T13S R4E 4100
Sect 35 P

I. INTRODUCTION

The Utah State Department of Highways proposes widening the existing U.S. Highway 89 bridge over the San Pitch River north of Fairview, as a part of project F-027-5(4), Fairview to Indianola.

A simple slab bridge with a length 22 feet is proposed at the site. The widened approaches will require approximately 3 feet of fill to raise the elevation to the present road surface.

II. SUMMARY OF RECOMMENDATIONS

Spread footings are recommended for the abutment foundations. The allowable bearing capacity of a continuous footing, 6 feet wide with one inch maximum settlement, is 2.6 tsf at elevation 5943 feet.

III. FIELD EXPLORATION

Two test holes were drilled at this site with a truck-mounted rotary drill rig equipped for standard penetration tests and core drilling. The drill holes were advanced by a tri-cone rotary bit using water as the circulating agent. The wash water was passed through a 40 mesh screen which allowed observation of the cuttings.

Standard penetration samples were obtained with a 1 3/8 inch I.D. split tube sampler driven by a 140 pound hammer dropped 30 inches in freefall. The blows per foot are recorded on the drilling logs and are used to determine the relative density of the soils penetrated. Core samples of bedrock were taken with a double tube, swivel type BX core barrel using both a tungsten carbide insert core bit and a diamond set core bit.

All samples and cores were field classified, logged and submitted to the soils laboratory for further testing. Graphical representation of the drilling logs and a generalized soil profile, are contained in the appendix to this report.

IV. LABORATORY TESTING

Laboratory tests performed on representative soil samples included the following:

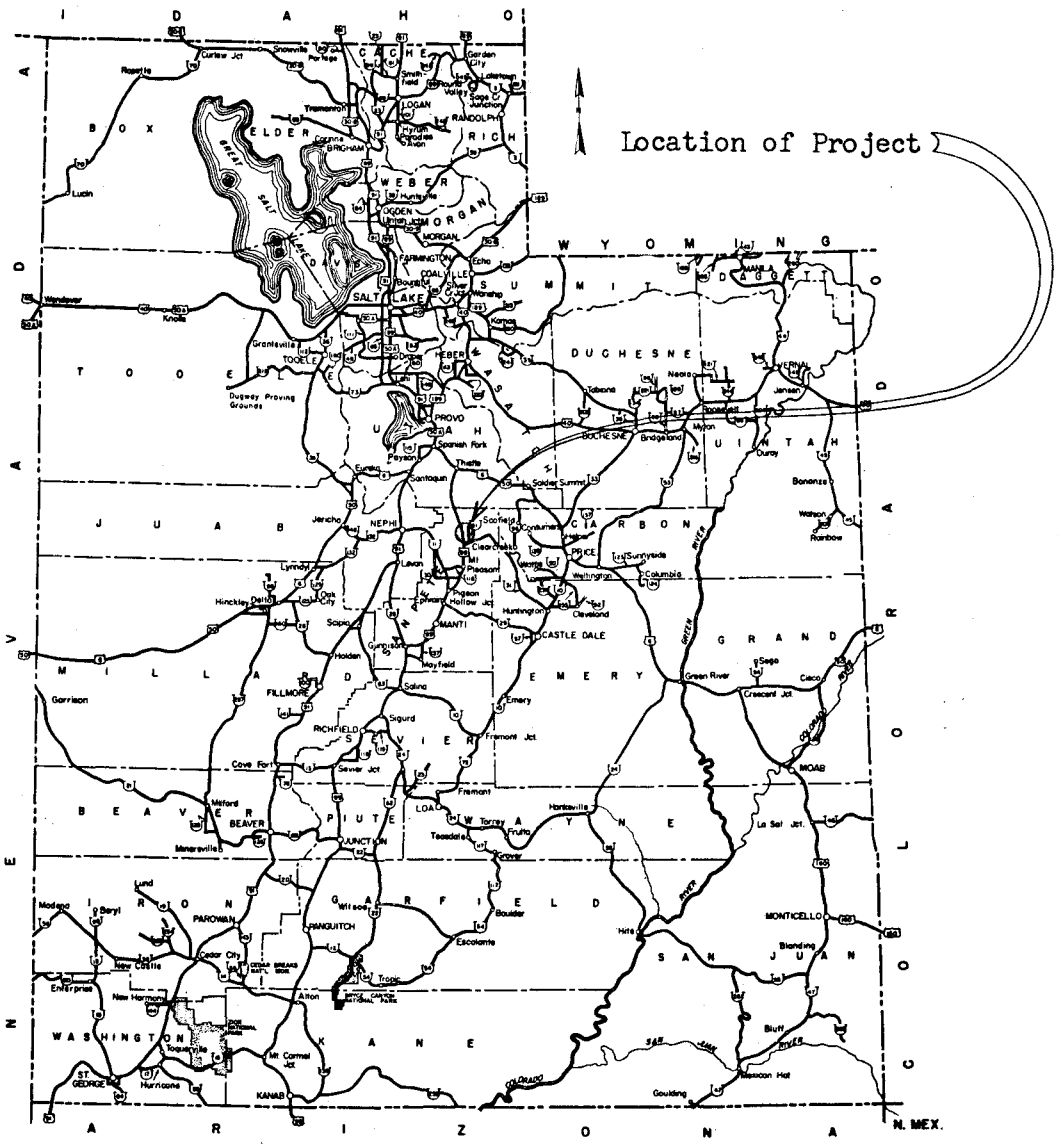
1. Particle size distribution.
2. Atterberg limits.
3. Moisture content.
4. Direct Shear.
5. Unconfined compression.
6. Water-soluble and acid-soluble salts.
7. Bulk specific gravity.

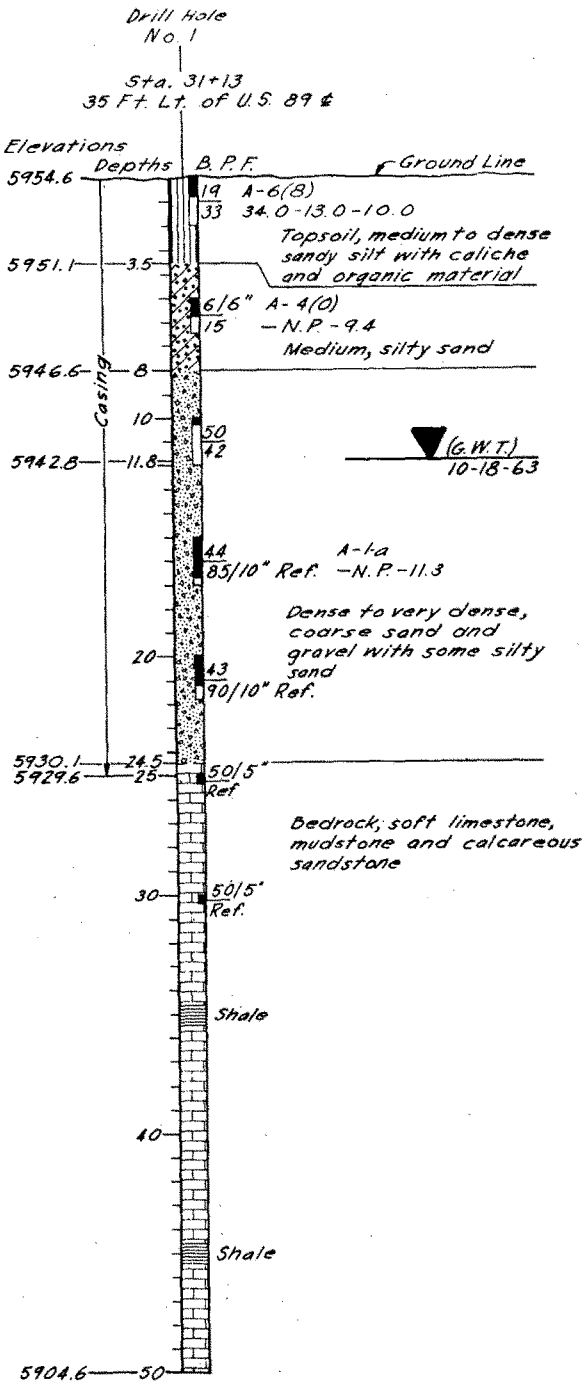
The results from the particle size distribution and Atterberg limit tests were used to classify the soil according to the AASHO soil classification system.

A California ring sample was tested in direct shear to determine the soil strength. Unconfined compression tests were performed on 3 saturated samples from one core using a Tinius Olsen Compression machine which plots a curve of load versus compression. The average compression strength of the three samples was 840 psi. The average modulus of elasticity was 5.3×10^4 psi.

Project F-027-5(4)

Fairview to Indianola
Structure Station 30+90





KEY TO
RELATIVE D
VERY LOOSE - 0
LOOSE -
MEDIUM -
DENSE - 30 TO 50
VERY DENSE - MO

CONSIS
VERY SOFT - LES
SOFT - 2 TO 4 BL
MEDIUM - 4 TO 8
STIFF - 8 TO 15
VERY STIFF 15 TO
HARD - MORE TH

TOPSOIL OR FILL
GRAVEL
SAND
SILT
CLAY
SHALE

DRILL HOLE NO.
STATION 0+

ELEVATIONS
GROUND ELEVATION
DEPT
5'
4555
GROUND WATER TABLE 4552
STRATA CHANGE
15'
20'
LOCATION OF SAMPLE
25'
SAMPLE NOT RECOVERED
30'
BOTTOM OF HOLE 4531

NO. OF BLOWS OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO DRIVE A STD. 1⅜" ID, 2" O.D SAMPLE TUBE 1 FT

ABBR
L.L. — L
P.I — PL
w. — NA
W.G. — WE
PEN. — PE
G.W.T. — GR
B.P.F. — BL
N.P. — NO
Q_u — UNCONF

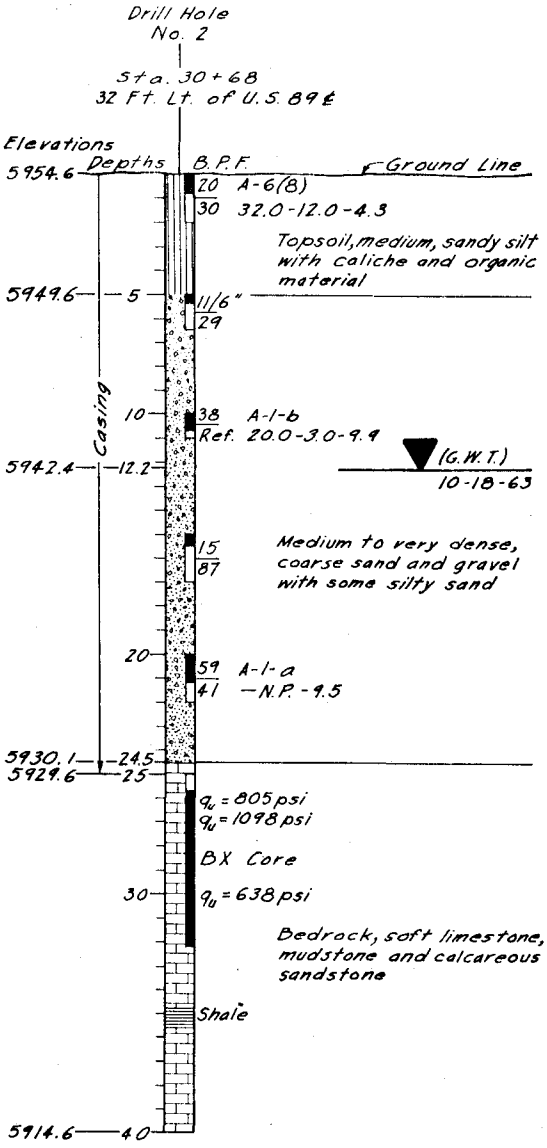
NOTE:
Station number and elevation data, refer to the center of present bridge, from District 3

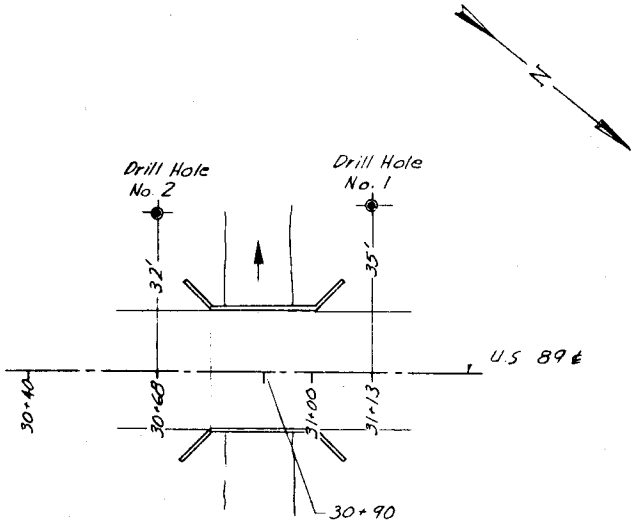
NO.	BY	DATE	REMARKS

REVISIONS

UTAH STATE DEPAR
SALT LAK
MATERIALS AND
FAIRVIEW
SAN PITCH

DRAWN BY Kistler
CHECKED BY E.P.
QUANTITIES BY E.P.
APPROVAL RECOMMENDED BY
RECEIVED
DATE
ER NO.


Drill Hole
No. 2
Sta. 30+68
32 Ft. Lt. of U.S. 89 ℄
Elevations
Depths
B.P.F.
Ground Line
5954.6
20 A-6(8)
30 32.0-12.0-4.3
Topsoil, medium, sandy silt with caliche and organic material
5949.6
5
11/6"
29
Casing
10
38 A-1-b
Ref. 20.0-3.0-9.9
(G.W.T.)
10-18-63
5942.4
12.2
15
87
Medium to very dense, coarse sand and gravel with some silty sand
20
59 A-1-a
41 —N.P.-9.5
5930.1
24.5
5929.6
25
q_u = 805 psi
q_u = 1098 psi
BX Core
30
q_u = 638 psi
Bedrock, soft limestone, mudstone and calcareous sandstone
Shale
5914.6
40


N
Drill Hole
No. 2
Drill Hole
No. 1
32'
35'
U.S 89 ℄
30+40
30+60
31+00
31+13
30+90