

PROJECT DESCRIPTION

THE PROJECT CONSISTS IN PART OF PLACING TWO STRUCTURES FOR THE PROPOSED SR 823 OVER PORTSMOUTH-MINFORD ROAD (SR 139). THE TWO STRUCTURES AS PLANNED, ARE TWO-SPAN STRUCTURES USING MSE WALLS TO HOLD BACK THE ROADWAY EMBANKMENTS AND CONTAIN THE ABUTMENTS.

HISTORIC RECORDS

HISTORIC BORING RECORDS FOR THE AREA WERE REQUESTED FROM THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING AND THE DISTRICT, HOWEVER, NO SUCH RECORDS EXISTED.

GEOLOGY

THE STRUCTURE SITE IS LOCATED IN THE SHAWNEE-MISSISSIPPIAN PLATEAU OF THE UNGLACIATED PORTION OF THE APPALACHIAN PLATEAU PHYSIOGRAPHIC REGION. THE SHAWNEE-MISSISSIPPIAN PLATEAU IS CHARACTERIZED BY DEVONIAN AGED TO PENNSYLVANIAN AGED ROCKS AND CONTAINS RESIDUAL, COLLUVIAL, GLACIAL, ALLUVIAL, AND LACUSTRINE SOILS. BEDROCK WITHIN THE STRUCTURE AREA IS PRIMARILY SANDSTONE OF THE LOGAN FORMATION OF MISSISSIPPIAN AGE. BEDROCK OF THE PENNSYLVANIAN BREATHITT FORMATION CAN BE FOUND AT THE TOP OF THE SLOPES TO THE WEST OF THE STRUCTURE, ROUGHLY ABOVE ELEVATION 860. NO MINING IS REPORTED IN THE IMMEDIATE VICINITY.

RECONNAISSANCE

SEVERAL SITE RECONNAISSANCE VISITS WERE MADE BETWEEN JULY 2004 AND SEPTEMBER 2006. THE SURROUNDING AREA IS DESCRIBED AS WOODED RURAL RESIDENTIAL. THE AREA OF THE PROPOSED STRUCTURE IS BORDERED ON THE WEST BY A GENTLY SLOPING RESIDENTIAL AREA WITH GRASS AND TREES AND ON THE EAST BY A WOODED AREA SLOPING STEEPLY TO THE WEST.

SUBSURFACE EXPLORATION

THE SUBSURFACE EXPLORATION CONSISTED OF DRILLING THREE FINAL AND FIVE PRELIMINARY STRUCTURAL BORINGS. BORINGS B-10 THROUGH B-12 WERE DRILLED BETWEEN JUNE 20 AND 28, 2006. TR-15 THROUGH TR-19 WERE DRILLED FOR A PREVIOUS DESIGN CONFIGURATION BETWEEN JULY 9, 2004 AND FEBRUARY 23, 2005. THE BORINGS WERE DRILLED WITH ATV AND TRUCK MOUNTED ROTARY DRILL RIGS, USING 3 1/4 -INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 1.5 TO 5.0-FOOT INTERVALS FOR THE FULL DEPTH OF THE SOIL PORTION OF THE BORINGS. WHERE BEDROCK WAS ENCOUNTERED, THE BORINGS WERE ADVANCED AND THE ROCK WAS SAMPLED USING A TYPE NO SERIES CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

THE TEST BORINGS DISCLOSED BOTH COHESIVE AND GRANULAR SOILS. THE COHESIVE DEPOSITS CONSISTED MAINLY OF MEDIUM STIFF TO VERY STIFF SANDY SILT (A-4A) AND MEDIUM STIFF TO STIFF SILT (A-4B), WHILE THE GRANULAR SOIL DEPOSITS CONSISTED MAINLY OF LOOSE TO MEDIUM DENSE GRAVEL WITH SAND (A-2-4), LOOSE TO VERY DENSE SANDY SILT (A-4A), AND MEDIUM DENSE SILT (A-4B). THE NATIVE SOIL DEPOSITS EXTENDED TO AN APPROXIMATE DEPTH RANGING BETWEEN 4.0 AND 9.2 FEET BELOW THE GROUND SURFACE WHERE BEDROCK WAS ENCOUNTERED.

THE SOIL OVERLIES A GENTLY SLOPING AND UNDULATING BEDROCK SURFACE. THE BEDROCK CONSISTED MAINLY OF MEDIUM HARD TO HARD, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY FRACTURED SANDSTONE.

SEEPAGE WAS ENCOUNTERED ONLY IN BORINGS TR-15, TR-16, AND TR-17 BETWEEN APPROXIMATE DEPTHS OF 6.0 AND 7.0 FEET. THERE WERE NO MEASURABLE WATER LEVELS IN THE BORINGS PRIOR TO ROCK CORING. WATER WAS USED DURING ROCK CORING AND MASKED ANY SEEPAGE ZONES THAT MIGHT EXIST IN THE ROCK. MEASURABLE WATER LEVELS WERE PRESENT IN ALL TEST BORINGS EXCEPT BORINGS B-11 AND TR-15 UPON THE COMPLETION OF CORING BETWEEN APPROXIMATE DEPTHS OF 1.6 AND 28.5 FEET.

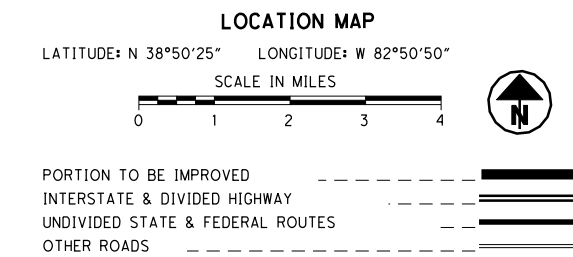
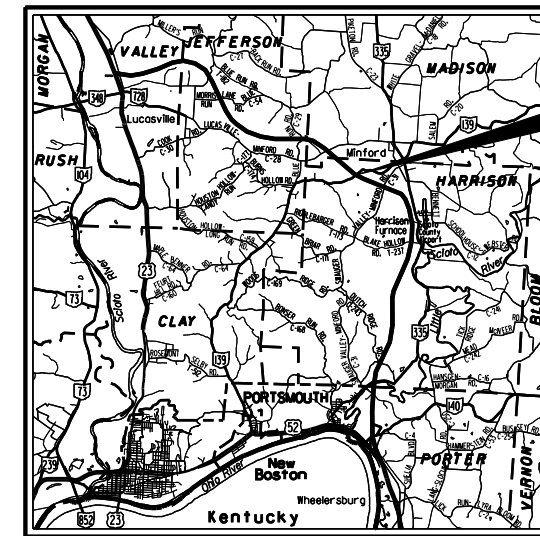
SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JULY 2006.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS 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 OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

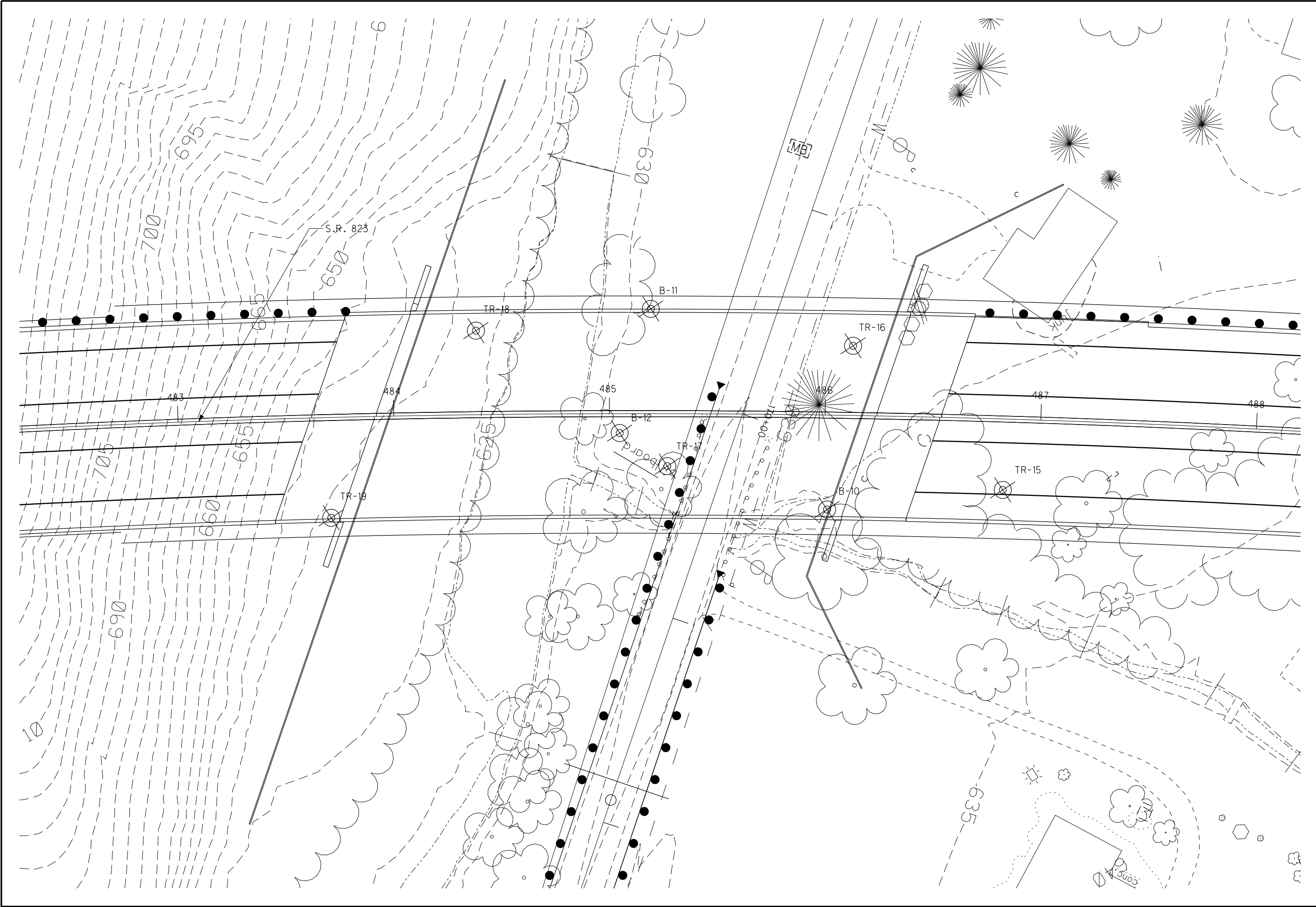
LEGEND		ODOT CLASS	CLASSIFIED MECH./VISUAL	
	Gravel with Sand and Silt (A-2-4)	A-2-4	-	3
	Sandy Silt (A-4a)	A-4a	4	12
	Silt (A-4b)	A-4b	3	2
	TOTAL		7	17
	Sandstone	VISUAL		
	Weathered Sandstone	VISUAL		
	Topsoil	VISUAL		
	BORING LOCATION - PLAN VIEW			
	DRIVE SAMPLE AND/OR CORE BORING LOCATION PLOTTED TO VERTICAL SCALE ONLY			
	INDICATES FREE WATER ELEVATION			
	INDICATES STATIC WATER ELEVATION			
	INDICATES STATIC WATER ELEVATION (DRILLING WATER USED)			
	FIGURES BESIDE THE BORING IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST			
W/X/Y/Z	W = NUMBER OF BLOWS FOR FIRST 6 INCHES X = NUMBER OF BLOWS FOR SECOND 6 INCHES Y = NUMBER OF BLOWS FOR THIRD 6 INCHES Z = NUMBER OF BLOWS FOR FOURTH 6 INCHES, IF APPLICABLE			
50 (n)	INDICATES NUMBER OF BLOWS (50) TO DRIVE A SPLIT-BARREL SAMPLER A DEPTH OF (n) INCHES OTHER THAN THE NORMAL 6 INCH INCREMENT.			

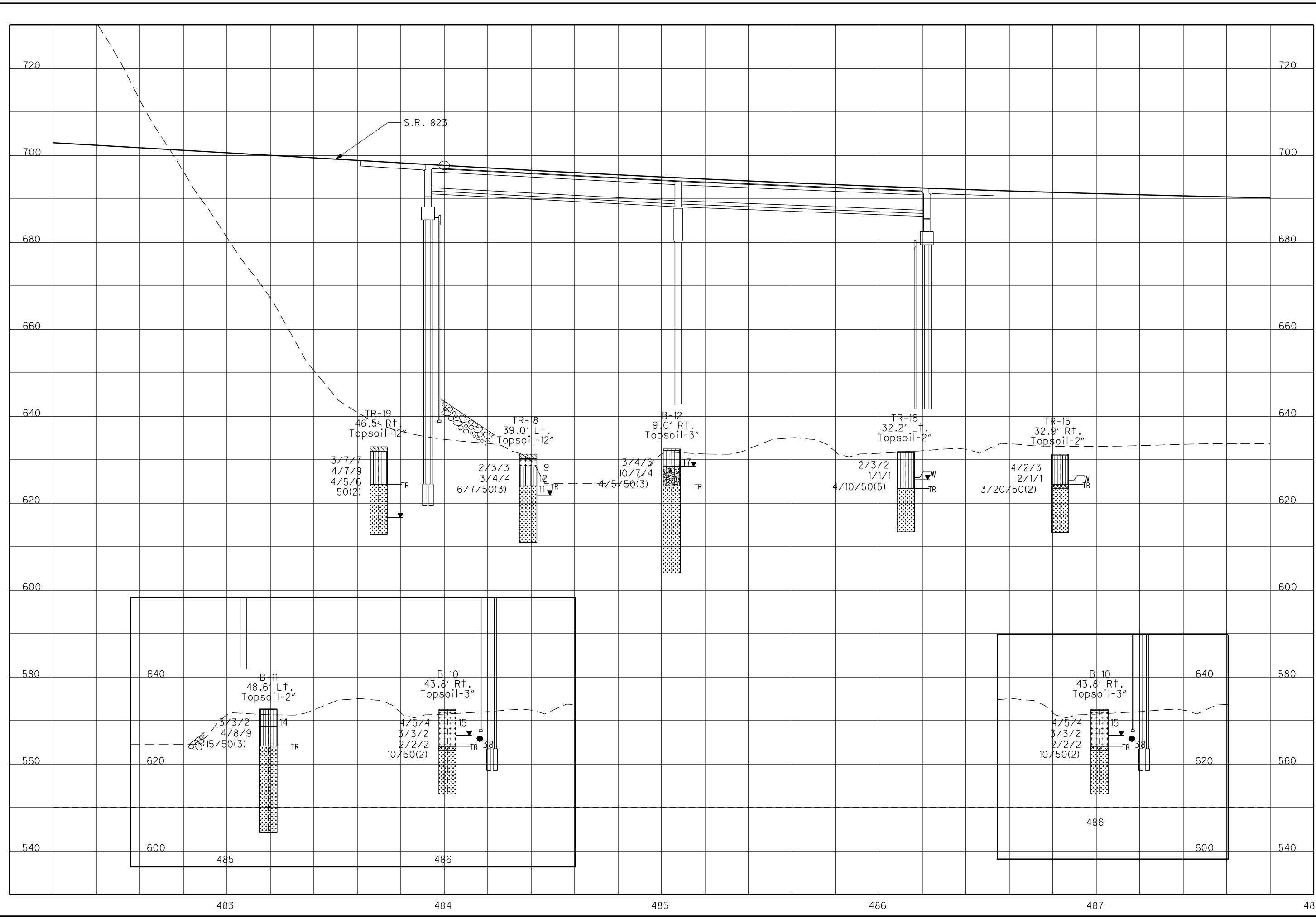


PARTICLE SIZE DEFINITIONS

	12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

RECON. - AMJ & SJR 06/04 to 09/06
 DRILLING - DW 07/09/04 TO 02/23/05 & 06/20 TO 06/28/06
 DRAWN - RLS & AMJ 3/09 TO 4/09
 REVIEWED - AEN 4/29/09





Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03										
LOG OF: Boring B-10		Location: Sta. 486+01.5, 43.8' RT of SR 823 CL		Date Drilled: 06/28/06										
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No.	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: none Water level at completion: none (prior to coring) 6.0' (inside hollowstem augers, includes drilling water)	GRADATION					STANDARD PENETRATION (N)		
							% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	Natural Moisture Content, % PL ——— LL Blows per foot — ○	
0.5	632.6	4	14	1	1.5	Topsoil - 3" Stiff brown SILT (A-4b), little clay, trace to little fine sand; damp.	0	0	--	10	74	16		
5	628.1	3	17	2	--									
8.5	624.1	2	13	3	2.0	@ 6.0'-7.5', soft, wet.	0	0	--	11	74	15		
9.5	623.1	50/2	6	4		Severely weathered gray SANDSTONE.								
10	623.1					Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, laminated to thinly bedded, moderately fractured.								
15						@ 16.5', qu = 10,393 psi.								
19.5	613.1					Bottom of Boring - 19.5'								

Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03										
LOG OF: Boring B-11		Location: Sta. 485+19.1, 48.6 ft. LT of SR 823 CL		Date Drilled: 6/20/06										
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No.	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: none Water level at completion: not reported	GRADATION					STANDARD PENETRATION (N)		
							% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	Natural Moisture Content, % PL ——— LL Blows per foot — ○	
0.2	632.7	3	13	1		Topsoil - 2" Loose brown SANDY SILT (A-4a), trace clay; damp.	0	1	--	17		82		
4.0	628.7	8	15	2		Medium dense gray SANDY SILT (A-4a); damp. (Decomposed Rock)								
8.5	624.2	15/50/3	15	3		@ 8.5', auger refusal.								
10	624.2					Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, laminated to thinly bedded, moderately fractured. @ 8.5' to 10.0', highly fractured to broken.								
15						@ 13.5', qu = 10,537 psi.								
20														
25														
28.5	604.2					Bottom of Boring - 28.5'								

DRAWN: _____ CHECKED: _____
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)
SCI-823-6.81
 4 / 7

Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03									
LOG OF: Boring TR-16		Location: Sta. 486+12.4, 32.3 ft. LT of SR 823 CL		Date Drilled: 7/9/04									
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No.	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: 6.0' Water level at completion: 6.5'	GRADATION					STANDARD PENETRATION (N) Natural Moisture Content, % PL ——— LL Blows per foot - ○	
							% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt		% Clay
0.0	631.9												
0.2	631.7	3	16	1	1.0	Topsoil - 2"							
2		2				Medium stiff brown SANDY SILT (A-4a); moist.							
5		1	15	2	0.75								
4		10	12	3	--	@ 6.0' to 7.4', contains rock fragments.							
8.5	623.4					Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly weathered, micaceous, argillaceous, massively bedded, slightly fractured.							
10													
15						@ 17.0', contains few argillaceous laminations.							
18.5	613.4					Bottom of Boring - 18.5'							

Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03									
LOG OF: Boring TR-17		Location: Sta. 485+26.9, 24.3 ft. RT of SR 823 CL		Date Drilled: 2/23/2005									
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No.	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: 6.3'-7.0' Water level at completion: 1.6' (inside hollowstem augers, includes drilling water)	GRADATION					STANDARD PENETRATION (N) Natural Moisture Content, % PL ——— LL Blows per foot - ○	
							% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt		% Clay
0.0	631.7												
0.4	631.3	6	18	1		Topsoil - 5"							
3.0	628.7	6	18	2		Medium dense brown SILT (A-4b), little fine to coarse sand, trace clay; damp.							
5	626.2	4	18			Loose brown GRAVEL WITH SAND AND SILT (A-2-4); damp.							
5.5	626.2					Very dense brown SANDY SILT (A-4a); wet.							
6.3	625.4	3	11	3A		Severely weathered gray SANDSTONE.							
7.0	624.7	50/5		3B		Medium hard brown and gray SANDSTONE; fine grained, moderately weathered, slightly micaceous, slightly fractured.							
10						@ 7.3'-7.4', very soft, highly weathered.							
15						@ 8.5', irregular fracture.							
17.0	614.7					@ 8.7', gray.							
17.0	614.7					Hard brown and gray SANDSTONE; fine grained, slightly weathered, slightly micaceous, slightly fractured.							
20						@ 16.0', 1" soft, weathered zone.							
25						@ 22.8'-23.0', very soft, highly weathered siltstone seam.							
27.0	604.7					@ 23.0'-23.2', siltstone seam.							
30						Bottom of Boring - 27.0'							

DRAWN
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-823-0917
SR823 OVER PORTSMOUTH-MINFORD ROAD (SR 139)

SCI-823-6.81
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Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03															
LOG OF: Boring TR-18		Location: Sta. 484+38.6, 39.0 ft. LT of SR 823 CL		Date Drilled: 8/17/04															
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No.	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: None Water level at completion: 9.4' (includes drilling water)	GRADATION					STANDARD PENETRATION (N)							
							% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	Natural Moisture Content, % PL ——— LL Blows per foot — ○						
0	631.3																		
1.0	630.3	2	18	1				13	7	--	9	58	13						
3.0	628.3	3	18																
5		4	18	2				0	3	--	40	45	12						
7.3	624.0	7	12	3				11	20	--	28	31	10						
10				Core 84" Rec 84" ROD 88% R-1															
15				Core 72" Rec 71" ROD 94% R-2															
20.3	611.0																		
						Bottom of Boring - 20.3'													

Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03															
LOG OF: Boring TR-19		Location: Sta. 483+69.8, 46.5 ft. RT of SR 823 CL		Date Drilled: 8/16/04 to 8/17/04															
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No.	Hand Penetrometer (tsf)	WATER OBSERVATIONS: Water seepage at: None Water level at completion: 16.3' (includes drilling water)	GRADATION					STANDARD PENETRATION (N)							
							% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	Natural Moisture Content, % PL ——— LL Blows per foot — ○						
0	633.0																		
1.0	632.0	3	18	1															
5		4	18	2															
8.7	624.3	5	18	3															
10				Core 30" Rec 30" ROD 57% R-1															
15				Core 108" Rec 108" ROD 70% R-2															
20.2	612.8																		
						Bottom of Boring - 20.2'													