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Exhibit AA. Terre Haute Development Preliminary Geotechnical Engineering Report

LOUISIANA ECONOMIC DEVELOPMENT CERTIFIED SITE

GREATER NEW ORLEANS INC REGIONAL ECONOMIC DEVELOPMENT

Terre Haute Development Preliminary Geotechnical Engineering Report

ECS Southeast, LLP

Geotechnical Engineering Report

Terre Haute Development – St. John the Baptist Parish, LA

4450 W Airline Highway
Reserve, LA 70084

ECS Project Number 65-1062

January 18, 2021

ECS SOUTHEAST, LLP "Setting the Standard for Service"
Geotechnical • Construction Materials • Environmental • Facilities

January 18, 2021

Mr. Gary Silbert
GNO Inc.
1100 Poydras Street
New Orleans, Louisiana 70163
gsilbert@gnoinc.org

ECS Project No. 65-1062

Reference: Preliminary Geotechnical Site Characterization Report
Terre Haute Development
4450 W Airline Highway
Reserve, LA 70084

Dear Mr. Silbert:

ECS Southeast, LLP (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the referenced project. Our services were performed in general accordance with our Proposal No. 65-1082P dated June 5th, 2020. ***This report is not a comprehensive geotechnical engineering report but is solely designed to address specific preliminary issues posed in a May 15, 2020 document from CSRS relative to this site. It must be emphasized that additional borings and testing will be required prior to development of the site.*** This report presents our understanding of the geotechnical aspects of the project along with the results of the field exploration and laboratory testing conducted. The report also contains our findings and recommendations for design and construction.

It has been our pleasure to be of service to GNO Inc. during the preliminary design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully,
ECS SOUTHEAST, LLP

LANDON J. MEYER
License No. 41707

Landon Meyer P.E.
Geotechnical Project Manager

Mark J. Carlson, P.E., RPG, D.GE
Chief Engineer

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APPENDICES

1.0 INTRODUCTION

1.1 GENERAL

The purpose of this study was to conduct a *Preliminary* Geotechnical Characterization Investigation for the site that would generally characterize the site's soil, rock, and groundwater conditions to substantiate that unfavourable geotechnical conditions do not exist on the site. **This document *specifically* addresses preliminary design issues addressed in our Proposal No. 65-1082-P dated June 5, 2020.**

The preliminary recommendations developed for this report are based on project information provided by the client. This report contains the results of our subsurface exploration and geotechnical laboratory testing program, site characterization, engineering analyses, and preliminary recommendations.

1.2 SCOPE OF SERVICES

In order to obtain the necessary geotechnical information required for evaluation of subsurface soil conditions, two (2) borings to 30 feet and one (1) boring to 100 feet below existing site grades were performed. A laboratory-testing program was also implemented to characterize the physical and geotechnical engineering properties of the subsurface soils.

This report discusses our exploratory and testing procedures, presents our findings and evaluations and includes the following:

- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of surface topographical features and site conditions.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- A final copy of our preliminary soil test borings.
- Preliminary recommendations for site preparation.
- Preliminary Recommended foundation types.

1.3 AUTHORIZATION

Our services were provided in accordance with our Proposal No. 65-1082P dated June 5, 2020 and authorized by the client on September 2, 2020.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION

The project is located at 4450 W Airline Highway in St. John the Baptist Parish in Reserve, Louisiana. The location is depicted in Figure 2.1.1 as shown below:

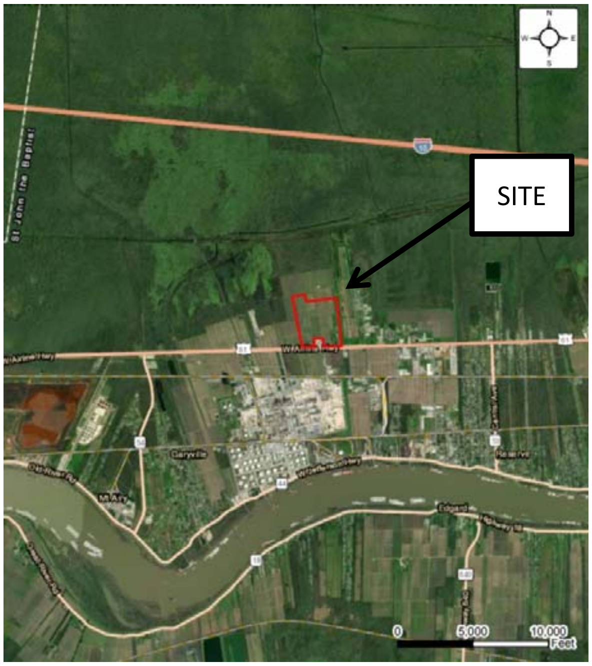

Figure 2.1.1 Site Location

2.2 CURRENT SITE CONDITIONS

The project site is currently undeveloped and appears to be recently been tilled for agricultural purposes. The topography of the site is relatively flat with surface elevations ranging from about 4 feet MSL to 10 feet MSL. The elevations and topographic variations were obtained from Google Earth Pro.

2.3 PROPOSED CONSTRUCTION

ECS understands that the Louisiana Economic Development (LED) Site Certification requires preliminary confirmation that the site is compatible with industrial development and that it could support the construction of a 'typical' manufacturing building encompassing 100,000 square feet and appurtenant on-site roadways and infrastructure. Detailed loadings were not provided to ECS at the time of this report. Soil augmentation methods that may be required for the construction of the foundations, buildings and roadways will be preliminarily addressed in this report.

3.0 FIELD EXPLORATION

3.1 FIELD EXPLORATION PROGRAM

The field exploration was planned with the objective of characterizing the project site in general geotechnical and geological terms and to evaluate subsequent field and laboratory data to assist in the determination of geotechnical recommendations consistent with the aforementioned CSRS criterion.

3.1.1 Test Borings

The subsurface conditions were explored by drilling a total of three (3) soil test borings. Two (2) borings were drilled to a depth of approximately 30 feet below the existing site grades, whereas another boring was drilled to a depth of approximately 100 feet below the existing site grades.

An ATV-mounted rig was utilized to drill the borings with continuous flight auger and wet rotary drilling techniques. The subsurface exploration was completed under the general supervision of an ECS representative.

The boring locations were selected by representatives of ECS based on the site plan provide by the client and identified in the field by ECS personnel using the supplied diagram and handheld GPS unit. The approximate as-drilled boring locations are shown on the Boring Location Diagram in Appendix A. The approximate ground surface elevations noted in this report were obtained from Google Earth.

Representative soil samples were obtained by means of Standard Penetration Test (SPT) procedures in accordance with ASTM Specifications D-1586 in granular soils and by means of Shelby tube sampling procedures in accordance with ASTM Specifications D-1587 in cohesive soils. SPT sampling is performed by driving a split-barrel sampler into the soil in 1.5-feet intervals with a 140-lb hammer and measures the resistance of the soil to penetration of the 2-inch diameter sampler. In the Shelby tube sampling procedure, a thin walled, steel, seamless tube with sharp cutting edges is pushed hydraulically into the soil, and a relatively undisturbed sample is obtained.

Field logs of the soils encountered in the borings were maintained by the drill crew. After recovery, each geotechnical soil sample was removed for the sampler and visually classified. Representative portions of each soil sample was then wrapped in plastic and transported to our laboratory for further visual examination and laboratory testing. After completion of the drilling operations, the boreholes were backfilled with grout to the existing ground surface.

3.2 SUBSURFACE CHARACTERIZATION

The following Table provides generalized characterizations of the soil strata encountered during our subsurface exploration. For subsurface information specific information, please refer to the Boring Logs in Appendix B.

Table 3.2.1 Subsurface Stratigraphy

Approximate Depth to Bottom of Strata Below Grade (ft.)	Material Description	Consistency
8	**(CL) Lean Clay**, tan, gray and brown	Firm to Hard
13	**(CH) Fat Clay**, tan and gray	Soft to Stiff
18	**(CH) Fat Clay,** tan & gray with wood and organics Boring B1: (PT) Peat, Black and Brown,	Very Soft to Firm
38	**(CH) Fat Clay**, orange and gray	Firm to Very Stiff
48	**(SM) Silty Sand**, tan	Loose to Medium Dense
53	**(CL) Lean Clay**, tan and gray	Firm
68	**(CH) Fat Clay**, tan and gray	Very Stiff
73	**(SM) Silty Sand**, tan and brown	
83	**(CL) Lean Clay**, light gray, with sand and shells	Soft to Firm
100*	**(CH) Fat Clay**, gray and greenish gray	Stiff to Hard

* Soil boring termination depth.

Please refer to the attached boring logs and laboratory data summary for this field exploration for a more detailed description of the subsurface conditions encountered in the borings as the stratification descriptions above are generalized for presentation purposes.

3.3 GROUNDWATER OBSERVATIONS

Groundwater level observations were made in the borings during drilling operations. In auger drilling operations, water is not introduced into the borehole and the groundwater position can often be determined by observing water flowing into and out of the excavation. Furthermore, visual observation of soil samples retrieved can often be used in evaluating the groundwater conditions. Free groundwater was observed at the time of drilling in boring B-1 at 11 feet, B-2 at a depth of 13 feet, and in B-3 at about 15 feet.

The highest groundwater observations are normally encountered in the late winter or early spring or following seasonal heavy rainfall events. Fluctuation in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff and other factors not immediately apparent at the time of his investigation. Therefore, the groundwater conditions at this site are expected to be significantly influenced by surface water runoff and rainfall.

4.0 LABORATORY TESTING

The laboratory testing was performed by ECS on selected samples obtained during our field exploration operations. Classification and index property tests were performed on representative soil samples obtained from the test borings in order to aid in classifying soils according to the Unified Soil Classification System and to quantify and correlate engineering properties. The soil samples were tested for moisture content, Atterberg Limits, percent passing the US Standard No. 200 sieve, and unconfined compressive strength.

An experienced geotechnical professional visually classified each soil sample from the test borings on the basis of texture and plasticity in accordance with the Unified Soil Classification System (USCS) and ASTM D-2488 (Description and Identification of Soils-Visual/Manual Procedures). After classification, the geotechnical professional grouped the various soil types into the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs are approximate; in situ, the transitions may be gradual.

The soil samples will be retained in our laboratory for a period of 60 days, after which, they will be discarded unless other instructions are received as to their disposition.

5.0 GEOTECHNICAL RECOMMENDATIONS

The following *preliminary* recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions. These recommendations are preliminary in nature and are for planning purposes and are based on a very limited geotechnical exploration. They should not be used for design or construction. Design and construction recommendations for planned structures will require a thorough geotechnical investigation and engineering analysis.

The proposed site is generally compatible with industrial development depending on the type and anticipated loads of the proposed structures. The following Sections of this document present our general recommendations with regard to the proposed site:

5.1 SITE PREPARATION

In a dry and undisturbed state, the near surface soils will provide good subgrade support for engineered fill placement and construction operations. However, when wet, this soil will degrade quickly with disturbance from contractor operations. Chemical stabilization of the insitu soil with lime, LKD or Portland cement may be necessary depending on seasonal conditions. Therefore, good site drainage should be maintained during earthwork operations, which would help maintain the integrity of the soil.

The surface of the site should be kept properly graded in order to enhance drainage of the surface water away from the proposed building areas during the construction phase. We recommend that an attempt be made to enhance the natural drainage without interrupting its pattern.

The soils at the site are moisture and disturbance sensitive and contain fines which are considered moderately erodible. Therefore, the contractor should carefully plan his operation to minimize exposure of the subgrade to weather and construction equipment traffic and provide and maintain good site drainage during earthwork operations to help maintain the integrity of the surficial soils. All erosion and sedimentation shall be controlled in accordance with sound engineering practice and current jurisdictional requirements.

In preparing the site for construction, all loose, poorly compacted existing soils, vegetation, organic soil, existing pavements, foundations or utilities, existing fill material, or other unsuitable materials should be removed from all proposed building and paving areas, and any areas receiving new fill.

5.2 SHALLOW FOUNDATIONS

Given that subgrades and structural fills are prepared properly, the proposed structure can be supported by conventional shallow spread footings. A net allowable soil bearing pressure of 1,500 psf may be used for footings bearing on compacted in-situ lean clay or on compacted select fill. **However, it will be imperative that in order to utilize shallow footings the proposed structure must be spatially situated away from borings which disclosed underlying thick peat deposits.**

Additional test borings will be mandatory to better identify such deleterious highly-compressible strata. Footings should extend at least 18 inches below grade in order to utilize this bearing pressure. The Table (below) provides estimated size for square footing dimensions based on assumed column loads as required by the CSRS document:

Table 1
ESTIMATED SQUARE SPREAD FOOTING SIZE
Net Allowable Bearing Capacity = 1,500 psf
F.S.=3

Assumed Column Load (Kips)	Spread Footing Plan Dimensions	
	Breadth (ft.)	Width (ft.)
25	4.5	4.5
50	6	6
100	8.5	8.5

These design parameters assume that positive drainage will be provided away from structures and with no excessive wetting or drying of soils adjacent to the foundations. Greater potential movements could occur with extreme wetting or drying of the soils due to ponding of water, plumbing leaks or lack of irrigation.

The net allowable soil bearing pressure refers to that pressure which may be transmitted to the foundation bearing soils in excess of the final minimum surrounding overburden pressure. The final footing and/or grade beam elevation should be evaluated by competent geotechnical engineering personnel to verify that the bearing soils are capable of supporting the recommended net allowable bearing pressure and suitable for foundation construction.

5.2 DEEP FOUNDATIONS

The recommended pile length and the estimated corresponding allowable capacities for 14-inch square precast prestressed concrete piles are presented in the following Table for use in feasibility studies, planning, and cost estimating purposes (per the CSRS document):

Table 2
PRELIMINARY ESTIMATED ALLOWABLE AXIAL DOWNWARD SINGLE PILE CAPACITIES (TONS)
FS=2.5

Pile Length (feet)	14-inch Square PPC Pile	
	Compression (TONS)	Tension (TONS)
30	21	14
40	50	23
50	43	34
60	56	43
70	98	55
80	74	62
90	98	75

The estimated pile capacities include a factor of safety two and one half of (2.5) in compression and three (3) in tension which requires that a static load test will be performed. If a field load test is not performed, ECS recommends using a factor of safety of 2.5 for compression to determine the allowable capacities. The recommended pile lengths are referenced from the existing ground surface at the time of drilling. The allowable capacity estimates provided in the Table are based on field and laboratory testing and assume proper design and installation. As noted previously in this report boring B-2 indicated the presences of soft soil strata containing at depths of 48 to 53 feet and 73 to 83 feet below ground surface. ECS does not recommend the toe of pile bear in these weak strata. Please note that these estimated capacities do not account for negative skin friction effects that may reduce total capacity if fill is placed on site.

6.0 REPORT LIMITATIONS AND CLOSING

ECS has prepared this report of findings, evaluations, and *preliminary* recommendations to generally characterize the sites soil and groundwater conditions to substantiate that unfavorable geotechnical conditions do not exist at the site.

The preliminary recommendations provided in this report are based on the data obtained from the limited field exploration and laboratory testing at the specified boring locations for the purpose of a general site characterization. The recommendations are not intended for use in final design or construction. Final design and construction recommendations for any structure proposed on the site will require a more detailed investigation and engineering analysis.

The description of the proposed site is based on information provided to ECS by the client. If any of this information is inaccurate, either due to our interpretation of the documents provided or site that may occur later, ECS should be contacted immediately in order that we can review the report in light of the changes and provide additional or alternate recommendations as may be required to reflect the proposed site.

We recommend that ECS be allowed to review the project’s plans and specifications pertaining to our work so that we may ascertain consistency of those plans/specifications with the intent of the geotechnical report.

APPENDIX A – Figures

Site Location Map
Boring Location Diagram


Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Site Location Diagram
TERRE HAUTE DEVELOPMENT

4450 W AIRLINE HIGHWAY, RESERVE, LOUISIANA
GNO, INC

ENGINEER
DM01

SCALE
AS NOTED

PROJECT NO.
65:1062

SHEET
1 OF 1

DATE
12/17/2020

Boring Location Diagram

TERRE HAUTE DEVELOPMENT

4450 W AIRLINE HIGHWAY, RESERVE, LOUISIANA

GNO, INC

ENGINEER	DM01
SCALE	AS NOTED
PROJECT NO.	65:1062
SHEET	1 OF 1
DATE	1/18/2021

APPENDIX B – Field Operations

Reference Notes for Boring Logs
Boring Logs B-1 to B-3

REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]

■		**ASPHALT**	
▨		**CONCRETE**	
▨		**GRAVEL**	
▨		**TOPSOIL**	
□		**VOID**	
▦		**BRICK**	
▨		**AGGREGATE BASE COURSE**	
▨	**FILL**[3]	**MAN-PLACED SOILS**	
▨	**GW**	**WELL-GRADED GRAVEL**	gravel-sand mixtures, little or no fines
▨	**GP**	**POORLY-GRADED GRAVEL**	gravel-sand mixtures, little or no fines
▨	**GM**	**SILTY GRAVEL**	gravel-sand-silt mixtures
▨	**GC**	**CLAYEY GRAVEL**	gravel-sand-clay mixtures
▨	**SW**	**WELL-GRADED SAND**	gravelly sand, little or no fines
▨	**SP**	**POORLY-GRADED SAND**	gravelly sand, little or no fines
▨	**SM**	**SILTY SAND**	sand-silt mixtures
▨	**SC**	**CLAYEY SAND**	sand-clay mixtures
▥	**ML**	**SILT**	non-plastic to medium plasticity
▥	**MH**	**ELASTIC SILT**	high plasticity
▧	**CL**	**LEAN CLAY**	low to medium plasticity
▧	**CH**	**FAT CLAY**	high plasticity
▨	**OL**	**ORGANIC SILT or CLAY**	non-plastic to low plasticity
■	**OH**	**ORGANIC SILT or CLAY**	high plasticity
▩	**PT**	**PEAT**	highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION	PARTICLE SIZES
Boulders	12 inches (300 mm) or larger
Cobbles	3 inches to 12 inches (75 mm to 300 mm)
Gravel: Coarse	¾ inch to 3 inches (19 mm to 75 mm)
Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand: Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")	<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<3	Very Soft
0.25 - <0.50	3 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
Dual Symbol *(ex: SW-SM)*	10	10
With	15 - 20	15 - 25
Adjective *(ex: "Silty")*	≥25	≥30

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

WATER LEVELS[6]

▽	WL	Water Level (WS)(WD) (WS) While Sampling (WD) While Drilling
▽	SHW	Seasonal High WT
▼	ACR	After Casing Removal
▽	SWT	Stabilized Water Table
	DCI	Dry Cave-In
	WCI	Wet Cave-In

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[1] *Classifications and symbols per ASTM D 2488-09 (Visual-Manual Procedure) unless noted otherwise.*

[2] *To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.*

[3] *Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-**FILL**)].*

[4] *Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).*

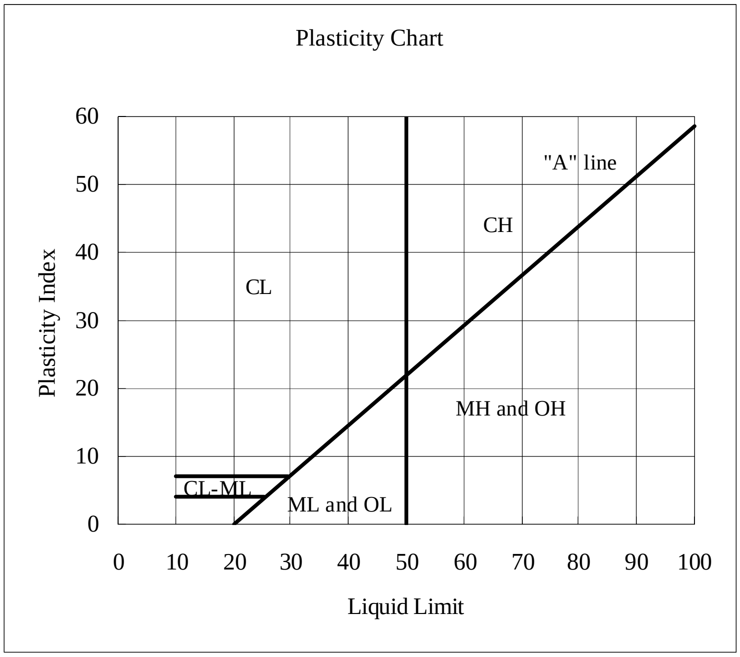
[5] *Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf).*

[6] *The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.*

[7] *Minor deviation from ASTM D 2488-09 Note 16.*

[8] *Percentages are estimated to the nearest 5% per ASTM D 2488-09.*

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 Sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent GW, GP, SW, SP More than 12 percent GM, GC, SM, SC 5 to 12 percent Borderline cases requiring dual symbols [b]	$C_u = D_{60}/D_{10}$ greater than 4 $C_c = (D_{30})^2/(D_{10}xD_{60})$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			GC		Clayey gravels, gravel-sand-clay mixtures		Atterberg limits below "A" line or P.I. less than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_u = D_{60}/D_{10}$ greater than 6 $C_c = (D_{30})^2/(D_{10}xD_{60})$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM[a]	d	Silty sands, sand-silt mixtures		Atterberg limits above "A" line or P.I. less than 4	Limits plotting in CL-ML zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
				u				
			SC		Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 Sieve)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	 Plasticity Chart		
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL		Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH		Inorganic clays of high plasticity, fat clays			
			OH		Organic clays of medium to high plasticity, organic silts			
	Highly Organic soils		Pt		Peat and other highly organic soils			

[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC,well-graded gravel-sand mixture with clay binder. (From Table 2.16 - Winterkorn and Fang, 1975)

CLIENT GNO Inc	Job #: 65-1062	BORING # B-1	SHEET 1 OF 1
PROJECT NAME Terre Haute Development	ARCHITECT-ENGINEER		

PROJECT NAME
SITE LOCATION
Reserve, LA

NORTHING	EASTING	STATION
30.079156349	-90.591104397	

DESCRIPTION OF MATERIAL ENGLISH UNITS

BOTTOM OF CASING ➤ LOSS OF CIRCULATION

SURFACE ELEVATION 6

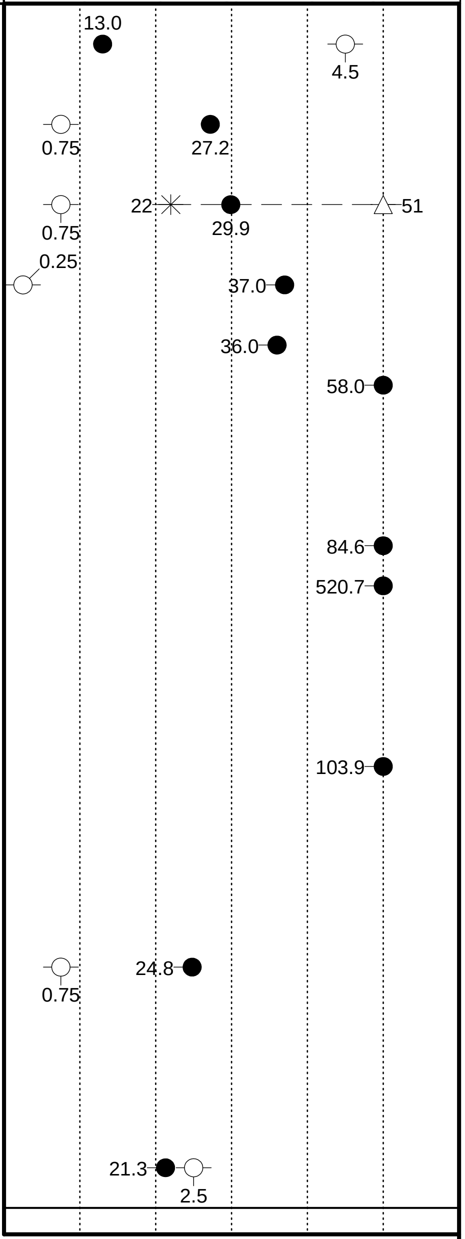
-○- CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – – – REC% ———

PLASTIC LIMIT% ✕ WATER CONTENT% ● LIQUID LIMIT% △

⊗ STANDARD PENETRATION BLOWS/FT

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	ST	24	24	(CL) LEAN CLAY, tan and brown, moist, firm to hard		5	
	S-2	ST	24	24				
5	S-3	ST	24	24	(CH) FAT CLAY), tan, brown, and grey, moist, soft to firm			
	S-4	ST	24	24			0	
	S-5	ST	12	12	(SM) SILTY SAND, dark grey, moist			
	S-6	ST	12	12	(CL) LEAN CLAY, grey, moist, soft, with wood and organics			
10						▽	-5	
	S-7	ST	12	12				
	S-8	ST	12	12	(PT) PEAT, black, moist, very soft			
15							-10	
	S-9	ST	24	24	(CL) LEAN CLAY, grey, moist, very soft, with wood and organics			
20							-15	
	S-10	ST	24	24	(CL) LEAN CLAY, tan, greenish grey, and grey, moist, firm to very stiff, with calcium nodules			
25							-20	
	S-11	ST	24	24				
30					END OF BORING @ 30 FEET			



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

▽ WL 11 WS ☐ WD ☐	BORING STARTED 10/15/2020	CAVE IN DEPTH N/A
▽ WL(SHW) ▼ WL(ACR)	BORING COMPLETED 10/15/2020	HAMMER TYPE Auto
▽ WL	RIG Simco FOREMAN	DRILLING METHOD Wet Rotary

CLIENT
GNO Inc

Job #: 65-1062

BORING # B-2

SHEET 1 OF 4

PROJECT NAME
Terre Haute Development

ARCHITECT-ENGINEER

SITE LOCATION
Reserve, LA

NORTHING 30.082034354

EASTING -90.589913496

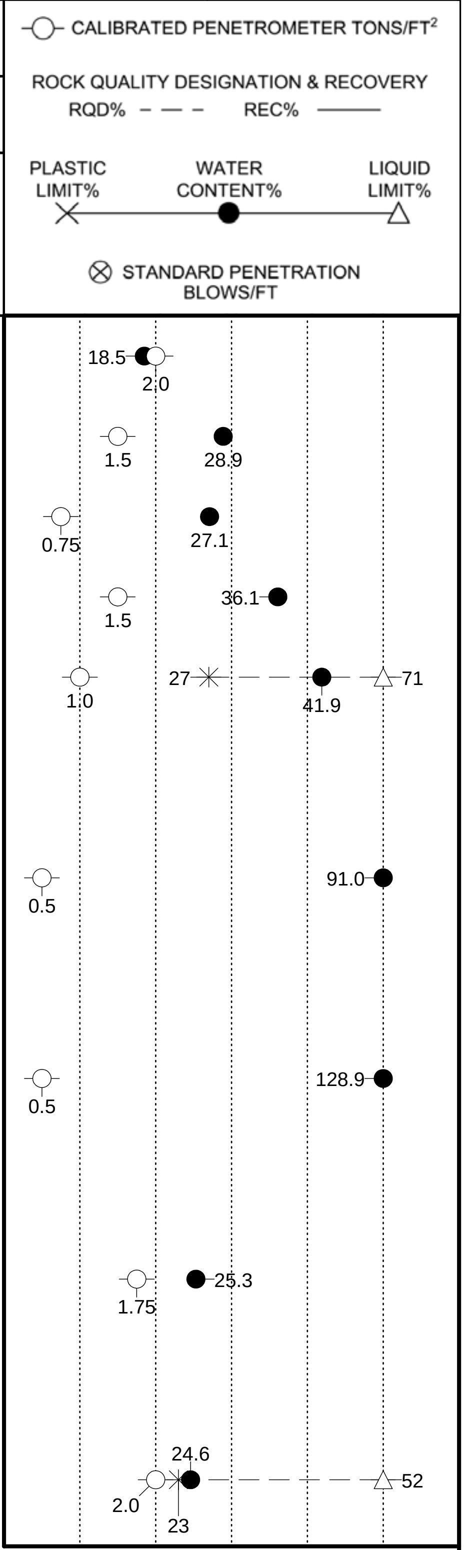
STATION

DESCRIPTION OF MATERIAL ENGLISH UNITS

BOTTOM OF CASING ➧ LOSS OF CIRCULATION 100%

SURFACE ELEVATION 6

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0								
	S-1	ST	24	24	(CL) LEAN CLAY, tan, grey and tan, moist, firm to very stiff, with sand seams		5	
	S-2	ST	24	24				
5	S-3	ST	24	24				
							0	
	S-4	ST	24	24				
	S-5	ST	24	24	(CH) FAT CLAY, grey, moist, stiff			
10								
							-5	
						▽		
	S-6	ST	24	24	(CH) FAT CLAY, brown and grey, moist, firm, with organics and wood			
15								
							-10	
	S-7	ST	24	24	(CH) FAT CLAY, orange, light grey, and greenish grey, moist, firm to very stiff, with calcium nodules			
20								
							-15	
	S-8	ST	24	24				
25								
							-20	
	S-9	ST	24	24				
30								



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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

▽ WL 13 WS ☐ WD ☐	BORING STARTED 10/15/2020	CAVE IN DEPTH
▽ WL(SHW) ▼ WL(ACR)	BORING COMPLETED 10/15/2020	HAMMER TYPE Automatic
▽ WL	RIG Simco FOREMAN	DRILLING METHOD Wet Rotary

CLIENT: GNO Inc
Job #: 65-1062
BORING #: B-2
SHEET: 2 OF 4

PROJECT NAME: Terre Haute Development
PROJECT NAME
ARCHITECT-ENGINEER:

SITE LOCATION: Reserve, LA

NORTHING: 30.082034354
EASTING: -90.589913496
STATION:

DESCRIPTION OF MATERIAL — ENGLISH UNITS
BOTTOM OF CASING — LOSS OF CIRCULATION 100%
SURFACE ELEVATION 6

-○- CALIBRATED PENETROMETER TONS/FT^2
ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — – REC% ———
PLASTIC LIMIT% ✕ — WATER CONTENT% ● — LIQUID LIMIT% △
⊗ STANDARD PENETRATION BLOWS/FT

SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)
S-10	ST	24	24
S-11	ST	24	24
S-12	SS	18	18
S-13	SS	18	18
S-14	SS	18	18
S-15	ST	24	24
S-16	ST	24	24

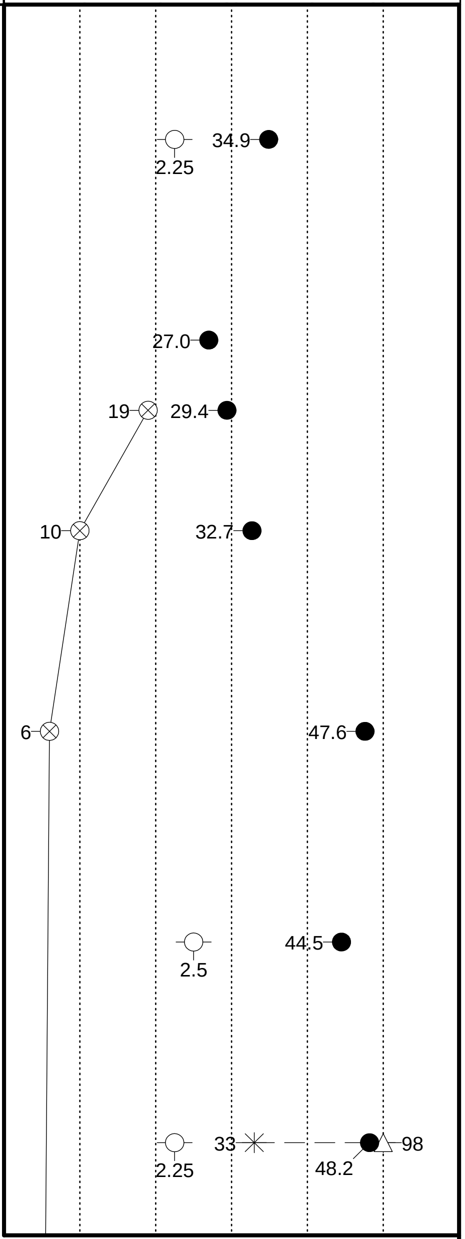
DEPTH (FT): 35, 40, 45, 50, 55, 60
ELEVATION (FT): -25, -30, -35, -40, -45, -50, -55

(CH) FAT CLAY, orange, light grey, and greenish grey, moist, firm to very stiff, with calcium nodules

(SM) SILTY SAND, tan, moist, loose to medium dense, with clay seams

(CL) LEAN CLAY, tan and grey, moist, firm

(CH) FAT CLAY, light grey and tan, moist, very stiff



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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 13 WS ☐ WD ☐
BORING STARTED 10/15/2020
CAVE IN DEPTH
WL(SHW) WL(ACR)
BORING COMPLETED 10/15/2020
HAMMER TYPE Automatic
WL
RIG Simco
FOREMAN
DRILLING METHOD Wet Rotary

CLIENT: GNO Inc

Job #: 65-1062

BORING #: B-2

SHEET: 3 OF 4

PROJECT NAME: Terre Haute Development

ARCHITECT-ENGINEER:

SITE LOCATION: Reserve, LA

NORTHING: 30.082034354

EASTING: -90.589913496

STATION:

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING ➤ LOSS OF CIRCULATION

SURFACE ELEVATION 6

-○- CALIBRATED PENETROMETER TONS/FT²

ROCK QUALITY DESIGNATION & RECOVERY: RQD% – – – REC% ———

PLASTIC LIMIT% ✕ — WATER CONTENT% ● — LIQUID LIMIT% △

⊗ STANDARD PENETRATION BLOWS/FT

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	ELEVATION (FT)	STANDARD PENETRATION BLOWS/FT	WATER CONTENT%	CALIBRATED PENETROMETER TONS/FT²
					(CH) FAT CLAY, light grey and tan, moist, very stiff				
65									
						-60			
	S-17	ST	24	24	(SM) SILTY SAND, tan and brown, moist			36.2	
70									
						-65			
	S-18	SS	18	18	(CL) LEAN CLAY, light grey, moist, soft to firm, with sand seams and shells		5	41.5	
75									
						-70			
	S-19	SS	18	18			4	38.7	
80									
						-75			
	S-20	ST	24	24	(CH) FAT CLAY, grey and greenish grey, moist, stiff to hard, with organics, sand, and calcium nodules			43.2	1.25
85									
						-80			
	S-21	ST	24	24				25.2	4.0
90									
						-85			

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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 13 WS ☐ WD ☐	BORING STARTED 10/15/2020	CAVE IN DEPTH
WL(SHW) WL(ACR)	BORING COMPLETED 10/15/2020	HAMMER TYPE Automatic
WL	RIG Simco FOREMAN	DRILLING METHOD Wet Rotary

CLIENT GNO Inc	Job #: 65-1062	BORING # B-2	SHEET 4 OF 4
PROJECT NAME Terre Haute Development	ARCHITECT-ENGINEER		

PROJECT NAME

SITE LOCATION
Reserve, LA

NORTHING	EASTING	STATION
30.082034354	-90.589913496	

CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – — –   REC% ———

PLASTIC LIMIT% ✕ WATER CONTENT% ● LIQUID LIMIT% △

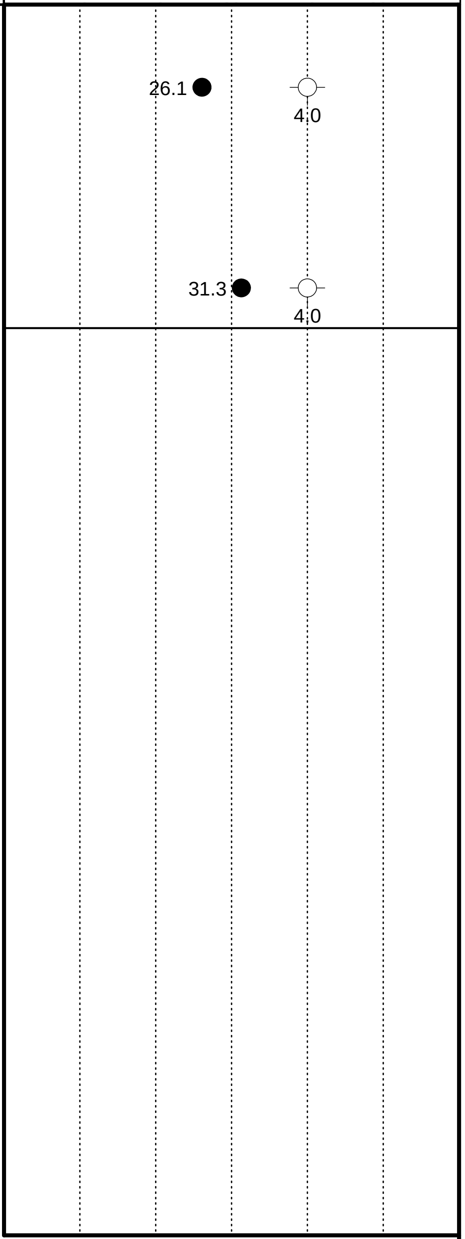
⊗ STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION 100%

SURFACE ELEVATION 6

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
					(CH) FAT CLAY, grey and greenish grey, moist, stiff to hard, with organics, sand, and calcium nodules			
	S-22	ST	24	24				
95								
							-90	
	S-23	ST	24	24				
100					END OF BORING @ 100 FEET			
							-95	
105								
							-100	
110								
							-105	
115								
							-110	
120								
							-115	



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 13 WS ☐ WD ☐	BORING STARTED 10/15/2020	CAVE IN DEPTH
WL(SHW) WL(ACR)	BORING COMPLETED 10/15/2020	HAMMER TYPE Automatic
WL	RIG Simco FOREMAN	DRILLING METHOD Wet Rotary

CLIENT GNO Inc	Job #: 65-1062	BORING # B-3	SHEET 1 OF 1
PROJECT NAME Terre Haute Development	ARCHITECT-ENGINEER		

PROJECT NAME

SITE LOCATION
Reserve, LA

NORTHING	EASTING	STATION
30.084782308	-90.588883528	

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING — LOSS OF CIRCULATION 100%

SURFACE ELEVATION 7

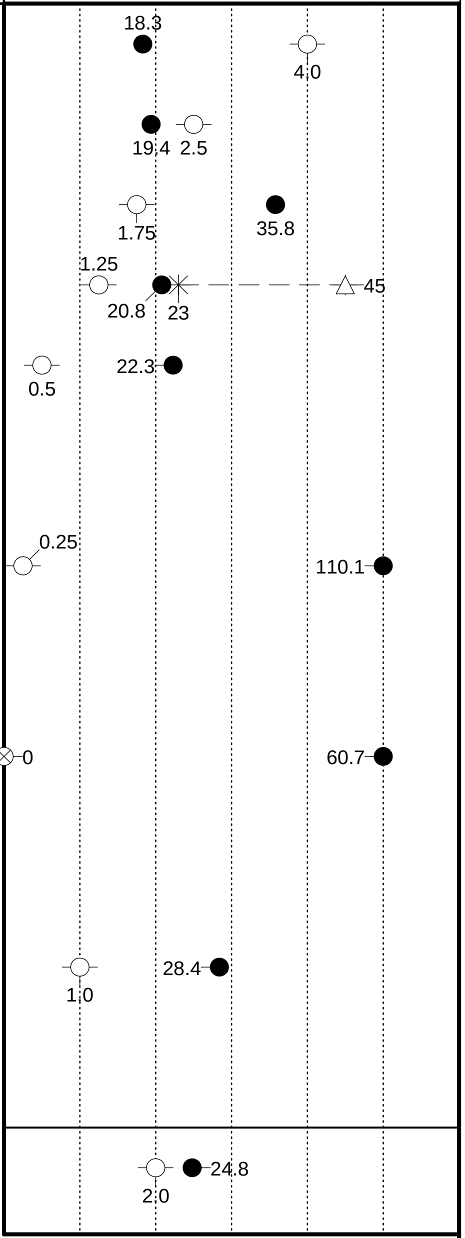
-○- CALIBRATED PENETROMETER TONS/FT^2

ROCK QUALITY DESIGNATION & RECOVERY
RQD% – – – REC% ———

PLASTIC LIMIT% ✕ — WATER CONTENT% ● — LIQUID LIMIT% △

⊗ STANDARD PENETRATION BLOWS/FT

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0	S-1	ST	24	24	(CL) LEAN CLAY, brown and tan, moist, stiff to hard, with roots		5	
	S-2	ST	24	24				
5	S-3	ST	24	24				
	S-4	ST	24	24	(CL) LEAN CLAY, grey and tan, moist, stiff, with roots and silt lenses		0	
	S-5	ST	24	24	(CH) FAT CLAY, grey and brown, moist, firm, with wood and organics			
10							-5	
	S-6	ST	24	24				
15						▽	-10	
	S-7	SS	18	18				
20							-15	
	S-8	ST	24	24	(CL) LEAN CLAY, gray and tan, moist, firm to stiff			
25							-20	
	S-9	ST	24	24				
30								



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

▽ WL 15 WS ☐ WD ☐	BORING STARTED 10/15/2020	CAVE IN DEPTH
▽ WL(SHW) ▼ WL(ACR)	BORING COMPLETED 10/15/2020	HAMMER TYPE Automatic
▽ WL	RIG Simco FOREMAN	DRILLING METHOD Wet Rotary

APPENDIX C – Laboratory Testing

Laboratory Test Results Summary

Laboratory Testing Summary

Boring Number	Sample Number	Depth (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Other
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
B-1												
	S-1	0.00 - 2.00	13.0	CL								
	S-2	2.00 - 4.00	27.2									
	S-3	4.00 - 6.00	29.9	CH	51	22	29					
	S-4	6.00 - 8.00	37.0									
	S-5	8.00 - 9.00	36.0	SM				48.0				
	S-6	9.00 - 10.00	58.0	CL								
	S-7	13.00 - 14.00	84.6									
	S-8	14.00 - 15.00	520.7	PT								
	S-9	18.00 - 20.00	103.9	CL								
	S-10	23.00 - 25.00	24.8	CL								
	S-11	28.00 - 30.00	21.3									
B-2												
	S-1	0.00 - 2.00	18.5	CL								
	S-2	2.00 - 4.00	28.9									
	S-3	4.00 - 6.00	27.1					86.3				
	S-4	6.00 - 8.00	36.1									
	S-5	8.00 - 10.00	41.9	CH	71	27	44					
	S-6	13.00 - 15.00	91.0	CH								
	S-7	18.00 - 20.00	128.9	CH								
	S-8	23.00 - 25.00	25.3									
	S-9	28.00 - 30.00	24.6		52	23	29					
	S-10	33.00 - 35.00	34.9									
	S-11	38.00 - 40.00	27.0	SM								
	S-12	40.00 - 41.50	29.4									
	S-13	43.00 - 44.50	32.7									
	S-14	48.00 - 49.50	47.6	CL								
	S-15	53.00 - 55.00	44.5	CH								

Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content (ASTM D 2974)

Project No.	**65-1062**
Project Name:	**Terre Haute Development**
Client:	**GNO Inc**
Printed On:	**Tuesday, January 5, 2021**

ECS Southeast, LLP

Baton Rouge, LA

Laboratory Testing Summary

Boring Number	Sample Number	Depth (feet)	MC[1] (%)	Soil Type[2]	Atterberg Limits[3]			Percent Passing No. 200 Sieve[4]	Moisture - Density (Corr.)[5]		CBR Value[6]	Other
					LL	PL	PI		Maximum Density (pcf)	Optimum Moisture (%)		
	S-16	58.00 - 60.00	48.2		98	33	65					
	S-17	68.00 - 70.00	36.2	SM								
	S-18	73.00 - 74.50	41.5	CL								
	S-19	78.00 - 79.50	38.7									
	S-20	83.00 - 85.00	43.2	CH								
	S-21	88.00 - 90.00	25.2									
	S-22	93.00 - 95.00	26.1									
	S-23	98.00 - 100.00	31.3									
B-3												
	S-1	0.00 - 2.00	18.3	CL								
	S-2	2.00 - 4.00	19.4					92.1				
	S-3	4.00 - 6.00	35.8									
	S-4	6.00 - 8.00	20.8	CL	45	23	22					
	S-5	8.00 - 10.00	22.3	CH								
	S-6	13.00 - 15.00	110.1									
	S-7	18.00 - 19.50	60.7									
	S-8	23.00 - 25.00	28.4	SC								
	S-9	28.00 - 30.00	24.8									

Notes: 1. ASTM D 2216, 2. ASTM D 2487, 3. ASTM D 4318, 4. ASTM D 1140, 5. See test reports for test method, 6. See test reports for test method

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content (ASTM D 2974)

Project No.	65-1062
Project Name:	Terre Haute Development
Client:	GNO Inc
Printed On:	Tuesday, January 5, 2021

ECS Southeast, LLP

Baton Rouge, LA

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation*.

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GBA
GEOPROFESSIONAL
BUSINESS
ASSOCIATION

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e-mail: info@geoprofessional.org   www.geoprofessional.org