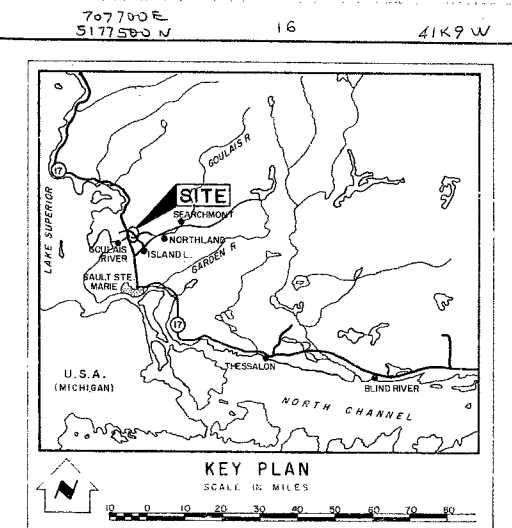






#65-F-224
HWY #552
GOULAIS RIVER
PATROL YARD



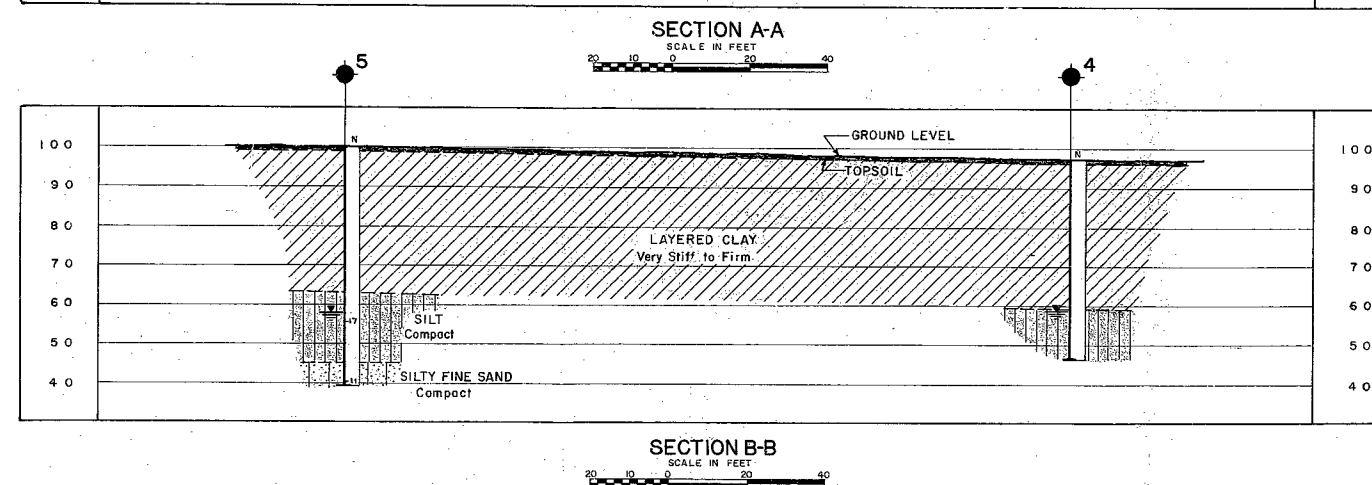
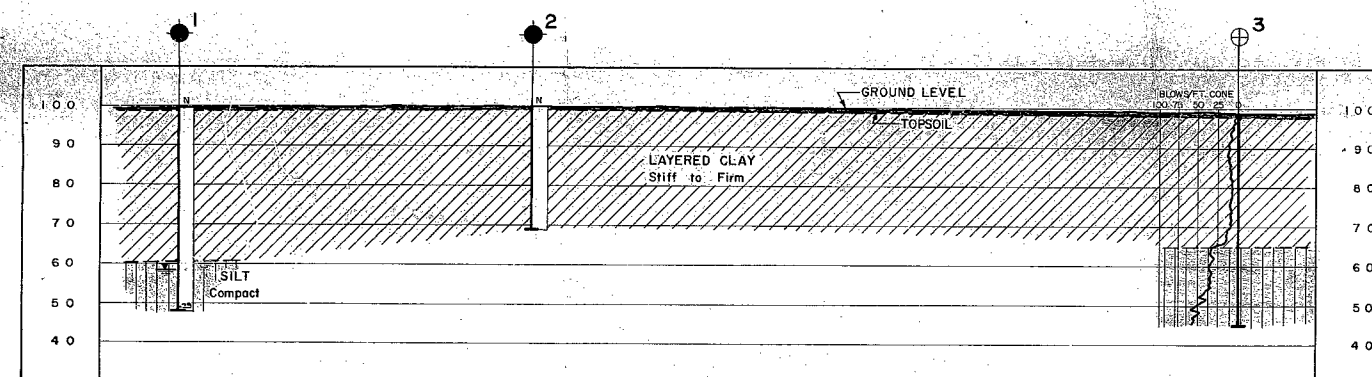
LEGEND			
	Bore Hole		
	Cone Penetration Hole		
	Bore & Cone Penetration Hole		
	Water Levels established at time of field investigation. JAN. 1965		

NO.	ELEVATION*	STATION	OFFSET
1	99.5	16 + 54	275 RT.
2	100.1	15 + 67	315 RT.
3	99.0	13 + 85	290 RT.
4	97.2	15 + 70	155 RT.
5	100.1	17 + 56	155 RT.

* Elevations are referred to Local Benchmark at centreline of highway at chainage 19+56.67. Benchmark has an assumed elevation of 100.0

- NOTE -

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.



REVISIONS			
DATE	BY	DESCRIPTION	

DEPARTMENT OF HIGHWAYS - ONTARIO MATERIALS & RESEARCH DIVISION - FOUNDATION SECTION			
<h1>PROPOSED PATROL YARD</h1>			
KING'S HIGHWAY NO. <u>552</u>		DIST. NO. <u> </u>	
DISTRICT OF ALGOMA			
TWP. <u>VANKOUGHNET</u>		LOT <u> </u> CON. <u> </u>	
BORE HOLE LOCATIONS & SOIL STRATA			
SUBM'D R.A.M.	CHECKED D.B.O.	W.P. NO.	M.B.R. DRAWING NO.
DRAWN A.E.L.	CHECKED D.B.O.	JOB NO.	
DATE	JAN. 18, 1965	SITE NO.	BRIDGE DRAWING NO.
APPROVED	<i>John Macdonald</i>	CONT. NO.	

GEOCON LTD
DWG. NO. T7708-1

[illegible]

GEOCON LTD

HEAD OFFICE

420 MICHEL JASMIN, DORVAL, QUEBEC
TELEPHONE 631-9827

DISTRICT OFFICES

14 HALL ROAD
REXDALE, TORONTO, ONT.
TEL. 244-6476

1425 WEST PENDER ST.
VANCOUVER 5, B.C.
TEL. MU. 1-8926

Rexdale, Ontario,
January 25th, 1965.

Department of Highways, Ontario,
Materials and Testing Division,
Downsview, Ontario.

Attention: Mr. A. G. Stermac, P. Eng.,
Principal Foundation Engineer.

Re: Soil Conditions and Foundations
Proposed Patrol Yard Site
Goulais River, Highway 552
Township of Vankoughnet, District of Algoma

DIST. 18.

Dear Sirs:

This letter accompanies our detailed report on the above investigation.

The site is covered by a thin layer of topsoil which is underlain by about 38 feet of very stiff to firm layered clay. The clay stratum is underlain by 18 feet of compact silt then compact silty fine sand.

We find that the site is suitable for the use of shallow foundations. Recommended net allowable bearing values for design of the proposed Garage and Salt Sheds are given in the report. Further, recommendations are given regarding the limiting height of the Sand Pile and its location relative to building foundations.

We believe that this report contains all of the information required from this investigation. Should you have any questions regarding any aspect of this report, please do not hesitate to call us.

Yours very truly,

GEOCON LTD

M. A. J. Matich *for EBO*

M. A. J. Matich, P. Eng.,
President.

MAJM/reb

ST. JOHN'S

HALIFAX

MONTREAL

TORONTO

VANCOUVER

T7708
REPORT
TO
DEPARTMENT OF HIGHWAYS, ONTARIO
DOWNSVIEW ONTARIO
ON
SOIL CONDITIONS AND FOUNDATIONS
PROPOSED PATROL YARD SITE
GOULAIS RIVER, HIGHWAY 552
TOWNSHIP OF VANKOUGHNET, DISTRICT OF ALGOMA

Distribution:

- 12 copies - Department of Highways, Ontario
Downsview, Ontario
- 3 copies - Geocon Ltd,
Rexdale, Ontario

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APPENDIX I

Procedure
Site and Geology
Soil Conditions
Water Conditions
Office Reports on Soil Exploration

APPENDIX II

Figures - Laboratory Testing

DRAWING- In pocket at rear of report

INTRODUCTION

Geocon Ltd has been retained by the Department of Highways, Ontario by letter dated December 15th, 1964 to carry out a soil investigation for the proposed Goulais River, Patrol Yard site. The site is located in the south-west 1/4, section 19, Township of Vankoughnet, District of Algoma. Some changes were made involving the site boundaries after consultation with Mr. Campbell of the Department of Highways, Ontario, Sault Ste. Marie. These are explained in the report under the section on "Site and Geology".

The purpose of the investigation was to determine the soil conditions at the above site as required for the design and construction of the Patrol Yard Structures.

SUMMARIZED SOIL CONDITIONS

The site is covered by a thin layer of topsoil which is underlain by up to about 38 feet of very stiff to firm layered clay. The thickness of this deposit, as indicated by the boreholes, is relatively uniform. The layered clay is underlain by up to 18 feet of compact silt then compact silty fine sand. The deepest borehole was terminated within the silty fine sand at a depth below ground level of 61 feet.

DISCUSSION

It is understood that the proposed Patrol Yard site facilities will consist of a Garage, Salt Sheds and a Sand Pile. The Garage will measure

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about 55 by 35 feet in plan. It is assumed that the Garage will be heated and of light, flexible, one storey construction with floor slab founded on grade carrying loads applied by wheel and track vehicles used for highway maintenance. The Sand Pile will involve a loaded area about 100 feet square. Two Salt Sheds will be constructed on the above site. Each structure will measure about 25 feet square. The loads from the salt and sand storage are not known at the time of writing. For the purposes of this discussion the sand pile is assumed to be a single pile with a base area about 100 feet square and with side slopes at the natural angle of repose.

The significant foundation soil at the site is the uniform layer of stiff to firm layered clay. This stratum has been found to be slightly over-consolidated and is suitable for the use of spread and strip footings.

All footings subject to frost action should be provided with a minimum of 5 feet of protective earth cover.

Garage

As discussed above, it is assumed that the garage will be of light flexible construction and that the maximum column loads will be of the order of 20 tons. For the probable size of footing involved therefore, the maximum net allowable bearing value at a depth of 5 feet below present grade should be limited to 1.0 tons per square foot. At this bearing value the factor of safety against shear failure would be approximately 3.0 and total and differential

Garage (continued)

settlements would be within 1 and 3/4 of an inch respectively, i. e. tolerable limits for the type of structure involved.

Floor slabs on grade should be founded on a minimum thickness of 12 inches of select well compacted granular material. The thickness of granular base will however be dependent on the wheel loads involved and should be chosen to be adequate for the maximum wheel loading anticipated. The granular material should be free draining, non-frost susceptible, minus 3 inches in size and compacted uniformly to 95 percent of modified A. A. S. H. O. dry density.

Where pits are involved for maintenance of vehicles it is recommended that they be designed and constructed as a box. A lateral earth pressure coefficient (K_0) of 0.5 should be used together with full allowance for the surcharge that will be involved. Because of the impermeable nature of the clay, water may collect around the pit due to seepage through the granular layer beneath the floor slab and into the backfill outside the pit walls. The pit should, therefore, be of waterproofed construction and designed for full hydrostatic pressures and uplift unless measures are taken to permanently drain the pit area and provide surface drainage.

Excavations will experience essentially no groundwater seepage. Inflow could, however, result from surface run-off and could readily be handled

Garage (continued)

by the procedure of pumping from sumps. Excavations for footings and vehicle pits may be carried out without bracing; however, to provide for stability against possible surcharge by construction traffic, it is recommended that such unsupported side slopes be cut to no steeper than 1 vertical to 1.5 horizontal.

Salt Sheds

It is assumed that the structures will be required to provide protection for the salt piles against weather, and consequently the construction will be light and flexible. The salt piles will induce consolidation of the clay with resulting settlement of building foundations. At the time of writing it is not known whether the salt piles will have triangular cross-section or whether the sides will be supported by retaining walls to allow higher storage capacities.

For the purpose of this discussion and for guidance in design, the salt piles have been considered to be 25 feet square and to apply a uniform contact pressure of 1500 pounds per square foot. The settlements, at each corner of the pile and at the midpoint of each side, due to consolidation of the clay under the salt surcharge only, are estimated to be about .75 inches and 1.25 inches, respectively. As before, the net allowable bearing value for design of spread footings is 1.0 tons per square foot. This value must include

Salt Sheds (continued)

column loads and adjacent surcharge. Provided the footings for the sheds are designed using this maximum bearing value and calculated as above, the expected settlements can, for all practical purposes, be estimated using the settlements given in this report.

Sand Pile

As discussed earlier, it has been assumed that the sand pile will consist of a single pile with a base area about 100 feet square and side slopes at about the natural angle of repose. It is recommended that the edge of the sand pile be located at least 20 feet from the foundations of any buildings and that the height of the pile should be limited to 25 feet. At this height the factor of safety against failure in the clay will be at least 1.3. The settlement under the centre of the sand pile will be of the order of 4 inches.

General

All topsoil should be removed from within the limits of buildings, storage areas, parking lots and driveways.

The base of all excavations for footings should be protected against softening or disturbance by pouring a thin layer of lean concrete when excavation is down to the required grade. For the same reason, it is recommended that the final trimming of excavations be carried out by hand.

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General (continued)

All backfill around footings should be non-frost susceptible granular material compacted uniformly to at least 95 percent of modified A. A. S. H. O. dry density.

Floor slabs should be provided with an adequate system of two-way joints and be structurally separate from walls and columns. Similarly, the floor slab at any pits which might be involved, should be structurally separated from the pit walls, or provided with adequate reinforcing to prevent cracking at the juncture.

CONCLUSIONS AND RECOMMENDATIONS

1. The site is underlain by about 38 feet of very stiff to firm layered clay. The clay is underlain by about 18 feet of compact silt then silty fine sand.
2. At the time of investigation the water levels in the boreholes were observed to have stablized at about elevation 58, or about 40 feet below ground level.
3. The site is suitable for the use of spread footings for the garage and salt sheds. Allowable bearing values are given in the report.
4. Assuming that the sand pile will consist of a single pile, it is recommended that the height be limited to 25 feet, as discussed.

PERSONNEL

7

The field work was carried out under the supervision of Mr. R. A. Montgomery, This report was written by Mr. D. B. Oates and reviewed by Mr. M. A. J. Matich, P. Eng.

DBO/reb

D. B. Oates
D. B. Oates, P. Eng.,
District Soils Engineer.



APPENDIX I

PROCEDURE

SITE AND GEOLOGY

SOIL CONDITIONS

WATER CONDITIONS

OFFICE REPORTS ON SOIL EXPLORATION

GEOCON

PROCEDURE

The field work was carried out between December 29th, 1964 and January 7th, 1965. Four boreholes and one additional penetration test were put down using a mobile power auger.

Detailed logs of the boreholes are presented on the Office Reports on Soil Exploration in this Appendix. The locations of the boreholes together with the inferred soil stratigraphy are shown on Drawing T7708-1, located in the pocket at the rear of this report. The choice of borehole locations were partly determined by the discussions on site with Mr. Campbell of the Department of Highways, Ontario, Sault Ste. Marie and with Mr. P. Rouse, tenant of the land on which the investigation was carried out. This conversation will be discussed in more detail under the section "Site and Geology".

The laboratory testing of soil samples was carried out in the Soil Mechanics Laboratory of Geocon Ltd in Toronto. The results are plotted on the Office Reports in this Appendix and on the Figures in Appendix II. The samples remaining after testing will be stored until January 31st, 1966 at which time you will be contacted for instructions regarding their disposal.

All elevations given in this report are referred to a local datum. The bench mark used is the centre line of Highway 552 at chainage 19+56.67,

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the west boundary of the area for immediate development as described on Department of Highways, Ontario Drawing 64-1157. The bench mark has been given an elevation of 100.00. Using the same datum, the top of stake No. 6 on the north side of the Highway at chainage 17+56.67 has an elevation of 100.34.

SITE AND GEOLOGY

The site is located on the north side of Secondary Highway 552 in the south west 1/4, section 19 of the Township of Vankougnet. As shown on Department of Highways, Ontario Drawing 64-1157, the area described as being required for immediate development measures 500 feet in the east-west direction between chainages 14+56.67 and 19+56.67. On arrival at the site our Field Engineer was informed by Mr. P. Rouse, Tenant, that the west boundary of the area required for investigation was at chainage 18+01.67 and not at chainage 19+56.67, as indicated on the above Drawing. Instructions were later given by Mr. Campbell of Department of Highways, Ontario, Sault Ste. Marie to confine the investigation to between chainages 14+56.67 and 18+01.67; however at this time, one dynamic penetration test had been put down at about chainage 13+90. All the remaining boreholes were located within the area indicated by Mr. Campbell.

The ground level at the site is gently undulating with a variation between the boreholes of about 3 feet. The area to the north and east of the site is sparsely covered by bush.

Geological information indicates that deposits of sand, silt and clay were deposited in glacial Lake Algonquin during the recession of the Wisconsin glaciation. These deposits are underlain by glacial till, the surface of which is known to be irregular.

SOIL CONDITIONS

The principal soil conditions encountered in the boreholes are as follows:

Topsoil

All the boreholes encountered a surficial layer of clayey topsoil. The thickness of this layer, as defined by the depth at which roots were observed was generally 12 inches.

Firm to Very Stiff Reddish Brown and Grey Layered Clay

Underlying the topsoil, in all the boreholes, is a stratum of reddish brown and grey layered clay. The thickness of this stratum ranged from 33 to 38 feet, with an average thickness of about 36 feet. The stratum was observed to generally consist of reddish brown clay layers ranging from about 1/4 to 1 inch in thickness and separated by grey clay layers of generally less than 1/4 inch. In the upper ten feet of the deposit, the grey layers were difficult to detect whereas in the centre of the deposit the two clay layers were about 1/4 inch in thickness. Towards the bottom of the deposit, the grey layers were well marked but generally spaced at intervals of about 1 inch. Also, at the base of the deposit 1 inch silt layers occurred at intervals

Firm to Very Stiff Reddish Brown and Grey Layered Clay (continued)
of about 1/2 inch. Frequent fine partings of silt were observed, after drying, in the lower half of the deposit.

Atterberg limit tests were carried out on combined samples since it was impractical to attempt to separate the individual layers. The liquid and plastic limits ranged from 89 to 96 and from 31 to 34 respectively. A series of natural moisture content determinations gave values ranging from 37 to 77 percent with depth, in the upper 10 feet. At about mid stratum the natural moisture content was about 89 percent decreasing to about 49 percent at the base of the stratum.

A series of unit weight determinations gave values ranging from 99 to 120 pounds per cubic foot; the higher values occurred generally in the upper 10 feet of the stratum.

Laboratory vane tests were carried out on all the Osterberg tube samples recovered from this deposit. Also a number of undrained triaxial tests were carried out on samples from the surface of the deposit. The results of both tests are plotted on the Office Reports on Soil Exploration and on Figure 1 in Appendix II. As can be seen from the plot of shear strength versus depth, on Figure 1, the shear strength in the upper 10 feet ranges generally from about 750 to 2000 pounds per square foot. Below the depth of 10 feet, the shear strength increases with depth from about 750 to 1300

Firm to Very Stiff Reddish Brown and Grey Layered Clay (continued)

pounds per square foot, corresponding to a c/p ratio of 0.25 assuming a ground water level at a depth of about 40 feet, as discussed later. The results also indicate that below 10 feet, the deposit is overconsolidated, with respect to existing ground level, by at least 0.75 tons per square foot. The consistency of the clay ranges from firm to very stiff and generally from firm to stiff.

The sensitivity of the clay ranged from about 5 to 10 indicating a sensitive to extra sensitive clay.

Two consolidation tests were carried out on samples from this deposit and the results plotted on Figures 2 and 3 in Appendix II. One sample taken from within the upper 10 feet, was found to be overconsolidated, with respect to existing ground level, by about 2.0 tons per square foot. The lower sample was similarly overconsolidated by about 1.5 tons per square foot.

Compact Grey Silt

Underlying the layered clay is a stratum of grey silt. The upper 5 feet of this stratum contained thin layers of clayey silt spaced at intervals of about 1/2 inch to 2 inches. In the samples recovered from the lower part of this stratum, these layers were absent. The thickness of this stratum was 18 feet in borehole 5.

Compact Grey Silt (continued)

A mechanical analysis test was carried out on a sample from this stratum and the results are plotted on Figure 4 of Appendix II. The sample contained 8 percent fine sand sizes and 92 percent silt sizes.

A wet unit weight determination on a sample from this stratum gave a value of 135 pounds per cubic foot, at a corresponding moisture content of 31 percent.

Standard penetration tests carried out in the silt gave "N" values of 17 and 29 blows per foot. A number of shelby tube samples were obtained in the upper part of the stratum where the resistance to penetration of the tubes was relatively low. Based on the above "N" values the relative density is estimated to be compact.

Compact Brown Silty Fine Sand

Underlying the silt in borehole 5 is a stratum of brown silty fine sand. The borehole was terminated within this stratum after penetrating about 5 feet.

A single standard penetration test carried out in the stratum gave an "N" value of 11 blows per foot indicating a compact relative density.

A series of water level observations taken in the open boreholes over a maximum period of about 8 days indicate that the water level, in the boreholes which penetrated through the clay, ranged between depths of 38 and 42 feet below ground level or between elevations 57 and 59. The borehole terminated within the clay retained the wash water to ground level for the duration of the field work.

The observations suggest that the ground water table is probably located at depth within the silt.

EXPLANATION OF THE FORM "OFFICE REPORT ON SOIL EXPLORATION"

The object of this form is to enable a comprehensive study of the soil to be made by combining on one sheet all of the information obtained from the boring. An explanation of the various columns of the report follows.

ELEVATION AND DEPTH

This column gives the elevation and depth of boundaries between the various soil strata. The elevation is referred to the datum shown in the general heading.

WATER CONDITIONS

In this column the water level in the casing at the time of boring or the water table in the ground, determined by a series of observations in a piezometer or standpipe, is indicated to scale by a horizontal line with the symbol W.L. or W.T. above the line. A notation of any complicated groundwater conditions will be made in this column.

DESCRIPTION

A description of the soil, using standard terminology, is contained in this column. The consistency of cohesive soils and the relative density of non-cohesive soils are described by the following terms:

<u>Consistency</u>	<u>U-Strength</u> <u>Tons/sq. ft.</u>	<u>Relative Density</u>	<u>Standard Penetration</u> <u>Resistance. Blows/ft.</u>
Very soft	0.03 to 0.25	Very loose	0 to 4
Soft	0.25 to 0.5	Loose	4 to 10
Firm	0.5 to 1.0	Compact	10 to 30
Stiff	1.0 to 2.0	Dense	30 to 50
Very stiff	2.0 to 4.0	Very dense	over 50
Hard	over 4.0		

STRATIGRAPHIC PLOT

The stratigraphic plot follows the standard symbols of the National Research Council, Canada.

ELEVATION SCALE

The information in all columns is plotted to a true elevation scale which is shown in this column.

GRAPHS

The main body of the report forms a graph which is used to plot to correct elevation the important soil properties which are obtained through field and laboratory tests. The scales and symbols for the plotting are shown at the head of the column.

OTHER TESTS

In this column are shown, by symbol, the other field or laboratory tests which have been performed on the soil and for which the results have not been plotted on the above graph.

SAMPLES

The first three columns describe the condition, type and number of each sample obtained from the boring. The location and extent of each sample is plotted to scale.

In the last column is shown the penetration resistance in blows of 4200 inch-pounds required to drive one foot of the sampler into the ground. When a 2 inch Drive Sampler is used the result obtained is termed the "Standard Penetration Resistance".

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OFFICE REPORT ON SOIL EXPLORATION

CONTRACT T7708 BORING # 1 AND 2 DATUM LOCAL CASING -
 BORING DATE DEC. 30/64 REPORT DATE JAN. 8, 1965 COMPILED BY AEL CHECKED BY DBO
 SAMPLER HAMMER WT. 140 LBS. DROP 30 INCHES (PENETRATION RESISTANCES CONVERTED TO BLOWS OF 4200 IN - LBS. ENERGY)

SAMPLE CONDITION



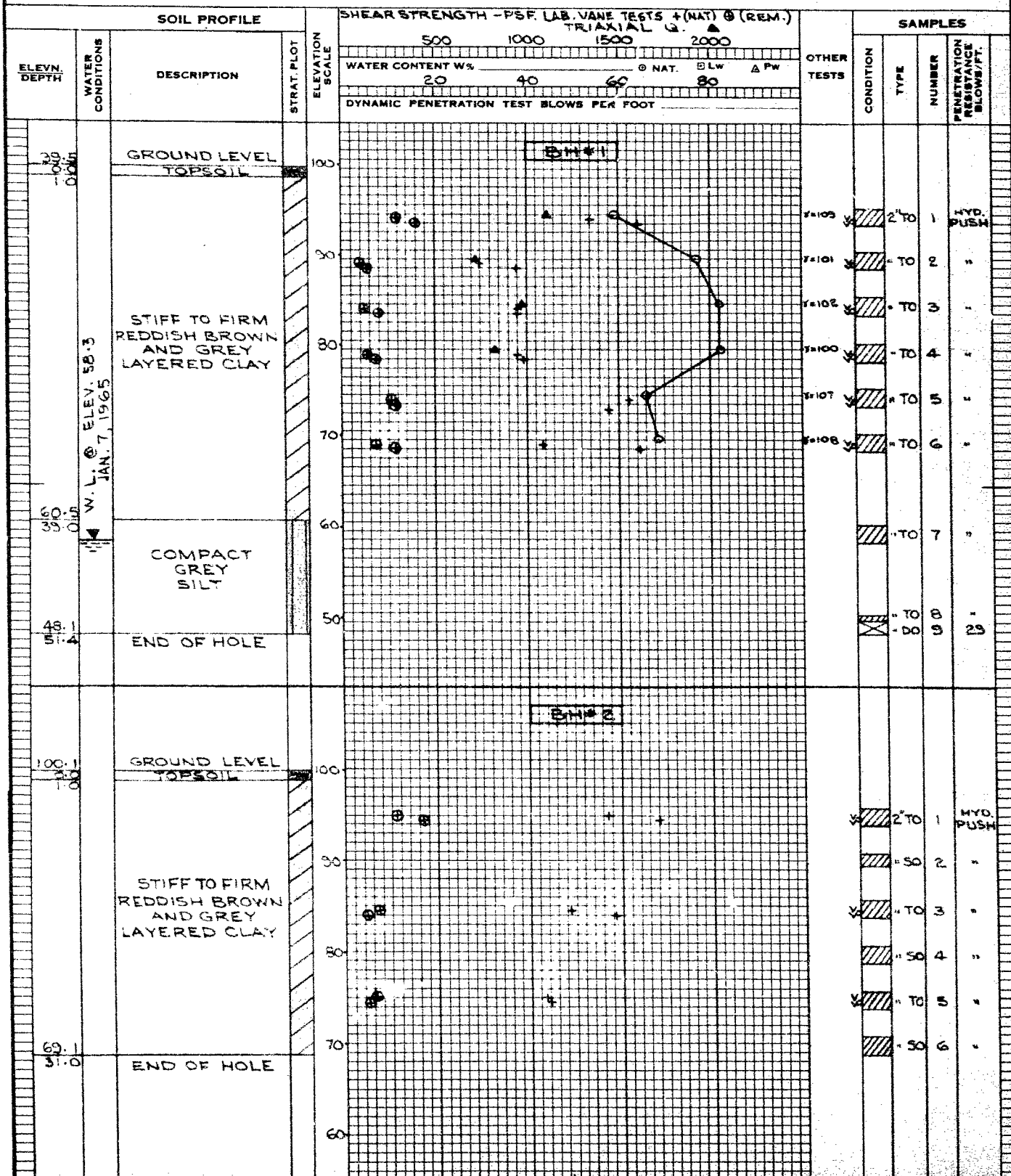
A.S. - AUGER SAMPLE
 S.T. - SLOTTED TUBE
 W.S. - WASHED SAMPLE
 D.O. - DRIVE-OPEN
 D.F. - DRIVE-FOOT VALVE
 C.S. - CHUNK SAMPLE

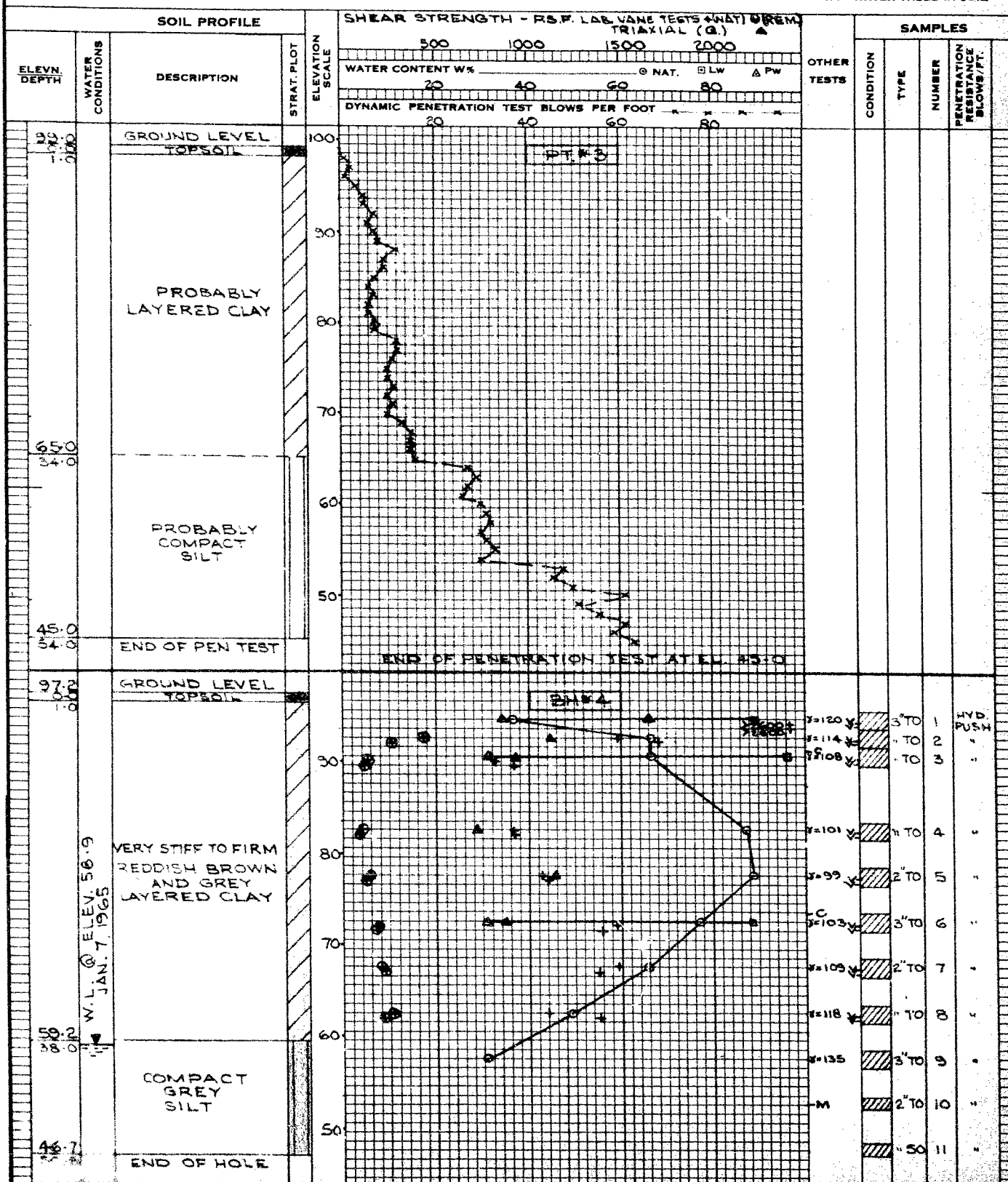
SAMPLE TYPES

F.S. - FOIL SAMPLE
 S.C. - SLEEVE-OPEN
 S.F. - SLEEVE-FOOT VALVE
 T.O. - THIN WALLED OPEN
 R.C. - ROCK CORE

ABBREVIATIONS

V - IN-SITU VANE TEST
 M - MECHANICAL ANALYSIS
 U - UNCONFINED COMPRESSION
 QC - TRIAXIAL CONSOLIDATED UNDRAINED
 Q - TRIAXIAL UNDRAINED
 S - TRIAXIAL DRAINED
 γ - WET UNIT WEIGHT
 K - PERMEABILITY
 C - CONSOLIDATION
 WL - WATER LEVEL IN CASING
 WT - WATER TABLE IN SOIL





GEOCON

OFFICE REPORT ON SOIL EXPLORATION

CONTRACT T7708 BORING # 5 DATUM LOCAL CASING -
 BORING DATE JAN 6/65 REPORT DATE JAN 9, 1965 COMPILED BY AEL CHECKED BY DBO
 SAMPLER HAMMER WT. 140 LBS. DROP 30 INCHES (PENETRATION RESISTANCES CONVERTED TO BLOWS OF 4200 IN - LBS. ENERGY)

SAMPLE CONDITION

 DISTURBED
 FAIR
 GOOD
 LOST

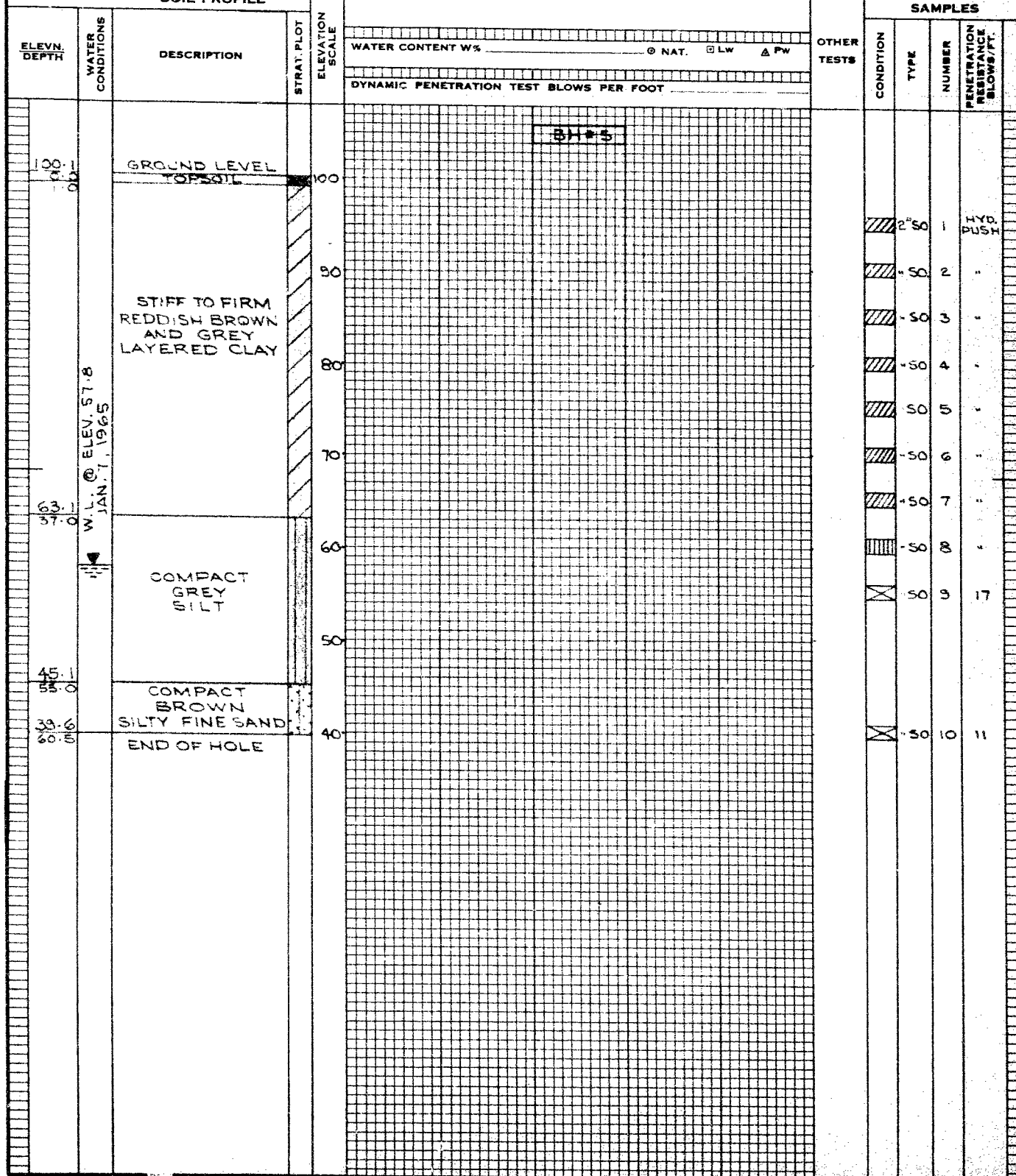
SAMPLE TYPES

A.S. - AUGER SAMPLE
 S.T. - SLOTTED TUBE
 W.S. - WASHED SAMPLE
 D.O. - DRIVE-OPEN
 D.F. - DRIVE-FOOT VALVE
 C.S. - CHUNK SAMPLE
 F.S. - FOIL SAMPLE
 S.O. - SLEEVE-OPEN
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 C - CONSOLIDATION
 WL - WATER LEVEL IN CASING
 WT - WATER TABLE IN SOIL

SOIL PROFILE



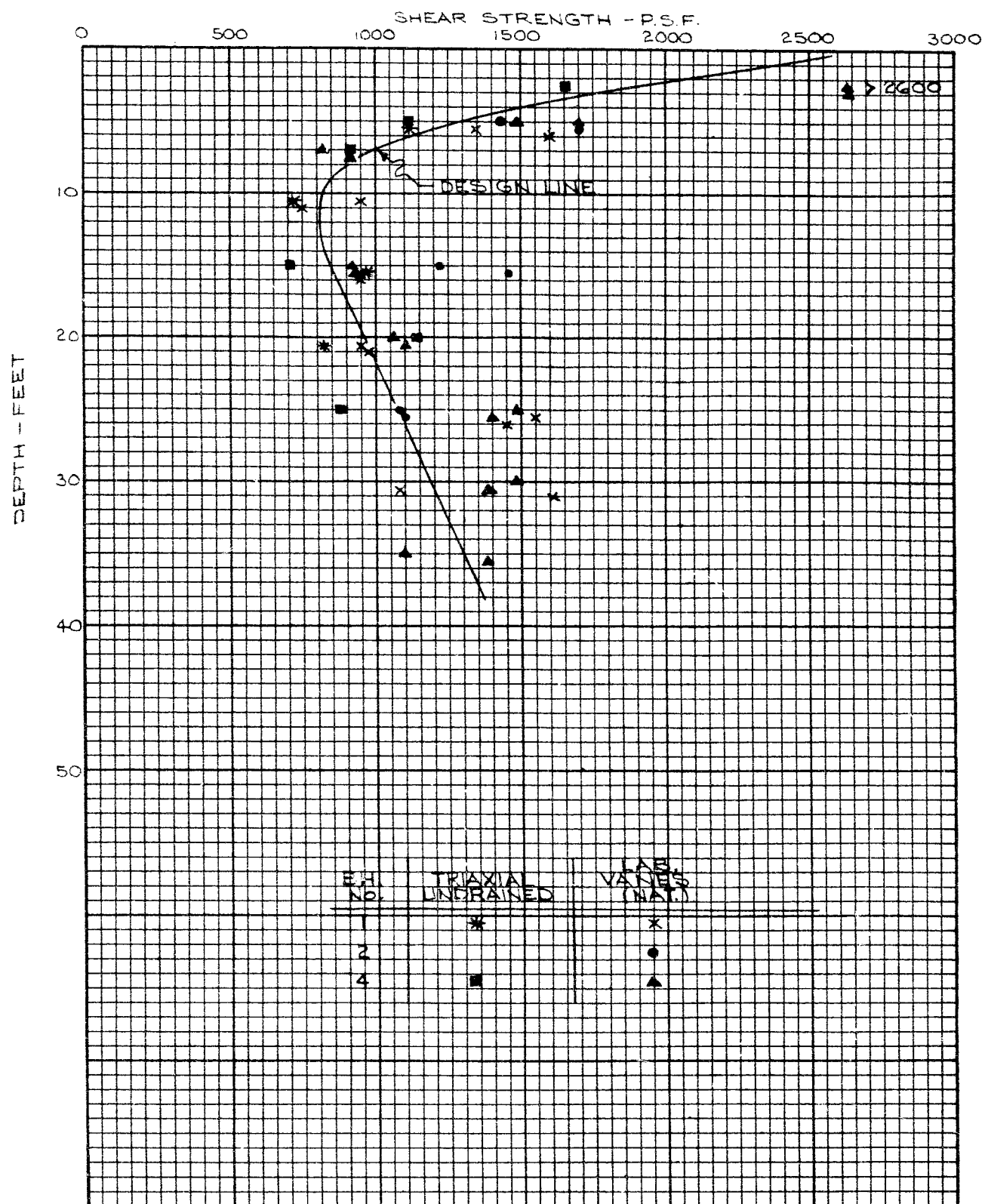
APPENDIX II

FIGURES - LABORATORY TESTING

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SHEAR STRENGTH vs. DEPTH

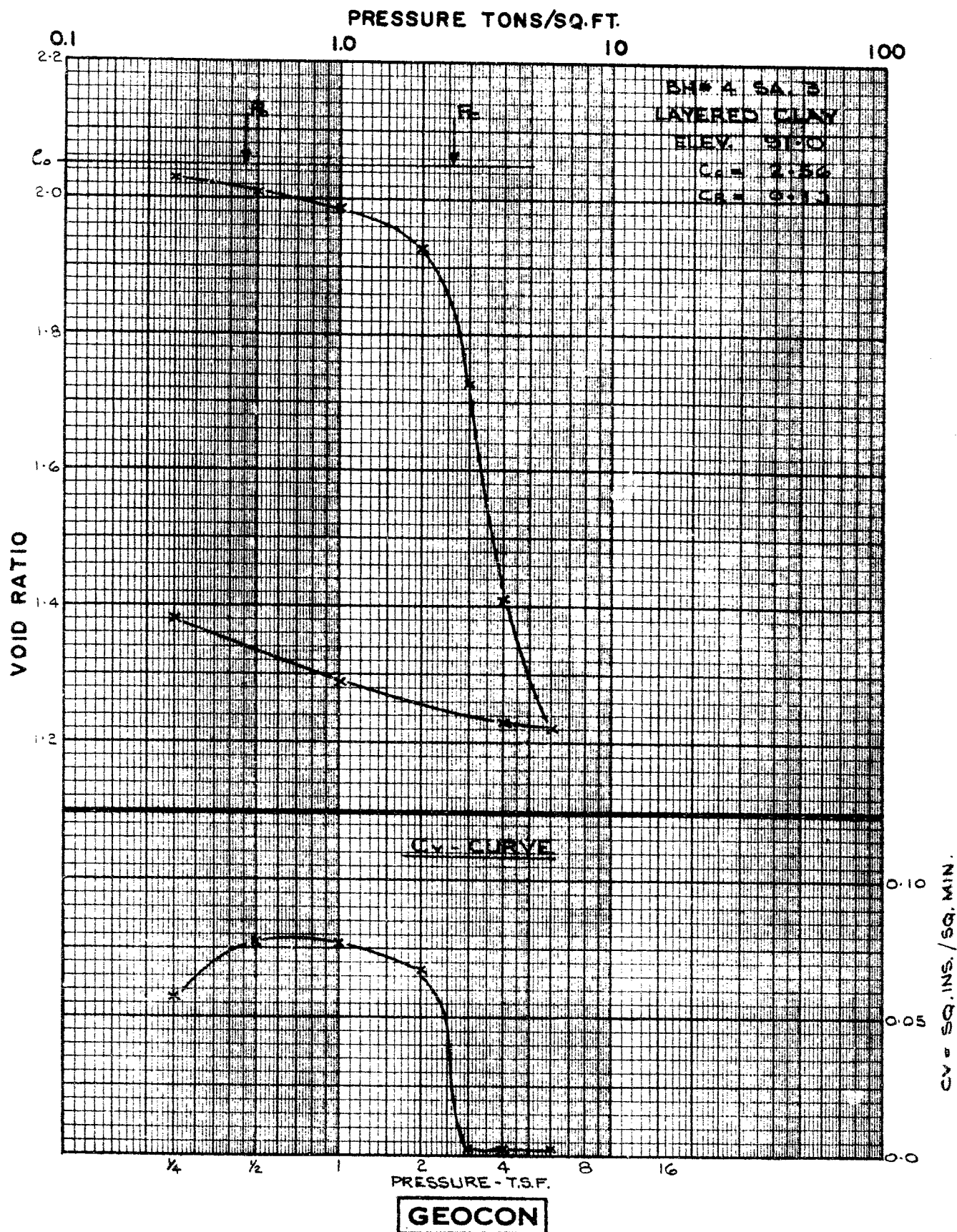
APPENDIX II
FIGURE 1
PROJECT T7708



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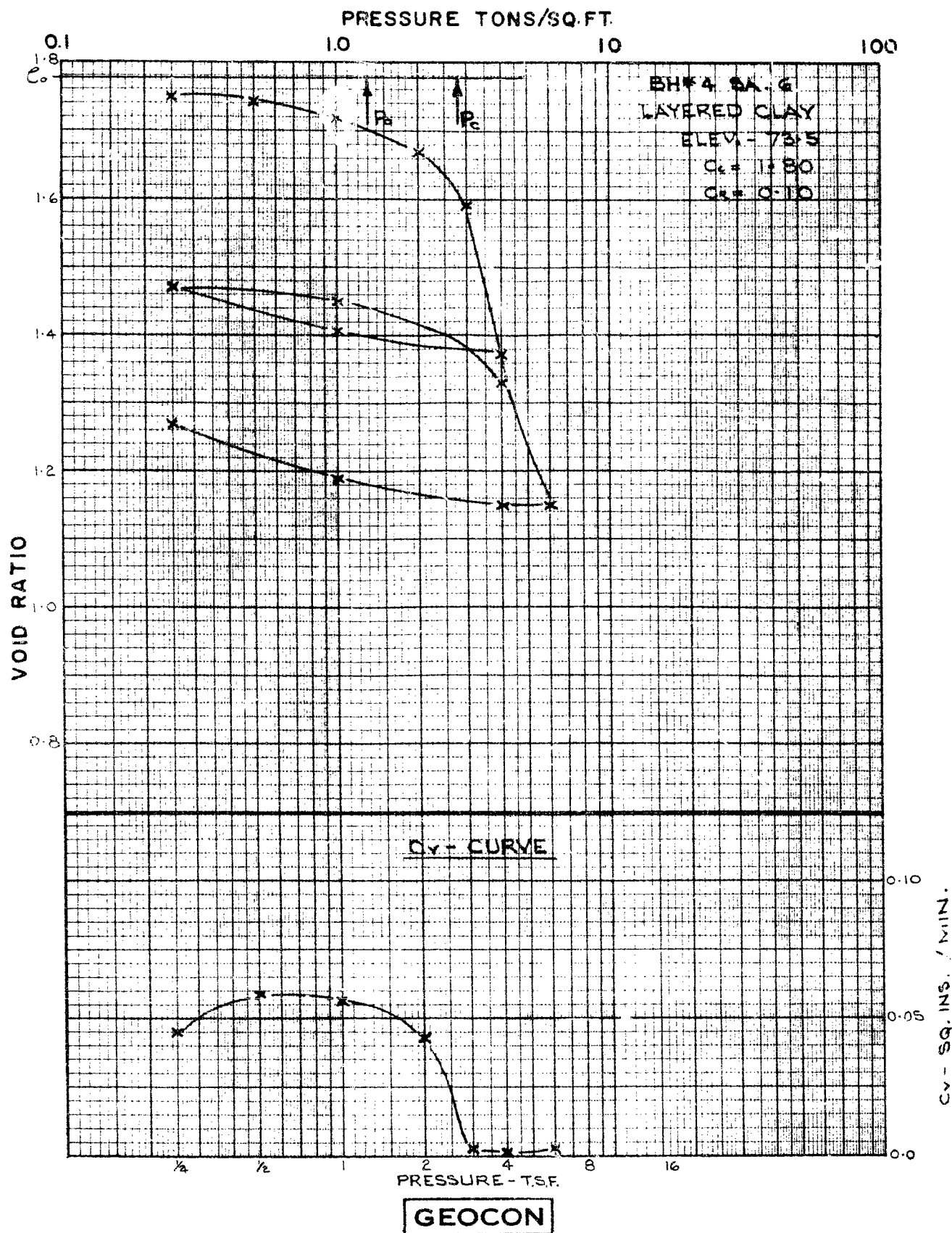
VOID RATIO-PRESSURE DIAGRAM CONSOLIDATION TEST

APPENDIX II
FIGURE 2
PROJECT T7708



VOID RATIO-PRESSURE DIAGRAM CONSOLIDATION TEST

APPENDIX II
FIGURE 3
PROJECT T7708

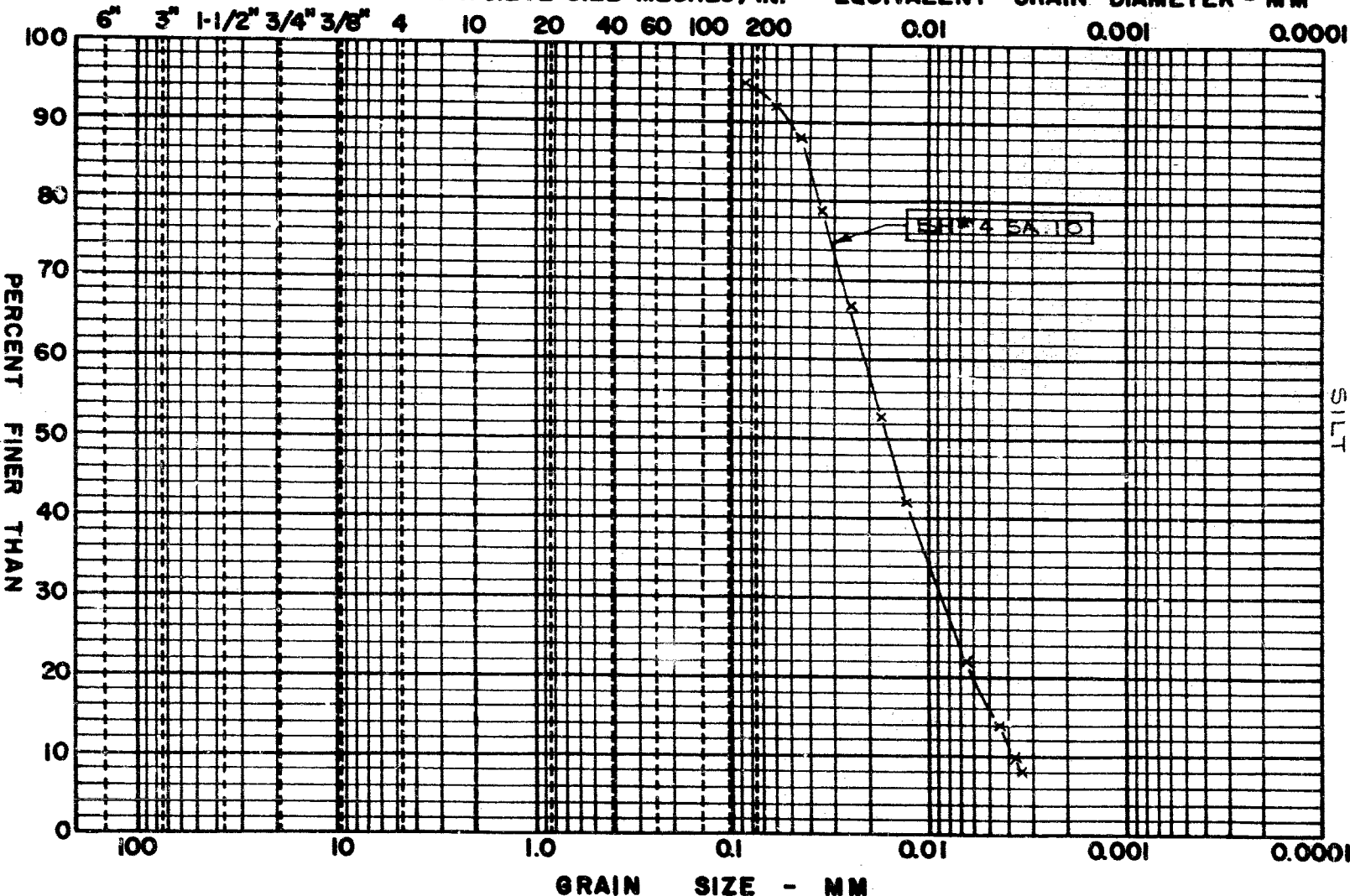


GRAIN SIZE DISTRIBUTION

APPENDIX II
FIGURE 4
PROJECT T 7708

COBBLE ← SIZE	GRAVEL SIZE			SAND SIZE			FINE GRAINED		CLAY SIZE →
	COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE	SILT SIZE	CLAY SIZE	

SIZE OF OPENING - INS. U.S.S. SIEVE SIZE - MESHES / IN. EQUIVALENT GRAIN DIAMETER - MM



M.I.T. GRAIN SIZE SCALE

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DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

TO: Mr. E. R. Saint -
Reg. Materials Engineer,
NORTH BAY.

FROM: Mr. F. J. Mauro

DATE: November 23, 1964

OUR FILE REF.

IN REPLY TO

SUBJECT: Proposed Goulais River Patrol Yard - Part SW $\frac{1}{4}$ Section 19 -
Township of Vankoughnet - District of Algoma - Highway 552

Agreement F-2343 has been negotiated with the owner of
the above land, subject to our soils and water tests
proving satisfactory. Would you please complete a soils
investigation on or before December 31, 1964. DIST. 18

I have enclosed a print of the site, showing in red the
area where these borehole tests should be taken. If it
is possible, would you please have two test boreholes
taken in the locations shown for the proposed garage,
salt sheds, and treated sand pile pad. I feel three addi-
tional test holes in the remaining area will produce suffi-
cient information for our proposed yard development.

I trust we will receive your full co-operation in having
these tests completed and that I will receive the four
reports sometime in January, 1965.

HAS TO BE REPORTED
BY END OF JANUARY
DEC. 7. 1964. A.G.S.

F. J. Mauro

F. J. Mauro,
REGIONAL INSPECTOR OF SPECIAL SERVICES.

FJM:kk
Encl.

Approved 18 1/2 Mr. J. J. Mauro, 12/1/64

Hwy. 401 & Leslie St.,
Downsview, Ontario.

Materials and Testing Division

December 15, 1964

Uccoon, Limited,
14 Haas Road,
Burlington, Ontario.

Attention: Mr. H. L. Lacey

- Re: (1) Proposed Goulais River Patrol Yard, Hwy. 552.
(2) W.P. 21-65, Sec. Hwy. 651, Windermere River, 15.3 Mi. North of Hwy. 101.
(3) W.P. 22-65, Sec. Hwy. 651, Ogishwi Creek, 16.5 Mi. North of Hwy. 101.

-- District 18, Sault Ste. Marie --

Dear Sir:

Please consider this your authority to carry out foundation investigations at the above sites. Plans and profiles were provided to your representative on December 15, 1964.

It is understood that a qualified Wells Engineer will be in charge of the field work at all times, and that the drill rig will be mobilized from Sudbury.

Eleven copies of each completed foundation report, with one additional copy of each subsoil profile, should be submitted to the Foundation Section prior to January 29, 1965, for the report on the Patrol Yard site, and prior to March 1, 1965, for the others. Previous requirements as to preliminary borehole information and laboratory testing program, should be followed.

Because the drawings accompanying the foundation reports, showing the location of borings, the inferred subsoil conditions, etc., are to become contract drawings, you are requested to prepare them in accordance with the D.E.C. standards. To enable you to do this, we are supplying you with sample drawings with all the necessary explanations, together with linen sheets for your drawings. You are also requested to provide the D.E.C. with Crenaflex copies of the drawings.

cont'd. /2 ...

Geeson, Limited.
Attn: Mr. D. Cates.

- 2 -

December 15, 1964

Charges for the work performed will be in accordance with your Schedule of Rates, dated March 4, 1960, and invoices to be addressed to the attention of the undersigned.

Yours very truly,

A. Ruths

A. Ruths,
MATERIALS & TESTING ENGINEER

HDS/ndcf

cc: Messrs. S. McCombie
H. McArthur
A. A. Ward
E. H. Saint
Mrs. T. Tate
N. D. Smith (2)
Foundations Office
Gen. Files (2)

Hwy. 401 & Keale St.,
Downsview, Ontario.

Materials and Testing Division

December 11, 1964

Dominion Soil Investigation Ltd.,
77 Creekford Boulevard,
Scarborough, Ontario.

Attention: Mr. A. Jones

- Re: (1) Proposed Goulais River Patrol Yard, Hwy. 552.
(2) W.P. 21-64, Sec. Hwy. 651, Windermere River, 15.3 Mi. North
of Hwy. 101.
(3) W.P. 22-64, Sec. Hwy. 651, Ogishwi Creek, 16.5 Mi. North of
Hwy. 101.

-- District 18, Sault Ste. Marie --

Dear Sir:

Please consider this your authority to carry out foundation investigations at the above sites. Plans and profiles were provided to your representative on December 11, 1964.

It is understood that a qualified Soils Engineer will be in charge of the field work at all times, and that the drill rig will be mobilized from Sudbury.

Eleven copies of each completed foundation report, with one additional copy of each subsoil profile, should be submitted to the Foundation Section prior to January 29, 1965, for the report on the Patrol Yard site, and prior to March 1, 1965, for the others. Previous requirements as to preliminary borehole information and laboratory testing program, should be followed.

Because the drawings accompanying the foundation reports, showing the location of borings, the inferred subsoil conditions, etc., are to become contract drawings, you are requested to prepare them in accordance with the D.H.C. standards. To enable you to do this, we are supplying you with sample drawings with all the necessary explanations, together with linen sheets for your drawings. You are also requested to provide the D.H.C. with Cronaflex copies of the drawings.

cont'd. /2 ...

December 11, 1964

Charges for the work performed will be in accordance with your Schedule of Rates, dated July 6, 1964, and invoices to be addressed to the attention of the undersigned.

Yours very truly,

A. Rutka

NDS/ndcP

A. Rutka,
MATERIALS & TESTING ENGINEER

cc: Messrs. S. McCombie
H. McArthur
A. A. Ward
E. E. Saint
Mrs. T. Tate
M. D. Smith (2)
Foundations Office
Gen. Files

DEPARTMENT OF HIGHWAYS ONTARIO

MEMORANDUM

TO: Mr. A. Stermac,
Principal Foundations Engineer.

FROM: Materials & Testing Division.

DATE: January 28th, 1965.

OUR FILE REF.

IN REPLY TO

SUBJECT: Patrol Yard, Goulais River, South-west 1/4, Section 19,
Township of Vankoughnet

The subsoil encountered at this site is a medium clay and will require the following treatment for the drive-ways and parking areas.

1. Strip all topsoil which averages one foot in depth.
2. Place twenty four inches of sand cushion and six inches of Class 'A'.
3. Drainage for the full depth of the granular base should be provided in all areas.
4. Pavement to consist of two inches of H.L.4 binder course and one and a half inches of H.L.4 surface course.



E. R. SAINT,
Regional Materials Engineer.

ERS/dh
Encl.

Mr. C. S. Moase,
Manager,
Special Services Section,
Admin. Bldg.

Foundation Section,
Materials & Testing Div.,
Rm. 107, Lab. Bldg.

January 29, 1965

FOUNDATION INVESTIGATION REPORT BY:
Geocen, Limited, Consulting Engineers.
Proposed Patrol Yard, Coulais River,
Hwy. 552, Dist. #18, Sault Ste. Marie, Ont.

Attached, please find the above-mentioned report submitted by the Consultant, Geocen, Limited of Toronto. The report contains all the information that we feel you will need in your future design work.

Attached to the report is the name of the Regional Materials Engineer, Mr. E. H. Saint, containing the recommendations pertaining to the treatment of driveways and parking areas.

Should there be any queries in connection with this report, please do not hesitate to contact our Office.

AGS/ndaf
attach.

cc: Messrs. C. S. Moase (4)

E. J. Orr
H. D. McMillan
A. A. Ward
E. H. Saint
A. Watt

Foundations Office ✓
Gen. Files

A. G. Sternac
A. G. Sternac,
PRINCIPAL FOUNDATION ENGINEER