

No 6W

2121 (1/2)

2122

No 119

Memorandum.

UTAH STATE DEPARTMENT OF HIGHWAYS

2121
TRIS RIE
Sec 28P

DATE: February 7, 1973
FOUNDATIONS
Filed 2-23-73

TO : Those Listed Below

FROM : W. J. Stephenson, Engineer of Materials and Tests

SUBJECT: I-15-5(1)207 North Nephi to Santaquin, 2nd Contract
Foundation Report on I-15 over Deer Crossing at Station 308+00
and I-15 over "C" Line at Station 413+65.6

2122
TRIS RIE
Sec 4N

SUMMARY OF RECOMMENDATIONS

2122

Location	Foundation Type	Bearing Capacity	Approx. Base Elevation	Approx. Depth Below Nat. Gro.
I-15 over Deer X-ing Sta. 308+00	Abuts: Spread Footings	4.0 TSF	NBL (So.)5166'	4'
		(4' to 10'Wide)	(No.)5171'	5'
		4.0 TSF	SBL (So.)5157'	6'
		(4' to 10'Wide)	(No.)5161'	6'
	Bents: Spread	4.0 TSF	NBL-5156'	4'*
	Footings	(4' to 10'Wide)	SBL-5149'	4'*
I-15 over "C" Line Sta. 413+65.6	Abuts: Drilled Caissons	8.5 TSF	NBL-5110'	10'
		(2.5' diam.)	SBL-5107'	11'
	Bents: Spread Footings	2.4 TSF	NBL-5112	4'*
		(8' Wide)	SBL-5109	4'*

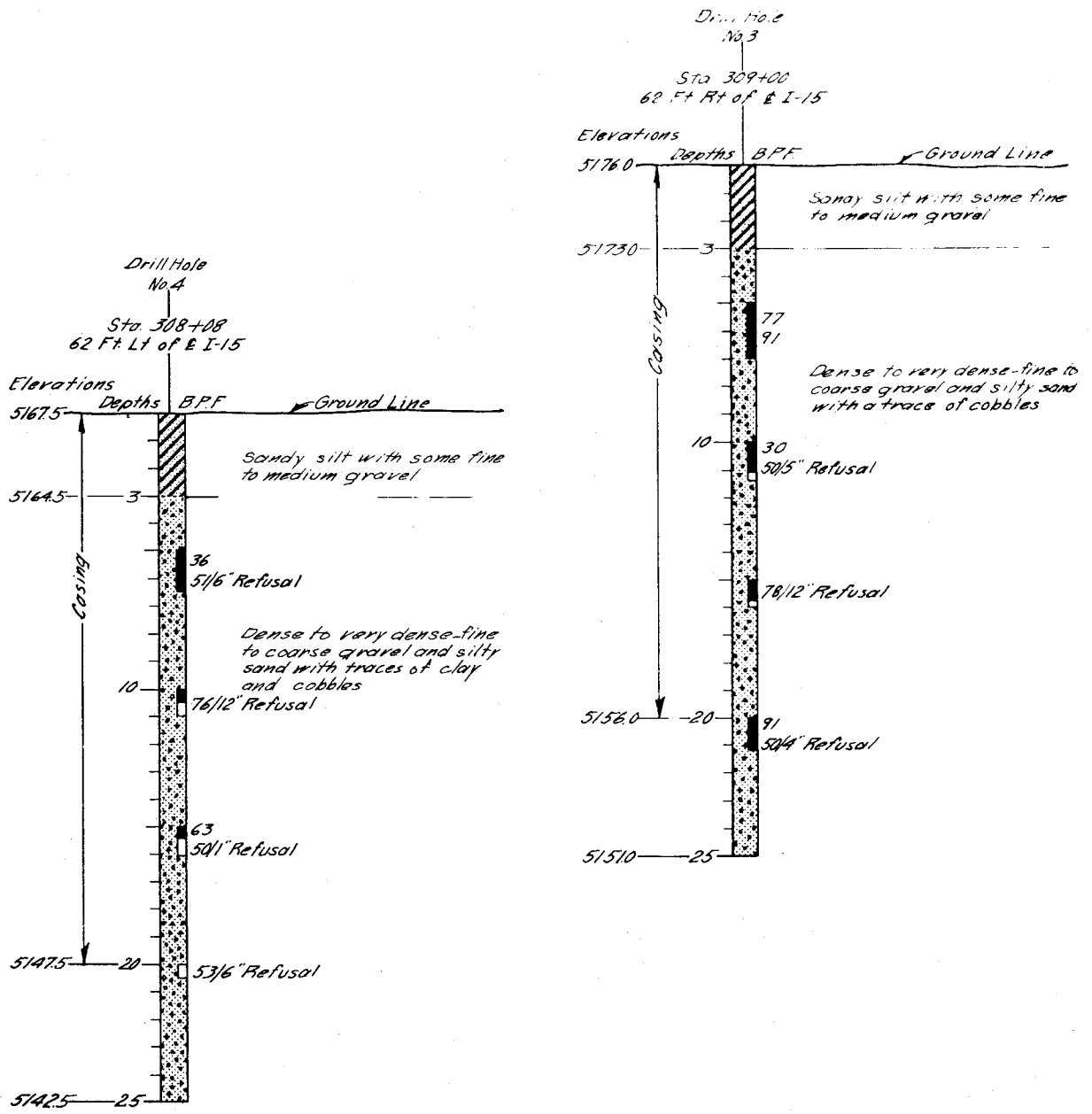
*Depth below Grade Line Crossing

I-15 OVER DEER CROSSING-STATION 308+00 S.B.L.

SITE CONDITIONS

Two, three-span continuous steel beam structures, 95 feet long and 44 feet wide, are proposed at this site. Interstate 15 will pass over the Deer Crossing at a 55° skew angle. The structure approach embankments will be approximately 5 to 6 feet high.

Surface drainage is good and the runoff flows westerly into the intermittent stream which is to be used as the Deer Crossing.



KEY TO DRILL LOG
RELATIVE DENSITY (NON-COHESENT SOILS)
 VERY LOOSE - LESS THAN 10 BLOWS
 LOOSE - 10 TO 30 BLOWS
 MEDIUM - 30 TO 50 BLOWS
 DENSE - 50 TO 100 BLOWS
 VERY DENSE - MORE THAN 100 BLOWS

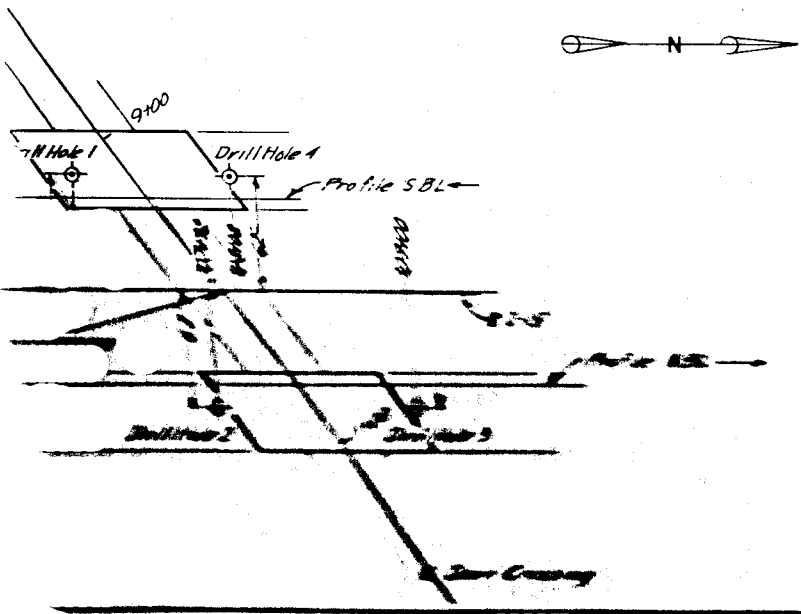
CONSISTENCY (PLASTIC CLAYS)
 VERY SOFT - LESS THAN 2 BLOWS
 SOFT - 2 TO 4 BLOWS
 MEDIUM - 4 TO 8 BLOWS
 STIFF - 8 TO 15 BLOWS
 VERY STIFF - 15 TO 30 BLOWS
 HARD - MORE THAN 30 BLOWS

- TOPSOIL OR FILL
- GRAVEL
- SAND
- SILT
- CLAY
- SHALE
- 10'
- 15'
- 20'
- 30'
- 40'
- 50'

DRILL HOLE STATION	ELEVATIONS	DEPTHS
0+00	GROUND ELEVATION	0
	GROUND WATER TABLE	4532
	STRATA CHANGE	15'
	LOCATION OF SAMPLE	20'
	SAMPLE NOT RECOVERED	25'
	BOTTOM OF HOLE	30'
		4531

NO. OF BLOWS OF A 140 LB. HAMMER FALLING 50 INCHES REQUIRED TO DRIVE A STD. 1 1/2" I.D. 2" O.D. SAMPLE TUBE 1 FT.

- ABBREVIATIONS**
- L.L. - LIQUIDITY
 - P.I. - PLASTICITY
 - N. - NATURAL
 - W.G. - WELL
 - PEN. - PENETRATION
 - G.W.T. - GROUND WATER TABLE
 - B.P.F. - BLOW PER FOOT
 - N.P. - NON PLASTIC



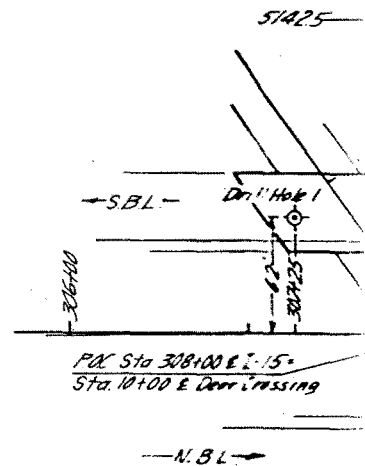
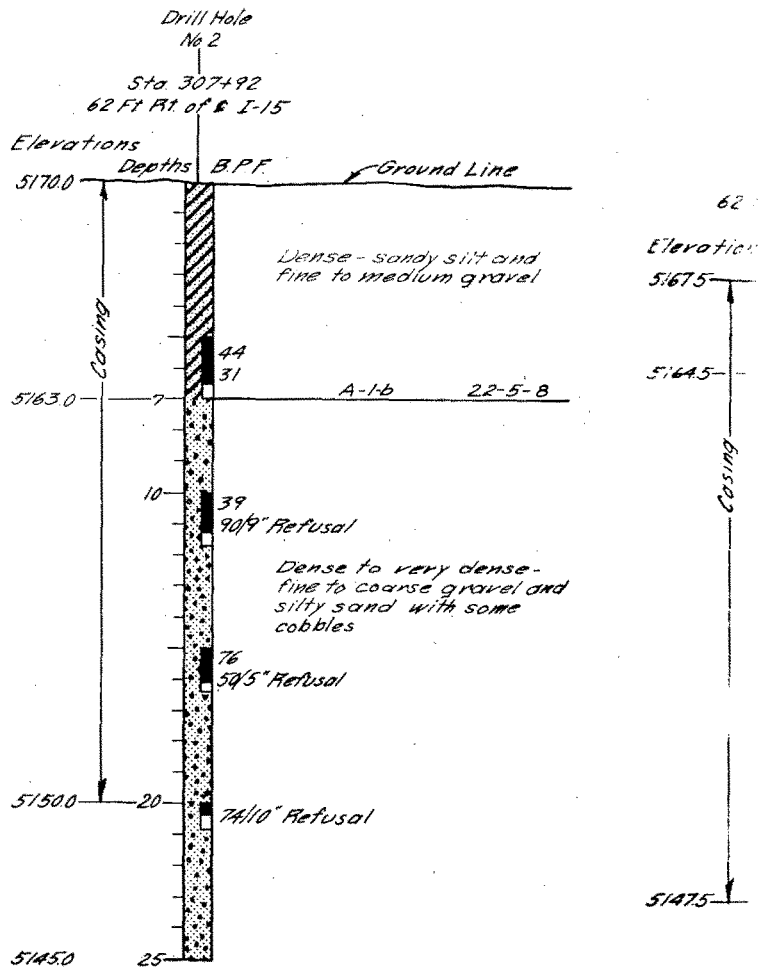
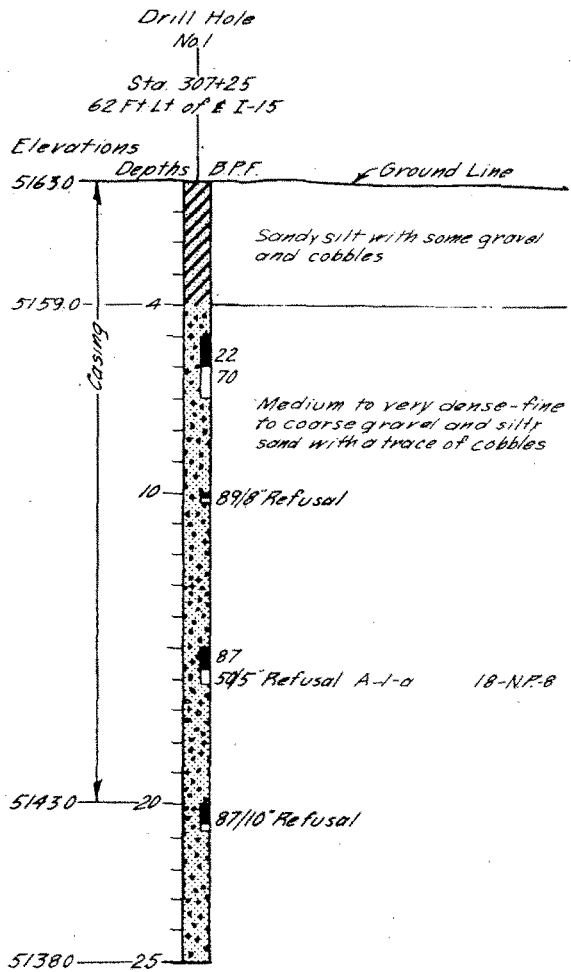
Note: Water table determinations were not made because of hole caving as casing was removed.
 Drilled April, 1971

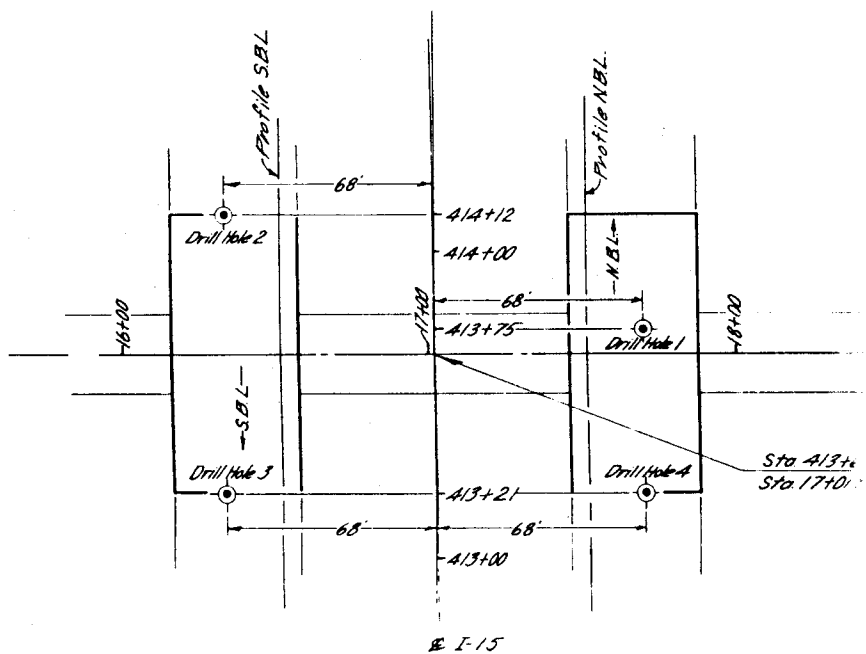
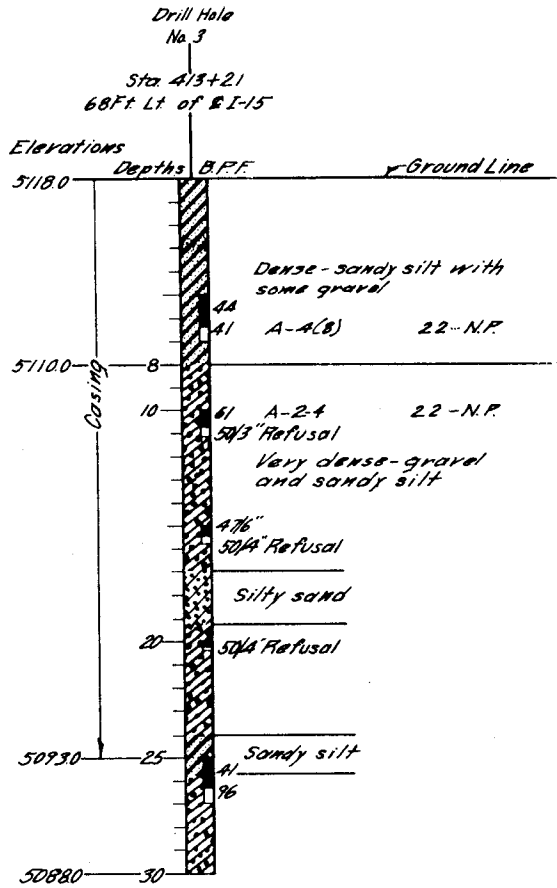
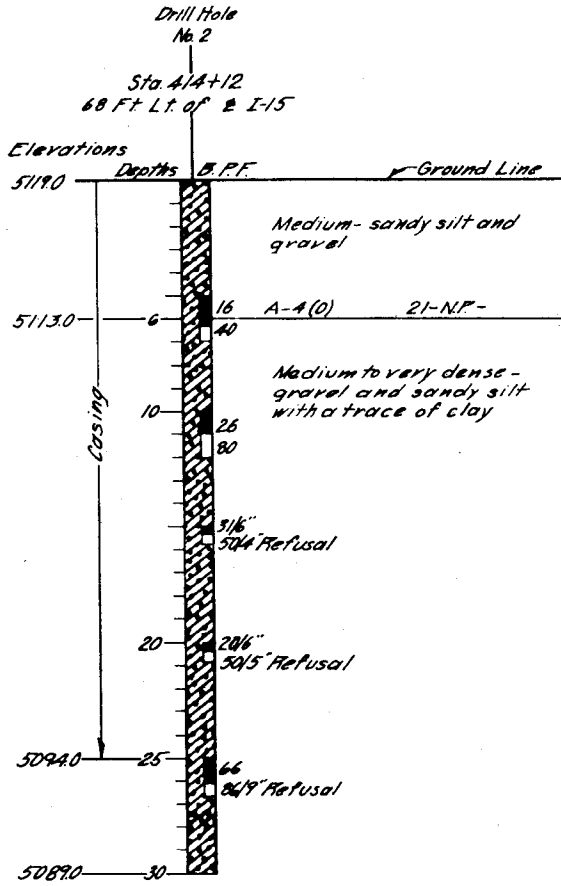
NO.	BY	DATE	REMARKS
REVISIONS			

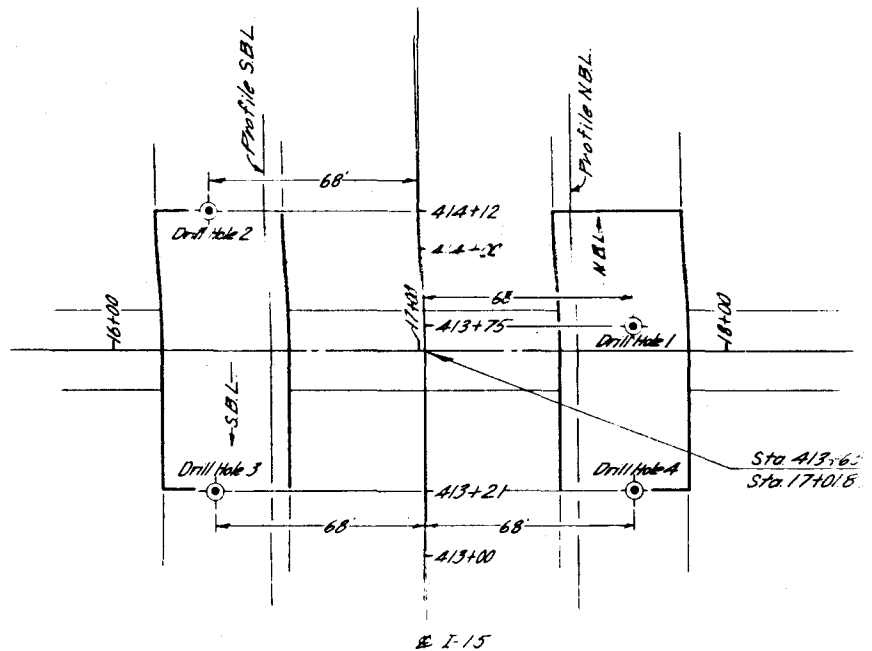
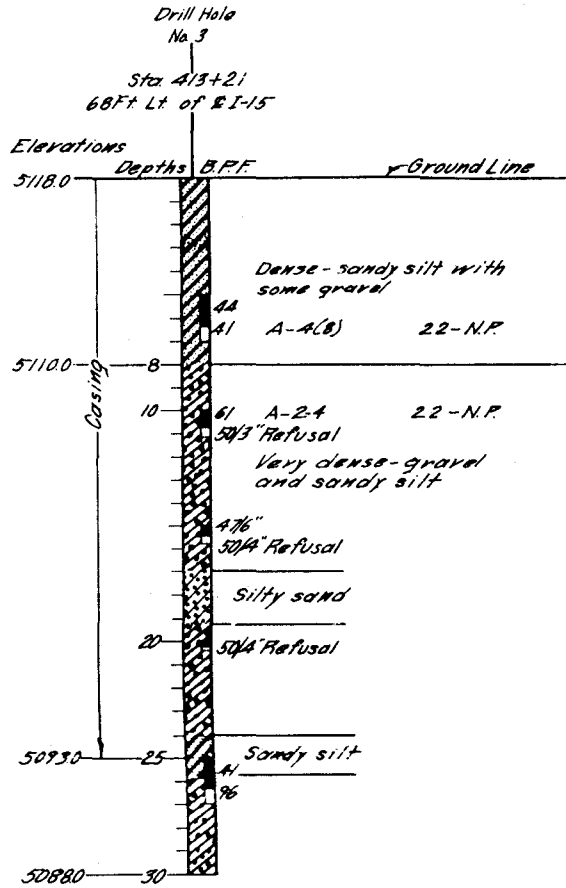
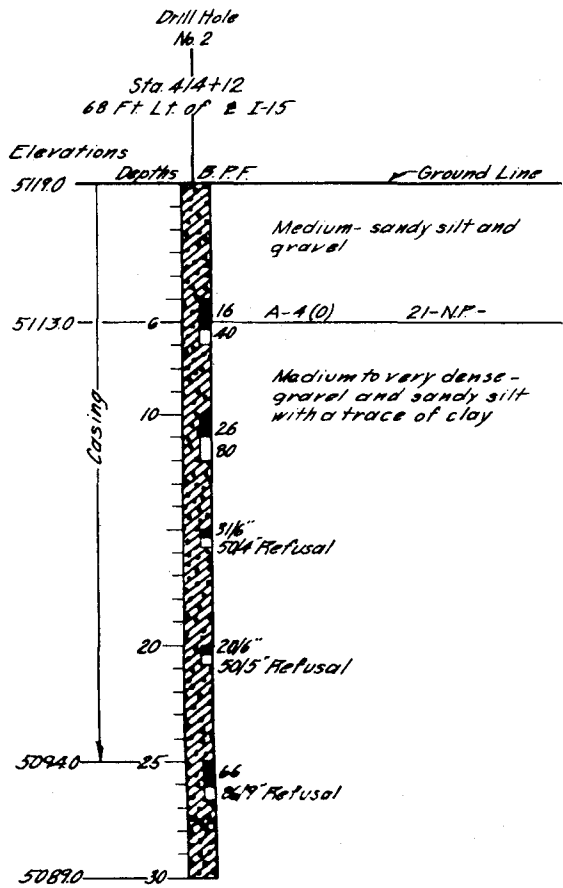
UTAH STATE DEPARTMENT OF HIGHWAYS
 SALT LAKE CITY
MATERIALS AND TESTING DIVISION
 NORTH NEPHITE AVENUE
 I-15 OVER DEEP CANYON

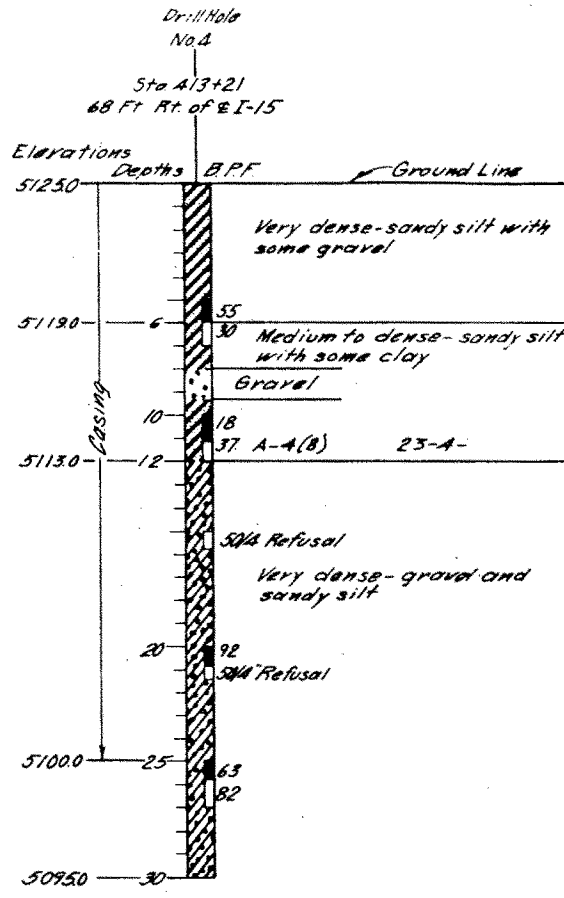
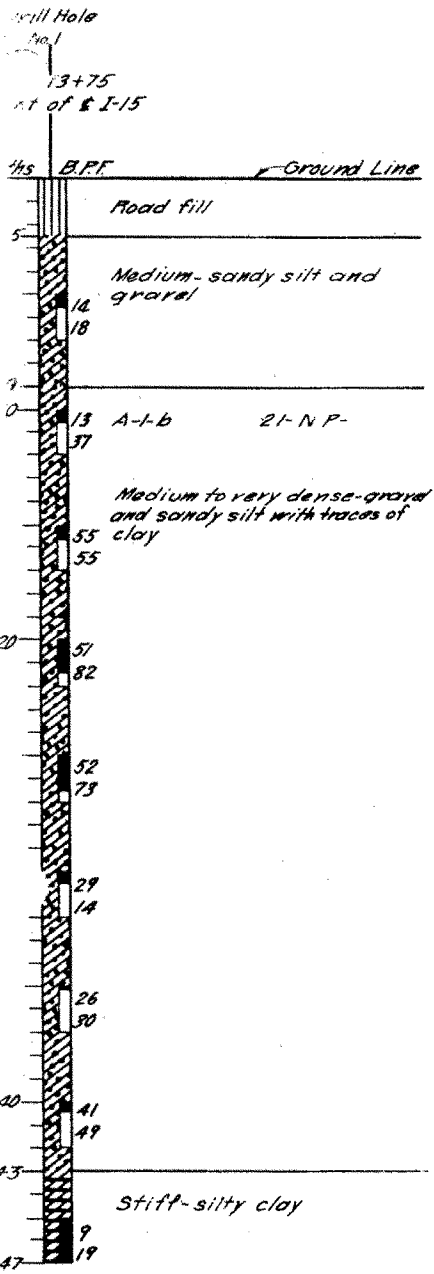
DRAWN BY: B.C. Smith
 CHECKED BY: L.M. RAYBURN
 CHECKED BY: J.T. PYLE
 APPROVAL: [Signature]
 RECEIVED: [Date] [Signature]

FIGURE - 1









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 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.

LEGEND:

- TOPSOIL OR FILL
- GRAVEL
- SAND
- SILT
- CLAY
- SHALE
- IRREGULAR
- LIMESTONE
- CONGLOMERATE
- DOLOMITE
- SANDY CLAY
- CLAY SAND
- SILT CLAY
- CLAY SILT
- SILT SAND
- SAND SILT

DRILL HOLE NO. 0+00 E OR LT OR RT IN FT. OFF.

GROUND ELEVATION	DEPTHS	GROUND LINE
4555	5	EXAMPLE TYPE: STIFF MEDIUM F. BRN. CLAY, SOME LL-PI-W 17-7-11
4552	7	DATE
4546	15	THIN WALL SHEET PILE, UNDISTURBED SAMPLER USED
	20	SPLIT BARREL UNDISTURBED SAMPLER WITH RINGS OR CALIF. TYPE SAMPLER
	25	REASON NOT RECOVERED
	30	REASON NOT RECOVERED
4831		

NO. OF BLOWS OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO DRIVE A STD. 1 1/2" ID. 2" O.D. SAMPLE TUBE 1 FT.

CLASSIFICATION OF EACH SAMPLE AND RESULTS CLASSIFICATION TESTS.

ABBREVIATIONS

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

NOTE: The water table was not encountered. High losses of circulation water occurred below 20 feet in all holes.

Drilled: April 1970

DRILLED BY: B.C. Seale	CHECKED BY: B. KISHORE	PROJECT: I-15-51
CHECKED BY: L.H. ROEBBER	CHECKED BY: D.K.P.	PROJECT: 413465 F
CHECKED BY:	CHECKED BY: S. JENSEN	STATE:
APPROVAL RECOMMENDED BY: DAVID PRICE		DATE:
RECEIVED:	DATE:	CHIEF STRUCTURAL ENG.:
NO.	BY:	DATE:
REVISIONS		
BR. NO.	DRG. NO.	

FIG. 3

UTAH STATE DEPARTMENT OF HIGHWAYS
 SALT LAKE CITY, UTAH
 MATERIALS AND TESTS DIVISION
 NORTH NEPHI TO SOUTH SANTAQUIN
 I-15 OVER "C" LINE