

R-234

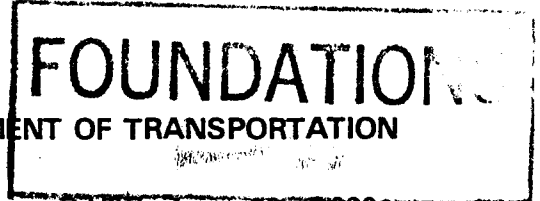
*No Liquefaction*

2113

*Deposits*

# Memorandum

UTAH DEPARTMENT OF TRANSPORTATION



DATE: June 30, 1982

TO : Those Listed Below

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

SUBJECT: I-15-5(11)213 - Mills Jct. to South Nephi  
I-15 NBL & SBL over County Road (Sheeplane)

*T135 R1E  
Section 17P*

## SITE CONDITIONS

Two single span prestressed concrete beam structures are proposed to carry I-15 NBL & SBL over a county road. Each of the proposed structures will be approximately 110 feet long by 44 feet wide and will cross a county road (Sheeplane) at an angle of approximately 46°. The approach embankments will be approximately 23 feet high.

Drainage in the area is generally fair except around abutment #1 of SBL. Around this abutment the drainage is very poor to none.

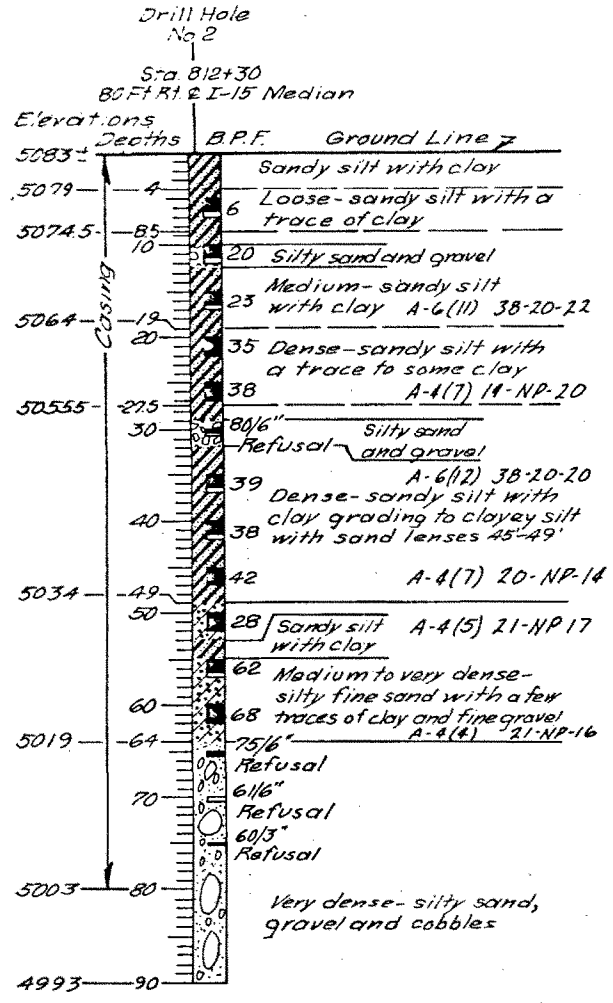
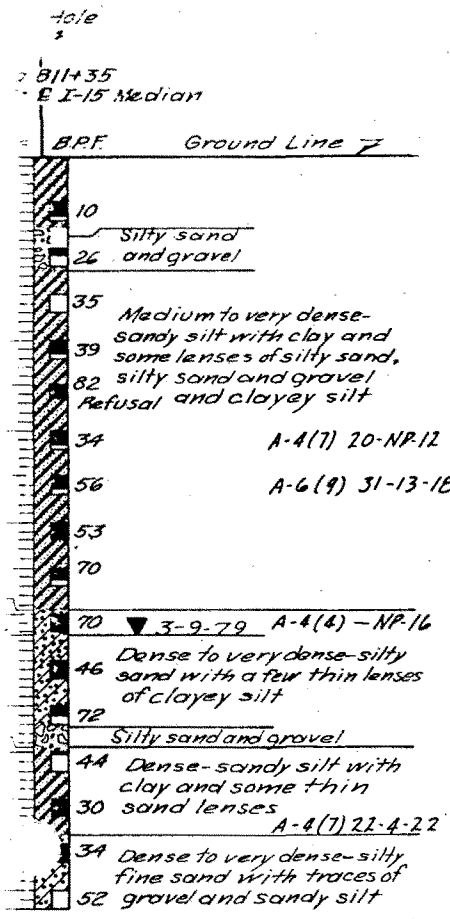
## SUBSURFACE EXPLORATION

Four test holes were drilled at the site of the proposed structures to depths of 82 to 90 feet. Correlation of subsoils between drill holes is fair. The subsoils profile can be generalized as follows: from the ground surface to 9 feet - clayey fine sandy silt; from 9 feet to 13 feet - silty sand and gravel; from 13 feet to 19 feet - clayey fine sandy silt; from 19 feet to the maximum depth of exploration - alternate layers of silty fine sand and clayey fine sandy silt with some sand and gravel lenses. For a more detailed description of the subsurface materials and test hole locations, refer to Fig. 1, Log of Borings.

The ground water table was 53 feet below natural ground level.

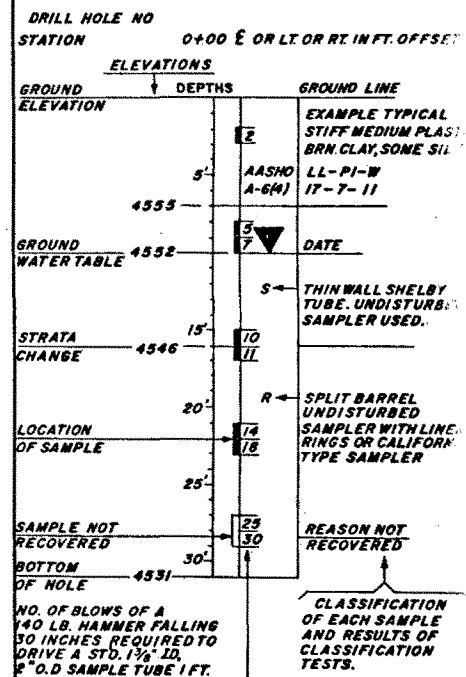
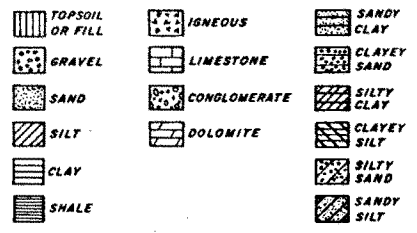
## FOUNDATION RECOMMENDATIONS

One foot diameter steel pipe piles are recommended for support of the abutments on these structures. The recommended maximum bearing capacities and tip elevations for the piles are as follows:



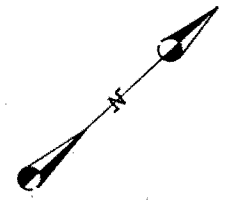
**KEY TO DRILLING LOG**  
**RELATIVE DENSITY (NON-PLASTIC SANDS & SILT)**  
 VERY LOOSE - LESS THAN 4 BLOWS PER FOOT.  
 LOOSE - 4 TO 10 BLOWS PER FOOT.  
 MEDIUM - 10 TO 30 BLOWS PER FOOT.  
 DENSE - 30 TO 50 BLOWS PER FOOT.  
 VERY DENSE - MORE THAN 50 BLOWS PER FOOT.

**CONSISTENCY (PLASTIC SILT & CLAY)**  
 VERY SOFT - LESS THAN 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.



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

Note: Refusal more than 50 blows per 6"



Note: Drilled February, March 1979.

UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH		MATERIALS AND RESEARCH SECTION	
MILLS JUNCTION TO SOUTH NEPHI			
I-15 NBL & SBL OVER COUNTY RD.			
DRAWN BY <i>D. Saade</i>	CHECKED BY <i>B. Kistler</i>	PROJECT NUMBER I-15-5(11) 217	
CHECKED BY <i>P. J. Sizemore</i>	CHECKED BY <i>D. K. Powell</i>	PROJECT NUMBER 810-9813 & I-15 Survey	
CHECKED BY <i>J. Ryan</i>	CHECKED BY <i>Sh. Jalkanen</i>	STATION JUAB	
APPROVAL RECOMMENDED BY <i>Loren H. Kanahan</i>		COUNTY	
RECEIVED	DATE	CHIEF STRUCTURAL ENG'R.	OF
NO.	BY	DATE	REMARKS
REVISIONS			

Fig - 1

