

DATE: October 19, 1982

Memorandum

TO : Those Listed Below

FROM : Heber Vlam, P.E., Engineer of Materials and Research *H.V.*SUBJECT: I-15-5(11)213 - Mills Junction to South Nephi; Foundation Report for I-15 over Sage Valley Road at I-15 Q Station 337+00

SITE CONDITIONS

Two single span prestressed concrete beam structures are proposed to carry I-15 over Sage Valley Road. The structures will be approximately 84 feet long by 44 feet wide and will have a crossing angle of 85°. The approach embankments will be about 16 to 19 feet high, while Sage Valley Road will require about 5 to 7 feet of cut at the crossing site.

Surface drainage in the area is good.

SUBSURFACE EXPLORATION

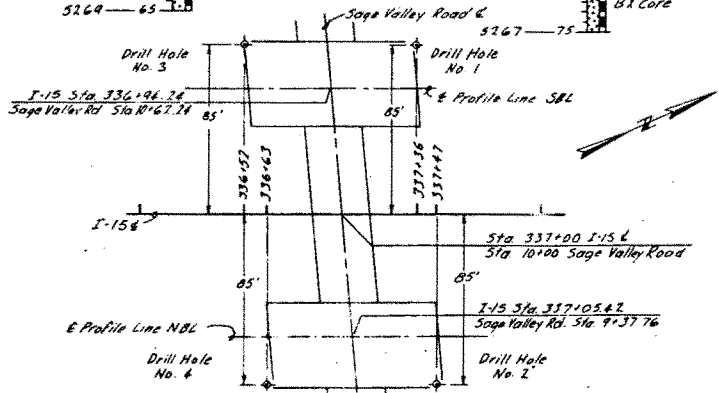
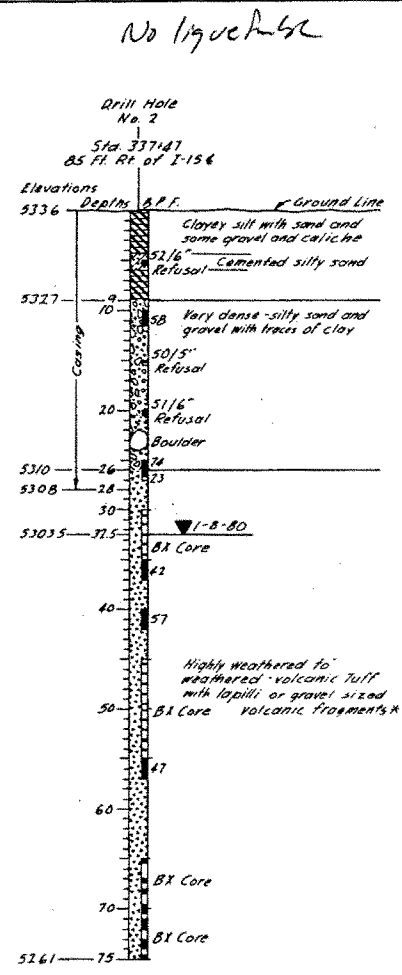
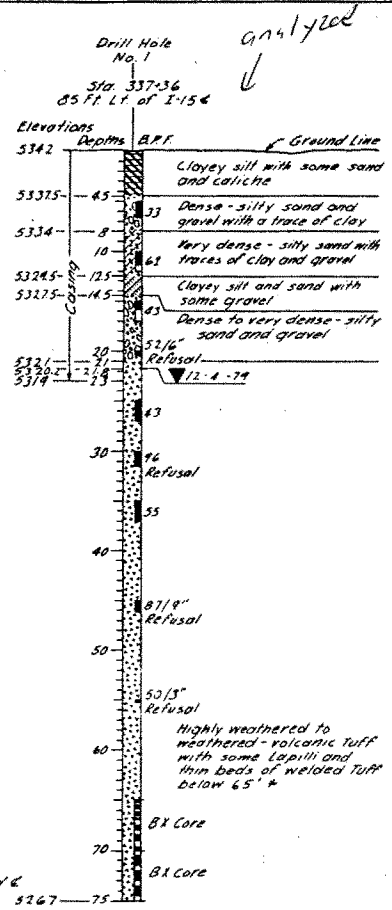
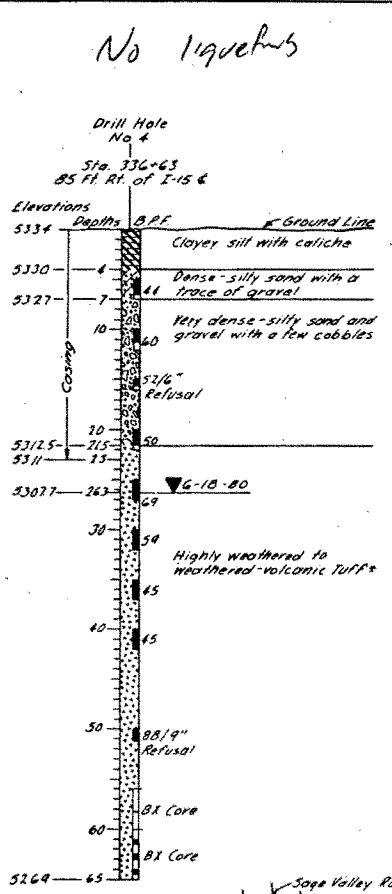
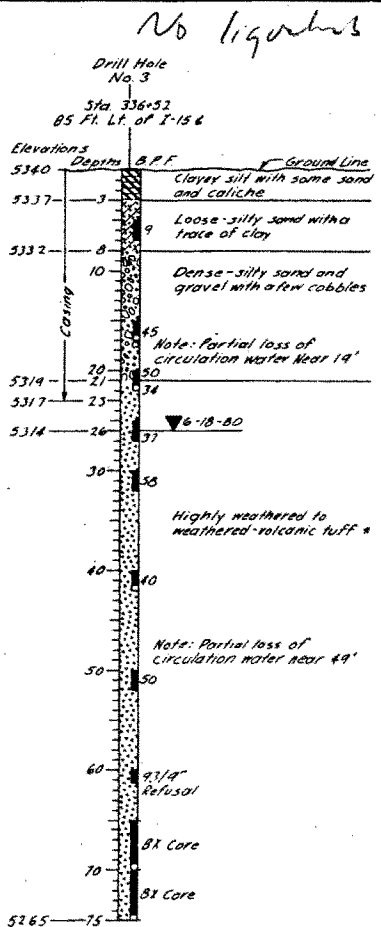
Four test holes were drilled at this site with depths ranging from 65 feet to 75 feet. Correlation between test holes is good and in general the subsurface materials may be described as follows: from the ground surface to a depth of 4 feet - clayey silt with sand and caliche; from 4 feet to 8 feet - loose to very dense silty sand with some gravel; from 8 feet to 22 feet - dense to very dense silty sand and gravel with a few cobbles and boulders; from 22 feet to the maximum depth of exploration - highly weathered to weathered volcanic tuff with some lapilli or volcanic fragments. It should be noted that chemical alteration associated with weathering has given this volcanic tuff a texture similar to hard clayey silt with sand.

Ground water depths were measured at 22 to 33 feet.

See Figure 1 Drilling Log for more detailed descriptions and test hole locations.

FOUNDATION RECOMMENDATIONS

Drilled caissons are recommended to support the abutments of these structures. Drilled caissons 4.0 feet in diameter, founded in the dense to very dense silty sand and gravel may be loaded to 212 kips per caisson. See Figure 2 for the bearing capacity of caissons with other diameters. The recommended caisson tip elevations are as follows:



* NOTE: Chemical alteration associated with weathering has given this material a texture similar to hard clay silt with sand [and gravel where lapilli is present]

Date Drilled 11 & 12 - 19

KEY TO DRILLING LOG

RELATIVE DENSITY (NON-PLASTIC SAND & SILT)
 VERY LOOSE - LESS THAN 4 BLOWS PER FOOT
 LOOSE - 4 TO 10 BLOWS PER FOOT
 MEDIUM - 10 TO 30 BLOWS PER FOOT
 DENSE - 30 TO 50 BLOWS PER FOOT
 VERY DENSE - MORE THAN 50 BLOWS PER FOOT

CONSISTENCY (PLASTIC SILT & CLAY)
 VERY SOFT - LESS THAN 4 BLOWS PER FOOT
 SOFT - 4 TO 10 BLOWS PER FOOT
 MEDIUM - 10 TO 30 BLOWS PER FOOT
 STIFF - 30 TO 50 BLOWS PER FOOT
 VERY STIFF - 50 TO 100 BLOWS PER FOOT
 HARD - MORE THAN 100 BLOWS PER FOOT

TOPSOIL OR FILL	SHALE	SANDY CLAY
GRAVEL	LIMESTONE	CLAYEY SAND
SILT	CONCRETE	SILTY CLAY
CLAY	DOLomite	CLAYEY SILT
SWALE		SILTY SAND
		SANDY SILT

DRILL HOLE NO
STATION

ELEVATIONS
GROUND ELEVATION

DEPTH
5' 10' 15' 20' 25' 30' 35' 40' 45' 50' 55' 60' 65' 70' 75'

GROUND LINE
EXAMPLE: TYPICAL STIFF MEDIUM PLAST. BRN CLAY SOME SILT

GROUND WATER TABLE
DATE

STRATA CHANGE
15' 20' 25' 30' 35' 40' 45' 50' 55' 60' 65' 70' 75'

LOCATION OF SAMPLE
DATE

SAMPLE NOT RECOVERED
REASON NOT RECOVERED

CLASSIFICATION OF EACH SAMPLE AND RESULTS OF CLASSIFICATION TESTS.

ABBREVIATIONS
 L.L. - LIQUID LIMIT IN %
 P.I. - PLASTIC INDEX
 N. - NATURAL MOISTURE CONTENT IN %
 W.G. - WELL GRADED
 P.E.N. - PENETRATION
 G.W.T. - GROUND WATER TABLE
 B.P.F. - BLOWS PER FOOT
 N.P. - NON PLASTIC

NOTE: REFUSAL = 90 or more blows per ft

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH

MATERIALS AND RESEARCH SECTION

MILLS JUNCTION TO SOUTH NEPHI
I-15 OVER SAGE VALLEY ROAD

DESIGNED BY: KISTNER
CHECKED BY: [Name]
DATE: 11-15-51(1121)

CONSTRUCTED BY: [Name]
CHECKED BY: [Name]
DATE: 3-3-50

RECORDED BY: [Name]
CHECKED BY: [Name]
DATE: 11-15-51

PROJECT NUMBER: 337+00

DATE: 11-15-51

LOCATION: JUAB

REVISIONS