

Memorandum

5118
UTAH DEPARTMENT OF TRANSPORTATION

FOUNDATIONS

T22S R1W

Sec 2N

DATE: November 25, 1983

: Those Listed Below

: Heber Vlam, P.E., Engineer of Materials and Research *H.V.*

SUBJECT: I-70-1(25)48 - Sigurd to Salina - Foundation Report
for I-70 over "M" Line at I-70 Station 2772+67.83 WBL
and 2773+00.50 EBL, Drg. No. F-491

SITE CONDITIONS

Two single span prestressed concrete beam structures, 91 feet long by 45 feet wide are proposed to carry I-70 over "M" line. The crossings will be at angles of approximately 83° and 84°. Approximately 14 feet of fill will be required at the both No. 1 abutments and about 13 feet of fill at both No. 2 abutments.

Drainage of surface water in the area is good.

SUBSURFACE EXPLORATION

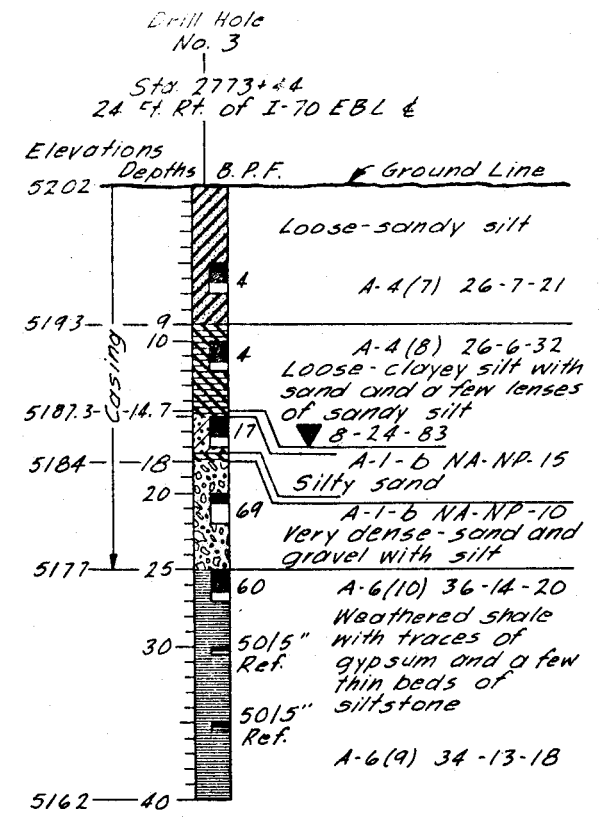
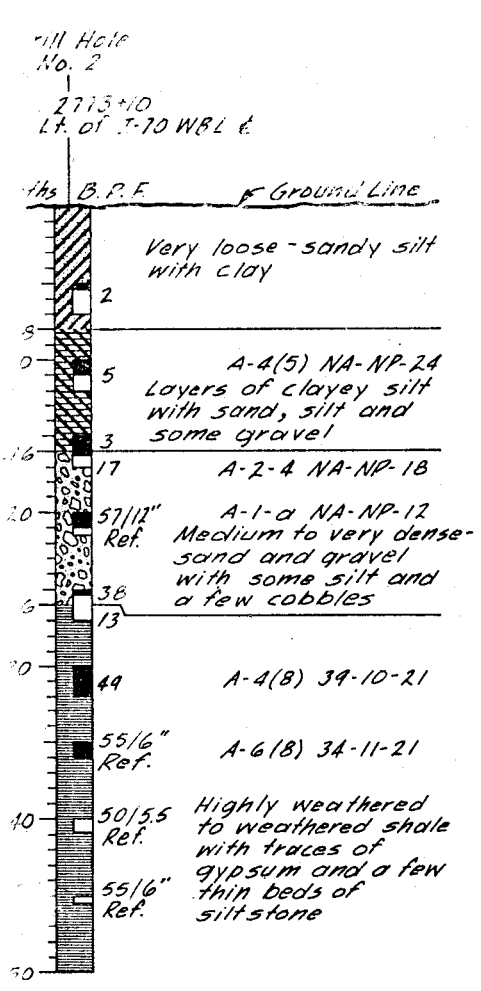
Four test holes were drilled at the site of the proposed structures to depths of 40 to 81 feet. Correlation of subsoils between drill holes is fair. The subsoils profile can be generalized as follows: from the ground surface to 15 feet - clayey silt and sandy silt; from 15 feet to 25 feet - medium to very dense sand and gravel with some silt; from 25 feet to the maximum depth of exploration-weathered shale with traces of gypsum. For a more detailed description of the subsoils and test hole locations, refer to Fig. 1, Log of Borings.

A ground water table was observed at approximately 14 feet below the natural ground surface.

FOUNDATION RECOMMENDATIONS

Drilled caissons are recommended for support of the abutments on these structures. The recommended maximum bearing capacities and tip elevations for 3.5 feet diameter caissons are as follows:

<u>Location</u>	<u>Estimated Caisson Tip Elevations Ft.</u>	<u>Approximate Caisson Length Ft.</u>	<u>Allowable Caisson Load Kips</u>
Abut. #1 WBL	5158	46	230
Abut. #2 WBL	5163	42	230
Abut. #1 EBL	5164	40	230
Abut. #2 EBL	5165	40	230

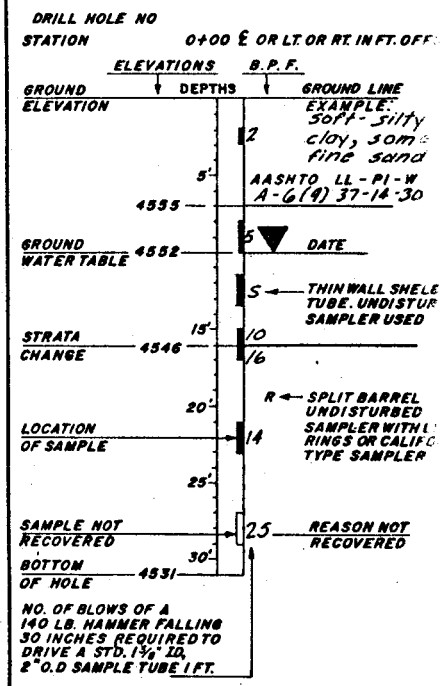


KEY TO DRILLING LOG

RELATIVE DENSITY (NON-PLASTIC SANDS)
 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 2 BLOWS PER FOOT.
 SOFT - 2 TO 4 BLOWS PER FOOT.
 MEDIUM - 4 TO 8 BLOWS PER FOOT.
 STIFF - 8 TO 15 BLOWS PER FOOT.
 VERY STIFF - 15 TO 30 BLOWS PER FOOT.
 HARD - MORE THAN 30 BLOWS PER FOOT.

TOPSOIL OR FILL IGNEOUS SAND & CLAY
 GRAVEL LIMESTONE CLAY SAND
 SAND CONGLOMERATE SILTY CLAY
 SILT DOLOMITE CLAYEY SILT
 CLAY SANDSTONE SILTY SAND
 SHALE SILTSTONE SAND SILT



ABBREVIATIONS

L.L. - LIQUID LIMIT IN %
 P.I. - PLASTIC INDEX
 w. - NATURAL MOISTURE CONTENT
 Ref. - REFUSAL ≥ 50 BLOWS PER FOOT
 PEN. - PENETRATION
 G.W.T. - GROUND WATER TABLE
 B.P.F. - BLOWS PER FOOT.
 N.P. - NON PLASTIC
 AASHTO - SOIL CLASSIFICATION



73+00.05 I-70 EBL
 +10.67 "M" Line

NOTE: Water table readings were not taken on Drill Holes #1 and #2.

Date Drilled: July & Aug. 1983

NO.	BY	DATE	REVISIONS

UTAH STATE DEPARTMENT OF TRANSPORTATION
 SALT LAKE CITY, UTAH
MATERIALS and RESEARCH SECTION

SIGUR TO SALINA
 I-70 OVER "M" LINE

Drawn By KISTLER Checked By J. Payne 1-70-1(2)
 Checked By P. Skemore Checked By K. Powell Project No.
 Checked By S. Salzman Checked By 2772-875
 2773+00.5
 Station
 Approval Recommended By Loren H. Pauwahan
 Received: _____ Date _____ Chief Structural Eng. _____
 County _____

Foundations File No. 82-7-FS-21 Drg No. F-491

FIGURE 1

