# GENERAL INFORMATION

### INTRODUCTION

THIS REPORT SUMMARIZES THE RESULTS OF THE SUBSURFACE EXPLORATION CONDUCTED IN CONNECTION WITH TWO RETAINING WALLS, DESIGNATED AS STATION Nos. 203 + 2.05 AND 208 + 73.22, PROPOSED TO BE CONSTRUCTED ALONG STATE ROUTE #84 IN THE CITY OF WILLOUGHBY, LAKE COUNTY, OHIO.

#### SITE GEOLOGY

LAKE COUNTY OCCUPIES PARTS OF TWO PHYSIOGRAPHIC PROVINCES: THE GLACIATED ALLEGHENY PLATEAU OF THE APPALACHIAN PLATEAUS PROVINCE IN THE SOUTH AND THE EASTERN LAKE SECTION OF THE CENTRAL LOWLAND PROVINCE IN THE NORTH. THE BEDROCK IS DEVONIAN OR MISSISSIPPIAN IN AGE, AND CONSISTS PRIMARILY OF SHALES AND SANDSTONES. THE OVERBURDEN SOILS ARE GLACIAL IN ORIGIN, INVOLVING GROUND MORRAINE DEPOSITS IN THE SOUTH AND LAKE DEPOSITS IN THE NORTH. THE DRIFT IS OF WISCONSINIAN AGE.

## **EXPLORATION**

STRUCTURAL TEST BORINGS WERE ADVANCED BY ROTARY—DRIVE DRILLING PROCEDURES EMPLOYING 6.0—INCH O.D., 3.25—INCH I.D. HOLLOW STEM CONTINUOUS FLIGHT AUGERS. REPRESENTATIVE SAMPLES OF THE AREA'S VARIOUS SUBSURFACE FORMATIONS WERE TAKEN BY MEANS OF A TWO (2)—INCH O.D. SPLIT SPOON SAMPLING DEVICE, DRIVEN BY A 140—POUND HAMMER, FREE FALLING THROUGH A DISTANCE OF THIRTY (30) INCHES.

IN THE LABORATORY, REPRESENTATIVE SAMPLES OF THE SUBSURFACE SOILS WERE CLASSIFIED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION TESTING LABORATORY CLASSIFICATION OF SOILS PROCEDURES. PARTICLE SIZE ANALYSIS AND ATTERBERG LIMITS DETERMINATIONS TESTS WERE PERFORMED IN ACCORDANCE WITH APPLICABLE ASTM STANDARD METHODS.

## DESCRIPTION OF SUBSURFACE MATERIALS

THE RESULTS OF THE FIELD DRILLING OPERATIONS HAVE BEEN DETAILED ON THE TEST BORING LOGS AND CAN BE SUMMARIZED AS FOLLOWS:

AT THE BORING LOCATIONS B-1 THROUGH B-7, THE EXISTING PAVEMENT STRUCTURES CONSIST OF ASPHALT CONCRETE SURFACE COURSE OVERLYING CONCRETE. THE THICKNESS OF THE ASPHALT CONCRETE SURFACE COURSE VARIES BETWEEN ABOUT FOUR (4) AND FIVE (5) INCHES WHILE THE UNDERLYING CONCRETE WAS FOUND TO BE SEVEN (7) TO EIGHT (8) INCHES IN THICKNESS.

UNDERLYING CONCRETE, BROWN/GRAY SAND AND/OR SILTY SAND CONTAINING VARIABLE FRACTIONS OF GRAVEL WERE ENCOUNTERED UP TO DEPTHS OF BETWEEN SEVENTEEN (17) AND TWENTY—THREE (23) FEET BELOW THE SURFACE GRADES.

UNDERLYING THE SAND FORMATION, GRAY CLAYEY SILT AND/OR SILT AND/OR FINE SAND CONTAINING VARIABLE FRACTIONS OF ROCK FRAGMENTS AND SAND WERE FOUND TO BE PRESENT UP TO THE TERMINAL DEPTHS OF BORINGS B-6, B-4, B-3 AND B-1 AND UP TO DEPTHS OF ABOUT FORTY—SEVEN AND ONE—HALF (47—1/2), FORTY—NINE (49) AND FIFTY AND ONE—HALF (50 1/2) FEET BELOW THE SURFACE GRADES AT BORINGS B-7, B-5 AND B-2, RESPECTIVELY.

AT BORINGS B-7, B-5 AND B-2, THE BOTTOMMOST FORMATION CONSISTS OF GRAY WEATHERED SHALE.

THE SUBSURFACE COHESIVE MATERIALS EXHIBITED STIFF STRUCTURAL STATES WHILE GRANULAR MATERIALS EXHIBITED LOOSE TO MEDIUM DENSE RELATIVE DENSITY. CONSISTENCIES OF THE SUBSURFACE MATERIALS WERE FOUND TO RANGE FROM MOIST TO WET.

## NOTE

INFORMATION SHOWN ON THIS PROFILE SHEET WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA, AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLAN GOVERNING CONSTRUCTION OF THIS PROJECT.

## LEGEND

Gravel and/or Stone Fragments (A - 1 - a)

Random Fill

Materials

Dolomite

Leached

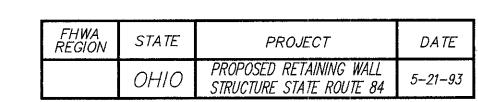
Leached

Dolomite

Peat

Limestone

Various Other

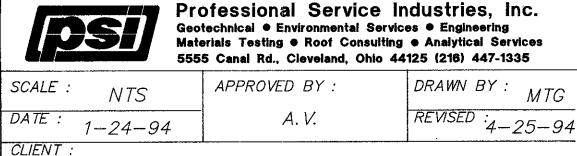


# LAKE COUNTY LAK-84

ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATION, SOIL TESTS, AND BEDROCK BORINGS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET, COLUMBUS, OHIO.

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000	Gravei ana/or Storie	rragments	(A - I -	a)	
0.00	Gravel and/or Stone Fragments with Sand		(A - 1 - b)		
	Fine Sand		(A - 3)		
	Coarse and Fine Sand		(A - 3a)		
	Gravel and/or Stone Fragments with Sand and Silt		(A - 2 - 4) & (A - 2 - 5)		
	Gravel and/or Stone with Sand, Silt and C	Fragments lay	(A - 2 -	6) & (4	1 - 2 - 7
	Sandy Silt	(A - 4a)			
+ + + + + + + + + + + + + + + + + + + +	Silt	(A - 4b)			
	Elastic Silt and Clay	(A - 5)		,	Sod and/or Topsoil
	Silt and Clay	(A - 6a)		<u> </u>	Berm Material  Augus Paring Plan View
	Silty Clay	(A - 6b)		$\forall$	Auger Boring-Plan View
	Elastic Clay	(A - 7 -	5)	<del>()</del>	Drive Sample and/or Core Boring—Plan View
	Clay	(A - 7 -	6)		Auger Boring Plotted to Vertical Scale Only
	Shale				Drive Sample and/or Core Boring Plotted to Vertical Scale Only
	Weathered Shale			X	Number of Blows for 12"
	Sandstone			Λ	Nulliber of Blows for 12
	Limestone				Static Water Level
1/11/1/11	Mudstone				



CT CONSULTANTS

PROJECT NAME:

PROPOSED RETAINING STRUCTURE

STATE ROUTE 84

DRAWING NUMBER 142-35022

NOTO TECHNICATION ( NOW)