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PROJECT DESCRIPTION

THE WOO-281-12.65 PROJECT CONSISTS OF THE REPAIR OF A LANDSLIDE IMPACTING THE EASTBOUND TRAVEL LANE AND THE SLOPE BELOW THE ROADWAY OF S.R. 281, FROM APPROXIMATELY STA 670+00 TO STA 669+00.

HISTORIC RECORDS

BORINGS FOR THE SR 281 BRIDGE OVER I-75 WERE REVIEWED AS PART OF THIS WORK BUT NOT INCLUDED IN THESE DRAWINGS.

GEOLOGY

THE PROJECT LIES WITHIN THE HURON-ERIE LAKE PLAINS PHYSIOGRAPHIC REGION OF OHIO. THIS REGION IS DESCRIBED AS A PLAIN THAT ONCE MADE UP THE BED OF THE MUCH LARGER LAKE MAUMEE. THE REGION IS CHARACTERIZED BY ITS EXTREME FLATNESS, WITH VERY GENTLY-SLOPING BASINS THAT CONTAIN PLEISTOCENE-AGED GLACIAL, LACUSTRINE AND ALLUVIAL SEDIMENTS. THE UNDERLYING BEDROCK AT THE SITE IS COMPOSED OF SILURIAN-AGED SHALE, DOLOMITE, AND LIMESTONE.

RECONNAISSANCE

A GEOTECHNICAL RECONNAISSANCE OF THE SITE WAS PERFORMED ON SEPTEMBER 9, 2019. THE ROADWAY AT THIS LOCATION SITS ATOP THE APPROACH EMBANKMENT TO THE OVERPASS OF INTERSTATE 75. A LONGITUDINAL CRACK IN THE SR 281 ROADWAY PAVEMENT WAS FOUND AT THE TIME OF RECONNAISSANCE.

THE LAND USE DOWNSLOPE OF THE ROADWAY IS UNDEVELOPED AGRICULTURAL LAND. THE MAXIMUM SLOPE HEIGHT IS APPROXIMATELY 25 FEET, MEASURED FROM THE EDGE OF THE PAVEMENT TO THE TOE OF THE SLOPE. THE SLOPE IMMEDIATELY BELOW THE ROADWAY IS ROUGHLY 2.5H:1V.

SUBSURFACE EXPLORATION

A SUBSURFACE EXPLORATION WAS CONDUCTED BETWEEN THE DATES OF SEPTEMBER 9 AND SEPTEMBER 10, 2019. AN ODOT REPRESENTATIVE LOGGED THE RESULTS OF THE BORINGS. THE EXPLORATION CONSISTED OF DRILLING ONE SPT BORING TO A DEPTH OF 33.5 FEET. BORING B-001-1-19 WAS DRILLED ON THE SOUTHERN SLOPE OF THE WESTERN BRIDGE EMBANKMENT ROUGHLY HALFWAY DOWN THE SLOPE.

EXPLORATION FINDINGS

THE GENERALIZED SOIL PROFILE AT MID-SLOPE CONSISTS OF APPROXIMATELY 18.5 FEET OF SOFT TO VERY STIFF SILTY CLAY (A-6b) AND CLAY (A-7-6). BENEATH THIS SOIL, A MEDIUM DENSE TO VERY DENSE SANDY SILT (A-4a) WAS ENCOUNTERED. THESE SOILS EXTENDED TO A DEPTH OF 33.5 FEET, WHERE BEDROCK WAS ENCOUNTERED. WATER WAS ENCOUNTERED IN THE SOIL BORING AT A DEPTH OF 13.4 FEET DURING DRILLING AND AT 14.8 FEET PRIOR TO ROCK CORING.

THE ROCK UNITS CONSISTED OF SHALE, DOLOMITE, AND LIMESTONE. THE ROCK RECOVERY RANGED FROM 86 TO 100 PERCENT, WITH AN AVERAGE OF 95 PERCENT. ROCK RQD VALUES RANGED BETWEEN 31 AND 69 PERCENT WITH AN AVERAGE OF 51 PERCENT.

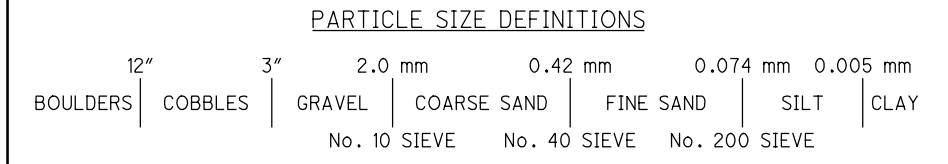
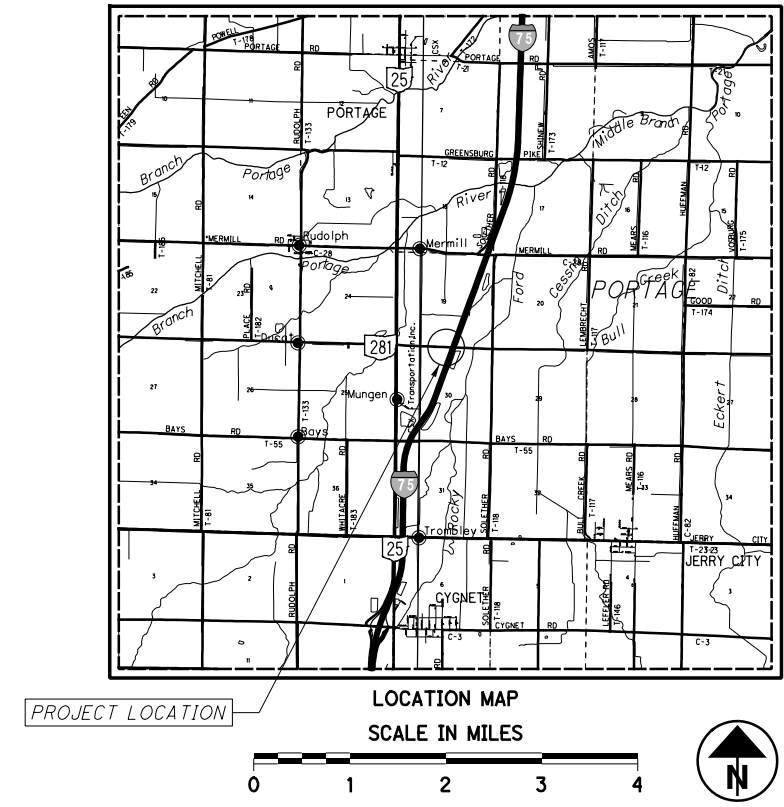
SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN GENERAL ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JULY 21, 2017.

AVAILABLE INFORMATION

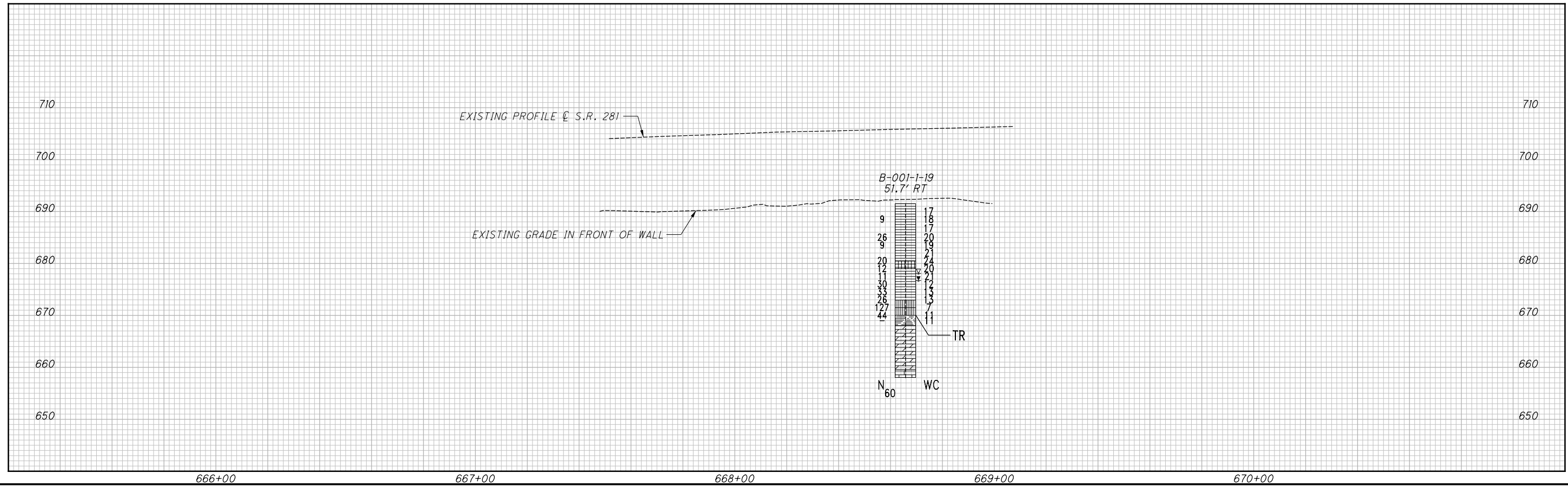
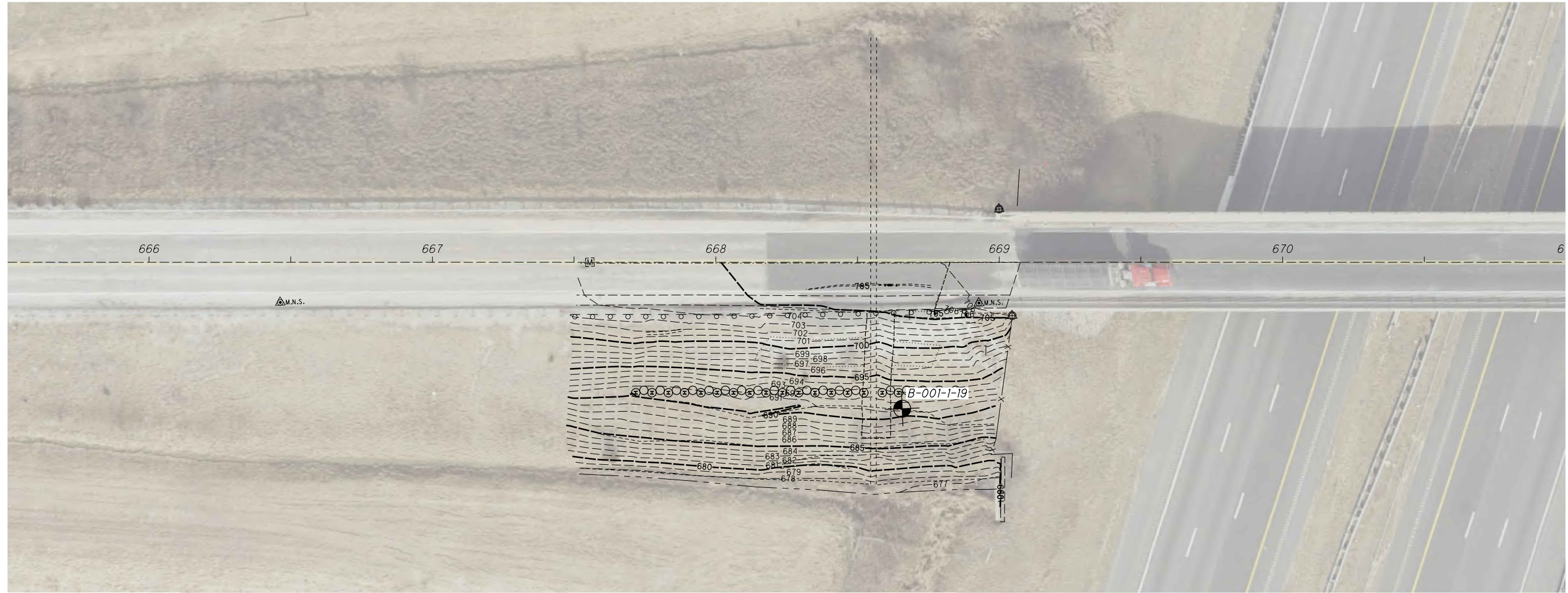
ALL AVAILABLE SOIL INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL EXPLORATIONS MAY BE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE REVIEWED AT THE ODOT DISTRICT 2 OFFICE, LOCATED AT 317 EAST POE ROAD, BOWLING GREEN, OHIO 43402.

LEGEND		ODOT CLASS	CLASSIFIED MECH./VISUAL	
	SILTY CLAY	A - 6b	4	6
	CLAY	A - 7 - 6	1	0
	SANDY SILT	A - 4a	2	0
		TOTAL		
	SHALE	VIS.	7	6
	DOLOMITE	VIS.		
	LIMESTONE	VIS.		
	PAVEMENT OR BASE = X = APPROXIMATE THICKNESS			
	SOD AND TOPSOIL = X = APPROXIMATE THICKNESS			
	BORING LOCATION - PLAN VIEW			
	INSTRUMENTED BORING LOCATION - PLAN VIEW			
	DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.			
WC	INDICATES WATER CONTENT IN PERCENT.			
N ₆₀	INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.			
X/Y/Z	NUMBER OF BLOWS FOR STANDARD PENETRATION TEST (SPT): X= NUMBER OF BLOWS FOR FIRST 6 INCHES. Y= NUMBER OF BLOWS FOR SECOND 6 INCHES. Z= NUMBER OF BLOWS FOR THIRD 6 INCHES.			
W	INDICATES FREE WATER ELEVATION.			
	INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.			
	INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25 % OR GREATER THAN 19 % WITH A WET APPEARANCE.			
	INDICATES A SAMPLE TAKEN WITHIN 3 FT OF PROPOSED GRADE.			
SS	INDICATES A SPLIT SPOON SAMPLE.			
NP	INDICATES A NON-PLASTIC SAMPLE.			



RECON. -
DRILLING -
DRAWN - AMD 10/31/19
REVIEWED - PN 11/05/19

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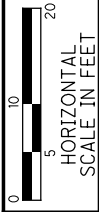
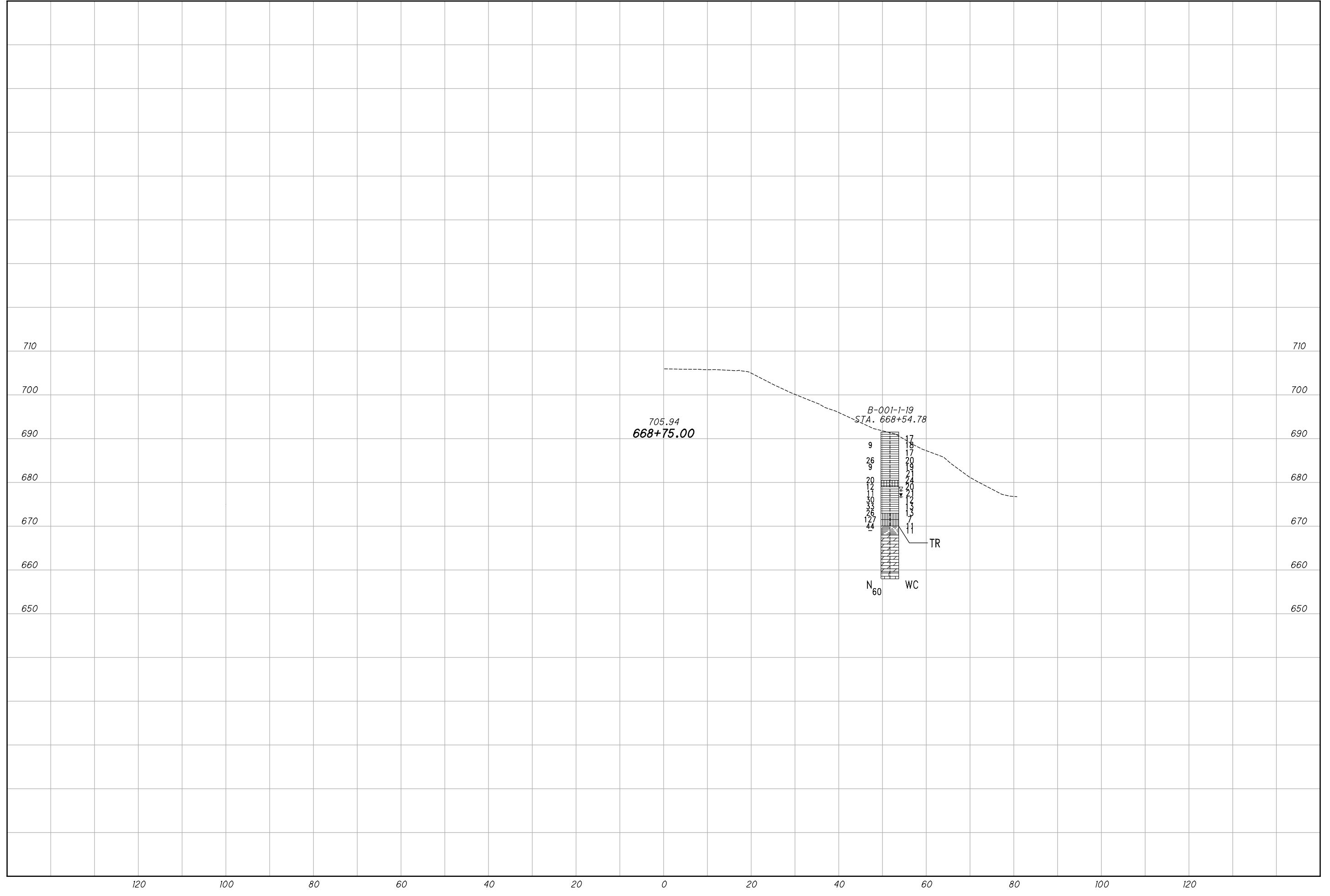


DRAWN
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**LANDSLIDE EXPLORATION
STA. 665+50.00 TO STA. 671+00.00**

**W00-281-12.65
SLOPE REPAIR**

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**LANDSLIDE EXPLORATION
CROSS SECTION STA. 668+75**

**W00-281-12.65
SLOPE REPAIR**

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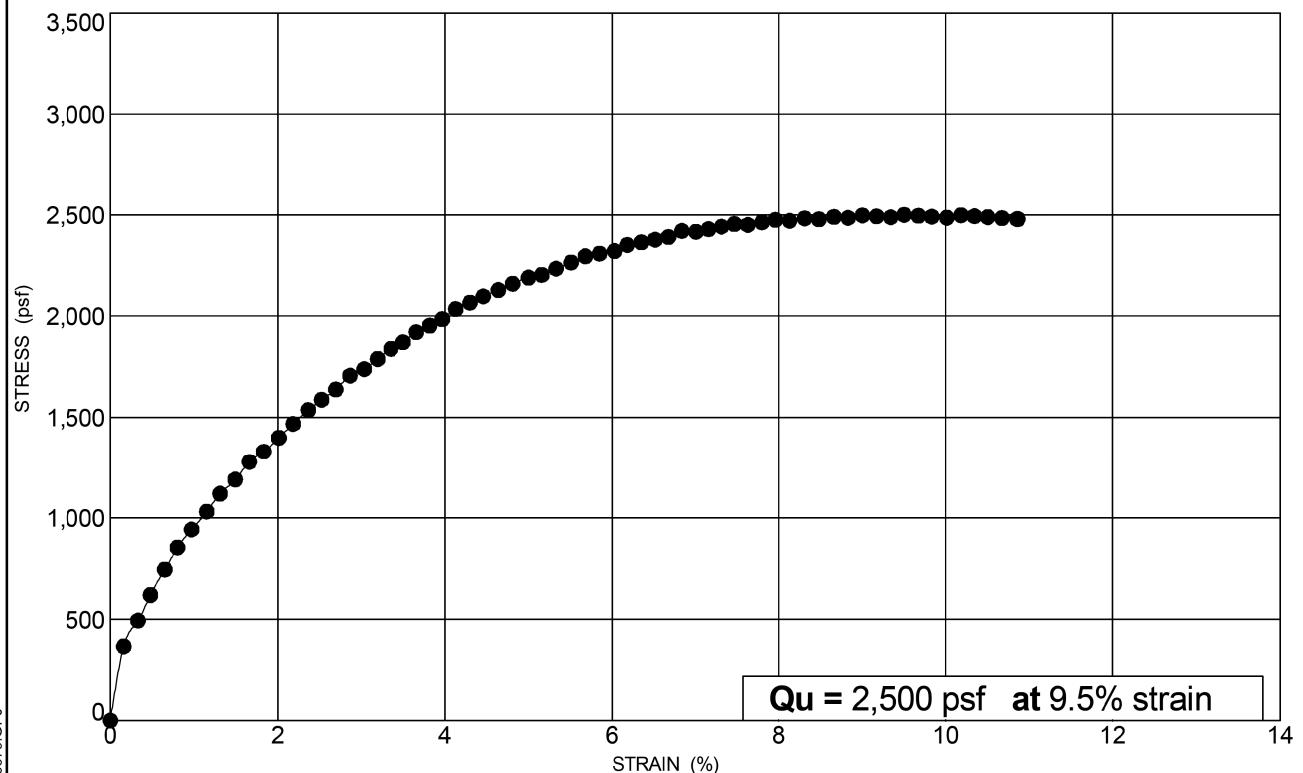
OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF GEOTECHNICAL ENGINEERING

**UNCONFINED COMPRESSION TEST
AASHTO T - 208**

PROJECT WOO-281-12.65 PID 111125
OGE NUMBER 600679 PROJECT TYPE STRUCTURE

SAMPLE IDENTIFICATION

BORING ID: B-001-1-19 SAMPLE ID: ST-1
STATION: NOT RECORDED DEPTH: 1.5 - 3.0 feet



SPECIMEN FAILURE SKETCHES OR PHOTOGRAPHS



FRONT VIEW



SIDE VIEW

SPECIMEN DETAILS

HEIGHT: 5.75 inches
DIAMETER: 2.88 inches
WET UNIT WT: 133.22 pcf
DRY UNIT WT: 114.04 pcf

TESTED BY: AW 9/11/2019

CLASSIFICATION RESULTS

GRADATION (%)				
GR	CS	FS	SI	CL
4	5	12	27	52
ATTERBERG LIMITS			MOISTURE	
LL	PL	PI	WC	
33	17	16	17	

ODOT CLASS: A-6b HP (tsf): 3.00

DESCRIPTION: Stiff, Dark Brown, SILTY CLAY, Little Sand, Trace Stone Fragments, Moist



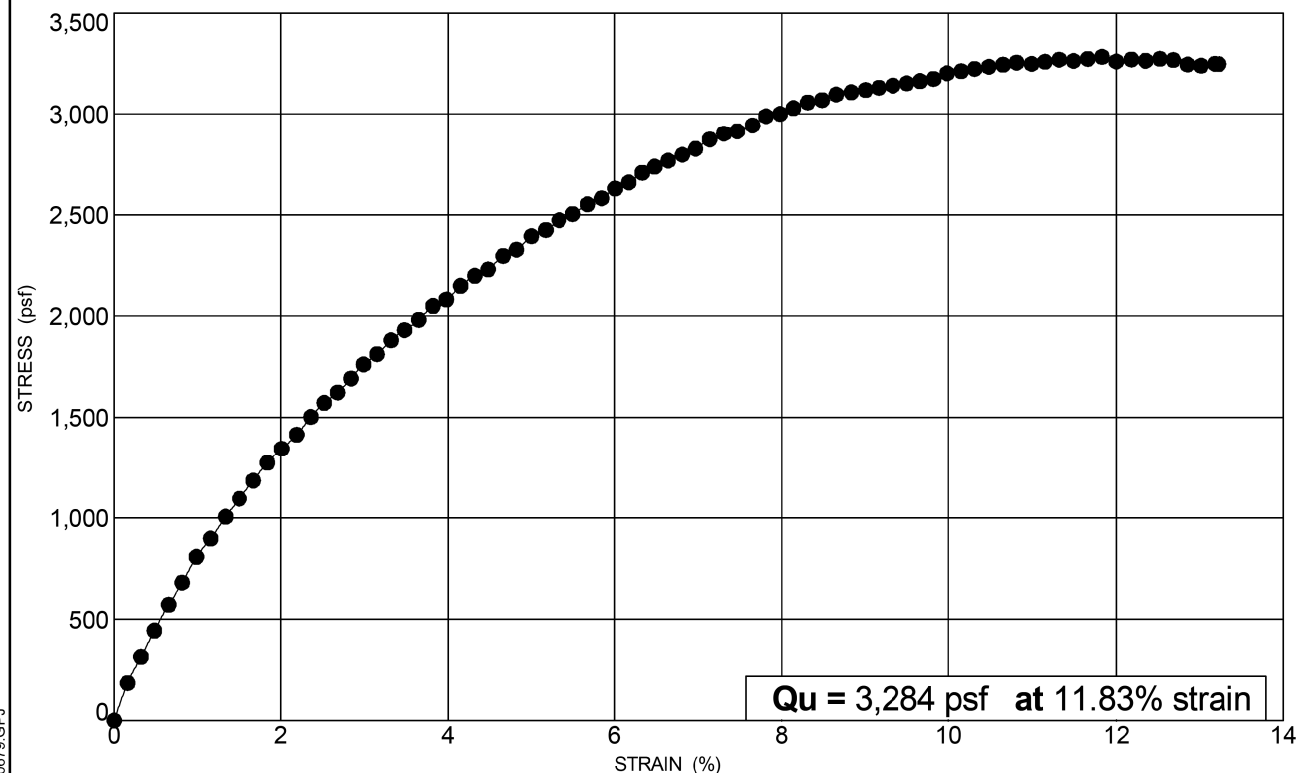
OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF GEOTECHNICAL ENGINEERING

**UNCONFINED COMPRESSION TEST
AASHTO T - 208**

PROJECT WOO-281-12.65 PID 111125
OGE NUMBER 600679 PROJECT TYPE STRUCTURE

SAMPLE IDENTIFICATION

BORING ID: B-001-1-19 SAMPLE ID: ST-3
STATION: NOT RECORDED DEPTH: 4.5 - 6.5 feet



SPECIMEN FAILURE SKETCHES OR PHOTOGRAPHS



FRONT VIEW



SIDE VIEW

SPECIMEN DETAILS

HEIGHT: 5.75 inches
DIAMETER: 2.86 inches
WET UNIT WT: 133.82 pcf
DRY UNIT WT: 114.46 pcf

TESTED BY: AW 9/12/2019

CLASSIFICATION RESULTS

GRADATION (%)				
GR	CS	FS	SI	CL
3	5	18	28	46
ATTERBERG LIMITS			MOISTURE	
LL	PL	PI	WC	
38	19	19	17	

ODOT CLASS: A-6b HP (tsf): 2.50

DESCRIPTION: Stiff, Brown and Gray Mottled, SILTY CLAY, Some Sand, Trace Stone Fragments, Moist

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STRUCTURE FOUNDATION EXPLORATION
ROCK COMPRESSION STRENGTH TESTING REPORT

WOO-281-12.65
SLOPE REPAIR



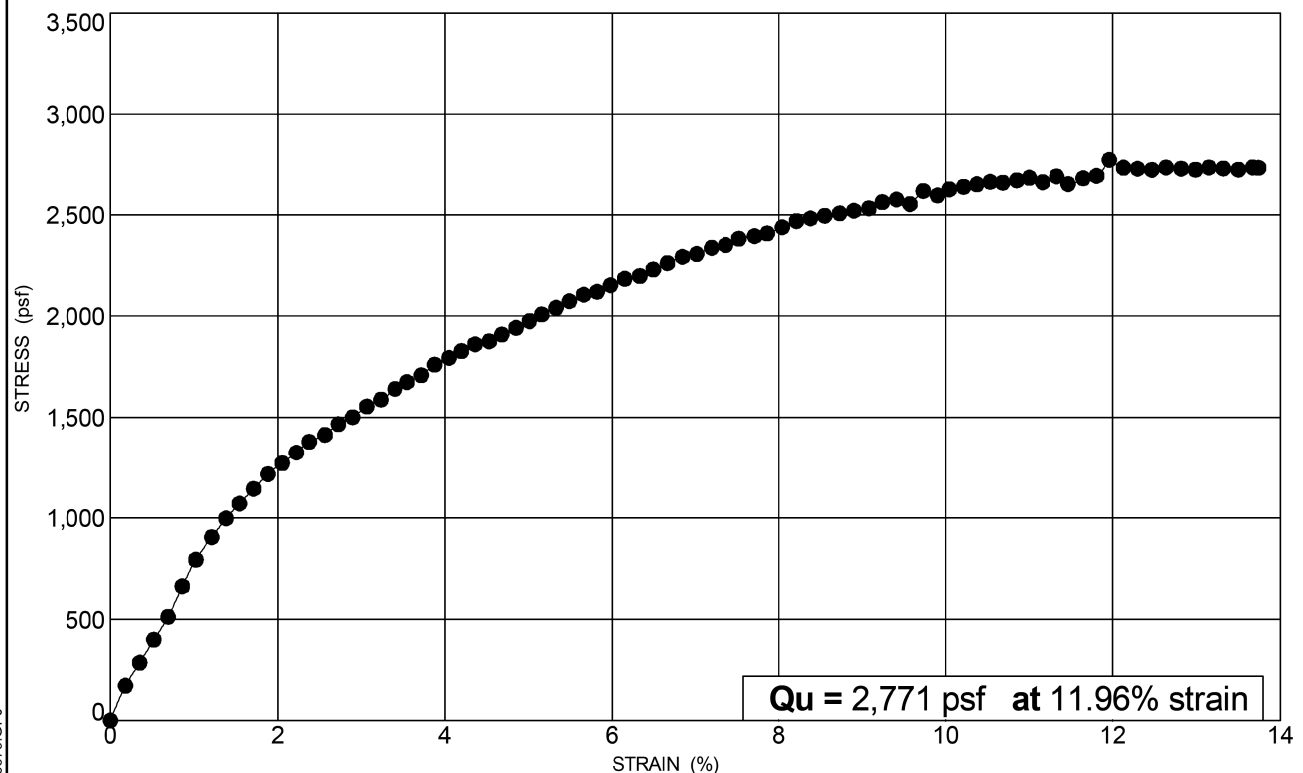
OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF GEOTECHNICAL ENGINEERING

**UNCONFINED COMPRESSION TEST
AASHTO T - 208**

PROJECT WOO-281-12.65 PID 111125
OGE NUMBER 600679 PROJECT TYPE STRUCTURE

SAMPLE IDENTIFICATION

BORING ID: B-001-1-19 SAMPLE ID: ST-6
STATION: NOT RECORDED DEPTH: 9.5 - 11.0 feet

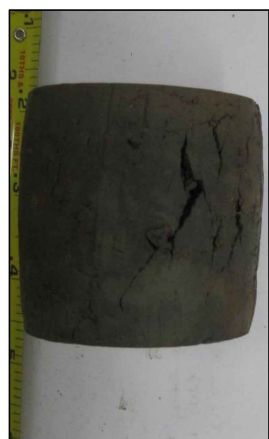


Qu = 2,771 psf at 11.96% strain

SPECIMEN FAILURE SKETCHES OR PHOTOGRAPHS



FRONT VIEW



SIDE VIEW

SPECIMEN DETAILS

HEIGHT: 3.23 inches
DIAMETER: 2.82 inches
WET UNIT WT: 121.06 pcf
DRY UNIT WT: 100.29 pcf

TESTED BY: AW 9/12/2019

CLASSIFICATION RESULTS

GRADATION (%)				
GR	CS	FS	SI	CL
1	3	19	27	50

ATTERBERG LIMITS			MOISTURE
LL	PL	PI	WC
38	20	18	21

ODOT CLASS: A-6b HP (tsf): 1.00

DESCRIPTION: Stiff, Brown and Gray Mottled, SILTY CLAY, Some Sand, Trace Stone Fragments, Moist

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**STRUCTURE FOUNDATION EXPLORATION
ROCK COMPRESSION STRENGTH TESTING REPORT**

**WOO-281-12.65
SLOPE REPAIR**