

A boring on the Left Side (EB1-A) penetrated alluvial soil consisting of 5.3 feet of very soft, sandy silt (A-4) overlying 2.9 feet of gravel with boulders or cobbles (A-1-b). Weathered rock was encountered at the base of the gravel at a depth of 8.2 feet. The bit continued through weathered rock to hard rock at 15.6 feet and then to termination with SPT spoon refusal at 19.0 feet. Static groundwater was found in this boring at elevation 2631.5 feet.

A boring on the Right Side (EB1-B) penetrated 8.0 feet of embankment soil consisting of very soft, sandy silt (A-4) with suspended rock fragments and a few boulders near the base. The embankment overlay alluvium composed of 4.0 feet of dark gray, very soft clay (A-7-5) grading downward to silt and sand near the base, then 2 feet of basal, loose, coarse sand and gravel (A-1-b). Weathered rock was encountered at the base of the gravel at 14.0 feet. The bit passed into hard rock at 15.2 feet. At 17.0 feet the bit broke out of hard rock into hard, silty saprolite (A-4) and continued in saprolite to a depth of 24.7 feet, where it entered weathered rock again. The boring was terminated in weathered rock at 25.0 feet. The hole caved before the static water table could be identified.

Bent One (B1): This bent lies on the floodplain and is centered about 30 feet east of the stream bank. A large willow tree is located on the Right Side of the bent. A boring on the Left Side (B1-A) penetrated 5.0 feet of alluvial, very soft, sandy silt (A-4) and 2 feet of basal gravel (A-1-b) to encounter weathered rock at a depth of 7.0 feet. The boring passed into hard rock at 7.8 feet and was terminated with SPT spoon refusal in hard rock at a depth of 9.9 feet. Static groundwater was found at elevation 2629.9 feet.

A boring on the Right Side (B1-B) penetrated 3.2 feet of alluvial, very soft, sandy silt (A-4) and 4.0 feet of alluvial gravel (A-1-b) to encounter weathered rock at a depth of 7.2 feet. The boring was carried through weathered rock with hard seams to hard rock at 9.2 feet, and continued. The core barrel was inserted at 10.9 feet and hard rock was cored from that point to termination at 25.7 feet. Coring recovered two lithologic strata of fresh, hard rock: an upper unit of layered biotite gneiss 6.7 feet thick (REC=94% RQD=87%) and a lower unit of massive biotite gneiss (REC=98% RQD=96%). Static groundwater was found in this boring at elevation 2631.2 feet.

Bent Two (B2): This bent is located on the west bank of the stream, with its Left Side on the floodplain and its Right Side in the stream channel. A boring on the Left Side (B2-A) found 9.0 feet of alluvial coarse sand and gravel (A-1-b), with boulders near the base, overlying weathered rock. The boring continued in weathered rock to 11.0 feet, at which point the core barrel was inserted, and hard rock was cored from that point to a final depth of 38.7 feet. A variety of hard, crystalline lithologies was penetrated, as given in the following table with depths and rock quality:

11.0- 13.7	moderately hard meta-gabbro, good quality
13.7 – 16.6	hard, slightly weathered, sheared pegmatite, very poor
16.6 – 21.2	hard, fresh pegmatite, very good
21.2 – 31.2	hard, slightly weathered, feldspathized transition from pegmatite to layered biotite gneiss, sheared, very poor (loss to core barrel malfunction)

31.2 – 33.2	hard, fresh felsic gneiss, good
33.2 – 35.9	moderately hard, fresh meta-gabbro, very good
35.9 – 38.7	hard, fresh layered biotite gneiss, very good

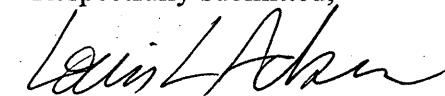
The boring caved at a shallow depth before the static groundwater table could be identified.

A boring on the Right Side (B2-B) found 11.2 feet of alluvium composed of 2.5 feet of surficial sand, gravel and cobbles (A-1-b) overlying 7.7 feet of loose to medium dense, silty sand with suspended pebbles (A-2-4) and 1.5 feet of basal gravel and boulders (A-1-b). The boring penetrated weathered rock with hard rock seams from the base of alluvium at 11.2 feet to continuous hard rock beginning at 19.0 feet, and the boring continued in hard rock to a termination depth of 23.1 feet. The static groundwater table was found at an elevation of 2631.1 feet.

End Bent Two (EB2)

This bent lies on the floodplain at the base of the US 321 embankment. Borings on the Left Side (EB2-A) and Right Side (EB2-B) recorded similar results. Alluvial soils were 7 to 8 feet thick composed of 1 to 2.5 feet of very loose, sandy silt (A-4) overlying 5 to 6 feet of gravel (A-1-b). Beneath the alluvium, the borings encountered a thin layer of weathered rock 1 to 2.5 feet thick, with hard rock seams. Reliable hard rock was found at approximately 9.5 feet in both borings, and the borings were terminated in hard rock at 11.7 and 11.3 feet, respectively. The static ground water table was found at 1.2 feet in EB2-A and at 2.0 feet in EB2-B.

Respectfully submitted,



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