the study area is approximately 360 cubic yards.

We have appreciated the opportunity to provide you with this information. If you have any questions, please call.

Sincerely,

A handwritten signature in cursive script that reads "Rhett Brooks". The letters are dark and somewhat bold, with a clear loop in the 'R' and 'B'.

Rhett Brooks
Geotechnical Engineer

Attachments

TABLE 1

Measured Topsoil Thicknesses

Area	Measurement Location	Thickness (inches)
ZONE 1		
1	AH-1	9.5
1	AH-2	6
1	AH-3	4
1	AH-4	5
1	AH-5	8
1	AH-6	8
1	AH-7	10
1	AH-8	4
1	AH-9	7
1	AH-10	6
1	B-1	7
1	B-2	14
1	B-5	8
Average		7.4
ZONE 2		
2	B-3	44
2	B-4	51
Average		47.5

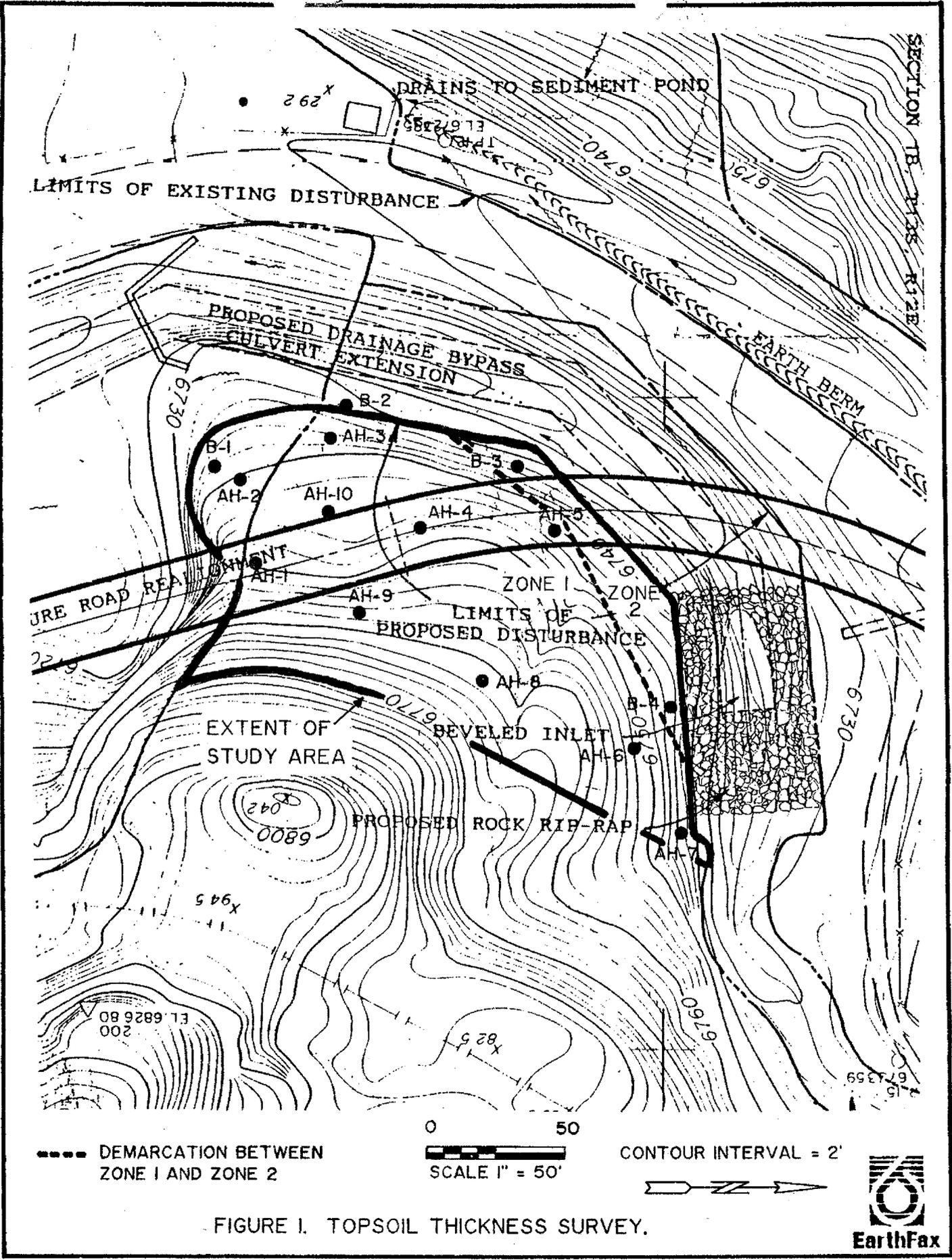


FIGURE 1. TOPSOIL THICKNESS SURVEY.



TABLE 2

Recommended Rock Fragment Percentages

Rock size (inches)	Percent Rock by Volume in <u>Substitute Topsoil Classifications</u>			
	Good	Fair	Poor	Unacceptable
3	0-15	15-25	25-30	Greater than 30
3 to 10	0-15	15-25	25-30	Greater than 30
10	0-3	3-7	7-10	Greater than 10