

T295 R3W
Sec 20J

5700
5110

Memorandum.

UTAH DEPARTMENT OF TRANSPORTATION

No G W

DATE: March 19, 1984

TO: Those Listed Below

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

SUBJECT: I-70-1(21)25 - Joseph to Elsinore;
Foundation Report for I-70 Retaining Wall
Station 1642+00 E.B.L. to Station 1645+75 E.B.L.
Drawing No. R-79

SITE CONDITIONS

A retaining wall is proposed to be constructed along the east side of I-70 E.B.L. to prevent encroachment into the Elsinore Cemetery. The wall will be approximately 375 feet long and vary between 5 feet and 30 feet in height.

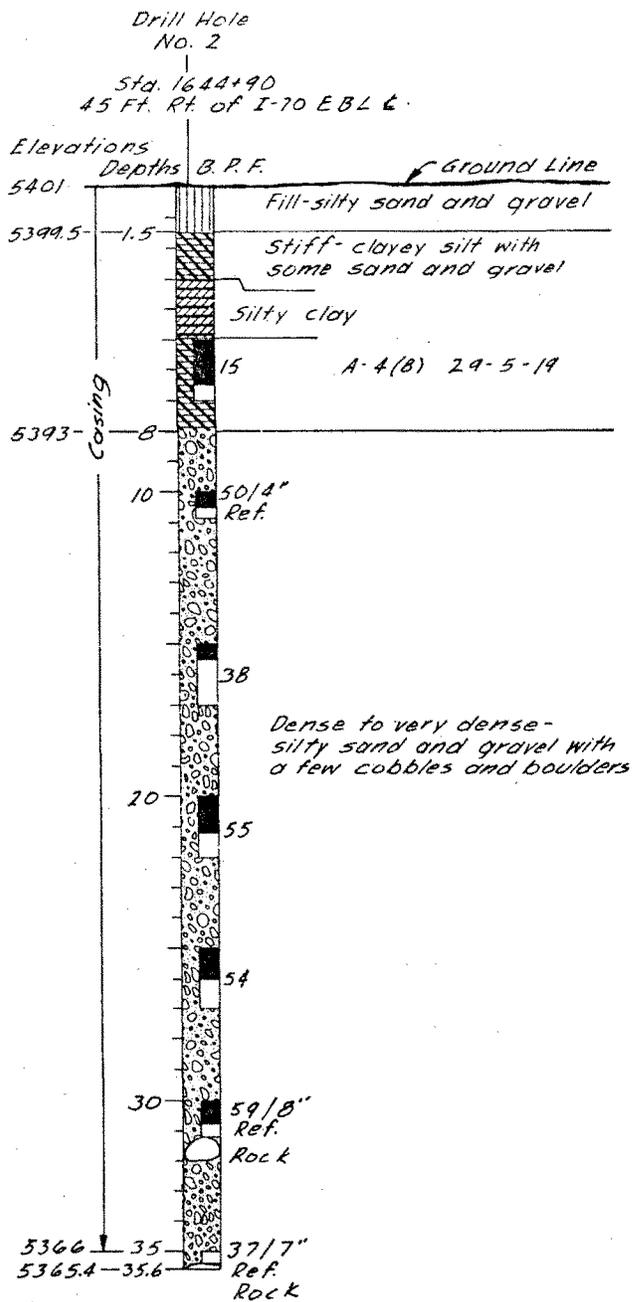
SUBSURFACE CONDITIONS

Two test holes were drilled at the site of the proposed retaining wall to depths of 36 and 37 feet. These holes indicated layers of clayey silt and silty clay at shallower depths to an elevation of 5394 feet in the hole No. 1 and an elevation of 5393 feet in the hole No. 2. From these elevations to the maximum depth of exploration, medium to very dense silty sand and gravel were encountered. Refer to the Drilling Log, Figure 1 for further details and location of holes.

The ground water table was not found in any of the holes.

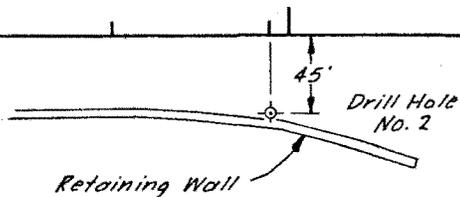
FOUNDATION RECOMMENDATIONS

A maximum safe toe bearing pressure of 7 K.S.F. was computed for a continuous 7 foot wide retaining wall footing (See attached Fig. 2 for different footing widths). This analysis was based on direct shear test data from the clayey silt soil obtained from 5 - 7 feet depth in hole No. 2. The bottom of the footing should be placed on the stiff clayey silt with sand and gravel or on the medium to very dense silty sand and gravel. The recommended bottom of footing elevation is 5394 feet. The footing may be placed at a shallower depth by removing the material to elevation 5394 and backfilling with granular material having an AASHTO soil classification of A-1 and compacted to 95% of the maximum laboratory density determined in accordance with AASHTO Designation T-180. Because of the uncertainty of the location of the silty clay layer throughout the entire length of the wall, the actual bottom of footing elevation and depth of subexcavation shall be verified at the time of construction. Footing settlement is not expected to exceed 1.0 inch.



1644+90
1645

NORTH →



Date drilled: February 1984

NO.	BY	DATE	REVISIONS

RELAT
VEE
LOC
MEC
DEN
VEE

CC
VEE
SGE
MEC
STI
VER
HAR

DRILL HO
STATION

GROUND
ELEVATION

GROUND
WATER TAB

STRATA
CHANGE

LOCATION
OF SAMP

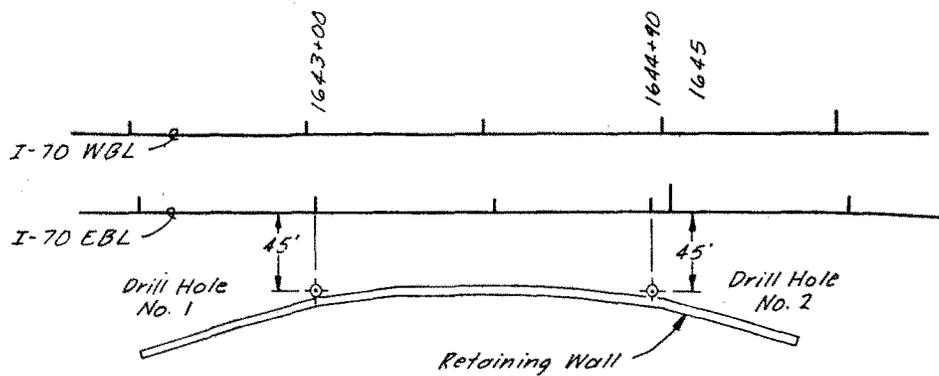
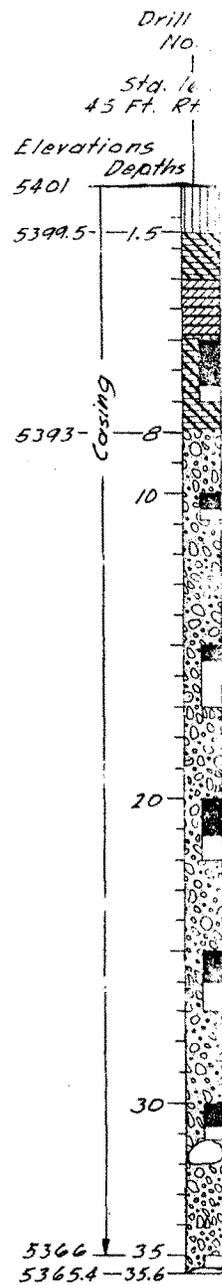
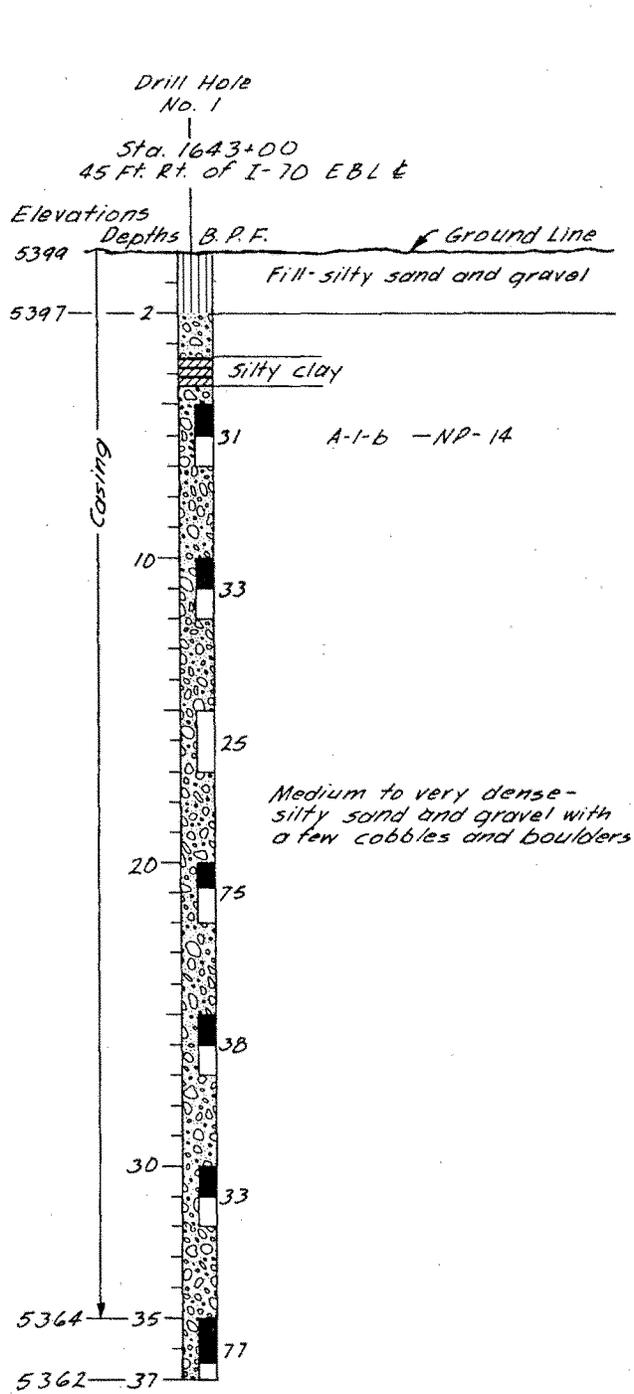
SAMPLE
RECOVERE
BOTTOM
OF HOLE

NO. OF BL
140 LB. HA
30 INCHES
DRIVE A
2" O.D. SAM

UTAH ST
MATEP

Drawn By *KJS*
Checked By *SL*
Checked By
Approval Record
Received

Foundations



Memorandum.

UTAH DEPARTMENT OF TRANSPORTATION

No
GW

DATE: December 28, 1983

Those Listed Below

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

SUBJECT: I-70-1(21)25 - Joseph to Elsinore; Foundation Report for I-70 over Elsinore Approach Road at I-70 Station 1588 + 15.09 WBL and 1589 + 57.86 EBL, Drg. No. F-508

SITE CONDITIONS

Two single span prestressed concrete beam structures, 129 feet long by 44 feet wide are proposed to carry I-70 over the Elsinore Approach Road. The crossings will be at an angle of approximately 60°. The I-70 roadway will require fills of approximately 32 feet at abutment No. 1 and 36 feet at abutment No. 2 on the eastbound lane and approximately 20 feet and 23 feet on the westbound lane.

Drainage of surface water in the area is good.

SURFACE EXPLORATION

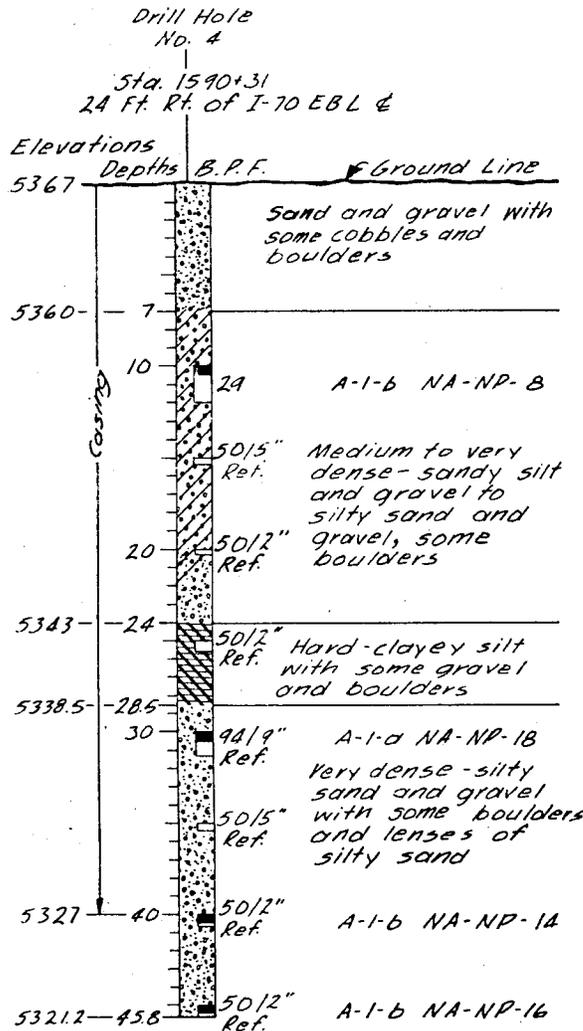
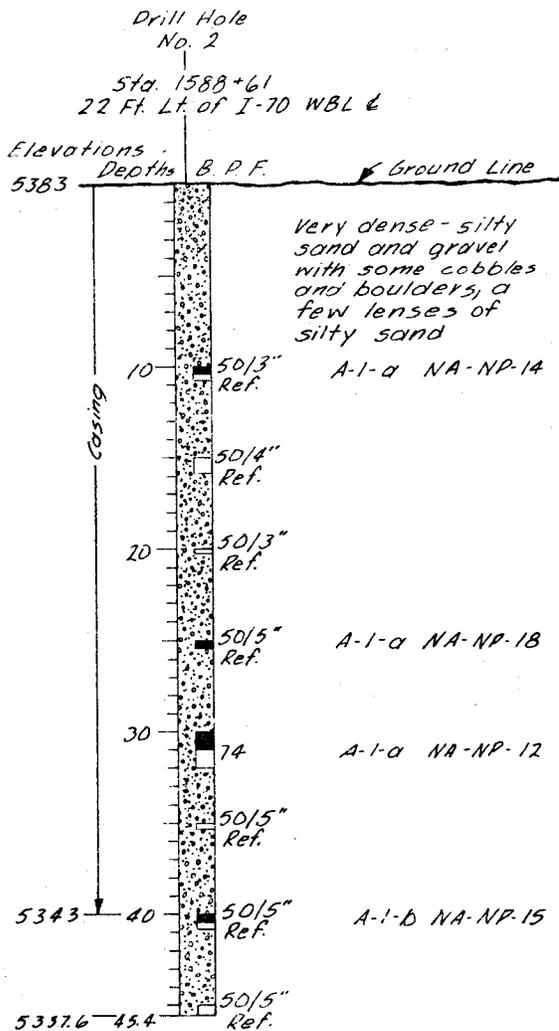
Four test holes were drilled at the site of the proposed structures to depths of 40 to 46 feet. Correlation of subsoils between drill holes is good. The subsoils profile can be generalized as follows: From the ground surface to the maximum depth of exploration - sand and gravel with occasional cobbles and boulders. For a more detailed description of the subsoils and test hole locations, refer to Fig. 1, Log of Borings.

A ground-water table was not found in any of the test holes.

FOUNDATION RECOMMENDATIONS

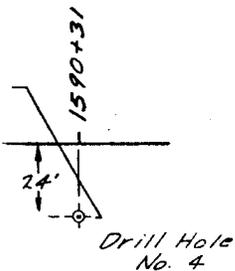
Drilled caissons seated in the very dense sand and gravel, approximately 15 to 19 feet below natural ground are recommended for support of the abutments on these structures. The recommended tip elevations for 3.0 feet diameter caissons loaded to 270 kips per caisson are as follows:

<u>Location</u>	<u>Estimated Caisson Tip Elevations Ft.</u>	<u>Approximate Caisson Length Ft.</u>	<u>Depth Below Natural Ground Ft.</u>
Abut. #1 WBL	5370	25	16
Abut. #2 WBL	5368	27	15
Abut. #1 EBL	5352	40	19
Abut. #2 EWL	5348	44	19



86 EBL I-70
55 Approach Rd.

NORTH



NOTE: Water table readings were not taken on Holes 2, 3 & 4

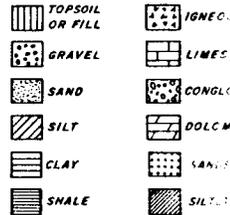
Date Drilled: November 1983

NO.	BY	DATE

KEY TO DRILL

RELATIVE DENSITY (NON-
VERY LOOSE - LESS THAN
LOOSE - 4 TO 10 BLOWS
MEDIUM - 10 TO 30 BLOWS
DENSE - 30 TO 50 BLOWS
VERY DENSE - MORE THAN

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



DRILL HOLE NO. STATION 0+00 E OR

ELEVATIONS B.P.

GROUND ELEVATION

DEPTHS

GROUND WATER TABLE

STRATA CHANGE

LOCATION OF SAMPLE

SAMPLE NOT RECOVERED

BOTTOM OF HOLE

NO. OF BLOWS OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO DRIVE A STD. 1 3/8" I.D. 2" O.D. SAMPLE TUBE 1 FT.

ABBREVIATIONS

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

UTAH STATE DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY
MATERIALS and RESEARCH DIVISION

JOSEPH TO EL SINORE
I-70 OVER ELSINORE

Drawn By RISTLEY Checked By

Checked By M.A. BASHA Checked By

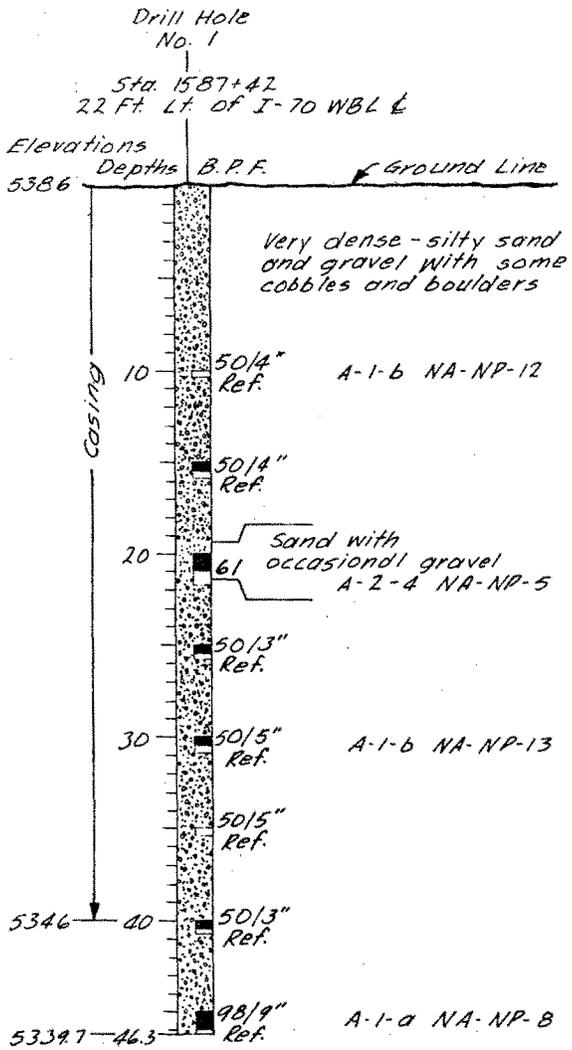
Checked By R. SIZEMORE Checked By

Approval Recommended By

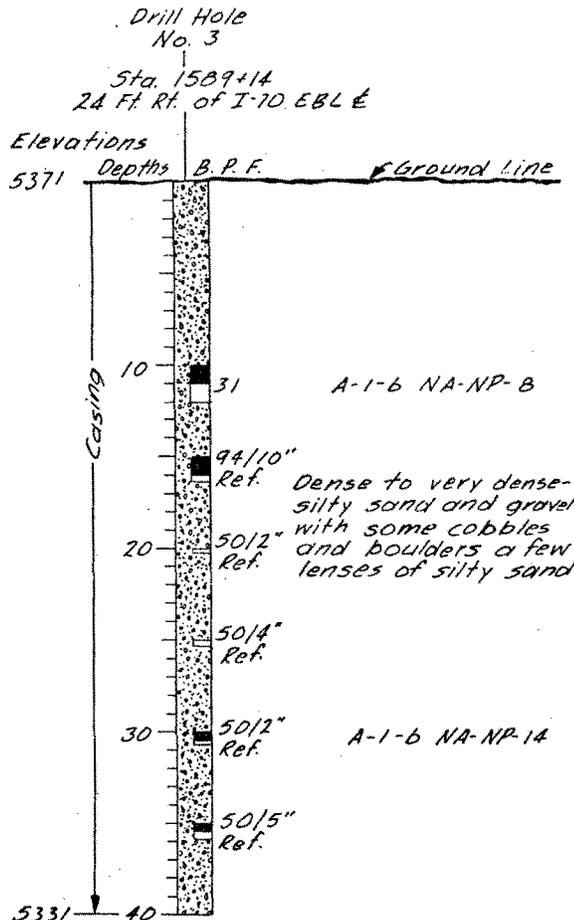
Received Date Chief Structural Engineer

Foundations File No. 83-7-FS-16

Orig. No.



NOTE: Complete loss of circulation water 11'-15' and 35'-40'
No water table encountered Nov. 9, 1983



NOTE: Heavy loss of circulation water at 37'-40'

