

PROJECT DESCRIPTION

THE PROJECT CONSISTS IN PART OF CONSTRUCTING A SINGLE-SPAN BRIDGE ON RELOCATED SHUMWAY HOLLOW ROAD OVER THE CSXT RAILROAD. THE STRUCTURE AS PLANNED, IS A SINGLE-SPAN STRUCTURE WITH MSE WALLS AT 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 AUGUST 2004 AND JANUARY 2007. THE SURROUNDING AREA IS DESCRIBED AS RURAL RESIDENTIAL. THE AREA OF THE PROPOSED STRUCTURE IS BORDERED ON THE WEST BY FARMLAND GENTLY SLOPING TO THE EAST AND COVERED WITH GRASS, BRUSH, AND SMALL TREES. THE STRUCTURE WILL BE CONSTRUCTED OVER A STEEP ROCK CUT CONSTRUCTED FOR THE CSX RAILROAD. SR 335 AND THE PORTSMOUTH REGIONAL AIRPORT BORDER THE PROJECT AREA TO THE EAST.

SUBSURFACE EXPLORATION

THE SUBSURFACE EXPLORATION CONSISTED OF DRILLING FOUR FINAL AND THREE PRELIMINARY STRUCTURAL BORINGS. BORINGS B-24 THROUGH B-27 WERE DRILLED BETWEEN JANUARY 17 AND 30, 2007. TR-27 AND TR-28 WERE DRILLED FOR A PREVIOUS DESIGN CONFIGURATION ON AUGUST 18 AND 19, 2004. THE BORINGS WERE DRILLED WITH AN ATV MOUNTED ROTARY DRILL RIG, USING 3/4-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. UNDISTURBED SOIL SAMPLES WERE OBTAINED AT THE DEPTHS SHOWN ON THE LOGS AND IN THE PROFILE, IN ACCORDANCE WITH AASHTO T207. 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 NATIVE COHESIVE AND GRANULAR SOIL DEPOSITS BELOW THE SURFICIAL MATERIAL. THE COHESIVE DEPOSITS CONSISTED MAINLY OF MEDIUM STIFF TO VERY STIFF SILT AND CLAY (A-6A), MEDIUM STIFF CLAY (A-6B), AND MEDIUM STIFF TO HARD SANDY SILT (A-4A), WHILE THE GRANULAR SOIL DEPOSITS CONSISTED MAINLY OF LOOSE TO DENSE COARSE AND FINE SAND (A-3A) AND MEDIUM DENSE SAND (A-3). BORING B-26 ENCOUNTERED A RELATIVELY THIN SOFT SILT AND CLAY (A-6A) LAYER (APPROXIMATELY 2-FOOT THICK) ABOVE THE SANDSTONE. THE NATIVE SOIL DEPOSITS WERE 3.0 FEET THICK AT THE REAR ABUTMENT AND BETWEEN 16.5 AND 17.5 FEET THICK AT THE FORWARD ABUTMENT. IT SHOULD BE NOTED THAT THE PRESENCE OF ORGANIC MATERIAL WAS NOTED IN BORING B-24, DRILLED AT THE REAR ABUTMENT LOCATION.

AT THE EASTERN SLOPE, THE SOIL WAS RELATIVELY THIN, AND CONSISTED PRIMARILY OF RESIDUAL AND COLLUVIAL SOILS. UNDER THE SOIL, EXPOSED SANDSTONE WAS EVIDENT, BEGINNING APPROXIMATELY AT ELEVATION 645. THE EXPOSED ROCK WAS HIGHLY WEATHERED AND HIGHLY FRACTURED. BANDS OF INTERBEDDED SHALE OR SILTSTONE WERE PRESENT IN THE SANDSTONE SOUTH OF THE PROPOSED STRUCTURE, BELOW APPROXIMATE ELEVATION 638. AREAS OF ISOLATED SEEPAGE WERE EVIDENT IN THIS LAYER SOUTH OF THE PROPOSED STRUCTURE. ADDITIONALLY, SEVERAL HIGH ANGLE FRACTURES WERE NOTED IN THE ROCK FACE, HOWEVER, NO APPRECIABLE LATERAL MOVEMENT OF THE ROCK MASS WAS APPARENT. DRAINAGE CHANNELS HAVE BEEN ESTABLISHED ALONG THE BOTTOM OF THE RAILROAD CUT, WHICH CURRENTLY RUN NEAR THE REAR ABUTMENT LOCATION. THESE DRAINAGE PATHS HAVE DEPOSITED APPROXIMATELY 3 TO 5 FEET OF SOIL, AS CONFIRMED BY THE BORINGS DRILLED FOR THE REAR ABUTMENT.

IN THE AREA OF THE PROPOSED STRUCTURE, BEDROCK WAS ENCOUNTERED IN ALL THE BORINGS AND WAS CONFIRMED BY CORING BETWEEN 10 AND 20 FEET OF ROCK IN EACH BORING. THE BEDROCK CONSISTED OF MEDIUM HARD TO HARD, SLIGHTLY TO HIGHLY WEATHERED, SLIGHTLY FRACTURED SANDSTONE. A LAYER OF SEVERELY WEATHERED ROCK, RANGING IN THICKNESS BETWEEN 1.5 TO 3 FEET WAS ENCOUNTERED ABOVE THE MORE COMPETENT CORED BEDROCK IN BORINGS B-24, B-25, AND TR-28.

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.

DESCRIPTION		ODOT CLASS	CLASSIFIED MECH./VISUAL	
	Gravel with Sand and Silt (A-2-4)	A-2-4	0	2
	Fine Sand (A-3)	A-3	3	15
	Sandy Silt (A-4a)	A-4a	1	3
	Silt and Clay (A-6a)	A-6a	6	2
	Silty Clay (A-6b)	A-6b	2	0
	TOTAL		12	22
	Sandstone	VISUAL		
	Weathered Sandstone	VISUAL		
	Topsoil	VISUAL		

	BORING LOCATION - PLAN VIEW
	DRIVE SAMPLE AND/OR CORE BORING LOCATION PLOTTED TO VERTICAL SCALE ONLY
W —	INDICATES FREE WATER ELEVATION
▽ —	INDICATES STATIC WATER ELEVATION
▼ —	INDICATES STATIC WATER ELEVATION (DRILLING WATER USED)

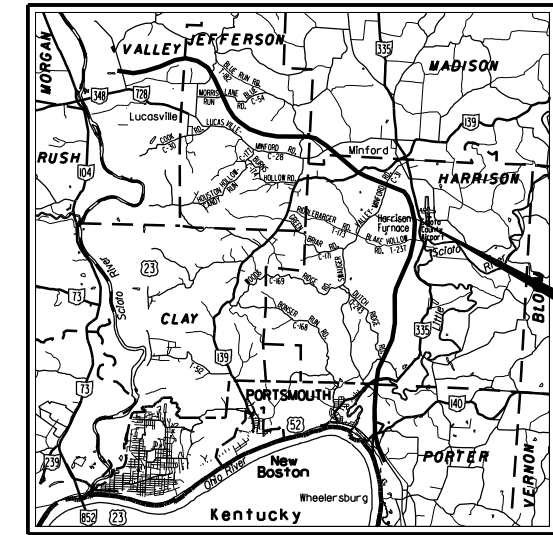
FIGURES BESIDE THE BORING IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST

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.

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.



LOCATION MAP

LATITUDE: N 38°50'25" LONGITUDE: W 82°50'50"

SCALE IN MILES



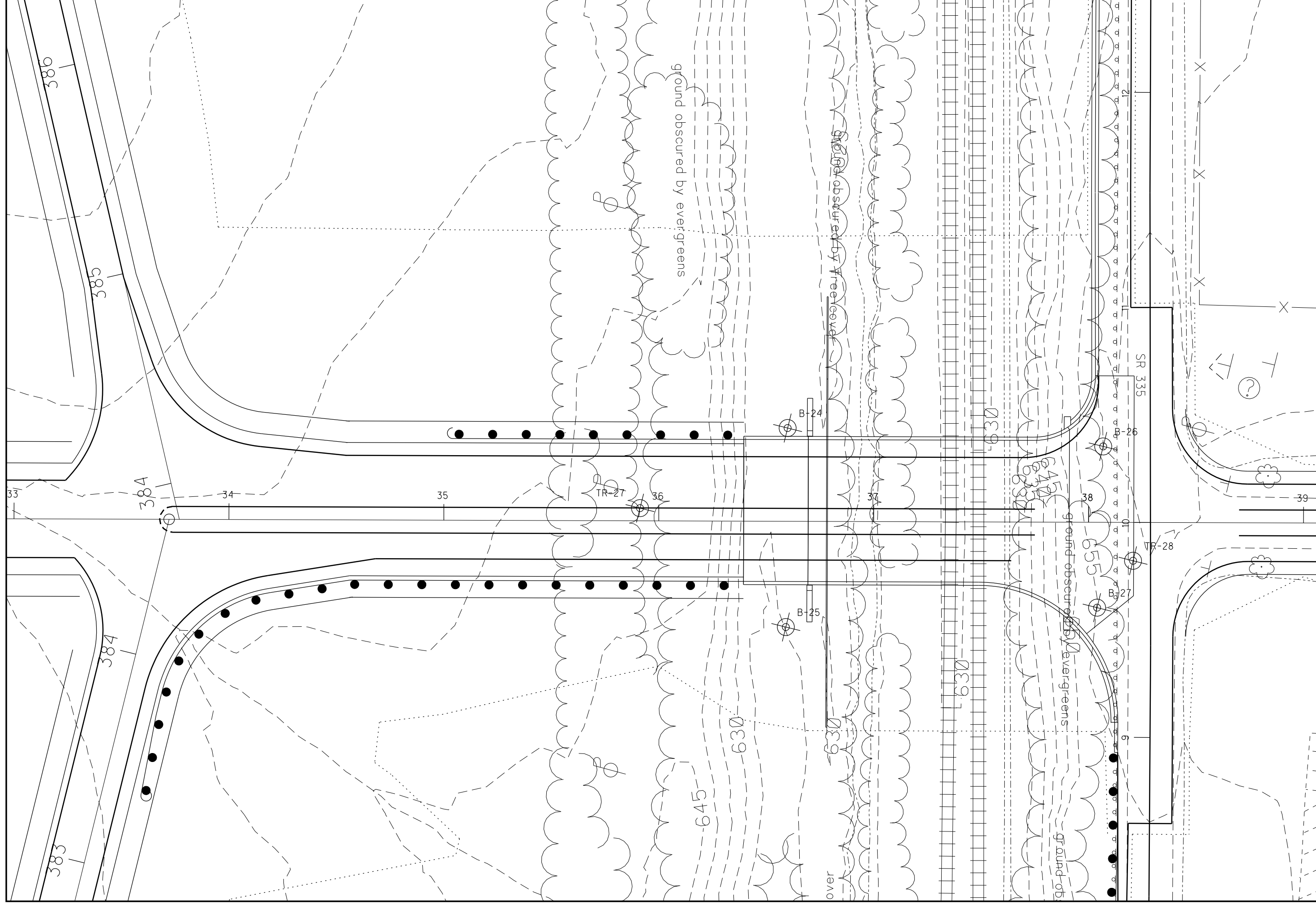
PORTION TO BE IMPROVED
 INTERSTATE & DIVIDED HIGHWAY
 UNDIVIDED STATE & FEDERAL ROUTES
 OTHER ROADS

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 08/04 to 01/07
 DRILLING - DW 08/18 TO 08/19/04 & 01/17 TO 01/30/07
 DRAWN - RLS & AMJ 3/09 TO 5/09
 REVIEWED - AEN 5/11/09





		HORIZONTAL SCALE IN FEET
CALCULATED	CHECKED	
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SCI-TR234-0122 SHUMWAY HOLLOW ROAD OVER CSX RR		
	2 / 6	SCI-823-6.81

Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03														
LOG OF: Boring TR-27		Location: Sta. 35+91.3, 5.9 ft. LT of Rel. TR234 CL		Date Drilled: 8/25/04														
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive Press / Core	Hand Penetro- meter (tsf)	WATER OBSERVATIONS: Water seepage at: None Water level at completion: None (boring collapsed @ 6.0')	GRADATION					STANDARD PENETRATION (N)						
							% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	Natural Moisture Content, % PL —●— LL Blows per foot —○—					
DESCRIPTION													10	20	30	40		
0	646.3																	
0.4	645.9																	
1		10	18	1	4.5+													
2		13	18	2	4.5+													
3		13	18	3	4.5+													
4		10	16															
7.5	638.8																	
10																		
15																		
17.5	628.8																	
20																		
25																		
30																		

Client: TranSystems, Inc.		Project: SCI-823-0.00		Job No. 0121-3070.03														
LOG OF: Boring B-24		Location: Sta. 36+59.8, 43.4 ft. LT of Rel. TR234 CL		Date Drilled: 1/17/07														
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive Press / Core	Hand Penetro- meter (tsf)	WATER OBSERVATIONS: Water seepage at: None Water level at completion: None (prior to coring) 6.6' (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 —○—					
DESCRIPTION													10	20	30	40		
0	625.9																	
0.6	625.3																	
1		1	18	1	1.0													
3.0	622.9																	
5.0	620.9																	
10																		
15																		
15.0	610.9																	
20																		
25																		
30																		

DRAWN
CHECKED

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. SCI-TR234-0122
SHUMWAY HOLLOW ROAD OVER CSX RR

SCI-823-6.81
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