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PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE GEOTECHNICAL EXPLORATION FOR THE CONSTRUCTION OF THE NEW STATE ROUTE (SR) 7 TWO-LANE HIGHWAY, WITH OPTION OF EXPANDING TO FOUR-LANE, TRAVELING NORTH OF THE TOWN OF CHESAPEAKE IN LAWRENCE COUNTY, OHIO. THE NEW ROADWAY WILL CONNECT THE EXISTING SR 7 EAST OF CHESAPEAKE AT STATION 114+57.60 TO SR 7 NEAR PROCTORVILLE, OHIO AT STATION 408+12.36. EIGHT BRIDGES, ALONG WITH SIDE ROAD CONNECTORS AND IMPROVEMENTS ARE INCLUDED IN THE PROJECT.

PREVIOUS EXPLORATION

BBCM ENGINEERING CONDUCTED AN EXPLORATION FOR THE PROJECT CONSISTING OF 110 BORING BETWEEN JUNE AND SEPTEMBER, 1999. THE FINDINGS FOR THESE BORINGS ARE INCLUDED IN THE PLAN SET. ADDITIONALLY, BBCM COMPLETED LANDSLIDE BORINGS BETWEEN 2000 AND 2005. AVAILABLE INFORMATION FOR THESE BORINGS IS INCLUDED IN THE PLAN SET.

GEOLOGY

THE PROJECT AREA IS LOCATED IN THE UNGLACIATED APPALACHIAN PLATEAU REGION OF OHIO. THE TOPOGRAPHY ALONG THE PROJECT LENGTH IS CHARACTERIZED BY UPLAND HILLS, ALONG WITH THE OHIO RIVER AND SMALLER RIVER AND STREAM FLOODPLAINS. THE SOILS IN THE UPLAND HILLS CONSIST OF COLLUVIUM DERIVED FROM THE UNDERLYING BEDROCK. IN THE FLOODPLAINS, SOILS CONSIST OF MIXED DEPOSITS OF COLLUVIAL AND ALLUVIAL/OUTWASH DEPOSITS. LANDSLIDES ARE PREVELANT IN THE AREA.

BEDROCK IN THE PROJECT AREA CONSISTS OF THE PENNSYLVANIAN-AGE MONONGAHELA AND CONEMAUGH FORMATIONS. THESE FORMATIONS CONSIST OF SHALE, SILTSTONE, LIMESTONE, SANDSTONE, MUDSTONE AND COAL. THE DEPTH TO BEDROCK IS GENERALLY SHALLOW IN THE HILLY TERRAIN, WITH OUTCROPS PRESENT IN PLACES. ALONG THE FLOODPLAINS, BEDROCK IS GENERALLY ENCOUNTERED AT GREATER DEPTHS.

SUBSURFACE EXPLORATION

A TOTAL OF 126 BORINGS WERE ADVANCED DURING THE STANTEC EXPLORATION DURING THREE SEPARATE MOBILIZATIONS FROM MAY 17, 2011 TO JUNE 29, 2021. OF THOSE BORINGS, 103 WERE ADVANCED FOR THE PURPOSE OF EVALUATING ROADWAY, CUT-SLOPE, AND EMBANKMENT STABILITY, WITH THE REMAINING 16 BEING FOR STRUCTURAL FOUNDATION PURPOSES. THE BORINGS WERE ADVANCED USING TRACK-MOUNTED AND TRUCK-MOUNTED DRILL RIGS USING 3.25-INCH I.D. HOLLOW-STEM AUGERS. STANDARD PENETRATION TEST (SPT) SAMPLES WERE OBTAINED USING CALIBRATED AUTOMATIC HAMMERS WITH ENERGY RATIOS (ER) OF 81.9, 74.4, 85.9, 62.0, 88.7 AND 81.7 PERCENT. FOR THE ROADWAY BORINGS, A MINIMUM OF 4 SPT TESTS WERE PERFORMED AT 2.5-FOOT INTERVALS. FOR THE CUT-SLOPE AND EMBANKMENT BORINGS, SPT AND UNDISTURBED SHELBY TUBE (ST) TESTS WERE PERFORMED AT 2.5-FOOT INTERVALS TO A DEPTH OF 30 FEET AND AT 5-FOOT INTERVALS BELOW THAT, OR UNTIL BEDROCK WAS ENCOUNTERED. FOR THE CUT-SLOPE BORINGS, ROCK CORING WAS PERFORMED USING NQ-SIZED CORING EQUIPMENT DOWN TO A PREDETERMINED DEPTH BASED UPON THE DEPTH OF THE PROPOSED CUT. FOR THE STRUCTURE BORINGS, SPT AND ST SAMPLES WERE OBTAINED AT 2.5-FOOT INTERVALS TO REFUSAL ON BEDROCK, AND THEN A MINIMUM OF 10 FEET OF BEDROCK WAS CORED. AT THE COMPLETION OF DRILLING OPERATIONS, BORINGS WERE BACKFILLED WITH AUGER CUTTINGS WHEN NO WATER WAS ENCOUNTERED OR WITH CEMENT-BENTONITE GROUT WHEN NECESSARY. ASPHALT COLD PATCH WAS USED TO PATCH PAVEMENT WHERE NECESSARY.

EXPLORATION FINDINGS

IN GENERAL, ALONG THE FLOODPLAINS, SOILS CONSISTED OF A RELATIVELY THIN LAYER OF COHESIVE SILT AND CLAY (A-6a), SILTY CLAY (A-6b) AND SANDY SILT (A-4a) OVERLYING NON-COHESIVE GRAVEL WITH SAND (A-1-b), COARSE AND FINE SAND (A-3a) FINE SAND (A-3) AND SANDY SILT. ALONG THE HILLY AREAS, THE SOILS CONSISTED MAINLY OF COHESIVE SILT AND CLAY, SILTY CLAY, CLAY (A-7-6) ELASTIC CLAY (A-7-5) AND SANDY SILT. GRAVEL WITH SAND SILT AND CLAY (A-2-6), GRAVEL WITH SAND AND SILT (A-2-4) AND SILT (A-4b) WERE ALSO ENCOUNTERED IN LESSER AMOUNTS ACROSS THE PROJECT LENGTH.

THE BEDROCK ENCOUNTERED CONSISTED OF SHALE, MUDSTONE, SANDSTONE AND SILTSTONE. TYPICALLY AND LAYER OF WEATHERED ROCK WITH A THICKNESS OF A FEW FEET WAS ENCOUNTERED ABOVE COMPETENT ROCK. IN GENERAL, THE SANDSTONE AND SILTSTONE WAS DESCRIBED AS SLIGHTLY TO UNWEATHERED AND STRONG, WHILE THE SHALE AND MUDSTONE WAS DESCRIBED AS SLIGHTLY TO HIGHLY WEATHERED AND WEAK TO SLIGHTLY STRONG. SLICKENSIDES WERE NOTED IN MANY OF THE SHALE AND MUDSTONE LAYERS.

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATION (SGE) JANUARY 20, 2012 REVISION.

AVAILABLE INFORMATION

THE SOIL, BEDROCK, AND GROUNDWATER INFORMATION COLLECTED FOR THIS SUBSURFACE EXPLORATION THAT CAN BE CONVENIENTLY DISPLAYED ON THE GEOTECHNICAL PROFILE SHEETS HAS BEEN PRESENTED. GEOTECHNICAL REPORTS, IF PREPARED, ARE AVAILABLE FOR REVIEW ON THE OFFICE OF CONTRACT SALE WEBSITE.

LEGEND

STANTEC & BBC&M BORINGS

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	A-1-a	2	2
GRAVEL AND/OR STONE FRAGMENTS WITH SAND	A-1-b	14	20
GRAVEL WITH SAND AND SILT	A-2-4	14	14
GRAVEL WITH SAND, SILT AND CLAY	A-2-6	10	16
FINE SAND	A-3	2	3
COARSE AND FINE SAND	A-3a	24	40
SANDY SILT	A-4a	52	67
SILT	A-4b	12	15
SILT AND CLAY	A-6a	98	104
SILTY CLAY	A-6b	105	159
ELASTIC CLAY	A-7-5	5	0
CLAY	A-7-6	104	100
ROCK		0	116
	TOTAL	442	540

WEATHERED SHALE — MUDSTONE — SILTSTONE — VISUAL

SHALE — SANDSTONE — VISUAL

PAVEMENT OR BASE = X = APPROXIMATE THICKNESS — VISUAL

SOD AND TOPSOIL = X = APPROXIMATE THICKNESS — VISUAL

PROJECT BORING LOCATION - PLAN VIEW.

HISTORICAL 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.

N — INDICATES STANDARD PENETRATION RESISTANCE.

⊖ — WATER CONTENT NEARLY EQUAL TO OR GREATER THAN LIQUID LIMIT.

● — INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT.

▼ — INDICATES FREE WATER.

W— INDICATES FREE WATER.

SS — INDICATES A SPLIT SPOON SAMPLE.

ST — INDICATES A SHELBY TUBE SAMPLE.

NP — INDICATES A NON-PLASTIC SAMPLE.

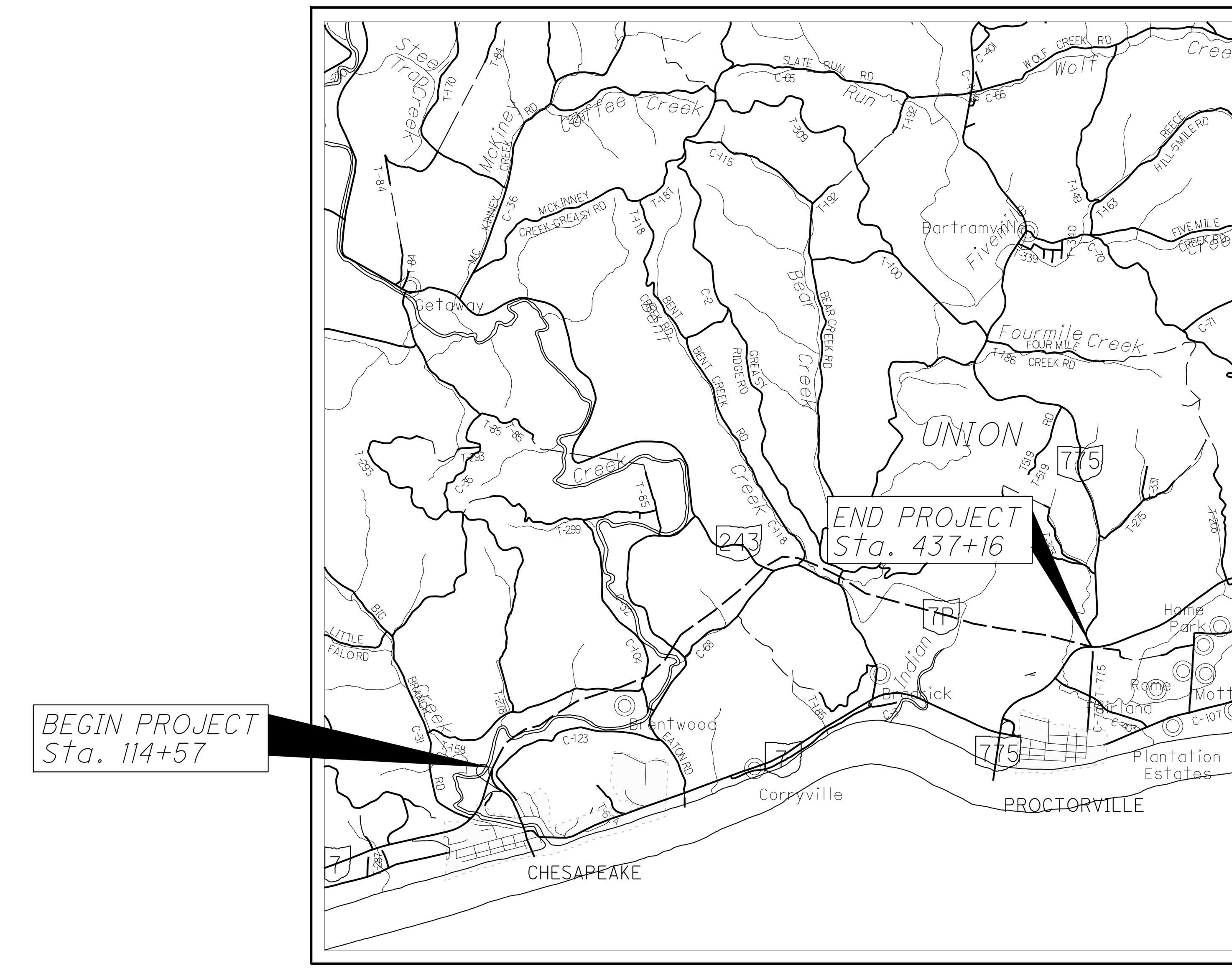
TR — INDICATES TOP OF ROCK.

RECON. - JS 5/11 & JM 4/22

DRILLING - BBCM, 10/98-5/05, STANTEC 5/17/11-6/29/21

DRAWN - MJ 7/2011-6/2022 & 07/2024

REVIEWED - EMK 07/2024



LOCATION MAP
SCALE IN MILES

PARTICLE SIZE DEFINITIONS

BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
12″	3″	2.0 mm (No. 10 SIEVE)	0.42 mm (No. 40 SIEVE)	0.074 mm (No. 200 SIEVE)	0.005 mm	

D_{50} VALUES

BORING NO.	DEPTH (FEET)	ELEVATION (FEET)	D_{50} VALUE
B-010-1-12	9.5-11.0	520.9-519.4	0.18 mm
	11.0-12.5	519.4-517.9	0.027 mm
	12.5-14.0	517.9-516.4	1.3 mm
	14.0-15.5	516.4-514.9	0.15 mm
B-010-2-12	9.5-11.0	519.5-518.0	0.09 mm
	11.0-12.5	518.0-516.5	0.09 mm
	12.5-14.0	516.5-515.0	0.17 mm
	14.0-15.5	515.0-513.5	0.24 mm
B-050-0-11	0.0-3.0	532.4-529.4	0.11 mm
	3.0-4.5	529.4-527.9	0.083 mm
	4.5-7.5	527.9-524.9	0.031 mm
	7.5-12.5	524.9-519.9	0.16 mm
	12.5-17.0	519.9-515.4	0.24 mm
	17.0-24.6	515.4-507.8	0.007 mm
	24.6-36.5	507.8-495.9	0.009 mm

DESIGN AGENCY
STANTEC CONSULTING SERVICES INC.
CINCINNATI, OHIO

PID NO. 75923

SOIL PROFILE - ROADWAY

LAW-7-2.17

INDEX OF SHEETS

EXPLORATION NOTES (CONT.), SHEET 2.

SUMMARY OF SOILS TEST DATA, SHEETS 3-13

LABORATORY TEST DATA, SHEETS 14-43A

LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET	CROSS SECTION SHEET	CUT Max/Min	FILL Max/Min
LAW-7-2.17					
114+57.60 137+00	44	45	-	17	42
STRUCTURE - LAW-7-2.51	46	46			
137+00 162+00	47	48	-	-	32
162+00 187+00	49	50	-	23	50
NOISE WALL - B1					
24+40 29+20	50A	50A			
29+20 34+00	50B	50B			
34+00 38+80	50C	50C			
38+80 43+60	50D	50D			
187+00 212+00	51	52	-	30	55
NOISE WALL - B1					
43+60 48+40	52A	52A			
STRUCTURE - LAW-7-3.70	53	53			
STRUCTURE - LAW-7-3.76	54	54			
STRUCTURE - LAW-7-3.87	55	55			
212+00 237+00	56	57	-	10	83
NOISE WALL - B2					
14+80 19+60	57A	57A			
19+60 24+40	57B	57B			
237+00 262+00	58	59	-	-	25
262+00 287+00	60	61	-	5	37
STRUCTURE - LAW-7-5.10	62	62			
287+00 312+00	63	64	-	65	55
STRUCTURE - LAW-7-5.63	65	65			
312+00 337+00	66	67	-	45	95
337+00 361+00	68	69	-	128	52
361+00 387+00	70	71	-	17	87
STRUCTURE - LAW-7-7.13	72	72			
387+00 412+00	73	74	-	-	1
NOISE WALL - D					
24+40 29+20	74A	74A			
29+20 34+00	74B	74B			
34+00 34+72	74C	74C			
412+00 437+16	75	76	-	-	-
136+00	-	-	77	-	36
159+00	-	-	78	-	26
160+00	-	-	79	-	26
176+00	-	-	80	32	-
184+00	-	-	80A	8	54
197+50	-	-	81	2	50
202+50	-	-	82	-	54
215+00	-	-	83	32	12
219+00	-	-	84	2	40
228+50	-	-	85	6	60
229+50	-	-	85A	6	74
237+50	-	-	86	20	-
242+00	-	-	87	8	26
245+50	-	-	88	-	26
253+00	-	-	89	-	30
256+00	-	-	90	10	32
274+00	-	-	91	10	26
288+50	-	-	92	18	20
293+00	-	-	93	-	52
297+00	-	-	94	-	45
301+50	-	-	95	22	22
311+00	-	-	96	107	-
313+00	-	-	97	70	-
322+00	-	-	98	18	50
329+00	-	-	99	25	48
334+00	-	-	100	36	-
336+00	-	-	101	-	90
340+00	-	-	102	-	125
349+00	-	-	103	115	-
359+50	-	-	104	102	-

INDEX OF SHEETS (CONTINUED)

LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET	CROSS SECTION SHEET	CUT Max/Min	FILL Max/Min
371+00	-	-	105	-	71
374+00	-	-	106	-	71
394+50	-	-	107	-	2
395+50	-	-	108	-	2
396+00	-	-	109	-	2
396+50	-	-	110	-	1
397+49.13	-	-	111	-	2
398+50	-	-	112	-	2
405+00	-	-	113	-	2
414+00	-	-	114	-	2
415+50	-	-	115	-	2
419+50	-	-	116	-	2
423+00	-	-	117	-	2
424+00	-	-	118	-	2
425+00	-	-	119	-	1
426+00	-	-	120	-	2
436+50	-	-	121	-	1
SR 7 RAMP C					
116+00.00 127+10.00	122	122	-	-	5
123+50	-	-	123	-	8
SR 7 RAMP D					
115+00.00 121+00.00	124	124	-	-	5
SR 7 RAMP I					
370+00.00 381+00.00	125	125	-	-	5
376+00	-	-	126	-	90
379+98.45	-	-	126	-	51
STRUCTURE - LAW-7-7.11P	127	127			
SR 7 RAMP J					
384+00.00 391+00.00	128	128	-	20	100
SR 7 RAMP K					
385+00.00 396+00.00	129	129	-	5	90
396+00.00 403+54.87	130	130	-	8	10
388+00	-	-	131	90	-
392+00	-	-	132	25	-
RAMP J & K RETAINING WALL					
385+75.00 389+75.00	133	133	-	90	-
SR 7 RAMP L					
379+57.36 392+40.09	134	134	-	-	80
LYNN LANE					
10+00 14+00	135	135	-	2	4
SR 243					
10+82.95 21+54.00	136	136	-	21	14
11+50	-	-	137	-	-
13+00	-	-	137	-	-
CR 69					
10+00 24+00	138	138	-	19	14
24+00 38+00	139	139	-	14	15
38+00 51+00	140	140	-	17	10
51+00 56+73.01	141	141	-	8	13
15+00	-	-	142	-	-
24+00	-	-	142	-	-
33+50	-	-	143	-	-
42+00	-	-	143	-	-
46+50	-	-	144	-	-
CR 118					
10+12.21 14+76.01	145	145	-	-	11
CR 2					
10+07.28 17+58.28	146	146	-	6	3
SR 775					
45+42.93 57+00	147	147	-	-	24
57+00 70+45.38	148	148	-	-	35
54+00	-	-	149	-	-
59+00	-	-	149	-	-
67+00	-	-	150	-	-
STRUCTURE - LAW-775-01.05	151	151			

INDEX OF SHEETS (CONTINUED)

STRUCTURE BORING LOGS/LANDSLIDE BORING LOGS/CPT SOUNDING LOGS, SHEETS 152-206(O)

BEDROCK TEST SUMMARY

BORING ID	SAMPLE ELEVATION	SAMPLE DEPTH	Qu (PSI)	SDI (%)	LITHOLOGY
B-010-1-12	492.9' – 492.5'*	37.5' – 37.9'*	222	-	SHALE
B-010-2-12	473.9' – 473.5'*	55.1' – 55.5'*	11,042	-	SHALE
B2-316-0-02	501.5' – 502.0'	38.8' – 39.3'	194	-	SHALE
B13-1-0-00	524.5' – 523.9'	23.3' – 23.9'	189	-	SANDSTONE
B13-3-0-00	511.8' – 511.3'	30.0' – 30.5'	172	-	SHALE
SL-1-0-04	584.3' – 583.7'	31.4' – 32.0'	63	-	SHALE
SL-5-0-04	528.8' – 528.3'	42.5' – 43.0'	100	-	SHALE
SL-8-0-04	551.0' – 550.7'	71.5' – 71.8'	1,211	-	SHALE
B-026-0-11	592.7' – 592.3'	19.3' – 19.7'	8,580	-	SANDSTONE
B-053-0-11	687.1' – 686.6'	14.1' – 14.6'	-	67.8	SANDSTONE
B-053-0-11	677.8' – 677.2'	23.4' – 24.0'	-	93.7	SANDSTONE
B-053-0-11	677.2' – 676.8'	24.0' – 24.4'	5,400	-	SANDSTONE
B-053-0-11	674.4' – 674.0'	26.8' – 27.2'	1,637	-	SANDSTONE
B-053-0-11	673.8' – 673.2'	27.4' – 28.0'	-	78.2	SANDSTONE
B-053-0-11	662.5' – 661.9'	38.7' – 39.3'	-	0	SHALE
B-053-0-11	659.6' – 659.0'	41.6' – 42.2'	1,546	-	SHALE
B-053-0-11	658.5' – 657.9'	42.7' – 43.3'	-	88.8	SHALE
B-053-0-11	656.0' – 655.5'	45.2' – 45.7'	-	84.7	SHALE
B-053-0-11	650.8' – 650.4'	50.4' – 50.8'	8,840	-	LIMESTONE
B-053-0-11	650.4' – 649.5'	50.8' – 51.7'	-	96.1	SANDSTONE
B-053-0-11	641.5' – 641.0'	59.7' – 60.2'	-	56.7	SHALE
B-053-0-11	633.8' – 633.2'	67.4' – 68.0'	-	0	SHALE
B-053-0-11	621.8' – 621.2'	79.4' – 80.0'	-	45.4	SHALE
B-058-0-11	687.1' – 686.6'	50.1' – 50.6'	-	85.3	SANDSTONE
B-058-0-11	686.6' – 686.0'	50.6' – 51.2'	4,750	-	SANDSTONE
B-058-0-11	683.7' – 683.1'	53.5' – 54.1'	-	85.3	SHALE
B-058-0-11	673.5' – 672.8'	63.7' – 64.4'	643	-	CLAYSTONE
B-058-0-11	670.7' – 670.2'	66.5' – 67.0'	-	0	SHALE
B-058-0-11	661.1' – 660.4'	76.1' – 76.8'	1,766	-	SHALE
B-058-0-11	660.4' – 659.9'	76.8' – 77.3'	-	88.3	SHALE
B-059-0-11	806.4' – 806.0'	13.0' – 13.4'	4,020	-	SANDSTONE
B-059-0-11	805.8' – 805.1'	13.6' – 14.3'	-	94.9	SHALE
B-059-0-11	802.8' – 802.3'	16.6' – 17.1'	-	92.3	SHALE
B-059-0-11	799.9' – 799.4'	19.5' – 20.0'	-	38.8	SHALE
B-059-0-11	792.6' – 792.2'	26.8' – 27.2'	16	-	CLAYSTONE
B-059-0-11	792.0' – 791.4'	27.4' – 28.0'	-	0.2	SHALE
B-059-0-11	783.7' – 783.2'	35.7' – 36.2'	-	8.6	SHALE
B-059-0-11	783.2' – 782.8'	36.2' – 36.6'	727	-	CLAYSTONE
B-059-0-11	781.2' – 780.8'	38.2' – 38.6'	1,025	-	CLAYSTONE
B-059-0-11	779.5' – 778.9'	39.9' – 40.5'	-	96.6	SHALE
B-059-0-11	778.3' – 777.9'	41.1' – 41.5'	4,060	-	SHALE
B-059-0-11	769.4' – 768.8'	50.0' – 50.6'	-	85.3	SANDSTONE
B-059-0-11	768.8' – 768.2'	50.6' – 51.2'	5,170	-	SANDSTONE
B-059-0-11	756.6' – 756.1'	62.8' – 63.3'	-	6.5	SHALE
B-059-0-11	754.2' – 753.6'	65.2' – 65.8'	-	17.7	SHALE
B-059-0-11	749.3' – 748.7'	70.1' – 70.7'	-	0.1	SHALE
B-059-0-11	743.3' – 742.9'	76.1' – 76.5'	2,641	-	SHALE
B-059-0-11	742.8' – 742.3'	76.6' – 77.1'	-	98.5	SHALE

BORING ID	SAMPLE ELEVATION	SAMPLE DEPTH	Qu (PSI)	SDI (%)	LITHOLOGY
B-066-0-11	791.3' – 790.7'	25.3' – 25.9'	-	95.4	SHALE
B-066-0-11	787.4' – 787.0'	29.2' – 29.6'	5,980	-	SANDSTONE
B-066-0-11	787.0' – 786.4'	29.6' – 30.2'	-	72.7	SHALE
B-066-0-11	781.3' – 780.7'	35.3' – 35.9'	328	-	CLAYSTONE
B-066-0-11	780.4' – 779.8'	36.2' – 36.8'	-	6.4	SHALE
B-069-0-11	782.6' – 782.0'	15.1' – 15.7'	-	95.6	SANDSTONE
B-069-0-11	781.5' – 781.1'	16.2' – 16.6'	7,860	-	SANDSTONE
B-069-0-11	778.2' – 777.6'	19.5' – 20.1'	-	89.1	SHALE
B-069-0-11	769.8' – 769.2'	27.9' – 28.5'	-	1.9	SHALE
B-069-0-11	765.2' – 764.7'	32.5' – 33.0'	413	-	CLAYSTONE
B-069-0-11	756.9' – 756.3'	40.8' – 41.4'	-	92.6	SHALE
B-069-0-11	751.9' – 751.5'	45.8' – 46.2'	10,520	-	LIMESTONE
B-069-0-11	738.9' – 738.3'	59.6' – 60.2'	-	81.7	SHALE
B-069-0-11	735.4' – 735.0'	62.3' – 62.7'	1,138	-	CLAYSTONE
B-069-0-11	720.0' – 719.6'	77.7' – 78.1'	3,450	-	SHALE
B-069-0-11	719.4' – 718.8'	78.3' – 78.9'	-	96.6	SHALE
B-069-0-11	710.7' – 709.9'	87.0' – 87.8'	-	0.5	SHALE
B-069-0-11	703.9' – 703.5'	93.8' – 94.2'	5,220	-	SHALE
B-069-0-11	702.4' – 701.8'	95.3' – 95.9'	-	96.8	SANDSTONE
B-069-0-11	685.2' – 684.7'	112.5' – 113.0'	9,160	-	SANDSTONE
B-069-0-11	684.2' – 683.7'	113.5' – 114.0'	-	97.8	SANDSTONE
B-069-0-11	673.2' – 672.8'	124.5' – 124.9'	8,480	-	SANDSTONE
B-069-0-11	672.6' – 672.1'	125.1' – 125.6'	-	97.6	SANDSTONE
B-069-0-11	665.5' – 661.9'	132.2' – 135.8'	-	0.9	SHALE
B-069-0-11	655.7' – 655.1'	142.0' – 142.6'	-	77.8	SHALE
B-069-0-11	655.0' – 664.7'	142.7' – 143.0'	5,230	-	SHALE
B-073-0-12	546.1' – 545.5'	31.6' – 32.2'	-	90.4	SHALE
B-083-1-12	708.4' – 707.9'	36.5' – 37.0'	-	62.5	SANDSTONE
B-083-1-12	690.2' – 689.7'	54.7' – 55.2'	-	90	SHALE
B-087-0-12	597.4' – 596.9'	18.0' – 18.5'	-	84.4	SHALE
B-087-1-12	607.1' – 606.5'	47.4' – 48.0'	-	59.6	SHALE
B-088-0-12	607.0' – 606.4'	38.6' – 39.2'	-	92.8	SHALE
B-089-0-12	639.3' – 638.7'	26.7' – 27.3'	-	82.3	SHALE
B-089-0-12	632.6' – 632.2'	33.4' – 34.0'	-	39.3	SHALE
B-098-0-12	623.2' – 622.6'	73.7' – 74.3'	-	93.1	SHALE
B-098-1-12	699.0' – 698.4'	36.3' – 36.9'	-	86.9	SHALE
B-102-0-12	600.2' – 599.7'	31.0' – 31.6'	-	90.8	SHALE
B-098-1-20	664.9' – 664.2'	16.8' – 17.5'	-	51.4	CLAYSTONE
B-098-1-20	652.7' – 651.7'	29.0' – 30.0'	-	92.4	SANDSTONE
B-098-1-20	641.4' – 640.2'	40.3' – 41.5'	-	97.5	SANDSTONE
B-098-1-20	608.5' – 608.1'	73.2' – 73.6'	801	-	SILTSTONE
B-106-1-20	589.5' – 589.2'	33.3' – 33.6'	31	-	CLAYSTONE
B-106-2-20	648.7' – 648.4'	14.3' – 14.6	3,661	-	SANDSTONE
B-106-2-20	628.7' – 628.0'	34.3' – 35.0'	-	91	SILTSTONE
B-106-2-20	625.8' – 625.4'	37.2' – 37.6'	385	-	SILTSTONE

* Data estimated from historic boring log

SCOUR SAMPLES (BRIDGE LAW-7-07.11)

EXPLOR. ID	ELEVATION (FT.)	D_{50} VALUE (mm)	T_C VALUE (psf)	D_{50} EQUIV (mm)	EROSION CATEGORY (EC)
B-13-2-0-99 (PIER 1)	543.3'-535.8'	0.7223	0.0677	3.2411	3.255
	535.8'-532.3'	0.0143	0.0428	2.0502	2.211
	532.3'-529.8'	0.0121	0.1194	5.7170	3.075
	529.8'-522.8'	0.0164	0.0477	2.2863	2.868
B-13-3-0-99 (PIER 2)	544.6'-540.1'	0.0241	0.0640	3.0636	3.550
	540.1'-538.6'	0.0122	0.1789	8.5668	3.337
	538.6'-531.6'	0.0185	0.1888	9.0398	3.168
	531.6'-524.1'	0.0112	0.1910	9.1463	3.413

DESIGN AGENCY
STANTEC CONSULTING SERVICES INC.
CINCINNATI, OHIO

PID NO. 75923

SOIL PROFILE - ROADWAY

LAW-7-2.17

SUMMARY OF SOIL TEST DATA
STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-001-0-11	2.5 -4.0	SS-1	87	0	0	2	48	50	43	21	22	15	A-7-6 (13)
STA. 114+91, 25' LT.	5.0 - 6.5	SS-2	73				SAME AS SS-1					14	A-7-6 (VISUAL)
NORTHING=158261.6	7.5 - 9.0	SS-3	100	3	4	6	41	46	38	16	22	10	A-6b (13)
EASTING=1980663.9	10.0 - 11.5	SS-4	100				SAME AS SS-3					9	A-6b (VISUAL)
R-202-0-99	6.0 - 7.5	SS-2	-	-	-	-	-	-	34	23	11	12	EST. A-6a
STA. 120+00, 40' LT.													
NORTHING=158745.8													
EASTING=1980716.2													
R-203-0-99	8.5 - 10.0	SS-3	-	6	6	8	41	39	41	25	16	17	A-7-6 (11)
STA. 124+00, 40' RT.													
NORTHING=159086.2													
EASTING=1980940.7													
R-204-0-99	8.5 - 10.0	SS-3	-	-	-	-	-	-	44	25	19	23	EST. A-7-6
STA. 128+00, 40' LT.	18.5 - 20.0	SS-5	-	-	-	-	-	-	45	25	20	27	EST. A-7-6
NORTHING=159476.8													
EASTING=1981057.4													
B-003-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-2					23	A-6a (VISUAL)
STA. 135+96, 118' RT.	2.5 -4.0	SS-2	100	0	0	6	63	31	39	25	14	30	A-6a (10)
NORTHING=160021.9	5.0 - 7.0	ST-3	100	0	0	10	63	27	33	23	10	30	A-4b (8)
EASTING=1981740.7	7.5 - 9.0	SS-4	87				SAME AS SS-5					12	A-4a (VISUAL)
	10.0 - 11.5	SS-5	100	0	5	48	32	15	23	17	6	25	A-4a (2)
	12.5 - 14.0	SS-6	100				SAME AS SS-5					25	A-4a (VISUAL)
	15.0 - 16.5	SS-7	100				SAME AS SS-8					26	A-1-b (VISUAL)
	17.5 - 19.0	SS-8	100	0	60	28	9	3	NP	NP	NP	22	A-1-b (0)
	20.0 - 21.5	SS-9	100				SAME AS SS-8					25	A-1-b (VISUAL)
	25.0 - 26.5	SS-10	100				SAME AS SS-11					26	A-4a (VISUAL)
	30.0 - 31.5	SS-11	67	0	4	29	45	22	25	15	10	20	A-4a (6)
	35.0 - 36.0	SS-12	7				SAME AS SS-11					14	A-4a (VISUAL)
B-002-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-2					26	A-6a (VISUAL)
STA. 135+97, 122' LT.	2.5 -4.0	SS-2	100	0	0	16	51	33	36	22	14	32	A-6a (10)
NORTHING=160184.2	5.0 - 7.0	ST-3	75	0	1	20	39	40	38	22	16	43	A-6b (10)
EASTING=1981564.6	7.5 - 9.0	SS-4	67				SAME AS ST-3					-	A-6b (VISUAL)
	10.0 - 11.5	SS-5	20				SAME AS SS-7					33	A-1-b (VISUAL)
	12.5 - 14.0	SS-6	87				SAME AS SS-7					39	A-1-b (VISUAL)
	15.0 - 16.5	SS-7	100	1	65	27	4	3	NP	NP	NP	25	A-1-b (0)
	17.5 - 19.0	SS-8	100				SAME AS SS-7					24	A-1-b (VISUAL)
	20.0 - 21.5	SS-9	33				SAME AS SS-10					25	A-3a (VISUAL)
	25.0 - 26.5	SS-10	100	3	41	37	12	7	NP	NP	NP	21	A-3a (0)
	30.0 - 31.5	SS-11	100				SAME AS SS-10					18	A-3a (VISUAL)
R-205-0-99	6.0 - 7.5	SS-2	-	-	-	-	-	-	46	28	18	28	EST. A-7-6
STA. 139+49, 45' RT.	7.5 - 9.0	SS-3	-	0	1	26	49	24	31	22	9	27	A-4a (8)
NORTHING=160311.1	33.5 - 35.0	SS-8	-	-	-	-	-	-	30	20	10	20	EST. A-4a
EASTING=1981845.5													
R-206-0-99	23.5 - 25.0	SS-6	-	0	0	24	44	32	31	22	9	27	A-4a (8)
STA. 143+50, 40' LT.													
NORTHING=160631.0													
EASTING=1982100.4													

SUMMARY OF SOIL TEST DATA
STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
R-207-0-99	13.5 - 15.0	SS-4	-	0	0	24	52	24	28	20	8	22	A-4b (8)
STA. 147+50, 40' RT.	23.5 - 25.0	SS-6	-	-	-	-	-	-	32	20	12	16	EST. A-6b
NORTHING=160786.5													
EASTING=1982477.3													
B-004-0-11	0.0 - 1.5	SS-1	80	10	12	15	29	34	43	23	20	21	A-7-6 (10)
STA. 150+00, 74' LT.	2.5 -4.0	SS-2	53				SAME AS SS-1					21	A-7-6 (VISUAL)
NORTHING=161014.7	5.0 - 6.5	SS-3	13				SAME AS SS-1					18	A-7-6 (VISUAL)
EASTING=1982730.4	7.5 - 9.0	SS-4	67	17	15	12	24	32	36	18	18	17	A-6b (7)
	10.0 - 12.0	ST-5	0				SAME AS SS-4					-	A-6b (VISUAL)
	12.5 - 14.0	SS-6	100	0	8	13	32	47	40	18	22	19	A-6b (13)
	15.0 - 16.5	SS-7	93				SAME AS SS-6					16	A-6b (VISUAL)
	17.5 - 19.0	SS-8	93				SAME AS SS-9					18	A-7-6 (VISUAL)
	20.0 - 21.5	SS-9	100	5	11	9	29	46	41	21	20	15	A-7-6 (12)
B-005-0-11	0.0 - 1.5	SS-1	87				SAME AS SS-2					20	A-6a (VISUAL)
STA. 153+86, 82' LT.	2.5 -4.0	SS-2	100	0	14	23	37	26	28	17	11	14	A-6a (6)
NORTHING=161184.1	5.0 - 6.5	SS-3	100				SAME AS SS-2					12	A-6a (VISUAL)
EASTING=198084.7	7.5 - 9.0	SS-4	100				SAME AS SS-5					12	A-3a (VISUAL)
	10.0 - 11.5	SS-5	100	0	11	57	18	14	NP	NP	NP	11	A-3a (0)
	12.5 - 14.0	SS-6	87				SAME AS SS-5					12	A-3a (VISUAL)
	15.0 - 16.5	SS-7	33				SAME AS SS-8					13	A-6a (VISUAL)
	17.5 - 19.0	SS-8	100	6	14	25	27	28	29	14	15	12	A-6a (6)
	20.0 - 21.5	SS-9	100				SAME AS SS-8					21	A-6a (VISUAL)
R-209-0-99	3.0 - 4.5	SS-1	-	1	6	10	42	41	44	24	20	20	A-7-6 (13)
STA. 155+50, 40' RT.													
NORTHING=161120.7													
EASTING=1983194.0													
R-210-0-99	3.0 - 4.5	SS-1	-	0	1	3	55	41	40	26	14	25	A-6a (10)
STA. 159+50, 40' LT.	18.5 - 20.0	SS-5	-	-	-	-	-	-	35	24	11	12	EST. A-6a
NORTHING=161327.3													
EASTING=1983545.5													
B-006-0-11	2.5 -4.0	SS-1	100				SAME AS ST-2					25	A-6a (VISUAL)
STA. 160+00, 19' LT.	5.0 - 7.0	ST-2	100	0	1	3	48	48	34	22	12	20	A-6a (9)
NORTHING=161331.3	7.5 - 9.0	SS-3	100				SAME AS SS-4					20	A-6a (VISUAL)
EASTING=1983687.4	10.0 - 11.5	SS-4	100	0	4	13	49	34	31	16	15	19	A-6a (10)
	12.5 - 14.0	SS-5	100				SAME AS SS-4					15	A-6a (VISUAL)
	15.0 - 16.5	SS-6	100				SAME AS SS-7					16	A-6b (VISUAL)
	17.5 - 19.0	SS-7	100	0	2	22	30	46	35	18	17	18	A-6b (11)
	20.0 - 21.5	SS-8	80				SAME AS SS-7					19	A-6b (VISUAL)
	25.0 - 26.5	SS-9	67	0	12	57	19	12	NP	NP	NP	18	A-3a (0)
	30.0 - 31.5	SS-10	67				COMBINED WITH SS-9					15	A-3a (0)
B-007-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-2					20	A-2-4 (VISUAL)
STA. 160+03, 175' RT.	2.5 -4.0	SS-2	100	19	23	24	19	15	27	18	9	12	A-2-4 (0)
NORTHING=161149.0	5.0 - 6.5	SS-3	7				SAME AS SS-2					25	A-2-4 (VISUAL)
EASTING=1983754.0	7.5 - 9.0	SS-4	100				SAME AS ST-5					24	A-6b (VISUAL)
	10.0 - 12.0	ST-5	100	0	0	1	34	65	39	23	16	25	A-6b (10)
	12.5 - 14.0	SS-6	100				SAME AS ST-5					27	A-6b (VISUAL)
	15.0 - 16.5	SS-7	100	5	25	29	26	15	27	18	9	16	A-4a (1)
	17.5 - 19.0	SS-8	100				SAME AS SS-10					16	A-7-6 (VISUAL)
	20.0 - 21.5	SS-9	100				SAME AS SS-10					17	A-7-6 (VISUAL)
	25.0 - 26.5	SS-10	100	0	3	15	29	53	50	23	27	29	A-7-6 (17)
	30.0 - 31.5	SS-11	87				SAME AS SS-10					24	A-7-6 (VISUAL)

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

1044
1247

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SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
R-211-0-99	6.0 - 7.5	SS-2	-	-	-	-	-	-	52	31	21	19	EST. A-7-5
STA. 162+50, CENTERLINE	8.5 - 10.0	SS-3	-	-	-	-	-	-	61	25	36	18	EST. A-7-6
NORTHING=161387.6													
EASTING=1983842.0													
R-212-0-99	3.0 - 4.5	SS-1	-	10	12	18	34	26	35	22	13	19	A-6a (6)
STA. 167+25, 40' RT.	23.5 - 25.0	SS-6	-	-	-	-	-	-	51	29	22	24	EST. A-7-6
NORTHING=161505.2													
EASTING=1984304.0													
R-2P1-0-99	3.0 - 3.6	SS-1	-	12	8	30	30	20	-	-	-	-	EST. A-4a
STA. 179+30, 2' RT.	6.0 - 7.5	SS-2	-	0	4	41	29	26	32	21	11	14	A-6a (4)
NORTHING=161951.6	13.5 - 15.0	SS-4	-	1	2	4	40	53	41	24	17	15	A-7-6 (11)
EASTING=1985423.7	28.5 - 29.3	S-7	-	5	2	2	39	52	32	19	13	7	A-6a (9)
B-008-0-11	0.0 - 1.5	SS-1	100	0	17	13	38	32	44	23	21	21	A-7-6 (12)
STA. 183+86, 111' RT.	2.5 -4.0	SS-2	73				SAME AS SS-1					34	A-7-6 (VISUAL)
NORTHING=162099.9	5.0 - 7.0	ST-3	80	0	1	2	31	66	49	22	27	24	A-7-6 (17)
EASTING=1985968.9	7.5 - 9.0	SS-4	93	0	1	5	50	44	41	22	19	14	A-7-6 (12)
	10.0 - 11.5	SS-5	86				SAME AS SS-4					10	A-7-6 (VISUAL)
	12.5 - 14.0	SS-6	63				SHALE, TAN, SEVERELY WEATHERED					-	ROCK (VISUAL)
	15.0 - 16.5	SS-7	75				SAME AS SS-6					-	ROCK (VISUAL)
B-009-0-11	0.0 - 1.5	SS-1	67				SAME AS SS-2					13	A-6a (VISUAL)
STA. 183+93,233' RT.	2.5 -4.0	SS-2	100	7	21	24	25	23	32	17	15	19	A-6a (4)
NORTHING=162004.5	5.0 - 6.5	SS-3	100				SAME AS SS-2					13	A-6a (VISUAL)
EASTING=1986045.8	7.5 - 9.0	SS-4	100				SAME AS SS-5					16	A-6a (VISUAL)
	10.0 - 11.5	SS-5	100	0	4	26	40	30	30	18	12	17	A-6a (8)
	12.5 - 14.0	SS-6	100	2	2	15	43	38	32	17	15	22	A-6a (10)
	15.0 - 16.5	SS-7	87	2	7	35	35	21	30	19	11	17	A-6a (5)
	17.5 - 19.0	SS-8	93				SANDSTONE, BROWN, SEVERELY WEATHERED					13	ROCK (VISUAL)
	20.0 - 21.5	SS-9	100				SAME AS SS-8					19	ROCK (VISUAL)
R-217-0-99	3.0 - 4.5	SS-1	-	-	-	-	-	-	50	30	20	17	EST. A-7-5
STA. 191+50, 40' LT.													
NORTHING=162716.6													
EASTING=1986362.0													
B-010-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-1					25	A-6a (VISUAL)
STA.197+89,183' LT.	2.5 -4.0	SS-2	100	0	6	14	45	35	39	24	15	29	A-6a (10)
NORTHING=163268.7	5.0 - 7.0	ST-3	100	1	4	14	40	41	36	21	15	21	A-6a (10)
EASTING=1986820.0	7.5 - 9.0	SS-4	100	0	0	2	40	58	51	27	24	29	A-7-6 (16)
	10.0 - 11.5	SS-5	100				SAME AS SS-4					30	A-7-6 (VISUAL)
	12.5 - 14.5	ST-6	50	0	1	9	46	44	40	22	18	34	A-6b (11)
	15.0 - 16.5	SS-7	100				SAME AS SS-9					39	A-1-b (VISUAL)
	17.5 - 19.0	SS-8	100				SAME AS SS-9					18	A-1-b (VISUAL)
	20.0 - 21.5	SS-9	100	18	32	32	12	6	NP	NP	NP	20	A-1-b (0)
B-012-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-2					27	A-4a (VISUAL)
STA. 201+90, 197' RT.	2.5 -4.0	SS-2	100	0	0	31	48	21	28	20	8	23	A-4a (7)
NORTHING=163223.1	5.0 - 7.0	ST-3	100	0	0	52	34	14	NP	NP	NP	24	A-4a (3)
EASTING=1987368.9	7.5 - 9.0	SS-4	100				SAME AS SS-5					30	A-3a (VISUAL)
	10.0 - 11.5	SS-5	100	0	11	73	11	5	NP	NP	NP	28	A-3a (0)
	12.5 - 14.0	SS-6	100				SAME AS SS-5					-	A-3a (VISUAL)
	15.0 - 16.5	SS-7	100				SAME AS SS-8					23	A-3a (VISUAL)
	17.5 - 19.0	SS-8	100	1	36	43	12	8	NP	NP	NP	23	A-3a (0)
	20.0 - 21.5	SS-9	100				SAME AS SS-8					25	A-3a (VISUAL)
	25.0 - 26.5	SS-10	100				SAME AS SS-11					21	A-3a (VISUAL)
	30.0 - 31.5	SS-11	100	10	27	44	14	5	NP	NP	NP	13	A-3a (0)

SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-011-0-11	0.0 - 1.5	SS-1	67				SAME AS SS-2					23	A-4a (VISUAL)
STA. 202+02, 232' LT.	2.5 -4.0	SS-2	100	0	0	39	43	18	NP	NP	NP	23	A-4a (5)
NORTHING=163580.3	5.0 - 7.0	ST-3	100	0	0	63	21	16	NP	NP	NP	17	A-4a (0)
EASTING=1987131.3	7.5 - 9.0	SS-4	100	0	0	73	17	10	NP	NP	NP	21	A-3a (0)
	10.0 - 11.5	SS-5	100				SAME AS SS-4					20	A-3a (VISUAL)
	12.5 - 14.0	SS-6	100	0	0	90	7	3	NP	NP	NP	27	A-3 (0)
	15.0 - 16.5	SS-7	100				SAME AS SS-6					26	A-3 (VISUAL)
	17.5 - 19.0	SS-8	100				SAME AS SS-9					24	A-3a (VISUAL)
	20.0 - 21.5	SS-9	100	12	15	55	11	7	NP	NP	NP	24	A-3a (0)
	25.0 - 26.5	SS-10	100				SAME AS SS-9					25	A-3a (VISUAL)
	30.0 - 31.5	SS-11	100				SAME AS SS-9					16	A-3a (VISUAL)
R-218-0-99	8.5 - 10.0	SS-3	-	-	-	-	-	-	41	23	18	22	EST. A-7-6
STA. 209+49, 32' RT.													
NORTHING=163710.6													
EASTING=1987843.1													
R-220-0-99	3.0 - 4.5	SS-1	-	-	-	-	-	-	33	17	16	15	EST. A-6b
STA. 217+49, 11' RT.	8.5 - 10.0	SS-3	-	-	-	-	-	-	38	24	14	10	EST. A-6a
NORTHING=163967.1													
EASTING=1988597.4													
B-017-0-11	0.0 - 1.5	SS-1	33				SAME AS SS-3					11	A-6a (VISUAL)
STA. 218+77, 270' RT.	2.5 -4.0	SS-2	73				SAME AS SS-3					15	A-6a (VISUAL)
NORTHING=163760.3	5.0 - 6.5	SS-3	100	15	12	24	26	23	35	21	14	22	A-6a (4)
EASTING=1988880.0	8.0 - 9.5	SS-4	73				SAME AS SS-5					6	A-2-4 (VISUAL)
	10.0 - 11.5	SS-5	100	44	14	19	12	11	26	19	7	14	A-2-4 (0)
	12.5 - 14.0	SS-6	93				SAME AS SS-5					15	A-2-4 (VISUAL)
	15.0 - 16.5	SS-7	100	12	24	34	20	10	NP	NP	NP	16	A-3a (0)
	17.5 - 19.0	SS-8	100				SAME AS SS-7					15	A-3a (VISUAL)
	20.0 - 21.5	SS-9	80				SAME AS SS-10					18	A-4a (VISUAL)
	25.0 - 26.5	SS-10	100	0	3	27	37	33	29	19	10	19	A-4a (7)
	30.0 - 31.5	SS-11	100				SAME AS SS-10					20	A-4a (VISUAL)
B-015-0-11	0.0 - 1.5	SS-1	47				SAME AS SS-2					22	A-6a (VISUAL)
STA. 218+91, 79' LT.	2.5 -4.0	SS-2	80	7	13	22	26	32	33	18	15	19	A-6a (7)
NORTHING=164099.9	5.0 - 6.5	SS-3	73				SAME AS SS-2					14	A-6a (VISUAL)
EASTING=1988798.0	7.5 - 9.0	SS-4	100	9	7	12	30	42	41	19	22	16	A-7-6 (12)
	10.0 - 11.5	SS-5	100				SAME AS SS-4					17	A-7-6 (VISUAL)
	12.5 - 14.0	SS-6	67	2	8	28	29	33	30	17	13	12	A-6a (7)
	15.0 - 16.5	SS-7	71				SHALE, SEVERELY WEATHERED					7	ROCK (VISUAL)
B-016-0-11	0.0 - 1.5	SS-1	100	6	6	21	31	36	37	21	16	15	A-6b (9)
STA. 218+94,12' RT.	2.5 -4.0	SS-2	80				SAME AS SS-1					19	A-6b (VISUAL)
NORTHING=163913.6	5.0 - 7.0	ST-3	95	8	8	7	35	42	42	25	17	14	A-7-6 (11)
EASTING=1988854.0	7.5 - 9.0	SS-4	100				SAME AS ST-3					26	A-7-6 (VISUAL)
	10.0 - 11.5	SS-5	100	1	7	7	29	56	42	23	19	16	A-7-6 (12)
	12.5 - 14.0	SS-6	100				SAME AS SS-5					15	A-7-6 (VISUAL)
R-221-0-99	8.5 - 10.0	SS-3	-	-	-	-	-	-	44	23	21	18	EST. A-7-6
STA.221+45, 84' LT.													
NORTHING=164167.1													
EASTING=1988953.0													

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-018-0-11	0.0 - 1.5	SS-1	13				SAME AS ST-3					15	A-6b (VISUAL)
STA. 225+07, 3′ RT.	2.5 -4.0	SS-2	40				SAME AS ST-3					19	A-6b (VISUAL)
NORTHING=164190.0	5.0 - 7.0	ST-3	100	10	7	13	37	33	37	19	18	18	A-6b (10)
EASTING=1989413.2	7.5 - 9.0	SS-4	87				SAME AS ST-3					19	A-6b (VISUAL)
	10.0 - 11.5	SS-5	73	15	12	29	25	19	24	14	11	11	A-6a (2)
	12.5 - 14.0	SS-6	60				SAME AS SS-5					17	A-6a (VISUAL)
	15.0 - 15.7	ST-7	100	14	1	2	35	48	41	20	21	18	A-7-6 (13)
	15.7 - 16.1	SS-8	100				SHALE,SEVERELY WEATHERED					5	ROCK(VISUAL)
R-223-0-99	6.0 - 7.5	SS-2	-	5	10	31	33	21	30	19	11	15	A-6a (4)
STA. 227+75, 222′ RT.													
NORTHING=164046.9													
EASTING=1989647.3													
B-019-0-11	0.0 - 1.5	SS-1	67				SAME AS SS-2					32	A-7-6 (VISUAL)
STA. 228+76, CENTERLINE	2.5 -4.0	SS-2	67	0	0	2	35	63	49	24	25	19	A-7-6 (16)
NORTHING=164298.4	5.0 - 7.0	ST-3	100	10	0	5	40	45	42	22	20	15	A-7-6 (12)
EASTING=1989765.7	7.5 - 9.0	SS-4	100	0	3	4	50	43	40	23	17	16	A-6b (11)
	10.0 - 11.1	SS-5	100				SHALE,SEVERELYWEATHERED					10	ROCK (VISUAL)
B-021-0-11	0.0 - 1.5	SS-1	100	14	5	10	23	48	44	22	22	22	A-7-6 (13)
STA. 230+85, 275′ RT.	2.5 -4.0	SS-2	100	3	9	18	49	21	31	21	10	8	A-4a (7)
NORTHING=164138.3	5.0 - 6.5	SS-3	100	17	11	12	32	28	35	22	13	8	A-6a (6)
EASTING=1990087.1	7.5 - 9.0	SS-4	100				SAME AS SS-3					8	A-6a (VISUAL)
B-020-0-11	0.0 - 1.5	SS-1	67	18	10	19	28	25	30	20	10	18	A-4a (4)
STA. 231+17, 233′ LT.	2.5 -4.0	SS-2	100				SAME AS SS-3					9	A-2-4 (VISUAL)
NORTHING=164599.1	5.0 - 7.0	SS-3	100	43	16	9	20	12	32	22	10	6	A-2-4 (0)
EASTING=1989870.4	7.5 - 9.0	SS-4	100				SAME AS SS-3					14	A-2-4 (VISUAL)
	10.0 - 11.5	SS-5	100	5	2	3	30	60	44	24	20	12	A-7-6 (13)
	12.5 - 14.0	SS-6	100				SAME AS SS-5					15	A-7-6 (VISUAL)
	15.0 - 16.5	SS-7	100				SAME AS SS-8					14	A-6b (VISUAL)
	17.5 - 19.0	SS-8	100	0	1	5	45	49	39	22	17	9	A-6b (11)
	20.0 - 21.5	SS-9	100				SAME AS SS-8					10	A-6b (VISUAL)
B-022-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-2					23	A-4a (VISUAL)
STA. 235+95,44′ RT.	2.5 -4.0	SS-2	73	6	9	15	44	26	34	24	10	17	A-4a (7)
NORTHING=164674.6	5.0 - 6.5	SS-3	87				SAME AS SS-2					25	A-4a (VISUAL)
EASTING=1990381.0	7.5 - 9.0	SS-4	100				SAME AS SS-5					11	A-6a (VISUAL)
	10.0 - 11.5	SS-5	100	0	0	3	48	49	37	22	15	12	A-6a (10)
	12.5 - 14.0	SS-6	80				SAME AS SS-5					13	A-6a (VISUAL)
	15.0 - 16.5	SS-7	100				SAME AS SS-8					13	A-7-6 (VISUAL)
	17.5 - 19.0	SS-8	100	2	1	3	42	52	43	22	21	14	A-7-6 (13)
	20.0 - 21.5	SS-9	100				SAME AS SS-8					10	A-7-6 (VISUAL)
R-226-0-99	18.5 - 20.0	SS-4	-	3	2	1	94		-	-	-	12	EST. A-7-6
STA. 237+60, 215′ RT.													
NORTHING=164684.7													
EASTING=1990531.7													
R-227-0-99	23.5 - 25.0	SS-5	-	10	16	22	27	25	27	20	7	14	A-4a (3)
STA. 241+40, 363′ LT.													
NORTHING=165346.5													
EASTING=1990332.2													
R-229-0-99	3.0 - 4.5	SS-1	-	21	11	12	33	23	37	23	14	13	A-6a (6)
STA. 245+77, 97′ LT.													
NORTHING=165511.2													
EASTING=1990817.1													

SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-023-0-11	0.0 - 1.5	SS-1	67	52	8	14	14	12	35	20	15	8	A-2-6 (1)
STA. 247+64, 12′ RT.	2.5- 4.0	SS-2	87	48	11	17	13	11	29	19	10	20	A-2-4 (0)
NORTHING=165607.4	5.0 - 5.7	SS-3	100				SAME AS SS-2					10	A-2-4 (VISUAL)
EASTING=1991090.8	7.5 - 8.0	SS-4	100				SHALE, SEVERELY WEATHERED					6	ROCK (VISUAL)
	10.0 - 10.8	SS-5	100				SAME AS SS-4					5	ROCK (VISUAL)
R-232-0-99	8.5 - 10.0	SS-3	-	-	-	-	-	-	42	21	21	22	EST. A-7-6
STA. 250+61, 44′ RT.	18.5 - 20.0	SS-5	-	0	3	21	40	36	31	19	12	27	A-6a (9)
NORTHING=165792.0													
EASTING=1991235.6													
R-233-0-99*	06.00 - 07.50	SS-1	11	-	-	-	VISUAL	-	-	-	-	-	A-7-6(VISUAL)
STA. 253+75, 29′ RT.	08.50 - 10.00	SS-2	12	-	-	-	VISUAL	-	-	-	-	18	A-6a(VISUAL)
NORTHING=166032.0	11.0 - 12.50	SS-3	15	-	-	-	VISUAL	-	-	-	-	-	A-7-6(VISUAL)
EASTING=1991432.2	13.5 - 15.00	SS-4	14	-	-	-	VISUAL	-	-	-	-	-	A-7-6(VISUAL)
B-026-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-2					21	A-6a (VISUAL)
STA. 255+99, 82′ RT.	2.5 -4.0	SS-2	100	15	14	17	31	23	33	21	12	22	A-6a (5)
NORTHING=166140.5	5.0 - 6.5	SS-3	100				SAME AS SS-2					21	A-6a (VISUAL)
EASTING=1991719.6	7.5 - 9.0	SS-4	100				SAME AS SS-2					21	A-6a (VISUAL)
	10.0 - 11.5	SS-5	100	1	3	5	43	48	46	21	25	13	A-7-6 (15)
	12.5 - 14.0	SS-6	93				SAME AS SS-5					10	A-7-6 (VISUAL)
	15.0 - 16.5	SS-7	100				SAME AS SS-5					9	A-7-6 (VISUAL)
	17.5 - 18.3	SS-8	100				SAME AS SS-5					8	A-7-6 (VISUAL)
B-3SP-1-99	7.0 - 8.5	SS-3	-	0	11	22	38	29	30	19	11	15	A-6a (7)
STA. 256+47, 66′ LT.	14.5 - 16.0	SS-6	-	-	-	-	-	-	29	16	13	23	EST. A-6a
NORTHING=166280.6	24.5 - 26.0	SS-9	-	7	4	9	40	40	32	19	13	6	A-6a (9)
EASTING=1991583.1													
B-029-0-11	2.5 -4.0	SS-1	100	0	11	24	36	29	29	17	12	13	A-6a (7)
STA. 261+96, 14′ RT.	5.0 - 6.5	SS-2	100				SAME AS SS-1					11	A-6a (VISUAL)
NORTHING=166464.9	7.5 - 9.0	SS-3	100	8	16	23	33	20	26	16	10	13	A-4a (3)
EASTING=1992202.7	10.0 - 11.5	SS-4	100				SAME AS SS-3					13	A-4a (VISUAL)
	12.5 - 14.0	SS-5	87	7	14	22	32	25	27	14	13	15	A-6a (6)
	15.0 - 16.5	SS-6	87	9	20	16	33	22	27	17	10	13	A-4a (4)
	17.5 - 19.0	SS-7	100				SAME AS SS-6					18	A-4a (VISUAL)
	20.0 - 21.5	SS-8	100	6	13	41	24	16	NP	NP	NP	14	A-4a (1)
B-037-0-11	2.5 -4.0	SS-1	100	0	8	19	32	41	37	19	18	22	A-6b (11)
STA. 271+55, 221′ RT.	5.0 - 6.5	SS-2	67				SAME AS SS-1					26	A-6b (VISUAL)
NORTHING=166301.5	7.5 - 9.0	SS-3	93	8	21	30	22	19	27	14	13	11	A-6a (2)
EASTING=1993113.9	10.0 - 10.5	SS-4	73				SAME AS SS-3					20	A-6a (VISUAL)
B-041-0-11	0.0 - 1.5	SS-1	53	12	6	17	33	32	35	18	17	19	A-6b (9)
STA. 277+97, 3′ LT.	2.5 - 4.0	SS-2	67				SANDSTONE, BROWN, SEVERELY WEATHERED					11	ROCK (VISUAL)
NORTHING=166425.3													
EASTING=1993782.3													
B-043-0-11	0.0 - 1.5	SS-1	80				SAME AS SS-2					15	A-7-6 (VISUAL)
STA. 282+04, 10′ RT.	2.5 -4.0	SS-2	100	7	8	7	38	40	44	22	22	17	A-7-6 (14)
NORTHING=166365.8	5.0 - 6.5	SS-3	100	11	12	6	30	41	38	21	17	17	A-6b (10)
EASTING=1994184.7	7.5 - 8.5	SS-4	100				SAME AS SS-3					7	A-6b (VISUAL)
B-044-0-11	0.0 - 1.5	SS-1	100	28	7	6	29	30	40	20	20	14	A-6b (9)
STA. 286+94, CENTERLINE	2.5 -4.0	SS-2	67	2	2	3	35	58	49	25	24	22	A-7-6 (15)
NORTHING=166347.8	5.0 - 6.5	SS-3	100				SAME AS SS-3					10	A-7-6 (VISUAL)
EASTING=1994675.1													

*DATA FOR BORING WAS ESTIMATED FROM GRAPHIC LOG PROVIDED IN PROFILE, ORIGINAL BORING LOG WAS NOT LOCATED

DRAWN MSJ | CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-048-0-11	0.0	1.5	SS-1	87				SAME AS SS-1					31	A-6b (VISUAL)
STA. 292+96, 195' RT.	2.5	4.0	SS-2	100	3	1	20	38	38	39	19	20	24	A-6b (12)
NORTHING=166123.9	5.0	6.5	SS-3	100	1	0	34	39	26	29	18	11	25	A-6a (6)
EASTING=1995266.6	7.5	9.5	ST-4	100	0	6	63	18	13	NP	NP	NP	26	A-3a (0)
	10.0	11.5	SS-5	100				SAME AS ST-4					24	A-3a (VISUAL)
	12.5	14.0	SS-6	100	15	19	47	11	8	NP	NP	NP	29	A-3a (0)
	15.0	16.5	SS-7	100	10	16	29	21	24	22	14	8	31	A-4a (2)
	17.5	19.0	SS-8	67				SAME AS SS-7					26	A-4a (VISUAL)
	20.0	22.0	ST-9	35	0	0	4	48	48	31	19	12	27	A-6a (9)
	25.0	26.5	SS-10	100				SAME AS ST-9					27	A-6a (VISUAL)
	30.0	31.5	SS-11	35	0	2	7	45	46	33	20	13	25	A-6a (9)
	35.0	36.5	SS-12	88				SAME AS SS-11					23	A-6a (VISUAL)
	40.0	40.7	SS-13	100				SHALE, GRAY,SEVERELY WEATHERED					14	ROCK (VISUAL)
B-047-0-11	0.0	1.5	SS-1	80				SAME AS SS-2					36	A-7-6 (VISUAL)
STA. 293+00, 12' RT.	2.5	4.0	SS-2	100	0	2	4	38	56	51	27	24	32	A-7-6 (16)
NORTHING=166305.9	5.0	6.5	SS-3	100	10	1	3	24	62	66	32	34	50	A-7-5 (20)
EASTING=1995279.4	7.5	9.0	SS-4	80				SAME AS SS-5					44	A-7-6 (VISUAL)
	10.0	11.5	SS-5	100	1	4	7	36	52	49	23	26	39	A-7-6 (16)
	12.5	14.0	SS-6	33				SAME AS SS-8					26	A-4a (VISUAL)
	15.0	16.5	SS-7	80				SAME AS SS-8					26	A-4a (VISUAL)
	17.5	19.0	SS-8	100	6	17	35	26	16	19	12	7	27	A-4a (1)
	20.0	21.5	SS-9	73				SAME AS SS-8					28	A-4a (VISUAL)
	25.0	26.5	SS-10	100				SAME AS SS-8					20	A-4a (VISUAL)
	30.0	31.5	SS-11	100	23	27	27	16	7	NP	NP	NP	13	A-1-b (0)
	35.0	36.5	SS-12	100				SAME AS SS-11					21	A-1-b (VISUAL)
	38.7	39.2	SS-13	100				SHALE, SEVERELY WEATHERED					-	ROCK (VISUAL)
B-047-1-11	4.5	6.5	ST-1	100	7	2	3	20	68	66	29	37	40	A-7-6 (20)
STA. 293+00, 13' RT.														
NORTHING=166305.9														
EASTING=1995279.4														
B-047-2-11	4.5	6.5	ST-1	100	0	1	1	19	79	66	30	36	46	A-7-5 (20)
STA. 293+00, 14' RT.	6.5	8.5	ST-2	100	0	8	14	24	54	44	21	23	30	A-7-6 (14)
NORTHING=166305.9														
EASTING=1995279.4														
R-241-0-99	8.5	10.0	SS-3	-	0	0	44	36	20	26	21	5	26	A-4a (4)
STA. 294.47, 143' RT.														
NORTHING=166160.3														
EASTING=1995331.2														
B-052-0-11	0.0	1.5	SS-1	87	36	5	22	19	18	29	18	11	13	A-6a (1)
STA. 305+98, 7' RT.	2.5	4.0	SS-2	67				SHALE, BROWN, SEVERELY WEATHERED					5	ROCK (VISUAL)
NORTHING=166247.0														
EASTING=1996576.6														
B-053-0-11	0.0	1.5	SS-1	73	1	4	6	30	59	52	24	28	24	A-7-6 (18)
STA. 313+13, 262' LT.	2.5	4.0	SS-2	27				COMBINED WITH SS-1					26	A-7-6 (18)
NORTHING=166480.0	5.0	6.5	SS-3	67				MUDSTONE, RED AND GRAY, SEVERELY WEATHERED					15	ROCK (VISUAL)
EASTING=1997294.3	7.5	8.7	SS-4	100				SAME AS SS-3					8	ROCK (VISUAL)
	10.0	10.4	SS-5	100				SAME AS SS-3					8	ROCK (VISUAL)
	12.0	12.5	SS-6	100				SAME AS SS-3					4	ROCK (VISUAL)
R-244-0-99	8.5	10.0	SS-2	-	-	-	-	-	-	26	16	10	15	EST. A-4a
STA. 314+50, 20' LT.														
NORTHING=166223.8														
EASTING=1997340.2														

SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
R-246-0-99	8.8	10.0	SS-3	-	3	10	10	32	45	43	27	16	13	A-7-6 (11)
STA. 321+71, 23' LT.														
NORTHING=166170.5														
EASTING=1998061.6														
B-054-0-11	0.0	1.5	SS-1	73				SAME AS SS-1					9	A-7-6 (VISUAL)
STA. 321+91, 200' LT.	2.5	4.0	SS-2	100	2	8	6	38	46	46	25	21	20	A-7-6 (14)
NORTHING=166348.4	5.0	6.5	SS-3	33				SAME AS SS-1					10	A-7-6 (VISUAL)
EASTING=1998200.5	7.5	9.0	SS-4	67				SAME AS SS-5					11	A-7-6 (VISUAL)
	10.0	11.5	SS-5	67	1	1	2	39	57	43	21	22	14	A-7-6 (13)
	12.5	14.0	SS-6	87				SAME AS SS-5					15	A-7-6 (VISUAL)
B-055-0-11	0.0	1.5	SS-1	67				SAME AS SS-2					26	A-7-6 (VISUAL)
STA. 321+94, 283' RT.	2.5	4.0	SS-2	100	7	2	7	26	58	54	26	28	29	A-7-6 (18)
NORTHING=165872.2	5.0	6.5	SS-3	87	27	10	16	19	28	36	17	19	15	A-6b (5)
EASTING=1998119.2	7.5	9.0	SS-4	100	8	12	10	25	45	53	20	33	45	A-7-6 (17)
	10.0	10.6	SS-5	50				SHALE, SEVERELY WEATHERED					5	ROCK (VISUAL)
	12.5	13.0	SS-6	100				SAME AS SS-5					6	ROCK (VISUAL)
	15.0	15.6	SS-7	100				SAME AS SS-5					5	ROCK (VISUAL)
B-055-1-11	4.0	6.0	ST-1	100	13	1	6	21	59	51	27	24	24	A-7-6 (16)
STA. 321+94, 282' RT.														
NORTHING=165872.2														
EASTING=1998119.2														
B-055-2-11	3.0	5.0	ST-1	100	0	0	6	21	73	58	30	28	29	A-7-5 (19)
STA. 321+94, 281' RT.	5.0	7.0	ST-2	100	29	12	15	18	26	38	21	17	16	A-6b (4)
NORTHING=165872.2														
EASTING=1998119.2														
B-055-3-11	4.0	6.0	ST-1	100	8	1	4	23	64	51	27	24	23	A-7-6 (16)
STA. 321+94, 280' RT.														
NORTHING=165872.2														
EASTING=1998119.2														
R-248-0-99	6.0	7.5	SS-2	-	-	-	-	-	-	51	24	27	16	EST. A-7-6
STA. 328+42, 57' RT.														
NORTHING=165906.6														
EASTING=1998677.7														
B-056-0-11	0.0	1.5	SS-1	87				SAME AS SS-2					19	A-6b (VISUAL)
STA. 328+92, 152' RT.	2.5	4.0	SS-2	100	16	15	10	27	32	40	19	21	16	A-6b (9)
NORTHING=165807.8	5.0	6.5	SS-3	20				SAME AS SS-2					19	A-6b (VISUAL)
EASTING=1998772.2	7.5	9.0	SS-4	33				SAME AS SS-2					16	A-6b (VISUAL)
	10.0	11.5	SS-5	87	0	3	15	37	45	36	18	18	12	A-6b (11)
	12.5	14.0	SS-6	73				SAME AS SS-5					7	A-6b (VISUAL)
B-057-0-11	0.0	1.5	SS-1	80				SAME AS ST-3					19	A-6b (VISUAL)
STA. 329+15, 321' RT.	2.5	4.0	SS-2	100				SAME AS ST-3					20	A-6b (VISUAL)
NORTHING=165644.4	4.0	6.0	ST-3	70	11	14	10	27	38	39	20	19	20	A-6b (10)
EASTING=1998721.8	7.5	9.0	SS-4	100				SAME AS ST-5					21	A-6b (VISUAL)
	10.0	12.0	ST-5	50	0	0	11	40	49	39	20	19	21	A-6b (12)
	12.5	14.0	SS-6	100				SAME AS ST-5					24	A-6b (VISUAL)
	15.0	16.5	SS-7	100				SAME AS SS-8					24	A-6b (VISUAL)
	17.5	19.0	SS-8	100	0	0	6	54	40	39	22	17	24	A-6b (11)
	20.0	21.5	SS-9	100				SAME AS SS-8					14	A-6b (VISUAL)
	25.0	26.5	SS-10	67				SHALE, SEVERELY WEATHERED					10	ROCK (VISUAL)
B-057-1-11	4.0	6.0	ST-1	100	22	7	11	26	34	37	18	19	17	A-6b (9)
STA. 329+15, 320' RT.	6.0	8.0	ST-2	100	33	4	8	24	31	39	20	16	18	A-6b (8)
NORTHING=165644.4	8.0	10.0	ST-3	100	0	2	4	38	56	47	24	23	22	A-7-6 (15)
EASTING=1998721.8														

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-059-0-11	0.0	1.5	SS-1	67				SAME AS SS-2					31	A-2-6 (VISUAL)
STA. 334+12, 698' LT.	2.5	4.0	SS-2	93	60	11	5	12	12	34	19	15	7	A-2-6 (0)
NORTHING=166273.9	5.0	6.5	SS-3	67				SAME AS SS-2					16	A-2-6 (VISUAL)
EASTING=1999675.4	7.5	9.0	SS-4	87	0	10	14	26	50	54	29	25	20	A-7-6 (17)
B-058-0-11	0.0	1.5	SS-1	80	7	13	14	30	36	37	21	16	17	A-6b (9)
STA. 334+27, 285' LT.	2.5	4.0	SS-2	53				SAME AS SS-1					16	A-6b (VISUAL)
NORTHING=165921.7	5.0	6.5	SS-3	100	54	18	7	14	7	30	17	13	7	A-2-6 (0)
EASTING=1999458.9	7.5	9.0	SS-4	47				SAME AS SS-3					10	A-2-6 (VISUAL)
	10.0	10.8	SS-5	100				SAME AS SS-3					8	A-2-6 (VISUAL)
	12.5	14.0	SS-6	40				SAME AS SS-3					6	A-2-6 (VISUAL)
	15.0	16.5	SS-7	33				SAME AS SS-8					6	A-2-6 (VISUAL)
	17.5	19.0	SS-8	73	62	11	7	13	7	31	16	15	11	A-2-6 (0)
	20.0	21.5	SS-9	93				SAME AS SS-8					6	A-2-6 (VISUAL)
	25.0	25.8	SS-10	100				MUDSTONE, SEVERELY WEATHERED					5	ROCK (VISUAL)
	30.0	31.5	SS-11	100				SAME AS SS-10					5	ROCK (VISUAL)
	35.0	35.9	SS-12	100				SAME AS SS-10					8	ROCK (VISUAL)
	40.0	40.9	SS-13	89				SAME AS SS-10					8	ROCK (VISUAL)
	45.0	45.4	SS-14	100				SAME AS SS-10					7	ROCK (VISUAL)
B-060-0-11	0.0	1.5	SS-1	73				SAME AS SS-2					15	A-6b (VISUAL)
STA. 335+71, 175' RT.	2.5	4.0	SS-2	100	4	10	15	35	36	40	21	19	19	A-6b (11)
NORTHING=165459.7	5.0	7.0	ST-3	100	7	4	11	32	46	36	16	20	16	A-6b (12)
EASTING=1999321.0	7.5	9.0	SS-4	100				SAME AS SS-5					14	A-6b (VISUAL)
	10.0	11.5	SS-5	100	6	9	7	42	36	36	17	19	13	A-6b (12)
	12.5	14.0	SS-6	100				SAME AS SS-5					14	A-6b (VISUAL)
	15.0	16.5	SS-7	100				MUDSTONE, SEVERELY WEATHERED					9	ROCK (VISUAL)
	17.5	19.0	SS-8	100				SAME AS SS-7					10	ROCK (VISUAL)
	20.0	21.5	SS-9	100				SAME AS SS-7					12	ROCK (VISUAL)
	25.0	26.5	SS-10	100				SAME AS SS-7					11	ROCK (VISUAL)
B-061-0-11	0.0	1.5	SS-1	100	1	1	3	39	56	54	28	26	27	A-7-6 (17)
STA. 336+17, 517' RT.	2.5	4.0	SS-2	100				SAME AS SS-1					31	A-7-6 (VISUAL)
NORTHING=165151.3	5.0	6.5	SS-3	73				SAME AS SS-1					31	A-7-6 (VISUAL)
EASTING=1999166.9	7.5	9.5	ST-4	95	0	0	7	46	47	44	24	20	25	A-7-6 (13)
	10.0	11.5	SS-5	100				SAME AS ST-4					26	A-7-6 (VISUAL)
	12.5	14.0	SS-6	100				SAME AS ST-4					16	A-7-6 (VISUAL)
R-250-0-99	3.0	4.5	SS-1	-	12	11	10	32	35	38	20	18	14	A-6b (10)
STA. 336+43, 35' RT.	8.5	10.0	SS-3	-	-	-	-	-	-	29	17	12	9	EST. A-6a
NORTHING=165527.3														
EASTING=1999370.7														
R-251-0-99	3.0	4.5	SS-1	-	-	-	-	-	-	44	20	24	12	EST. A-7-6
STA.338+78, 60' LT.	6.0	7.5	SS-2	-	0	1	4	59	36	37	22	15	12	A-6a (10)
NORTHING=165473.7														
EASTING=1999618.5														
B-063-0-11	0.0	1.5	SS-1	33				SAME AS ST-3					23	A-6b (VISUAL)
STA. 340+04, 171' LT.	2.5	4.0	SS-2	87				SAME AS ST-3					17	A-6b (VISUAL)
NORTHING=165502.1	5.0	6.0	ST-3	100	20	2	5	36	37	36	15	21	24	A-6b (12)
EASTING=1999873.6	7.5	9.0	SS-4	100				SAME AS ST-3					7	A-6b (VISUAL)
	10.0	11.5	SS-5	67				SAME AS SS-6					8	A-6b (VISUAL)
	12.5	14.0	SS-6	73	1	1	2	45	51	37	18	19	12	A-6b (12)
	15.0	16.5	SS-7	100				SAME AS SS-6					12	A-6b (VISUAL)
	17.5	18.5	SS-8	100				SHALE, SEVERELY WEATHERED					9	ROCK (VISUAL)
	20.0	21.0	SS-9	100				SAME AS SS-8					11	ROCK (VISUAL)

SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-064-0-11	0.0	1.5	SS-1	73	0	5	12	46	37	39	19	20	21	A-6b (12)
STA. 340+06, 175' RT.	2.5	4.0	SS-2	27				SAME AS SS-1					18	A-6b (VISUAL)
NORTHING=165214.6	5.0	6.5	SS-3	20				SAME AS SS-1					11	A-6b (VISUAL)
EASTING=1999680.8	7.5	9.0	SS-4	33				SAME AS SS-1					17	A-6b (VISUAL)
	10.0	11.5	SS-5	80	0	0	3	27	70	47	16	31	13	A-7-6 (17)
	12.5	14.0	SS-6	100				SAME AS SS-5					7	A-7-6 (VISUAL)
	15.0	16.5	SS-7	100				SAME AS SS-8					8	A-7-6 (VISUAL)
	17.5	19.0	SS-8	100	2	2	2	41	53	41	20	21	9	A-7-6 (13)
	20.0	21.5	SS-9	100				SANDSTONE, SEVERELY WEATHERED					7	ROCK (VISUAL)
	25.0	26.5	SS-10	100				SAME AS SS-9					11	ROCK (VISUAL)
B-062-0-11	0.0	1.5	SS-1	67	5	12	24	33	26	28	16	12	17	A-6a (6)
STA. 340+07, 326' LT.	2.5	4.0	SS-2	67				SAME AS SS-1					14	A-6a (VISUAL)
NORTHING=165628.7	5.0	7.0	ST-3	75	7	2	10	37	44	33	19	14	19	A-6a (10)
EASTING=1999963.9	7.5	9.5-0	SS-4	100				SAME AS SS-5					16	A-6b (VISUAL)
	10.0	11.5	SS-5	87	0	1	10	39	50	38	17	21	13	A-6b (12)
	12.5	13.3	SS-6	63				SANDSTONE, SEVERELY WEATHERED					3	ROCK (VISUAL)
B-065-0-11	0.0	1.5	SS-1	87				SAME AS SS-2					17	A-6b (VISUAL)
STA. 340+19, 382' RT.	2.5	4.0	SS-2	80	11	9	10	37	33	39	19	20	17	A-6b (11)
NORTHING=165036.8	5.0	6.5	SS-3	87				SAME AS SS-2					17	A-6b (VISUAL)
EASTING=1999575.8	7.5	9.0	SS-4	73				SAME AS SS-5					14	A-6b (VISUAL)
	10.0	11.5	SS-5	100	4	3	4	38	51	39	18	21	10	A-6b (12)
	12.5	14.0	SS-6	87				SAME AS SS-8					12	A-7-6 (VISUAL)
	15.0	16.5	SS-7	93				SAME AS SS-8					14	A-7-6 (VISUAL)
	17.5	19.0	SS-8	100	0	0	3	38	59	43	19	24	12	A-7-6 (14)
	20.0	21.5	SS-9	100				SAME AS SS-8					10	A-7-6 (VISUAL)
B-067-0-11	0.0	1.5	SS-1	67	6	14	14	35	31	38	22	16	15	A-6b (9)
STA. 348+94, 243' RT.	2.5	3.6	SS-2	91				SANDSTONE, SEVERELY WEATHERED					12	ROCK (VISUAL)
NORTHING=164659.5														
EASTING=2000376.8														
B-066-0-11	0.0	1.5	SS-1	67				SAME AS SS-2					16	A-7-6 (VISUAL)
STA. 349+26, 626' LT.	2.5	4.0	SS-2	73	0	8	16	32	44	45	21	24	20	A-7-6 (15)
NORTHING=165360.0	5.0	6.5	SS-3	87				SAME AS SS-2					12	A-7-6 (VISUAL)
EASTING=2000891.9	7.5	9.0	SS-4	87	0	20	18	45	17	29	20	9	9	A-4a (5)
	10.0	11.5	SS-5	73				SAME AS SS-4					18	A-4a (VISUAL)
	12.5	14.0	SS-6	87				SHALE, SEVERELYWEATHERED					13	ROCK (VISUAL)
	15.0	15.6	SS-7	100				SAME AS SS-6					23	ROCK (VISUAL)
B-070-0-11	0.0	1.5	SS-1	67	0	13	14	36	37	38	20	18	17	A-6b (11)
STA. 358+89, 287' LT.	2.5	4.0	SS-2	87				SAME AS SS-1					14	A-6b (VISUAL)
NORTHING=164616.6	5.0	6.5	SS-3	80	5	14	11	33	37	40	22	18	17	A-6b (10)
EASTING=2001497.8	7.5	9.0	SS-4	93				SAME AS SS-3					15	A-6b (VISUAL)
	10.0	10.8	SS-5	100				SHALE, SEVERELY WEATHERED					24	ROCK (VISUAL)
B-068-0-11	0.0	1.5	SS-1	100	0	7	12	53	28	27	17	10	18	A-4b (8)
STA. 359+03, 461' RT.	2.5	4.0	SS-2	100	11	16	13	41	19	33	20	13	13	A-6a (6)
NORTHING=163938.3	5.0	6.1	SS-3	91				SANDSTONE, SEVERELY WEATHERED					13	ROCK (VISUAL)
EASTING=2001183.6														
B-069-0-11	0.0	1.5	SS-1	80				SAME AS SS-2					16	A-6b (VISUAL)
STA. 359+62, 105' RT.	2.5	4.0	SS-2	100	1	12	20	34	33	35	19	16	21	A-6b (9)
NORTHING=164232.4	5.0	6.5	SS-3	53				SAME AS SS-2					22	A-6b (VISUAL)
EASTING=2001392.9	7.5	8.2	SS-4	100				SHALE, SEVERELY WEATHERED					13	ROCK (VISUAL)
	10.0	10.3	SS-5	100				SAME AS SS-4					6	ROCK (VISUAL)
R-255-0-99	18.5	20.0	SS-5	-	7	8	14	48	23	30	22	8	7	A-4a (7)
STA. 362+43, 40' LT.														
NORTHING=164239.7														
EASTING=2001621.2														

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

1048
1247

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SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-072-0-11	0.0	1.5	SS-1	100	9	22	18	32	19	32	22	10	21	A-4a (3)
STA. 371+03, 131' LT.	2.5	-4.0	SS-2	73				SAME AS SS-1					13	A-4a (VISUAL)
NORTHING=163976.8	5.0	6.5	SS-3	67				SAME AS SS-1					21	A-4a (VISUAL)
EASTING=2002531.1	7.5	9.0	SS-4	87	0	1	2	65	32	35	19	16	25	A-6b (10)
	10.0	11.5	SS-5	80				SAME AS SS-4					19	A-6b (VISUAL)
	12.5	14.0	SS-6	100	0	1	9	51	39	35	19	16	19	A-6b (10)
	15.0	16.5	SS-7	100				SAME AS SS-6					17	A-6b (VISUAL)
	17.5	19.5	ST-8	55	3	3	11	42	41	35	19	16	19	A-6b (10)
	20.0	21.5	SS-9	100				SAME AS ST-8					18	A-6b (VISUAL)
B-071-0-11	0.0	1.5	SS-1	33				SAME AS SS-3					14	A-6b (VISUAL)
STA. 371+07, 264' LT.	2.5	-4.0	SS-2	73				SAME AS SS-3					15	A-6b (VISUAL)
NORTHING=164096.1	5.0	6.5	SS-3	87	2	8	23	38	29	37	20	17	18	A-6b (9)
EASTING=2002589.8	7.5	9.0	SS-4	100				SAME AS SS-3					21	A-6b (VISUAL)
	10.0	11.5	SS-5	100				SAME AS SS-6					18	A-6b (VISUAL)
	12.5	14.0	SS-6	100	0	4	23	33	40	36	17	19	14	A-6b (11)
	15.0	16.5	SS-7	100				SAME AS SS-6					15	A-6b (VISUAL)
	17.5	19.0	SS-8	100				SAME AS SS-6					16	A-6b (VISUAL)
	20.0	21.5	SS-9	100				SAME AS SS-6					20	A-6b (VISUAL)
B-073-0-12	0.0	1.5	SS-1	100				SAME AS SS-2					21	A-4a (VISUAL)
STA. 374+00, 260' LT.	3.5	5.0	SS-2	100	0	2	36	36	26	23	13	10	24	A-4a (5)
NORTHING= 163972.1	6.0	7.5	SS-3	100				SAME AS SS-2					25	A-4a (VISUAL)
EASTING= 2002855.4	8.5	10.0	SS-4	100				SAME AS SS-2					24	A-4a (VISUAL)
	11.0	11.8	SS-5	100				SHALE, GRAY SEVERELY WEATHERED					10	ROCK (VISUAL)
	13.5	14.2	SS-6	100				SHALE, GRAY SEVERELY WEATHERED					10	ROCK (VISUAL)
R-119-0-99	13.5	15.0	SS-4	-	0	0	6	69	25	30	20	10	27	A-4b (8)
STA. 384+83, 43' RT.														
NORTHING=163346.9														
EASTING=2003677.3														
B-074-1-12	0.0	1.5	SS-1	100				SAME AS SS-3					11	A-6b (VISUAL)
STA. 387+00, CENTERLINE	3.5	5.0	SS-2	100				SAME AS SS-3					11	A-6b (VISUAL)
NORTHING= 163382.4	6.0	7.5	SS-3	100	23	10	14	36	17	30	16	14	16	A-6b (5)
EASTING= 2003987.8	8.5	10.0	SS-4	100				SAME AS SS-3					21	A-6b (VISUAL)
R-120-0-99	3.5	5.0	SS-2	-	0	2	7	41	50	46	21	25	17	A-7-6 (15)
STA. 388+25, 44' LT.														
NORTHING=163419.7														
EASTING=2004021.8														
B-075-1-12	0.0	1.5	SS-1	100				SAME AS SS-2					13	A-6b (VISUAL)
STA. 391+00, CENTERLINE	3.5	5.0	SS-2	100	19	10	12	28	31	36	15	21	14	A-6b (9)
NORTHING= 163409.7	6.0	7.5	SS-3	100				SAME AS SS-2					18	A-6b (VISUAL)
EASTING= 2004386.4	8.5	10.0	SS-4	100				SAME AS SS-2					14	A-6b (VISUAL)
R-121-0-99	1.0	2.5	SS-1	-	5	10	18	32	35	41	22	19	15	A-7-6 (10)
STA. 392+43, 44' RT.														
NORTHING=163385.9														
EASTING=2004446.8														
B-076-1-12	0.0	1.5	SS-1	100				SAME AS SS-2					14	A-6b (VISUAL)
STA. 395+00, CENTERLINE	4.0	5.5	SS-2	100	4	12	9	33	42	38	19	19	17	A-6b (12)
NORTHING= 163505.6	6.0	7.5	SS-3	100				SAME AS SS-2					14	A-6b (VISUAL)
EASTING= 2004774.2	8.0	9.5	SS-4	100	7	24	24	33	12	19	14	5	6	A-4a (2)

SUMMARY OF SOIL TEST DATA

STATE ROUTE 7 MAINLINE

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
R-122-0-99	6.0	7.5	SS-2	-	0	5	6	26	63	45	24	21	14	A-7-6 (13)
STA. 396+48, 45' LT.														
NORTHING=163591.5														
EASTING=2004807.5														
B-077-1-12	0.0	1.5	SS-1	100				SAME AS SS-2					14	A-6b (VISUAL)
STA. 399+00, CENTERLINE	4.0	5.5	SS-2	100	14	17	10	27	32	36	20	16	14	A-6b (7)
NORTHING= 163649.9	6.0	7.5	SS-3	100				SAME AS SS-2					16	A-6b (VISUAL)
EASTING= 2005147.3	8.0	9.5	SS-4	100				SAME AS SS-2					16	A-6b (VISUAL)
R-123-0-99	3.5	5.0	SS-2	-	34	34	22	10		-	-	-	-	A-1-b (0)
STA. 400+41, 58' RT.														
NORTHING=163640.6														
EASTING=2005210.5														
B-078-1-12	0.0	1.5	SS-1	100				SAME AS SS-2					12	A-6a (VISUAL)
STA. 403+00, CENTERLINE	4.0	5.5	SS-2	100	18	9	14	32	27	34	20	14	15	A-6a (6)
NORTHING= 163797.7	6.0	7.5	SS-3	100				SAME AS SS-2					19	A-6a (VISUAL)
EASTING= 2005519.0	8.0	9.5	SS-4	100				SAME AS SS-2					13	A-6a (VISUAL)
R-124-0-99	6.0	7.5	SS-2	-	12	10	7	26	45	45	20	25	15	A-7-6 (14)
STA. 404+38, 48' LT.														
NORTHING=163885.0														
EASTING=2005540.9														
S-103-0-99	8.5	10.0	SS-2	-	3	3	3	32	59	43	25	18	14	A-7-6 (12)
STA. 404+76, 194' LT.														
NORTHING=164035.2														
EASTING=2005524.9														
B-079-1-12	0.0	1.5	SS-1	100				SAME AS SS-3					15	A-6b (VISUAL)
STA. 407+00, CENTERLINE	4.0	4.2	SS-2	100				SAME AS SS-3, COBBLE AT 4.2'					8	A-6b (VISUAL)
NORTHING= 163939.2	6.0	7.5	SS-3	100	12	14	9	26	39	40	18	22	14	A-6b (11)
EASTING= 2005893.1	8.0	9.5	SS-4	100				SAME AS SS-3					12	A-6b (VISUAL)
R-125-0-99	6.0	7.5	SS-2	-	5	23	13	32	27	35	18	17	11	A-6b (8)
STA. 408+52, 7' LT.														
NORTHING=163991.5														
EASTING=2005944.2														

LABORATORY TESTING DATA NOT AVAILABLE FOR THE FOLLOWING BORINGS: R-208-0-99, S-201-0-99, R-213-0-99, R-214-0-99, R-215-0-99, R-216-0-99, R-219-0-99, R-222-0-99, R-224-0-99, R-225-0-99, R-228-0-99, R-234-0-99, R-235-0-99, R-236-0-99, R-239-0-99, R-242-0-99, R-243-0-99, R-245-0-99, R-247-0-99, R-248-0-99, R-249-0-99, R-252-0-99, R-253-0-99, R-254-0-99, R-256-0-99, R-257-0-99, S-202-0-99, S-203-0-99, S-204-0-99, S-205-0-99, S-206-0-99, S-207-0-99, S-3P1-0-99, S-208-0-99, S-212-0-99, S-210-0-99, S-209-0-99, R-230-0-99, R-231-0-99, S-4P2-0-99, S-214-0-99, S-215-0-99, S-216-0-99, S-701-0-99

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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SUMMARY OF SOIL TEST DATA
State Route 7, Ramp C

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-075-0-12	0.0	1.5	SS-1	100				SAME AS SS-3					17	A-6b (VISUAL)
STA. 120+00, CENTERLINE	4.0	5.5	SS-2	100				SAME AS SS-3					15	A-6b (VISUAL)
NORTHING= 158900.7	6.0	7.5	SS-3	100	5	8	10	38	39	35	18	17	16	A-6b (11)
EASTING= 1980610.6	8.0	9.5	SS-4	100				SAME AS SS-3					12	A-6b (VISUAL)
B-076-0-12	0.0	1.5	SS-1	100				SAME AS SS-2					26	A-6b (VISUAL)
STA. 123+50, CENTERLINE	4.0	5.5	SS-2	100	5	5	12	44	34	36	20	16	20	A-6b (10)
NORTHING= 159115.5	6.5	8.0	SS-3	100				SAME AS SS-2					28	A-6b (VISUAL)
EASTING= 1980883.8	9.0	11.0	ST-4	79	0	0	11	48	41	34	19	15	-	A-6a (10)
	11.5	13.0	SS-5	100				SAME AS ST-4					27	A-6a (VISUAL)
	14.0	15.5	SS-6	100				SAME AS ST-4					39	A-6a (VISUAL)
	17.0	18.5	SS-7	100				SAME AS SS-8					24	A-4a (VISUAL)
	19.0	20.5	SS-8	100	13	23	28	22	14	22	15	7	18	A-4a (0)
	21.5	23.0	SS-9	100				SAME AS SS-8					18	A-4a (VISUAL)
	24.0	25.5	SS-10	100				SAME AS SS-8					16	A-4a (VISUAL)
	26.5	28.0	SS-11	100				SAME AS SS-8					24	A-4a (VISUAL)
	29.0	30.5	SS-12	100				SAME AS SS-8					21	A-4a (VISUAL)
B-077-0-12	0.0	1.5	SS-1	100				SILTY CLAY WITH SAND, BROWN, MOIST					24	A-6b (VISUAL)
STA. 123+50, 80' LT.	4.0	5.5	SS-2	100				SAME AS SS-1					15	A-6b (VISUAL)
NORTHING= 159167.9	6.5	8.0	SS-3	100	4	9	12	52	23	32	19	13	10	A-6a (9)
EASTING= 1980823.3	9.0	10.5	SS-4	100				SAME AS SS-3					13	A-6a (VISUAL)
	11.5	13.0	SS-5	100				SAME AS SS-3					13	A-6a (VISUAL)
	14.0	15.5	SS-6	100				SAME AS SS-3					15	A-6a (VISUAL)
	16.5	18.0	SS-7	100	28	20	18	21	13	25	16	9	14	A-2-4 (0)
	19.0	20.5	SS-8	100				SAME AS SS-9					15	A-3a (VISUAL)
	21.5	23.0	SS-9	100	0	36	48	10	6	NP	NP	NP	22	A-3a (0)
	24.0	25.5	SS-10	100				SAME AS SS-9					22	A-3a (VISUAL)
	26.5	28.0	SS-11	100				SAME AS SS-9					20	A-3a (VISUAL)
	29.0	30.5	SS-12	100				SAME AS SS-9					14	A-3a (VISUAL)
	31.5	33.0	SS-13	100	38	21	23	13	5	NP	NP	NP	14	A-1-b (0)
	34.0	35.1	SS-14	100				SHALE, GRAY, SEVERELY WEATHERED					13	ROCK (VISUAL)

SUMMARY OF SOIL TEST DATA
State Route 7, Ramp D Access Road

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-078-0-12	0.0	1.5	SS-1	100	1	1	5	70	23	26	22	4	20	A-4b (8)
STA. 120+17, 0.1' RT.	4.5	6.0	SS-2	100				SAME AS SS-1					29	A-4b (VISUAL)
NORTHING= 157909.0	6.5	8.0	SS-3	100				SAME AS SS-1					26	A-4b (VISUAL)
EASTING= 1981095.2	8.5	10.0	SS-4	100				SAME AS SS-1					25	A-4b (VISUAL)

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-079-0-12	0.0	1.5	SS-1	100				SAME AS SS-3					28	A-4b (VISUAL)
STA. 117+71, 4.7' LT.	3.0	4.5	SS-2	100				SAME AS SS-3					29	A-4b (VISUAL)
NORTHING= 158103.4	5.5	7.0	SS-3	100	0	0	8	62	30	27	18	9	21	A-4b (8)
EASTING= 1980944.3	8.0	9.5	SS-4	100				SAME AS SS-3					27	A-4b (VISUAL)
	10.5	12.0	SS-5	100				SAME AS SS-3					27	A-4b (VISUAL)
	16.0	14.5	SS-6	100				SAME AS SS-3					28	A-4b (VISUAL)
	15.5	17.0	SS-7	100	4	7	15	43	31	29	16	13	16	A-6a (9)
	18.0	19.5	SS-8	100				SAME AS SS-7					18	A-6a (VISUAL)
	20.5	22.0	SS-9	100				SAME AS SS-7					17	A-6a (VISUAL)
	23.0	24.5	SS-10	100				SAME AS SS-7					18	A-6a (VISUAL)

SUMMARY OF SOIL TEST DATA
State Route 7, Ramp D Access Road (Continued)

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
R-201-0-99	3.0	4.5	SS-1	-	0	0	1	70	29	33	25	8	28	A-4a (8)
STA. 117+12, 4.0' RT.														
NORTHING= 158129.5														
EASTING= 1980806.1														
B-080-0-12	0.0	1.5	SS-1	100	3	3	8	45	41	40	21	19	15	A-6b (12)
STA. 115+58, 225.8' LT.	4.0	4.9	SS-2	100			SAME AS SS-3, COBBLE AT 4.9'						9	A-6a (VISUAL)
NORTHING= 158426.4	6.0	7.5	SS-3	100	5	7	13	41	34	34	20	14	9	A-6a (10)
EASTING= 1980839.5	8.0	8.5	SS-4	100			SAME AS SS-3, COBBLE AT 8.5						7	A-6a (VISUAL)

SUMMARY OF SOIL TEST DATA
State Route 7, Ramp I

B-073-1-20	0.0-1.5	SS-1	93	3	5	10	42	40	44	24	20		24 A-7-6 (13)
STA. 376+06, 113' RT.	2.5-4.0	SS-2	87				SAME AS SS-1						24 A-7-6 (VISUAL)
NORTHING=163435.2	5.0-5.5	SS-3	100				SANDSTONE, BROWN TO GRAY, SEVERELY WEATHERED						4 Rock (VISUAL)
EASTING=2002803.2	7.5-8.1	SS-4	100				SAME AS SS-3						5 Rock (VISUAL)
	10.0-10.5	SS-5	100				SAME AS SS-3						4 Rock (VISUAL)
B-073-2-20	2.5-4.0	SS-1	47	75	9	7	6	3 NP	NP	NP			1 A-1-a (0)
STA. 379+17, 144' RT.	5.0-6.5	SS-2	72				SAME AS SS-1						1 A-1-a (VISUAL)
NORTHING=163235.0	7.5-9.0	SS-3	53				SAME AS SS-1						1 A-1-a (VISUAL)
EASTING=2003027.0	10.0-11.5	SS-4	67	1	3	11	48	37	42	24	18		26 A-7-6 (12)
	12.5-14.5	ST-1	100	2	4	22	43	29	36	20	16		24 A-6b (10)
	14.5-16.5	ST-2	100	1	4	14	49	32	38	21	17		22 A-6b (11)
	16.5-18.0	SS-5	53				SAME AS ST-2						22 A-6b (VISUAL)
	20.0-22.0	ST-3	100	12	4	17	41	26	34	20	14		19 A-6a (8)
	22.5-24.0	SS-6	100	17	35	23	14	11	31	17	14		21 A-2-6 (0)
	25.0-26.5	SS-7	100	12	23	37	19	9	21	15	6		21 A-3a (0)
	27.5-29.0	SS-8	72	27	20	22	24	7	24	19	5		18 A-2-4 (0)
	30.0-31.5	SS-9	87	11	16	21	41	11	25	19	6		17 A-4a (3)
	32.5-34.0	SS-10	87	2	3	18	62	15 NP	NP	NP			19 A-4b (8)
	35.0-37.0	ST-4	100	0	0	9	74	17	25	21	4		23 A-4b (8)

SUMMARY OF SOIL TEST DATA
State Route 7, Ramp J

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-100-0-12	3.5	5.0	SS-1	100	0	1	2	66	31	29	22	7	25	A-4b (8)
STA. 384+50, CENTERLINE	6.0	7.5	SS-2	100				SAME AS SS-1					22	A-4b (VISUAL)
NORTHING= 163468.2	8.5	8.8	SS-3	100				SAME AS SS-1					26	A-4b (VISUAL)
EASTING= 2003749.0														
B-101-0-12	0.0	1.5	SS-1	100	43	12	10	20	15	32	22	10	10	A-2-4 (0)
STA. 386+50, CENTERLINE	3.5	5.0	SS-2	100	43	12	10	20	15	32	22	10	23	A-2-4 (0)
NORTHING= 163456.2	6.0	7.5	SS-3	100				SAME AS SS-1					23	A-2-4 (VISUAL)
EASTING= 2003948.3	8.5	10.0	SS-4	100				SAME AS SS-1					19	A-2-4 (VISUAL)
B-102-0-12	0.0	0.9	SS-1	100	8	21	6	40	25	37	23	14	6	A-6a (8)
STA. 389+50, 20' LT.	3.5	3.9	SS-2	100	8	21	6	40	25	37	23	14	6	A-6a (8)
NORTHING= 163644.0														
EASTING= 2004117.9														

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

1050
1247

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SUMMARY OF SOIL TEST DATA
State Route 7, Ramp K

B-097-1-20	0.0-1.5	SS-1	33	1	1	4	42	52	50	25	25	20 A-7-6 (16)
STA. 386+46, 23' RT.	2.5-2.9	SS-2	100	SANDSTONE, BLUISH GRAY, HIGHLY WEATHERED							-	Rock (VISUAL)
NORTHING=163897.8	5.0-5.4	SS-3	80	SAME AS SS-2								7 Rock (VISUAL)
EASTING=2003924.3												
B-098-1-20	0.0-1.5	SS-1	61	SAME AS SS-3								7 A-4a (VISUAL)
STA. 386+46, 15' RT.	2.5-4.0	SS-2	67	SAME AS SS-3								6 A-4a (VISUAL)
NORTHING=163811.6	5.0-6.5	SS-3	67	8	10	20	47	15	32	22	10	5 A-4a (5)
EASTING=2004125.9	7.5-8.3	SS-4	100	CLAYSTONE, RED, SEVERLY WEATHERED							-	Rock (VISUAL)
	10.0-10.8	SS-5	70	SAME AS SS-4								5 Rock (VISUAL)
B-106-1-20	0.0-1.7	ST-1	60	14	12	13	28	33	40	20	20	12 A-6b (9)
STA. 392+31, 21' RT.	2.5-4.0	SS-1	94	33	13	14	24	16	34	21	13	8 A-6a (2)
NORTHING=163643.8	5.0-6.5	SS-2	44	SAME AS SS-2								12 A-6a (VISUAL)
EASTING=2004456.0	7.5-9.0	SS-3	100	9	9	8	32	42	45	21	24	16 A-7-6 (14)
	10.0-11.5	SS-4	78	SAME AS SS-3								13 A-7-6 (VISUAL)
	12.5-13.3	SS-5	100	SANDSTONE, TAN, SEVERLY WEATHERED								13 Rock (VISUAL)
	15.0-15.3	SS-6	100	SAME AS SS-5								10 Rock (VISUAL)
	17.5-17.9	SS-7	100	SAME AS SS-5								5 Rock (VISUAL)
	20.0-20.4	SS-8	100	SAME AS SS-5								5 Rock (VISUAL)
	22.5-22.9	SS-9	80	SAME AS SS-5							-	Rock (VISUAL)
B-106-2-20	0.0-1.5	SS-1	78	SAME AS B-106-3-20 ST-1								13 A-6b (VISUAL)
STA. 392+10, 170' LT.	5.0-5.4	SS-2	100	SANDSTONE, TAN TO GRAY, SEVERLY WEATHERED								5 Rock (VISUAL)
NORTHING=163834.1												
EASTING=2004479.0												
B-106-3-20	0.0-2.0	ST-1	100	1	4	8	60	27	35	18	17	14 A-6b (11)
STA. 392+10, 170' LT.	2.5-4.5	ST-2	46	SAME AS ST-1							-	A-6b (VISUAL)
NORTHING=163834.1												
EASTING=2004479.0												

SUMMARY OF SOIL TEST DATA
State Route 7, Ramp L

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-103-0-12	1.5 - 3.0	SS-1	100	15	12	9	32	32	36	21	15	17	A-6a (8)
STA. 380+65, CENTERLINE	3.0 - 4.5	SS-2	100	15	12	9	32	32	36	21	15	17	A-6a (8)
NORTHING= 163204.6	6.0 - 7.5	SS-3	100				SAME AS SS-1					16	A-6a (VISUAL)
EASTING= 2003385.5	8.5 - 10.0	SS-4	100				SAME AS SS-1					12	A-6a (VISUAL)
	11.0 - 12.5	SS-5	100				SAME AS SS-1					17	A-6a (VISUAL)
	13.5 - 15.0	SS-6	100				SAME AS SS-1					16	A-6a (VISUAL)
	16.0 - 17.5	SS-7	100				SAME AS SS-8					12	A-6a (VISUAL)
	18.5 - 20.0	SS-8	100	26	17	10	25	22	34	21	13	14	A-6a (3)
R-110-0-99	8.5 - 10.0	SS-3	-	0	0	3	73	24	27	21	8	24	A-4b (8)
STA. 383+24, 79' RT.	33.5 - 34.3	SS-8	-	15	55	26	4		-	-	-	-	A-1-b (0)
NORTHING=163095.1													
EASTING=2003558.7													
R-118-0-99	8.5 - 10.0	SS-3	-	0	1	2	64	33	38	22	16	25	A-6b (10)
STA. 386+74, 68' RT.													
NORTHING=163173.0													
EASTING=2003911.3													

SUMMARY OF SOIL TEST DATA
State Route 7, RAMP K

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-097-0-12	0.0 - 1.5	SS-1	100	SILT AND CLAY, HARD, GRAY								13	A-6a (VISUAL)
STA. 385+00, CENTERLINE	4.5 - 6.0	SS-2	100	4	1	60	25	10	NP	NP	NP	18	A-3a (0)
NORTHING= 163979.4	6.5 - 8.0	SS-3	100				SAME AS SS-2					20	A-3a (VISUAL)
EASTING= 2003835.0	8.5 - 10.0	SS-4	100	4	11	13	42	30	31	18	13	16	A-6a (9)
B-098-0-12	0.0 - 1.5	SS-1	100				SAME AS SS-4					22	A-6b (VISUAL)
STA. 388+0, 40' LT.	3.5 - 5.0	SS-2	100				SAME AS SS-4					-	A-6b (VISUAL)
NORTHING= 163847.8	6.0 - 7.5	SS-3	100				SAME AS SS-4					16	A-6b (VISUAL)
EASTING= 2004107.6	8.5 - 10.0	SS-4	100	0	5	6	49	40	35	19	16	8	A-6b (10)
	11.0 - 11.4	SS-5	100	SANDSTONE, GRAY, HIGHLY WEATHERED								5	ROCK (VISUAL)
B-098-1-12	0.0 - 1.5	SS-1	100	2	5	7	53	33	33	20	13	12	A-6a (9)
STA. 388+00, 300' LT.	4.0 - 4.6	SS-2	100				SAME AS SS-1					8	A-6a (VISUAL)
NORTHING= 164065.0													
EASTING= 2004250.6													

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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SUMMARY OF SOIL TEST DATA
State Route 7, Ramp L (Continued)

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-104-0-12	0.0 - 1.5	SS-1	100	36	9	10	19	26	36	18	18	22	A-6b (4)
STA. 389+12, 11' RT.	4.0 - 5.5	SS-2	100				SAME AS SS-1					19	A-6b (VISUAL)
NORTHING= 163286.9	6.5 - 8.0	SS-3	100				SAME AS SS-4					25	A-7-6 (VISUAL)
EASTING=2004220.7	9.0 - 10.5	SS-4	100	0	3	4	40	53	48	26	22	25	A-7-6 (14)

SUMMARY OF SOIL TEST DATA
Lynn Lane

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-013-0-11	0.0 - 1.5	SS-1	93				SAME AS SS-1					23	A-6b (VISUAL)
STA.10+90, 41' LT.	2.5 -4.0	SS-2	100	0	0	1	35	64	39	21	18	23	A-6b (11)
NORTHING=163776.5	5.0 - 6.5	SS-3	100				SAME AS SS-1					26	A-6b (VISUAL)
EASTING=1987386.3	7.5 - 9.0	SS-4	100	1	1	4	35	59	38	21	17	21	A-6b (11)
	10.0 - 11.5	SS-5	100				SAME AS SS-4					24	A-6b (VISUAL)
B-014-0-11	2.5 -4.0	SS-1	100	0	0	0	36	64	41	20	21	22	A-7-6 (13)
STA. 13+93, 3' RT.	5.0 - 6.5	SS-2	100				SAME AS SS-1					24	A-7-6 (VISUAL)
NORTHING=163931.9	7.5 - 9.0	SS-3	100	0	1	1	49	49	34	20	14	26	A-6a (10)
EASTING=1987663.2	10.0 - 11.5	SS-4	87				SAME AS SS-3					22	A-6a (VISUAL)

SUMMARY OF SOIL TEST DATA
State Route 243

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-083-1-12	0.0 - 1.1	SS-1	100	35	15	18	19	13	25	18	7	6	A-2-4 (0)
STA. 13+00, 300' LT.	2.5 - 2.7	SS-2	100				COMBINED WITH SS-1					6	A-2-4 (0)
NORTHING= 166070.3	5.0 - 5.5	SS-3	100				COMBINED WITH SS-1					7	A-2-4 (0)
EASTING= 1990907.7													
B-025-0-11	2.5 -4.0	SS-1	100	28	21	24	13	14	27	16	11	13	A-2-6 (0)
STA. 17+03, 46' RT.	5.0 - 6.0	SS-2	50				SAME AS SS-1					12	A-2-6 (VISUAL)
NORTHING=166580.9	7.5 - 9.0	SS-3	100				SAME AS SS-1					10	A-2-6 (VISUAL)
EASTING=1991026.9	10.0 - 11.5	SS-4	100	0	1	3	38	58	48	22	26	24	A-7-6 (16)
B-084-0-12	1.5 - 3.0	SS-1	100				SAME AS SS-2					16	A-4a (VISUAL)
STA. 18+00, CENTERLINE	3.5 - 5.0	SS-2	100	0	11	47	19	23	25	17	8	16	A-4a (1)
NORTHING= 166639.7	6.0 - 7.5	SS-3	100	0	10	42	22	26	23	14	9	17	A-4a (3)
EASTING= 1990936.3	8.5 - 10.0	SS-4	100				SAME AS SS-3					17	A-4a (VISUAL)

SUMMARY OF SOIL TEST DATA
County Road 69

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-085-0-12	0.0 - 1.5	SS-1	100				SAME AS SS-2					24	A-4a (VISUAL)
NORTHING= 166377.5	5.0 - 6.5	SS-3	100				SAME AS SS-2					19	A-4a (VISUAL)
EASTING= 1991124.7	7.5 - 9.0	SS-4	100	6	21	25	19	29	31	20	11	24	A-6a (3)
	10.0 - 10.7	SS-5	100				SHALE, GRAY SEVERELY WEATHERED					11	ROCK (VISUAL)

SUMMARY OF SOIL TEST DATA
County Road 69 (Continued)

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-024-0-11	0.0 - 1.5	SS-1	67	6	11	15	33	35	38	20	18	12	A-6b (10)
STA. 10+95, 7' LT.	2.5 -4.0	SS-2	100				SAME AS SS-1					12	A-6b (VISUAL)
NORTHING=166250.3	5.0 - 6.5	SS-3	100				SAME AS SS-5					7	A-6b (VISUAL)
EASTING=1991259.8	7.5 - 8.5	SS-4	100				SAME AS SS-5					6	A-6b (VISUAL)
	10.0 - 11.5	SS-5	100	0	5	11	48	36	40	21	19	11	A-6b (12)
	12.5 - 14.0	SS-6	100				SHALE, SEVERELY WEATHERED					8	ROCK (VISUAL)
B-027-0-11	0.0 - 1.5	SS-1	80				SAME AS SS-2					14	A-6b (VISUAL)
STA. 13+87, 12' LT	2.5 -4.0	SS-2	87	10	18	22	23	27	36	18	18	14	A-6b (6)
NORTHING=166381.8	5.0 - 6.5	SS-3	100	1	2	4	42	51	35	17	18	11	A-6b (11)
EASTING=1991520.1	7.5 - 9.0	SS-4	93				SAME AS SS-4					11	A-6b (VISUAL)
	10.0 - 10.8	SS-5	100				SANDSTONE, TAN, SEVERELY WEATHERED					11	ROCK (VISUAL)
B-086-0-12	0.0 - 1.5	SS-1	100				SAME AS SS-2					14	A-6a (VISUAL)
STA. 15+00, 30' LT.	2.5 - 4.0	SS-2	100	18	25	10	30	17	33	22	11	12	A-6a (3)
NORTHING= 166480.1	5.0 - 6.5	SS-3	100				SAME AS SS-2					12	A-6a (VISUAL)
EASTING= 1991613.5	7.5 - 8.8	SS-4	100	5	3	7	47	38	33	20	13	12	A-6a (9)
B-086-1-12	0.0 - 1.5	SS-1	100				SAME AS SS-2					24	A-6b (VISUAL)
STA. 15+00, 260' LT.	2.5 - 4.0	SS-2	100	6	10	10	37	37	38	19	19	18	A-6b (11)
NORTHING= 166707.3	5.0 - 6.5	SS-3	100	6	10	10	37	37	38	19	19	12	A-6b (11)
EASTING= 1991577.7	7.5 - 9.0	SS-4	100				SAME AS SS-5					13	A-7-6 (VISUAL)
	10.0 - 11.5	SS-5	100	8	2	3	34	53	42	19	23	13	A-7-6 (14)
	12.5 - 13.4	SS-6	100				SAME AS SS-5					10	A-7-6 (VISUAL)
B-028-0-11	0.0 - 1.5	SS-1	67	14	12	9	31	34	39	20	19	11	A-6b (10)
STA. 18+53, 7' RT.	2.5 -4.0	SS-2	73				COMBINED WITH SS-1					14	A-6b (10)
NORTHING=166533.7	5.0 - 6.5	SS-3	33				SAME AS SS-5					21	A-6a (VISUAL)
EASTING=1991961.0	7.5 - 9.0	SS-4	67				SAME AS SS-5					18	A-6a (VISUAL)
	10.0 - 11.5	SS-5	100	8	2	18	44	28	29	18	11	11	A-6a (8)
B-030-0-11	0.0 - 1.5	SS-1	80	13	19	9	29	30	35	22	13	12	A-6a (6)
STA. 22+85, 9' LT.	2.5 -4.0	SS-2	100	5	6	12	38	39	38	20	18	11	A-6b (11)
NORTHING=166649.0	5.0 - 6.5	SS-3	100	8	3	9	44	36	33	18	15	11	A-6a (10)
EASTING=1992376.2	7.5 - 9.0	SS-4	100				SAME AS SS-3					10	A-6a (VISUAL)
	10.0 - 11.5	SS-5	100				SHALE,SEVERELY WEATHERED					4	ROCK (VISUAL)
B-087-0-12	0.0 - 1.5	SS-1	100	38	21	10	19	12	33	21	12	10	A-2-6 (0)
STA. 24+00, 120' LT.	4.5 - 5.2	SS-2	100				SAME AS SS-1					7	A-2-6 (VISUAL)
NORTHING= 166776.6													
EASTING= 1992476.9													
B-087-1-12	0.0 - 1.5	SS-1	100				SAME AS SS-2					35	A-6b (VISUAL)
STA. 24+00, 350' LT.	4.5 - 6.0	SS-2	100	19	4	3	32	42	39	21	18	14	A-6b (11)
NORTHING= 167004.5	7.0 - 8.5	SS-3	100				SAME AS SS-4					13	A-6b (VISUAL)
EASTING= 1992446.4	9.5 - 11.0	SS-4	100	0	0	3	45	52	40	22	18	12	A-6b (11)
	12.0 - 13.3	SS-5	100				SAME AS SS-4					10	A-6b (VISUAL)
	14.5 - 15.7	SS-6	100				MUDSTONE, RED & GRAY, MOD. WEATHERED, WEAK					9	ROCK (VISUAL)
	17.0 - 18.4	SS-7	100				SAME AS SS-6					9	ROCK (VISUAL)
	19.5 - 20.3	SS-8	100				SAME AS SS-6					10	ROCK (VISUAL)
	21.5 - 22.2	SS-9	100				SAME AS SS-6					9	ROCK (VISUAL)

DRAWN MSJ | CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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1247

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SUMMARY OF SOIL TEST DATA
County Road 69 (Continued)

STA. 31+67, 5' RT.	6.5 - 8.5	ST-2	100	2	3	8	44	43	36	21	15	13	A-6a (10)
NORTHING= 166657.3	8.5 - 9.5	ST-3	100	18	5	10	38	29	31	17	14	12	A-6a (8)
EASTING= 1993168.5													

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-088-0-12	0.0 - 1.5	SS-1	100				SAME AS SS-2					17	A-6b (VISUAL)
STA. 33+50, 120' LT.	5.0 - 6.5	SS-2	100	6	3	5	46	40	39	19	20	16	A-6b (12)
NORTHING= 166766.0	7.5 - 9.0	SS-3	100				SAME AS SS-2					12	A-6b (VISUAL)
EASTING= 1993455.7	10.0 - 11.5	SS-4	100				SAME AS SS-5					10	A-6b (VISUAL)
	12.5 - 14.0	SS-5	100	0	3	8	44	45	38	20	18	8	A-6b (11)
B-042-0-11	0.0 - 1.5	SS-1	80	0	1	3	35	61	52	26	26	19	A-7-6 (17)
STA. 39+30, 5' LT.	2.5 - 3.6	SS-2	91				SHALE, TAN, SEVERELY WEATHERED					11	ROCK (VISUAL)
NORTHING=166574.4													
EASTING=1994014.6													
B-089-0-12	0.0 - 1.5	SS-1	100				SAME AS SS-2					23	A-7-6 (VISUAL)
STA. 46+50, 110' LT.	2.5 - 4.0	SS-2	100	1	2	6	50	41	41	19	22	17	A-7-6 (13)
NORTHING= 166611.1	4.5 - 6.0	SS-3	100				SAME AS SS-2					13	A-7-6 (VISUAL)
EASTING= 1994738.0	7.5 - 9.0	SS-4	100				SAME AS SS-5					10	A-7-6 (VISUAL)
	9.5 - 11.0	SS-5	100	6	1	3	43	47	42	19	23	11	A-7-6 (14)
	12.5 - 13.9	SS-6	100				SHALE, RED, SEVERELY WEATHERED					12	ROCK (VISUAL)
B-045-0-11	0.0 - 1.5	SS-1	53				SAME AS SS-2					27	A-6b (VISUAL)
STA. 46+85, 8' LT.	2.5 -4.0	SS-2	100	8	4	5	38	45	38	18	20	12	A-6b (12)
NORTHING=166506.9	5.0 - 6.5	SS-3	73				SAME AS SS-2					19	A-6b (VISUAL)
EASTING=1994766.2	7.5 - 9.0	SS-4	100	2	1	3	46	48	39	20	19	8	A-6b (12)
	10.0 - 11.5	SS-5	67				SAME AS SS-4					8	A-6b (VISUAL)
B-046-0-11	0.0 - 1.5	SS-1	80				AGGREGATE BASE MATERIAL					8	A-1-b (VISUAL)
STA. 51+18, 7' RT.	2.5 -4.0	SS-2	80	18	8	8	32	34	39	23	16	25	A-6b (9)
NORTHING=166467.8	5.0 - 6.5	SS-3	100				SAME AS SS-2					25	A-6b (VISUAL)
EASTING=1995198.2	7.5 - 9.0	SS-4	100	3	1	1	33	62	38	21	17	28	A-6b (11)
	10.0 - 11.5	SS-5	100				SAME AS SS-4					27	A-6b (VISUAL)
B-049-0-11	0.0 - 1.5	SS-1	100				SAME AS SS-2					26	A-7-6 (VISUAL)
STA. 54+86, 4' RT.	2.5 -4.0	SS-2	100	4	11	8	38	39	43	18	25	19	A-7-6 (15)
NORTHING=166450.4	5.0 - 6.5	SS-3	100				SAME AS SS-2					22	A-7-6 (VISUAL)
EASTING=1995565.5	7.5 - 9.0	SS-4	100	0	4	5	40	51	42	23	19	26	A-7-6 (12)
	10.0 - 11.5	SS-5	100				SAME AS SS-4					27	A-7-6 (VISUAL)

LABORATORY TESTING DATA NOT AVAILABLE FOR THE FOLLOWING BORINGS: S-213-0-99, R-237-0-99, R-238-0-99, R-240-0-99

SUMMARY OF SOIL TEST DATA
County Road 118

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-090-0-12	0.0 - 1.5	SS-1	100	4	14	16	40	26	34	21	13	26	A-6a (7)
STA. 11+00, CENTERLINE													
NORTHING= 166775.9													
EASTING= 1992826.5													
B-031-0-11	0.0 - 1.5	SS-1	40				SAME AS SS-2					20	A-6a (VISUAL)
STA. 14+42, 9' RT.	5.0 - 5.6	SS-3	100				SAME AS SS-2					8	A-6b (VISUAL)
NORTHING=167040.7													
EASTING=1993491.0													

LABORATORY TESTING DATA NOT AVAILABLE FOR THE FOLLOWING BORING: S-214-0-99

SUMMARY OF SOIL TEST DATA
State Route 775

EXPLORATION NO., STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-092-0-12	1.0 - 2.5	SS-1	100	35	13	9	20	23	34	18	16	18	A-6b (3)
STA. 46+00, CENTERLINE	4.5 - 6.0	SS-2	100				SAME AS SS-1					16	A-6b (VISUAL)
NORTHING= 162560.5	6.5 - 8.0	SS-3	100				SAME AS SS-1					18	A-6b (VISUAL)
EASTING= 2002840.3	8.5 - 10.0	SS-4	100				SAME AS SS-1					10	A-6b (VISUAL)
R-108-0-99	13.5 - 15.0	SS-4	-	5	22	12	37	24	33	21	12	19	A-6a (6)
STA. 47+72, 17' RT.	28.5 - 30.0	SS-7	-	0	37	58	5		-	-	-	-	A-3 (0)
NORTHING=162687.1													
EASTING=2002861.7													
B-093-0-12	1.0 - 2.5	SS-1	100				SAME AS SS-2					12	A-6b (VISUAL)
STA. 50+00, CENTERLINE	4.5 - 6.0	SS-2	100	23	11	9	27	30	37	21	16	11	A-6b (7)
NORTHING= 162894.6	6.5 - 8.0	SS-3	100				SAME AS SS-2					16	A-6b (VISUAL)
EASTING= 2003060.3	8.5 - 10.0	SS-4	100				SAME AS SS-2					14	A-6b (VISUAL)
R-109-0-99	3.5 - 5.0	SS-2	-	1	1	25	52	21	32	23	9	28	A-4b (8)
STA. 51+82, 13' RT.													
NORTHING=163032.0													
EASTING=2003082.4													
B-094-0-12	1.5 - 3.0	SS-1	100				SAME AS SS-2					10	A-6a (VISUAL)
STA. 53+91, 19' RT.	3.0 - 4.5	SS-2	100	20	23	11	25	21	34	20	14	10	A-6a (3)
NORTHING= 163210.8	6.0 - 7.5	SS-3	100	20	23	11	25	21	34	20	14	8	A-6a (3)
EASTING=2003291.2	8.5 - 10.0	SS-4	100				SAME AS SS-2					12	A-6a (VISUAL)
	11.0 - 12.5	SS-5	100				SAME AS SS-2					11	A-6a (VISUAL)
	13.5 - 15.0	SS-6	100				SAME AS SS-2					11	A-6a (VISUAL)
	16.0 - 17.5	SS-7	100				SAME AS SS-10					11	A-6a (VISUAL)
	18.5 - 20.0	SS-8	100				SAME AS SS-10					14	A-6a (VISUAL)
	21.0 - 21.3	SS-9	100				SAME AS SS-10					13	A-6a (VISUAL)
	23.5 - 25.0	SS-10	100	10	8	13	36	33	33	19	14	12	A-6a (8)
	26.0 - 27.5	SS-11	100	10	8	13	36	33	33	19	14	8	A-6a (8)
	28.5 - 30.0	SS-12	100				SAME AS SS-10					11	A-6a (VISUAL)
	31.0 - 32.5	SS-13	100				SAME AS SS-10					10	A-6a (VISUAL)
R-117-0-99	3.5 - 5.0	SS-1	-	0	1	37	45	17	-	-	-	16	EST. A-6a
STA. 60+44, 5' RT.	8.6 - 9.8	SS-3	-	0	1	6	75	18	33		8	28	A-4b (8)
NORTHING=163756.8	23.5 - 25.0	SS-6	-	0	0	6	70	24	26		7	21	A-4a (8)
EASTING=2003549.9													
R-116-0-99	3.0 - 4.5	SS-1	-	10	4	30	35	21	24		10	12	A-4a (4)
STA. 64+58, 1.4' LT.	8.5 - 10.0	SS-3	-	0	0	58	42		-	-	-	-	EST. A-4a
NORTHING=164104.1													
EASTING=2003773.9													
B-095-0-12	0.0 - 1.5	SS-1	100				SAME AS SS-3					28	A-6b (VISUAL)
STA. 67+00, 110' RT.	3.5 - 5.0	SS-2	100				SAME AS SS-3					13	A-6b (VISUAL)
NORTHING= 164252.7	6.0 - 7.5	SS-3	100	6	4	3	39	48	39	22	17	13	A-6b (11)
EASTING= 2004086.6	8.5 - 10.0	SS-4	100				SAME AS SS-3					11	A-6b (VISUAL)
	11.0 - 11.9	SS-5	100				SHALE, BROWN, SEVERELY WEATHERED					6	ROCK (VISUAL)
B-096-0-12	1.5 - 3.0	SS-1	100	0	3	25	49	23	25	21	4	18	A-4a (7)
STA. 68+50, CENTERLINE	4.5 - 6.0	SS-2	100				SAME AS SS-1					22	A-4a (VISUAL)
NORTHING= 164438.6	6.5 - 8.0	SS-3	100				SAME AS SS-1					19	A-4a (VISUAL)
EASTING= 2004079.6	8.5 - 10.0	SS-4	100				SAME AS SS-1					15	A-4a (VISUAL)

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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BORINGS CONVERTED TO LAT/LONG COORDINATES

R-201-0-99 Lat38.434143 Long-82.457043

B-001-0-11 Lat38.434506 Long-82.457540

R-202-0-99 Lat38.435835 Long-82.457356

R-203-0-99 Lat38.436770 Long-82.456572

R-204-0-99 Lat38.437842 Long-82.456164

B-003-0-11 Lat38.439338 Long-82.453778

B-002-0-11 Lat38.439784 Long-82.454392

R-205-0-99 Lat38.440132 Long-82.453411

R-206-0-99 Lat38.441010 Long-82.452521

R-207-0-99 Lat38.441436 Long-82.451205

B-004-0-11 Lat38.442062 Long-82.450321

B-005-0-11 Lat38.442507 Long-88.449391

R-209-0-99 Lat38.442353 Long-82.448702

R-210-0-99 Lat38.442919 Long-82.447475

B-006-0-11 Lat38.442930 Long-82.446979

B-007-0-11 Lat38.442429 Long-82.446747

R-211-0-99 Lat38.443084 Long-82.446439

R-212-0-99 Lat38.443406 Long-82.444826

R-2P1-0-99 Lat38.444630 Long-82.440916

B-008-0-11 Lat38.445036 Long-82.439012

B-009-0-11 Lat38.444774 Long-82.438744

R-217-0-99 Lat38.446729 Long-82.437638

B-010-0-11 Lat38.448243 Long-82.436038

B-012-0-11 Lat38.448118 Long-82.434122

B-011-0-11 Lat38.449099 Long-82.434950

R-218-0-99 Lat38.449455 Long-82.432465

R-220-0-99 Lat38.450158 Long-82.429831

B-017-0-11 Lat38.449589 Long-82.428845

B-015-0-11 Lat38.450522 Long-82.429130

B-016-0-11 Lat38.450010 Long-82.428935

R-221-0-99 Lat38.450706 Long-82.428589

B-018-0-11 Lat38.450768 Long-82.426982

R-223-0-99 Lat38.450375 Long-82.426165

B-019-0-11 Lat38.451065 Long-82.425751

B-021-0-11 Lat38.450624 Long-82.424629

B-020-0-11 Lat38.451890 Long-82.425384

B-022-0-11 Lat38.452096 Long-82.423601

R-226-0-99 Lat38.452124 Long-82.423075

R-227-0-99 Lat38.453941 Long-82.423770

R-229-0-99 Lat38.454392 Long-82.422076

B-023-0-11 Lat38.454656 Long-82.421120

R-232-0-99 Lat38.455162 Long-82.420614

R-233-0-99 Lat38.455821 Long-82.419926

B-026-0-11 Lat38.456118 Long-82.418923

B-3SP-1-99 Lat38.456503 Long-82.419399

B-029-0-11 Lat38.457007 Long-82.417235

B-037-0-11 Lat38.456556 Long-82.414054

B-041-0-11 Lat38.456895 Long-82.411719

B-043-0-11 Lat38.456730 Long-82.410314

B-044-0-11 Lat38.456679 Long-82.408602

B-048-0-11 Lat38.456063 Long-82.406538

B-047-0-11 Lat38.456563 Long-82.406492

B-047-1-11 Lat38.456563 Long-82.406492

B-047-2-11 Lat38.456563 Long-82.406492

R-241-0-99 Lat38.456163 Long-82.406312

B-052-0-11 Lat38.456397 Long-82.401963

B-053-0-11 Lat38.457035 Long-82.399456

R-244-0-99 Lat38.456331 Long-82.399297

R-246-0-99 Lat38.456183 Long-82.396778

B-054-0-11 Lat38.456671 Long-82.396292

B-055-0-11 Lat38.455363 Long-82.396578

B-055-1-11 Lat38.455363 Long-82.396578

B-055-2-11 Lat38.455363 Long-82.396578

B-053-0-11 Lat38.457035 Long-82.399456

R-244-0-99 Lat38.456331 Long-82.399297

R-246-0-99 Lat38.456183 Long-82.396778

B-054-0-11 Lat38.456671 Long-82.396292

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B-055-1-11 Lat38.455363 Long-82.396578

B-055-2-11 Lat38.455363 Long-82.396578

B-055-3-11 Lat38.455363 Long-82.396578

R-248-0-99 Lat38.455456 Long-82.394628

B-056-0-11 Lat38.455184 Long-82.394298

B-057-0-11 Lat38.454736 Long-82.394475

B-057-1-11 Lat38.454736 Long-82.394475

B-059-0-11 Lat38.456461 Long-82.391143

B-058-0-11 Lat38.455495 Long-82.391810

B-060-0-11 Lat38.454227 Long-82.392383

B-061-0-11 Lat38.453381 Long82.392923

R-250-0-99 Lat38.454412 Long-82.392210

R-251-0-99 Lat38.454264 Long-82.391345

B-063-0-11 Lat38.454341 Long-82.390454

B-064-0-11 Lat38.453553 Long-82.391128

B-062-0-11 Lat38.454689 Long-82.390138

B-065-0-11 Lat38.453065 Long-82.391495

B-067-0-11 Lat38.452026 Long-82.388700

B-066-0-11 Lat38.453948 Long-82.386899

B-070-0-11 Lat38.451950 Long-82.384786

B-068-0-11 Lat38.450043 Long-82.385887

B-069-0-11 Lat38.450850 Long-82.385154

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B-071-0-11 Lat38.450472 Long-82.380976

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R-119-0-99 Lat38.448411 Long-82.377183

B-074-0-11 Lat38.448507 Long-82.376098

R-120-0-99 Lat38.448609 Long-82.375980

B-075-0-11 Lat38.448580 Long-82.374707

R-121-0-99 Lat38.448515 Long-82.374496

B-076-0-11 Lat38.448843 Long-82.373352

R-122-0-99 Lat38.449078 Long-82.373236

B-077-0-11 Lat38.449237 Long 9.000000

R-123-0-99 Lat38.449211 Long-82.371828

B-078-0-11 Lat38.449641 Long-82.370750

R-124-0-99 Lat38.449881 Long-82.370673

S-103-0-99 Lat38.450293 Long-82.370729

B-079-0-11 Lat38.450028 Long-82.369444

R-125-0-99 Lat38.450172 Long-82.369265

B-075-0-12 Lat38.436261 Long-82.457725

B-076-0-12 Lat38.436850 Long-82.456771

B-077-0-12 Lat38.436994 Long-82.456982

B-078-0-12 Lat38.433537 Long-82.456035

B-079-0-12 Lat38.434071 Long-82.456561

B-080-0-12 Lat38.434958 Long-82.456926

B-073-0-20 Lat38.448656 Long-82.380234

B-073-1-20 Lat38.448106 Long-82.379454

B-100-0-12 Lat38.448743 Long-82.376932

B-101-0-12 Lat38.448710 Long-82.376236

B-102-0-12 Lat38.449225 Long-82.375643

B-097-1-20 Lat38.449922 Long-82.376318

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B-106-3-20 Lat38.449745 Long-82.374381

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R-110-0-99 Lat38.447720 Long-82.377598

R-118-0-99 Lat38.447932 Long-82.376367

B-104-0-12 Lat38.448244 Long-82.375286

B-013-0-11 Lat38.449637 Long-82.434060

B-014-0-11 Lat38.450063 Long-82.433092

B-083-1-12 Lat38.455927 Long-82.421758

B-025-0-11 Lat38.457329 Long-82.421340

B-084-0-12 Lat38.457490 Long-82.421656

B-085-0-12 Lat38.456770 Long-82.420999

B-024-0-11 Lat38.456421 Long-82.420528

B-027-0-11 Lat38.456781 Long-82.419619

B-086-0-12 Lat38.457051 Long-82.419292

B-086-1-12 Lat38.457675 Long-82.419417

B-028-0-11 Lat38.457197 Long-82.418079

B-030-0-11 Lat38.457512 Long-82.416628

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B-087-0-11 Lat38.458488 Long-82.416382

unknown Lat38.457533 Long-82.413862

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B-042-0-11 Lat38.457303 Long-82.410908

B-089-0-11 Lat38.457402 Long-82.408382

B-045-0-11 Lat38.457116 Long-82.408284

B-046-0-11 Lat38.457007 Long-82.406775

B-049-0-11 Lat38.456959 Long-82.405493

B-090-0-11 Lat38.457860 Long-82.415056

B-031-0-11 Lat38.458585 Long-82.412734

B-092-0-12 Lat38.446255 Long-82.380109

R-108-0-99 Lat38.446602 Long-82.380033

B-093-0-12 Lat38.447171 Long-82.379339

R-109-0-99 Lat38.447548 Long-82.379261

B-094-0-12 Lat38.448038 Long-82.378531

R-117-0-99 Lat38.449537 Long-82.377626

R-116-0-99 Lat38.450489 Long-82.376842

B-095-0-12 Lat38.450896 Long-82.375749

B-096-0-12 Lat38.451407 Long-82.375773

B-097-0-12 Lat38.450147 Long-82.376629

B-098-0-12 Lat38.449784 Long-82.375678

B-098-1-12 Lat38.450380 Long-82.375178

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
SUMMARY OF SOIL TEST DATA

LAW-7-2.17

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-076-0-12

ALIGNMENT, STATION & OFFSET: STA. 123+50, CENTERLINE

SAMPLE ID: ST-4 DEPTH: 9.4' - 9.9' LAB NO.: 11

SPECIMEN DATA

DIAMETER: 2.832 in WET DENSITY: 121.1 pcf

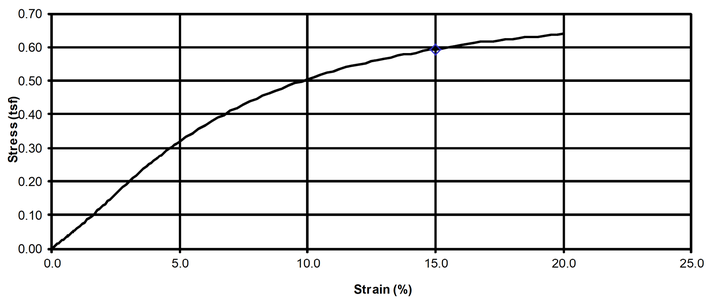
HEIGHT: 2.1 in DRY DENSITY: 93.1 pcf

VISUAL DESCRIPTION: LEAN CLAY, BROWN, MOIST FIRM

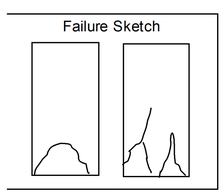
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	11	48	41	34	19	15	-

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) .6

Torvane Reading (kg/cm^2) .21

Comments

Cut two cons from 9.9' - 10.4'

Put out for class

REMARKS: Qu = 0.59 tsf @ 15.0% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-003-0-11

ALIGNMENT, STATION & OFFSET: STA. 135+96, 118.0' RT.

SAMPLE ID: ST-3 DEPTH: 5.0' - 5.5' LAB NO.: 428A

SPECIMEN DATA

DIAMETER: 2.866 in WET DENSITY: 113.7 pcf

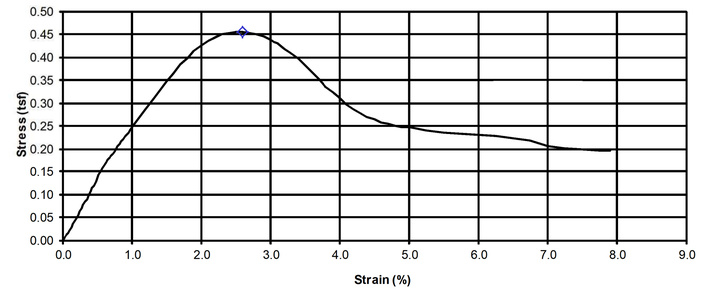
HEIGHT: 2.1 in DRY DENSITY: 87.8 pcf

VISUAL DESCRIPTION: MEDIUM STIFF, BROWN SILT, SOME CLAY, LITTLE SAND, MOIST

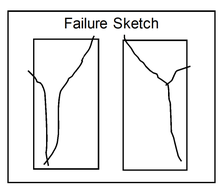
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	10	63	27	33	23	10	30

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 1.0

Torvane Reading (kg/cm^2) 2.5

Comments

Has been put out for class

REMARKS: Qu = 0.46tsf @ 2.6% STRAIN

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1055
1247

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-003-0-11

ALIGNMENT, STATION & OFFSET: STA. 135+96, 118.0' RT.

SAMPLE ID: ST-3 DEPTH: 5.0' - 7.0' LAB NO.: 428B

SPECIMEN DATA

DIAMETER: 2.895 in WET DENSITY: 114.4 pcf

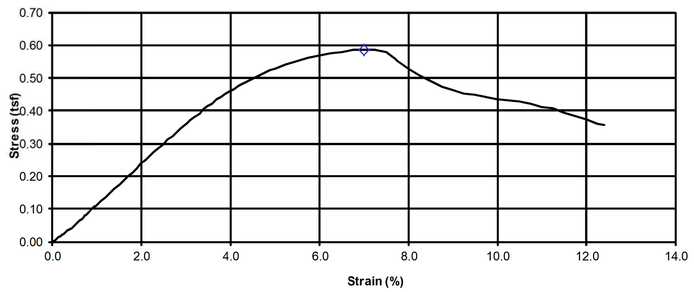
HEIGHT: 6.062 in DRY DENSITY: 88.3 pcf

VISUAL DESCRIPTION: MEDIUM STIFF, BROWN SILT, SOME CLAY, LITTLE SAND, MOIST

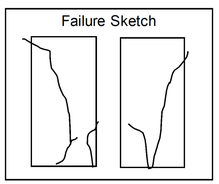
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	10	63	27	33	23	10	30

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 1.0

Torvane Reading (kg/cm^2) 2.5

Comments

REMARKS: Qu = 0.59tsf @ 7.0% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-008

ALIGNMENT, STATION & OFFSET: STA. 183+86, 111.1' RT.

SAMPLE ID: ST-3 DEPTH: 5.0' - 5.5' LAB NO.: 479A

SPECIMEN DATA

DIAMETER: 2.884 in WET DENSITY: 130.3 pcf

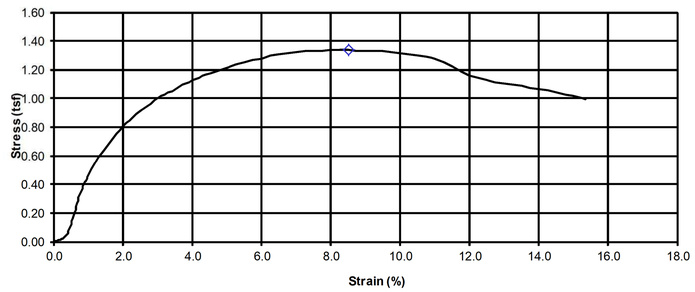
HEIGHT: 5.940 in DRY DENSITY: 103.3 pcf

VISUAL DESCRIPTION: VERY STIFF TO HARD, RED-BROWN, CLAY, SOME SILT, TRACE SAND, DAMP

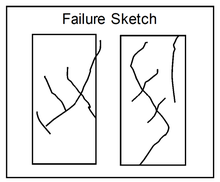
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	1	2	31	66	49	22	27	19

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 2.75

Torvane Reading (kg/cm^2) 6.0

Comments

REMARKS: Qu = 1.34tsf @ 8.5% STRAIN

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-008

ALIGNMENT, STATION & OFFSET: STA. 183+86, 111.1' RT.

SAMPLE ID: ST-3 DEPTH: 5.5' - 6.0' LAB NO.: 479B

SPECIMEN DATA

DIAMETER: 2.890 in WET DENSITY: 128.1 pcf

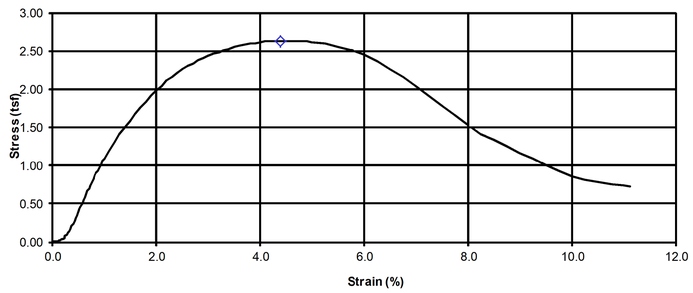
HEIGHT: 5.855 in DRY DENSITY: 104.2 pcf

VISUAL DESCRIPTION: VERY STIFF TO HARD, RED-BROWN, CLAY, SOME SILT, TRACE SAND, DAMP

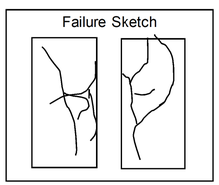
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	1	2	31	66	49	22	27	21

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 2.75

Torvane Reading (kg/cm^2) 6.0

Comments

REMARKS: Qu = 2.63tsf @ 4.4% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-010-1-12

ALIGNMENT, STATION & OFFSET: STA. 199+84, 30.0' RT.

SAMPLE ID: ST-4 DEPTH: 7.7' - 8.3 LAB NO.: 5

SPECIMEN DATA

DIAMETER: 2.879 in WET DENSITY: 115.5

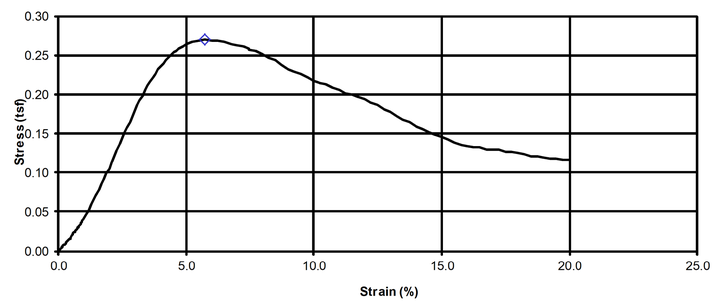
HEIGHT: 6.052 DRY DENSITY: 88.9

VISUAL DESCRIPTION: LEAN CLAY, BROWN, WET, SOFT

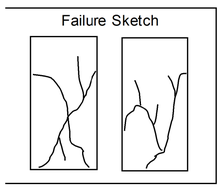
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	22	43	35	35	19	16	30

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 0

Torvane Reading (kg/cm^2) .04

Comments

Cut con from 8.35' - 8.6'

Rough cut saved 7.1' - 7.7'

1F

REMARKS: Qu = 0.27f @ 5.7 STRAIN

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY LABORATORY TEST DATA

LAW-7-2.17

1057 1247

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UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-010-2-12

ALIGNMENT, STATION & OFFSET: STA. 200+80, 50.0' LT.

SAMPLE ID: ST-4 DEPTH: 8.1' -8.6' LAB NO.: 6

SPECIMEN DATA

DIAMETER: 2.843 in WET DENSITY: 121.1 pcf

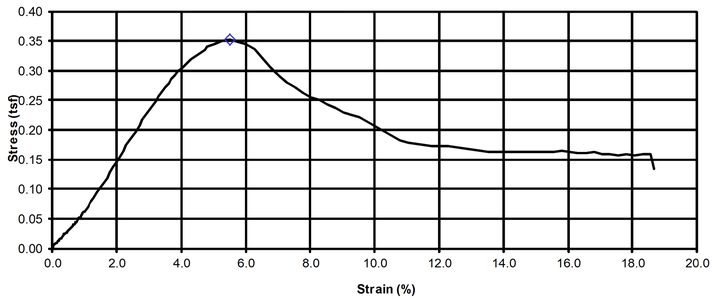
HEIGHT: 6.019 in DRY DENSITY: 96.4 pcf

VISUAL DESCRIPTION: LEAN CLAY, BROWN, MOIST, FIRM

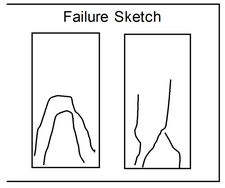
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	22	50	28	33	19	14	26

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 1.0

Torvane Reading (kg/cm^2) .27

Comments

Extra 6" untrimmed sample (7.6' - 8.1')

1F

7.1' - 7.6' put out for class

REMARKS: Qu = 0.35tsf @ 5.5% STRAIN

UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-016

ALIGNMENT, STATION & OFFSET: STA. 218+94, 120.0' RT.

SAMPLE ID: ST-3 DEPTH: 5.0' - 5.5' LAB NO.: 513A

SPECIMEN DATA

DIAMETER: 2.827 in WET DENSITY: 128.1 pcf

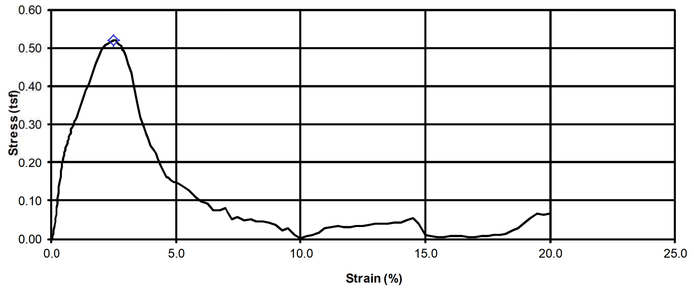
HEIGHT: 6.165 in DRY DENSITY: 112.5 pcf

VISUAL DESCRIPTION: HARD, MOTTLED BROWN AND GRAY, CLAY, SOME SILT, LITTLE SAND, TRACE STONE FRAGMENTS, DAMP

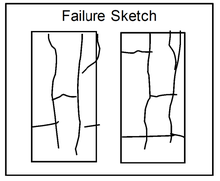
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
8	8	7	35	42	42	25	17	14

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 3.75

Torvane Reading (kg/cm^2) 1.5

Comments

Fragile

REMARKS: Qu = 0.52tsf @ 2.5% STRAIN

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1058
1247

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UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-016

ALIGNMENT, STATION & OFFSET: STA. 218+94, 120.0' RT.

SAMPLE ID: ST-3 DEPTH: 5.5' - 6.0' LAB NO.: 513B

SPECIMEN DATA

DIAMETER: 2.799 in WET DENSITY: 125.2 pcf

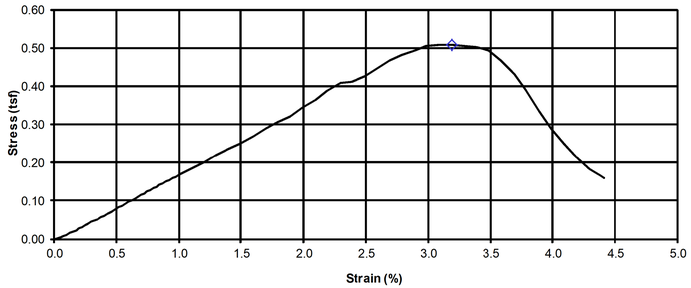
HEIGHT: 6.113 in DRY DENSITY: 110.6 pcf

VISUAL DESCRIPTION: HARD, MOTTLED BROWN AND GRAY, CLAY, SOME SILT, LITTLE SAND, TRACE STONE FRAGMENTS, DAMP

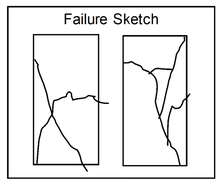
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
8	8	7	35	42	42	25	17	14

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 3.75

Torvane Reading (kg/cm^2) 1.5

Comments

REMARKS: Qu = 0.51tsf @ 3.2% STRAIN

UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-018

ALIGNMENT, STATION & OFFSET: STA. 225+07, 3.0' RT.

SAMPLE ID: ST-3 DEPTH: 5.6' - 6.1' LAB NO.: 246B

SPECIMEN DATA

DIAMETER: 2.862 in WET DENSITY: 134.0 pcf

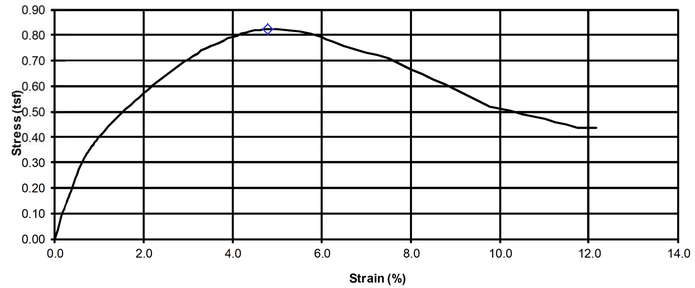
HEIGHT: 6.090 in DRY DENSITY: 113.6 pcf

VISUAL DESCRIPTION: SOFT TO MEDIUM STIFF, GRAY TO MOTTLED BROWN AND GRAY, SILTY CLAY, SOME SAND, TRACE GRAVEL, DAMP TO MOIST

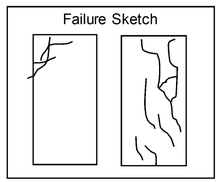
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
10	7	13	37	33	37	19	18	18

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 1.75

Torvane Reading (kg/cm^2) N/A

Comments

One + 1 1/2" shale rock found in center of specimen after testing.

REMARKS: Qu = 0.82tsf @ 4.8% STRAIN

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1059
1247

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-019

ALIGNMENT, STATION & OFFSET: STA. 228+76, ℄

SAMPLE ID: ST-3 DEPTH: 5.4′ - 5.9′ LAB NO.: 530A

SPECIMEN DATA

DIAMETER: 2.893 in WET DENSITY: 136.2 pcf

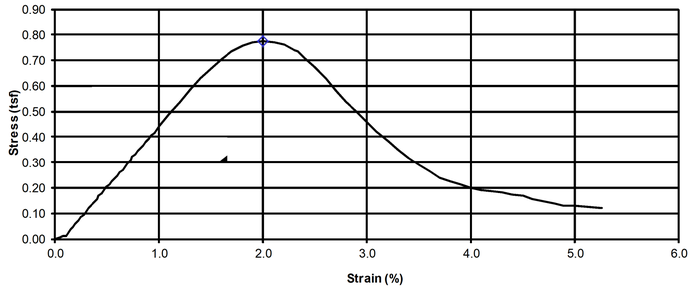
HEIGHT: 6.171 in DRY DENSITY: 116.9 pcf

VISUAL DESCRIPTION: STIFF, BROWN GRADING TO RED-BROWN, CLAY AND SILT, TRACE SAND AND GRAVEL, DAMP

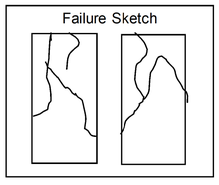
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
10	0	5	40	45	42	22	20	15

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 3.5

Torvane Reading (kg/cm^2) 2.5

Comments

Very Fragile

REMARKS: Qu = 0.77†sf @ 2.0% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-019

ALIGNMENT, STATION & OFFSET: STA. 228+76, ℄

SAMPLE ID: ST-3 DEPTH: 5.9′ - 6.4′ LAB NO.: 530B

SPECIMEN DATA

DIAMETER: 2.895 in WET DENSITY: 137.5 pcf

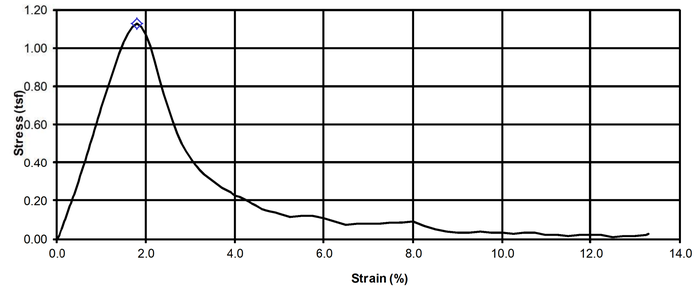
HEIGHT: 6.194 in DRY DENSITY: 121.6 pcf

VISUAL DESCRIPTION: STIFF, BROWN GRADING TO RED-BROWN, CLAY AND SILT, TRACE SAND AND GRAVEL, DAMP

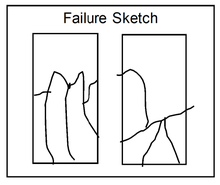
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
10	0	5	40	45	42	22	20	13

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 3.5

Torvane Reading (kg/cm^2) 2.5

Comments

Very fragile

REMARKS: Qu = 1.13†sf @ 1.8% STRAIN

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1060
1247

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UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-034

ALIGNMENT, STATION & OFFSET: STA. 271+00, 128.0' LT.

SAMPLE ID: ST-7 DEPTH: 13.0' - 13.5' LAB NO.: 28

SPECIMEN DATA

DIAMETER: 2.843 in WET DENSITY: 126.0 pcf

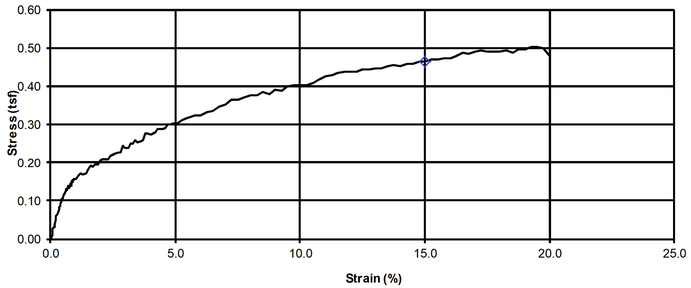
HEIGHT: 6.007 in DRY DENSITY: 98.4 pcf

VISUAL DESCRIPTION: MEDIUM STIFF, GRAY, CLAY, LITTLE SILT, TRACE SAND AND GRAVEL, MOIST

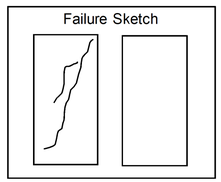
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
6	4	5	17	68	42	20	22	29

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm^2) 0.35

Comments

REMARKS: Qu = 0.47tsf @ 15.0% STRAIN

UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-034

ALIGNMENT, STATION & OFFSET: STA. 271+00, 128.0' LT.

SAMPLE ID: ST-10 DEPTH: 20.8' - 21.3' LAB NO.: 31B

SPECIMEN DATA

DIAMETER: 2.813 in WET DENSITY: 129.2 pcf

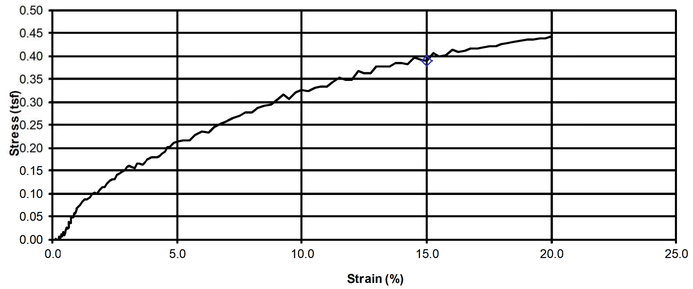
HEIGHT: 6.027 in DRY DENSITY: N/A

VISUAL DESCRIPTION: STIFF TO VERY STIFF, GRAY, SILTY CLAY, TRACE SAND AND GRAVEL, MOIST

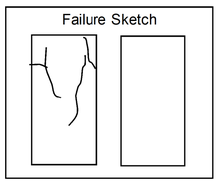
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
4	2	5	43	46	40	20	20	25

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 0.39tsf @ 15.0% STRAIN

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1061
1247

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UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-048

ALIGNMENT, STATION & OFFSET: STA. 292+96, 195.0' RT.

SAMPLE ID: ST-4 DEPTH: 7.5' - 8.0' LAB NO.: 84A

SPECIMEN DATA

DIAMETER: 2.879 in WET DENSITY: 123.5 pcf

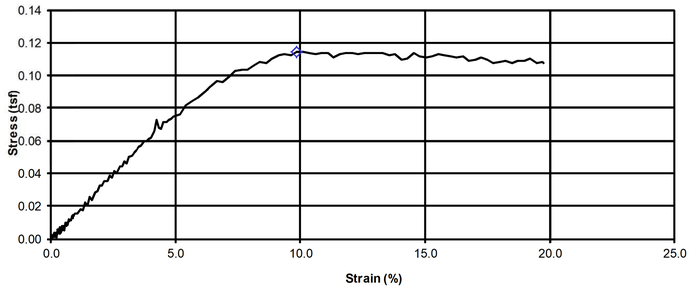
HEIGHT: 5.779 in DRY DENSITY: 97.8 pcf

VISUAL DESCRIPTION: LOOSE, BROWN, COARSE AND FINE SAND, LITTLE SILT AND CLAY, MOIST TO WET

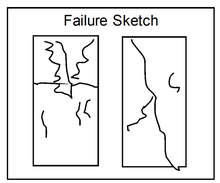
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	6	63	18	13	NP	NP	NP	26

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 0.25

Torvane Reading (kg/cm^2) 1.0

Comments

REMARKS: Qu = 0.11tsf @ 9.9% STRAIN

UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-048

ALIGNMENT, STATION & OFFSET: STA. 292+96, 195.0' RT.

SAMPLE ID: ST-4 DEPTH: 8.3' - 8.8' LAB NO.: 84B

SPECIMEN DATA

DIAMETER: 2.907 in WET DENSITY: 120.3 pcf

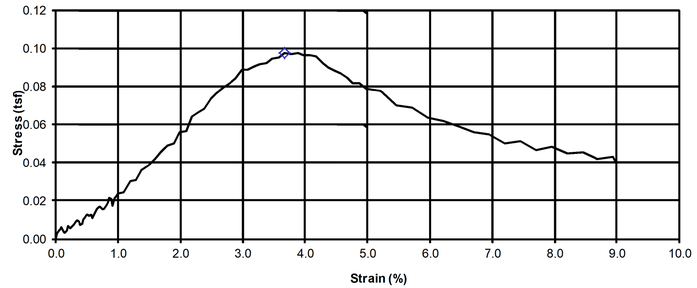
HEIGHT: 5.887 in DRY DENSITY: 95.7 pcf

VISUAL DESCRIPTION: LOOSE, BROWN, COARSE AND FINE SAND, LITTLE SILT AND CLAY, MOIST TO WET

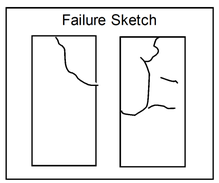
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	6	63	18	13	NP	NP	NP	26

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 1.0

Torvane Reading (kg/cm^2) 0.7

Comments

REMARKS: Qu = 0.10tsf @ 3.7% STRAIN

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1062
1247

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UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-048

ALIGNMENT, STATION & OFFSET: STA. 292+96, 195.0' RT.

SAMPLE ID: ST-9 DEPTH: 20.0' - 20.5' LAB NO.: 89

SPECIMEN DATA

DIAMETER: 2.884 in WET DENSITY: 124.2 pcf

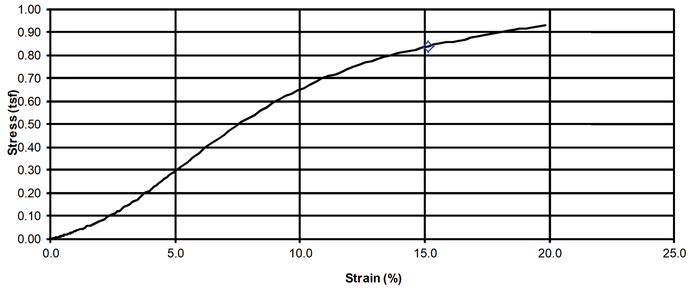
HEIGHT: 5.951 in DRY DENSITY: 97.6 pcf

VISUAL DESCRIPTION: STIFF, GRAY, SILT AND CLAY, TRACE SAND, MOIST

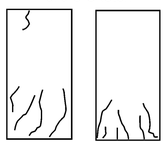
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	4	48	48	31	19	12	27

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 0.75

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 0.84tsf @ 15.1% STRAIN

UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-047-2

ALIGNMENT, STATION & OFFSET: STA. 293+00, 12.0' RT.

SAMPLE ID: ST-1 DEPTH: 5.4'- 5.9' LAB NO.: 559B

SPECIMEN DATA

DIAMETER: 2.884 in WET DENSITY: 110.7 pcf

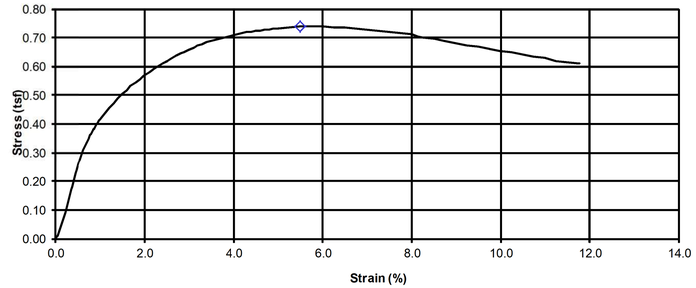
HEIGHT: 6.056 in DRY DENSITY: 79.8 pcf

VISUAL DESCRIPTION: MEDIUM STIFF, LIGHT BROWN, ELASTIC CLAY, LITTLE SILT, TRACE SAND, MOIST

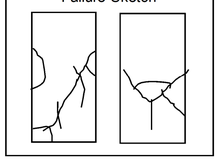
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	1	1	19	79	66	30	36	46

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 1.75

Torvane Reading (kg/cm^2) 6.5

Comments

REMARKS: Qu = 0.74tsf @ 5.5% STRAIN

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1063
1247

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UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-057-1

ALIGNMENT, STATION & OFFSET: STA. 329+15, 321.0' RT.

SAMPLE ID: ST-1 DEPTH: 4.0' - 4.5' LAB NO.: 564A

SPECIMEN DATA

DIAMETER: 2.871 in WET DENSITY: 125.4 pcf

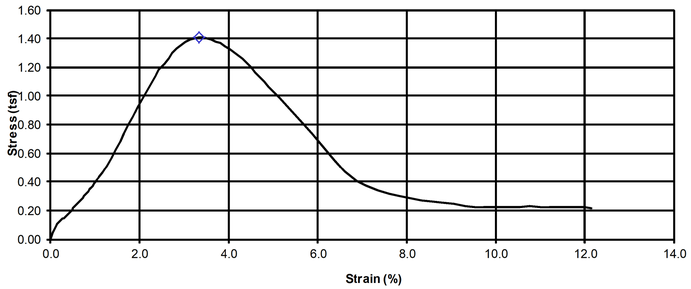
HEIGHT: 6.170 in DRY DENSITY: 106.2 pcf

VISUAL DESCRIPTION: STIFF, BROWN SILTY CLAY, SOME GRAVEL, LITTLE SAND, DAMP TO MOIST

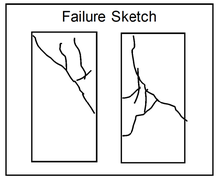
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
22	7	11	26	34	37	18	19	17

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 4

Torvane Reading (kg/cm^2) 4

Comments

REMARKS: Qu = 1.41tsf @ 3.3% STRAIN

UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-057-1

ALIGNMENT, STATION & OFFSET: STA. 329+15, 321.0' RT.

SAMPLE ID: ST-1 DEPTH: 4.5' - 5.0' LAB NO.: 564B

SPECIMEN DATA

DIAMETER: 2.876 in WET DENSITY: 125.4 pcf

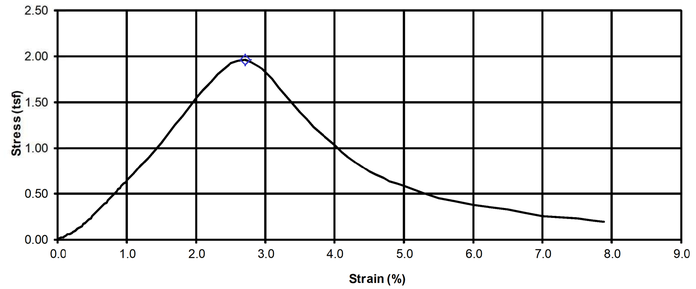
HEIGHT: 6.187 in DRY DENSITY: 109.7 pcf

VISUAL DESCRIPTION: STIFF, BROWN SILTY CLAY, SOME GRAVEL, LITTLE SAND, DAMP TO MOIST

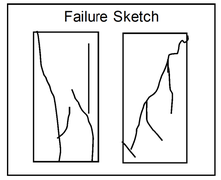
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
22	7	11	26	34	37	18	19	18

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 4

Torvane Reading (kg/cm^2) 4

Comments

REMARKS: Qu = 1.95tsf @ 2.7% STRAIN

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-057-1

ALIGNMENT, STATION & OFFSET: STA. 329+15, 321.0' RT.

SAMPLE ID: ST-1 DEPTH: 5.0' - 5.5' LAB NO.: 564C

SPECIMEN DATA

DIAMETER: 2.888 in WET DENSITY: 129.2 pcf

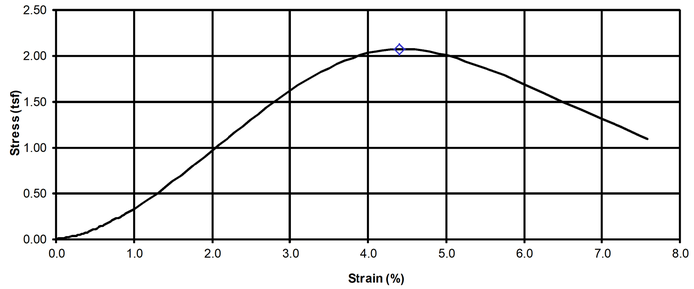
HEIGHT: 6.095 in DRY DENSITY: 109.7 pcf

VISUAL DESCRIPTION: STIFF, BROWN SILTY CLAY, SOME GRAVEL, LITTLE SAND, DAMP TO MOIST

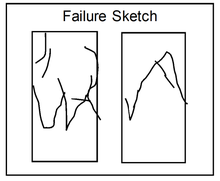
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
22	7	11	26	34	37	18	19	22

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 4

Torvane Reading (kg/cm^2) 4

Comments

REMARKS: Qu = 2.07tsf @ 4.4% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-057-1

ALIGNMENT, STATION & OFFSET: STA. 329+15, 321.0' RT.

SAMPLE ID: ST-3 DEPTH: 8.5' - 9.0' LAB NO.: 566B

SPECIMEN DATA

DIAMETER: 2.888 in WET DENSITY: 123.4 pcf

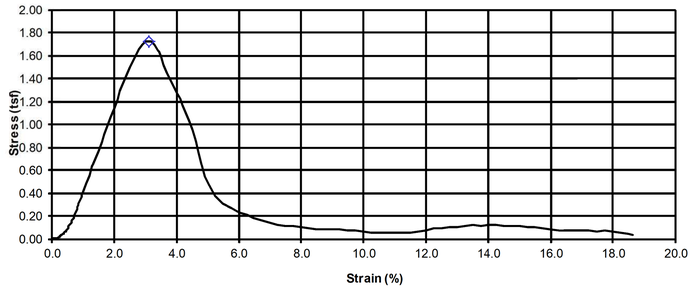
HEIGHT: 5.822 in DRY DENSITY: 100.6 pcf

VISUAL DESCRIPTION: STIFF, BROWN, CLAY AND SILT, TRACE SAND, DAMP

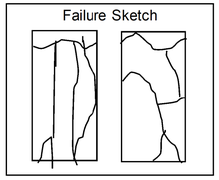
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	2	4	38	56	47	24	23	22

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 1.73tsf @ 3.1% STRAIN

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

1065
1247

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-057-1

ALIGNMENT, STATION & OFFSET: STA. 329+15, 321.0' RT.

SAMPLE ID: ST-3 DEPTH: 9.0' - 9.5' LAB NO.: 566C

SPECIMEN DATA

DIAMETER: 2.892 in WET DENSITY: 124.3 pcf

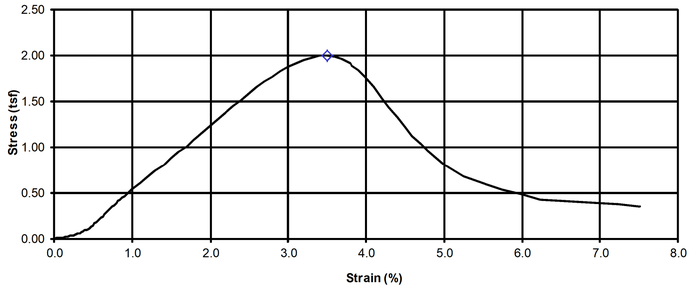
HEIGHT: 6.026 in DRY DENSITY: 101.5 pcf

VISUAL DESCRIPTION: STIFF, BROWN, CLAY AND SILT, TRACE SAND, DAMP

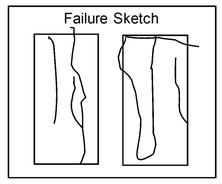
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	2	4	38	56	47	24	23	22

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 1.99tsf @ 3.5% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-060

ALIGNMENT, STATION & OFFSET: STA. 335+71, 175.0' RT.

SAMPLE ID: ST-3 DEPTH: 5.1' - 5.6' LAB NO.: 297A

SPECIMEN DATA

DIAMETER: 2.854 in WET DENSITY: 126.1 pcf

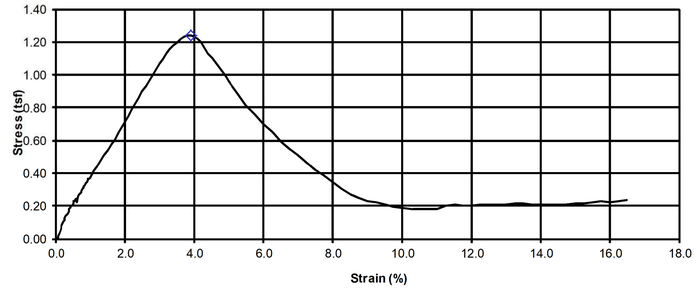
HEIGHT: 6.150 in DRY DENSITY: 108.7 pcf

VISUAL DESCRIPTION: STIFF TO VERY STIFF, BROWN, SILTY CLAY, LITTLE TO SOME SAND, TRACE GRAVEL, DAMP TO MOIST

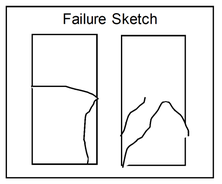
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
7	4	11	32	46	36	16	20	16

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 2.75

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 1.24tsf @ 3.9% STRAIN

DRAWN M.S.J CHECKED E.M.K

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-060

ALIGNMENT, STATION & OFFSET: STA. 335+71, 175.0' RT.

SAMPLE ID: ST-3 DEPTH: 5.6' - 6.1' LAB NO.: 297B

SPECIMEN DATA

DIAMETER: 2.868 in WET DENSITY: 128.4 pcf

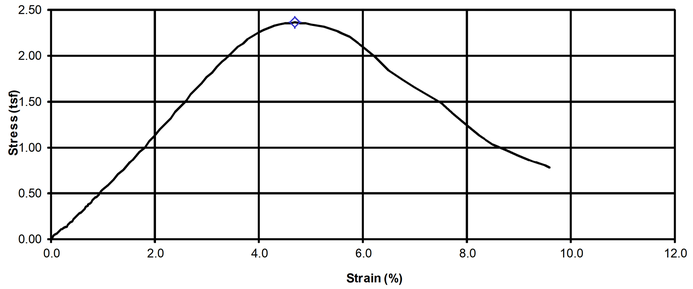
HEIGHT: 6.063 in DRY DENSITY: 109.9 pcf

VISUAL DESCRIPTION: STIFF TO VERY STIFF, BROWN, SILTY CLAY, LITTLE TO SOME SAND, TRACE GRAVEL, DAMP TO MOIST

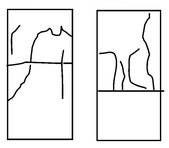
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
7	4	11	32	46	36	16	20	16

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 3.5

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 2.36tsf @ 4.7% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-061

ALIGNMENT, STATION & OFFSET: STA. 336+17, 517.0' RT.

SAMPLE ID: ST-4 DEPTH: 7.5' - 8.0' LAB NO.: 158A

SPECIMEN DATA

DIAMETER: 2.868 in WET DENSITY: 119.7 pcf

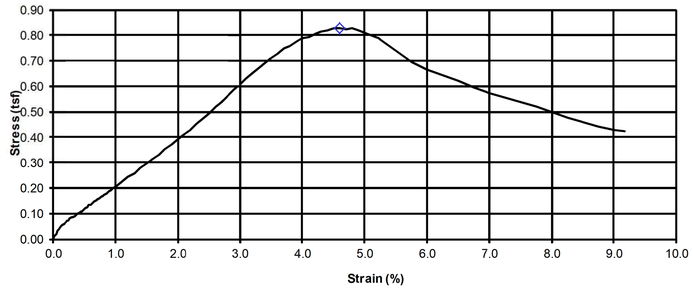
HEIGHT: 5.993 in DRY DENSITY: 93.7 pcf

VISUAL DESCRIPTION: MEDIUM STIFF, BROWN, CLAY AND SILT, TRACE SAND, DAMP TO MOIST

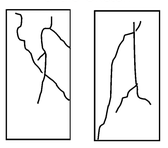
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	7	46	47	44	24	20	25

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 3.25

Torvane Reading (kg/cm^2) 8.5

Comments

REMARKS: Qu = 0.83tsf @ 4.6% STRAIN

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-061

ALIGNMENT, STATION & OFFSET: STA. 336+17, 517.0' RT.

SAMPLE ID: ST-4 DEPTH: 8.4' - 8.9' LAB NO.: 158B

SPECIMEN DATA

DIAMETER: 2.867 in WET DENSITY: 122.4 pcf

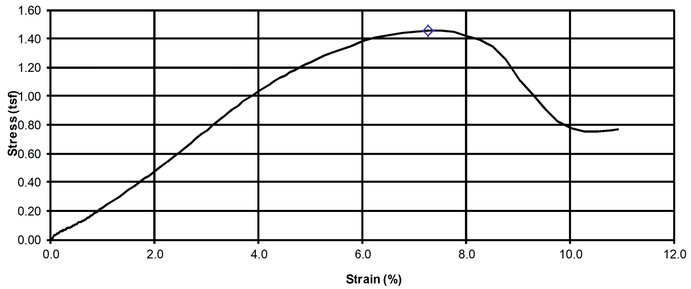
HEIGHT: 5.986 in DRY DENSITY: 98.0 pcf

VISUAL DESCRIPTION: MEDIUM STIFF, BROWN, CLAY AND SILT, TRACE SAND, DAMP TO MOIST

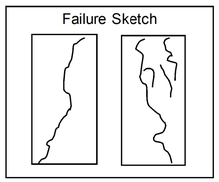
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
0	0	7	46	47	44	24	20	25

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) 2.5

Torvane Reading (kg/cm^2) 7.0

Comments

REMARKS: Qu = 1.46tsf @ 7.3% STRAIN

UNCONFINED COMPRESSION TEST OF COHESIVE SOIL (AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-072

ALIGNMENT, STATION & OFFSET: STA. 371+03, 131.0' LT.

SAMPLE ID: ST-8 DEPTH: 17.5' - 18.0' LAB NO.: 347A

SPECIMEN DATA

DIAMETER: 2.881 in WET DENSITY: 129.7 pcf

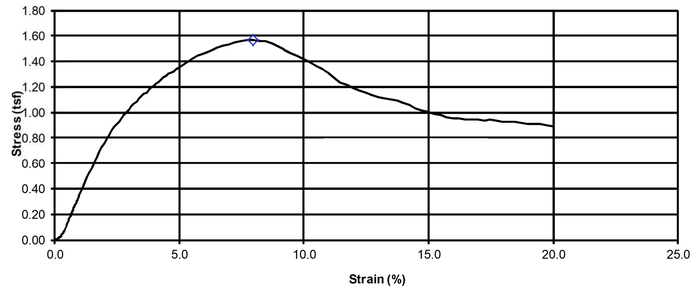
HEIGHT: 5.968 in DRY DENSITY: 111.3 pcf

VISUAL DESCRIPTION: MEDIUM STIFF TO STIFF, BROWN, SILTY CLAY, LITTLE SAND, TRACE GRAVEL, DAMP TO MOIST

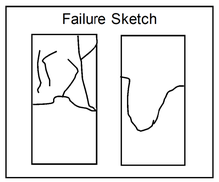
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
3	3	11	42	41	35	19	16	19

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 1.57tsf @ 8.0% STRAIN

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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UNCONFINED COMPRESSION TEST
OF COHESIVE SOIL
(AASHTO T 028)

PROJECT DESIGNATION: LAW-7-2.17 PID 75923

EXPLORATION ID: B-072

ALIGNMENT, STATION & OFFSET: STA. 371+03, 131.0' LT.

SAMPLE ID: ST-8 DEPTH: 18.0' - 18.5' LAB NO.: 347B

SPECIMEN DATA

DIAMETER: 2.883 in WET DENSITY: 132.8 pcf

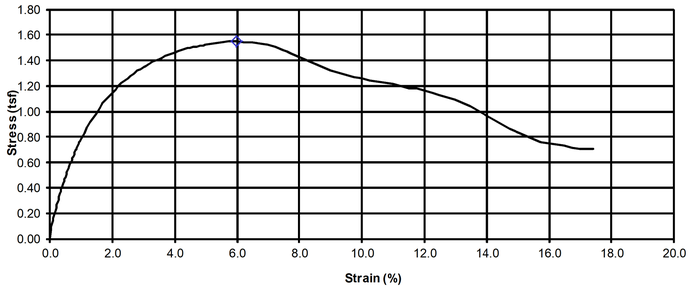
HEIGHT: 6.046 in DRY DENSITY: 110.1 pcf

VISUAL DESCRIPTION: MEDIUM STIFF TO STIFF, BROWN, SILTY CLAY, LITTLE SAND, TRACE GRAVEL, DAMP TO MOIST

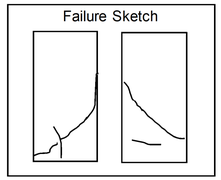
PHYSICAL CHARACTERISTICS

% AGG	% CS	% FS	% Silt	% Clay	LL	PL	PI	WC
3	3	11	42	41	35	19	16	19

Stress vs. Strain



Failure Sketch



Pocket Penetrometer Reading (tsf) N/A

Torvane Reading (kg/cm^2) N/A

Comments

REMARKS: Qu = 1.55†sf @ 6.0% STRAIN

Unconfined Compressive Strength of Cohesive Soil (ASTM D2166)

(Project: LAW-7-2.17, Boring Location: B-073-2-20, ST-1, Depth: 13.0 - 13.5ft)

Tested Date: 4/23/2021

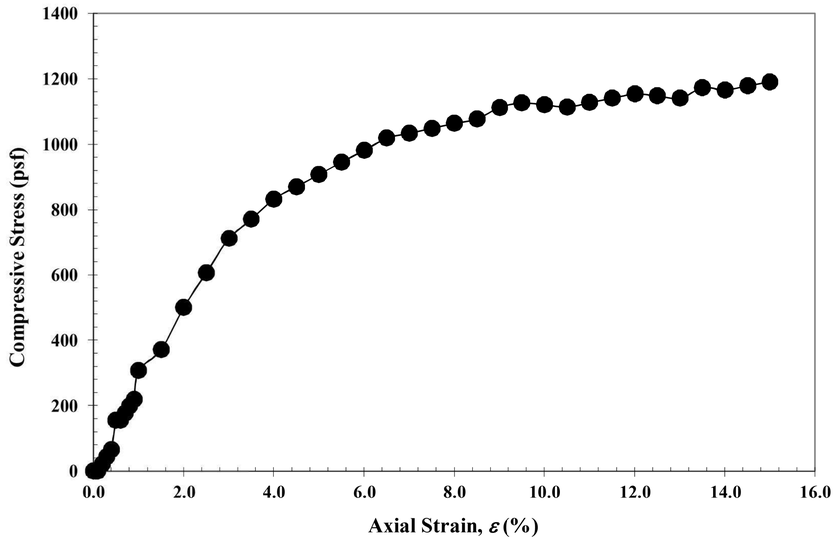
Specimen Properties

Average Dia., D_{avg} (in):	2.87
Average Height H_{avg} (in):	5.69
Area, A (in^2):	6.48
Volume, V (in^3):	36.87
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	21.9
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	129.0
Dry Unit Weight, γ_d (lb/ft^3):	105.8

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**1191**
Strain (%):	**15.0**



Notes: Medium stiff, brown, SILTY CLAY, some sand, trace gravel, moist. Please note that this specimen exceeded equipment strain limitations and testing was stopped at 15.0% strain. Please also note that the specimen top surface had differing strengths causing the surface to exceed 5.0% slope.

DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

28/206

1069/1247

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Unconfined Compressive Strength of Cohesive Soil (ASTM D2166)

(Project: LAW-7-2.17, Boring Location: B-073-2-20, ST-3, Depth: 20.5 - 21.0ft)

Tested Date: 4/14/2021

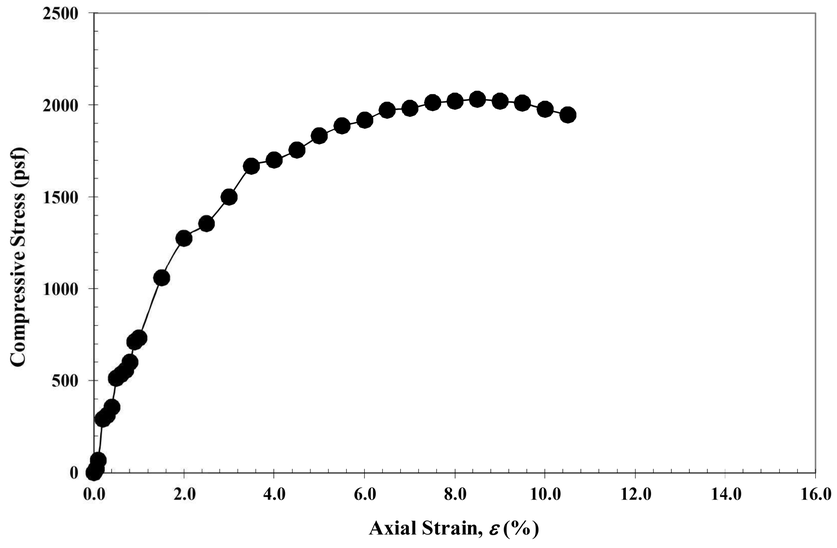
Specimen Properties

Average Dia., D_{avg} (in):	2.86
Average Height, H_{avg} (in):	5.74
Area, A (in^2):	6.42
Volume, V (in^3):	36.88
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	20.8
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	131.6
Dry Unit Weight, γ_d (lb/ft^3):	108.9

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**2032**
Strain (%):	**8.5**



Notes: Stiff, brown mottled with dark brown, SILT AND CLAY, some sand, little gravel, moist. Please note that when the specimen was split after compression, at least two pieces of gravel exceeding 1/6 sepcimen diameter were observed, including one piece (located mid-specimen) measuring approximately 2"x1.5"x1.25", and the results reported may differ from a specimen that meets the maximum particle size allowance of D2166.

Unconfined Compressive Strength of Cohesive Soil (ASTM D2166)

(Project: LAW-7-2.17, Boring Location: B-073-2-20, ST-4, Depth: 36.5 - 37.0ft)

Tested Date: 4/23/2021

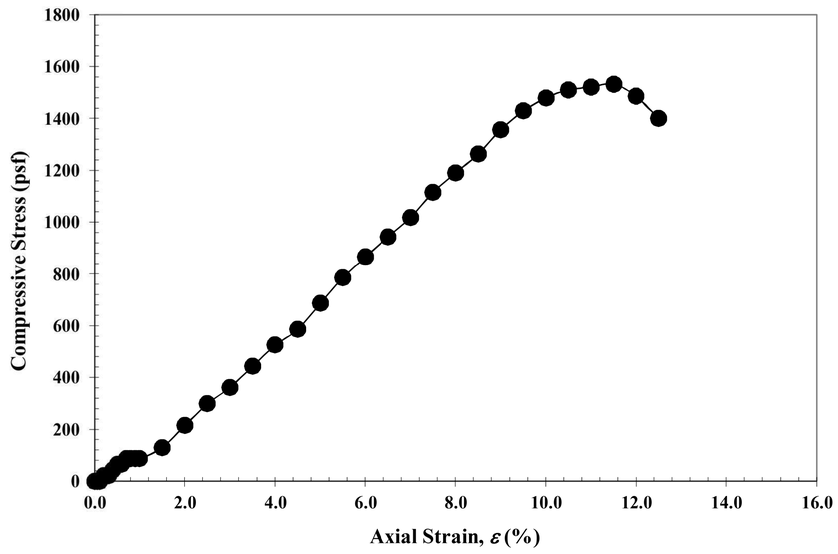
Specimen Properties

Average Dia., D_{avg} (in):	2.89
Average Height, H_{avg} (in):	5.66
Area, A (in^2):	6.57
Volume, V (in^3):	37.17
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	23.0
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	129.0
Dry Unit Weight, γ_d (lb/ft^3):	104.9

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**1533**
Strain (%):	**11.5**



Notes: Medium stiff, gray, SILT, little clay, trace sand, trace gravel, moist.

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

29/206

1070
1247

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Unconfined Compressive Strength of Cohesive Soil (ASTM D2166)

(Project: LAW-7-2.17, Boring Location: B-106-1-20, ST-1, Depth: 0.9 - 1.4ft)

Tested Date: 7/8/2021

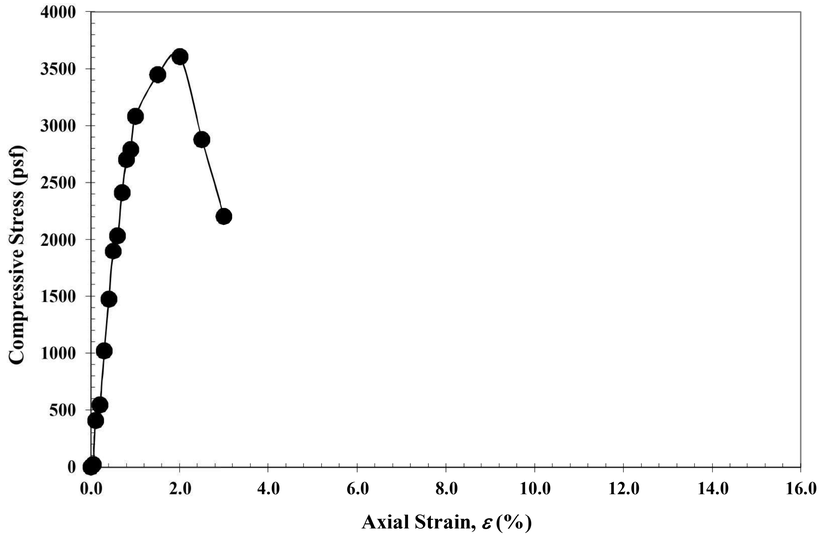
Specimen Properties

Average Dia., D_{avg} (in):	2.84
Average Height, H_{avg} (in):	5.76
Area, A (in^2):	6.34
Volume, V (in^3):	36.48
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	12.7
Dry Mass of Specimen (lb):	2.5
Wet Unit Weight, γ (lb/ft^3):	131.3
Dry Unit Weight, γ_d (lb/ft^3):	116.5

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**3608**
Strain (%):	**2.0**



Notes: Stiff, brown and reddish brown, SILTY CLAY, some sand, little gravel and stone fragments, damp. Contains multiple stone fragments exceeding 1/6 specimen diameter and the results reported may differ from a specimen that meets the maximum particle size allowance of D2166

Unconfined Compressive Strength of Cohesive Soil (ASTM D2166)

(Project: LAW-7-2.17, Boring Location: B-106-3-20, ST-2, Depth: 2.7 - 3.2ft)

Tested Date: 7/22/2021

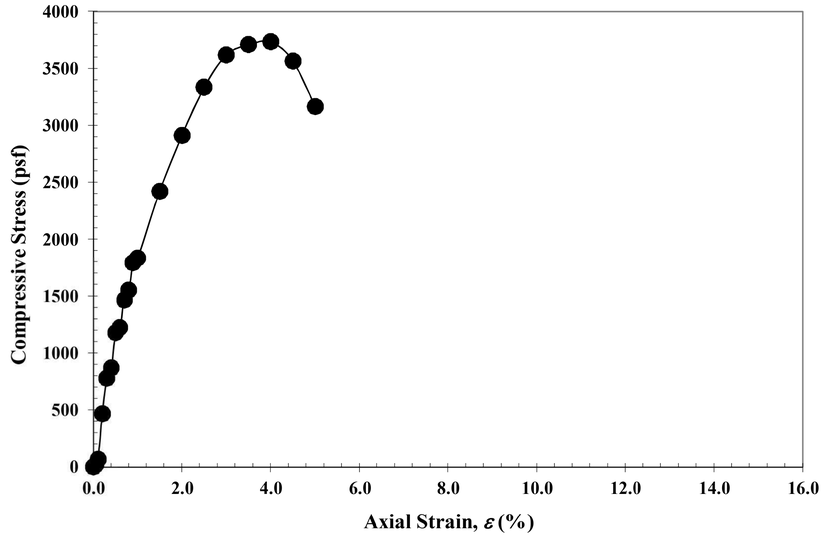
Specimen Properties

Average Dia., D_{avg} (in):	2.86
Average Height, H_{avg} (in):	5.75
Area, A (in^2):	6.44
Volume, V (in^3):	37.04
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	14.1
Dry Mass of Specimen (lb):	2.5
Wet Unit Weight, γ (lb/ft^3):	130.6
Dry Unit Weight, γ_d (lb/ft^3):	114.5

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**3733**
Strain (%):	**4.0**



Notes: Stiff, brown, SILTY CLAY, little sand, trace gravel, damp.

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DRAWN MSJ CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

Consolidated-Undrained Triaxial Compression Test (AASHTO T 297 / ASTM D4767)

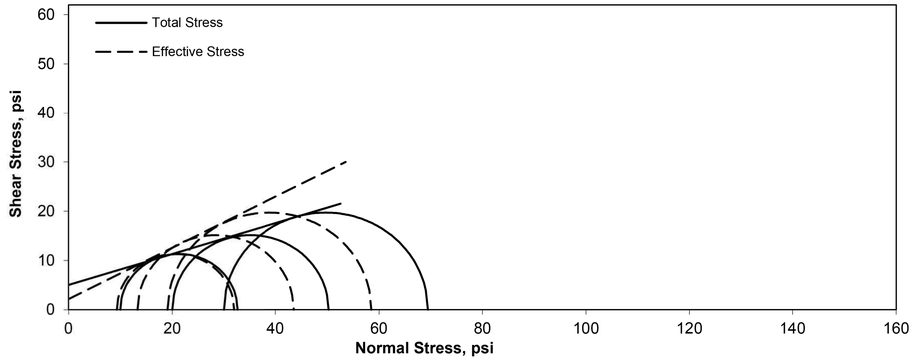
Project: LAW-7-2.17 Project ID: 75923
Sample ID: B-073-2-20 / ST-2 (@14.5-16.5') Page: 1/2
Description: Stiff, brown, SILTY CLAY, little sand, trace gravel, damp

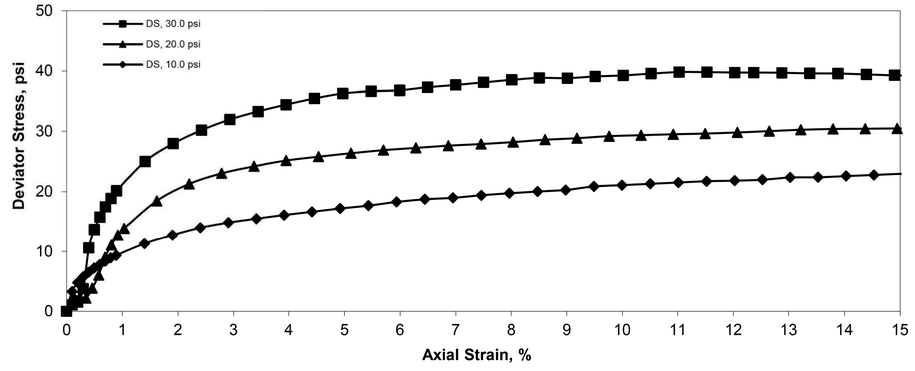
Sample No.	Height (in)	Diameter (in)	Moisture (%)	Bulk Density (pcf)	Dry Density (pcf)	Void Ratio
1	5.75	2.87	23.5%	128.4	104.0	0.603
2	5.00	2.86	24.1%	147.2	118.6	0.404
3	5.75	2.86	25.6%	125.7	100.1	0.664

Liquid Limit: 38 Plastic Limit: 21

Failure Criterion: Maximum Deviator Stress

	Total	Effective
C, psi	5.0	2.2
ϕ, deg	17.4	27.5
Tan (ϕ)	0.31	0.52





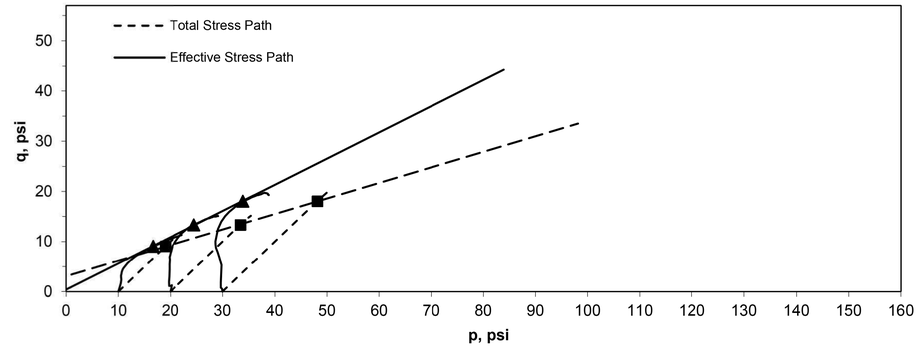
Assumed Specific Gravity Gs = 2.67

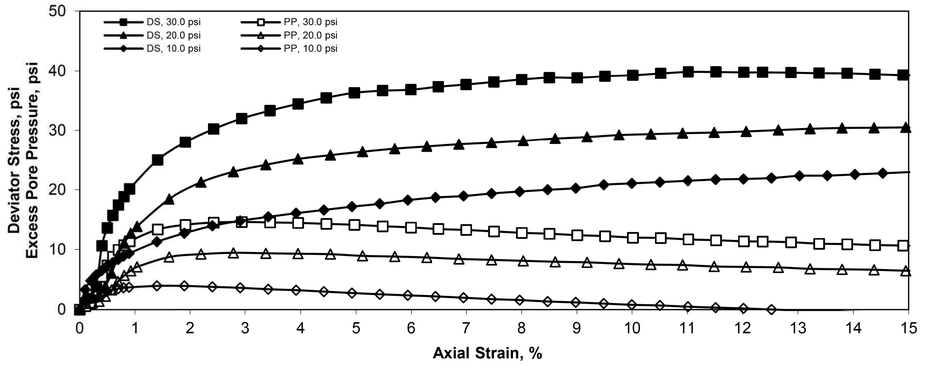
Consolidated-Undrained Triaxial Compression Test (AASHTO T 297 / ASTM D4767)

Project: LAW-7-2.17 Project ID: 75923
Sample ID: B-073-2-20 / ST-2 (@14.5-16.5') Page: 2/2
Description: Stiff, brown, SILTY CLAY, little sand, trace gravel, damp

Failure Criterion: Maximum Effective Principal Stress Ratio

	Total	Effective
c, psi	3.2	0.4
φ, deg	18.1	31.5
Tan (φ)	0.33	0.61





SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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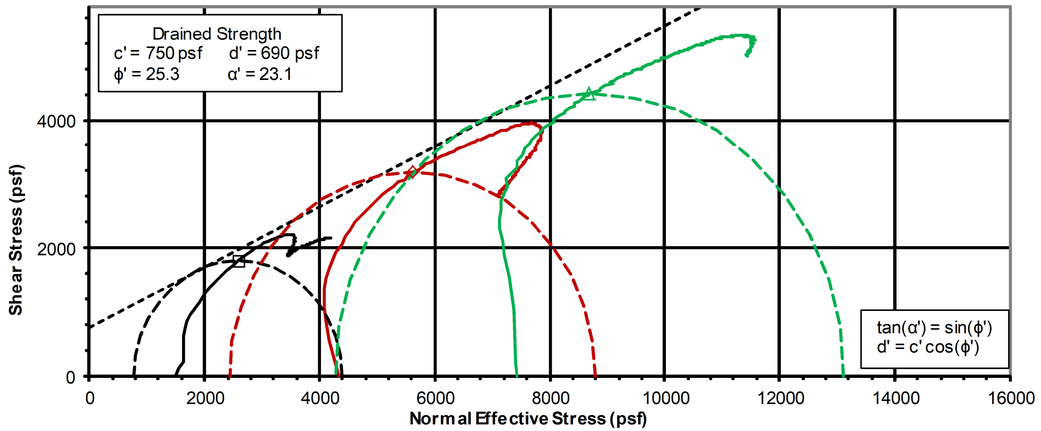
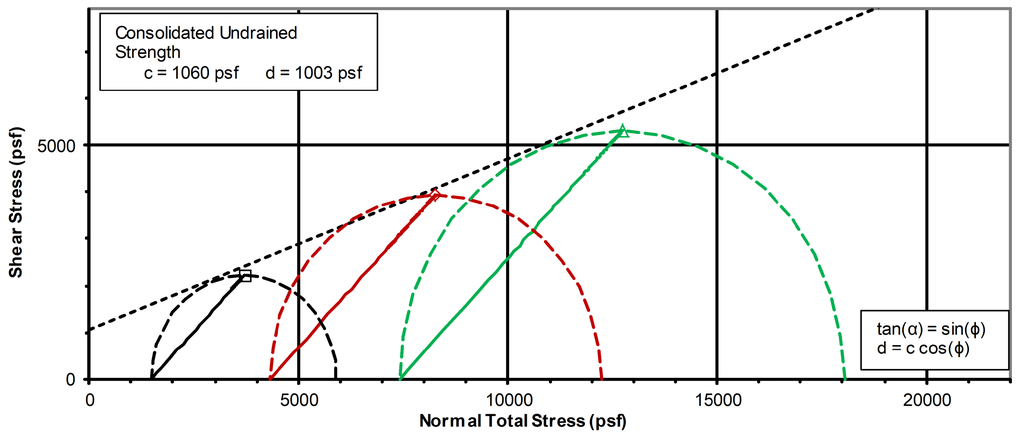
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 3

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	456A	B-006-0-11, 5.0'-5.5'	Lean Clay (CL), brown, moist, firm	2.75			
B	456B	B-006-0-11, 5.5'-6.0'	Lean Clay (CL), brown, moist, firm	2.75			
C	456C	B-006-0-11, 6.0'-6.5'	Lean Clay (CL), brown, moist, firm	2.75			



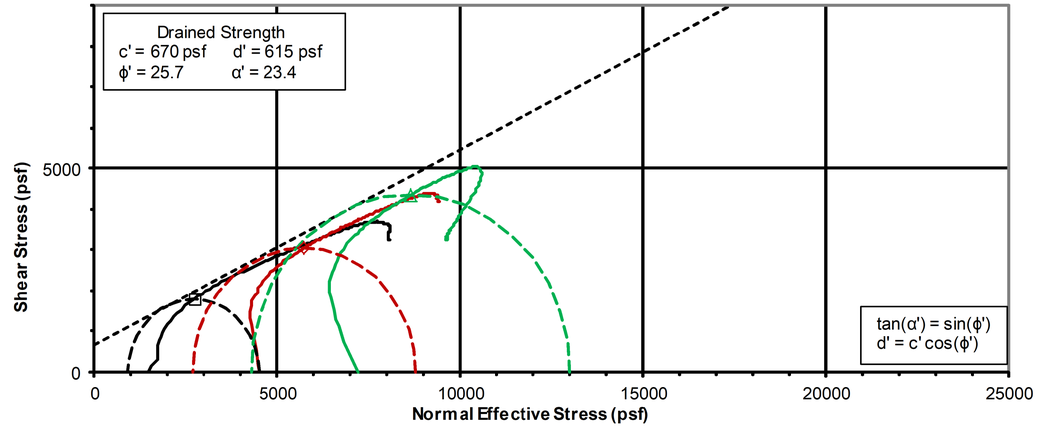


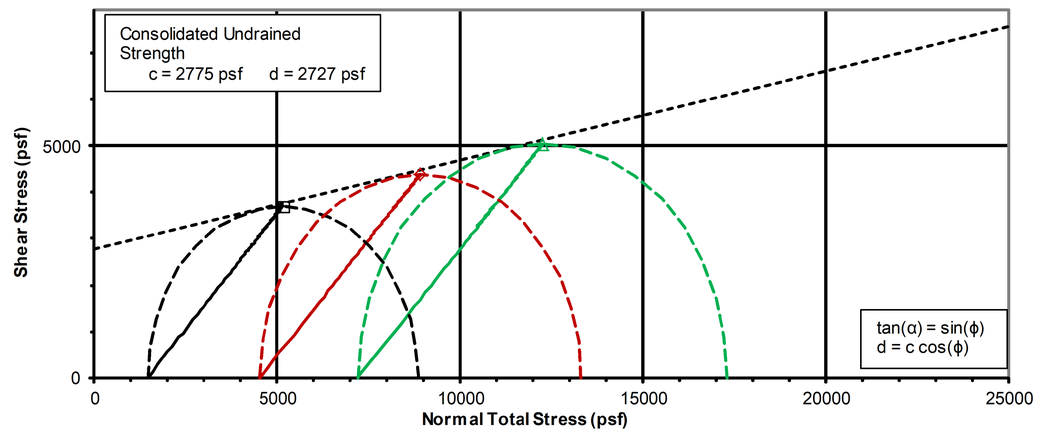
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 4

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	470A	B-007-0-11, 10.0'-10.5'	Lean Clay (CL), brown, moist, firm	2.72			
B	470B	B-007-0-11, 10.5'-11.0'	Lean Clay (CL), brown, moist, firm	2.72			
C	470C	B-007-0-11, 11.0'-11.5'	Lean Clay (CL), brown, moist, firm	2.72			





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SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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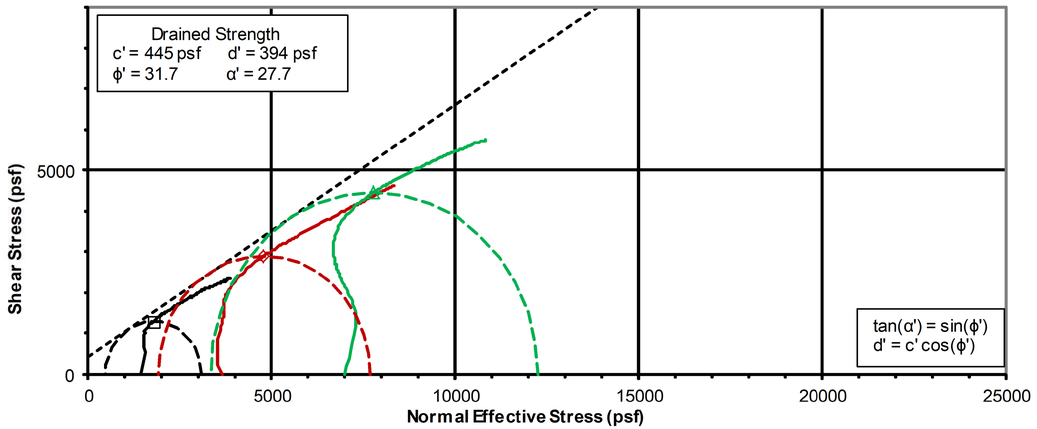
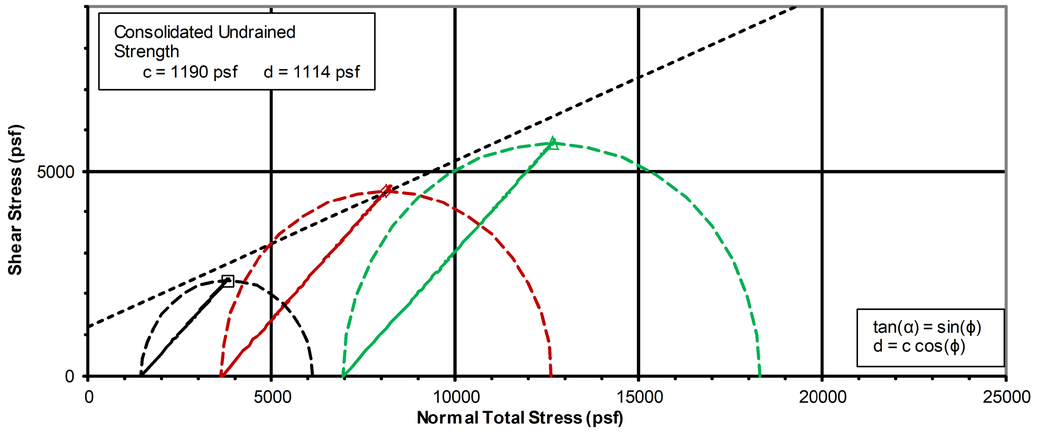
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 2A_3_2

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	2A	B-009-1-12, 7.2'-7.7'	Clayey Sand (SC), brown, moist, firm	2.70	27	17	10
B	3	B-009-1-12, 12.6'-13.2'	Clayey Sand (SC), brown, moist, firm	2.70	28	16	12
C	2	B-009-1-12, 7.7'-8.2'	Clayey Sand (SC), brown, moist, firm	2.70	27	17	10



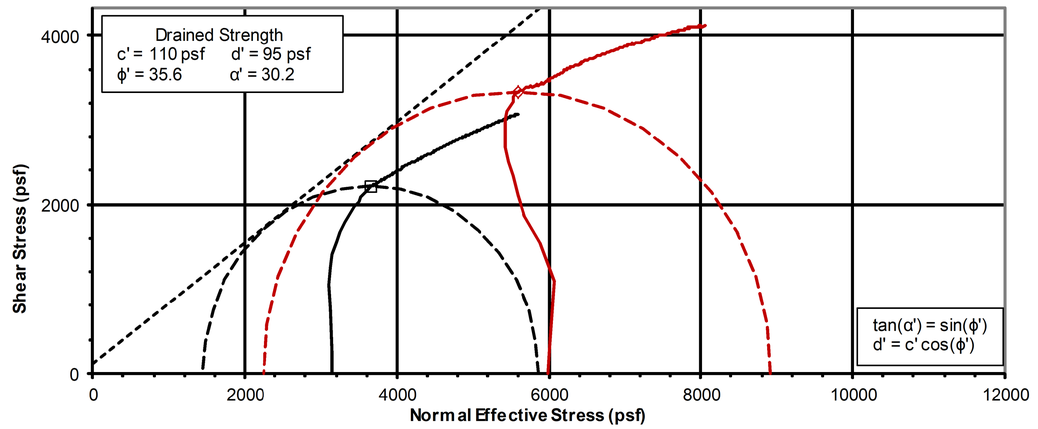


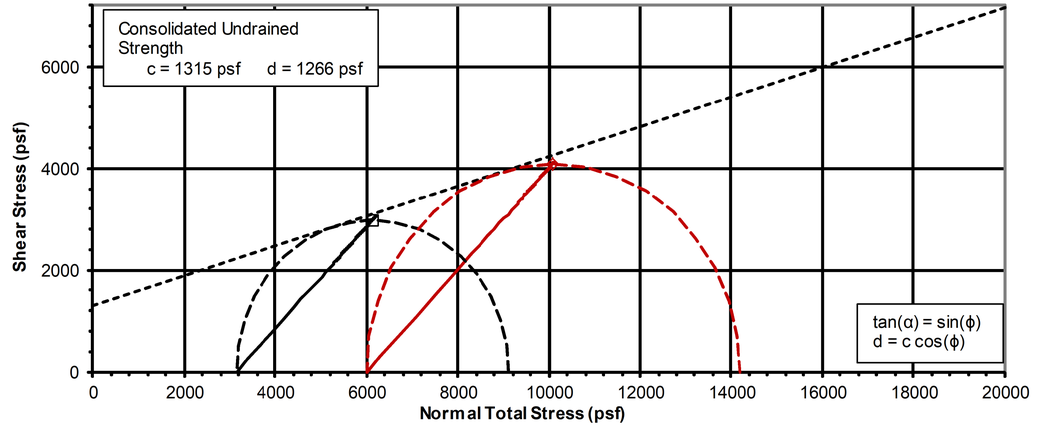
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 5

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	486A	B-010-0-11, 5.0'-5.5'	Lean Clay (CL), brown, moist, firm, Mn	2.73			
B	486B	B-010-0-11, 5.5'-6.0'	Lean Clay (CL), brown, moist, firm, Mn	2.73			





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SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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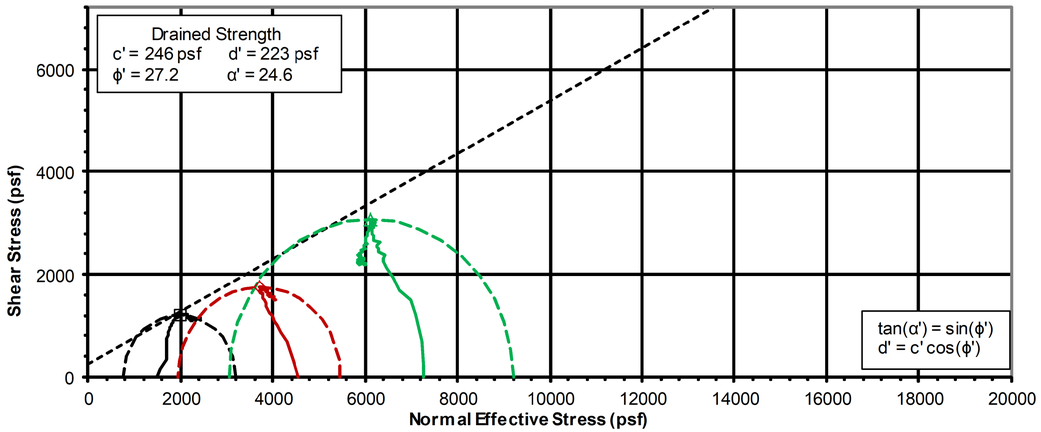
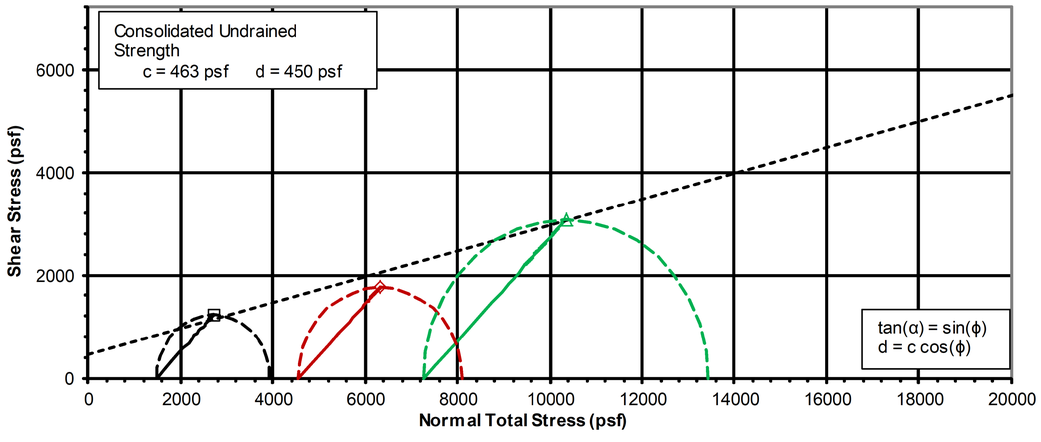
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 7

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	559A	B-047-2-11, 4.5'-5.0'	Lean Clay (CL), gray brown, moist, firm	2.71			
B	558A	B-047-1-11, 4.7'-5.2'	Lean Clay (CL), gray brown, moist, firm	2.71			
C	558B	B-047-1-11, 5.2'-5.7'	Lean Clay (CL), gray brown, moist, firm, Mn	2.71			



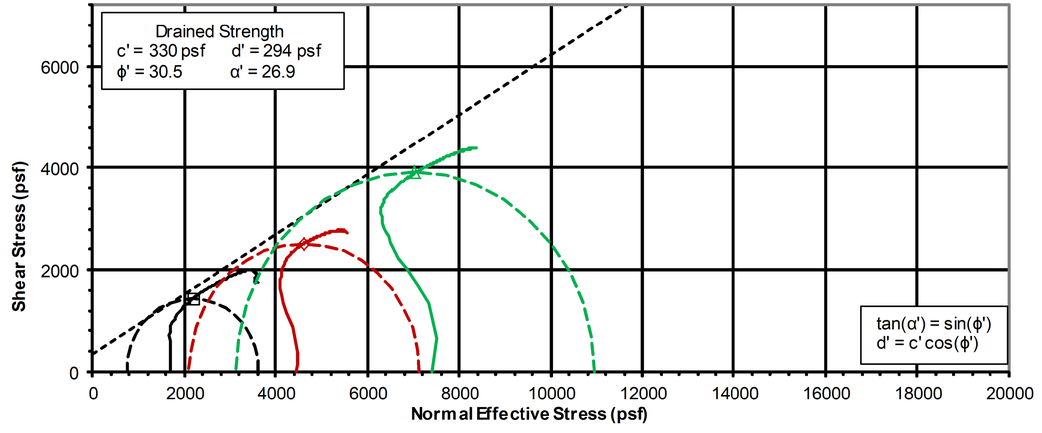


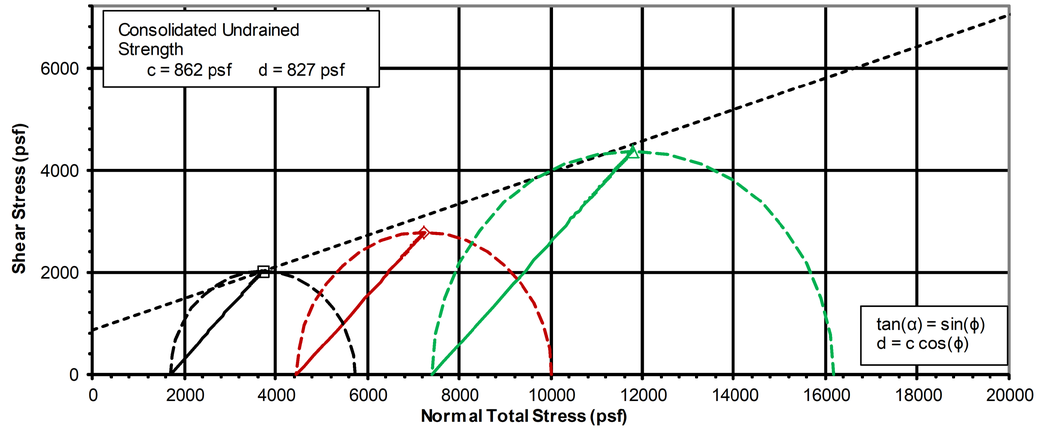
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 8

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	560A	B-047-2-11, 6.5'-7.0'	Lean Clay with Sand (CL), gray brown, moist, firm	2.73	44	21	23
B	560B	B-047-2-11, 7.0'-7.5'	Lean Clay with Sand (CL), gray brown, moist, firm	2.73			
C	560C	B-047-2-11, 7.5'-8.0'	Lean Clay with Sand (CL), gray brown, moist, firm	2.73			





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SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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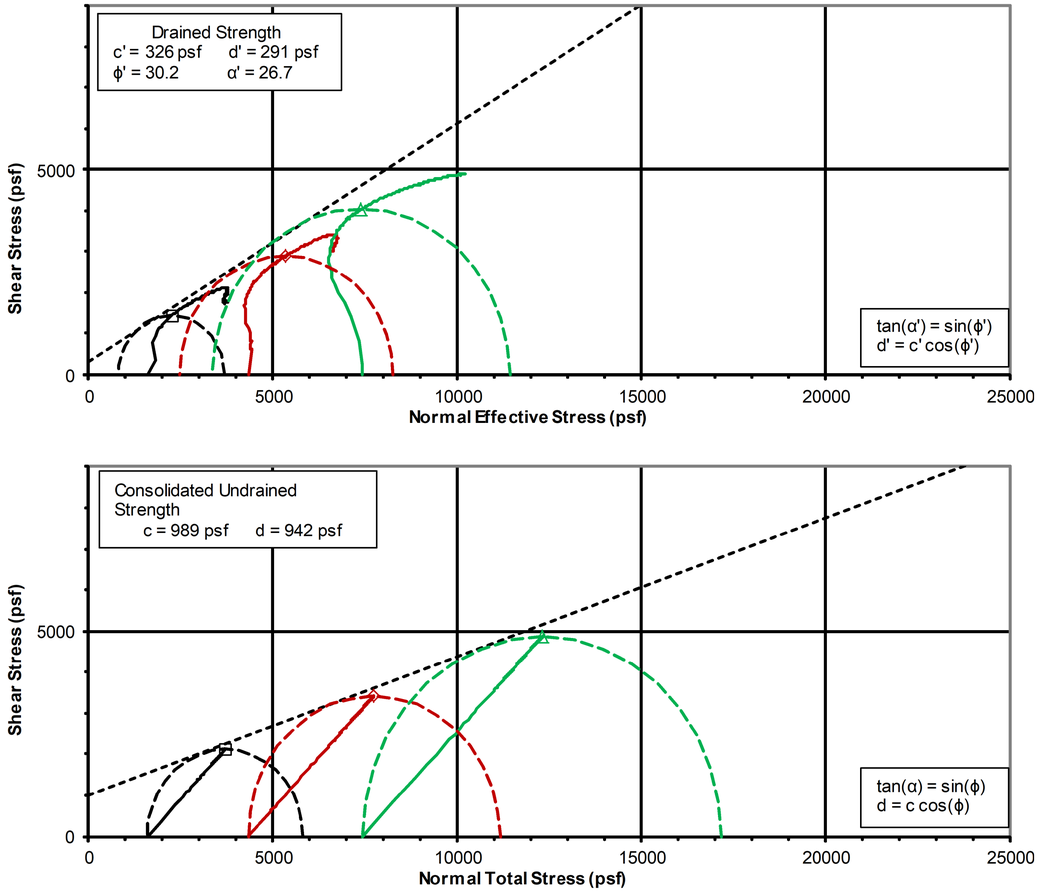
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 9

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	561B	B-055-1-11, 3.5'-4.0'	Lean Clay (CL), brown, moist, hard	2.72			
B	563B	B-055-2-11, 4.7'-5.2'	Fat Clay (CH), brown, moist, firm	2.72	51	27	24
C	563C	B-055-2-11, 5.2'-5.7'	Lean Clay with Gravel (CL), brown, moist, firm	2.72			

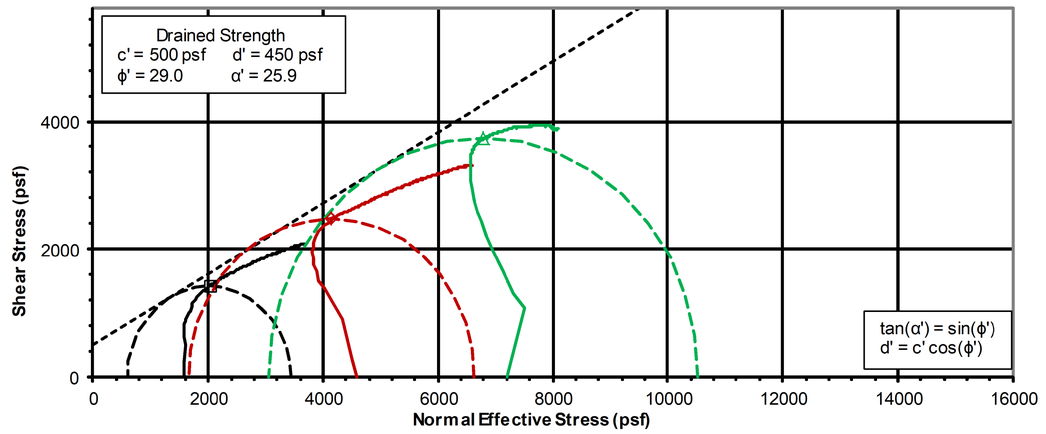


CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 1

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	147A	B-057-0-11, 4.0'-4.5'	Sandy Lean Clay (CL), brown, moist, firm	2.73	39	20	19
B	147B	B-057-0-11, 4.7'-5.2'	Sandy Lean Clay (CL), brown, moist, firm	2.73	39	20	19
C	149	B-057-0-11, 10.0'-10.7'	Lean Clay (CL), brown, moist, firm	2.73	39	20	19



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SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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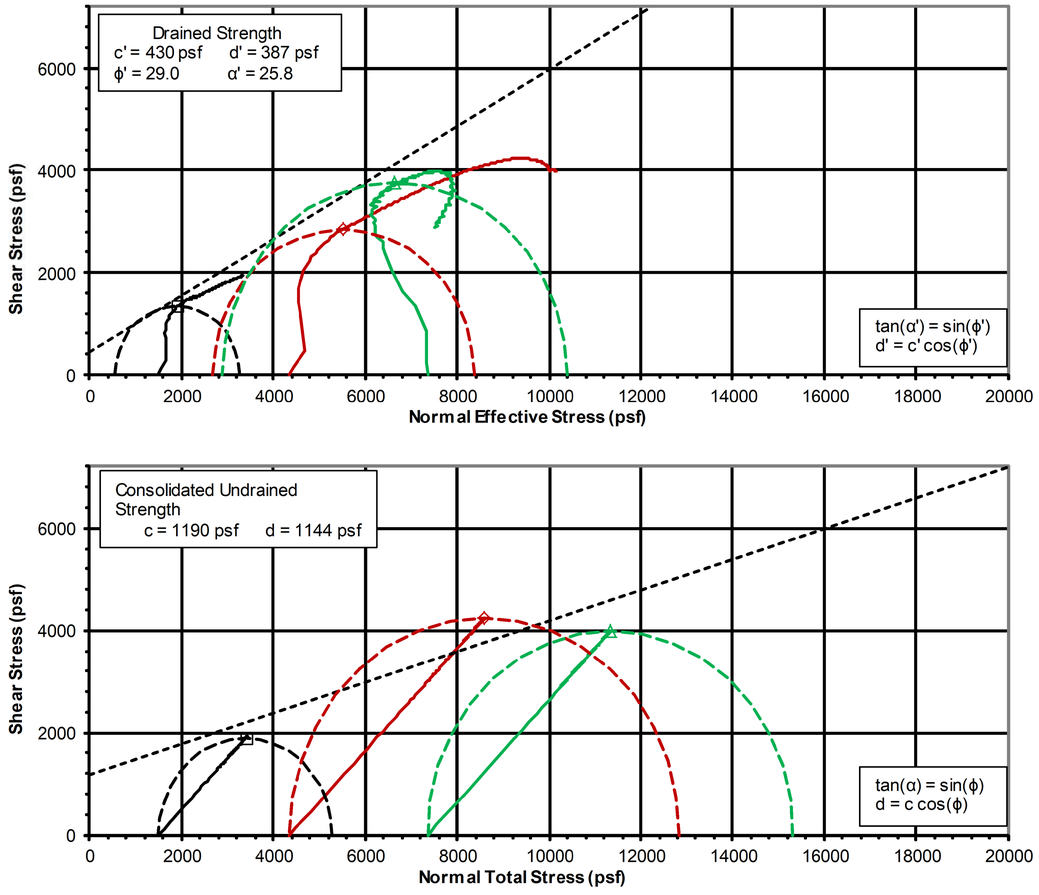
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 10

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	565A	B-057-1-11, 6.1'-6.6'	Lean Clay (CL), brown, moist, firm, sandstone ar	2.78			
B	565B	B-057-1-11, 6.8'-7.3'	Lean Clay (CL), brown, moist, firm, weathered sa	2.78			
C	566A	B-057-1-11, 8.0'-8.5'	Lean Clay (CL), brown, moist, firm, weathered sh	2.78			

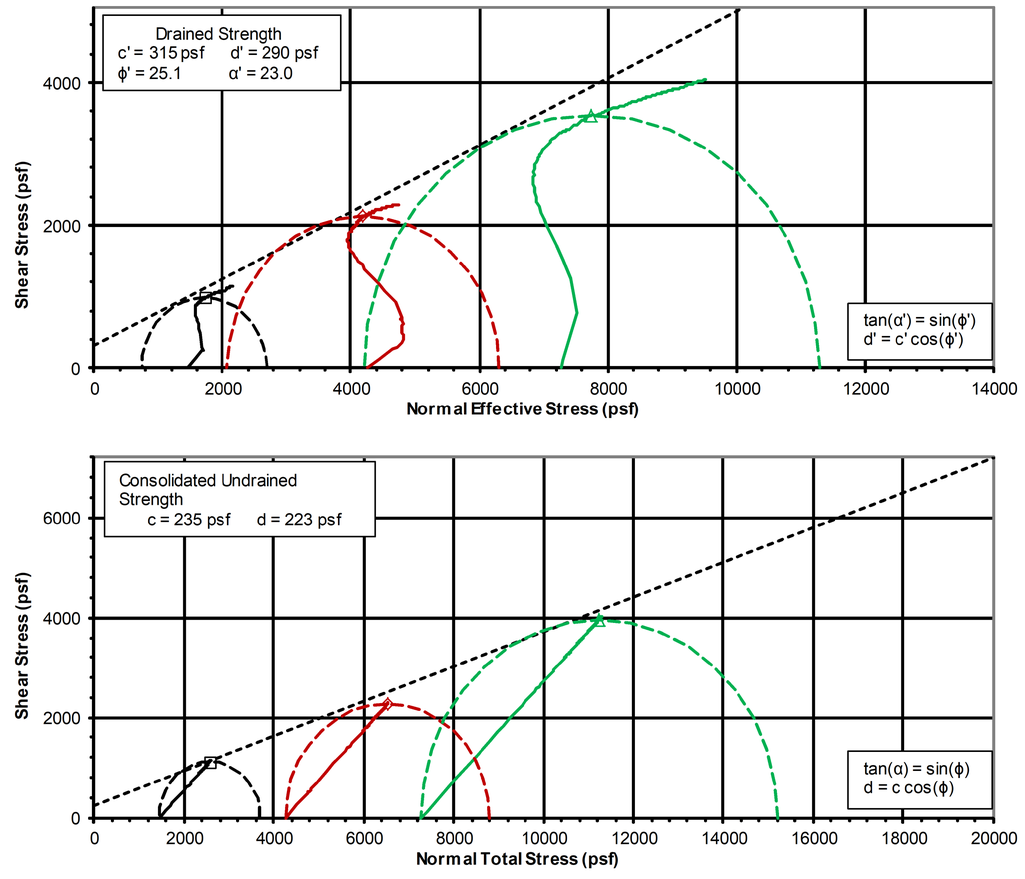


CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 2

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	206	B-063-0-11, 5.0'-6.0'	Lean Clay with Gravel (CL), red brown, moist, firn	2.75	36	15	21
B	200A	B-062-0-11, 5.1'-5.6'	Lean Clay with Sand (CL), red brown, moist, firm	2.76	33	19	14
C	200B	B-062-0-11, 5.6'-6.1'	Lean Clay with Sand (CL), red brown, moist, firm	2.76	33	19	14



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SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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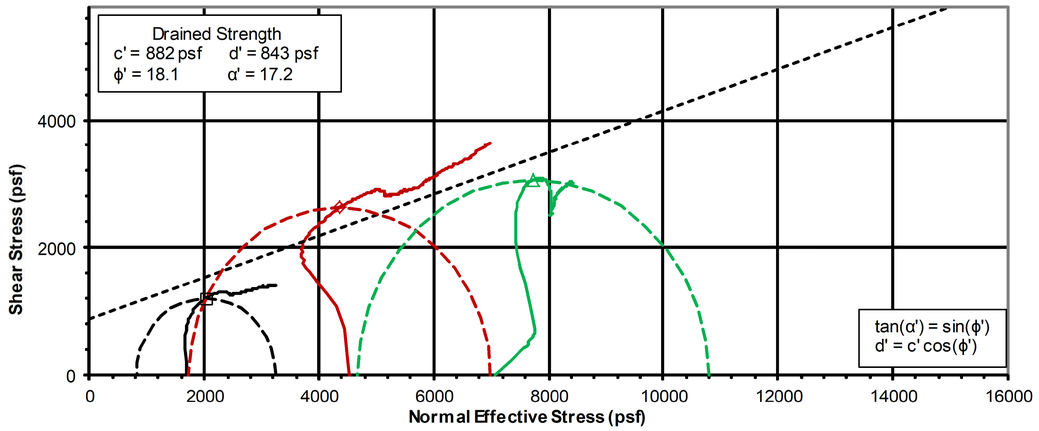
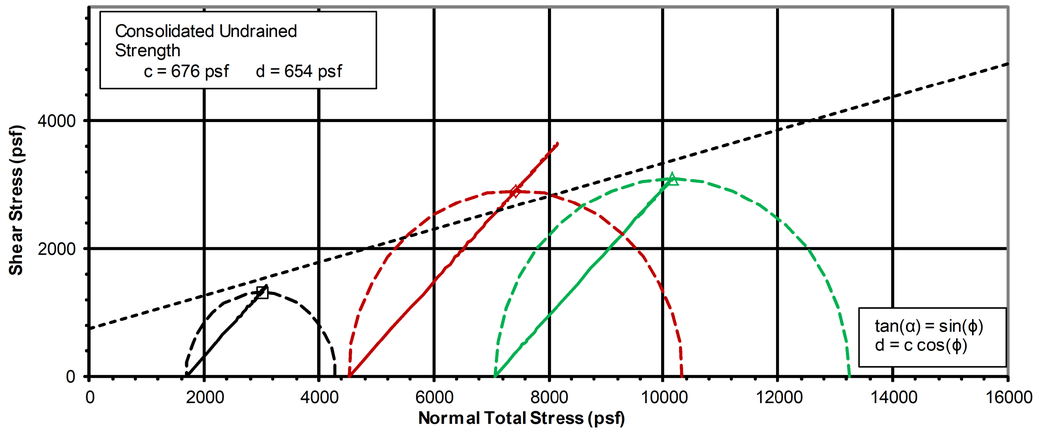
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 6

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	555B	B-036-1-11, 5.0'-5.5'	Lean Clay (CL), light brown, moist, firm to hard	2.75			
B	556A	B-036-1-11, 6.5'-7.0'	Lean Clay (CL), red brown, moist, firm	2.75			
C	556B	B-036-1-11, 7.4'-7.9'	Lean Clay (CL), red brown, moist, firm	2.75			



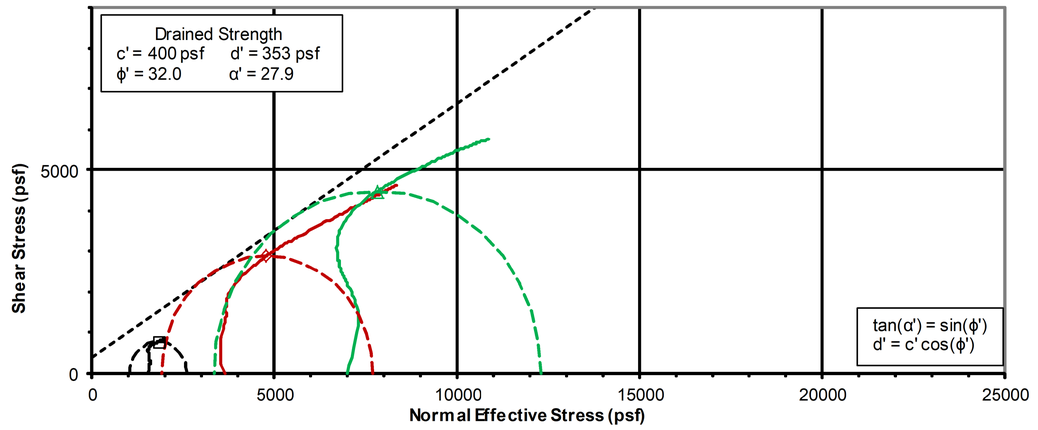


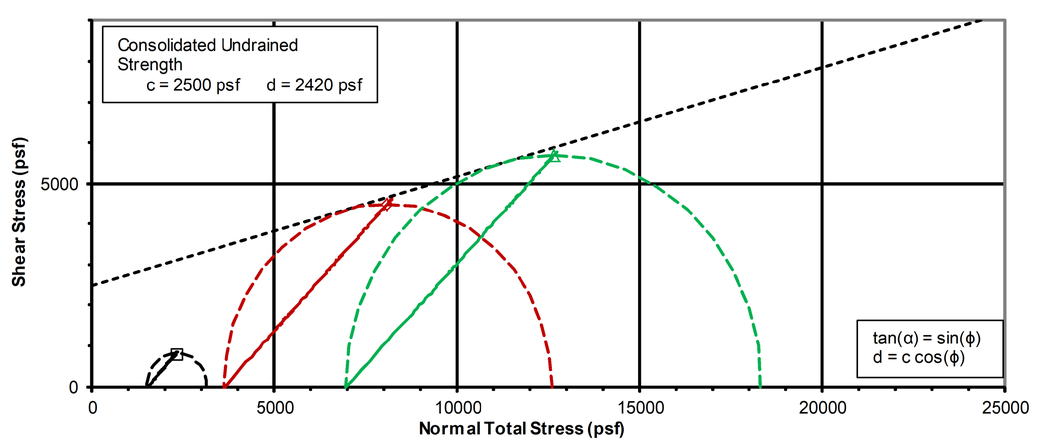
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 12@11.5%

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	2A@11.5	Embankment @ 11.5%	Mudstone, reddish brown to gray (non-bedded)	2.70	33	19	14
B	2B@11.5	Embankment @ 11.5%	Mudstone, reddish brown to gray (non-bedded)	2.70	33	19	14
C	2C@11.5	Embankment @ 11.5%	Mudstone, reddish brown to gray (non-bedded)	2.70	33	19	14





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SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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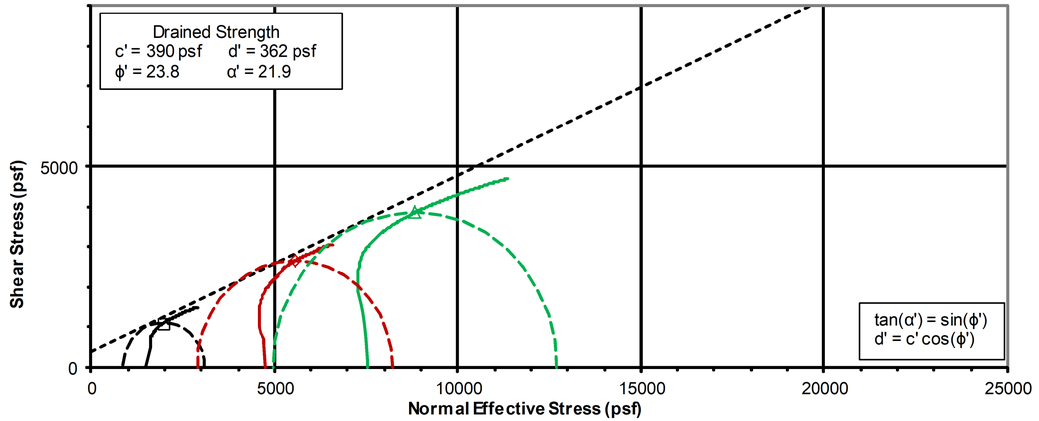
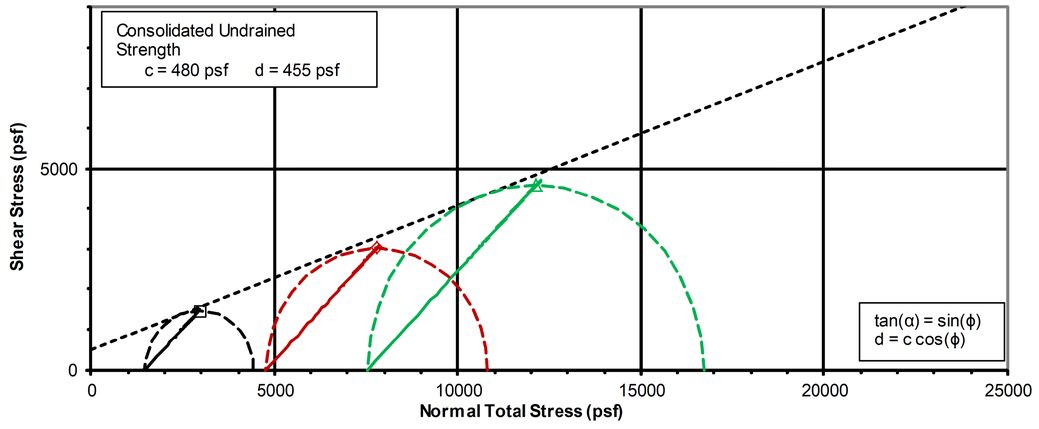
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 11

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	611	Embankment @ 13.5% MC	Mudstone, reddish brown to gray, non-bedded	2.71			
B	611	Embankment @ 13.5% MC	Mudstone, reddish brown to gray, non-bedded	2.71			
C	611	Embankment @ 13.5% MC	Mudstone, reddish brown to gray, non-bedded	2.71			



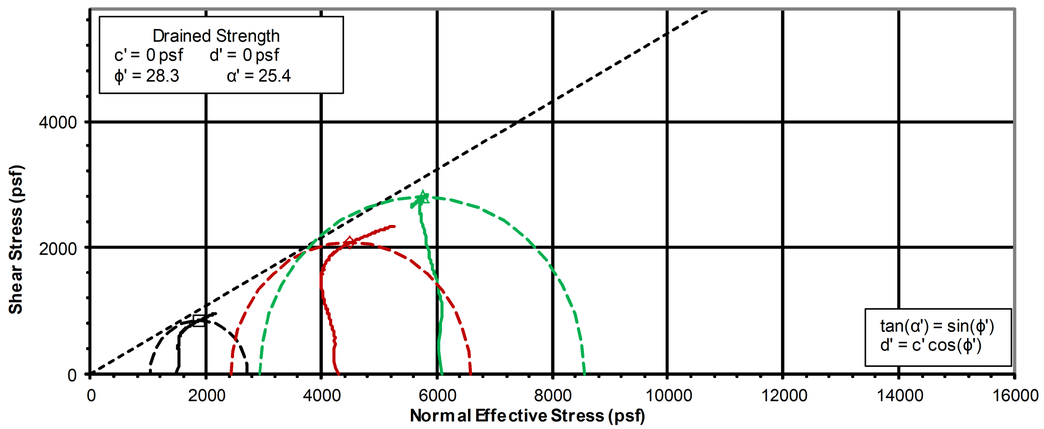


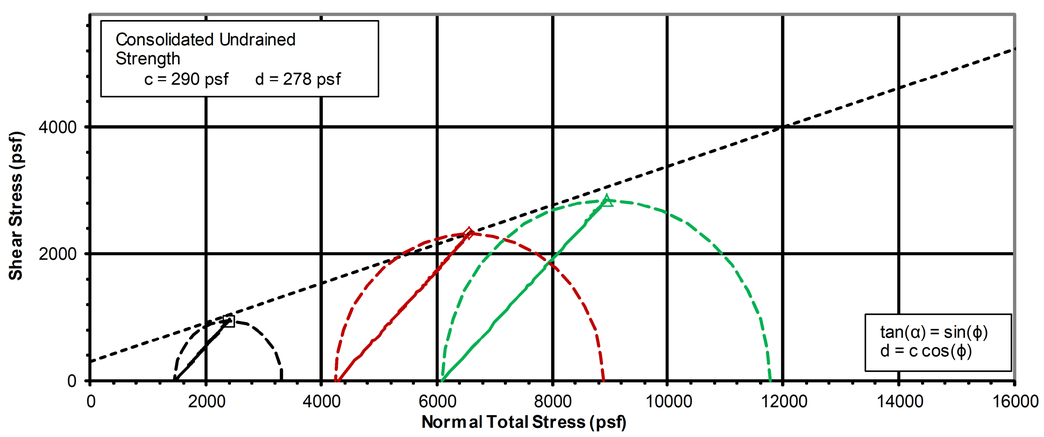
CONSOLIDATED UNDRAINED TRIAXIAL TEST
ASTM D4767-04

Project Name LAW-7-2.17

Project 173608714
Set ID 12@15.5%

Test	Lab ID	Source	Description	Gs	LL	PL	PI
A	2A@15.5	Embankment @ 15.5% MC	Mudstone, reddish brown to gray, non-bedded	2.70	33	19	14
B	2A@15.5	Embankment @ 15.5% MC	Mudstone, reddish brown to gray, non-bedded	2.70	33	19	14
C	2A@15.5	Embankment @ 15.5% MC	Mudstone, reddish brown to gray, non-bedded	2.70	33	19	14





SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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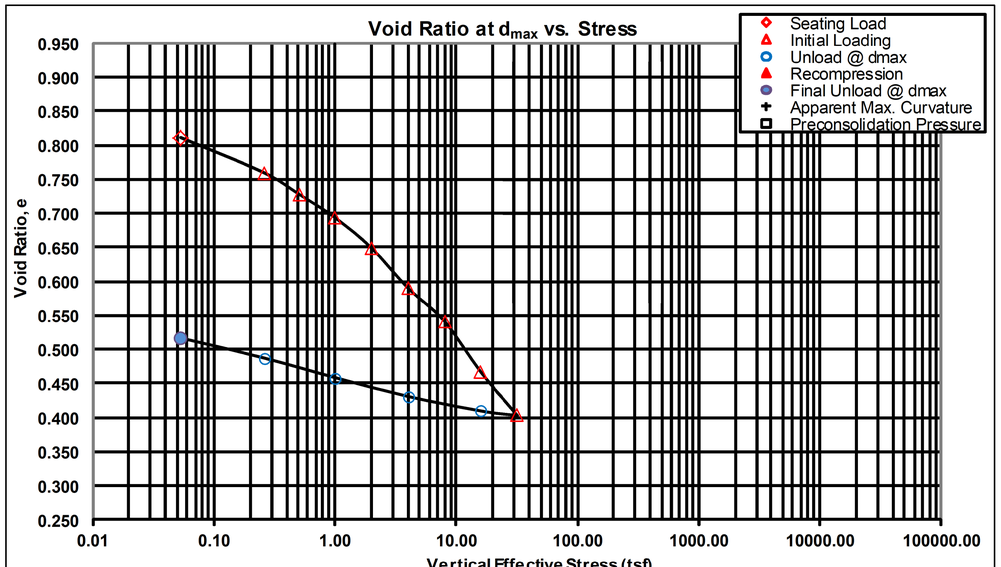
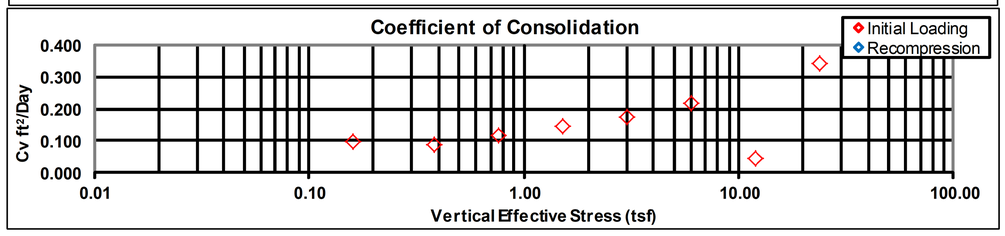
ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

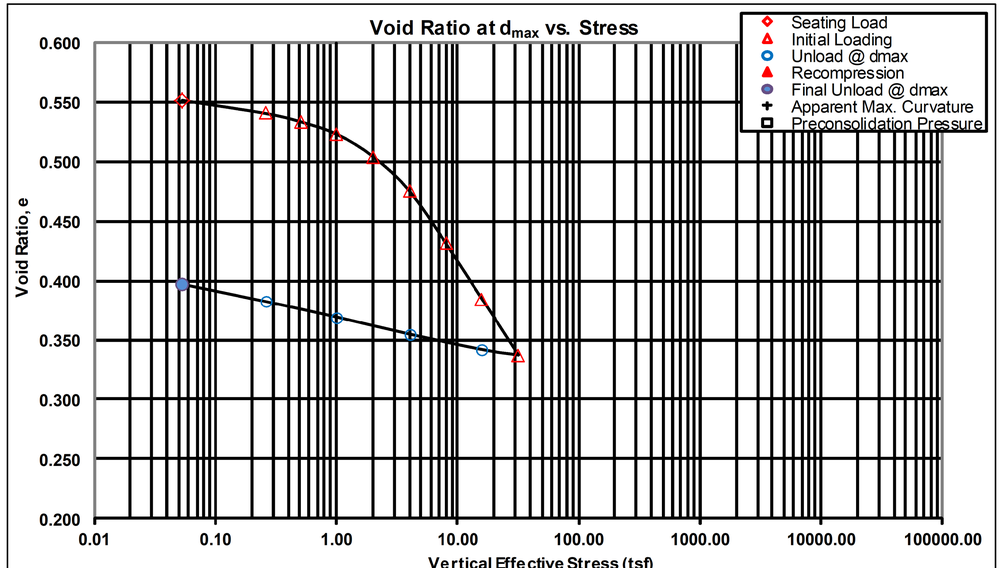
Project Name LAW-7-2.17 | Project No. 173608714
Source B-076-0-12, 9.9'-10.15' | Lab ID 11
Description Lean Clay (CL), brown, moist, firm | Date Received 06/05/2013
Specimen Type Undisturbed

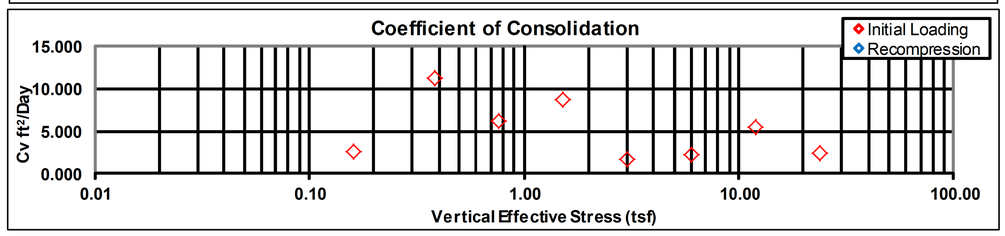




ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

Project Name LAW-7-2.17 | Project No. 173608714
Source B-009-1-12, 13.2'-13.5' | Lab ID 3
Description Clayey Sand (SC), brown, moist, firm | Date Received 06/05/2013
Specimen Type Undisturbed





DRAWN M.S.J
CHECKED E.M.K

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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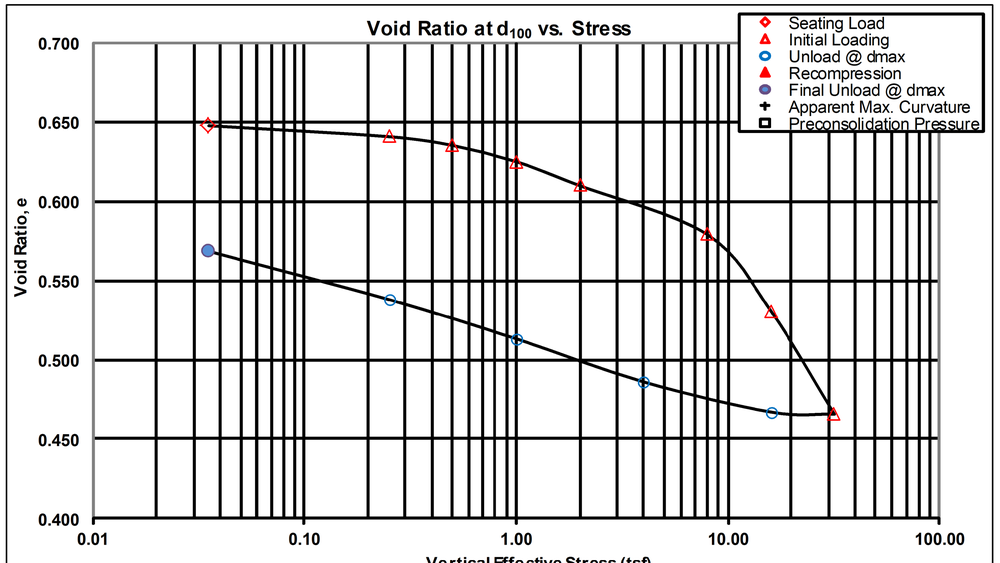
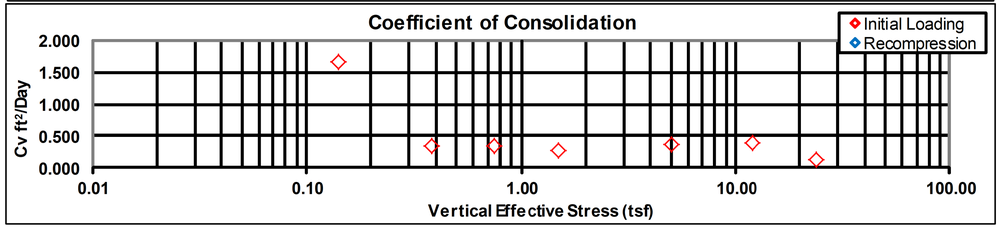
ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

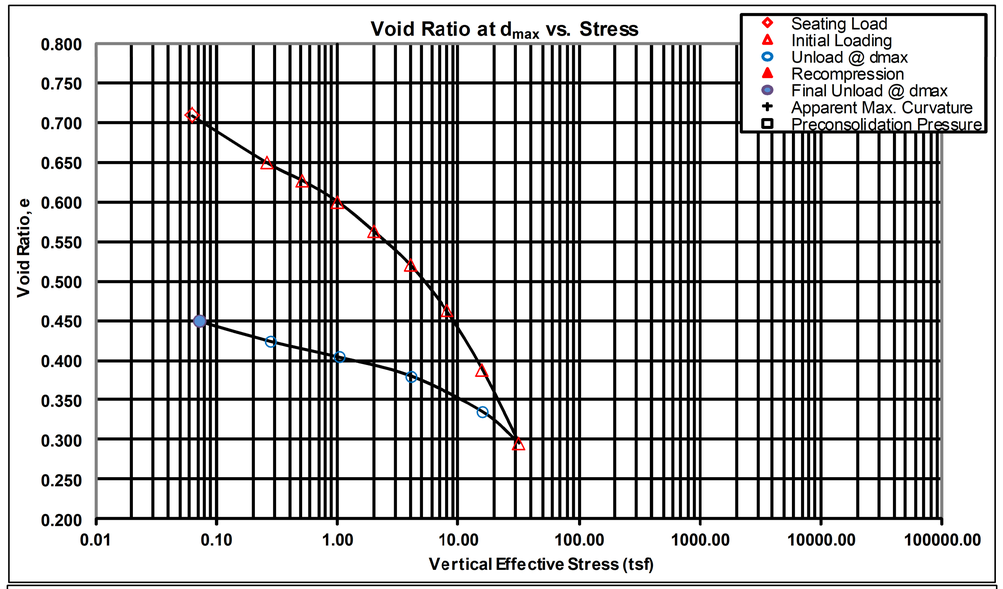
Project Name LAW-7-2.17 | Project No. 173608714
Source B-010-0-11, 5.0'-7.0' | Lab ID 486C
Description Lean Clay with Sand (CL), brown, moist, firm, Mn | Date Received 06/25/2011
Specimen Type Undisturbed

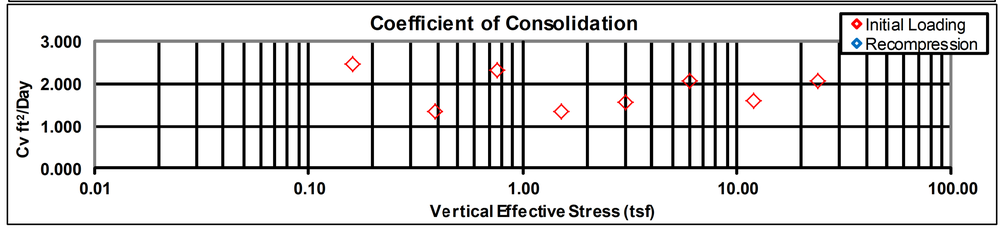




ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

Project Name LAW-7-2.17 | Project No. 173608714
Source B-010-1-12, 8.35'-8.6' | Lab ID 5
Description Lean Clay with Sand (CL), gray brown, wet, soft | Date Received 06/05/2013
Specimen Type Undisturbed





DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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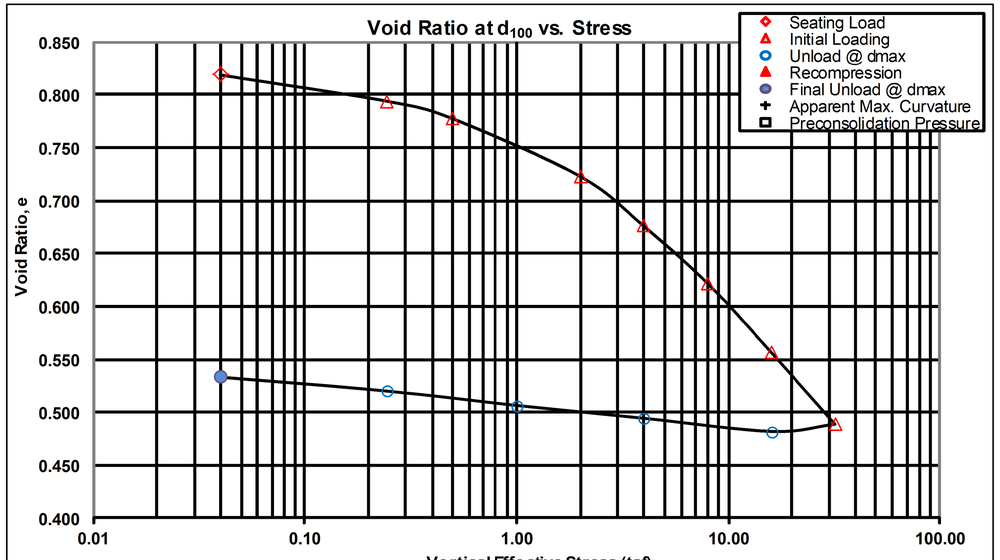
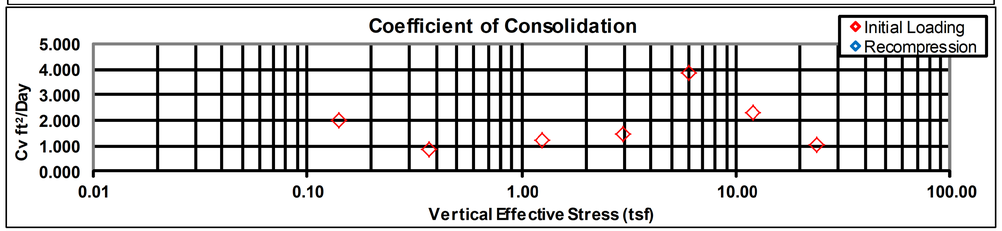
ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

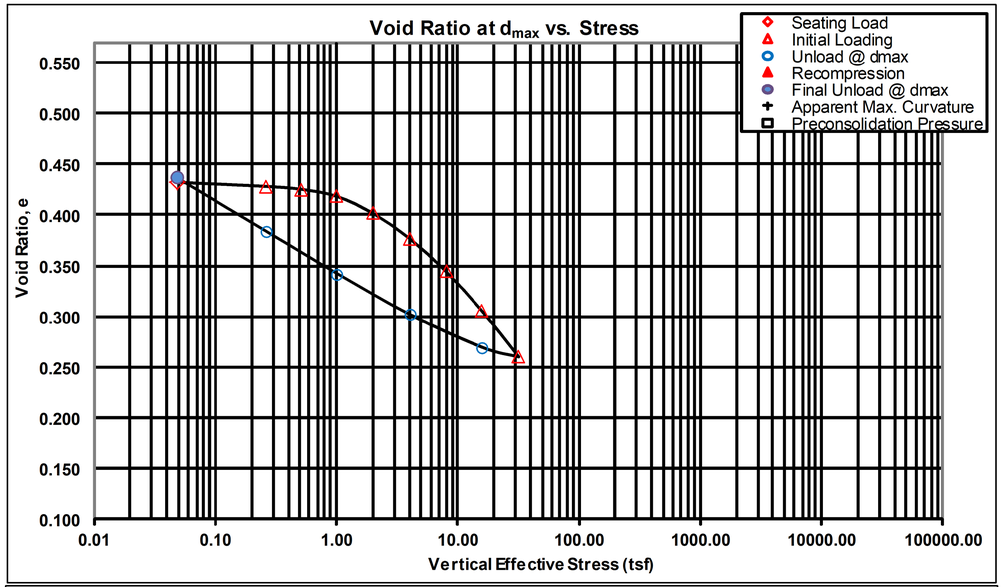
Project Name LAW-7-2.17 | Project No. 173608714
Source B-012-0-11, 5.0'-7.0' | Lab ID 495
Description Silty Sand (SP), brown, moist, soft | Date Received 07/02/2011
Specimen Type Undisturbed

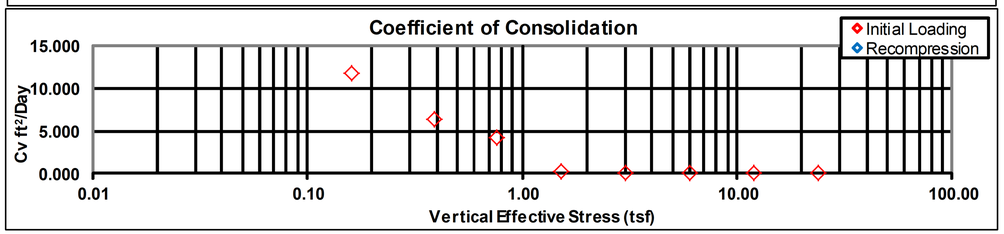




ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

Project Name LAW-7-2.17 | Project No. 173608714
Source B-019-2-12, 5.8'-6.1' | Lab ID 10
Description Lean Clay (CL), red brown, moist, firm | Date Received 06/05/2013
Specimen Type Undisturbed





SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

DRAWN MSJ
CHECKED EMK

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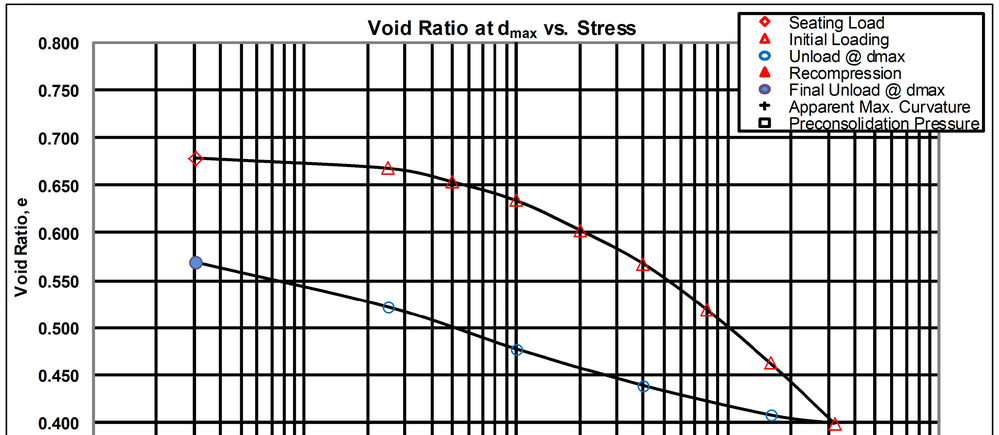
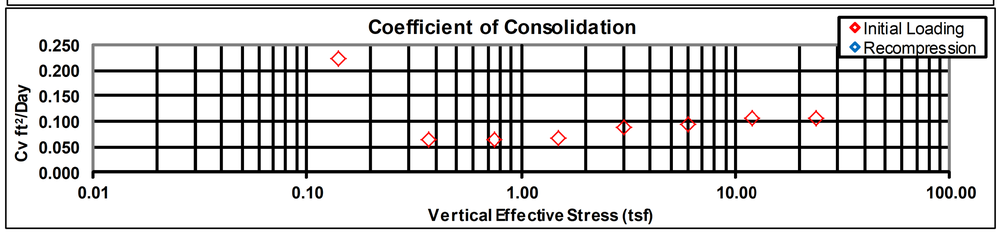
ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

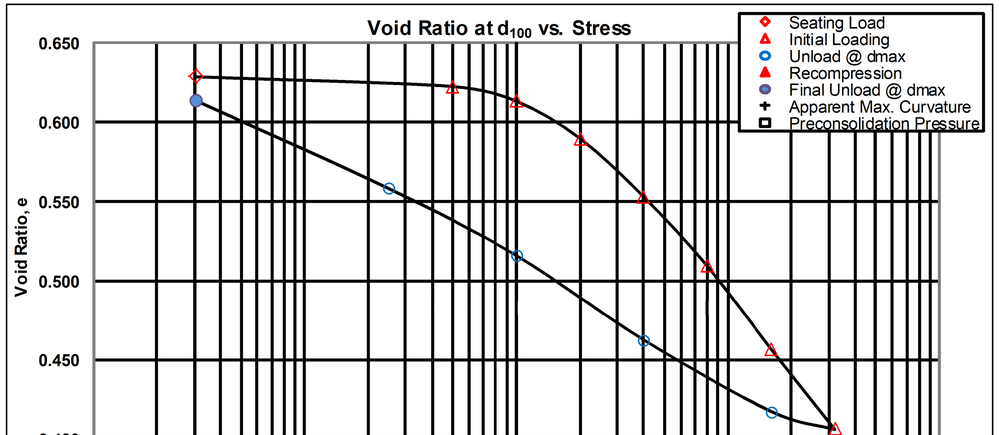
Project Name LAW-7-2.17 | Project No. 173608714
Source B-034-0-11, 20.0'-22.0', TI - 21.4'-21.9' | Lab ID 31A
Description Lean Clay (CL), gray, moist, firm, layers of sandstone | Date Received 05/24/2011
Specimen Type Undisturbed

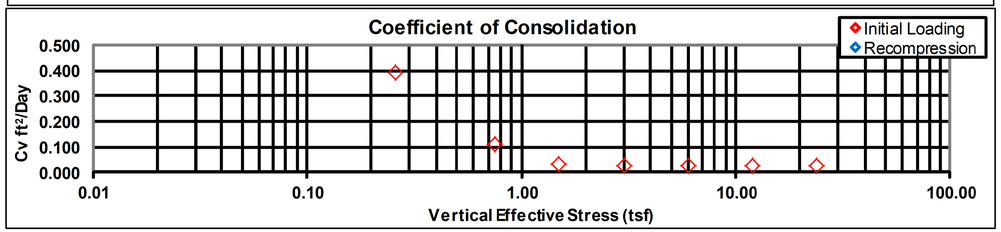




ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

Project Name LAW-7-2.17 | Project No. 173608714
Source B-036-1-11, 4.5'-6.5' | Lab ID 555A
Description Lean Clay with Sand (CL), light brown, moist, firm to hard | Date Received 07/18/2011
Specimen Type Undisturbed





DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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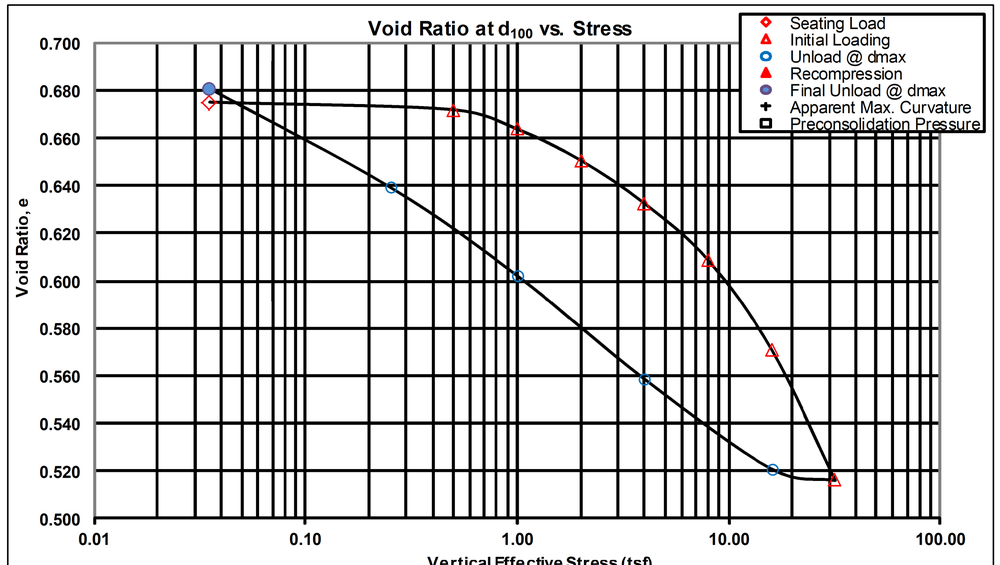
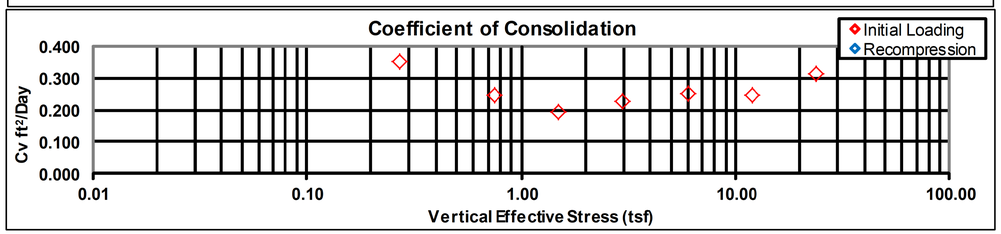
ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

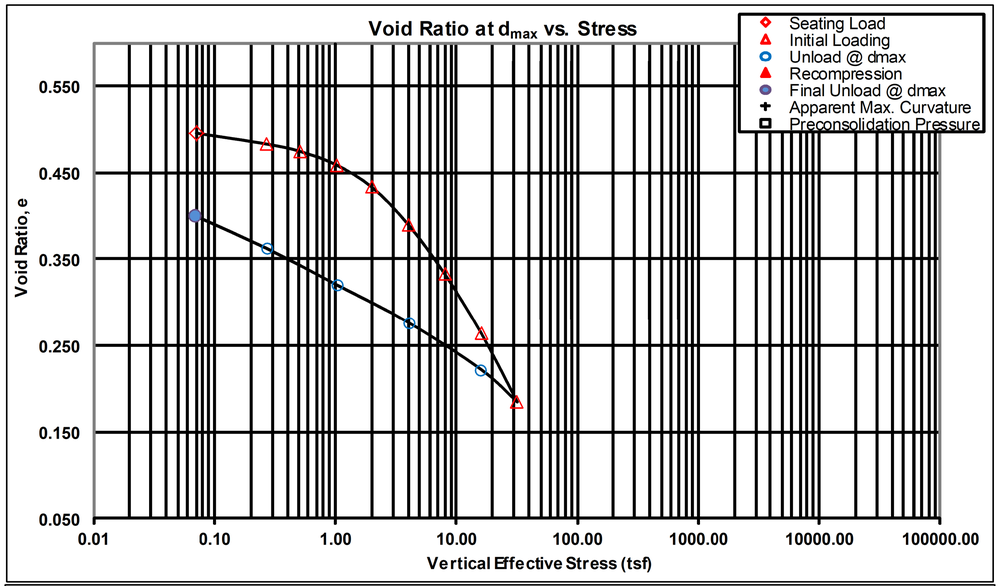
Project Name LAW-7-2.17 | Project No. 173608714
Source B-038-0-11, 10.0'-12.0' | Lab ID 57
Description Lean Clay (CL), brown, moist, firm | Date Received 05/31/2011
Specimen Type Undisturbed

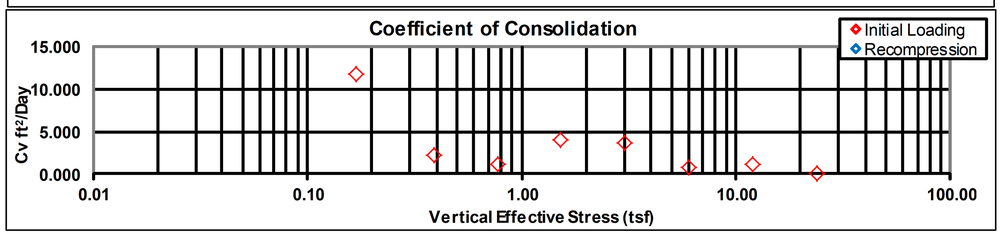




ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

Project Name LAW-7-2.17 | Project No. 173608714
Source Bulk Core 1, 9.0'-11.0' (Embankment) | Lab ID 12
Description Lean Clay with Sand (CL), gray brown, moist, firm | Date Received 06/05/2013
Specimen Type Compacted





SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

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ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

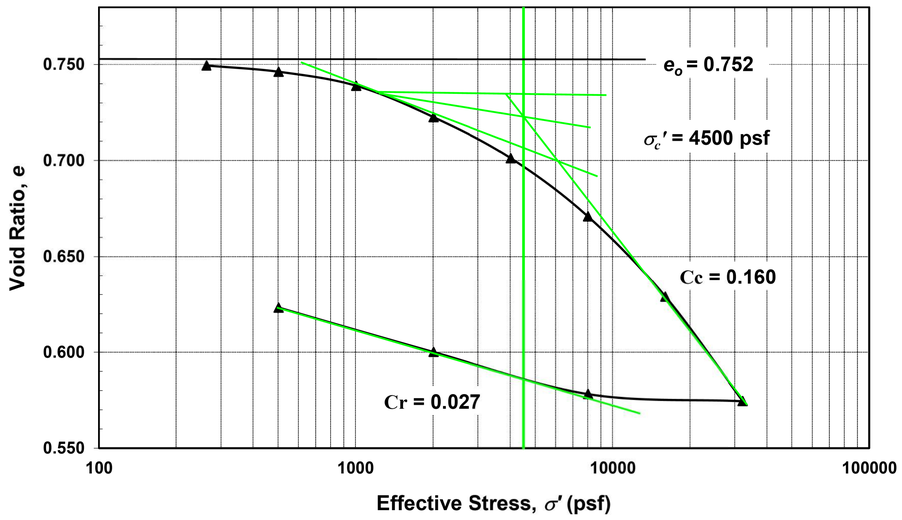
Consolidation Test

Project Name: LAW-7-2.17 | Prepared by: LR
Source: B-001-1-23 ST-5 12.5'-14.5' (13.8'-13.9' sampled) | Checked by: ZM
Description: Very stiff, brown and orangish brown, CLAY, "and" silt, trace sand trace gravel, moist. | Date: 7/9/2024
Test Specification: ASTM D 2435
Initial Void Ratio: 0.752 | Initial Bulk Unit Weight (lb/ft^3): 123
In-situ Vertical Effective Stress (psf): 1650 | Dry Unit Weight (lb/ft^3): 96

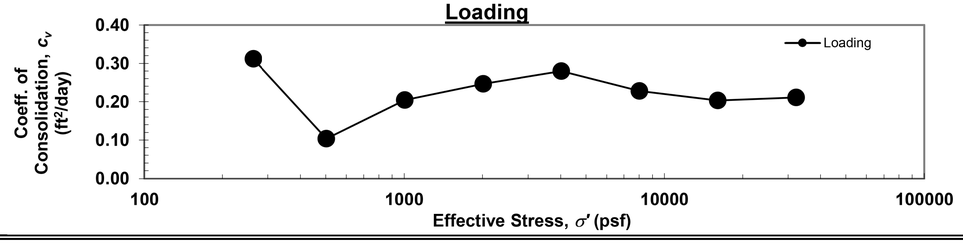
Compression and Swelling Index

Compression Index (Cc): 0.160 | Preconsolidation Pressure (σ_c') (psf): **4500**
Recompression Index (Cr): 0.027 | Over-Consolidation Ratio (OCR): **2.7**

Consolidation Curve



Loading



ONE-DIMENSIONAL CONSOLIDATION OF SOILS
ASTM D2435-96

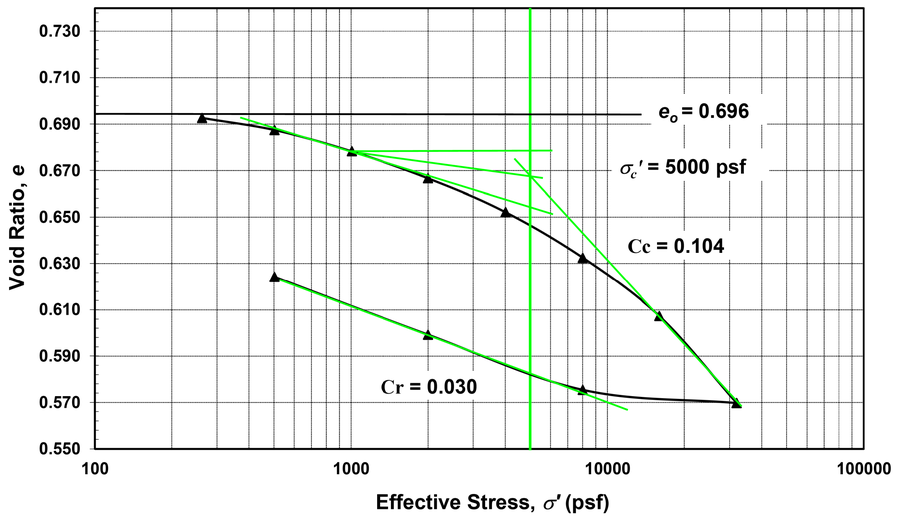
Consolidation Test

Project Name: LAW-7-2.17 | Prepared by: LR
Source: B-007-1B-23 ST-1 8.0'-10.0' (9.3'-9.4' sampled) | Checked by: ZM
Description: Hard, brown, SILT, "and" clay, trace sand, trace gravel, moist. | Date: 7/9/2024
Test Specification: ASTM D 2435
Initial Void Ratio: 0.696 | Initial Bulk Unit Weight (lb/ft^3): 125
In-situ Vertical Effective Stress (psf): 1110 | Dry Unit Weight (lb/ft^3): 99

Compression and Swelling Index

Compression Index (Cc): 0.104 | Preconsolidation Pressure (σ_c') (psf): **5000**
Recompression Index (Cr): 0.030 | Over-Consolidation Ratio (OCR): **4.5**

Consolidation Curve



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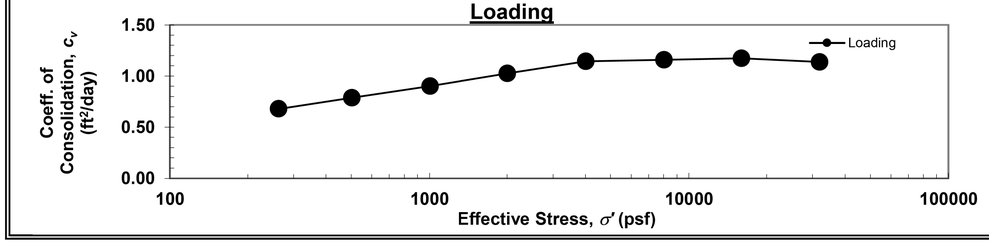

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LABORATORY TEST DATA

LAW-7-2.17

43A/206
1084A
1247

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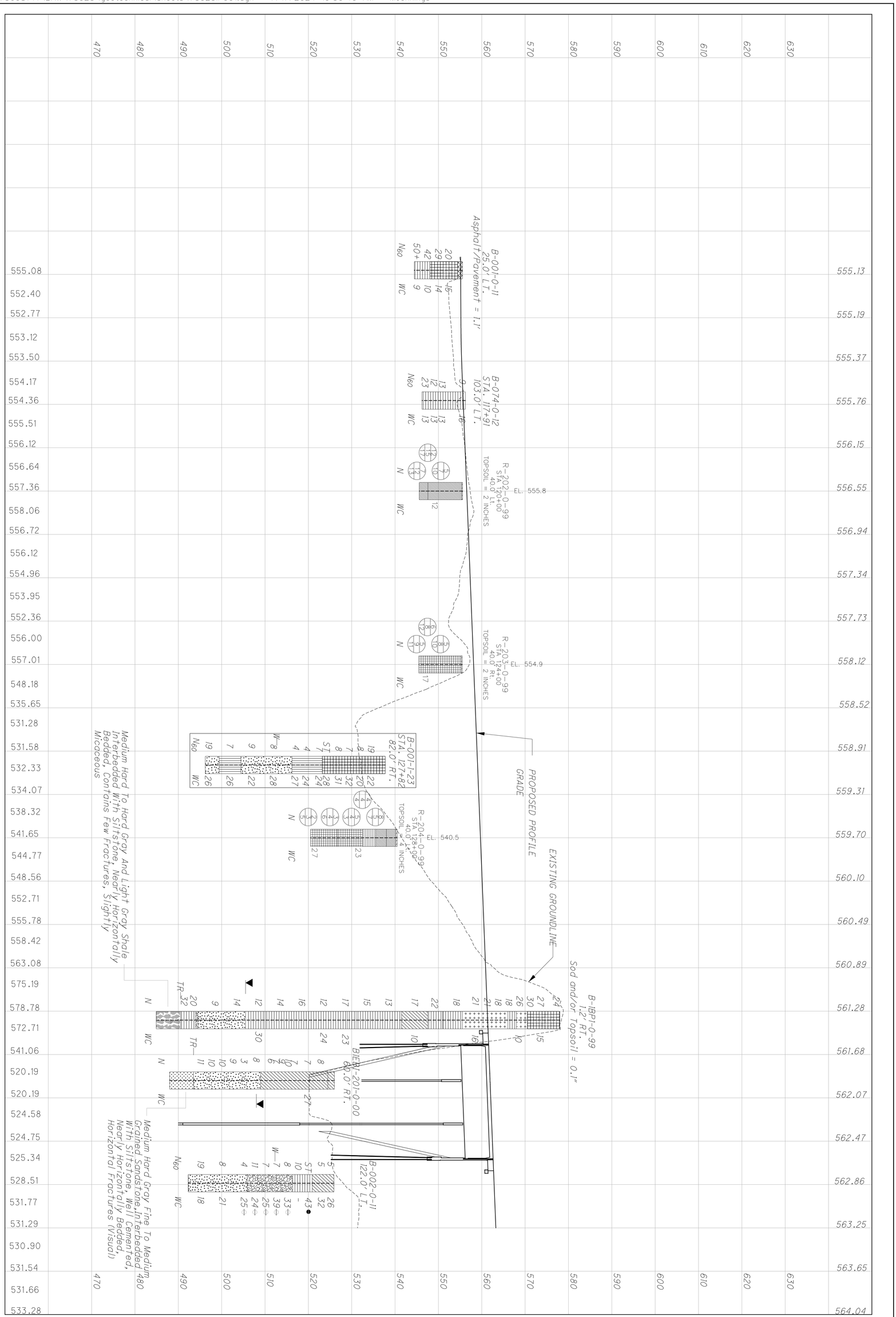
U:\173608714\LAW\75923\geotechnical\sheets\75923IP001.dgn 7/17/2024 10:28:38 AM MJennings

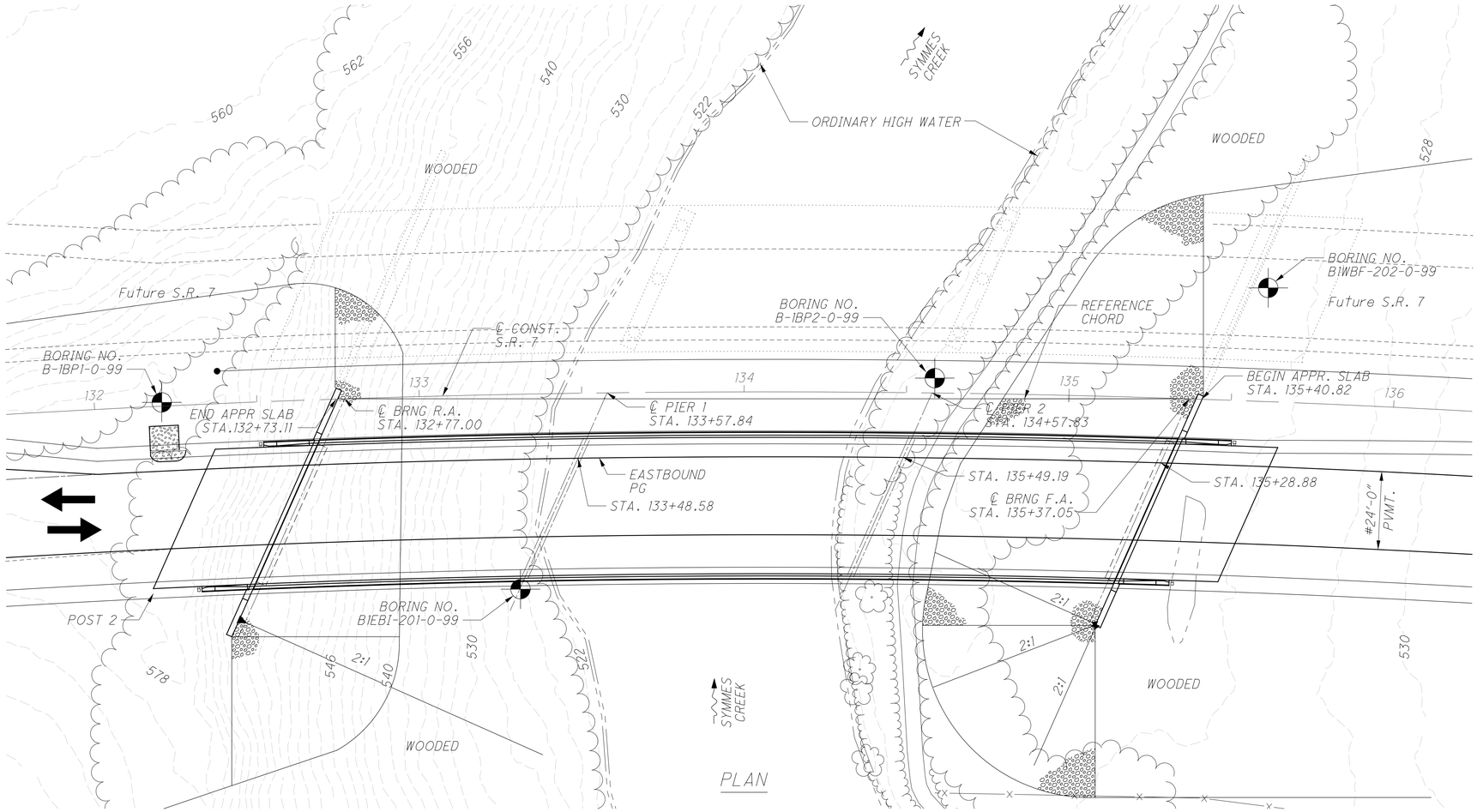
For S.R. 7 Profile, See Sheet 45
For Ramp C Plan & Profile, See Sheet 122
For Ramp D Plan & Profile, See Sheet 124
For Cross Section 136+00, See Sheet 77
For Bridge LAW-7-02.51 Plan & Profile, See Sheet 46

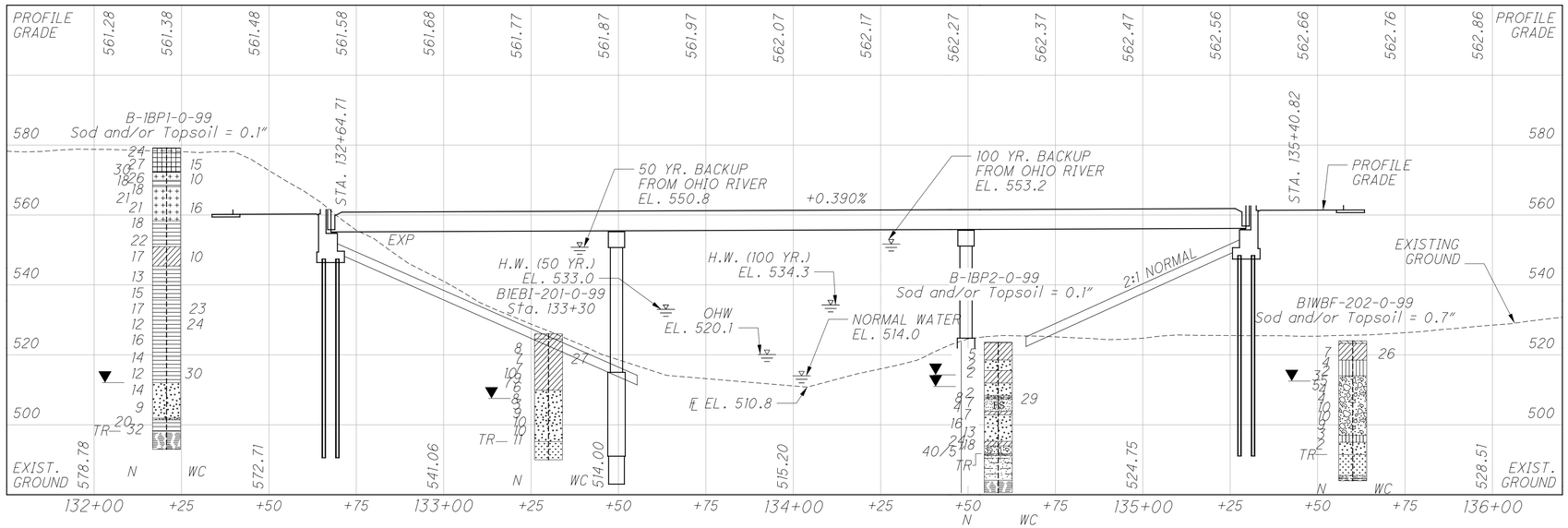
1085 1247	44 206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY STA. 114+57.60 - 137+00**	DRAWN MSJ CHECKED EMK	0 50 100 200 HORIZONTAL SCALE IN FEET

U:\173608714\LAW\75923\geotechnical\sheets\75923IF001.dgn 7/17/2024 10:30:49 AM MJennings



1089 / 1247	45 / 206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY** **STA. 114+57.60 - 137+00**	DRAWN MSJ CHECKED EMK 0 100 50 200 HORIZONTAL SCALE IN FEET





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HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
LAW-7-2.51
S.R. 7 OVER SYMMES CREEK

STRUCTURE
S.R. 7

LAW-7-2.17

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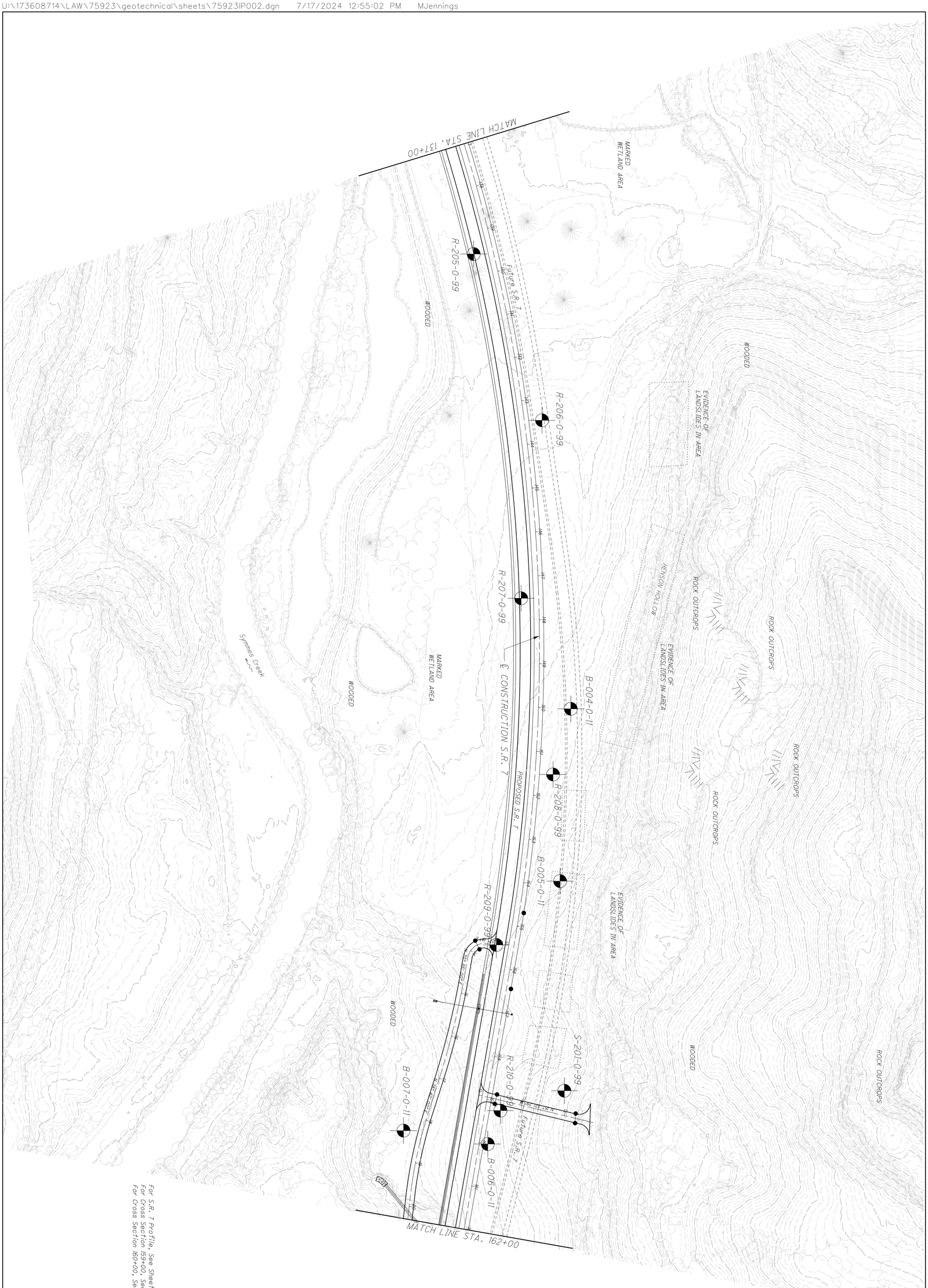

For S.R. 7 Profile, See Sheet 48
For Cross Section 159+00, See Sheet 78
For Cross Section 160+00, See Sheet 79

1088 1247	47 206	LAW-7-2.17	SOIL PROFILE - ROADWAY STA. 137+00 - 162+00	DRAWN MSJ CHECKED EMK	0 100 50 200 HORIZONTAL SCALE IN FEET

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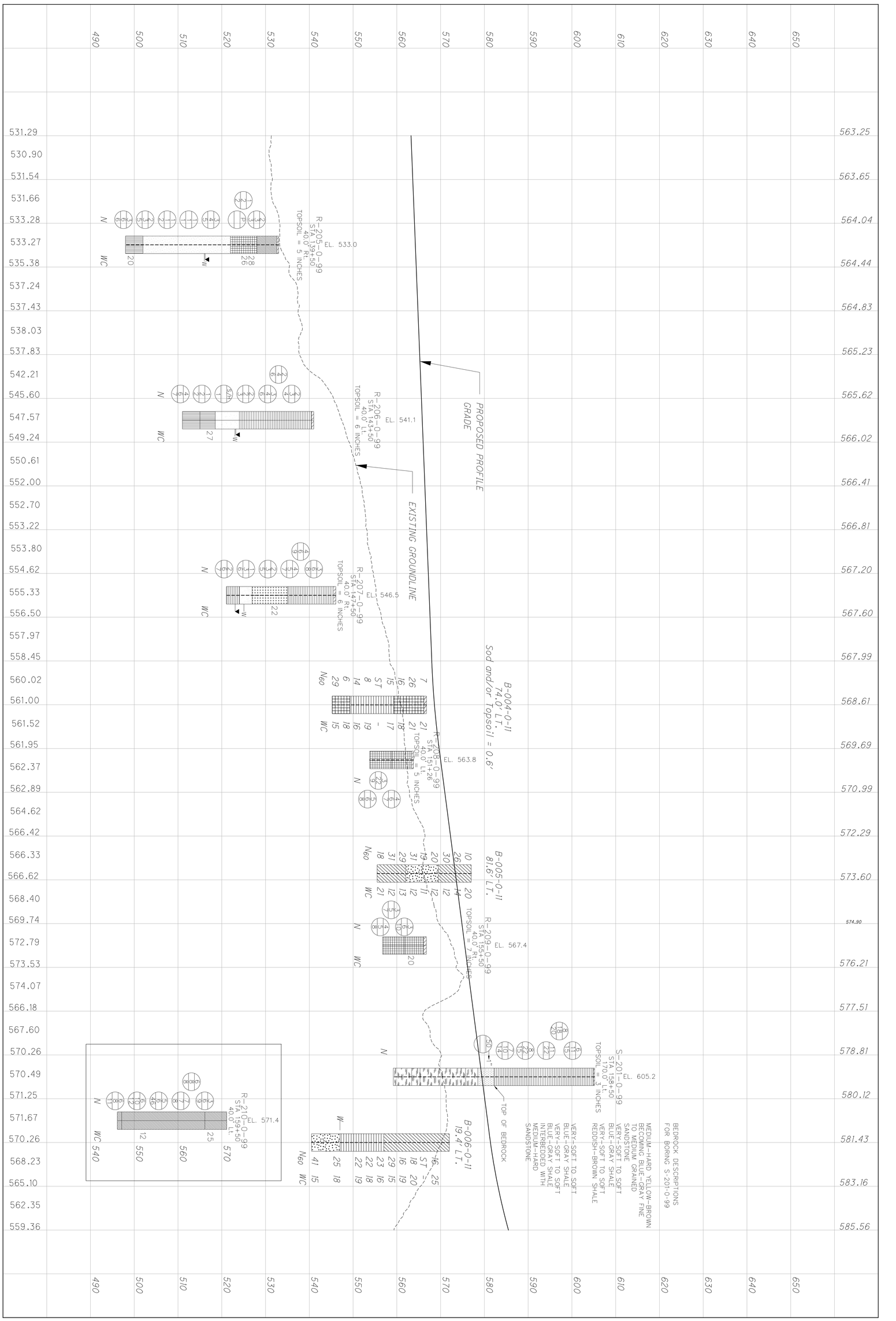

1089 / 1247	48 / 206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY** **STA. 137+00 - 162+00**	DRAWN MSJ CHECKED EMK 0 50 100 200 HORIZONTAL SCALE IN FEET

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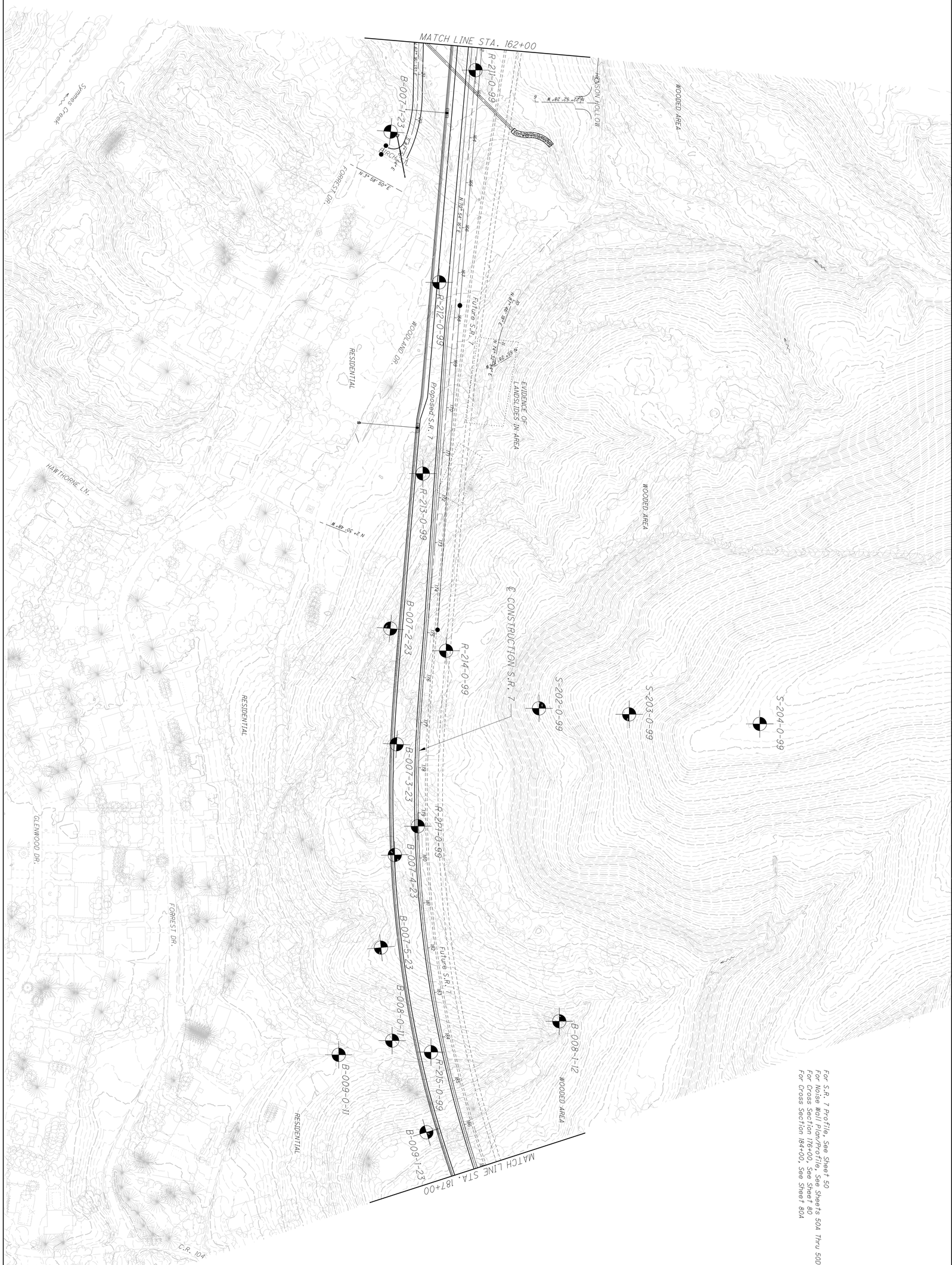

For S.R. 7 Profile, See Sheet 5D
For Noise Wall Plan/Profile, See Sheets 5DA Thru 5DD
For Cross Section 176+00, See Sheet 8D
For Cross Section 184+00, See Sheet 8DA

1090 / 1247	49 / 206	LAW-7-2.17	SOIL PROFILE - ROADWAY STA. 162+00 - 187+00	DRAWN MSJ CHECKED EMK	0 100 50 200 HORIZONTAL SCALE IN FEET

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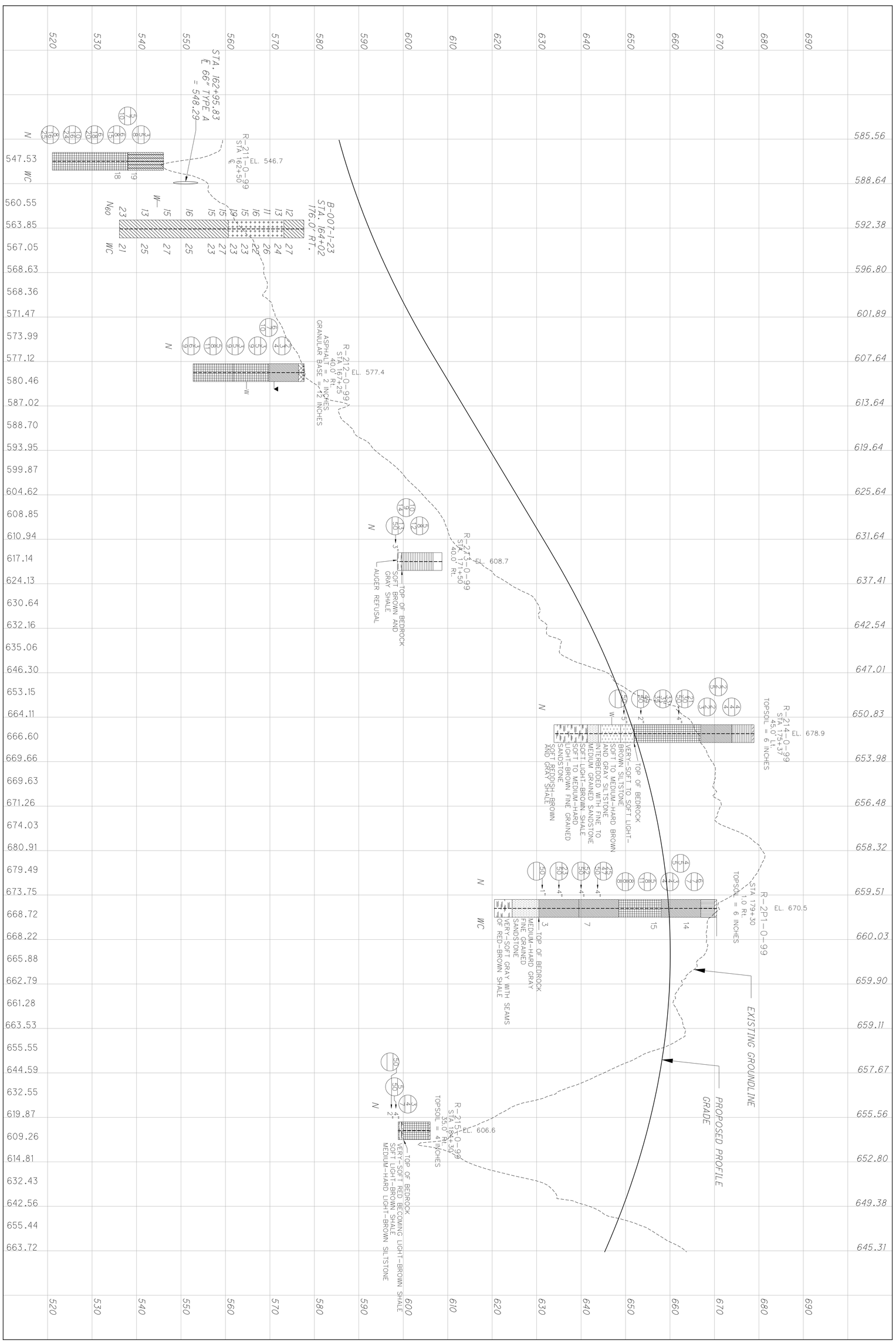
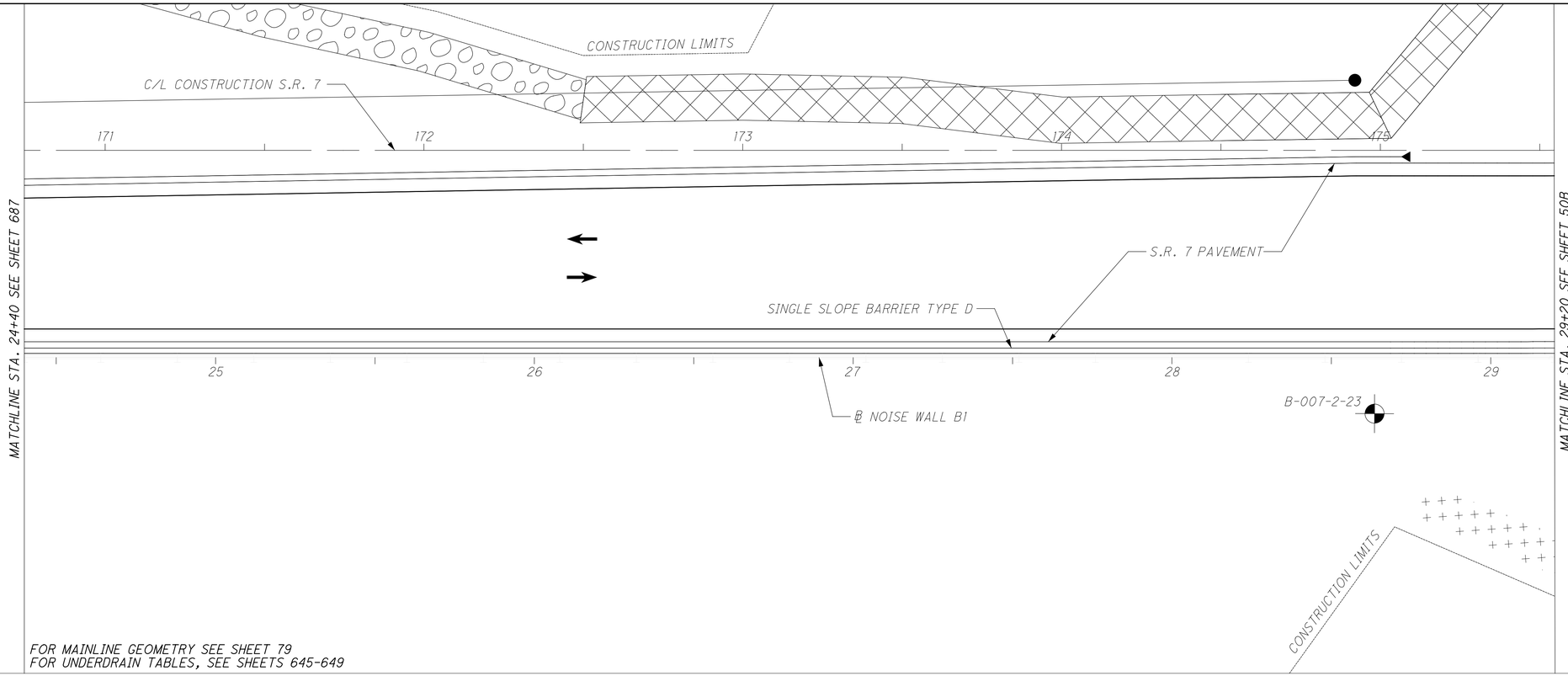
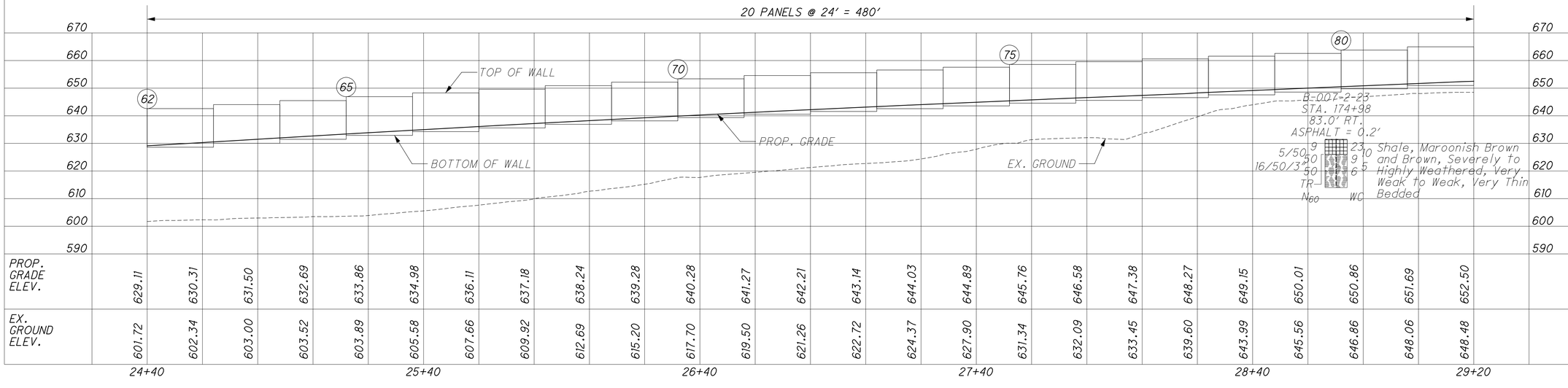


1091 / 1247	50 / 206	LAW-7-2.17	SOIL PROFILE - ROADWAY STA. 162+00 - 187+00	DRAWN MSJ CHECKED EMK	0 50 100 200 HORIZONTAL SCALE IN FEET



FOR MAINLINE GEOMETRY SEE SHEET 79
FOR UNDERDRAIN TABLES, SEE SHEETS 645-649

PANEL NO.	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
TOP OF WALL ELEV.	642.61	644.05	645.48	646.90	648.26	649.61	650.89	652.16	653.38	654.57	655.57	656.57	657.57	658.57	659.57	660.57	661.57	662.57	663.77	664.97
BOTTOM OF WALL ELEV.	628.61	630.05	631.48	632.90	634.26	635.61	636.89	638.16	639.38	640.57	641.57	642.57	643.57	644.57	645.57	646.57	647.57	648.57	649.77	650.97



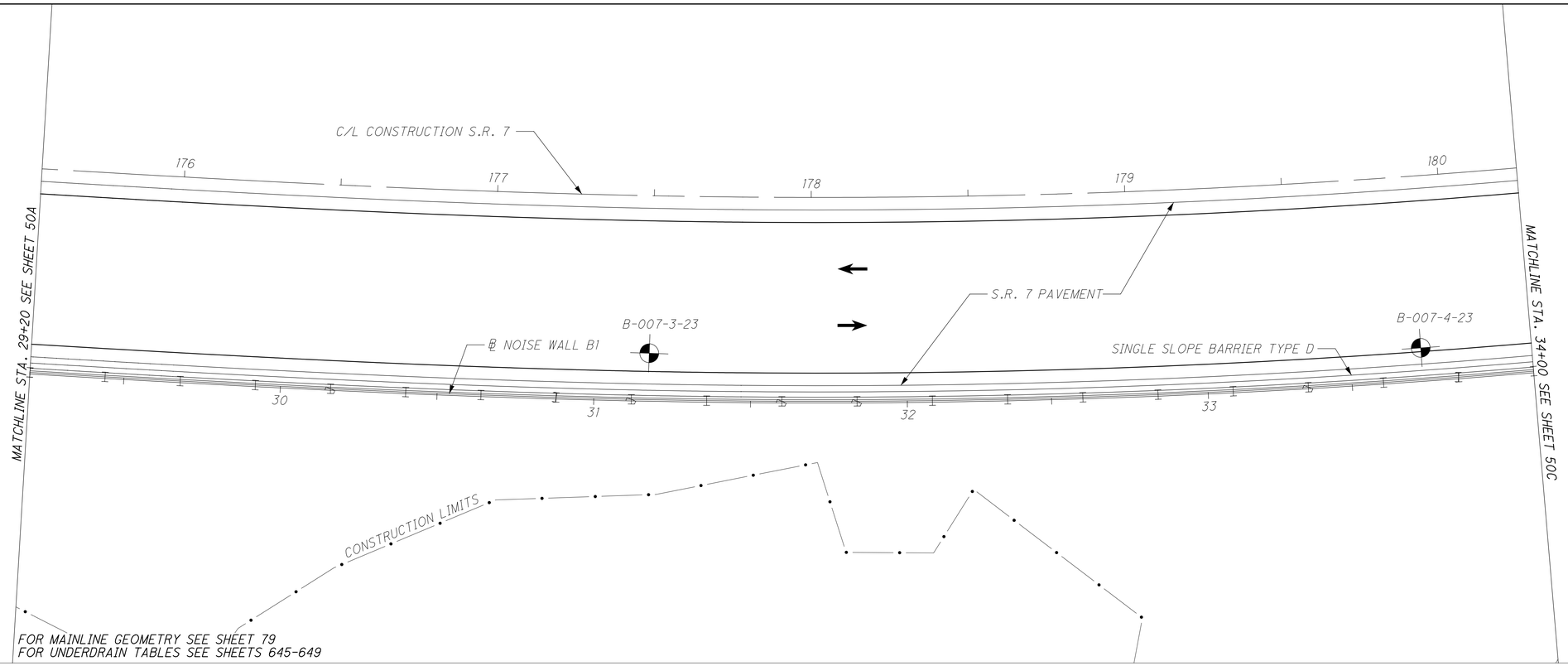
PROP. GRADE ELEV.	629.11	630.31	631.50	632.69	633.86	634.98	636.11	637.18	638.24	639.28	640.28	641.27	642.21	643.14	644.03	644.89	645.76	646.58	647.38	648.27	649.15	650.01	650.86	651.69	652.50
EX. GROUND ELEV.	601.72	602.34	603.00	603.52	603.89	605.58	607.66	609.92	612.69	615.20	617.70	619.50	621.26	622.72	624.37	627.90	631.34	632.09	633.45	639.60	643.99	645.56	646.86	648.06	648.48

24+40 25+40 26+40 27+40 28+40 29+20

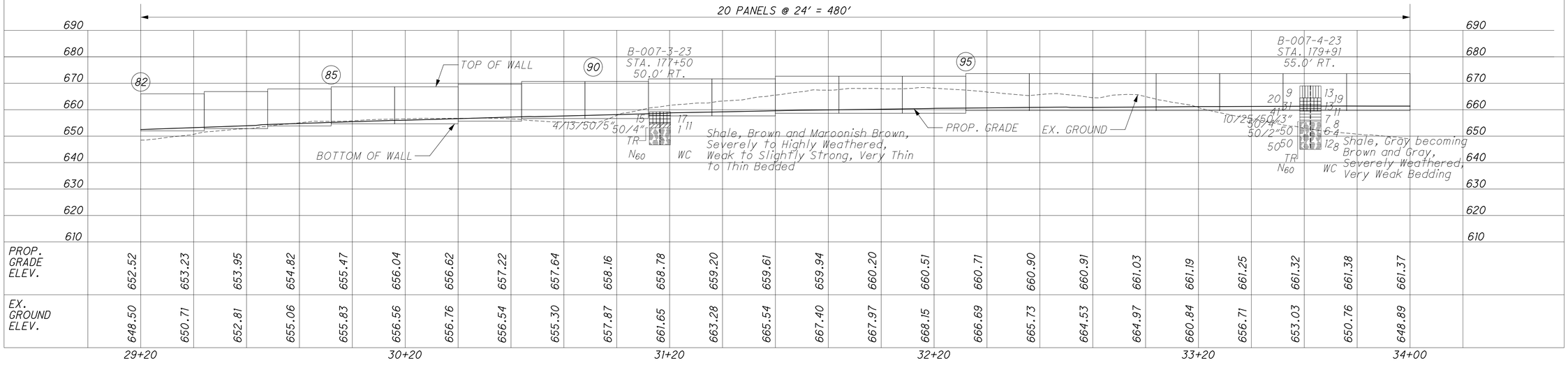
STRUCTURE FOUNDATION EXPLORATION
NOISE WALL B1 - STA. 24+40 TO 29+20

LAW-7-2.17

10911A
1247



TOP OF WALL ELEV.	666.02	666.87	667.87	668.67	668.67	669.67	670.67	670.67	671.67	671.67	672.67	672.67	672.67	673.67	673.67	673.67	673.67	673.67	673.67	673.67	
BOTTOM OF WALL ELEV.	652.02	652.87	653.87	654.67	654.67	655.67	656.67	656.67	657.67	657.67	658.67	658.67	658.67	659.67	659.67	659.67	659.67	659.67	659.67	659.67	
PANEL NO.		82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	
PROP. GRADE ELEV.	652.52	653.23	653.95	654.82	655.47	656.04	656.62	657.22	657.64	658.16	658.78	659.20	659.61	659.94	660.20	660.51	660.71	660.90	660.91	661.03	661.19	661.25	661.32	661.38	661.37
EX. GROUND ELEV.	648.50	650.71	652.81	655.06	655.83	656.56	656.76	656.54	655.30	657.87	661.65	663.28	665.54	667.40	667.97	668.15	666.69	665.73	664.53	664.97	660.84	656.71	653.03	650.76	648.89

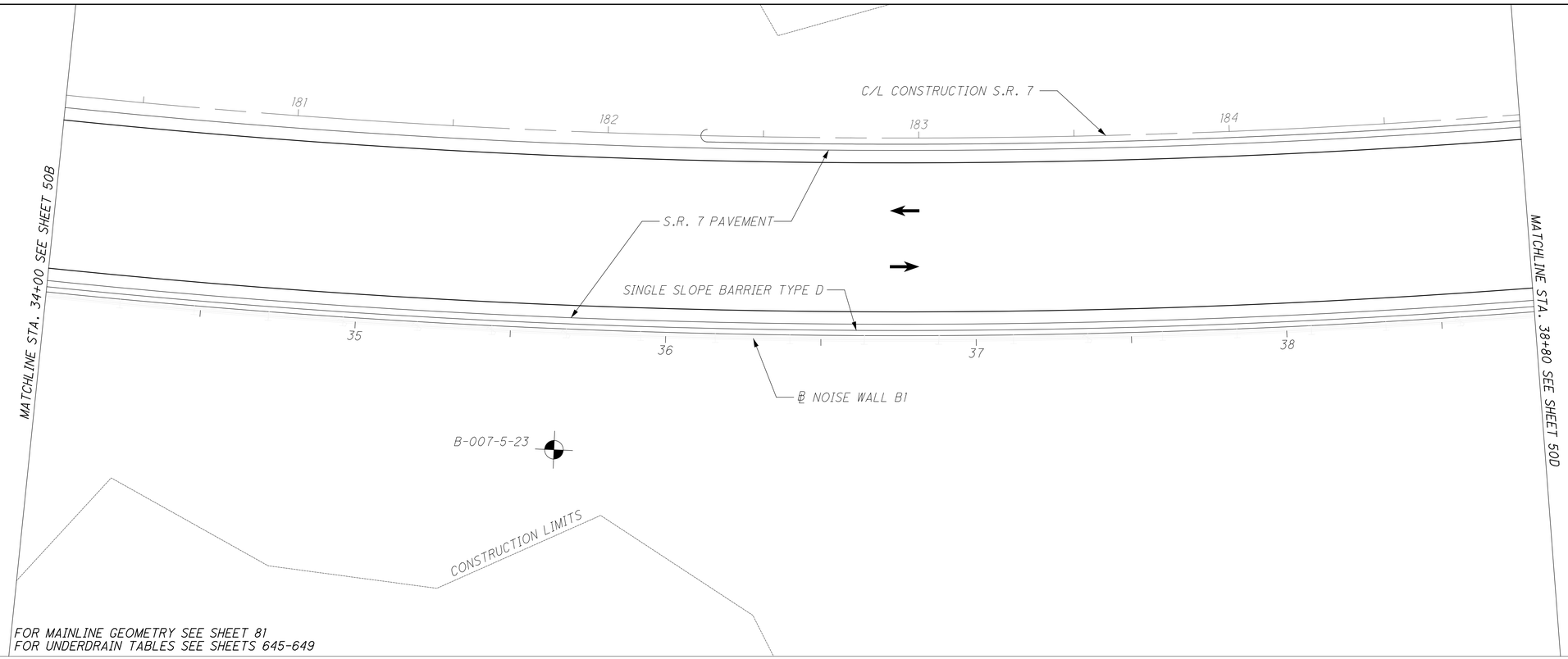


STRUCTURE FOUNDATION EXPLORATION
NOISE WALL B1 - STA. 29+20 TO 34+00

DRAWN MSJ
CHECKED EMK

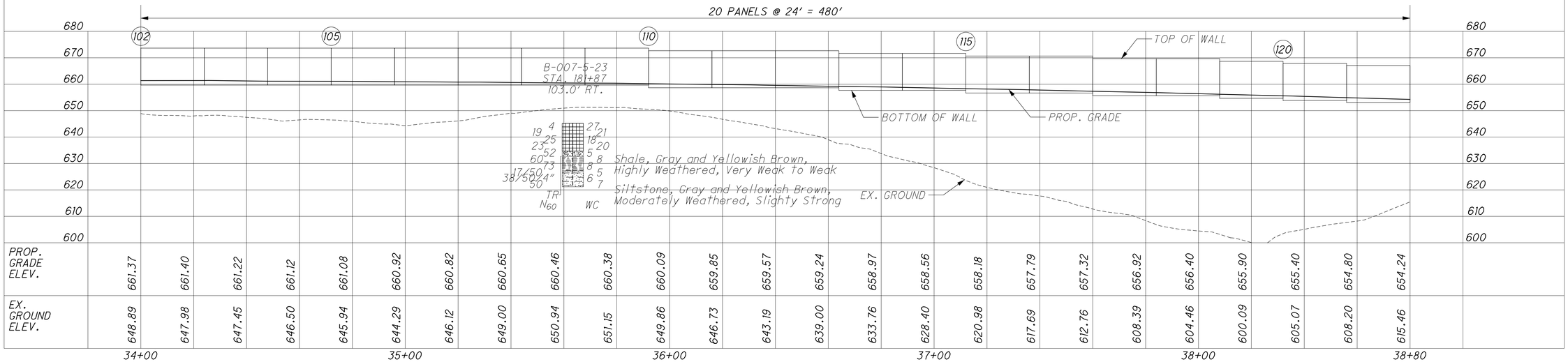
HORIZONTAL SCALE IN FEET
0 10 20 40

LAW-7-2.17



FOR MAINLINE GEOMETRY SEE SHEET 81
FOR UNDERDRAIN TABLES SEE SHEETS 645-649

TOP OF WALL ELEV.	673.67	673.67	673.67	673.67	673.67	673.67	673.67	673.67	672.67	672.67	672.67	671.67	671.67	670.67	670.67	669.67	669.67	668.67	667.87	667.07
BOTTOM OF WALL ELEV.	659.67	659.67	659.67	659.67	659.67	659.67	659.67	659.67	658.67	658.67	658.67	657.67	657.67	656.67	656.67	655.67	655.67	654.67	653.87	653.07
PANEL NO.	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121



PROP. GRADE ELEV.	661.37	661.40	661.22	661.12	661.08	660.92	660.82	660.65	660.46	660.38	660.09	659.85	659.57	659.24	658.97	658.56	658.18	657.79	657.32	656.92	656.40	655.90	655.40	654.80	654.24
EX. GROUND ELEV.	648.89	647.98	647.45	646.50	645.94	644.29	646.12	649.00	650.94	651.15	649.86	646.73	643.19	639.00	633.76	628.40	620.98	617.69	612.76	608.39	604.46	600.09	605.07	608.20	615.46
	34+00				35+00						36+00						37+00						38+00		38+80

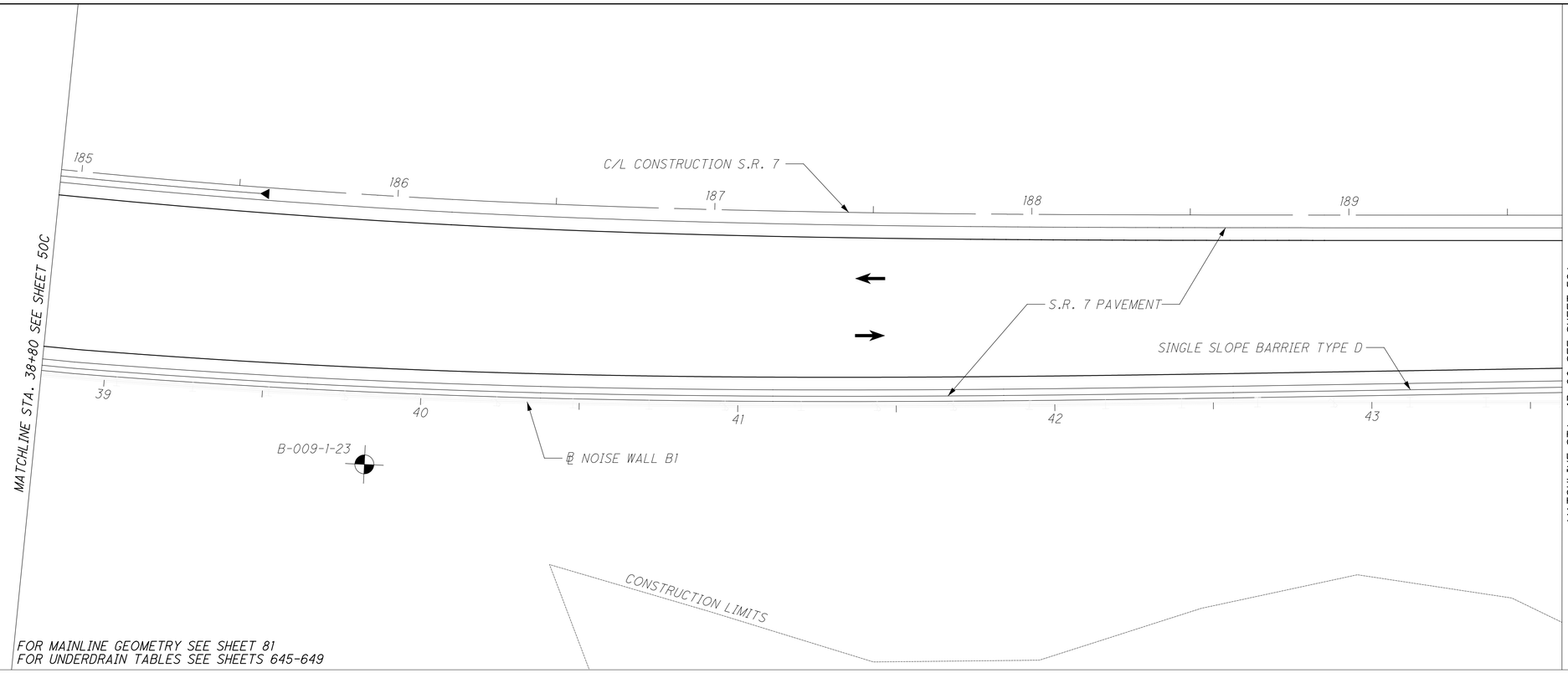
STRUCTURE FOUNDATION EXPLORATION
NOISE WALL B1 - STA. 34+00 TO 38+80

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

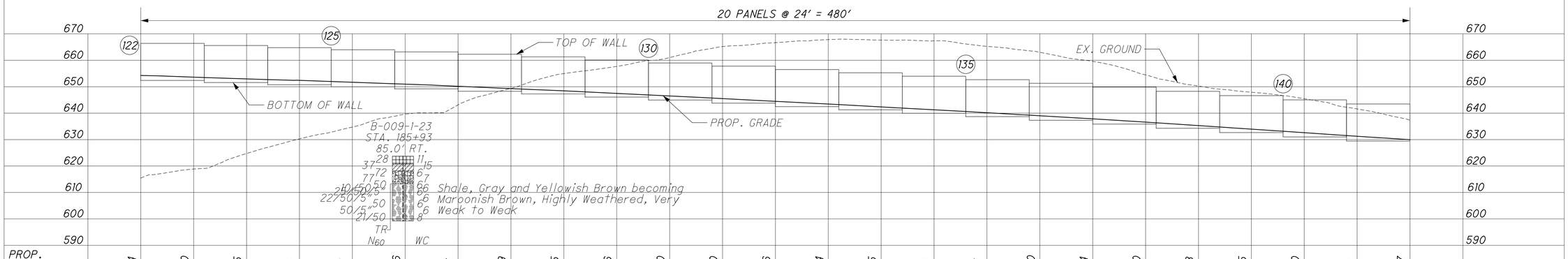
LAW-7-2.17

1091C
1247



FOR MAINLINE GEOMETRY SEE SHEET 81
FOR UNDERDRAIN TABLES SEE SHEETS 645-649

TOP OF WALL ELEV.	666.37	665.57	664.77	663.97	663.17	662.27	661.27	660.07	658.97	657.77	656.47	655.27	653.97	652.67	651.29	649.84	648.25	646.64	645.03	643.47
BOTTOM OF WALL ELEV.	652.37	651.57	650.77	649.97	649.17	648.27	647.27	646.07	644.97	643.77	642.47	641.27	639.97	638.67	637.29	635.84	634.25	632.64	631.03	629.47
PANEL NO.	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141



PROP. GRADE ELEV.	654.24	653.60	652.95	652.41	651.67	650.96	650.16	649.29	648.45	647.46	646.50	645.50	644.46	643.44	642.35	641.26	640.15	639.00	637.84	636.60	635.28	633.95	632.60	631.26	629.97
EX. GROUND ELEV.	615.46	618.87	624.74	630.28	634.74	639.64	643.13	649.33	654.96	657.67	661.02	665.17	666.65	667.80	667.61	667.37	665.26	663.01	659.59	654.47	650.23	647.92	645.45	641.60	637.32

38+80 39+80 40+80 41+80 42+80 43+60

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MS.J
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
NOISE WALL B1 - STA. 38+80 TO 43+60

LAW-7-2.17

50D/206

1091D
1247

SOIL PROFILE - ROADWAY
STA. 187+00 - 212+00

DRAWN	CHECKED
MSJ	EMK

0 50 100 200
HORIZONTAL SCALE IN FEET

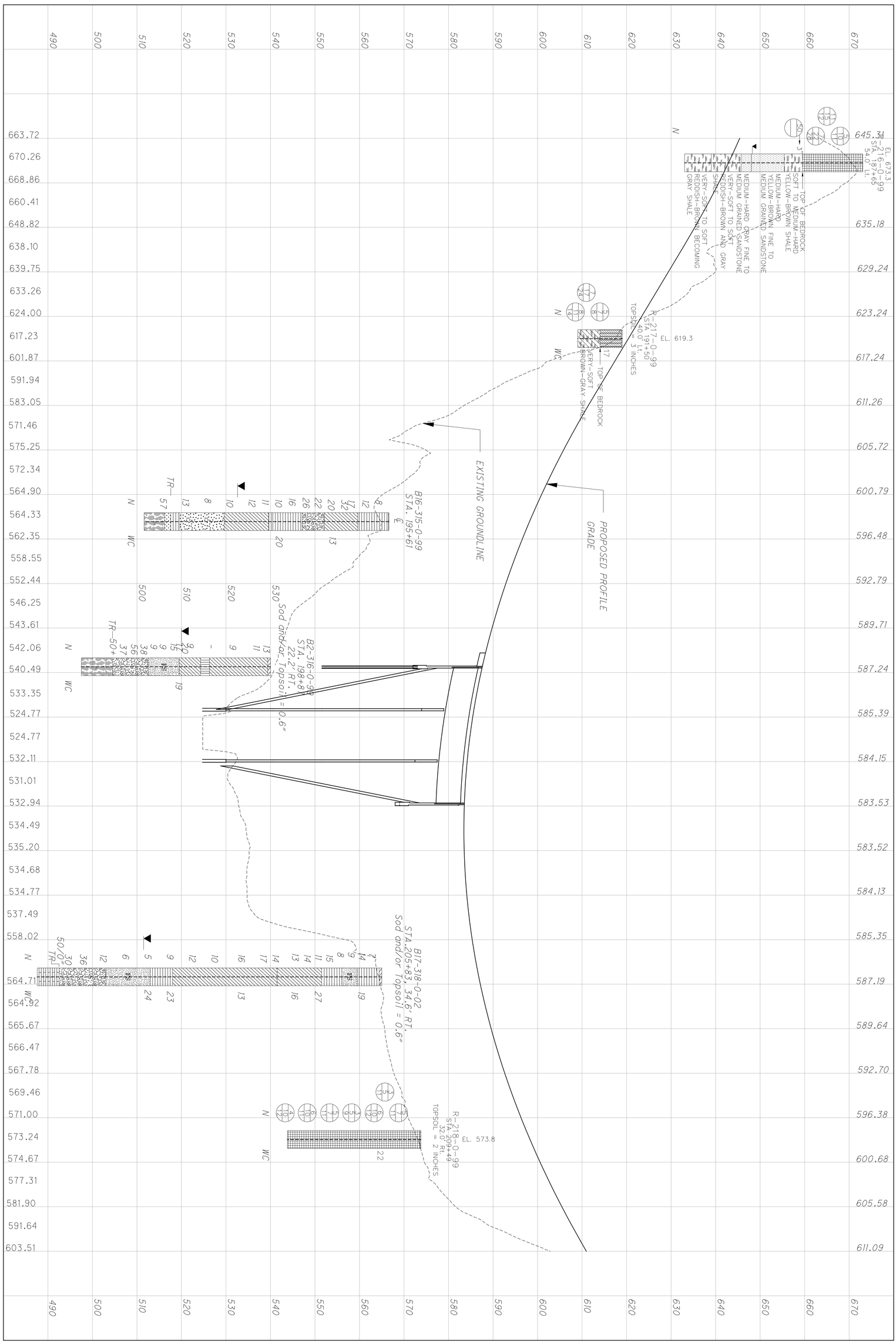
LAW-7-2.17

51/206

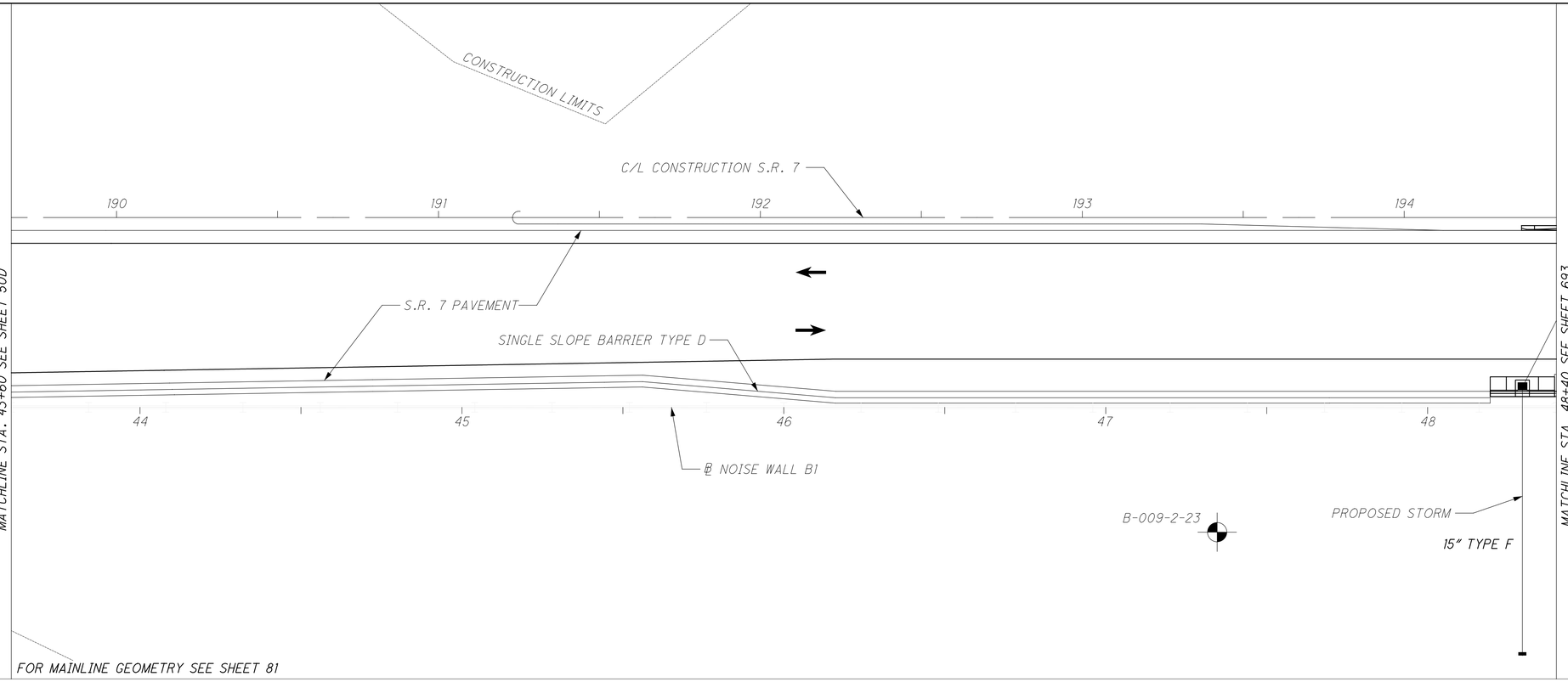
1092/1247

For S.R. 7 Profile, See Sheet 52
For Noise Wall Plan/Profile, See Sheet 52A
For Law-7-3.70 Plan & Profile, See Sheet 53
For Law-7-3.76 Plan & Profile, See Sheet 54
For Law-7-3.87 Plan & Profile, See Sheet 55
For Lynn Lane Plan & Profile, See Sheet 135
For Cross Section 197+50, See Sheet 81
For Cross Section 202+50, See Sheet 82

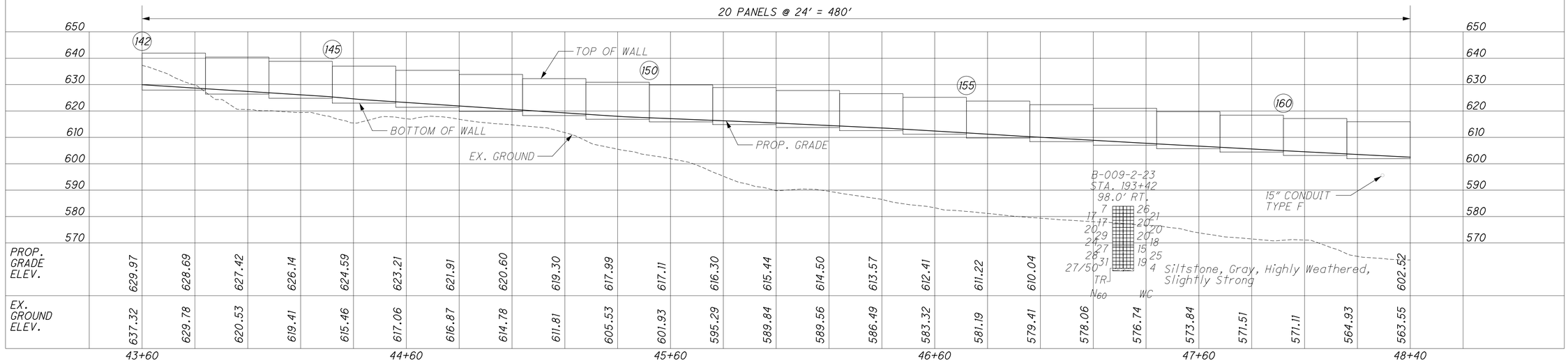
U:\173608714\LAW\75923\geotechnical\sheets\75923IP004.dgn 7/17/2024 2:59:52 PM MJennings



1093 / 1247	52 / 206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY STA. 187+00 - 212+00**	DRAWN MSJ / CHECKED EMK	0 50 100 200 HORIZONTAL SCALE IN FEET



TOP OF WALL ELEV.	641.94	640.40	638.83	636.98	635.41	633.84	632.28	630.88	629.88	628.88	627.78	626.58	625.19	623.77	622.41	621.04	619.74	618.44	617.14	615.94
BOTTOM OF WALL ELEV.	627.94	626.40	624.83	622.98	621.41	619.84	618.28	616.88	615.88	614.88	613.78	612.58	611.19	609.77	608.41	607.04	605.74	604.44	603.14	601.94
PANEL NO.	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161



PROP. GRADE ELEV.	629.97	628.69	627.42	626.14	624.59	623.21	621.91	620.60	619.30	617.99	617.11	616.30	615.44	614.50	613.57	612.41	611.22	610.04	602.52	
EX. GROUND ELEV.	637.32	629.78	620.53	619.41	615.46	617.06	616.87	614.78	611.81	605.53	601.93	595.29	589.84	589.56	586.49	583.32	581.19	579.41	578.06	576.74	573.84	571.51	571.11	564.93	563.55	

43+60 44+60 45+60 46+60 47+60 48+40

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

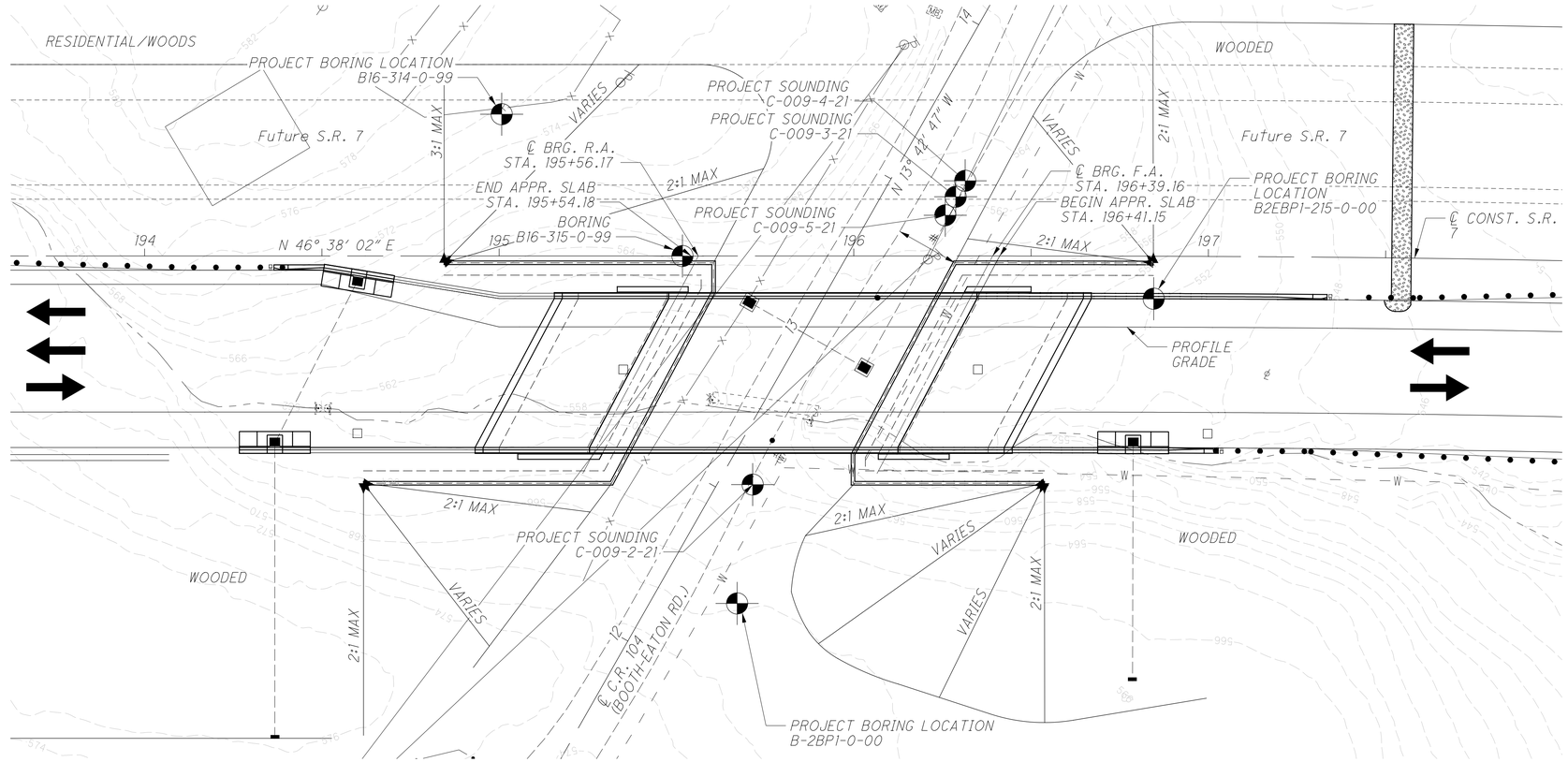
STRUCTURE FOUNDATION EXPLORATION
NOISE WALL B1 - STA. 43+60 TO 48+40

LAW-7-2.17

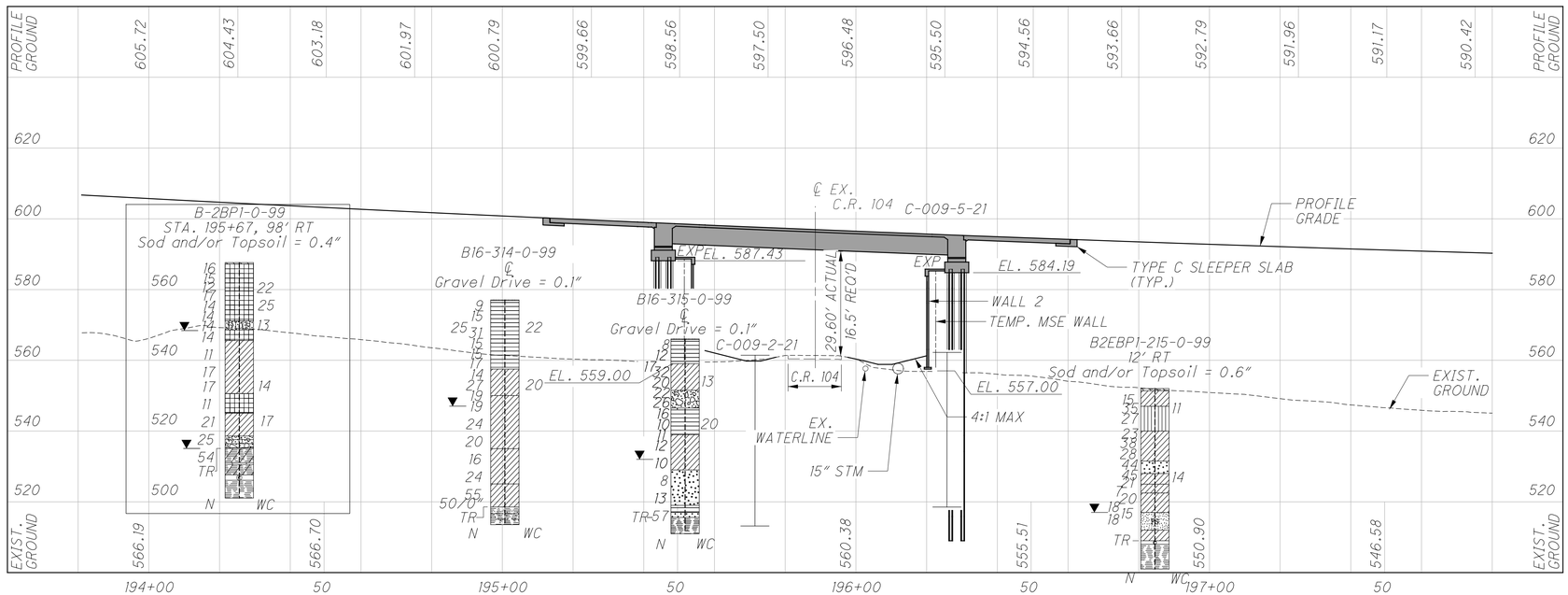
52A/206

1093A
1247

BRIDGE NO. B-16



PLAN



PROFILE ALONG PROFILE GRADE LINE

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. LAW-7-0370
S.R. 7 OVER COUNTY ROAD 104 (BOOTHE EATON ROAD)

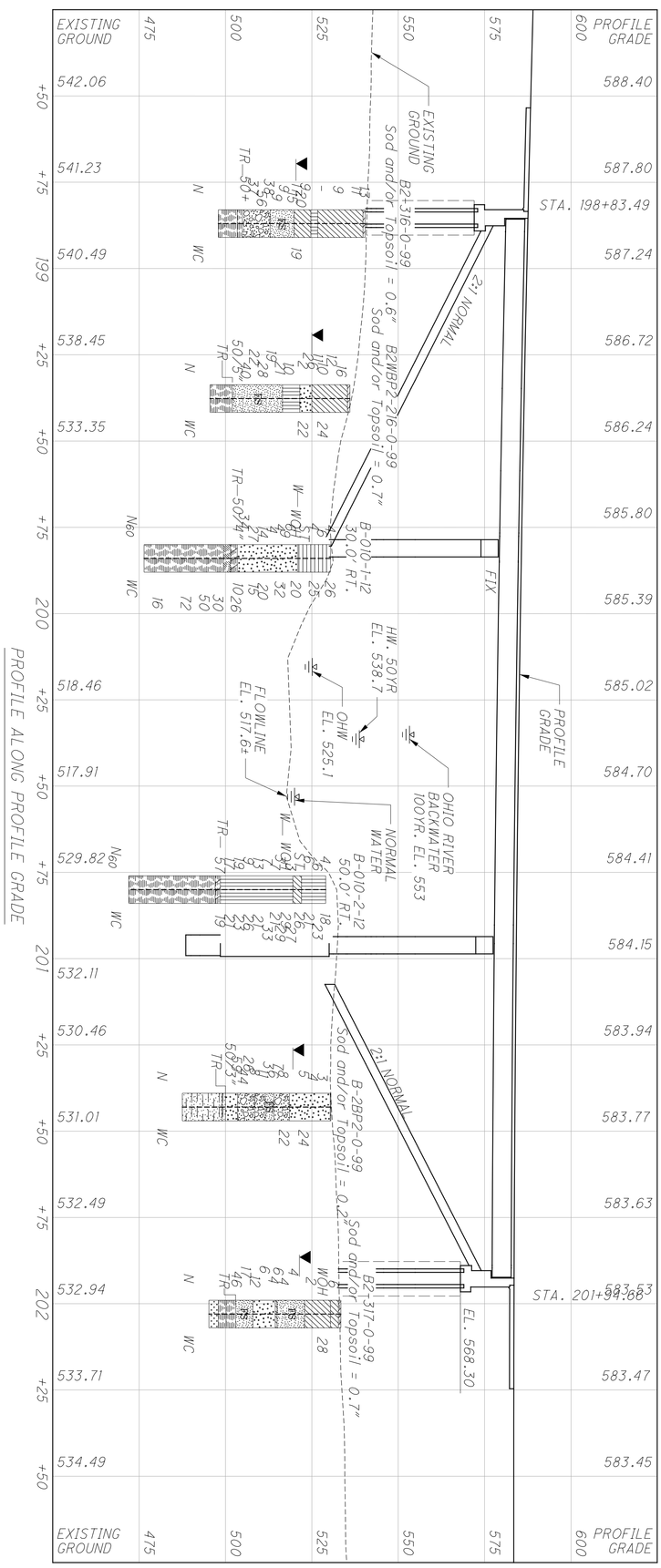
HORIZONTAL SCALE IN FEET
0 10 20 40

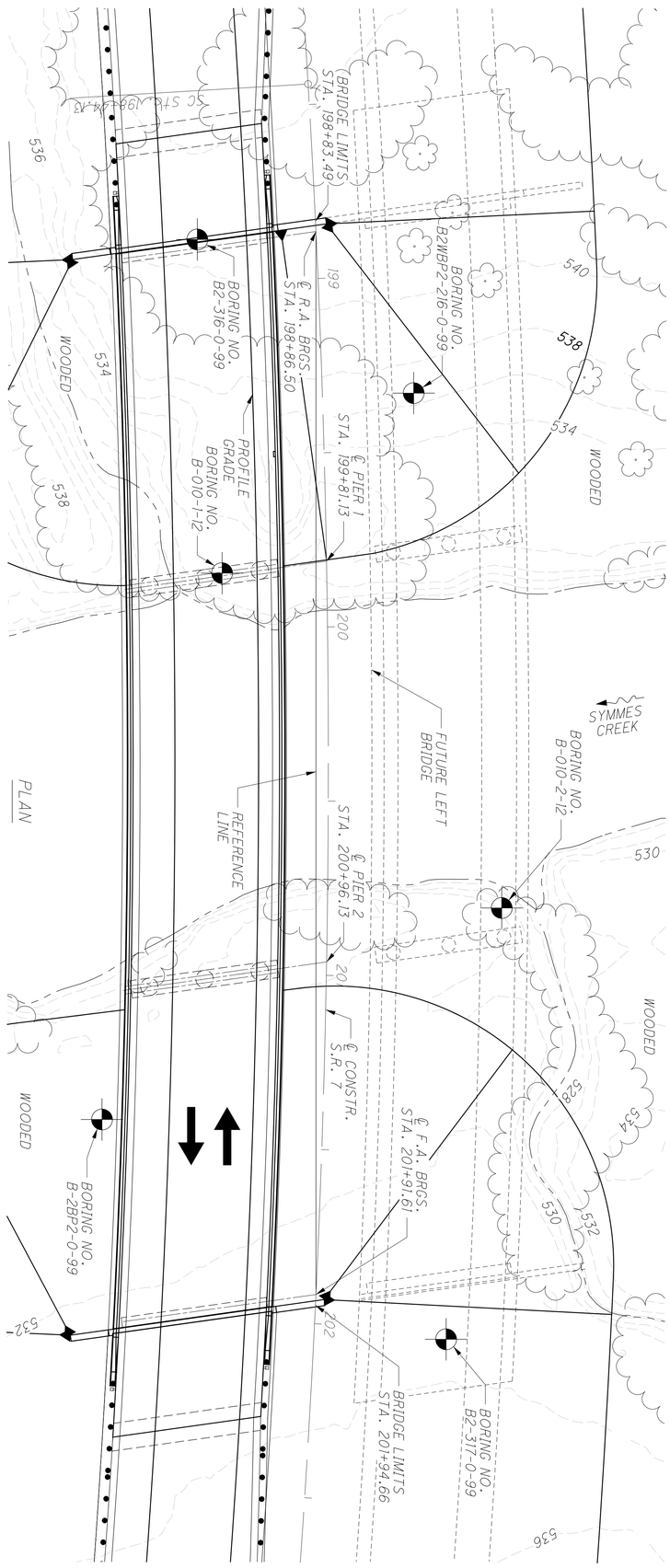
DESIGNED MSJ
CHECKED EMK

LAW-7-2.17

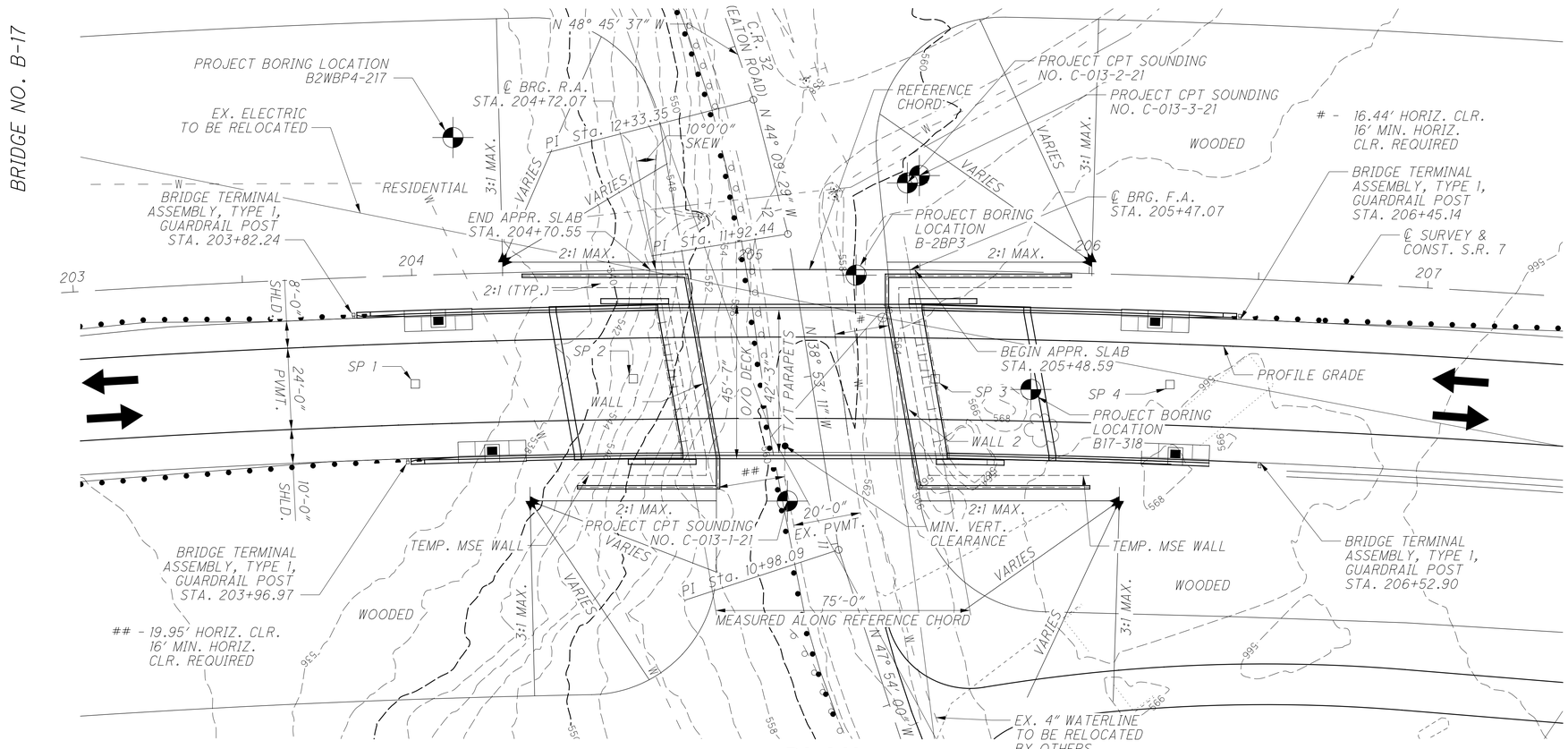
53/206

1094/1247

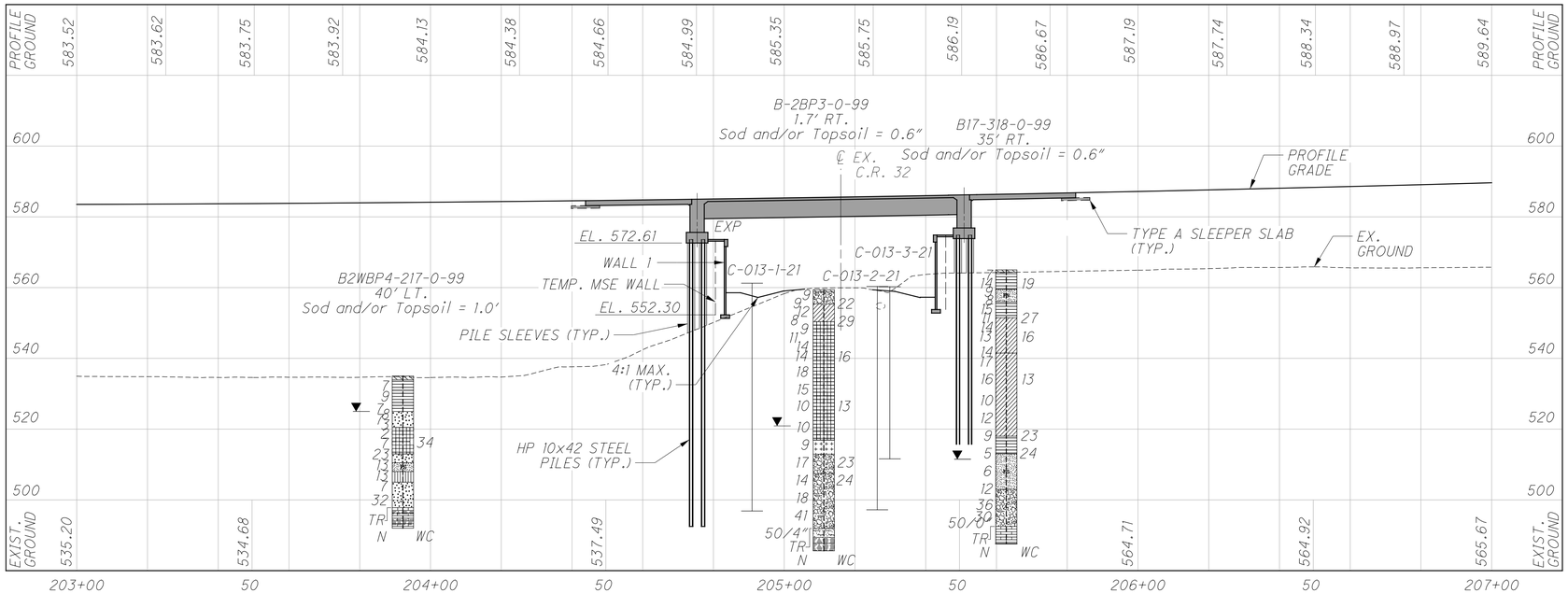




1095 1247	54 / 206	**LAW-7-2.17**	**STRUCTURE FOUNDATION EXPLORATION** **LAW-7-3.76** **S.R. 7 OVER SYMMES CREEK**	DRAWN MSJ CHECKED EMK	0 25 12.5 50 HORIZONTAL SCALE IN FEET



PLAN



PROFILE ALONG PROFILE GRADE LINE

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. LAW-7-3.87
S.R. 7 OVER C.R. 32 (EATON ROAD)

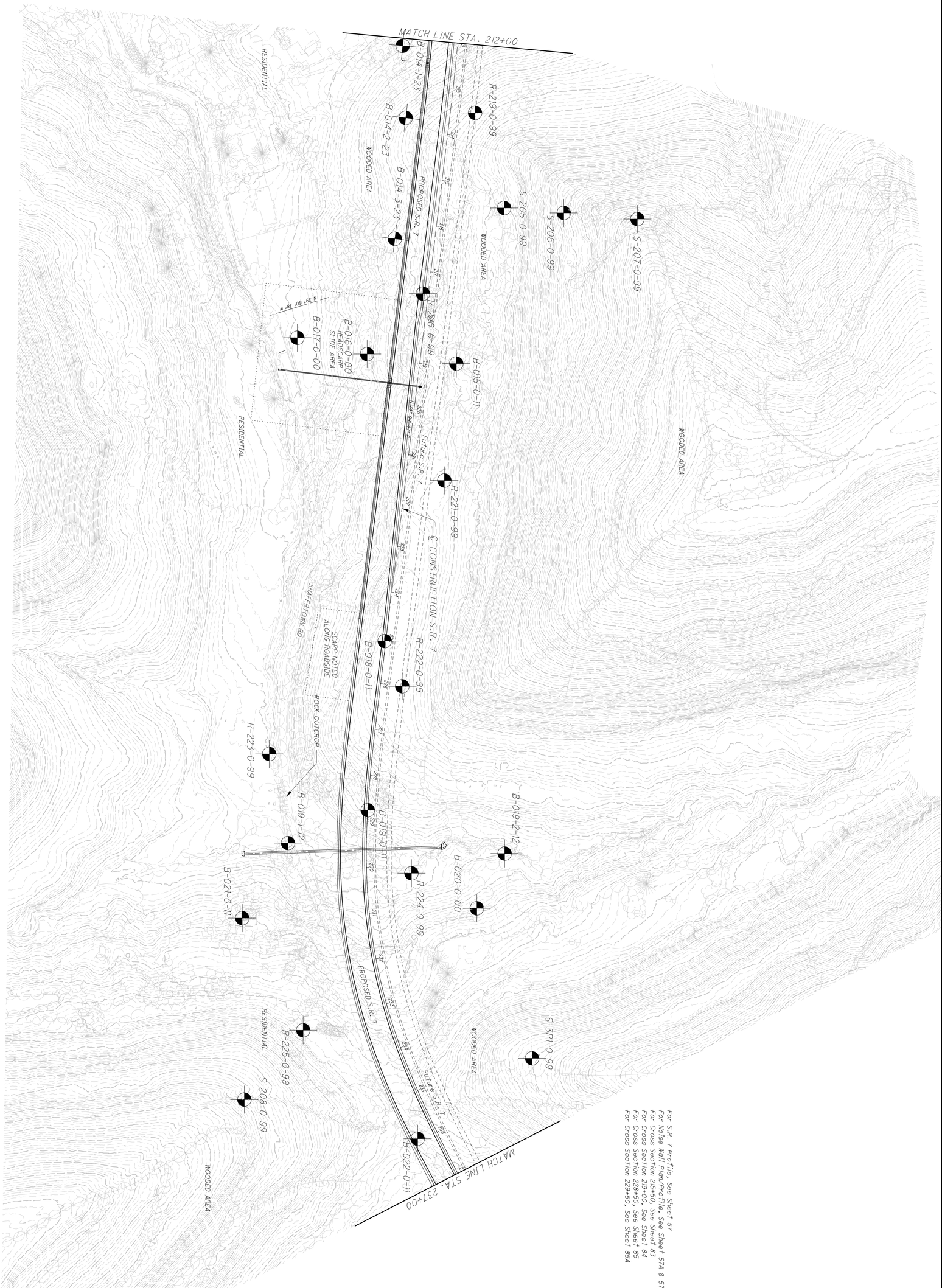
HORIZONTAL SCALE IN FEET

DESIGNED MSJ
CHECKED EMK

LAW-7-2.17

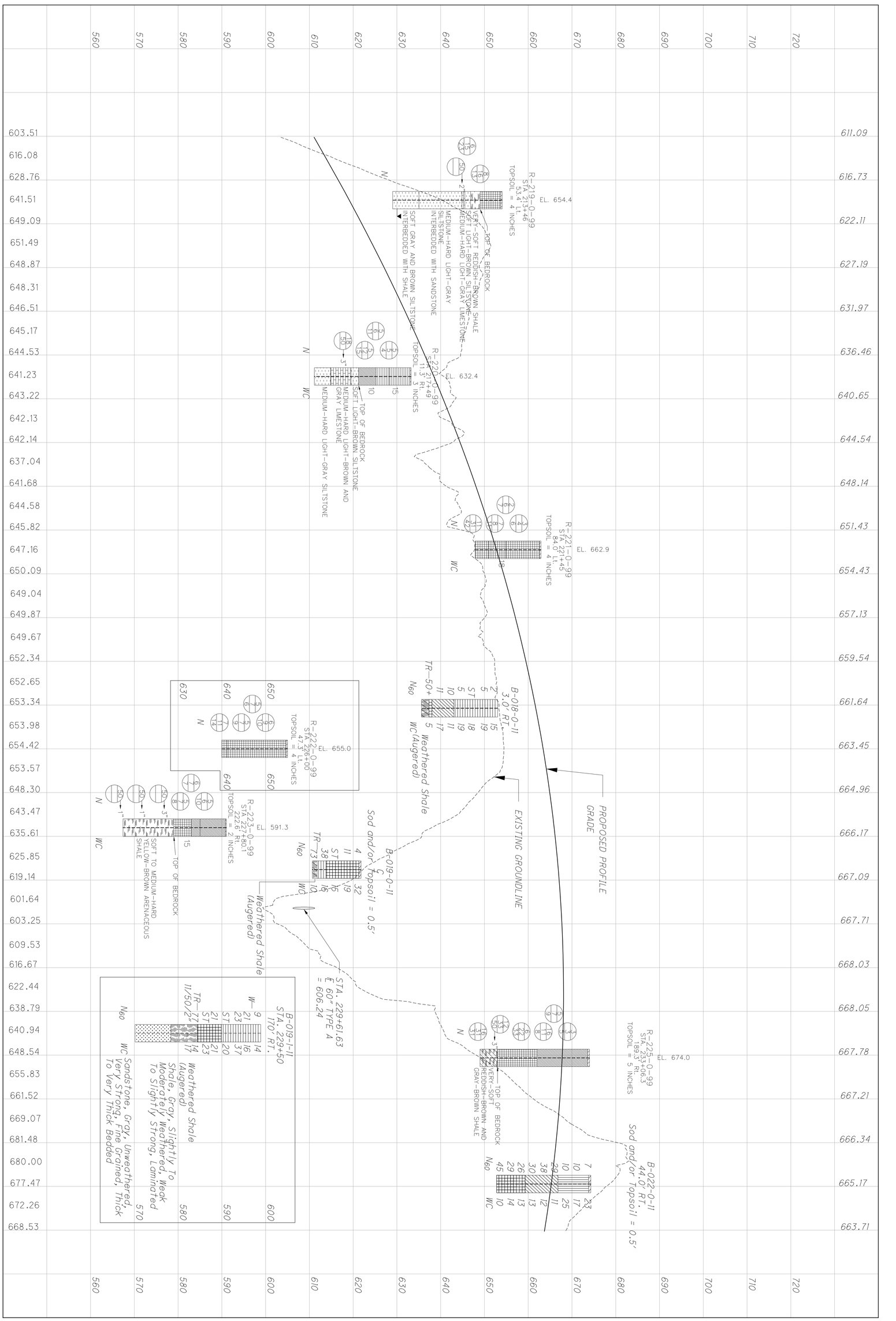
55/206

1096
1247



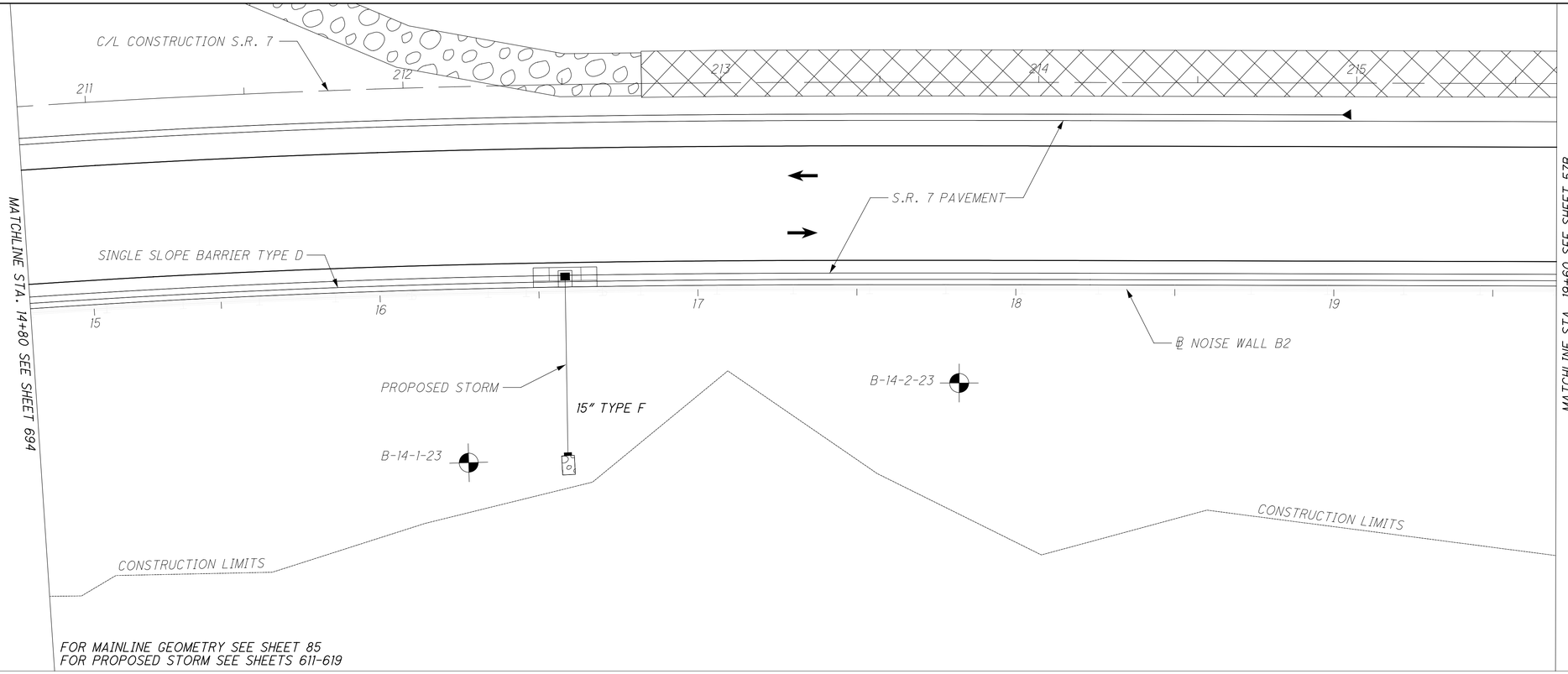
1097 / 1247	56 / 206	LAW-7-2.17	SOIL PROFILE - ROADWAY STA. 212+00 - 237+00	DRAWN MSJ CHECKED EMK	0 100 50 200 HORIZONTAL SCALE IN FEET

U:\173608714\LAW\75923\geotechnical\sheets\75923IF005.dgn 7/17/2024 3:24:57 PM MJennings



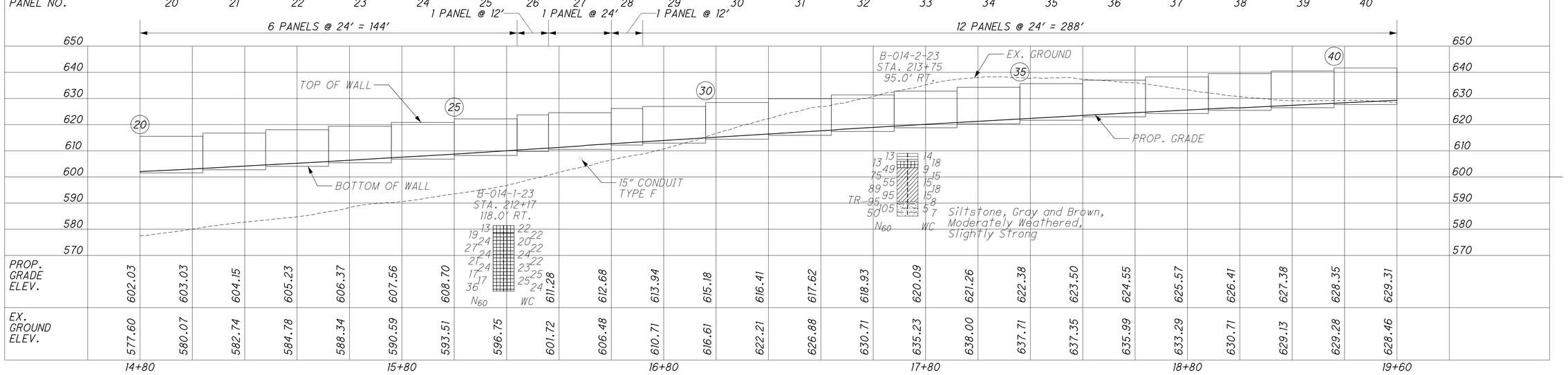
1098 / 1247	57 / 206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY** **STA. 212+00 - 237+00**

DRAWN MSJ
CHECKED EMK
HORIZONTAL SCALE IN FEET
0 50 100 200



FOR MAINLINE GEOMETRY SEE SHEET 85
FOR PROPOSED STORM SEE SHEETS 611-619

TOP OF WALL ELEV.	615.53	616.73	618.03	619.39	620.82	622.21	623.72	624.53	626.18	626.94	628.44	629.91	631.37	632.81	634.30	635.65	637.00	638.25	639.48	640.48	641.66
BOTTOM OF WALL ELEV.	601.53	602.73	604.03	605.39	606.82	608.21	609.72	610.53	612.18	612.94	614.44	615.91	617.37	618.81	620.30	621.65	623.00	624.25	625.48	626.48	627.66
PANEL NO.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



PROP. GRADE ELEV.	602.03	603.03	604.15	605.23	606.37	607.56	608.70	611.28	612.68	613.94	615.18	616.41	617.62	618.93	620.09	621.26	622.38	623.50	624.55	625.57	626.41	627.38	628.35	629.31
EX. GROUND ELEV.	577.60	580.07	582.74	584.78	588.34	590.59	593.51	596.75	601.72	606.48	610.71	616.61	622.21	626.88	630.71	635.23	638.00	637.71	637.35	635.99	633.29	630.71	629.13	629.28	628.46

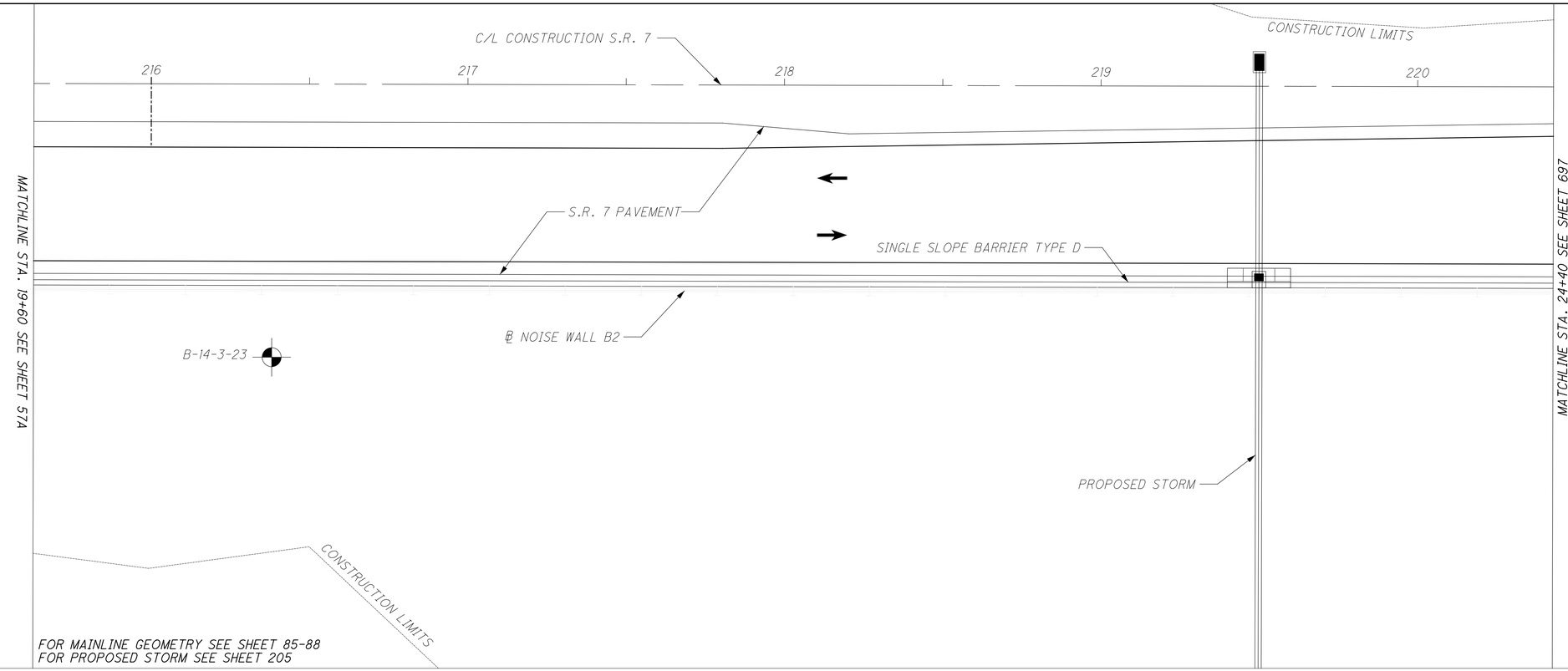
14+80 15+80 16+80 17+80 18+80 19+60

STRUCTURE FOUNDATION EXPLORATION
NOISE WALL B2 - STA. 14+80 TO 19+60

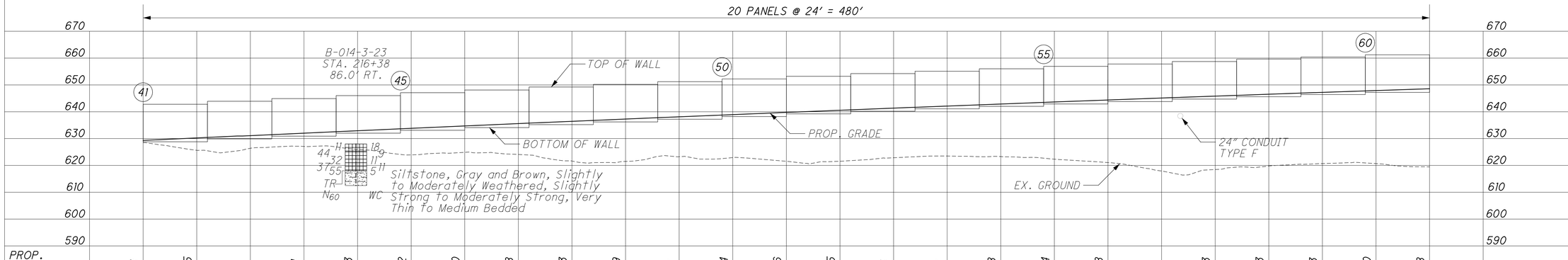
HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

LAW-7-2.17



TOP OF WALL ELEV.	642.81	643.91	644.91	646.01	647.11	648.11	649.21	650.21	651.21	652.21	653.21	654.21	655.11	656.01	656.91	657.81	658.71	659.61	660.41	661.21
BOTTOM OF WALL ELEV.	628.81	629.91	630.91	632.01	633.11	634.11	635.21	636.21	637.21	638.21	639.21	640.21	641.11	642.01	642.91	643.81	644.71	645.61	646.41	647.21
PANEL NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60



PROP. GRADE ELEV.	629.31	630.25	631.10	632.01	632.93	633.82	634.70	635.58	636.43	637.29	638.12	638.94	639.76	640.55	641.35	642.12	642.88	643.64	644.38	645.11	645.83	646.53	647.23	647.90	648.58
EX. GROUND ELEV.	628.46	625.63	626.40	627.08	625.98	623.93	624.88	624.10	621.63	621.49	623.23	622.93	621.53	621.56	622.86	623.50	623.31	622.33	621.07	617.95	618.47	619.77	620.69	620.68	619.46

19+60 20+60 21+60 22+60 23+60 24+40

HORIZONTAL SCALE IN FEET
0 10 20 40

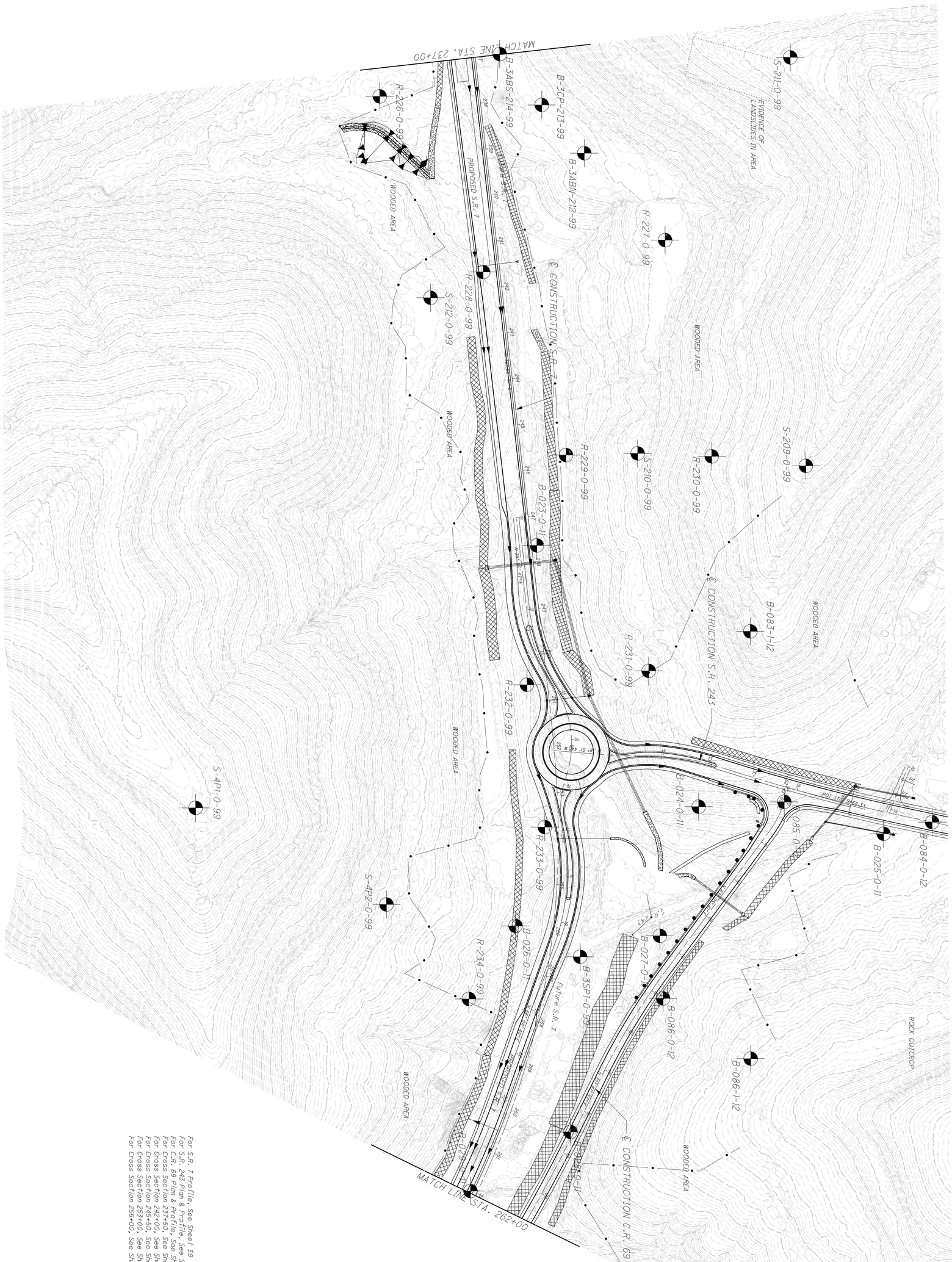
DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
NOISE WALL B2 - STA. 19+60 TO 24+40

LAW-7-2.17

57B/206

1098B
1247



For S.R. 7 Profile, See Sheet 59
For S.R. 243 Plan & Profile, See Sheet 136
For C.R. 69 Plan & Profile, See Sheets 138-141
For Cross Section 237+50, See Sheet 86
For Cross Section 242+00, See Sheet 87
For Cross Section 245+50, See Sheet 88
For Cross Section 253+00, See Sheet 89
For Cross Section 256+00, See Sheet 90

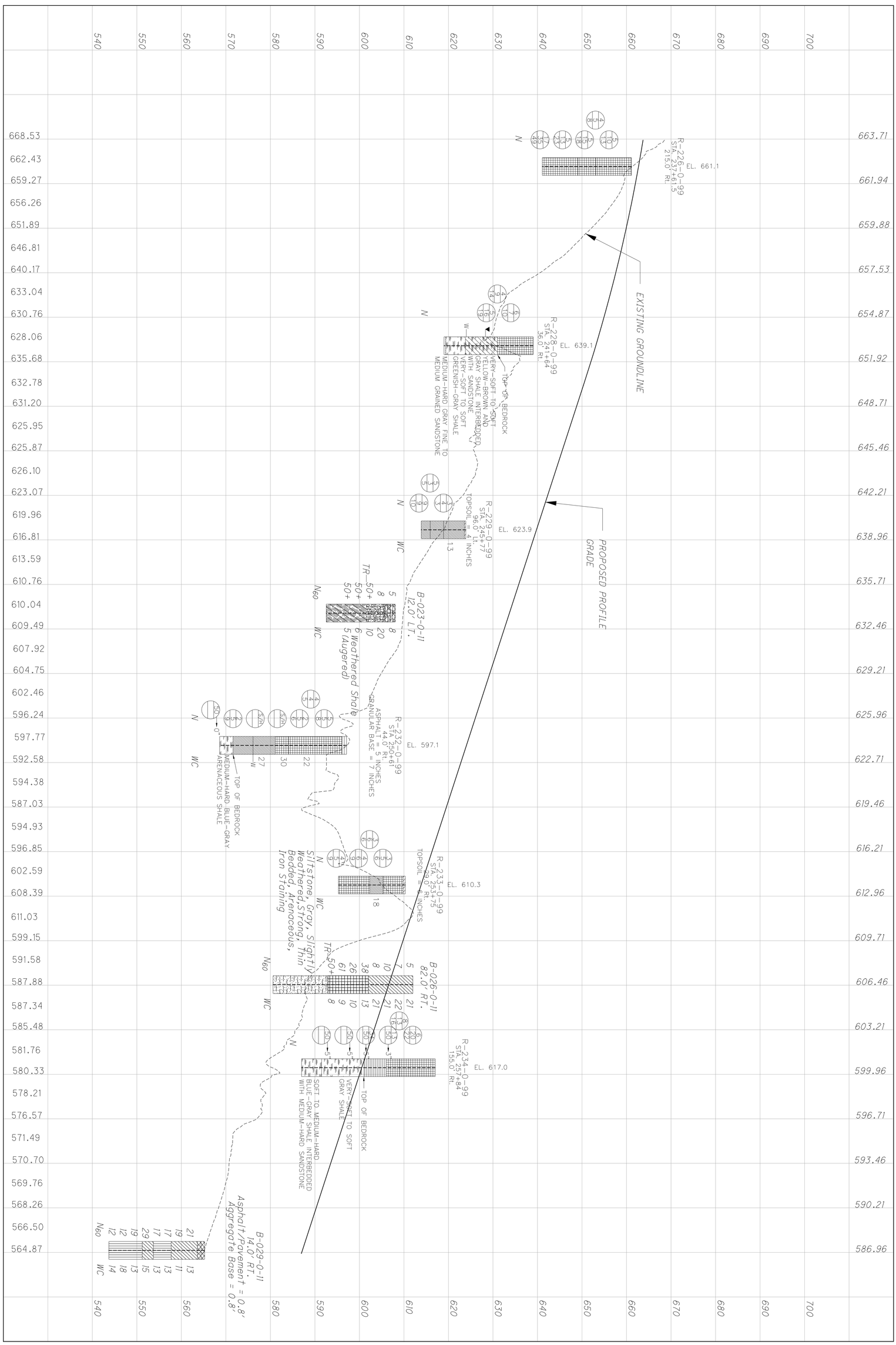
1099 / 1247 | 58/206

LAW-7-2.17

SOIL PROFILE - ROADWAY
STA. 237+00 - 262+00

DRAWN MSJ
CHECKED EMK

0 50 100 200
HORIZONTAL SCALE IN FEET



1100 1247	59/206	**LAW-7-2.17**	**SOIL PROFILE- ROADWAY STATION 237+00 - 262+00**	DRAWN MSJ / CHECKED EMK	0 100 50 200 HORIZONTAL SCALE IN FEET

WOODED AREA

C.R. 118

B-031-0-11

℄ CONSTRUCTION C.R. 118

HIGHLY PROBABLE AREA, NO EVIDENCE

B-087-1-12

WOODED AREA

B-087-0-12

B-090-0-12

B-030-0-11

B-032-0-11

B-033-1-12

Bent Creek

B-036-0-11

℄ CONSTRUCTION C.R. 69

B-036-1-11

B4WBF-207-0-99

B-033-0-11

B-034-0-11

B-035-0-11

S-213-0-99

HEADSCARP AREA

RESIDENTIAL

B-039-0-11

C.R. 2

B-091-0-12

B-040-0-11

℄ CONSTRUCTION C.R. 2

HEADSCARP AREA

B-088-0-12

S-214-0-99

R-238-0-99

WOODED AREA

B-042-0-11

R-237-0-99

RESIDENTIAL

R-236-0-99

MATCH LINE STA. 262+00

Future S.R. 7

PROPOSED S.R. 7

B-029-0-11

B4WBR-205-0-99

B-4BP1-0-99

B4EB1-206-0-99

B-038-0-11

B-041-0-11

B-043-0-11

B-044-0-11

C.R. 89

MATCH LINE STA. 287+00

R-235-0-99

B-037-1-12

℄ CONSTRUCTION S.R. 7

B-037-0-11

WOODED AREA

C.R. 68

REMEDIATED, FAILING AREA

WOODED AREA

C.R. 21

WOODED AREA

For S.R. 7 Profile, See Sheet 61
For C.R. 69 Plan & Profile, See Sheets 138-141
For C.R. 118 Plan & Profile, See Sheet 145
For C.R. 2 Plan & Profile, See Sheet 146
For Law-7-5.10 Plan & Profile, See Sheet 62
For Cross Section 274+00, See Sheet 91

N

0 50 100 200
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
STA. 262+00 - 287+00

LAW-7-2.17

60/206

1101/1247

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SOIL PROFILE- ROADWAY
STA. 262+00 - 287+00

HORIZONTAL SCALE IN FEET
0 50 100 200

DRAWN MSJ
CHECKED EMK

LAW-7-2.17

61 / 206

1102
1247

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B4EBI-206-0-99
STA. 271+70.4
18.0' RT.

Medium-Hard Gray And Brown Siltstone, NearlyHorizontally Bedded, Few Horizontal Fractures (Visual)

Very-Soft to Soft Gray Shale, Nearly Horizontally Bedded, Fragmental Sturcture, Many Fractures (Visual)

B-035-0-11
STA. 271+63
25.0' LT.
(BEDROCK DESCRIPTIONS)

Shale, Gray, Severely Weathered (Augered)
Shale, Gray To Gray-Brown, Slightly Weathered, Slightly To Moderately Strong, Laminated, Friable
Sandstone, Gray, Slightly Weathered, Strong, Thin Bedded
Shale, Gray To Gray-Brown, Slightly Weathered, Slightly To Moderately Strong, Laminated, Friable, Slickensides

R-236-0-99
STA. 278+44
60.7' Lt.
ASPHALT = 8 INCHES
GRANULAR BASE = 6 INCHES
EL. 582.8

TOP OF BEDROCK
SOFT YELLOW-BROWN SHALE
SOFT TO MEDIUM-HARD GRAY SHALE
VERY-SOFT DARK-GRAY SHALE INTERBEDDED WITH CARBONACEOUS SHALE
VERY-SOFT TO SOFT GRAY SHALE
SOFT TO MEDIUM-HARD GRAY SHALE INTERBEDDED WITH MEDIUM-HARD SANDSTONE

B-037-0-11
STA. 271+55, 221.0' RT.
Asphalt/Pavement= 1.2'

PROPOSED PROFILE GRADE

B-044-0-11
℄

B-043-0-11
10.0' RT.

R-235-0-99
STA. 262+39
98.0' Rt.
EL. 575.8

TOP OF BEDROCK
VERY-SOFT TO SOFT GRAY SHALE

EXISTING GROUNDLINE

B-041-0-11
3.0' LT.

Weathered Sandstone
WC (Augered)

B-035-0-11
STA. 271+63
25.0' LT.

B-033-0-11
44.0' LT.

B-038-0-11
39.0' RT.

Shale, Brown, Severely Weathered (Augered)
Sandstone, Gray, Slightly To Moderately Weathered, Slightly To Moderately Strong, Laminated
Shale, Gray, Slightly To Moderately Weathered, Slightly To Moderately Strong, Laminated

13 Shale, Gray, Severely Weathered (Augered)
Shale, Gray, Moderately Weathered, Slightly Strong, Laminated, Slickensides

262+00 263+00 264+00 265+00 266+00 267+00 268+00 269+00 270+00 271+00 272+00 273+00 274+00 275+00 276+00 277+00 278+00 279+00 280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00

PLAN

PROFILE ALONG ℄ 22'ϕ MULTI-PLATE CULVERT

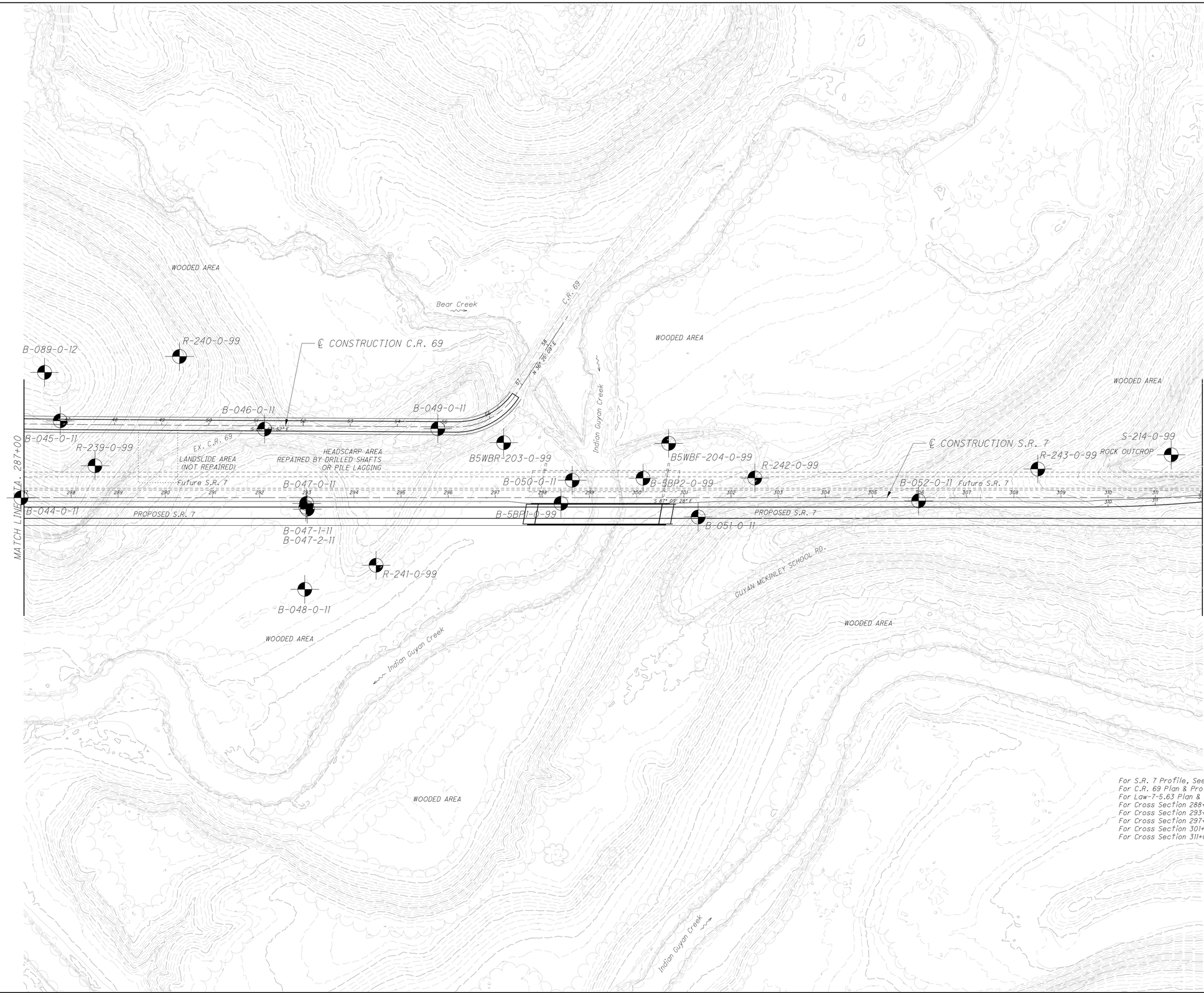
HORIZONTAL SCALE IN FEET
0 12.5 25 50

DRAWN MSJ
CHECKED EWK

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.10
22' DIA. CULVERT STA. 271+98

LAW-7-2.17

1103
1247



For S.R. 7 Profile, See Sheet 64
For C.R. 69 Plan & Profile, See Sheets 138-141
For Law-7-5.63 Plan & Profile, See Sheet 65
For Cross Section 288+50, See Sheet 92
For Cross Section 293+00, See Sheet 93
For Cross Section 297+00, See Sheet 94
For Cross Section 301+50, See Sheet 95
For Cross Section 311+00, See Sheet 96

N

0 50 100 200
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
STA. 287+00 - 312+00

LAW-7-2.17

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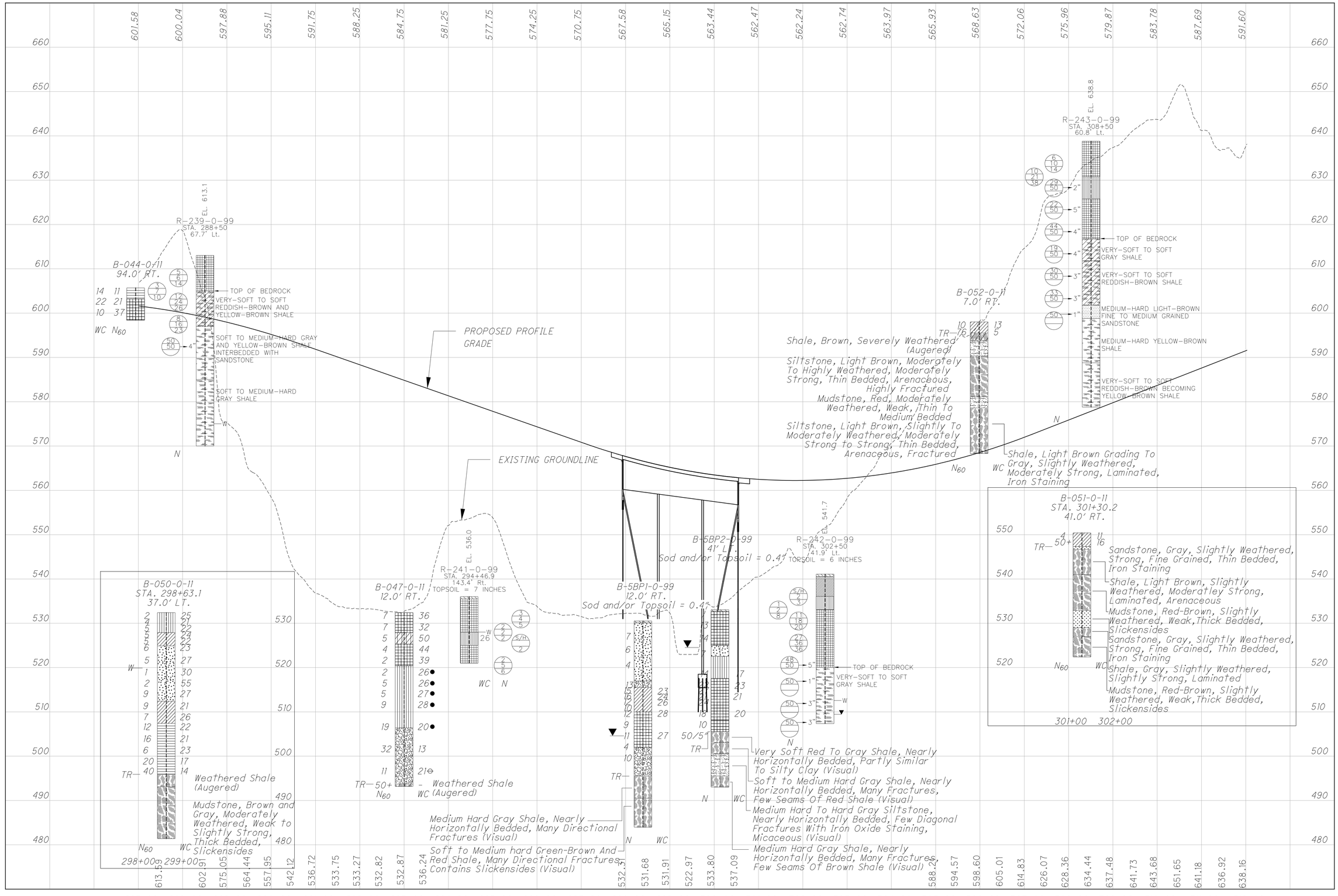

HORIZONTAL SCALE IN FEET 0 50 100 200

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
STA. 287+00 - 312+00

LAW-7-2.17

1105/1247

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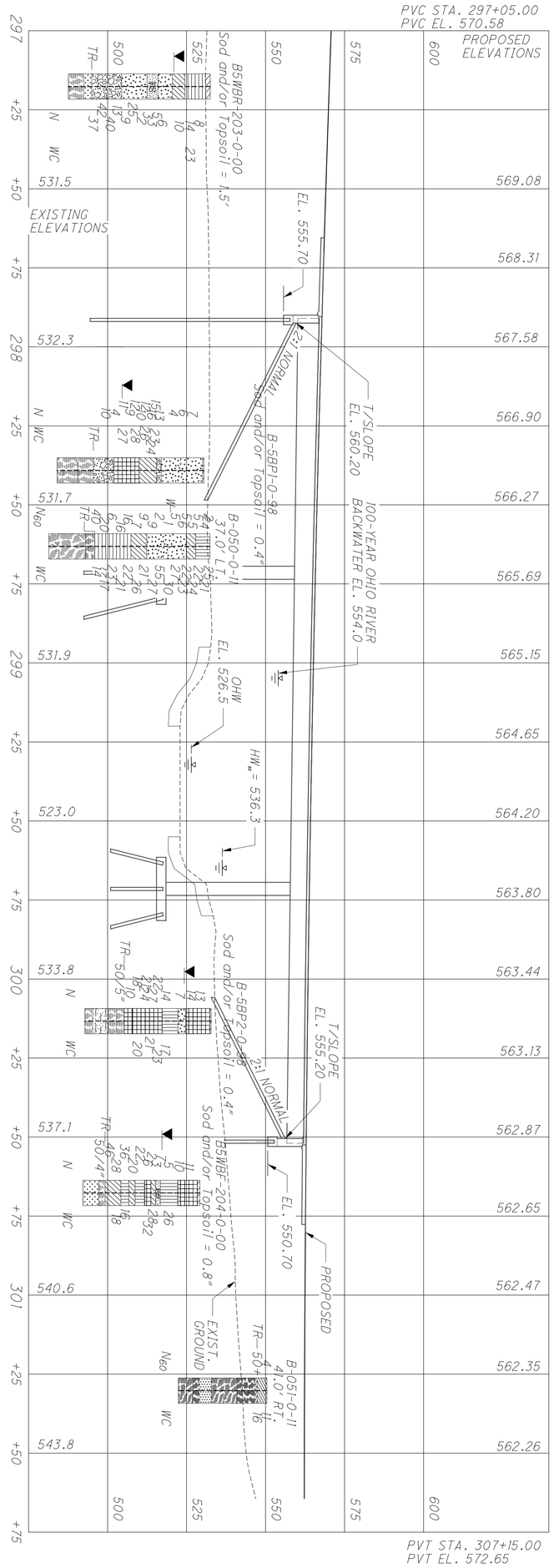
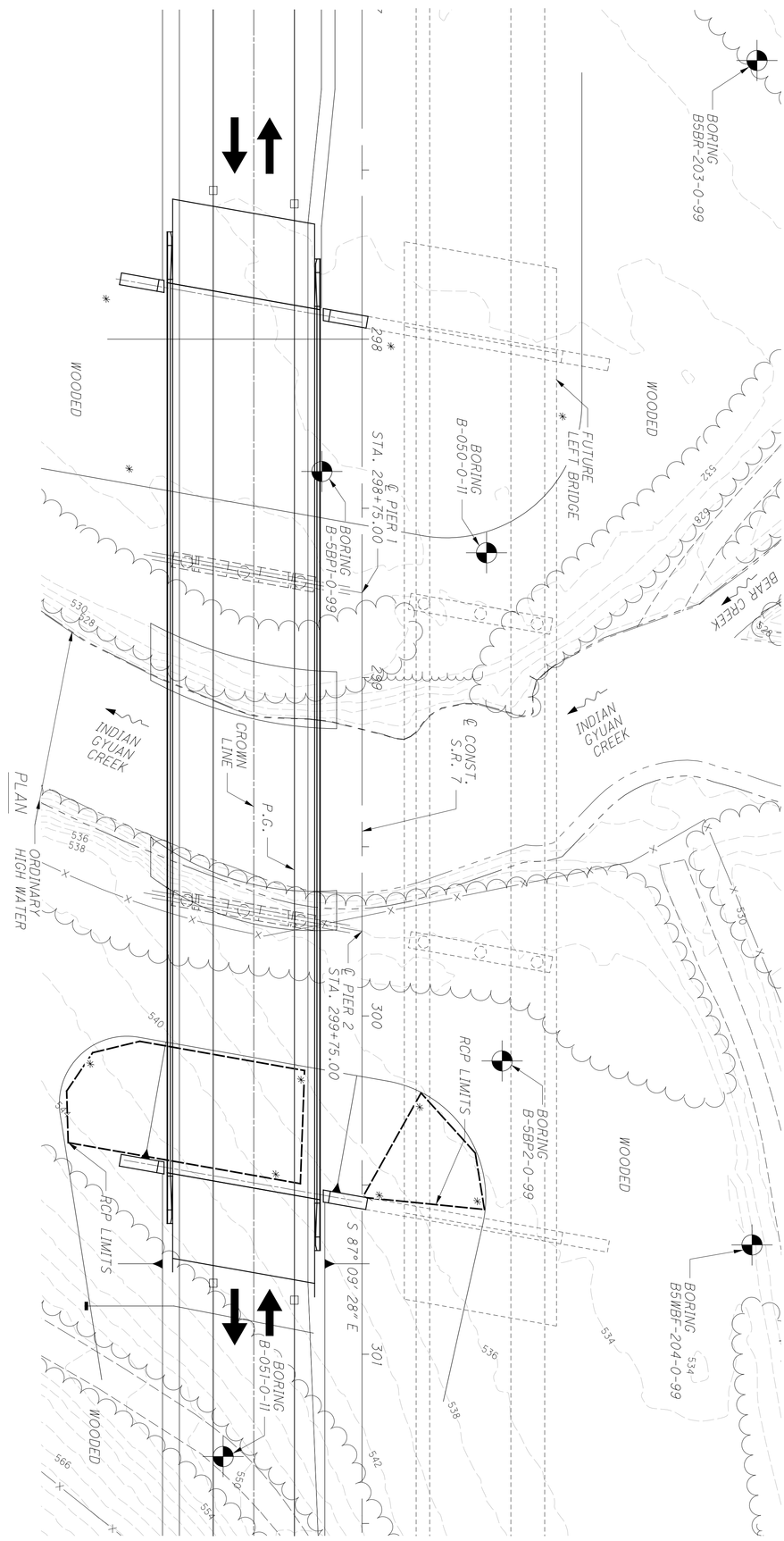

PVC STA. 297+05.00
PVC EL. 570.58
PROPOSED ELEVATIONS
EXISTING ELEVATIONS
B5WBR-203-0-00
Sod and/or Topsoil = 1.5'
B-5BP1-0-98
Sod and/or Topsoil = 0.4"
B-050-0-11
37.0' LT.
B5WBF-204-0-00
Sod and/or Topsoil = 0.8"
B-5BP2-0-98
Sod and/or Topsoil = 0.4"
B-051-0-11
41.0' RT.
EL. 555.70
EL. 560.20
EL. 555.20
EL. 550.70
EL. OHW 526.5
HW∞ = 536.3
100-YEAR OHIO RIVER BACKWATER EL. 554.0
2:1 NORMAL
T/SLOPE
PROPOSED
EXIST. GROUND
PVT STA. 307+15.00
PVT EL. 572.65
PROFILE ALONG PROFILE GRADE S.R. 7


BORING B5BR-203-0-99
WOODED
FUTURE LEFT BRIDGE
BORING B-050-0-11
℄ PIER 1 STA. 298+75.00
BORING B-5BP1-0-99
BEAR CREEK
INDIAN GUYAN CREEK
CROWN LINE
P.G.
℄ CONST. S.R. 7
ORDINARY HIGH WATER
PLAN
℄ PIER 2 STA. 299+75.00
RCP LIMITS
BORING B-5BP2-0-99
S 87° 09' 28" E
BORING B-051-0-11
BORING B5WBF-204-0-99

ROCK OUTCROP

WOODED AREA

GUYAN MCKINLEY SCHOOL RD.

B-059-0-11

S-216-0-99

B-054-0-11

WOODED AREA

ROCK OUTCROP

R-247-0-99

S-215-0-99

℄ CONSTRUCTION S.R. 7

B-058-0-11

B-053-0-11

WOODED AREA

R-245-0-99

R-246-0-99

ROCK OUTCROP

R-249-0-99

WOODED AREA

R-244-0-99

PROPOSED S.R. 7

WOODED AREA

R-248-0-99

Future S.R. 7

N 86° 20' 46" E

B-056-0-11

PROPOSED S.R. 7

R-250-0-99

S 52°

MATCH LINE STA. 312+00

MATCH LINE STA. 337+00

B-055-1-11
B-055-2-11
B-055-3-11

B-055-0-11

B-057-1-11

B-057-0-11

WOODED AREA

B-060-0-11

WOODED AREA

OPEN FIELD

OPEN FIELD

WOODED AREA

B-061-0-11

WOODED AREA

Indian Guyan Creek

WOODED AREA

For S.R. 7 Profile, See Sheet 67
For Cross Section 313+00, See Sheet 97
For Cross Section 322+00, See Sheet 98
For Cross Section 329+00, See Sheet 99
For Cross Section 334+00, See Sheet 100
For Cross Section 336+00, See Sheet 101

N

0 50 100 200
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
STA. 312+00 - 337+00

LAW-7-2.17

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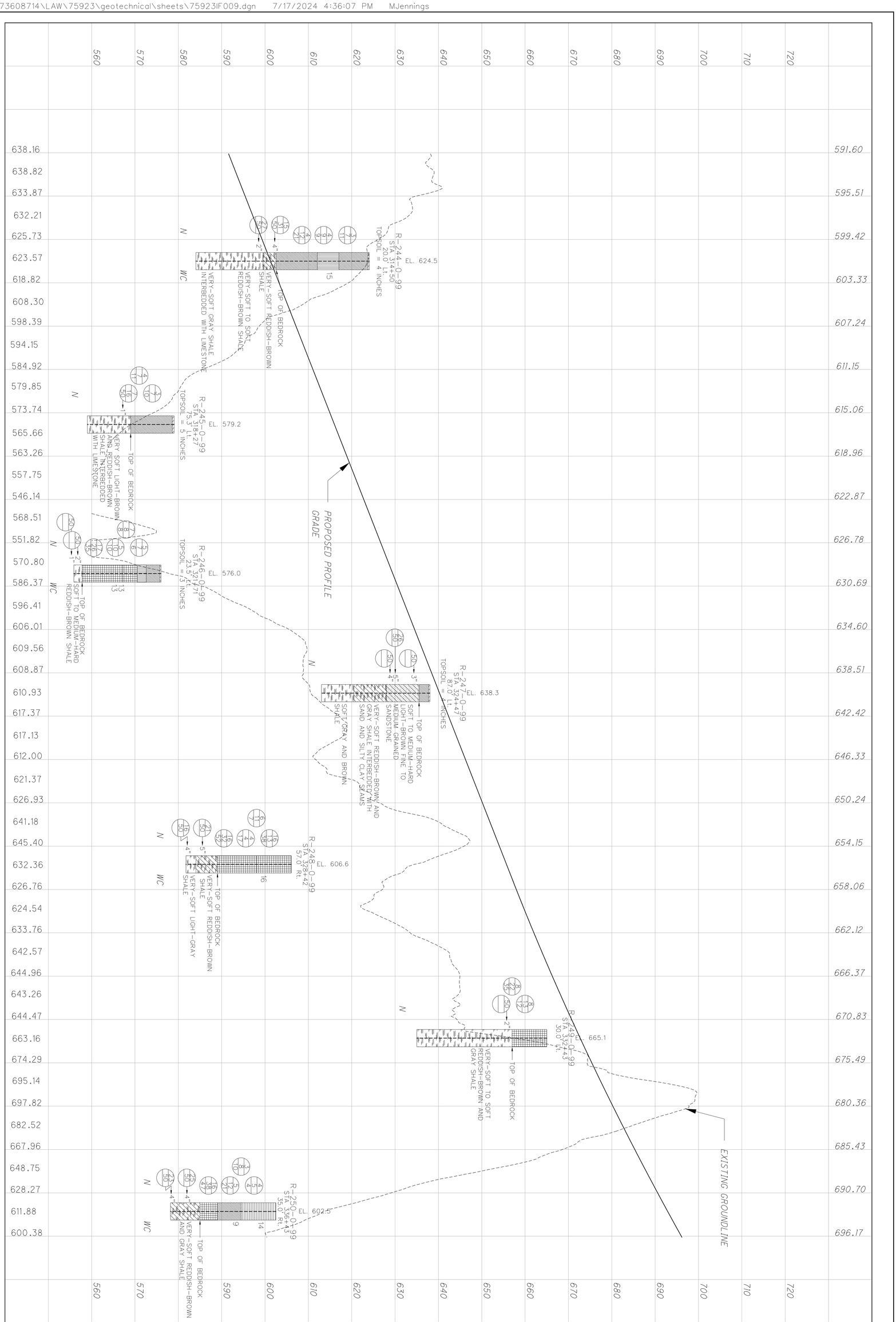

1108 / 1247	67/206	LAW-7-2.17	SOIL PROFILE - ROADWAY STA. 312+00 - 337+00	DRAWN MSJ CHECKED EMK 0 50 100 200 HORIZONTAL SCALE IN FEET

1109 / 1247	68 / 206	LAW-7-2.17	SOIL PROFILE - ROADWAY STA. 337+00 - 362+00	DRAWN MSJ CHECKED EMK	0 50 100 200 HORIZONTAL SCALE IN FEET

S-701-0-99 - BEDROCK DESCRIPTIONS

VERY-SOFT BROWN FINE TO MEDIUM GRAINED SANDSTONE
SOFT TO MEDIUM-HARD LIGHT-BROWN TO LIGHT-GRAY FINE TO MEDIUM GRAINED SANDSTONE
MEDIUM-HARD BROWN BECOMING GRAY SHALE
MEDIUM-HARD GRAY SILTSTONE
SOFT GRAY SHALE
MEDIUM-HARD GRAY SHALE
SOFT TO MEDIUM-HARD RED-BROWN SHALE
SOFT TO MEDIUM-HARD GRAY AND GREENISH-GRAY SHALE
SOFT TO MEDIUM-HARD GRAY SHALE
VERY-SOFT TO SOFT GRAY SHALE
MEDIUM-HARD LIGHT-GRAY TO DARK-GRAY FINE GRAINED SANDSTONE
MEDIUM-HARD GRAY SHALE INTERBEDDED WITH FINE GRAINED SANDSTONE AND SILTSTONE
MEDIUM-HARD GRAY SHALE
SOFT TO MEDIUM-HARD GRAY TO RED-BROWN SHALE
MEDIUM-HARD GRAY SILTSTONE
MEDIUM-HARD GRAY TO LIGHT-GRAY SILTSTONE
SOFT TO MEDIUM-HARD GRAY SHALE
SOFT TO MEDIUM-HARD RED-BLACK SHALE

EL. 880.3
S-701-0-99
STA 347+98
183.6 Lt.
TOPSOIL = 4 INCHES
TOP OF BEDROCK

EL. 867.5
R-254-0-99
STA. 357+93
40.0' Lt.
TOP OF BEDROCK
VERY-SOFT YELLOW-BROWN FINE TO MEDIUM GRAINED SANDSTONE
MEDIUM-HARD YELLOW-BROWN FINE TO MEDIUM GRAINED SANDSTONE
SOFT TO MEDIUM-HARD YELLOW-BROWN ARENACEOUS SHALE

EXISTING GROUNDLINE

EL. 787.6
R-253-0-99
STA. 352+43
35.0' Rt.
TOP OF BEDROCK
SOFT TO MEDIUM-HARD GRAY AND YELLOW-BROWN SHALE
SOFT TO MEDIUM-HARD GRAY SHALE INTERBEDDED WITH MEDIUM-HARD SANDSTONE

EL. 774.5
R-252-0-99
STA. 344+43
35.0' Rt.
TOP OF BEDROCK
SOFT TO MEDIUM-HARD YELLOW-BROWN SHALE
MEDIUM-HARD GRAY FINE TO MEDIUM GRAINED ARGILLACEOUS SANDSTONE
SOFT TO MEDIUM-HARD GRAY SHALE

EL. 576.5
R-251-0-99
STA 338+85
59.0' Lt.
TOP OF BEDROCK
VERY-SOFT GRAY SHALE
SOFT GRAY LIMESTONE

B-069-0-11
105.0' RT.
TR

B-069-0-11
105.0' RT.
(CONTINUED)

B-063-0-11
171.0' LT.
TR
Shale, Severely Weathered, (Augered)

PROPOSED PROFILE GRADE

HORIZONTAL SCALE IN FEET
0 50 100 200

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
STA. 337+00 - 361+00

LAW-7-2.17

69 / 206

1110
1247

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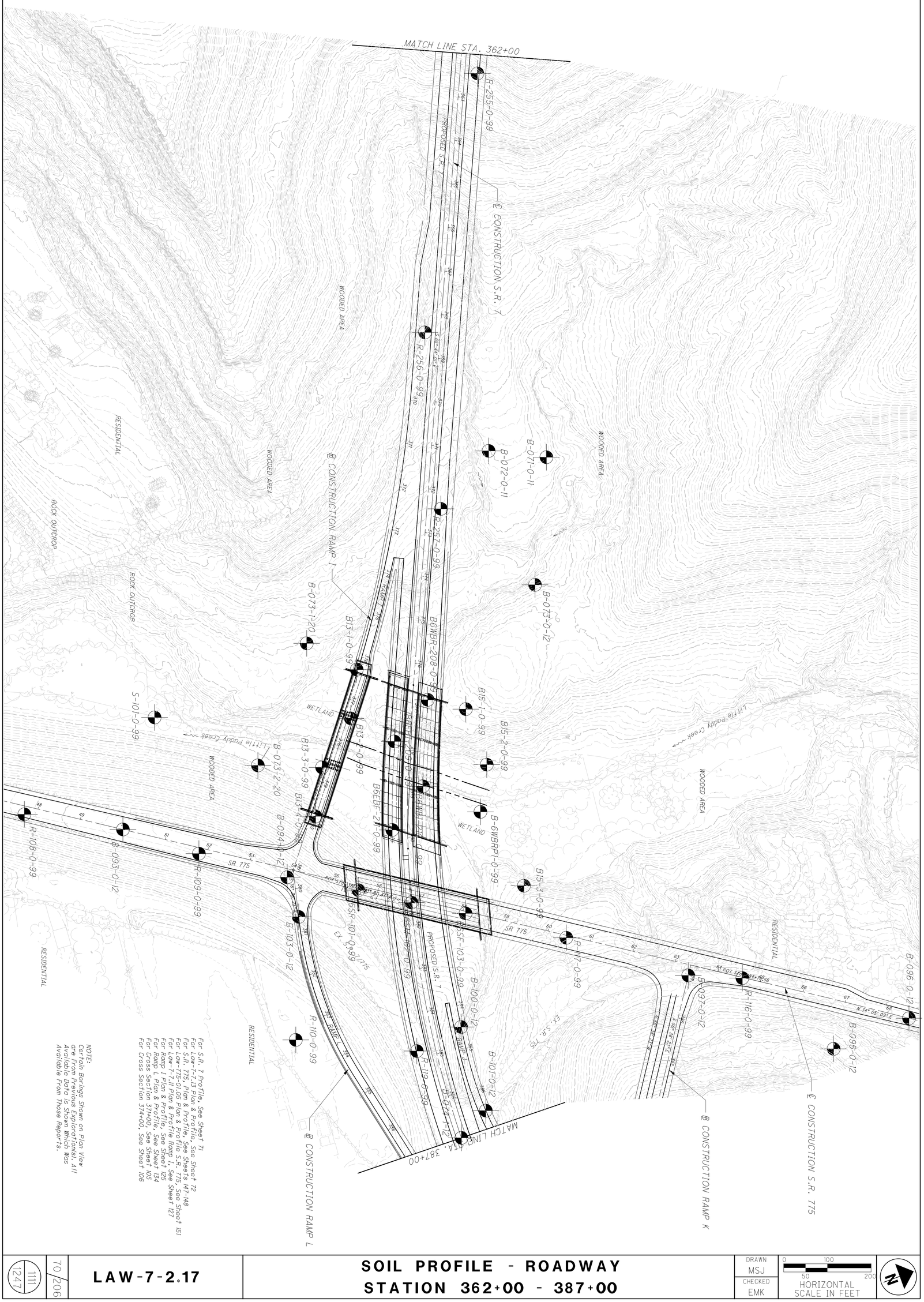

1111 / 1247	70 / 206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY STATION 362+00 - 387+00**	DRAWN MSJ / CHECKED EMK	0 50 100 200 HORIZONTAL SCALE IN FEET

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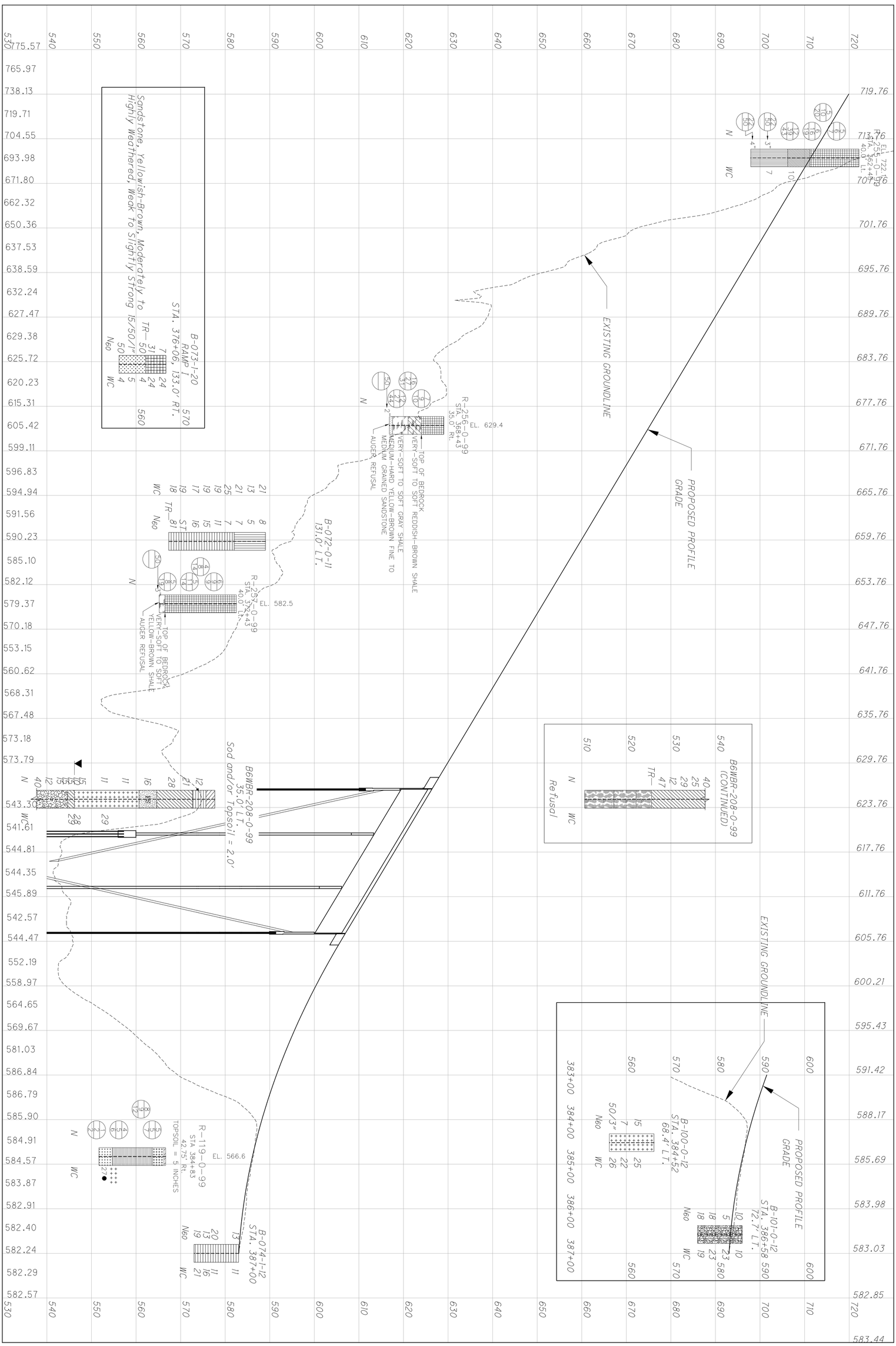

1112 / 1247	71 / 206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY** **STATION 361+00 - 387+00**	DRAWN MSJ CHECKED EMK 0 50 100 200 HORIZONTAL SCALE IN FEET

ESTIMATED LENGTH OF PILING	
REAR ABUT.	95 FT.
PIER 1	50 FT.
PIER 2	25 FT.
FWD. ABUT.	85 FT.

1113 / 1247	72 / 206	LAW-7-2.17	STRUCTURE FOUNDATION EXPLORATION LAW-7-07.13 L & R S.R. 7 OVER LITTLE PADDY CREEK	DRAWN MSJ CHECKED EMK	0 25 12.5 50 HORIZONTAL SCALE IN FEET

NOTE:
Certain Borings Shown on Plan View are From Previous Exploration(s). All Available Data is Shown Which Was Available From Those Reports.

NOTE:
SLI-2XX-04 Locations are Presumably Where Slope Inclinometers were Installed During Landslide Repair Projects. Logs were not Recovered for these Installations.

B-098-1-12
B-098-0-12
B-098-1-20
℄ CONSTRUCTION RAMP K
CLEARED HILLSIDE
B-106-2-20
℄ CONSTRUCTION RAMP J
B-102-0-12
RAMP K
RAMP J
MATCH LINE STA. 387+00
B-106-1-20
SLI-982-0-05
SLI-983-0-05
S-102-0-99
SLI-984-0-05
R-120-0-99
℄ CONSTRUCTION S.R. 7
B-074-1-12
SLI-981-0-05
SLI-985-0-05
B-077-1-12
B-075-1-12
PROPOSED S.R. 7
R-122-0-99
B-099-0-12
R-121-0-99
B-076-1-12
RAMP L
B-104-0-12
R-118-0-99
℄ CONSTRUCTION RAMP L
B-076-2-23
B-076-3-23
R-123-0-99
B-077-2-23
B-077-3-23
B-078-2-23
B-078-1-12
EX. S.R. 7
B-078-3-23
SLI-401-0-04
MESA ST.
WOODED
ROCK OUTCROP
SLI-203-0-04
WOODED
WOODED
S-103-0-99
Field Dr.
R-124-0-99
B-079-1-12
R-125-0-99
SLI-200-0-04
SLI-404-0-04
SLI-403-0-04
SL-402-0-04
SLI-405-0-04
WOODED
MATCH LINE STA. 412+00
LITTLE PADDY RD.
RESIDENTIAL
TOWER DR.
MIDLAND AVE.
COLE ST.
WOODED
PLATEAU CT.
2ND ST.
BECKART ST.
1ST ST.
Paddy Creek

For S.R. 7 Profile, See Sheet 74
For Noise Wall Plan/Profiles See Sheets 74A, 74B & 74C
For Ramp J Plan & Profile, See Sheet 128
For Ramp K Plan & Profile, See Sheet 129-130
For Ramp L Plan & Profile, See Sheet 134
For Cross Section 394+50, See Sheet 107
For Cross Section 395+50, See Sheet 108
For Cross Section 396+00, See Sheet 109
For Cross Section 396+50, See Sheet 110
For Cross Section 397+49.13, See Sheet 111
For Cross Section 398+50, See Sheet 112
For Cross Section 405+00, See Sheet 113

HORIZONTAL SCALE IN FEET
0 50 100 200

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
STATION 387+00 - 412+00

LAW-7-2.17

73/206

1114/1247

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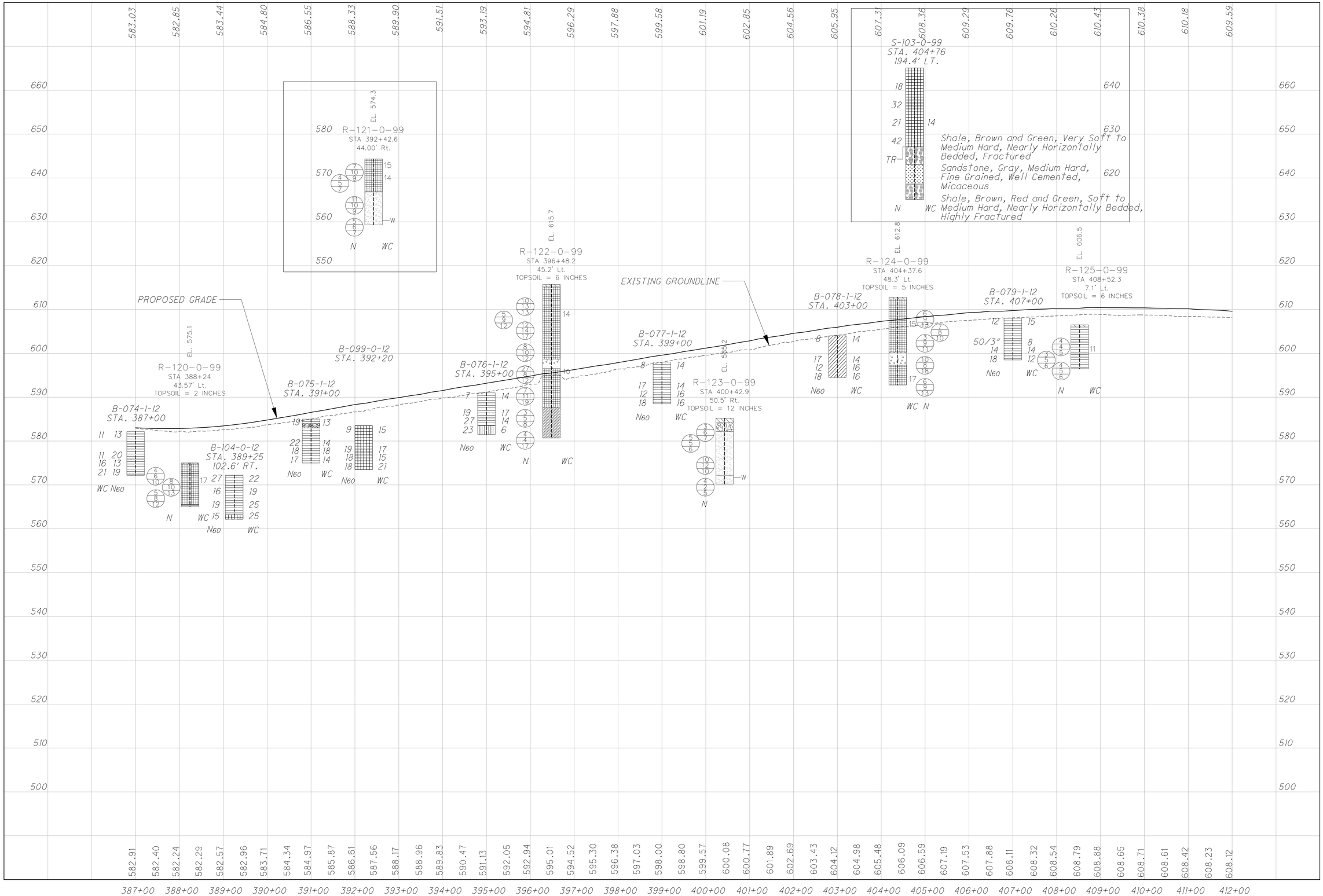

HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
STATION 387+00 - 412+00

LAW-7-2.17

1115/1247

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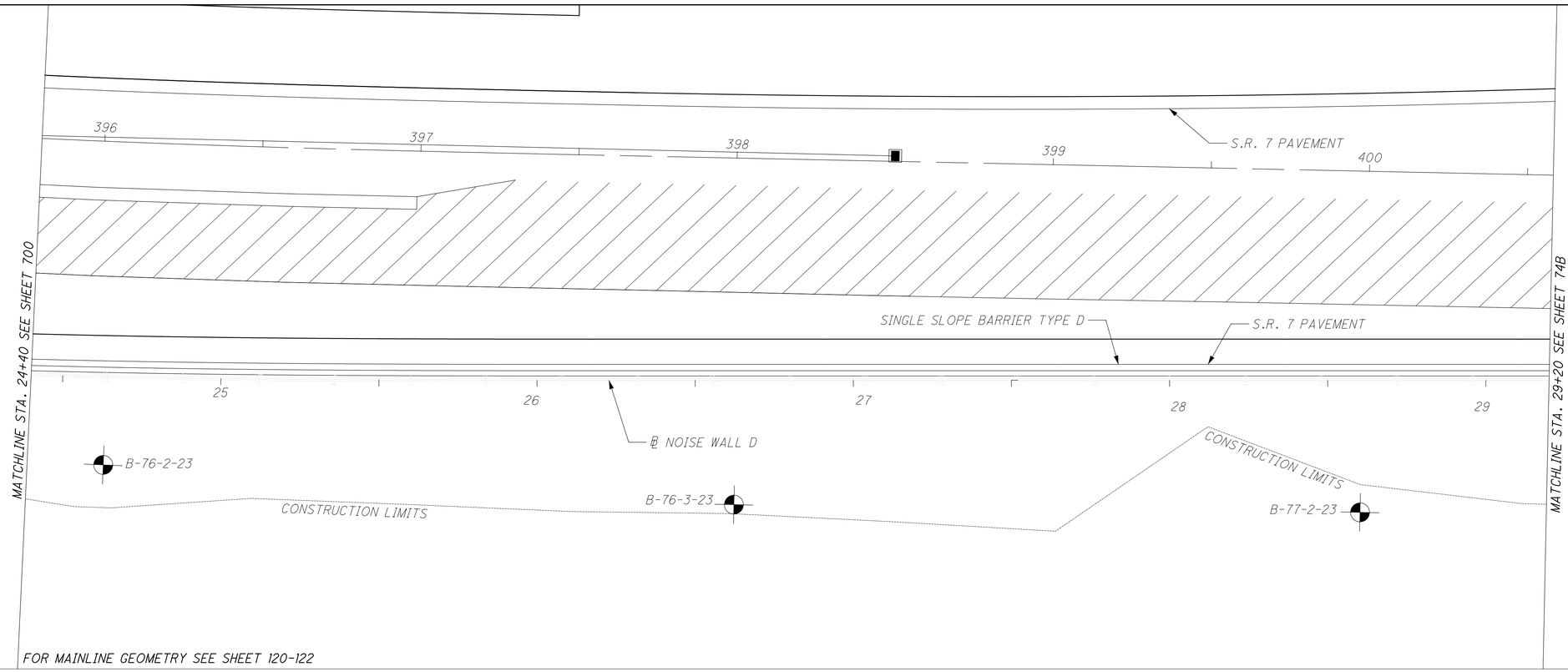
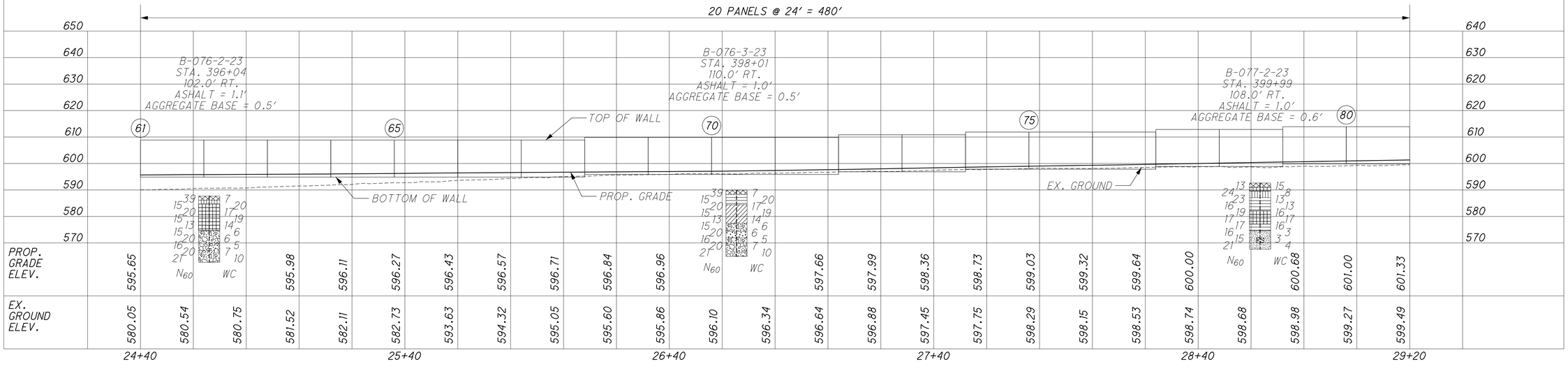


FOR MAINLINE GEOMETRY SEE SHEET 120-122

TOP OF WALL ELEV.	608.85	608.85	608.85	608.85	608.85	608.85	608.85	609.85	609.85	609.85	609.85	610.85	610.85	611.85	611.85	611.85	612.85	612.85	613.85	613.85
BOTTOM OF WALL ELEV.	594.85	594.85	594.85	594.85	594.85	594.85	594.85	595.85	595.85	595.85	595.85	596.85	596.85	597.85	597.85	597.85	598.85	598.85	599.85	599.85
PANEL NO.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80



PROP. GRADE ELEV.	595.65	595.98	596.11	596.27	596.43	596.57	596.71	596.84	596.96	597.66	597.99	598.36	598.73	599.03	599.32	599.64	600.00	600.68	601.00	601.33
EX. GROUND ELEV.	580.05	580.54	580.75	581.52	582.11	582.73	593.63	594.32	595.05	595.60	595.86	596.10	596.34	596.64	596.88	597.45	597.75	598.29	598.15	598.53	598.74	598.68	598.98	599.27	599.49

24+40 25+40 26+40 27+40 28+40 29+20

HORIZONTAL SCALE IN FEET
0 10 20 40

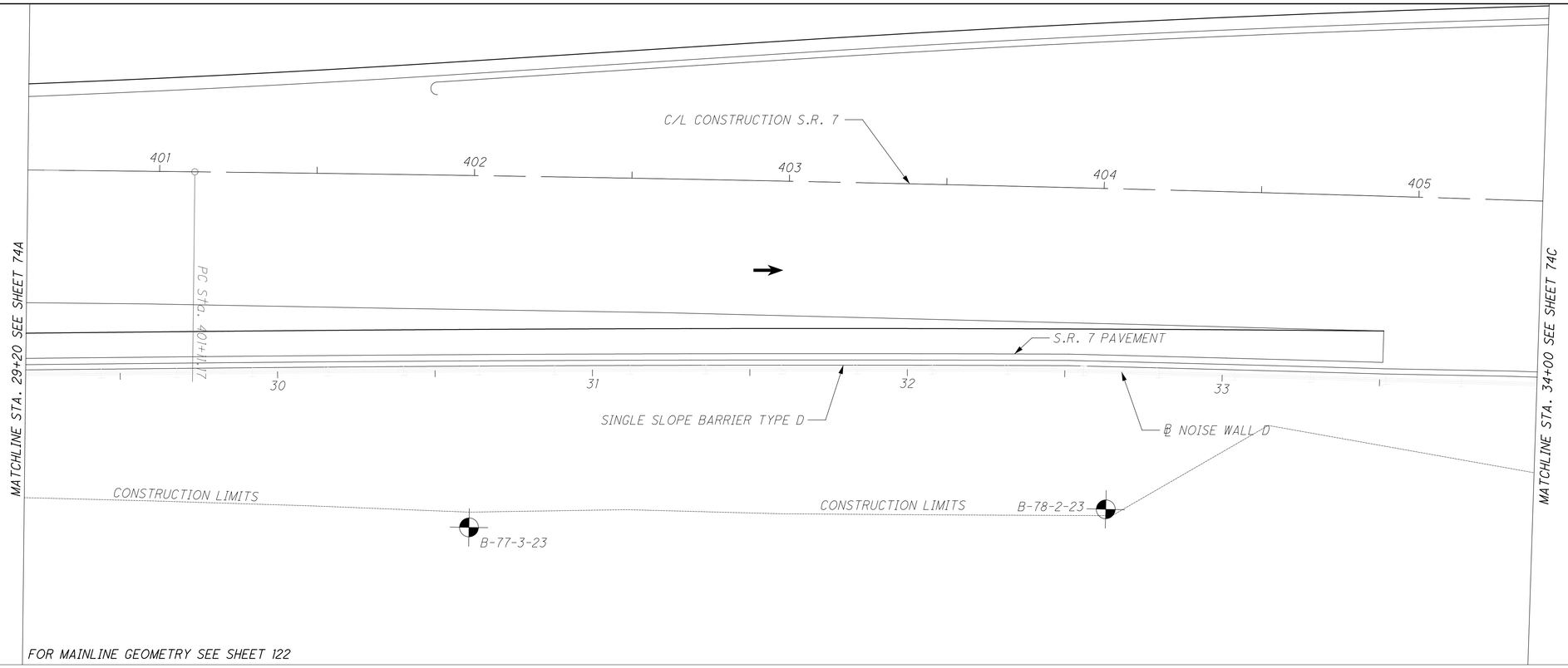
DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
NOISE WALL D - STA. 24+40 TO 29+20

LAW-7-2.17

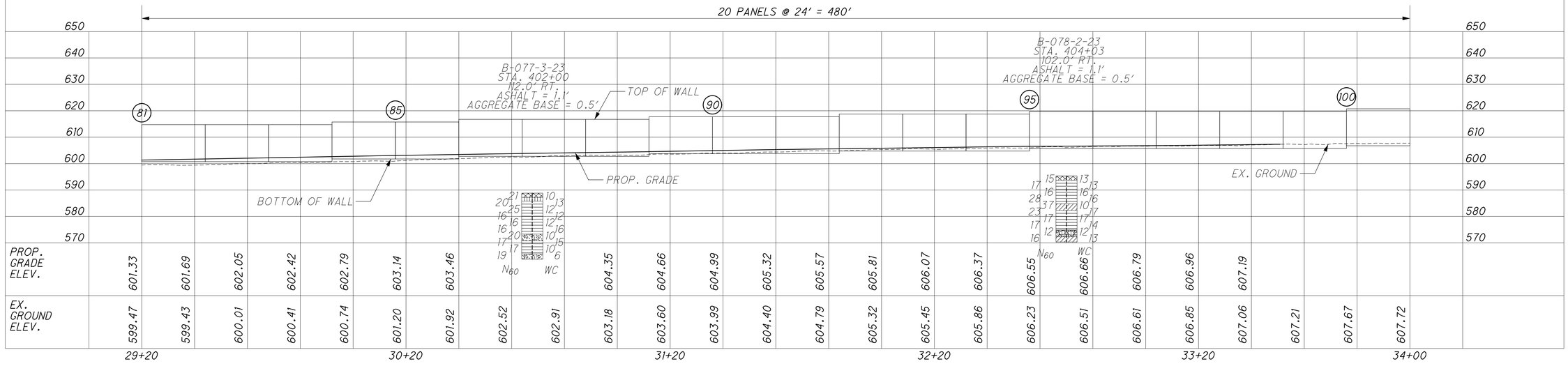
74A/206

1115A
1247



FOR MAINLINE GEOMETRY SEE SHEET 122

TOP OF WALL ELEV.		614.75	614.75	614.75	615.75	615.75	616.75	616.75	616.75	617.75	617.75	617.75	618.75	618.75	618.75	619.75	619.75	619.75	619.75	619.75	620.75
BOTTOM OF WALL ELEV.		600.75	600.75	600.75	601.75	601.75	602.75	602.75	602.75	603.75	603.75	603.75	604.75	604.75	604.75	605.75	605.75	605.75	605.75	605.75	606.75
PANEL NO.		81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
PROP. GRADE ELEV.	601.33	601.69	602.05	602.42	602.79	603.14	603.46		604.35	604.66	604.99	605.32	605.57	605.81	606.07	606.37	606.55	606.66	606.79	606.96	607.19
EX. GROUND ELEV.	599.47	599.43	600.01	600.41	600.74	601.20	601.92	602.52	602.91	603.18	603.60	603.99	604.40	604.79	605.32	605.45	605.86	606.23	606.51	606.61	606.85	607.06	607.21	607.67	607.72



29+20 30+20 31+20 32+20 33+20 34+00

HORIZONTAL SCALE IN FEET
0 10 20 40

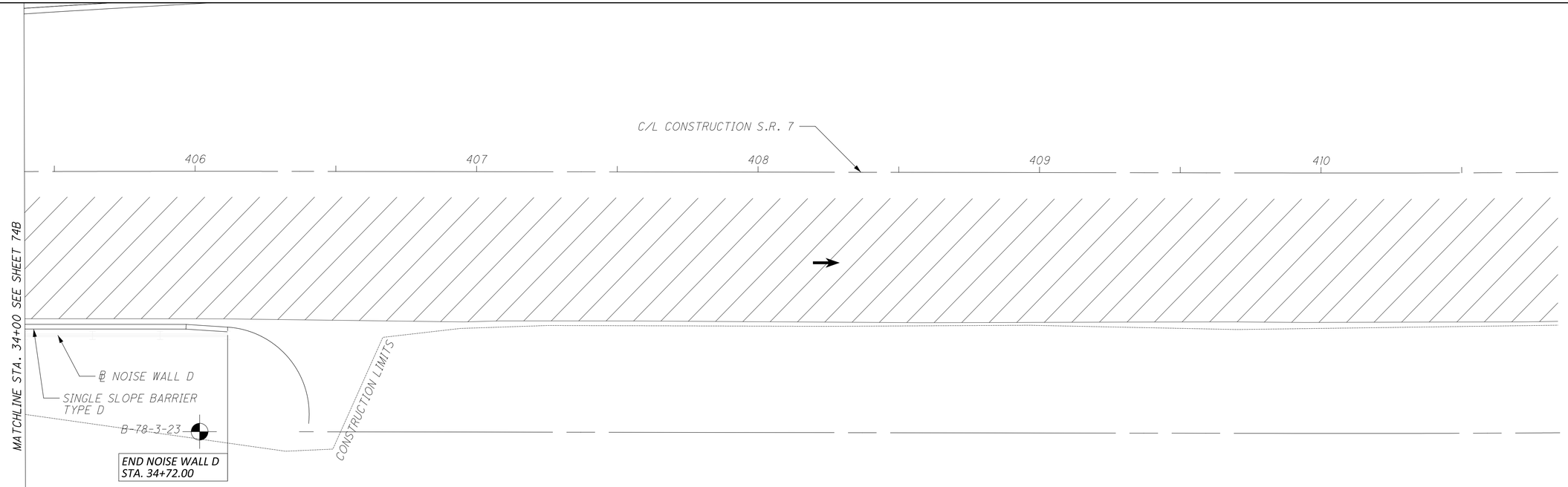
DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
NOISE WALL D - STA. 29+20 TO 34+00

LAW-7-2.17

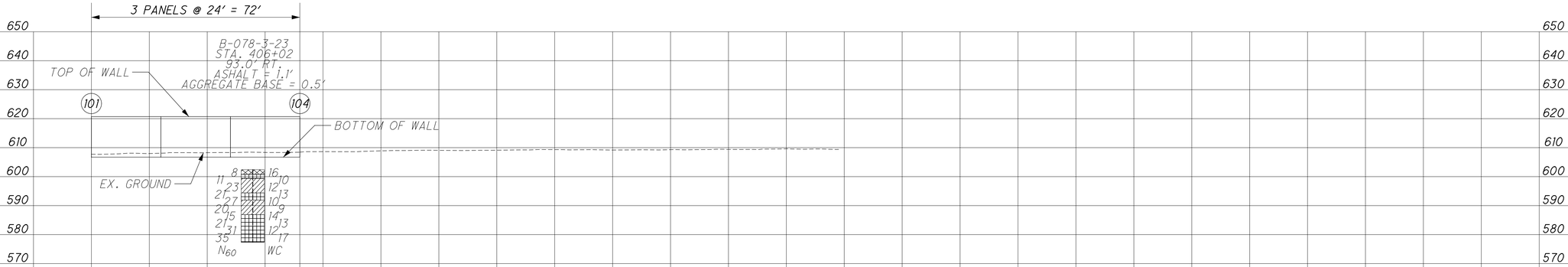
74B/206

1115B
1247



FOR MAINLINE GEOMETRY SEE SHEET 122

TOP OF WALL ELEV.	620.75	620.75	620.75
BOTTOM OF WALL ELEV.	606.75	606.75	606.75
PANEL NO.	101	102	103



PROP. GRADE ELEV.													
EX. GROUND ELEV.	607.72	607.97	608.29	608.35	608.45	608.35	608.90	609.08	609.12	609.33	609.17	609.31	609.49	609.61

34+00 34+72

STRUCTURE FOUNDATION EXPLORATION
NOISE WALL D - STA. 34+00 TO 34+72

LAW-7-2.17

74C/206

1115C
1247

DRAWN MSJ
CHECKED EWK

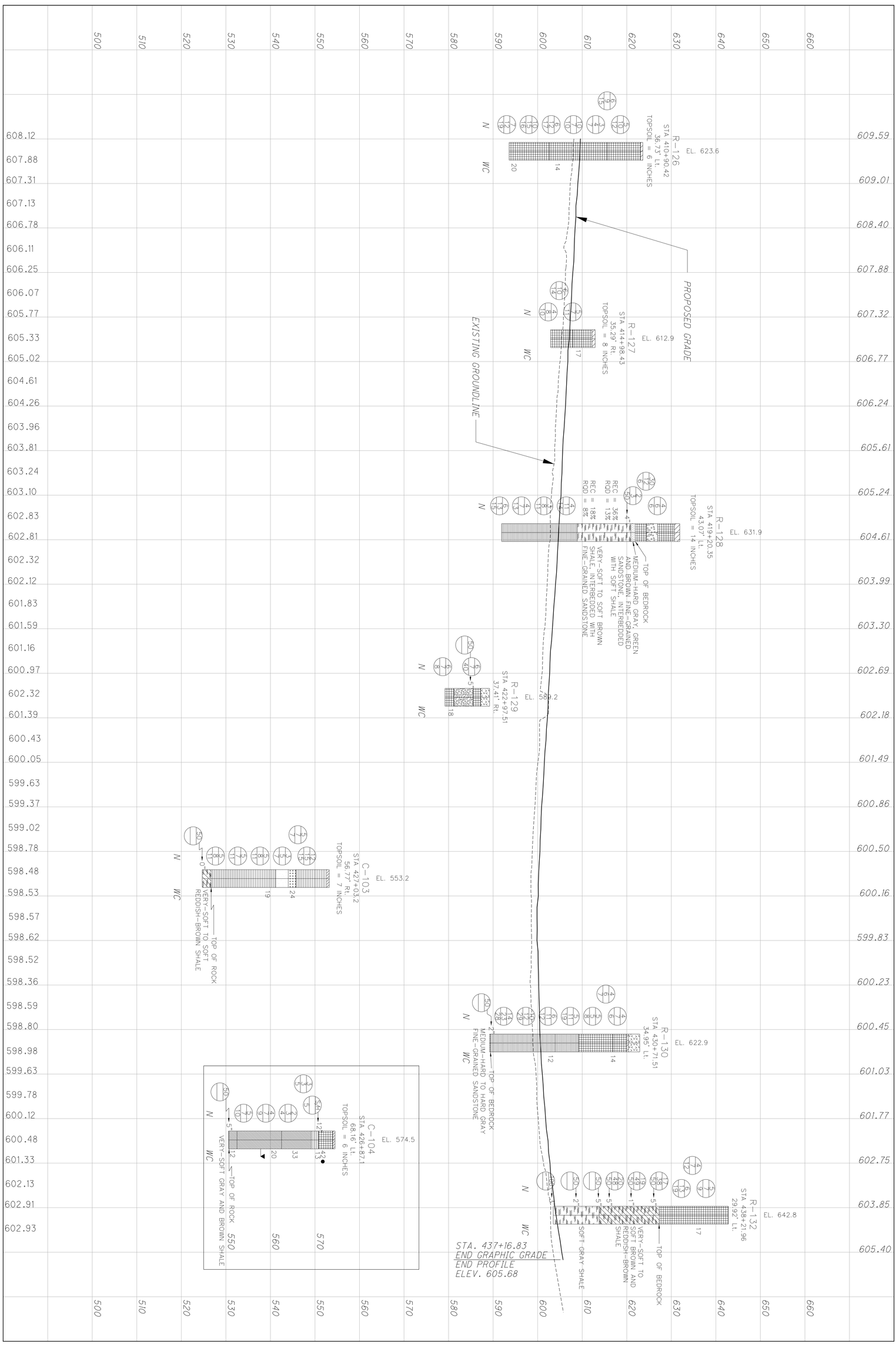
HORIZONTAL SCALE IN FEET
0 10 20 40

For S.R. 7 Profile, See Sheet 76
For Cross Section 414+00, See Sheet 114
For Cross Section 415+50, See Sheet 115
For Cross Section 419+00, See Sheet 116
For Cross Section 423+00, See Sheet 117
For Cross Section 424+00, See Sheet 118
For Cross Section 425+00, See Sheet 119
For Cross Section 426+00, See Sheet 120
For Cross Section 436+50, See Sheet 121

NOTE: FROM STATION 412+00 TO 437+16.83 EARTHWORK FOR MAIN LINE HAS BEEN PERFORMED. SOME BORINGS SHOWN ARE REPORTED IN SEPERATE SOIL PROFILES.

NOTE: SLI-2XX-04 Locations are Presumably Where Slope Inclinometers were Installed During Landslide Repair Projects. Logs were not Recovered for These Installations.

1116 / 1247	75 / 206	LAW-7-2.17	SOIL PROFILE - ROADWAY STATION 412+00 - 437+16.83	DRAWN MSJ CHECKED EMK	0 100 50 200 HORIZONTAL SCALE IN FEET



1247 1117	76/206	**LAW-7-2.17**	**SOIL PROFILE - ROADWAY** **STATION 412+00 - 437+16.83**	DRAWN MSJ CHECKED EMK 0 100 50 200 HORIZONTAL SCALE IN FEET

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 136+00.00

LAW-7-2.17

77/206

1118
1247

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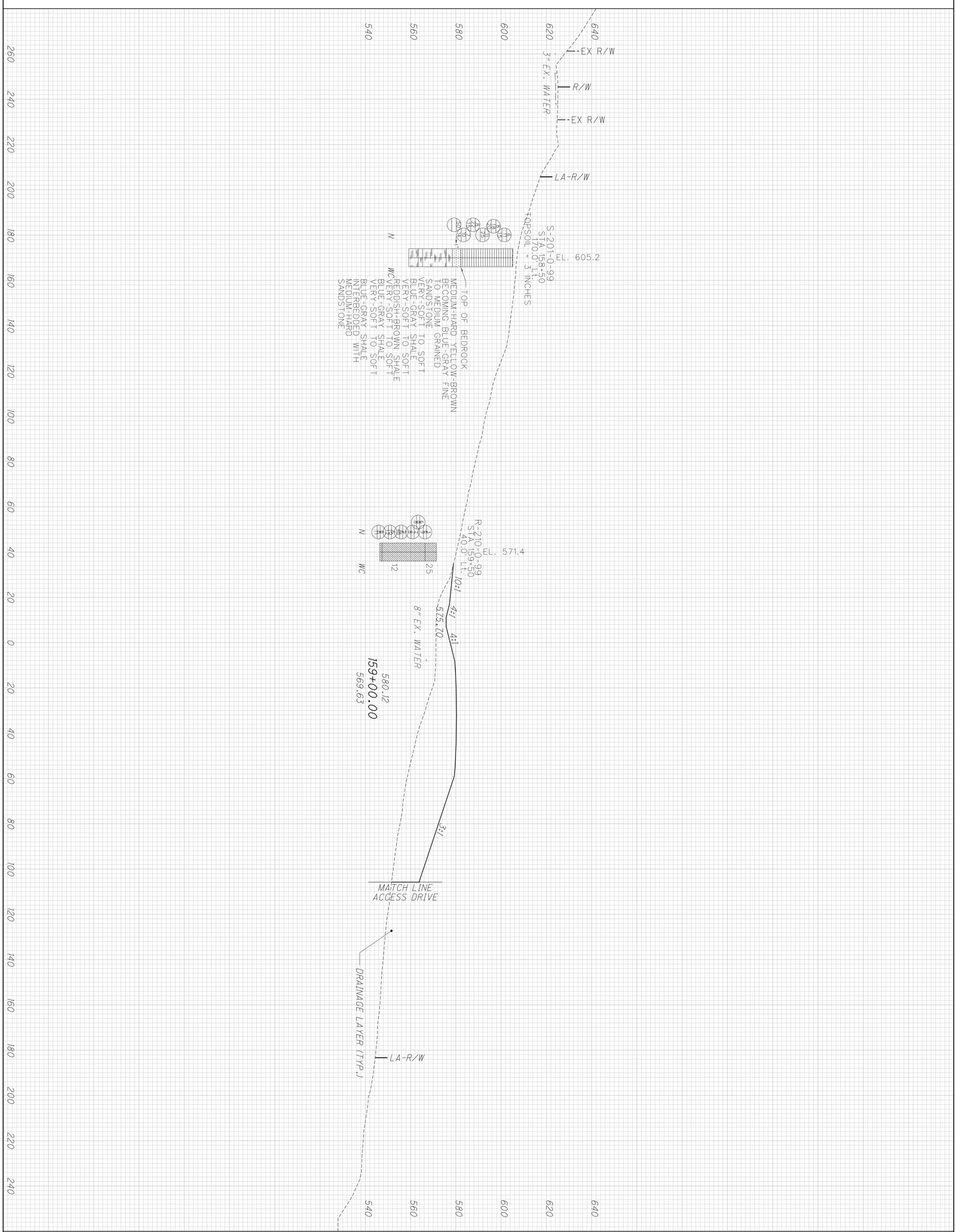

1119 / 1247	78 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 159+00.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET

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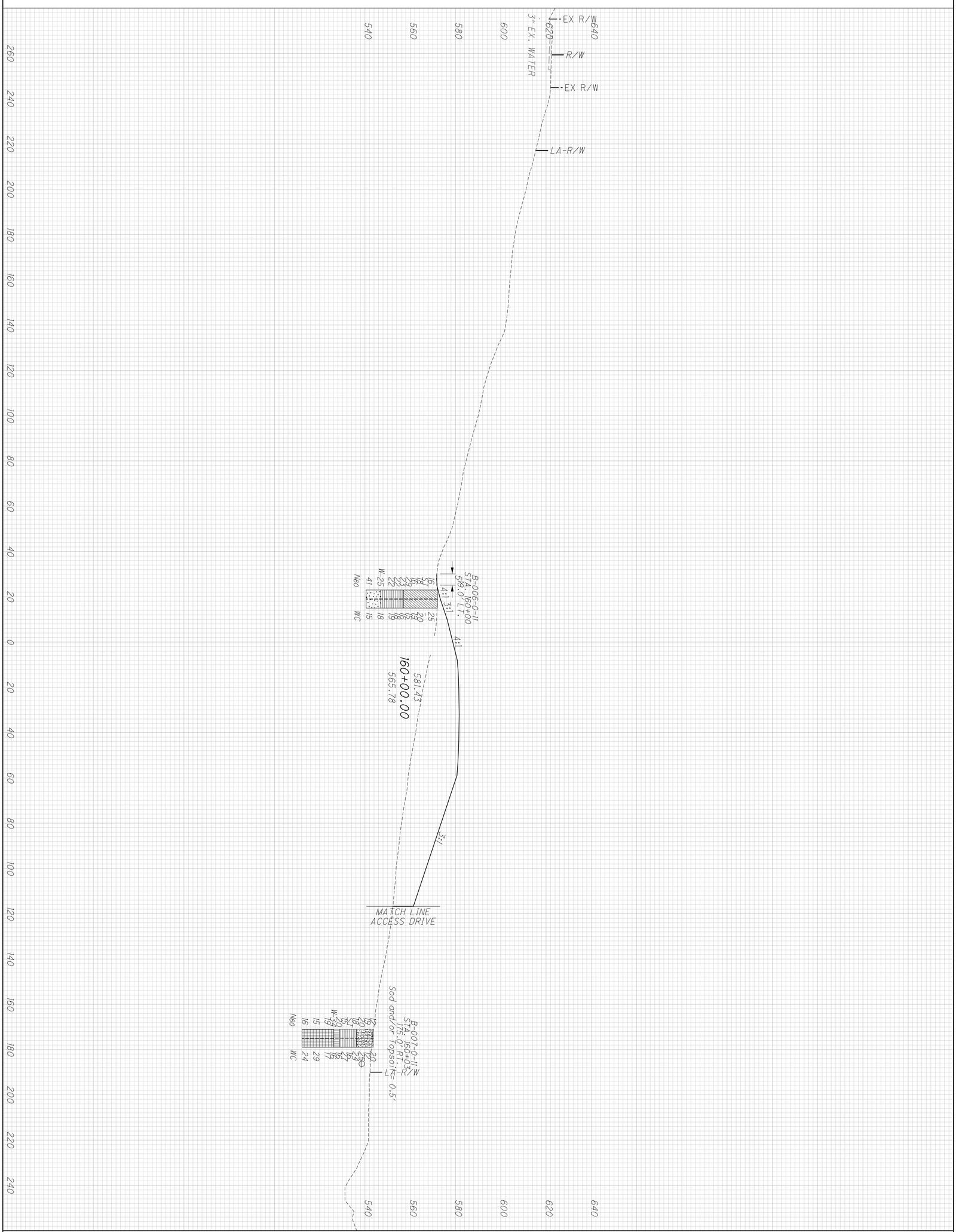
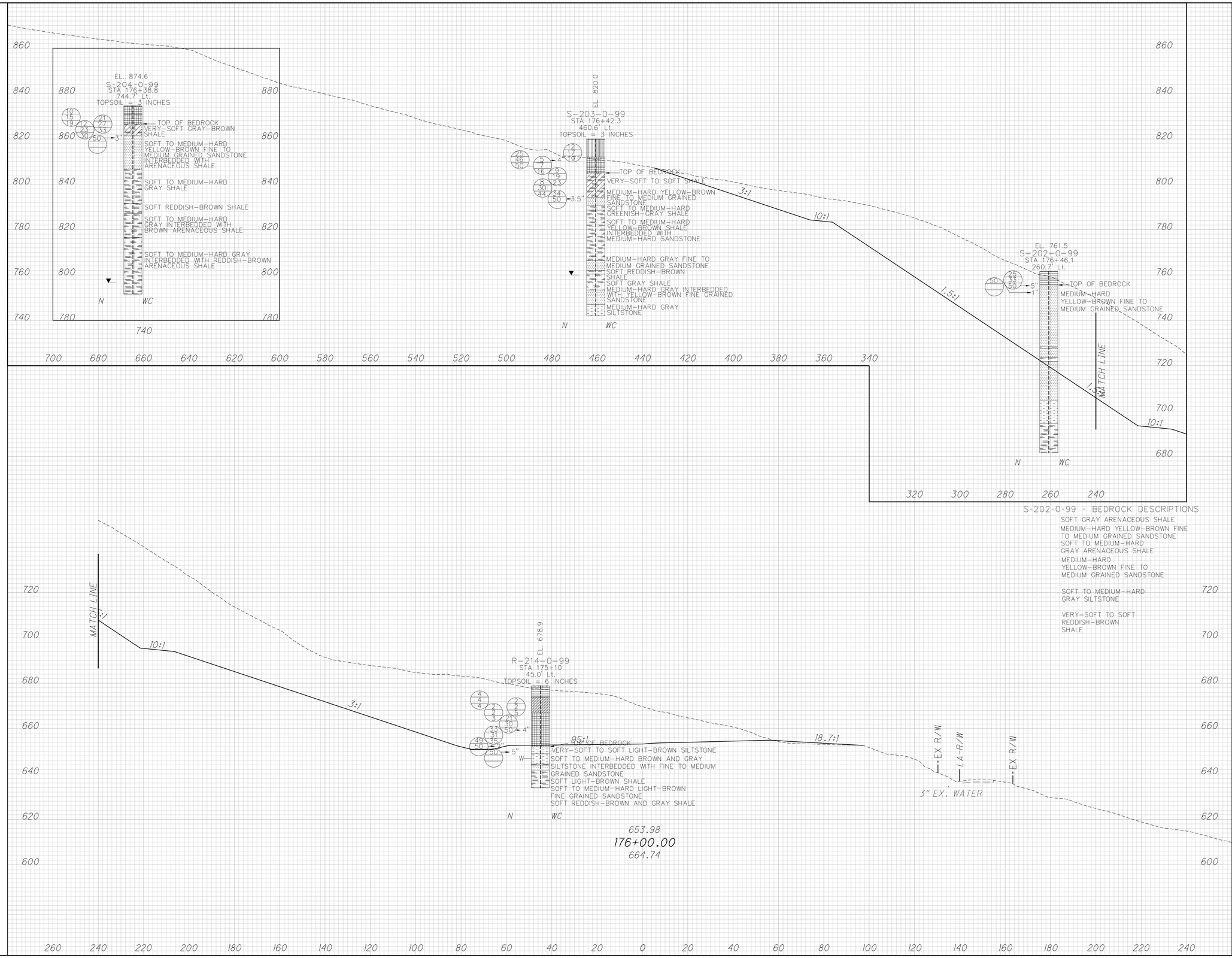


1120 / 1247	79 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 160+00.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET


EL. 874.6
S-204-0-99
STA 176+38.8
744.7' Lt.
TOPSOIL = 3 INCHES
TOP OF BEDROCK
VERY-SOFT GRAY-BROWN SHALE
SOFT TO MEDIUM-HARD YELLOW-BROWN FINE TO MEDIUM GRAINED SANDSTONE INTERBEDDED WITH ARENACEOUS SHALE
SOFT TO MEDIUM-HARD GRAY SHALE
SOFT REDDISH-BROWN SHALE
SOFT TO MEDIUM-HARD GRAY INTERBEDDED WITH BROWN ARENACEOUS SHALE
SOFT TO MEDIUM-HARD GRAY INTERBEDDED WITH REDDISH-BROWN ARENACEOUS SHALE
N
WC
EL. 820.0
S-203-0-99
STA 176+42.3
460.6' Lt.
TOPSOIL = 3 INCHES
TOP OF BEDROCK
VERY-SOFT TO SOFT SHALE
MEDIUM-HARD YELLOW-BROWN FINE TO MEDIUM GRAINED SANDSTONE
SOFT TO MEDIUM-HARD GREENISH-GRAY SHALE
SOFT TO MEDIUM-HARD YELLOW-BROWN SHALE INTERBEDDED WITH MEDIUM-HARD SANDSTONE
MEDIUM-HARD GRAY FINE TO MEDIUM GRAINED SANDSTONE
SOFT REDDISH-BROWN SHALE
SOFT GRAY SHALE
MEDIUM-HARD GRAY INTERBEDDED WITH YELLOW-BROWN FINE GRAINED SANDSTONE
MEDIUM-HARD GRAY SILTSTONE
N
WC
EL. 761.5
S-202-0-99
STA 176+46.1
260.7' Lt.
TOP OF BEDROCK
MEDIUM-HARD YELLOW-BROWN FINE TO MEDIUM GRAINED SANDSTONE
N
WC
3:1
10:1
1.5:1
MATCH LINE
S-202-0-99 - BEDROCK DESCRIPTIONS
SOFT GRAY ARENACEOUS SHALE
MEDIUM-HARD YELLOW-BROWN FINE TO MEDIUM GRAINED SANDSTONE
SOFT TO MEDIUM-HARD GRAY ARENACEOUS SHALE
MEDIUM-HARD YELLOW-BROWN FINE TO MEDIUM GRAINED SANDSTONE
SOFT TO MEDIUM-HARD GRAY SILTSTONE
VERY-SOFT TO SOFT REDDISH-BROWN SHALE
EL. 678.9
R-214-0-99
STA 175+10
45.0' Lt.
TOPSOIL = 6 INCHES
TOP OF BEDROCK
VERY-SOFT TO SOFT LIGHT-BROWN SILTSTONE
SOFT TO MEDIUM-HARD BROWN AND GRAY SILTSTONE INTERBEDDED WITH FINE TO MEDIUM GRAINED SANDSTONE
SOFT LIGHT-BROWN SHALE
SOFT TO MEDIUM-HARD LIGHT-BROWN FINE GRAINED SANDSTONE
SOFT REDDISH-BROWN AND GRAY SHALE
W
N
WC
9.5:1
18.7:1
EX R/W
LA R/W
3" EX. WATER
653.98
176+00.00
664.74
0 10 20 40
HORIZONTAL SCALE IN FEET
DRAWN MSJ
CHECKED EMK
CROSS SECTION - S.R. 7
STATION 176+00.00
LAW-7-2.17
80/206
1121/1247
U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS17600.dgn 7/18/2024 9:27:02 AM MJennings

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0 10 20 40
HORIZONTAL
SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 184+00.00

LAW-7-2.17

80A/206

1121A
1247

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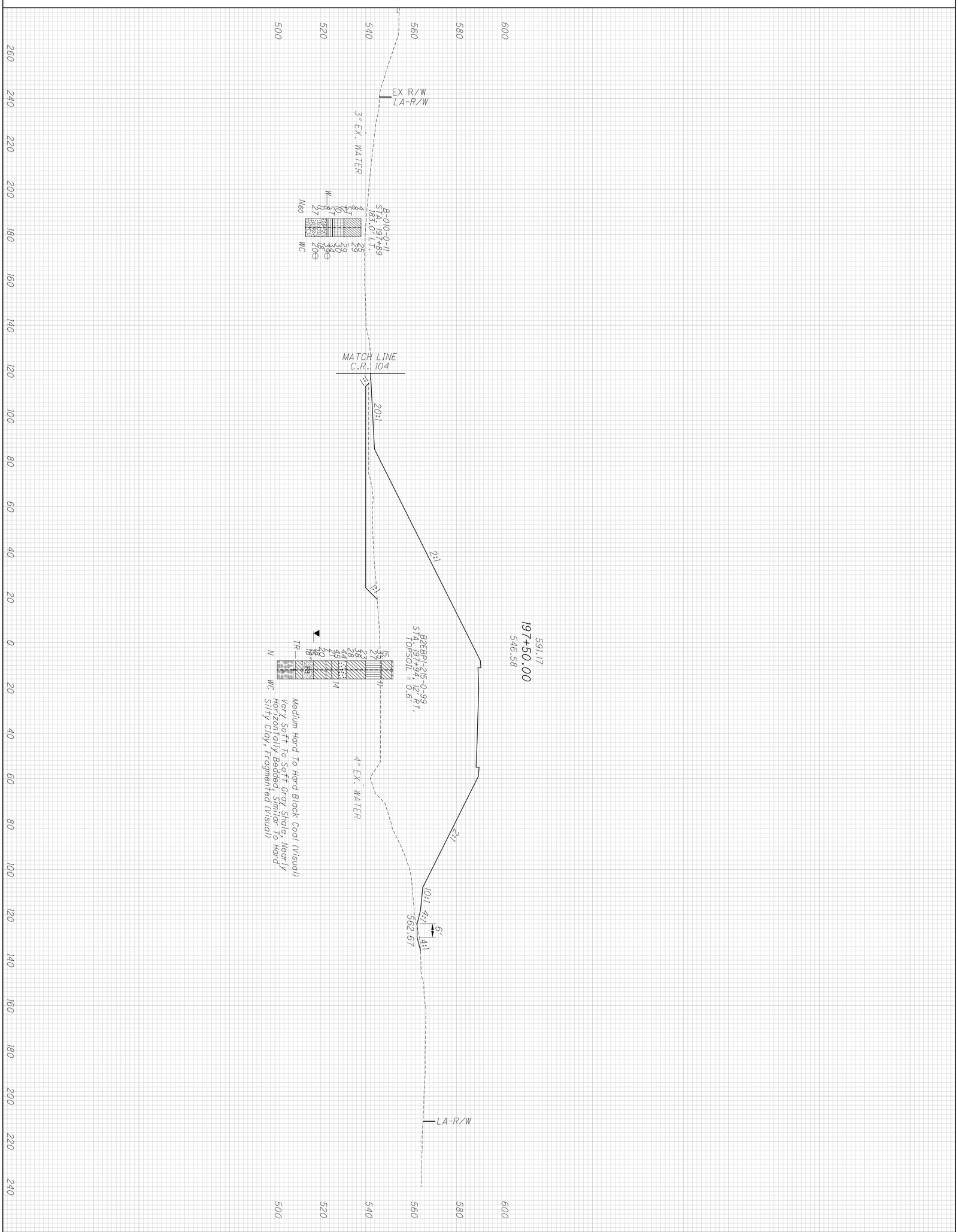


1122
1247

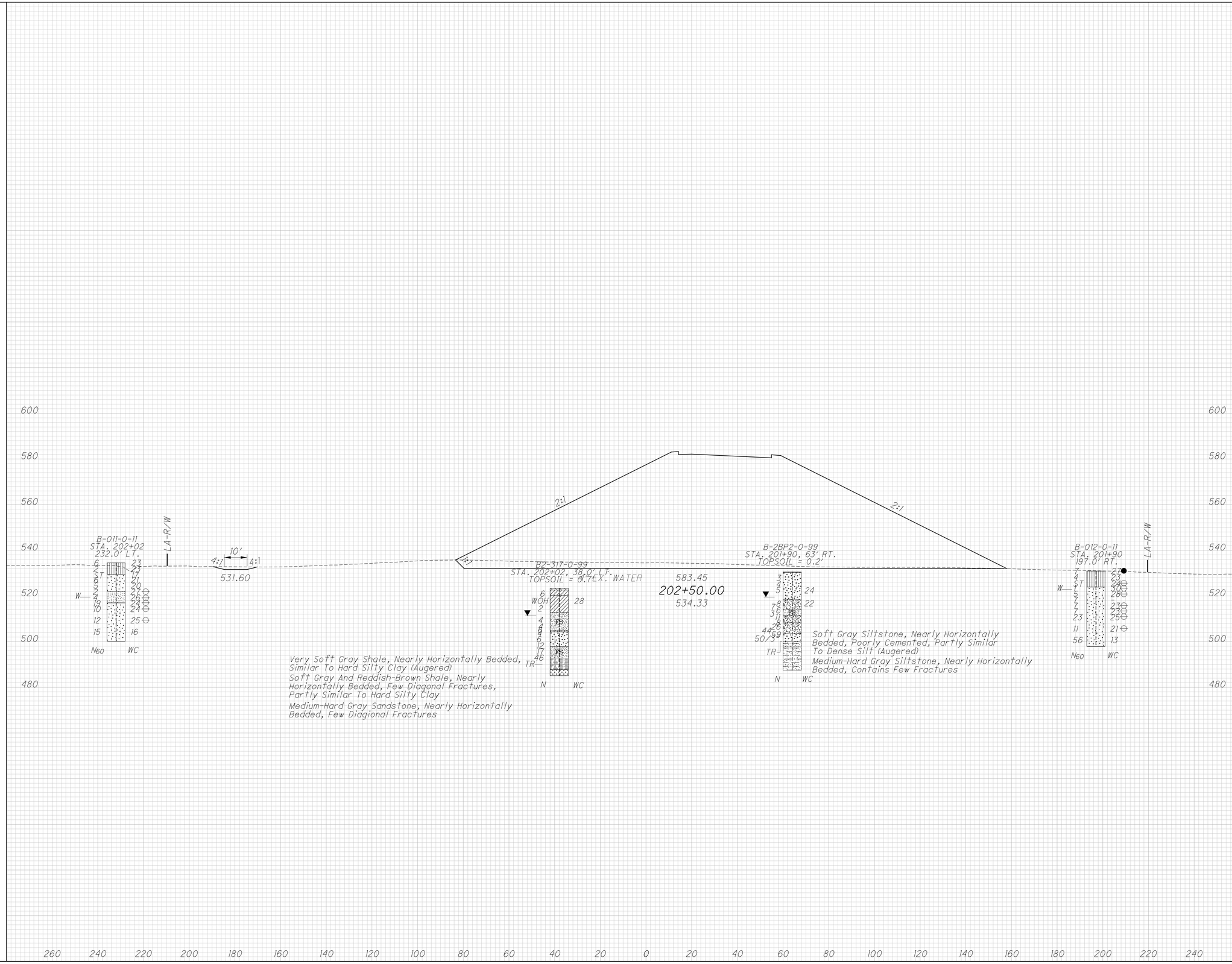
81/206

LAW-7-2.17

CROSS SECTION - S.R. 7
STATION 197+50.00

DRAWN MSJ
CHECKED EMK

0 20
10 40
HORIZONTAL SCALE IN FEET



0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 202+50.00

LAW-7-2.17

1123
1247

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0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7 STATION 215+50.00

LAW-7-2.17

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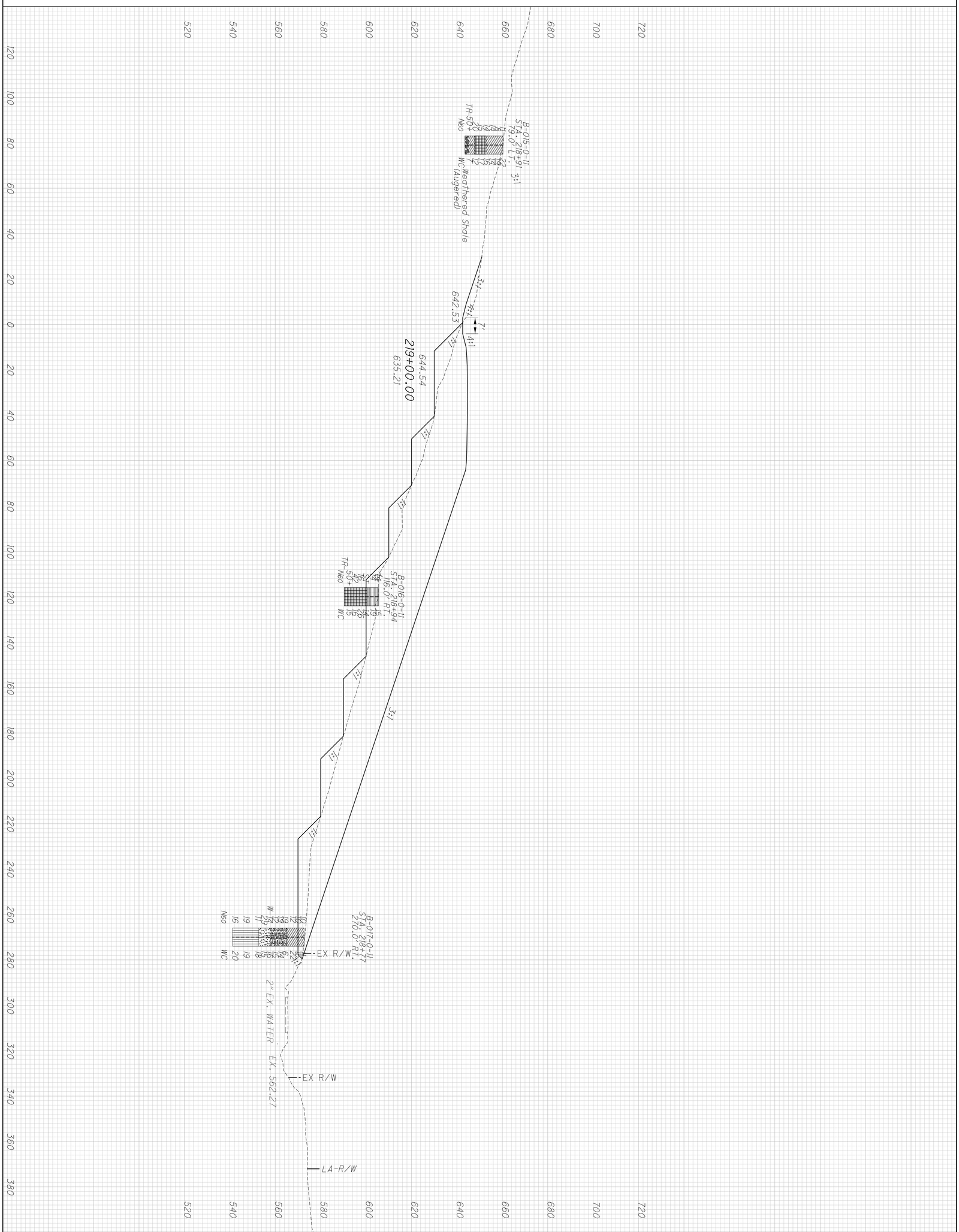

1125 / 1247	84 / 206	LAW-7-2.17	CROSS SECTION - S.R. 7 STATION 219+00.00	DRAWN MSJ CHECKED EMK	0 20 10 40 HORIZONTAL SCALE IN FEET

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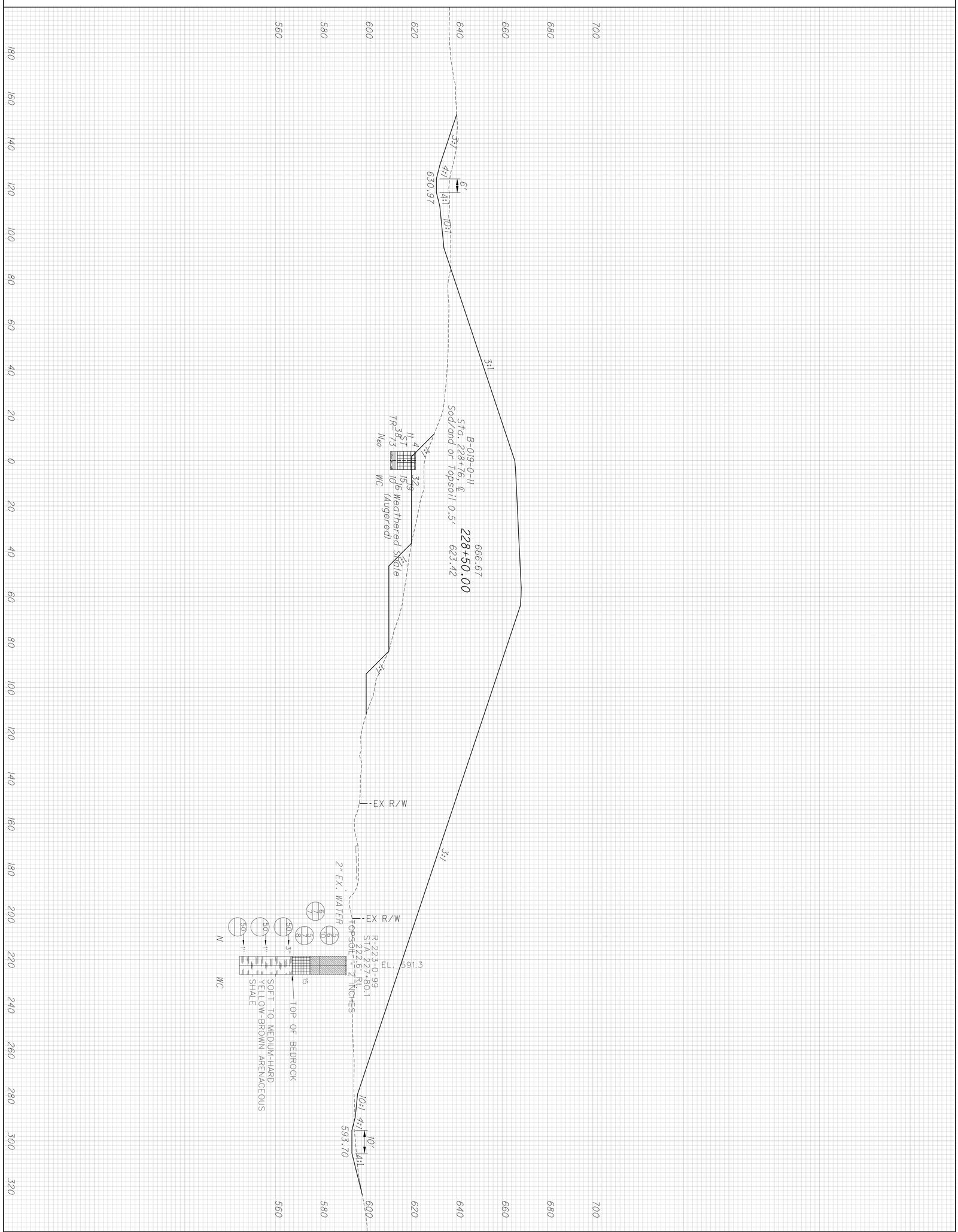

1126 / 1247	85 / 206	LAW-7-2.17	CROSS SECTION - S.R. 7 STATION 228+50.00	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET

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STA. 229+54.36
PROP. 60" TYPE A

STA. 229+70.45
PROP. 60" TYPE A

700
680
660
640
620
600
580
560

3:1
10:1
3:1

R-224
STA. 230+16
97.2' LT.
EL. 606.8

TOPSOIL = 7 INCHES
TOP OF BEDROCK
VERY-SOFT TO SOFT YELLOW-BROWN SHALE
VERY-SOFT TO SOFT RED SHALE
VERY-SOFT TO SOFT RED INTERBEDDED WITH GRAY SHALE
VERY-SOFT TO SOFT GRAY SHALE
AUGER REFUSAL
N

667.44
229+50.00
600.66

EX R/W
EX R/W

B-019-1-12
Sta. 229+50, 170' RT.

W
TR 50/2"
N_{60}

Shale, Gray, Severely Weathered
(Augered)
Shale, Gray, Slightly To Moderately Weathered, Weak To Slightly Strong, Laminated
WC Sandstone, Gray, Unweathered, Very Strong, Fine Grained, Thick To Very Thick Bedded

10'
4:1
4:1
10:1
597.50

B-019-2-12
Sta. 229+70, 300' LT.

W
TR50/2"
N_{60}
WC

Shale, Gray, Severely Weathered
(Augered)
Shale, Gray To Red, Slightly Weathered, Weak To Moderately Strong, Laminated To Thin Bedded

620
600
580

180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 229+50.00

LAW-7-2.17

85A/206

1126A
1247

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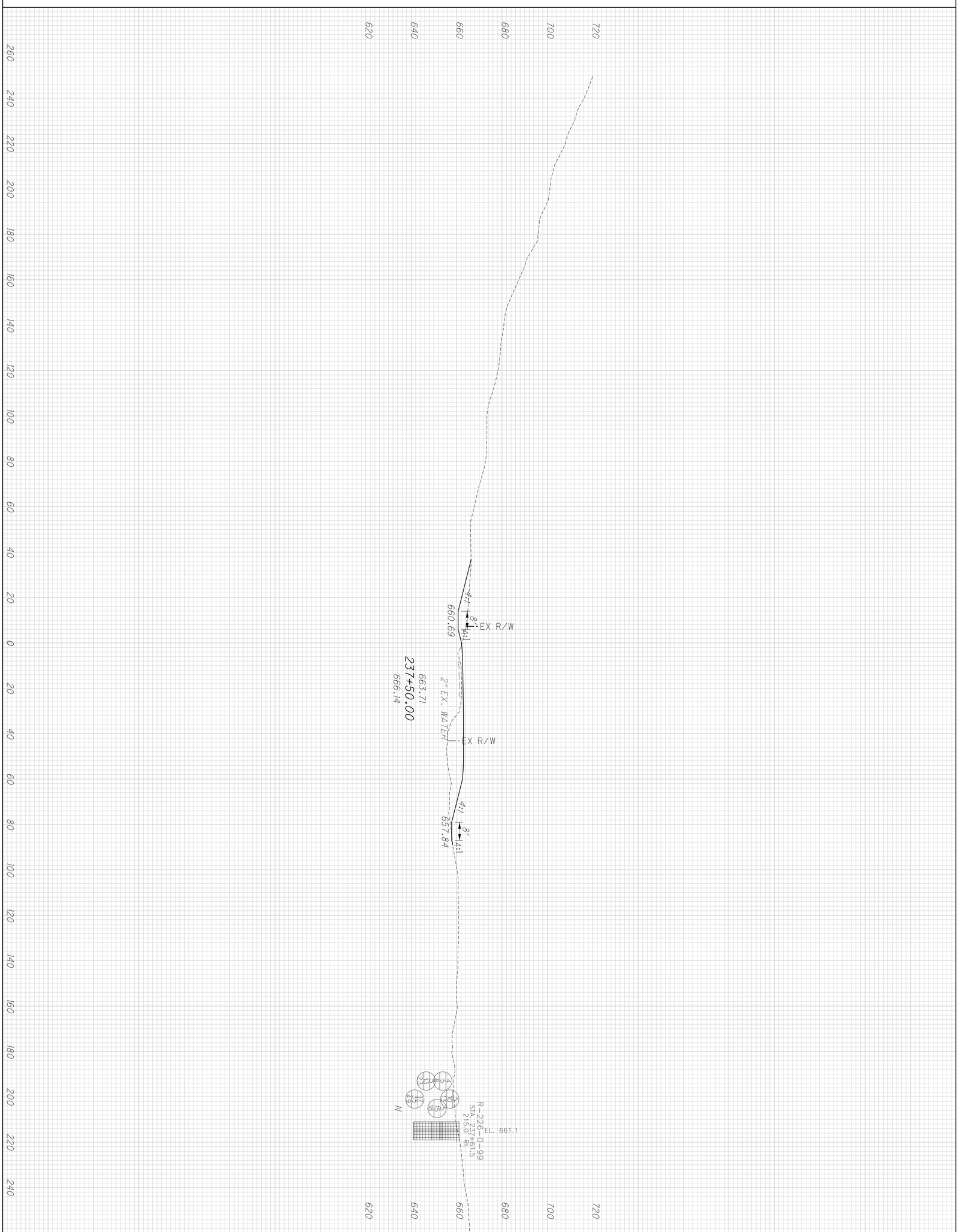

112.7 / 124.7	86 / 206	LAW-7-2.17	CROSS SECTION - S.R. 7 STATION 237+50.00	DRAWN MSJ CHECKED EMK	0 20 10 40 HORIZONTAL SCALE IN FEET

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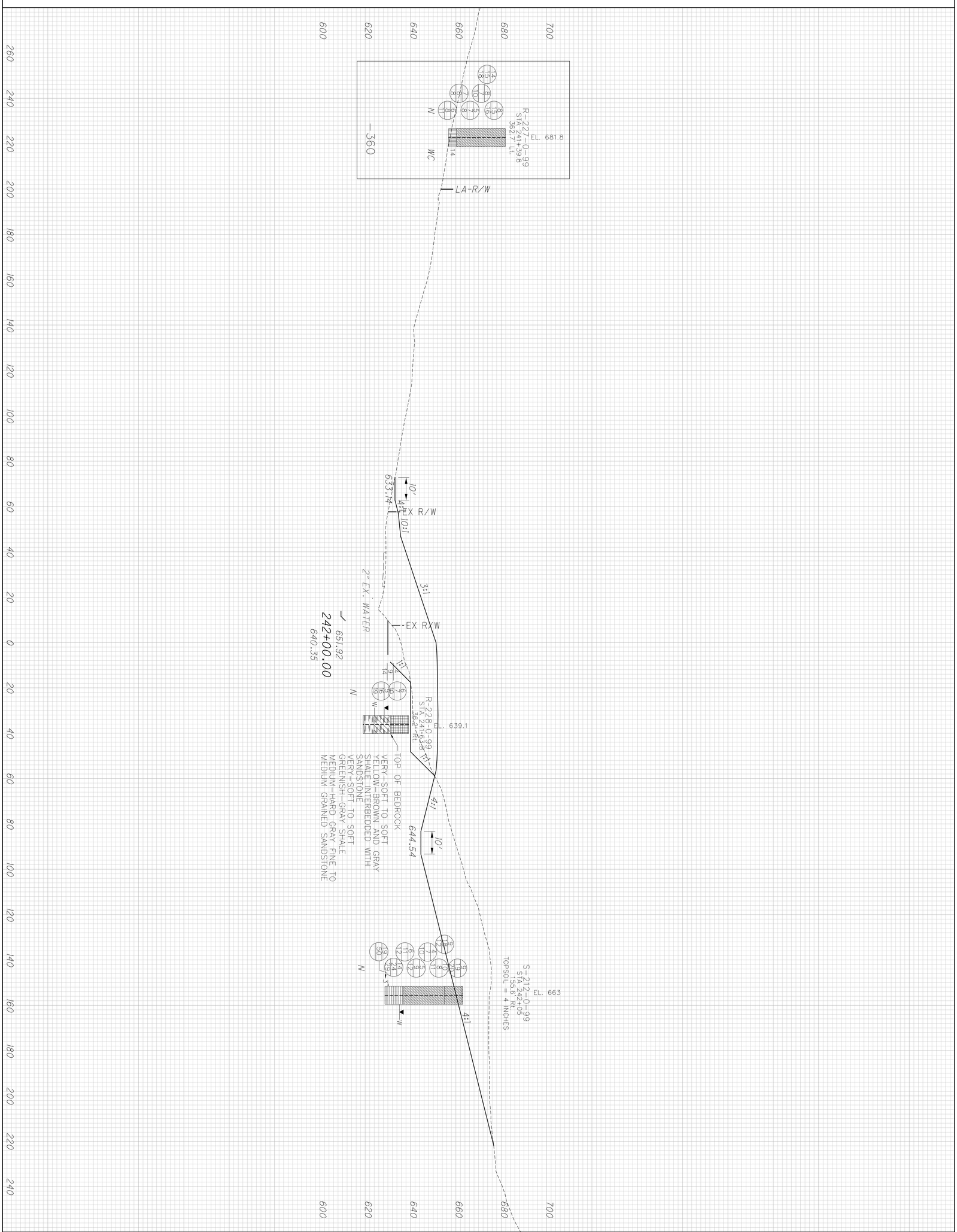
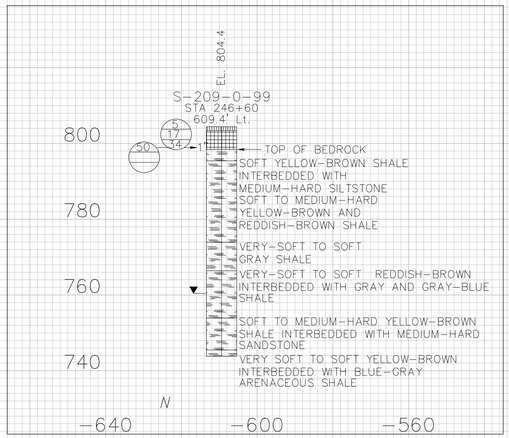
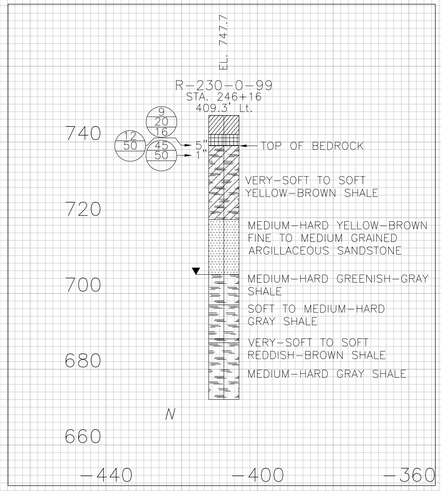
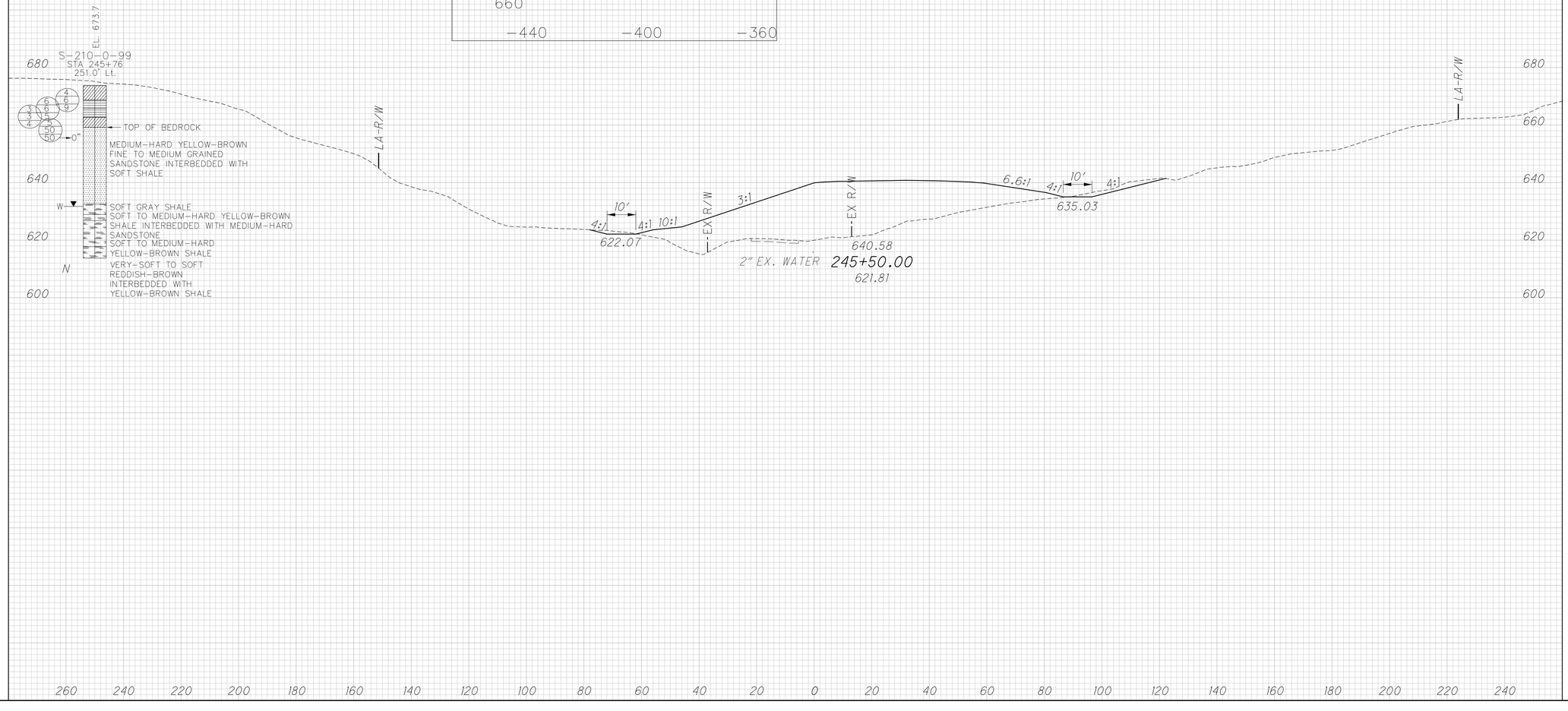


1128 / 1247	87 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 242+00.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET







0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 245+50.00

LAW-7-2.17

88 / 206

1129
1247

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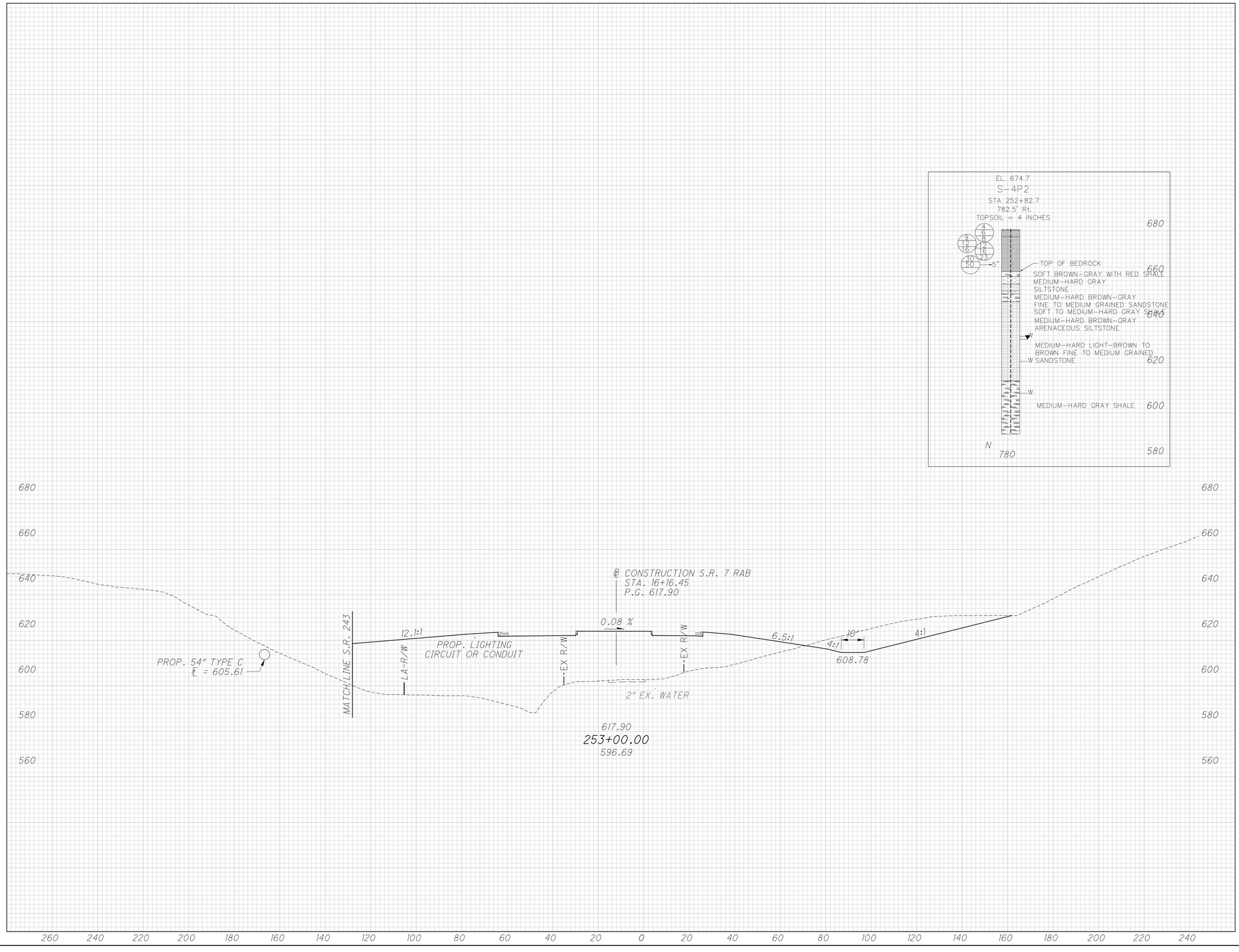

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0 10 20 40
HORIZONTAL
SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 253+00

LAW-7-2.17

EL. 674.3
S-4P1-0-99
STA 254+22.1
708.7' Rt.
TOPSOIL - 4 INCHES

TOP OF BEDROCK

VERY-SOFT TO SOFT REDDISH-BROWN SHALE

MEDIUM-HARD BROWN-GRAY SHALE

SOFT TO MEDIUM-HARD BROWN ARENACEOUS SILTSTONE

SOFT TO MEDIUM-HARD GRAY SHALE

W

SOFT TO MEDIUM-HARD YELLOW-BROWN SHALE INTERBEDDED WITH MICACEOUS SILTSTONE

SOFT TO MEDIUM-HARD GRAY SHALE

SOFT TO MEDIUM-HARD RED TO GRAY SHALE

SOFT TO MEDIUM-HARD GRAY SHALE

MEDIUM-HARD YELLOW-BROWN FINE GRAINED SANDSTONE

MEDIUM-HARD TO HARD GRAY SHALE

MATCH LINE

N

680 660 640 620 600 580 560 540 520

500 480 460 440 420 400 380 360 340 320 300 280 260 240 220 200 180 160 140 120

EL. 577.8
B-3SP1-0-99
STA 256+47
65.0 Lt.
ASPHALT - 6 INCHES
BASE - 6 INCHES

℄ CONSTRUCTION S.R. 7 RAB
STA. 19+21.00
P.G. 607.11

MATCH LINE

LA-R/W

MATCH LINE S.R. 69

3:1

PROP. LIGHTING CIRCUIT OR CONDUIT

EX R/W

1°:1

1°:1

12.9:1

607.11
256+00.00
584.11

TOP OF BEDROCK
MEDIUM-HARD GRAY SHALE

N WC

B-026-0-11
STA. 255+99
82.0' RT.

TR 50+

Siltstone, Gray, Slightly Weathered, Strong, Thin Bedded, Arenaceous, Iron Staining

N60 WC

3.5:1

TOP OF BEDROCK
EL. 674.7
S-4P2-0-99
STA 255+80.8
364.0 Rt.
TOPSOIL = 4 INCHES

W

SOFT BROWN-GRAY WITH RED SHALE
MEDIUM-HARD GRAY SILTSTONE
MEDIUM-HARD BROWN-GRAY FINE TO MEDIUM GRAINED SANDSTONE
MEDIUM-HARD BROWN-GRAY ARENACEOUS SILTSTONE
SOFT TO MEDIUM-HARD GRAY SHALE
MEDIUM-HARD LIGHT-BROWN TO BROWN FINE TO MEDIUM GRAINED SANDSTONE
MEDIUM-HARD GRAY SHALE

N

680 660 640 620 600 580 560 540

120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 256+00.00

LAW-7-2.17

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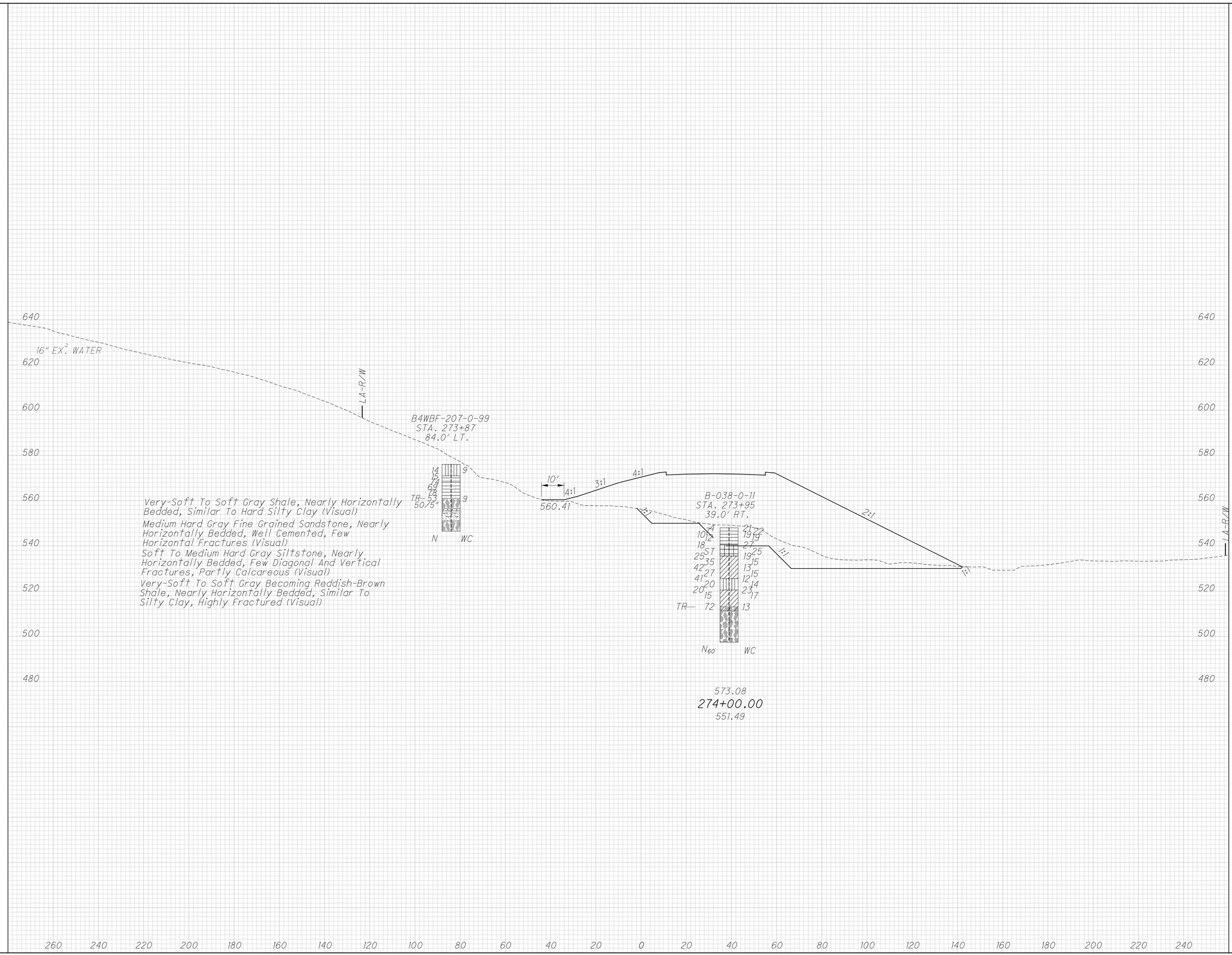

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 274+00.00

LAW-7-2.17

91 / 206

1132 / 1247

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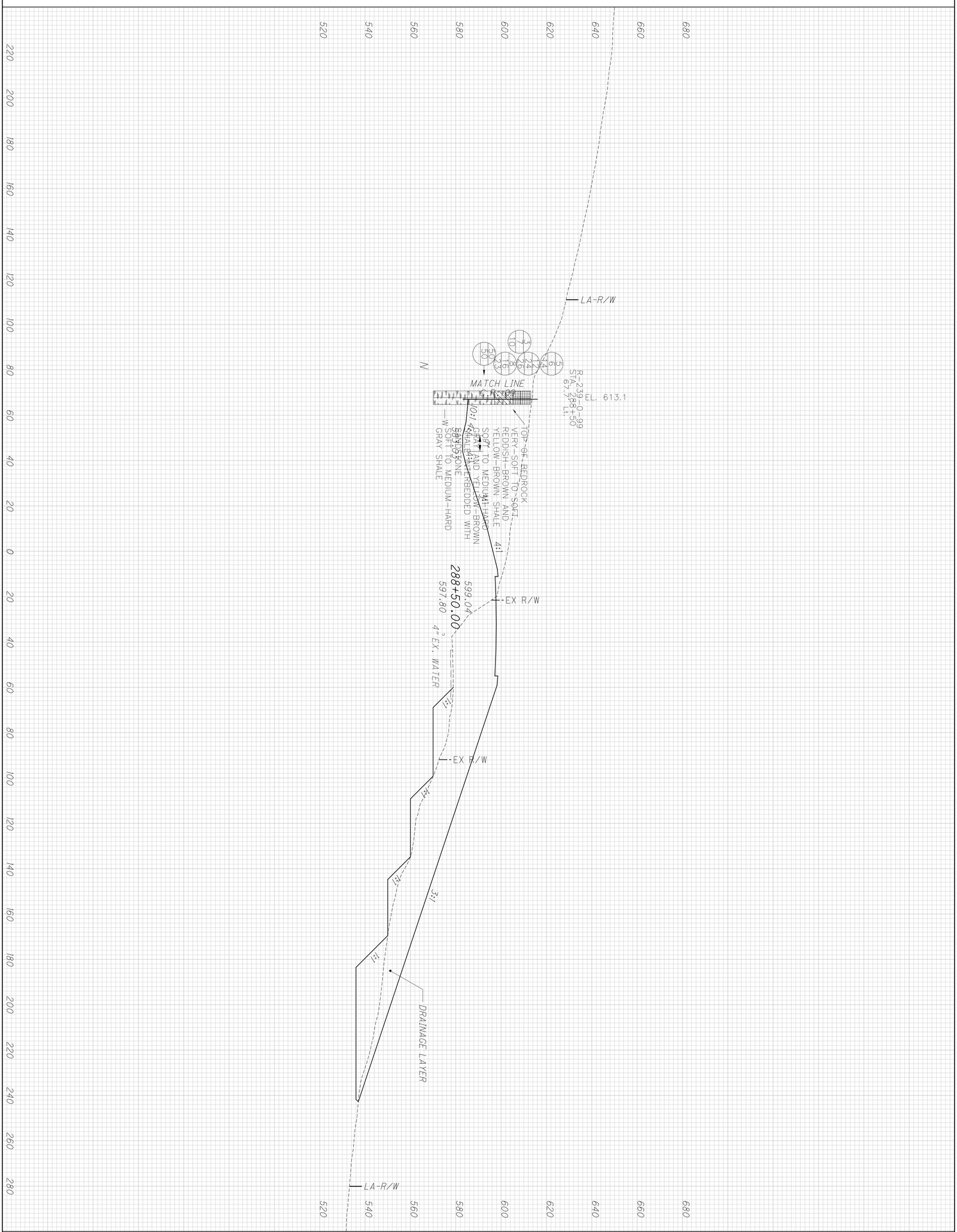

1133 / 1247	92 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 288+50.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET

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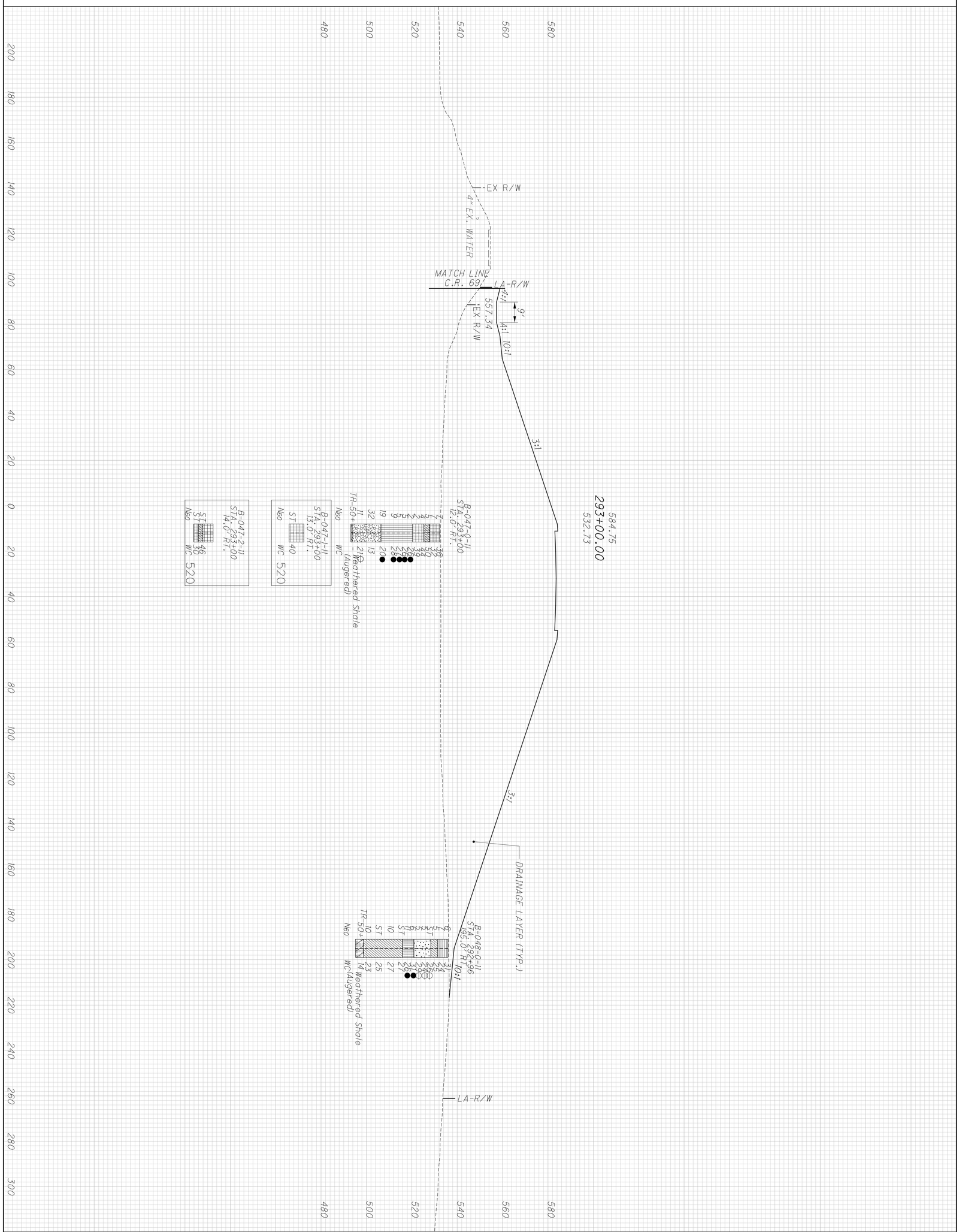

1134 / 1247	93 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 293+00.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET

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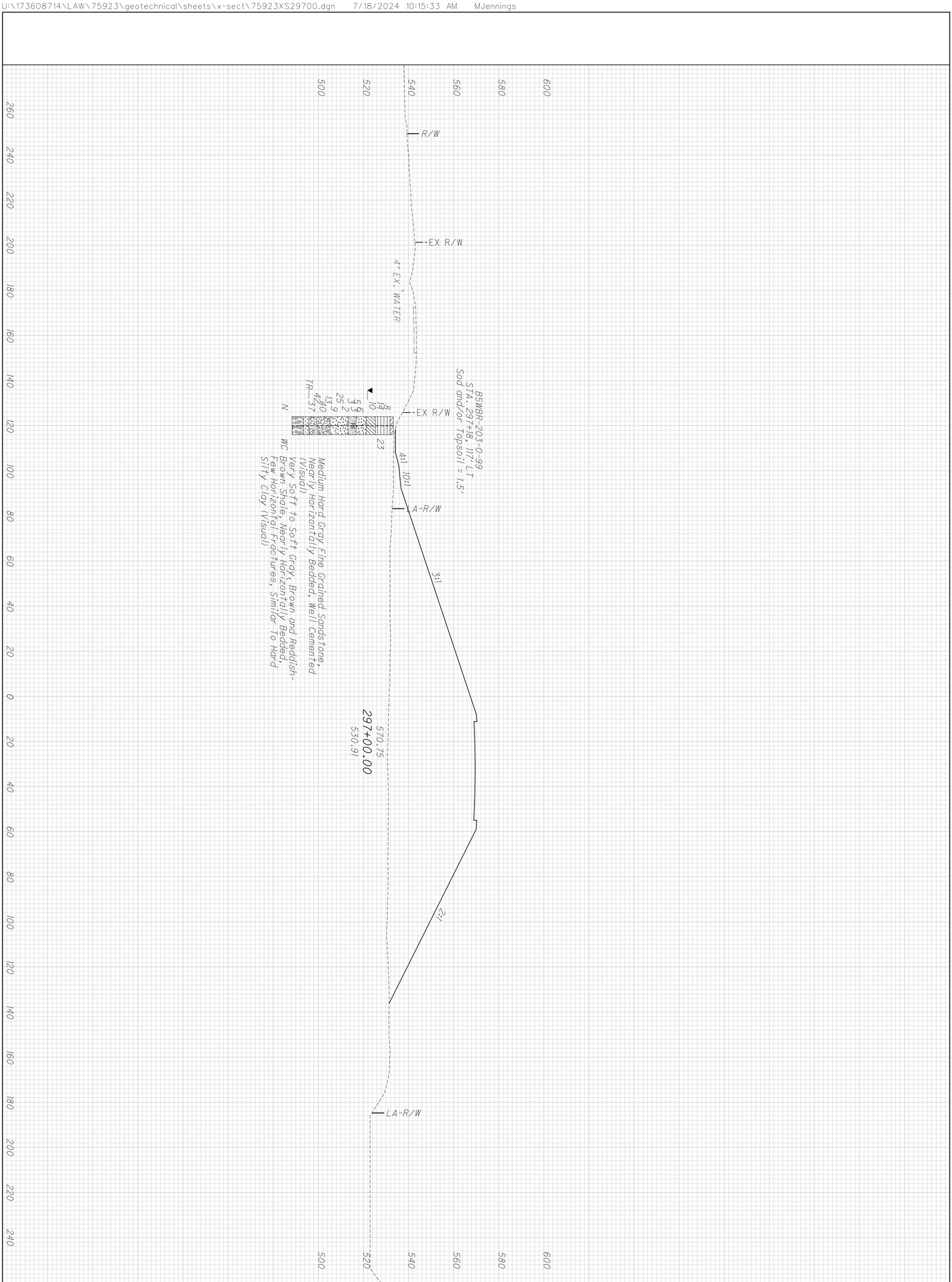
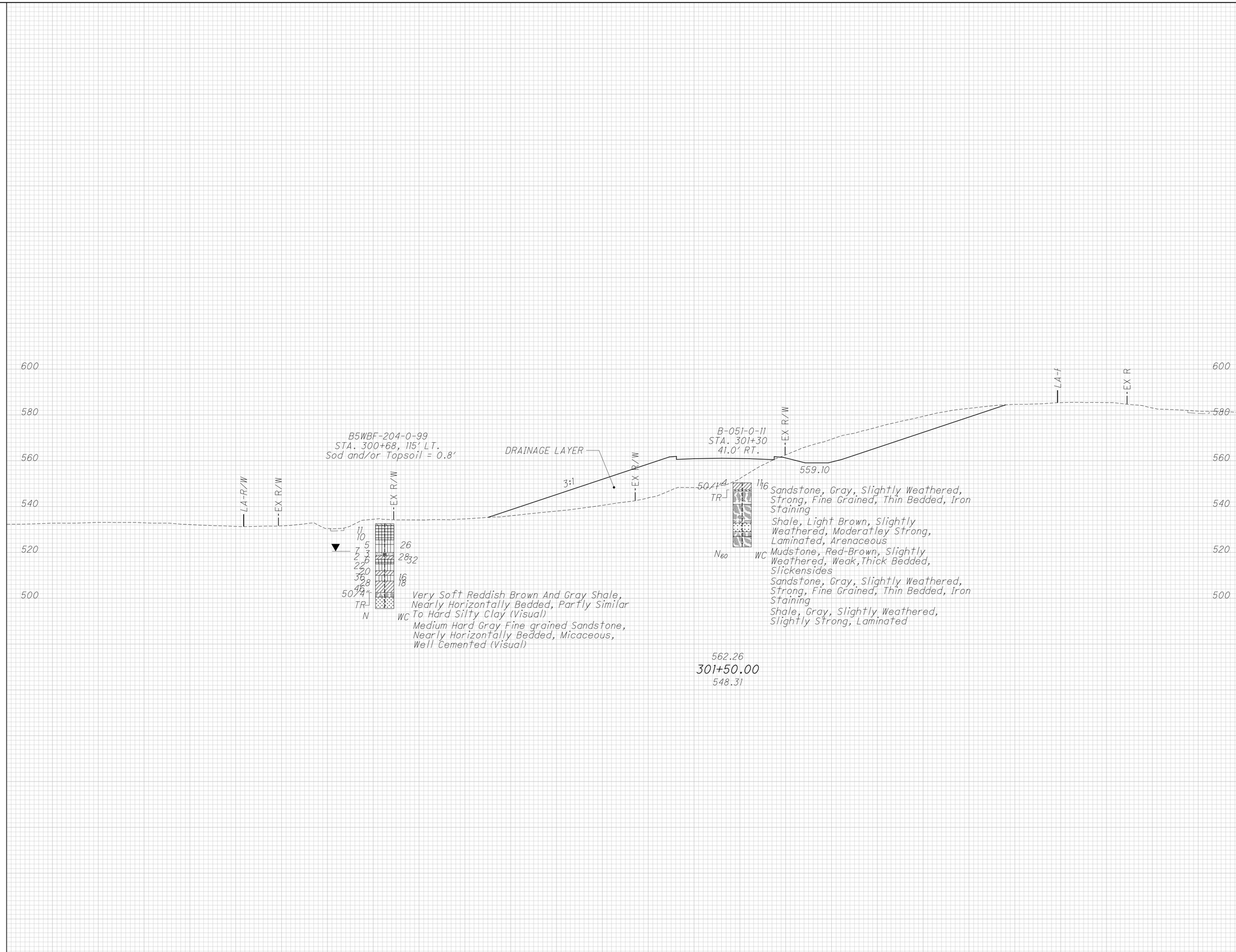


1135 / 1247	94 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 297+00.00**	DRAWN MSJ CHECKED EMK	0 20 10 40 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 301+50.00

LAW-7-2.17

1136/1247

U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS30150.dgn 7/18/2024 10:16:39 AM MJennings

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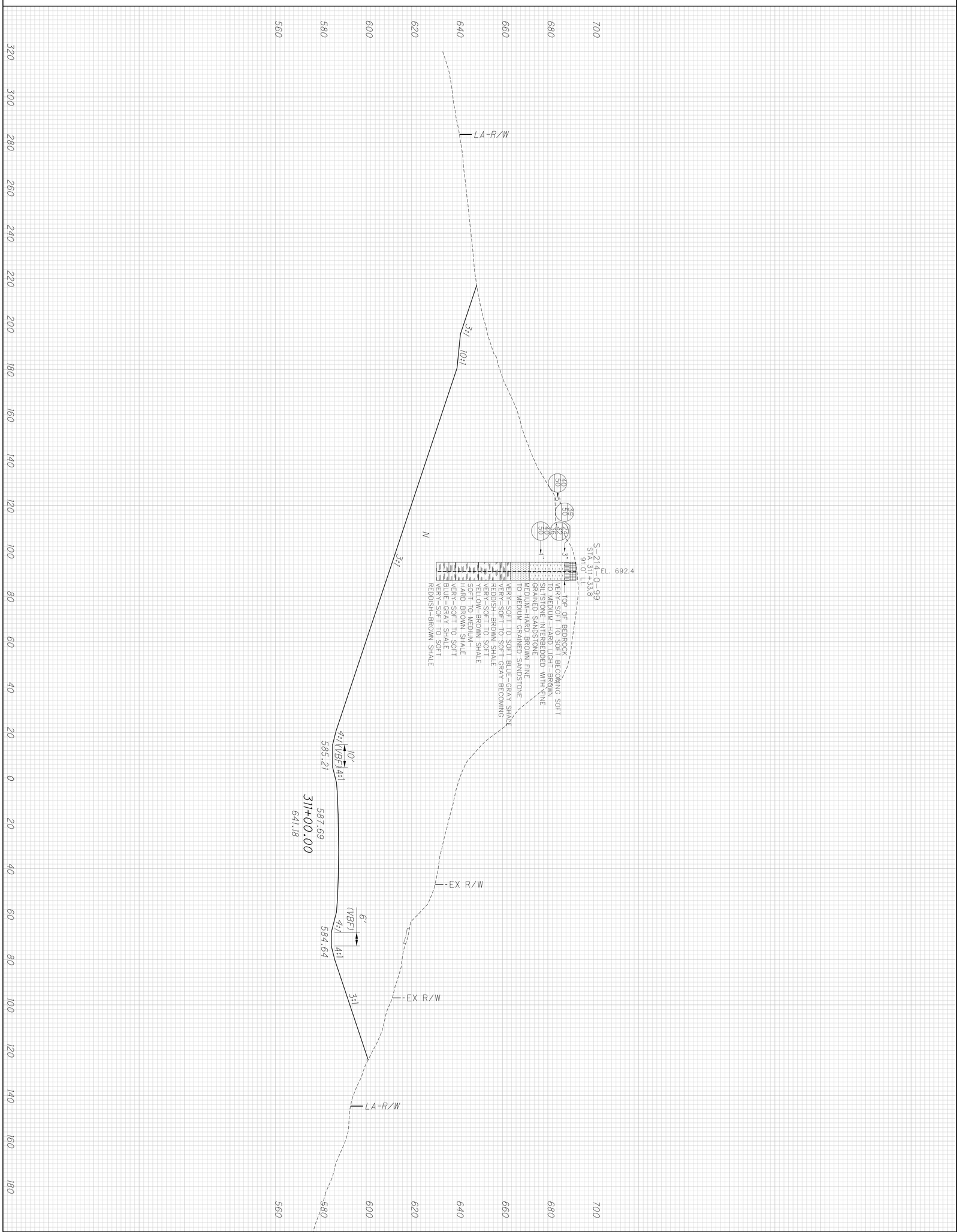
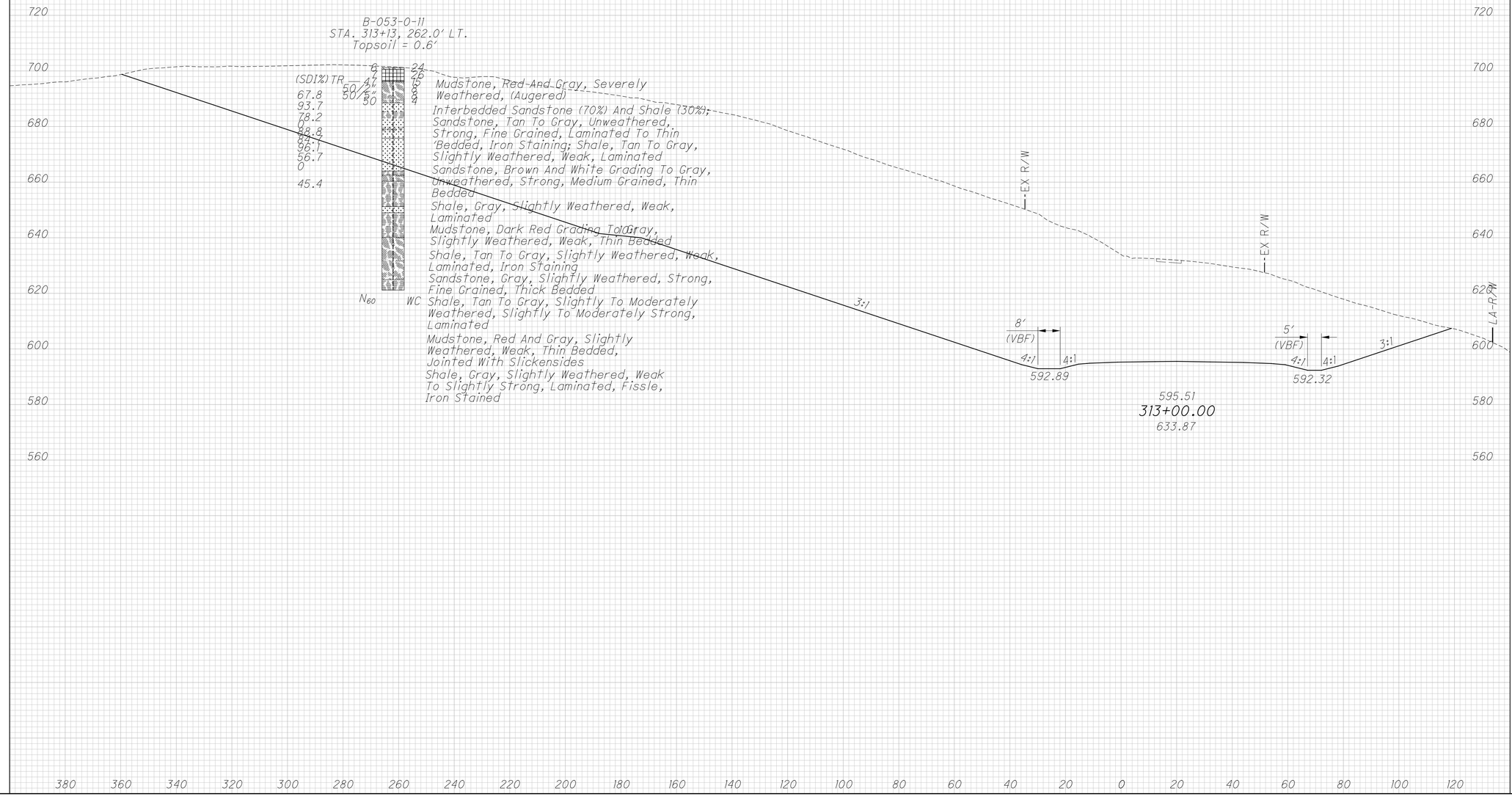


1137 / 1247	96 / 206	LAW-7-2.17	CROSS SECTION - S.R. 7 STATION 311+00.00	DRAWN MSJ CHECKED EMK	0 20 10 40 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

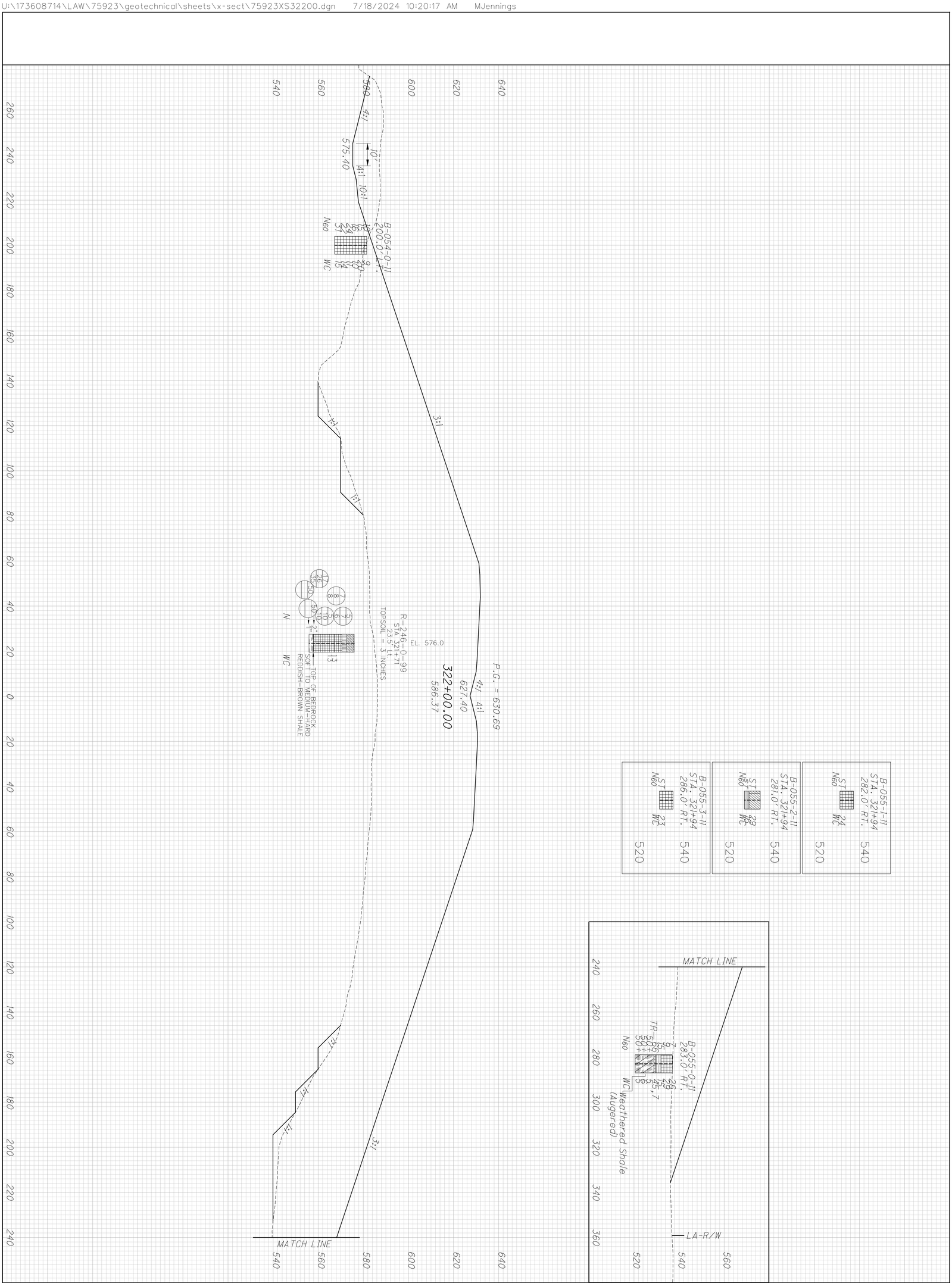
CROSS SECTION - S.R. 7
STATION 313+00.00

LAW-7-2.17

97 / 206

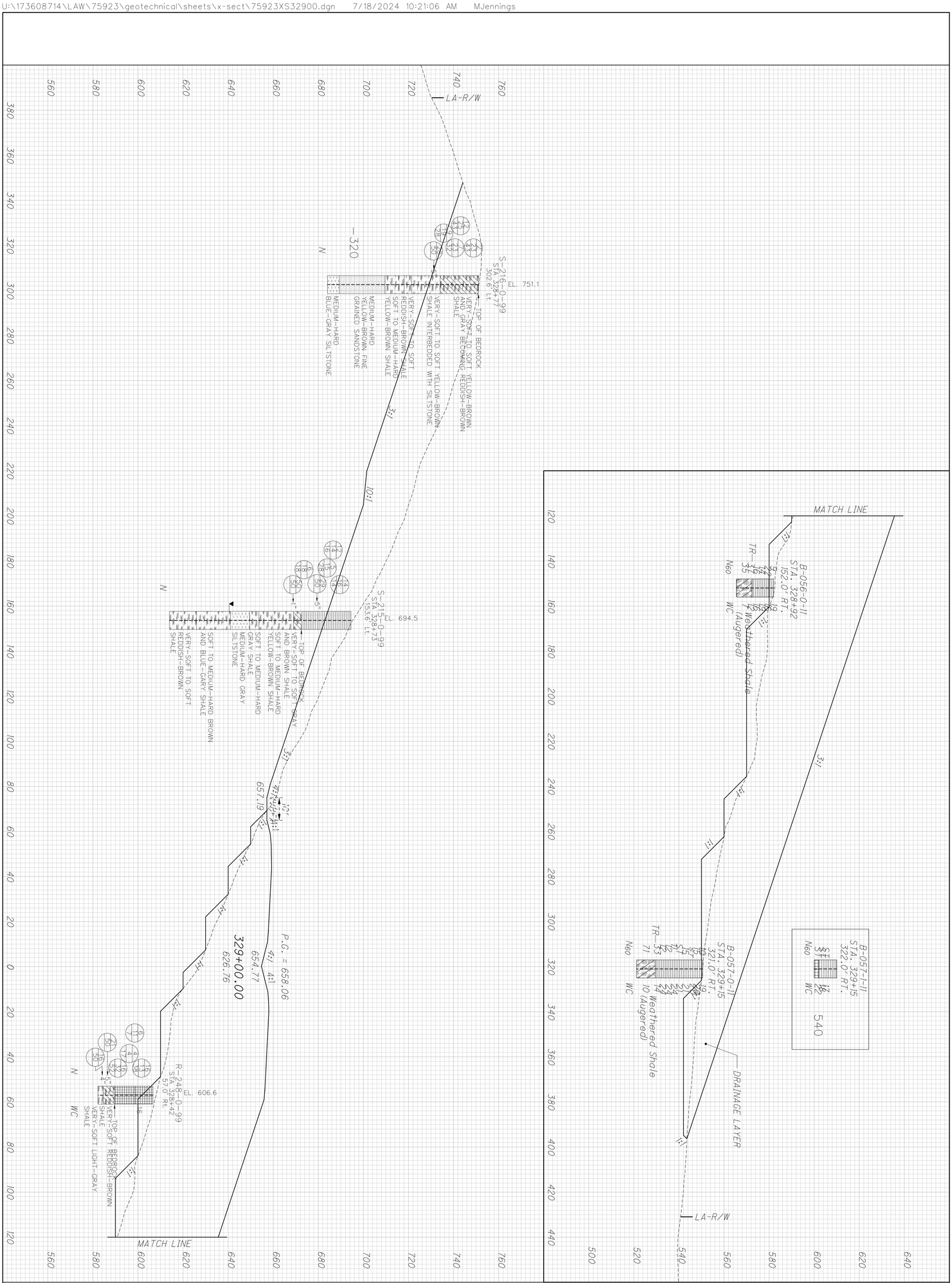
1138
1247

U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS32200.dgn 7/18/2024 10:20:17 AM MJennings

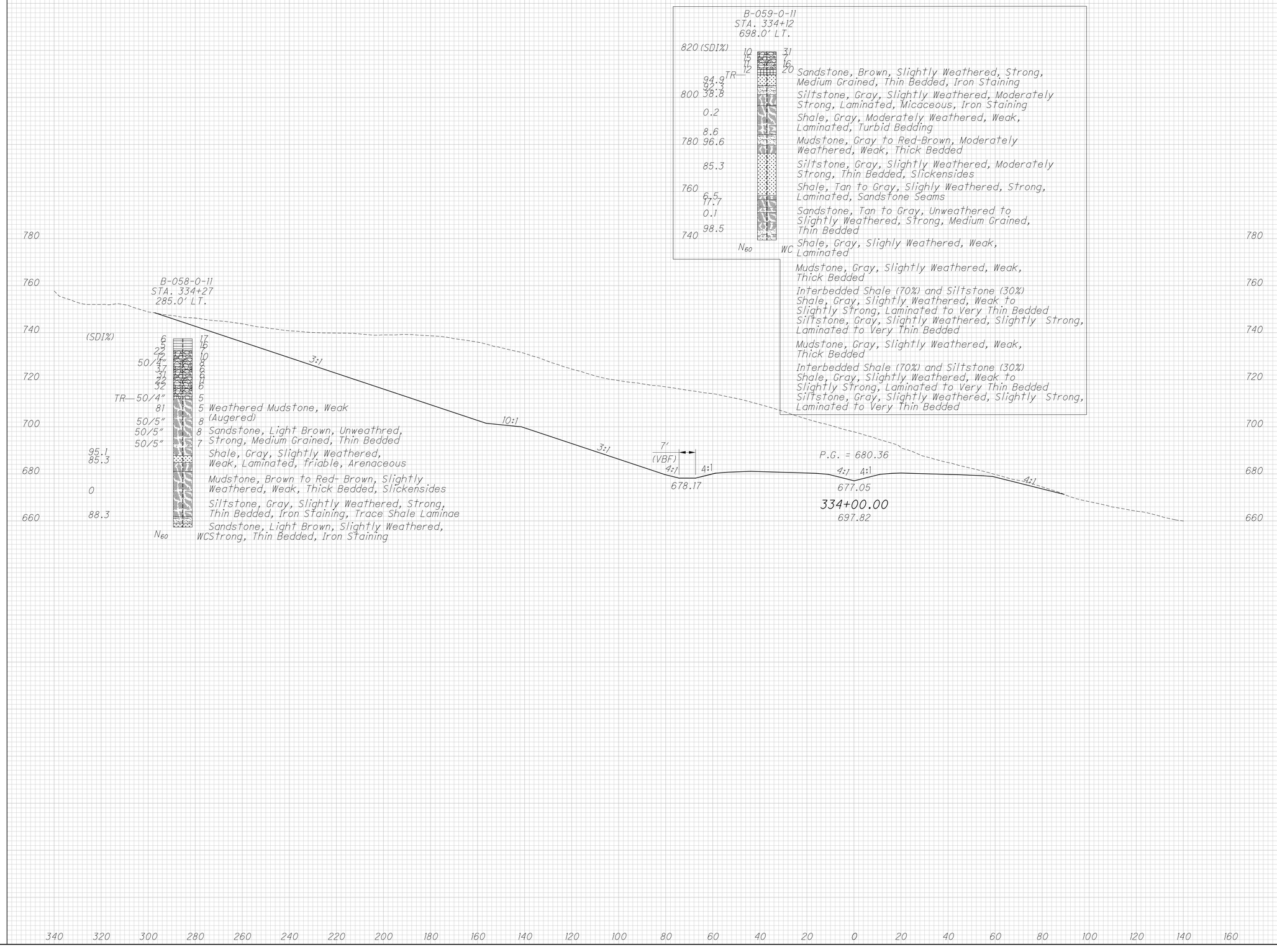


1139 / 1247	98 / 206	LAW-7-2.17	CROSS SECTION - S.R. 7 STATION 322+00.00	DRAWN MSJ CHECKED EMK	0 20 10 40 HORIZONTAL SCALE IN FEET

U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS32900.dgn 7/18/2024 10:21:06 AM MJennings



1140 / 1247	99 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7 STATION 329+00.00**	DRAWN MSJ CHECKED EMK HORIZONTAL SCALE IN FEET (0, 10, 20, 40)



0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 334+00.00

LAW-7-2.17

100/206

1141
1247

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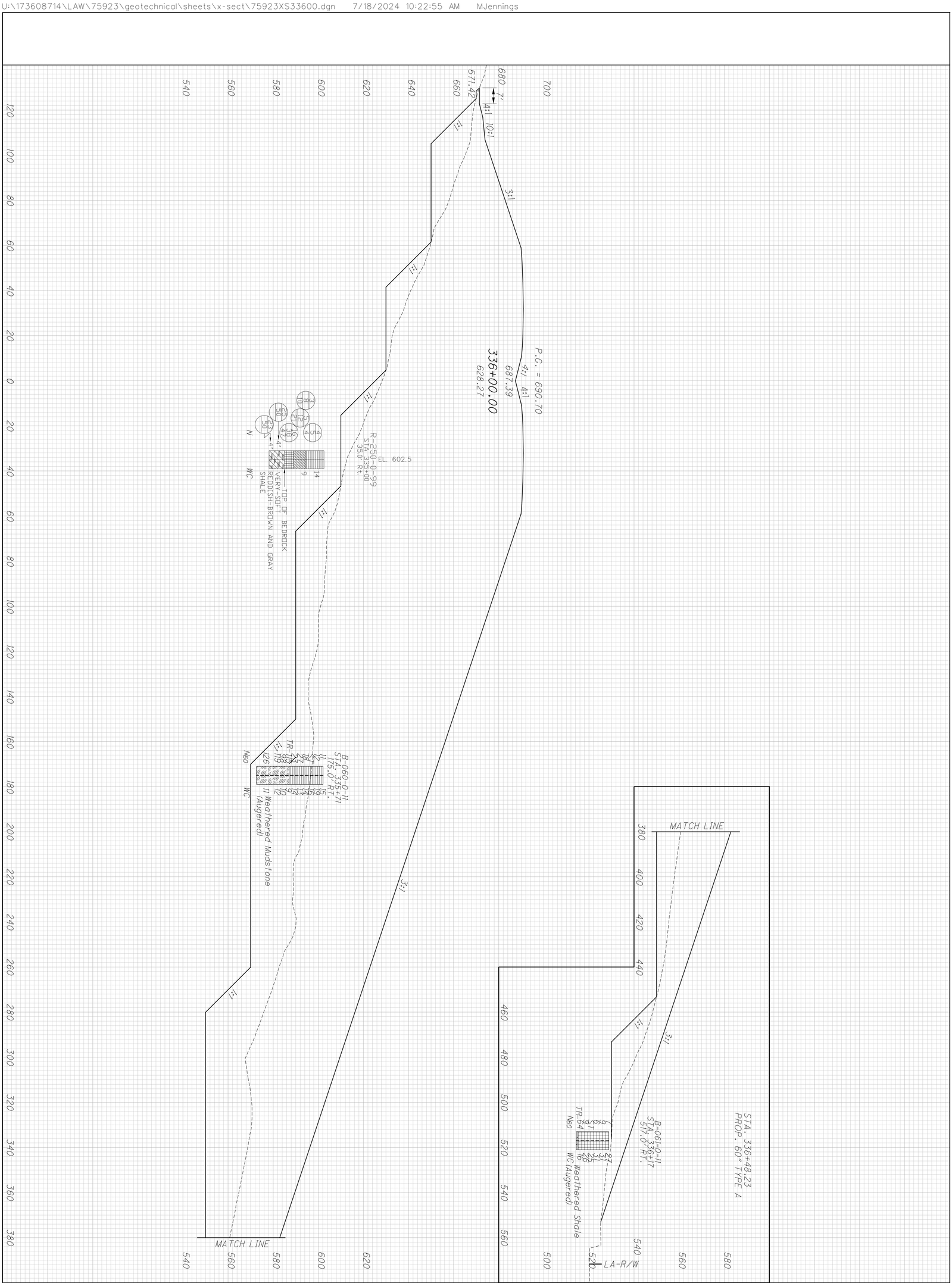

1142 / 1247	101 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 336+00.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET

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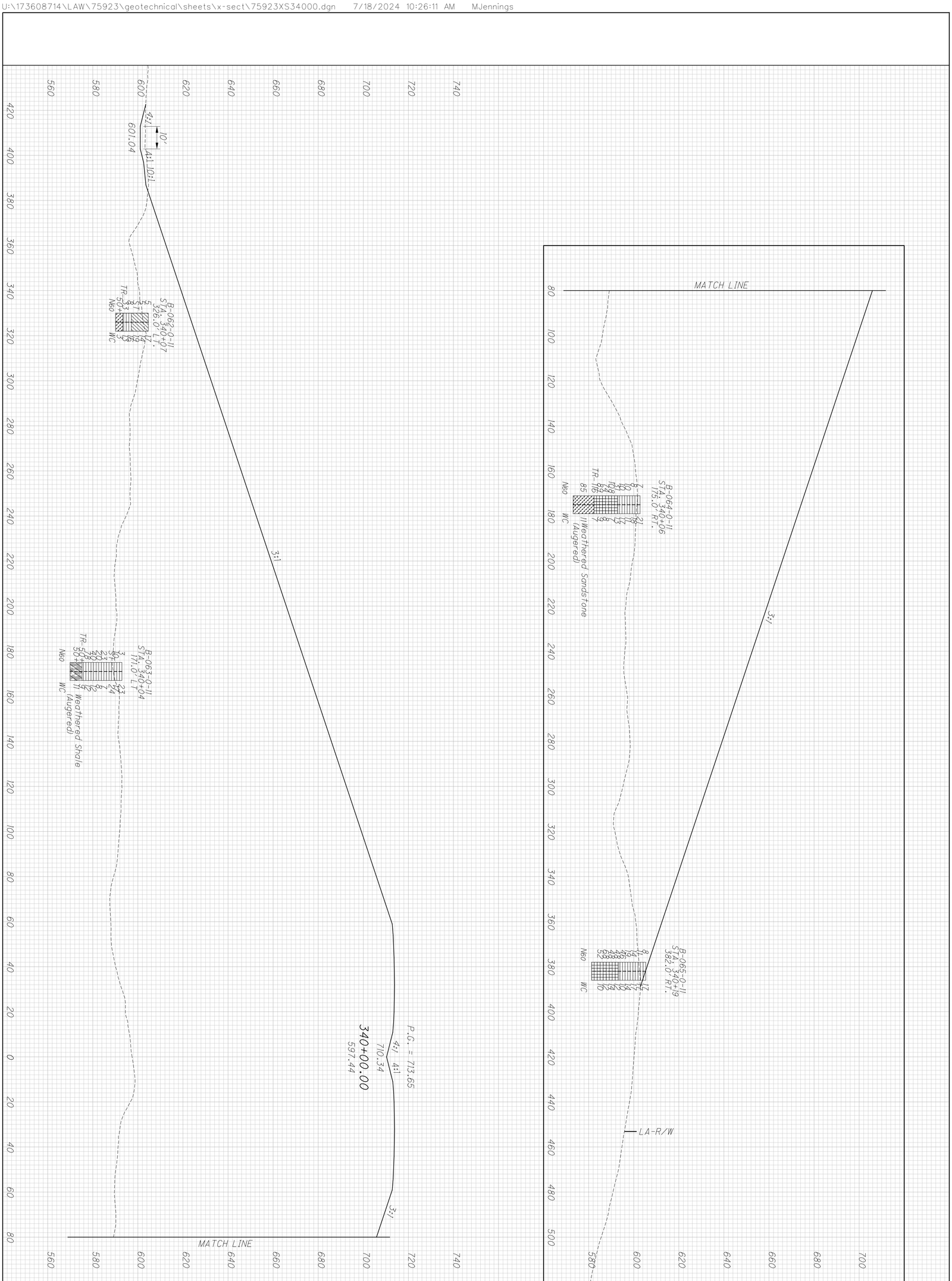
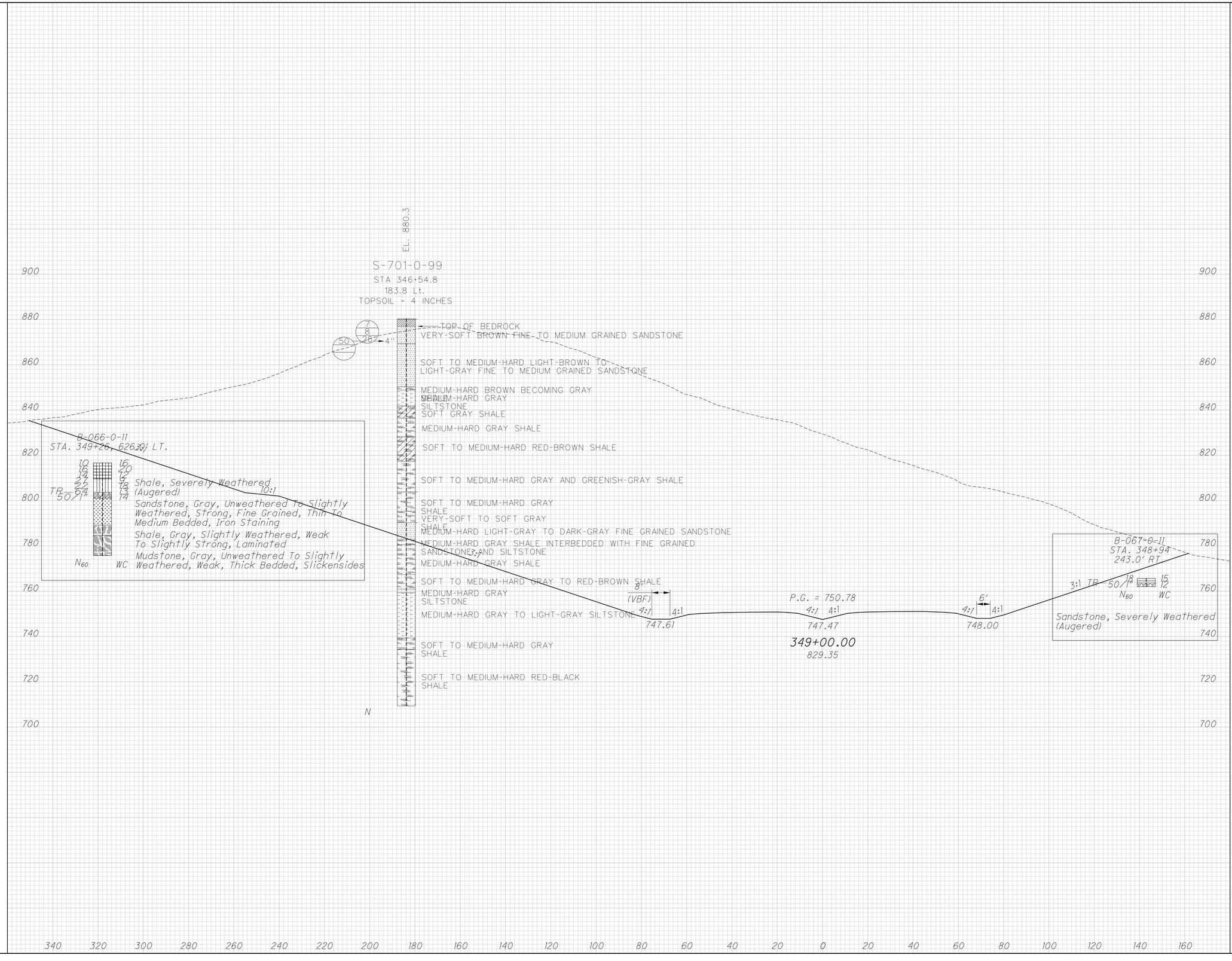


1143 12.47	102/206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7 STATION 340+00.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET



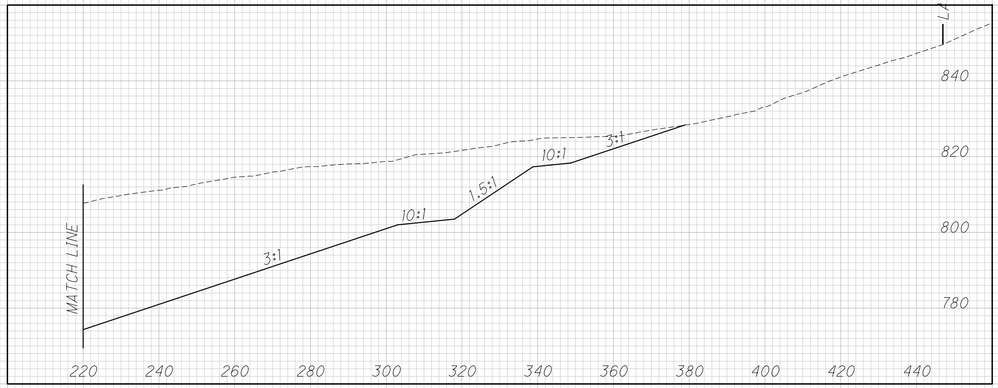
0 10 20 40
HORIZONTAL SCALE IN FEET

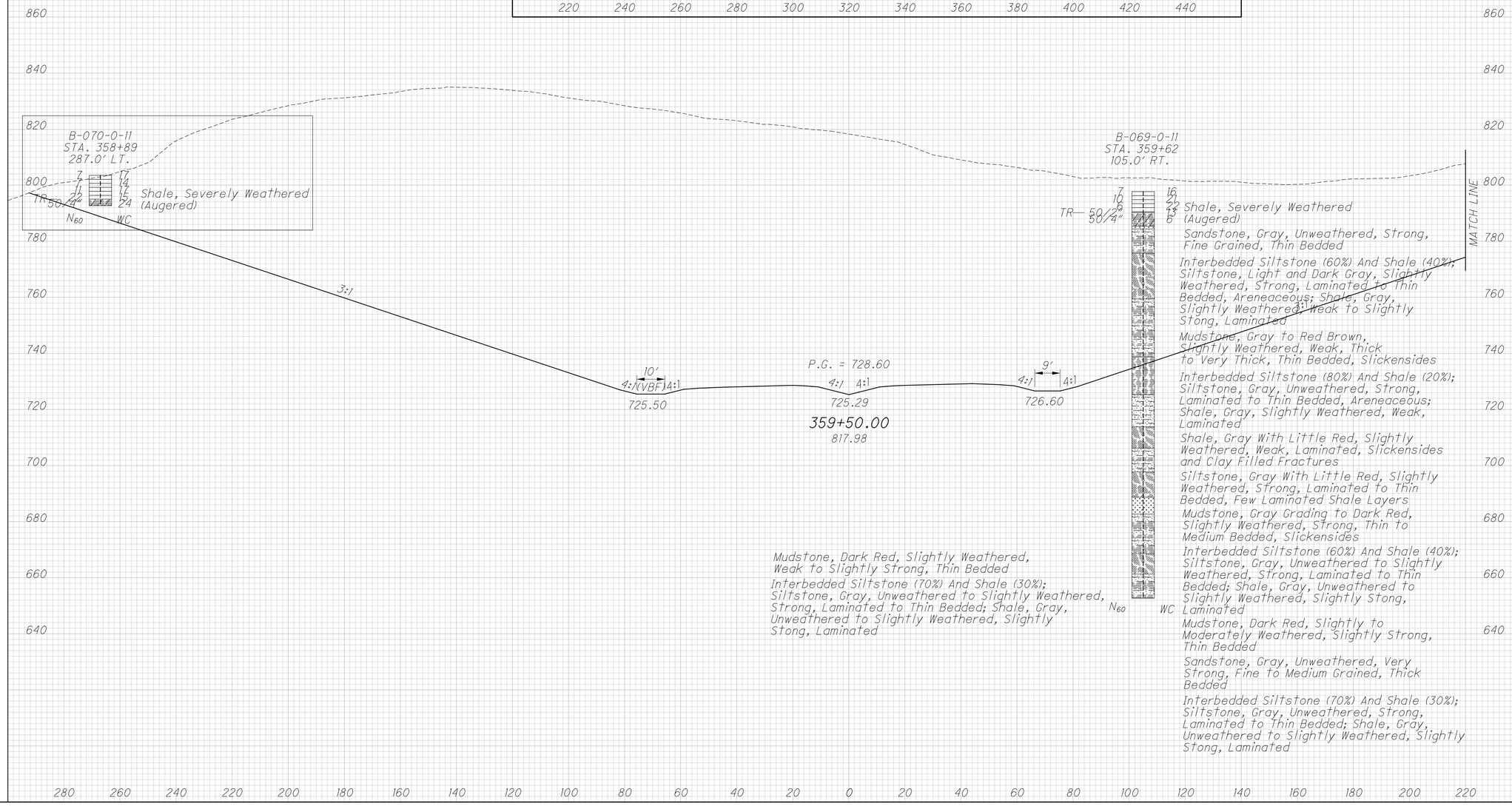
DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 349+00.00

LAW-7-2.17

1144
1247





0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 359+50.00

LAW-7-2.17

104/206

1145
1247

680
660
640
620
600
580
560

P.G. = 659.76
4:1 4:1
656.45
371+00.00
594.94

PROP. LIGHTING
CIRCUIT OR CONDUIT

3:1
10:1 4:1
10'
638.14'
1:1

B-071-0-11
STA. 371+87
264.0' LT.

TR	N60	WC
11	14	
11	15	
12	18	
16	21	
24	18	
25	14	
25	15	
25	16	
31	15	20

B-072-0-11
STA. 371+03
131.0' LT.

TR	N60	WC
8	21	
5	13	
7	21	
7	25	
11	19	
12	19	
16	17	
ST	19	
81	18	

340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 371+00.00

LAW-7-2.17

105/206

1146/1247

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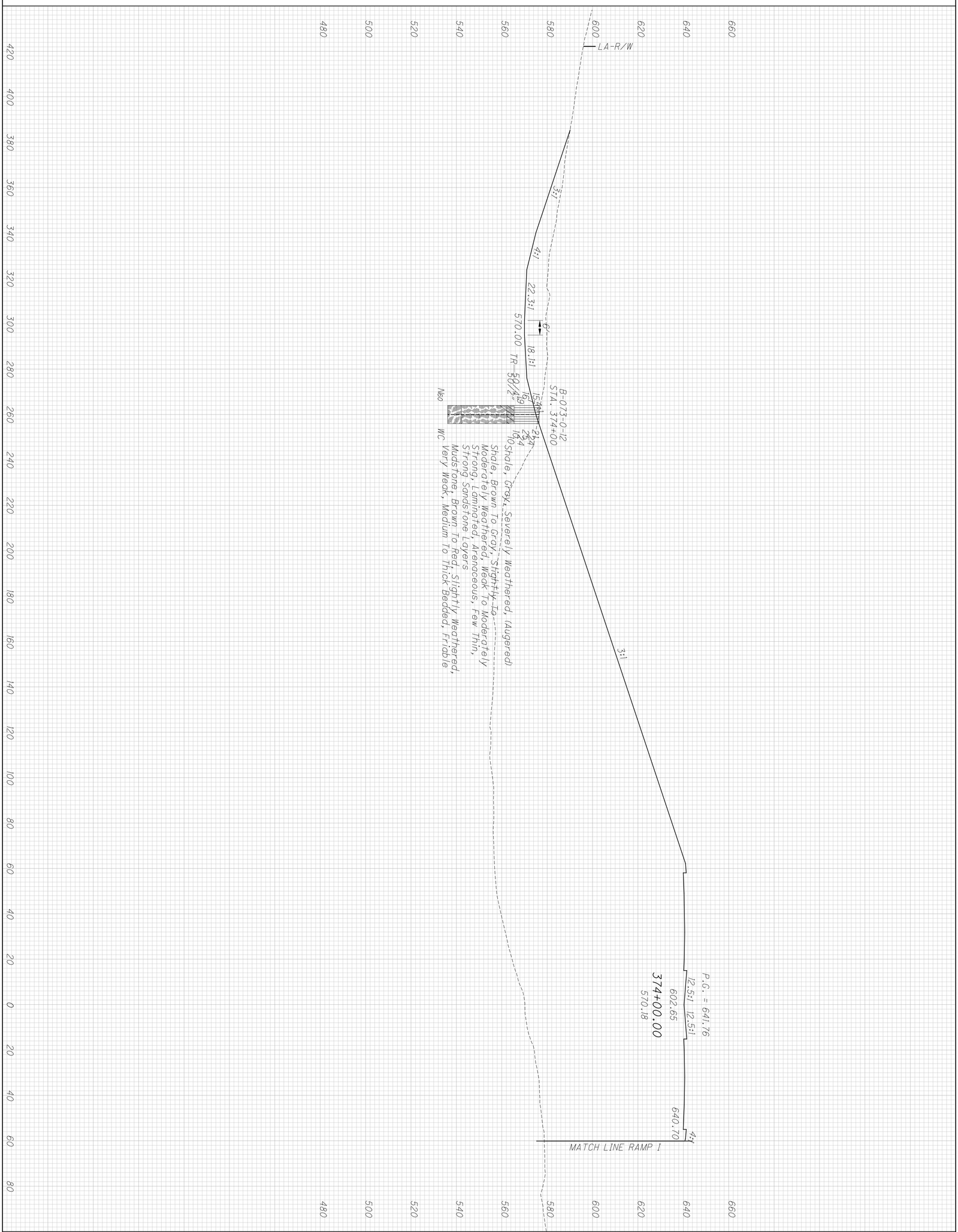
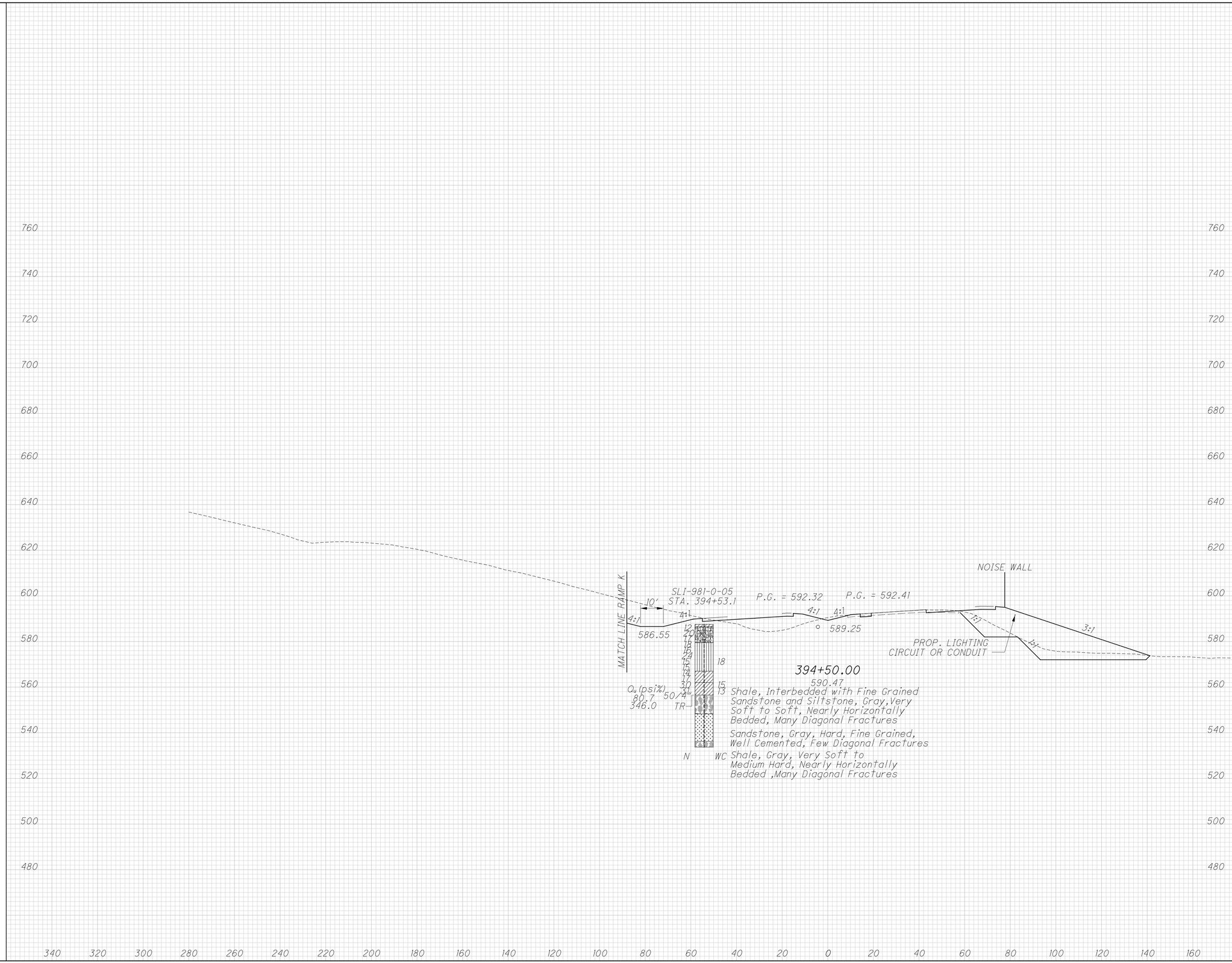


1147 / 1247	106 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7 STATION 374+00.00**	DRAWN MSJ CHECKED EMK HORIZONTAL SCALE IN FEET (0, 20, 10, 40)



0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 394+50.00

LAW-7-2.17

1148
1247

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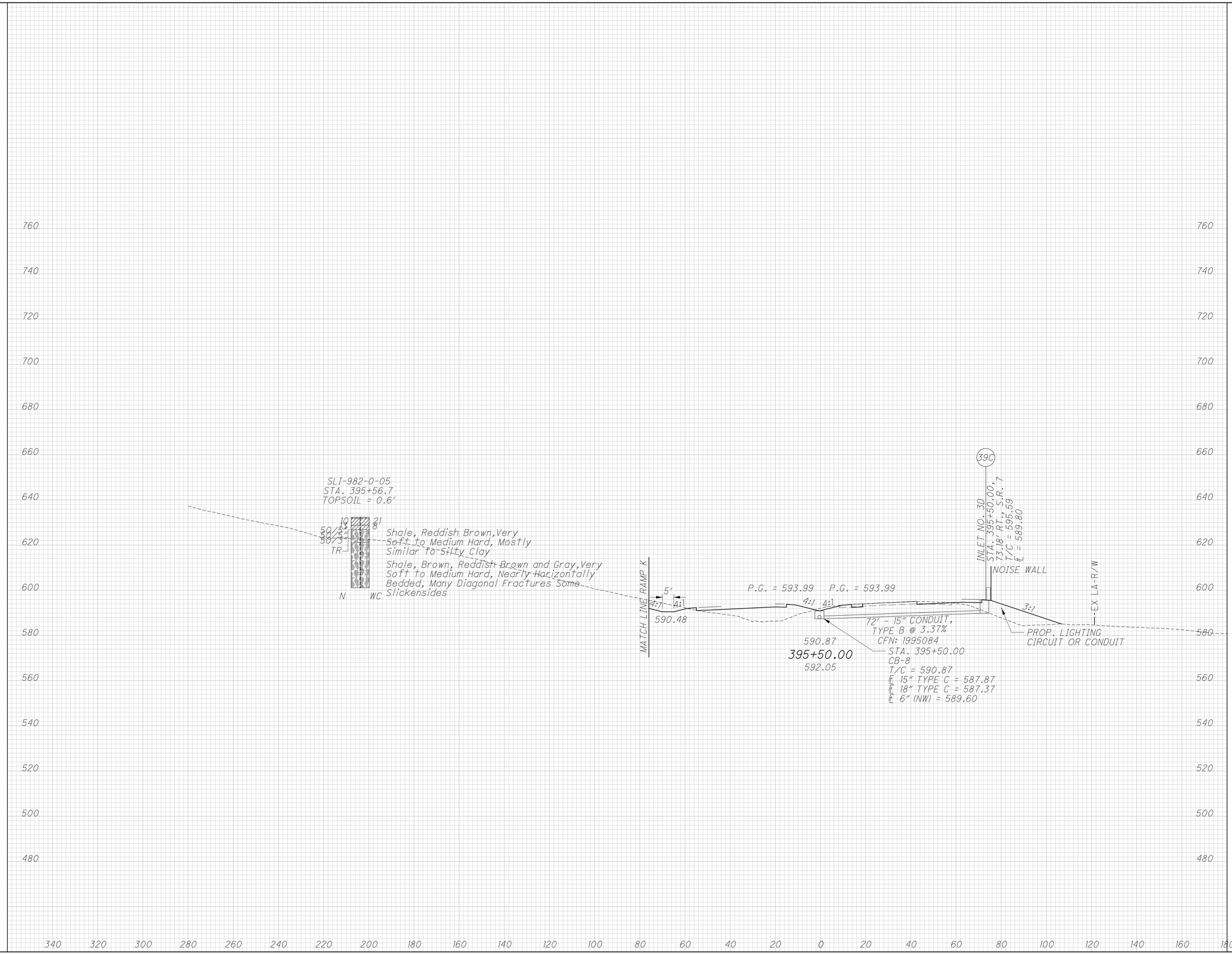

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 395+50.00

LAW-7-2.17

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760
740
720
700
680
660
640
620
600
580
560
540
520
500
480

S-102-0-99
STA. 396+22

49
25 12
TR
N WC

Shale, Brown, Red and Green, Soft to Medium Hard, Interbedded with Siltstone, Few Vertical Fractures, Few Sand filled Cracks

Shale, Gray, Soft, Horizontally Bedded, Highly Fractured, Similar to Hard Silty Clay

MATCH LINE RAMP K

5'
4%
4:1
591.60

P.G. = 594.82
P.G. = 594.81
4:1
4:1
3:1

NOISE WALL

EX LA-R/W

℄ 15" TYPE C =
588.39
591.69
396+00.00
592.94

PROP. LIGHTING CIRCUIT OR CONDUIT

340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 396+00.00

LAW-7-2.17

109/206

1150
1247

U:\17360714\LAW\75923\geotechnical\sheets\x-sect\75923XS39600.dgn 7/18/2024 11:32:08 AM MJennings

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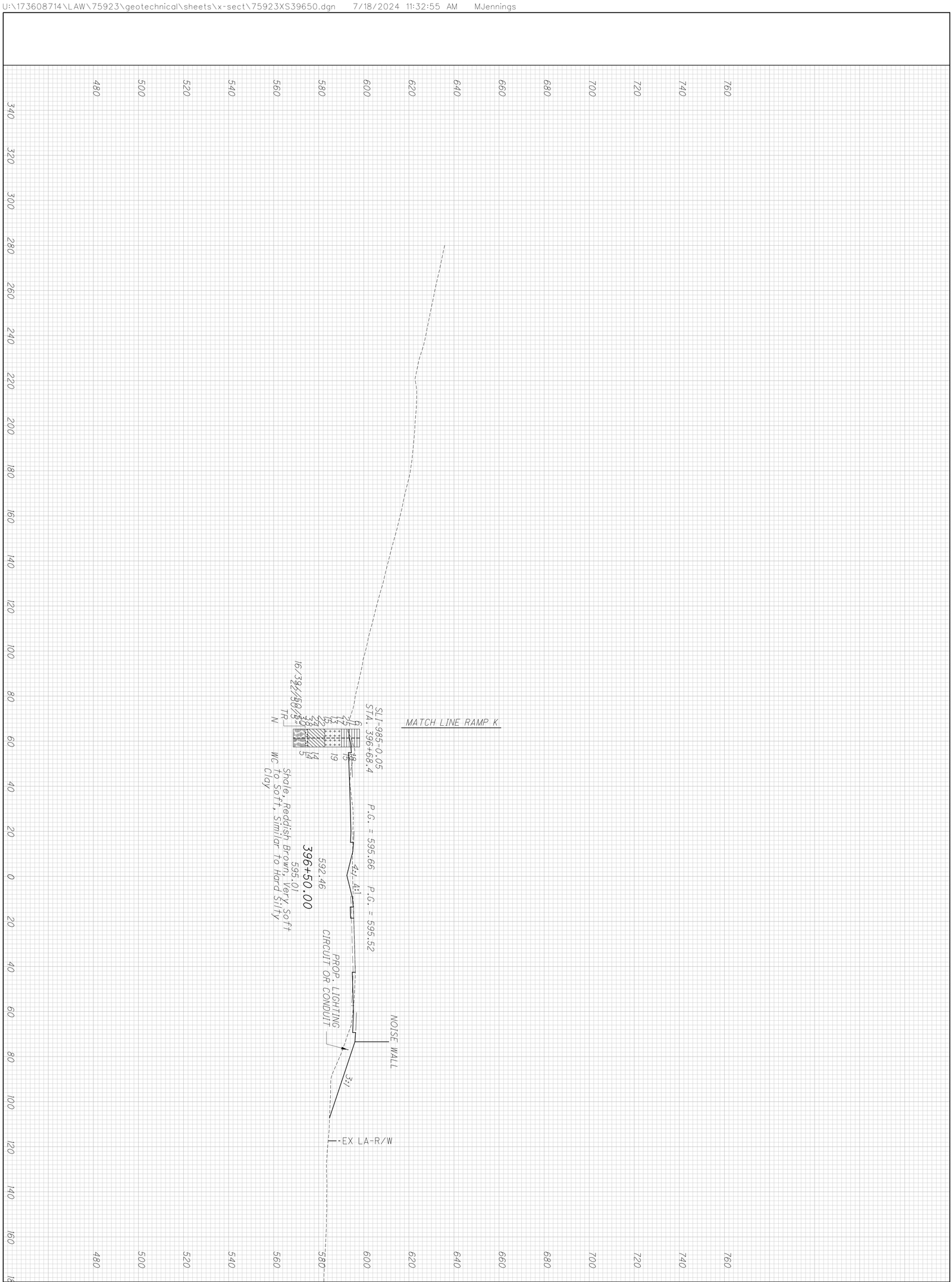
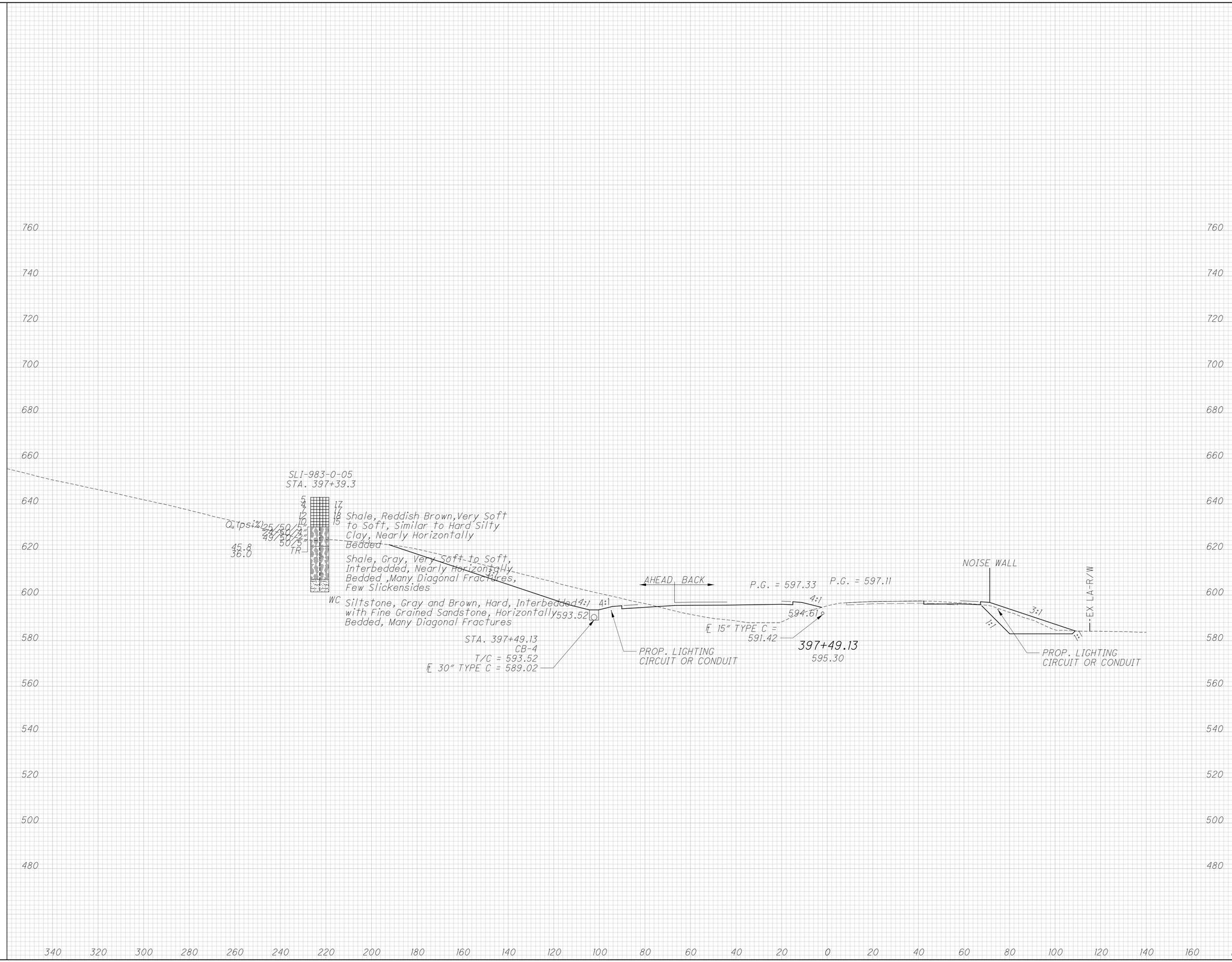


1151 / 1247	110 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 396+50.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET

DRAWN MSJ

CHECKED EMK

CROSS SECTION - S.R. 7
STATION 397+49.13

LAW-7-2.17

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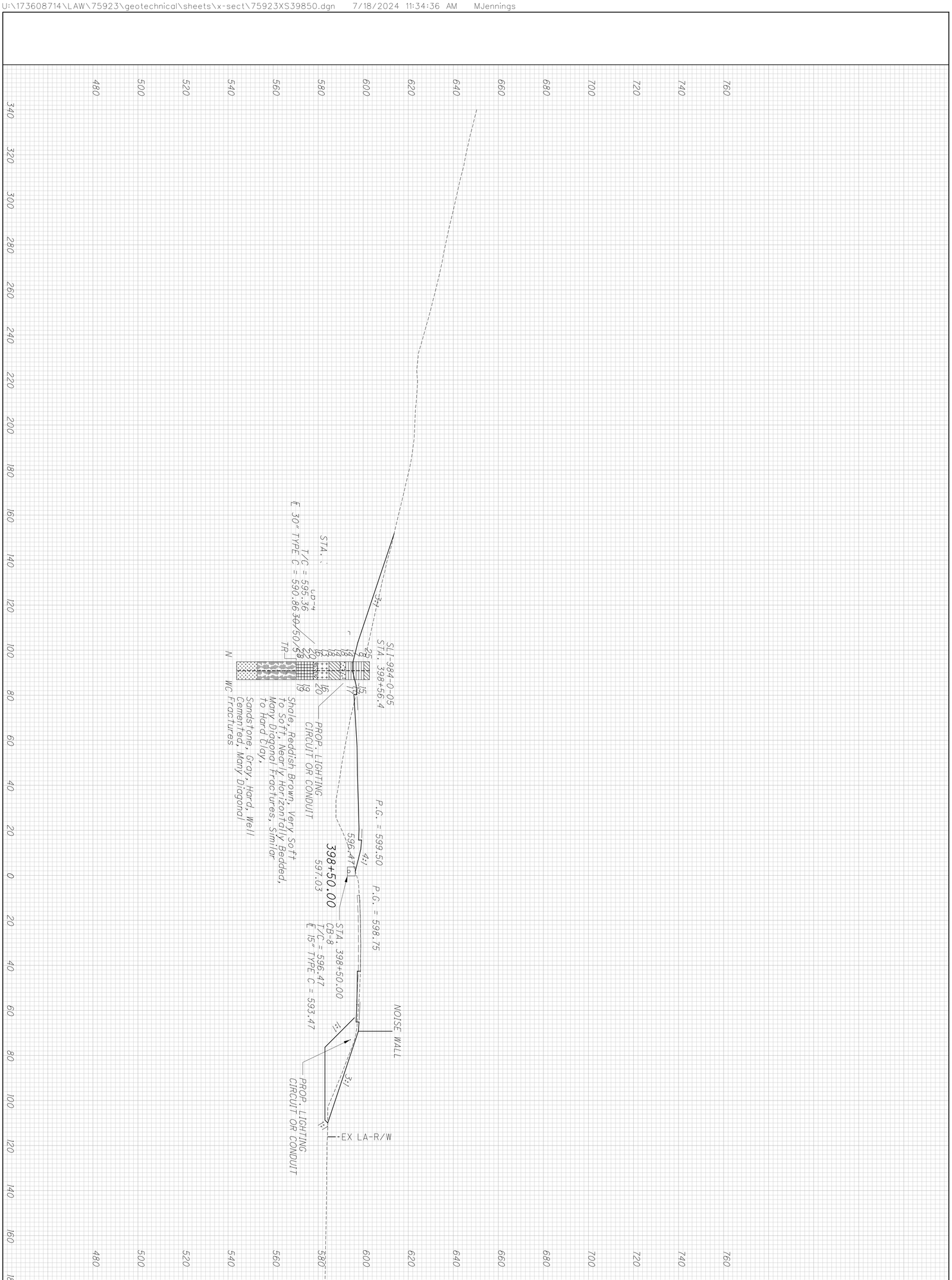

1153 / 1247	112 / 206	**LAW-7-2.17**	**CROSS SECTION - S.R. 7** **STATION 398+50.00**	DRAWN MSJ CHECKED EMK	0 20 10 40 HORIZONTAL SCALE IN FEET

760
740
720
700
680
660
640
620
600
580
560
540
520
500
480

LA-R/W

S-103-0-99
STA. 404+76

18
32
21
42

14

TR

N WC

Shale, Brown and Green, Very Soft to Medium Hard, Nearly Horizontally Bedded, Fractured

Sandstone, Gray, Medium Hard, Fine Grained, Well Cemented, Micaceous

Shale, Brown, Red and Green, Soft to Medium Hard, Nearly Horizontally Bedded, Highly Fractured

3:1

4:1 4:1

625.58

P.G. = 626.91

12.5:1

PROP. LIGHTING CIRCUIT OR CONDUIT

NOISE WALL

EX. 605.99

405+00.00

606.59

400 380 360 340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120

0 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 405+00.00

LAW-7-2.17

113/206

1154/1247

U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS40500.dgn 7/18/2024 11:50:34 AM MJennings

STA. 414+42.91
EX. CB-5

SL-8-0-04
STA. 413+95.3
P.G. = 634.42
12.5:1
12.5:1

EX. 621.95

EX. 606.39

414+00.00
606.78

SL-10-0-04
STA. 414+03

Q_u(psi%)
1211.2 45/50/2

TR

Shale, Gray, Very Soft to Medium Hard, Interbedded with Fine Grained Sandstone and Siltstone, Nearly Horizontally Bedded, Many Diagonal Fractures, Micaceous

N WC

Sandstone, Gray, Hard, Fine Grained, Horizontally Bedded, Diagonal Fractures, Micaceous

TR

Sandstone, Gray, Fine to Medium Grained, Highly Fragmented, Poorly Cemented

Sandstone, Brown, Fine to Medium Grained, Nearly Horizontally Bedded, Diagonal Fractures, Micaceous, Calcareous

N WC

760 740 720 700 680 660 640 620 600 580 560 540 520 500 480

340 320 300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 414+00.00

LAW-7-2.17

114/206

1155/1247

U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS41400.dgn 7/18/2024 11:51:20 AM MJennings

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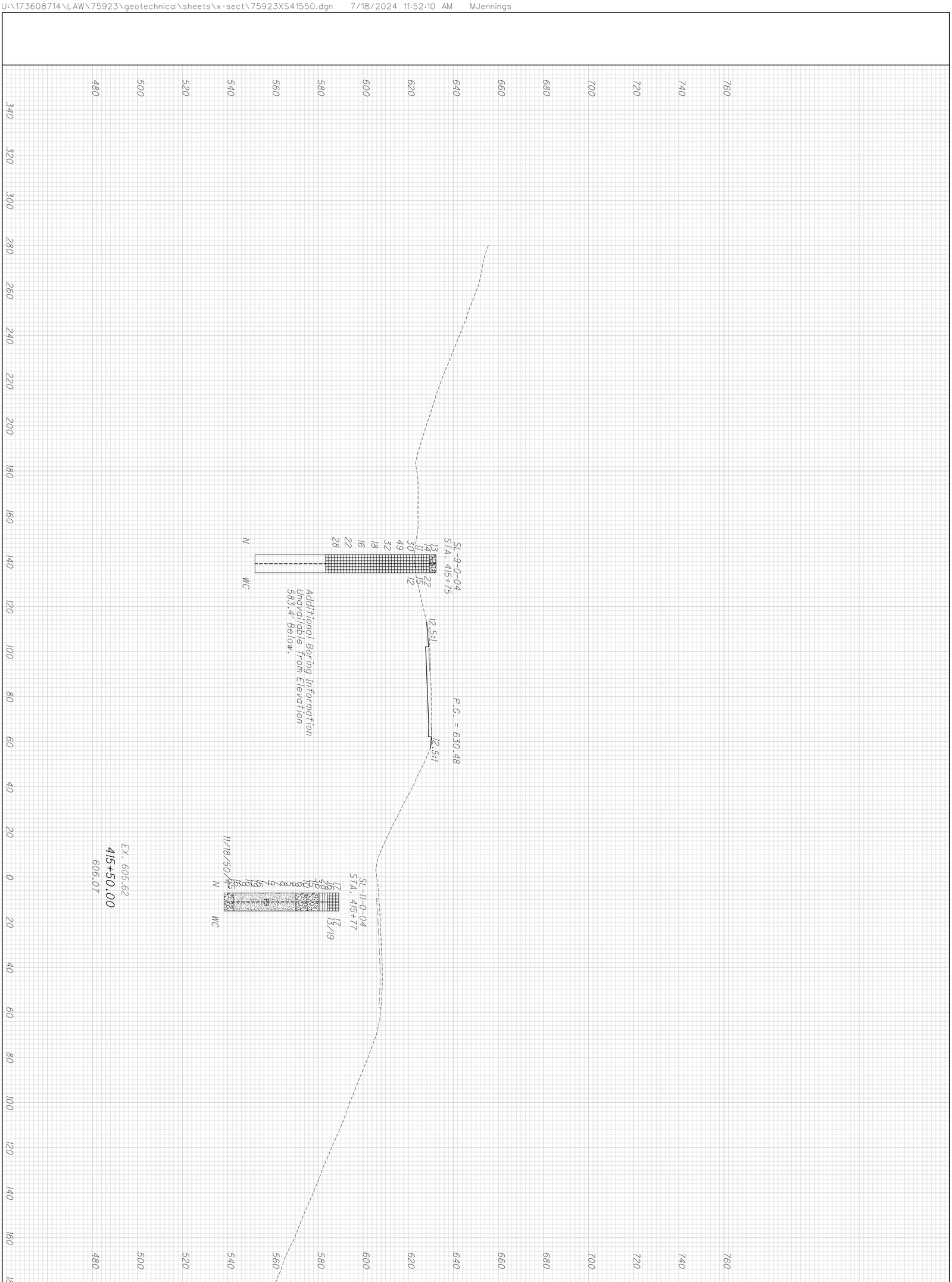
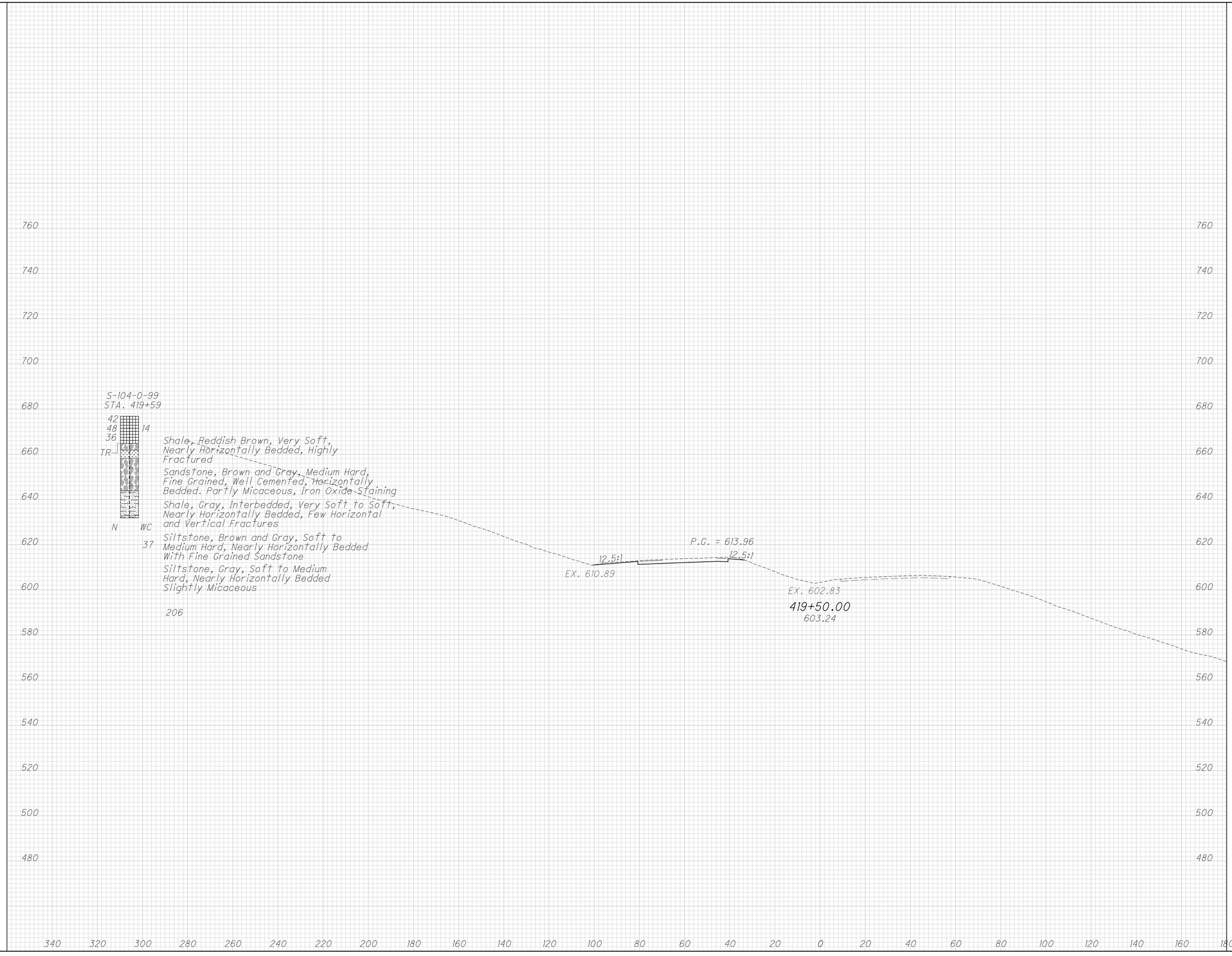


1156 / 1247	115 / 206	LAW-7-2.17	CROSS SECTION - S.R. 7 STATION 415+50.00	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET



0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 419+50.00

LAW-7-2.17

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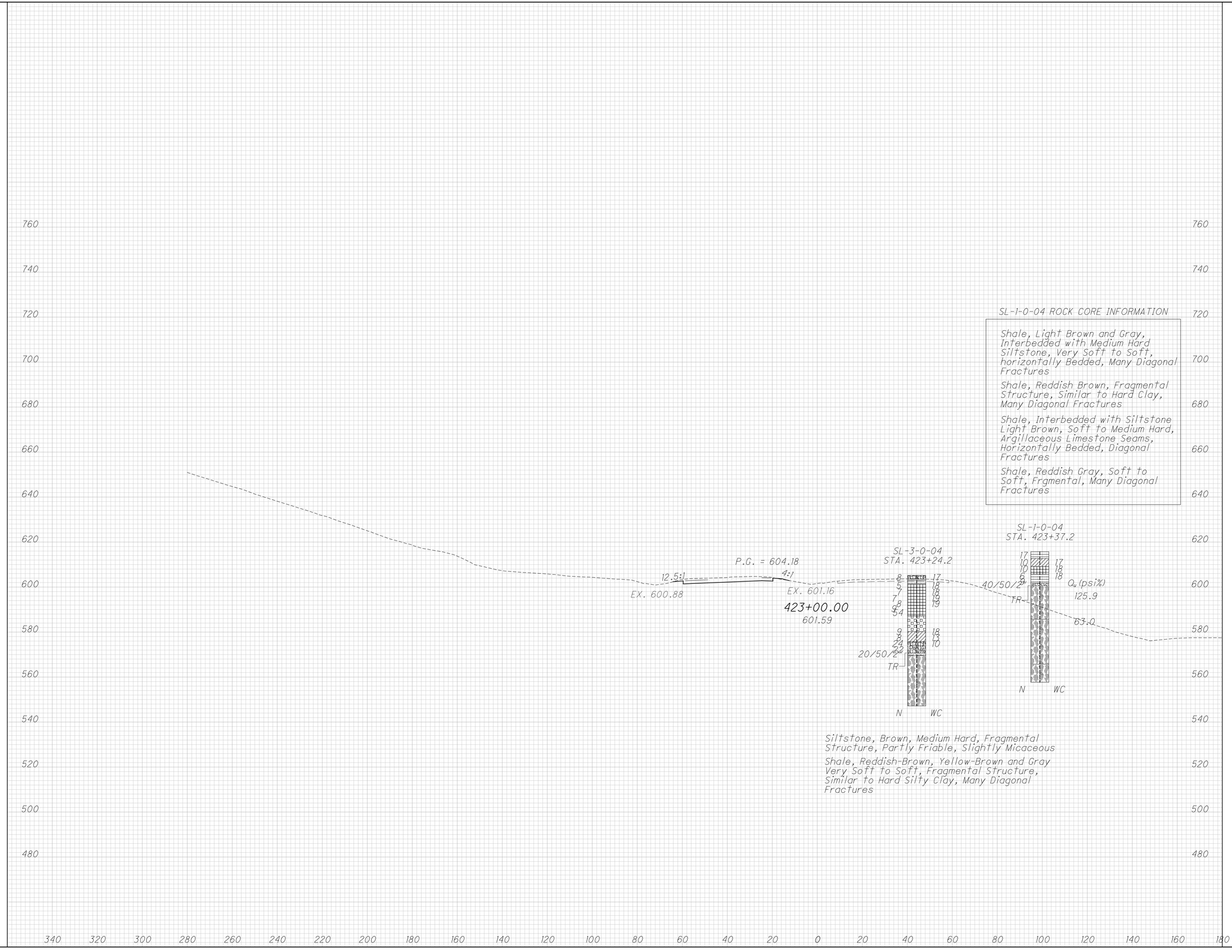

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 423+00.00

LAW-7-2.17

117 / 206

1158
1247

U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS42300.dgn 7/18/2024 11:53:47 AM MJennings

760
740
720
700
680
660
640
620
600
580
560
540
520
500
480

P.G. = 602.86

4:1

4:1

EX. 599.68

EX. 600.64

424+00.00

600.97

SL-5-0-04
STA. 423+96

SL-6-0-04
STA. 423+94

Shale, Reddish Brown and Brown, Very Soft, Fragmental Structure, Similar to Hard Silty Clay

Sandstone, Gray, Fine to Medium Grained, Nearly Horizontal Bedding, Well Cemented, Micaceous

Q_u(psi%) 99.9

TR

N

WC

Siltstone, Gray, Arenaceous, With Gray to Medium Grained Sandstone, Nearly Horizontally Bedded, Few Diagonal Fractures, Micaceous

340 320 300 280 260 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180

0 10 20 40

HORIZONTAL SCALE IN FEET

DRAWN MSJ

CHECKED EMK

CROSS SECTION - S.R. 7
STATION 424+00.00

LAW-7-2.17

118 / 206

1159
1247

MJennings

U:\173608714\LAW\75923\geotechnical\sheets\x-sect\75923XS42400.dgn 7/18/2024 11:54:40 AM

760
740
720
700
680
660
640
620
600
580
560
540
520
500
480

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220

4:1
EX. 598.97
P.G. = 602.18
6:1 7.5:1
600.27
425+00.00
SL-4-0-04
STA. 425+07
601.35
14/50/3
TR
N
WC
Shale, Reddish Brown, Very Soft to Soft, Many Diagonal Fractures, Few Limestone Nodules
SL-7-0-04
STA. 425+08
TR
N
WC
Sandstone, Gray, Hard, Fine toMedium Grained, Nearly Horizontally Bedded, Many Diagonal Fractures, Micaceous
Shale, Gray, Medium Hard to Hard,Nearly Horizontally Bedded, Few Diagonal Fractures, Micaceous

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 425+00.00

LAW-7-2.17

119 / 206

1160 / 1247

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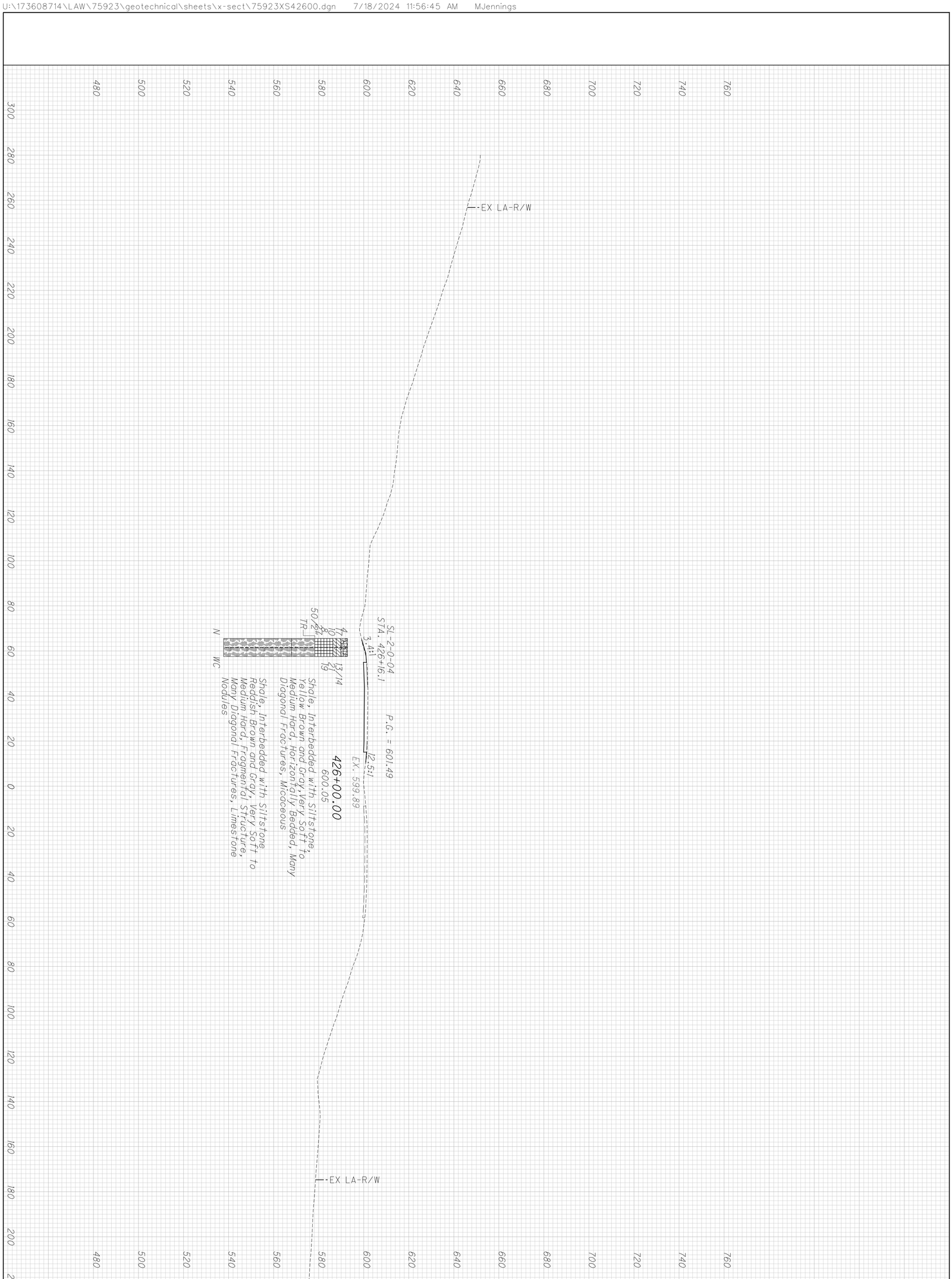
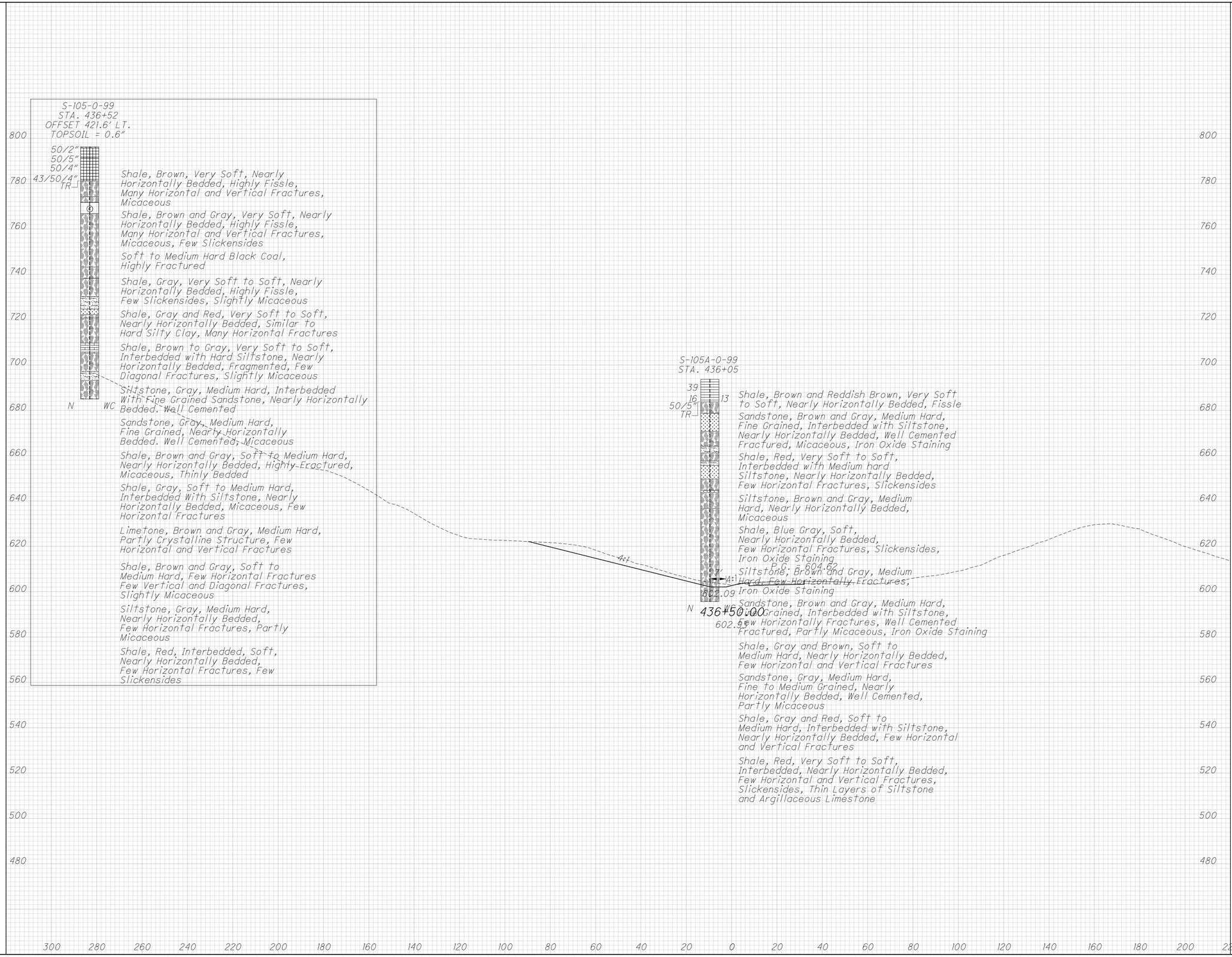


1161 / 1247	120/206	LAW-7-2.17	CROSS SECTION - S.R. 7 STATION 426+00.00	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

CROSS SECTION - S.R. 7
STATION 436+50.00

LAW-7-2.17

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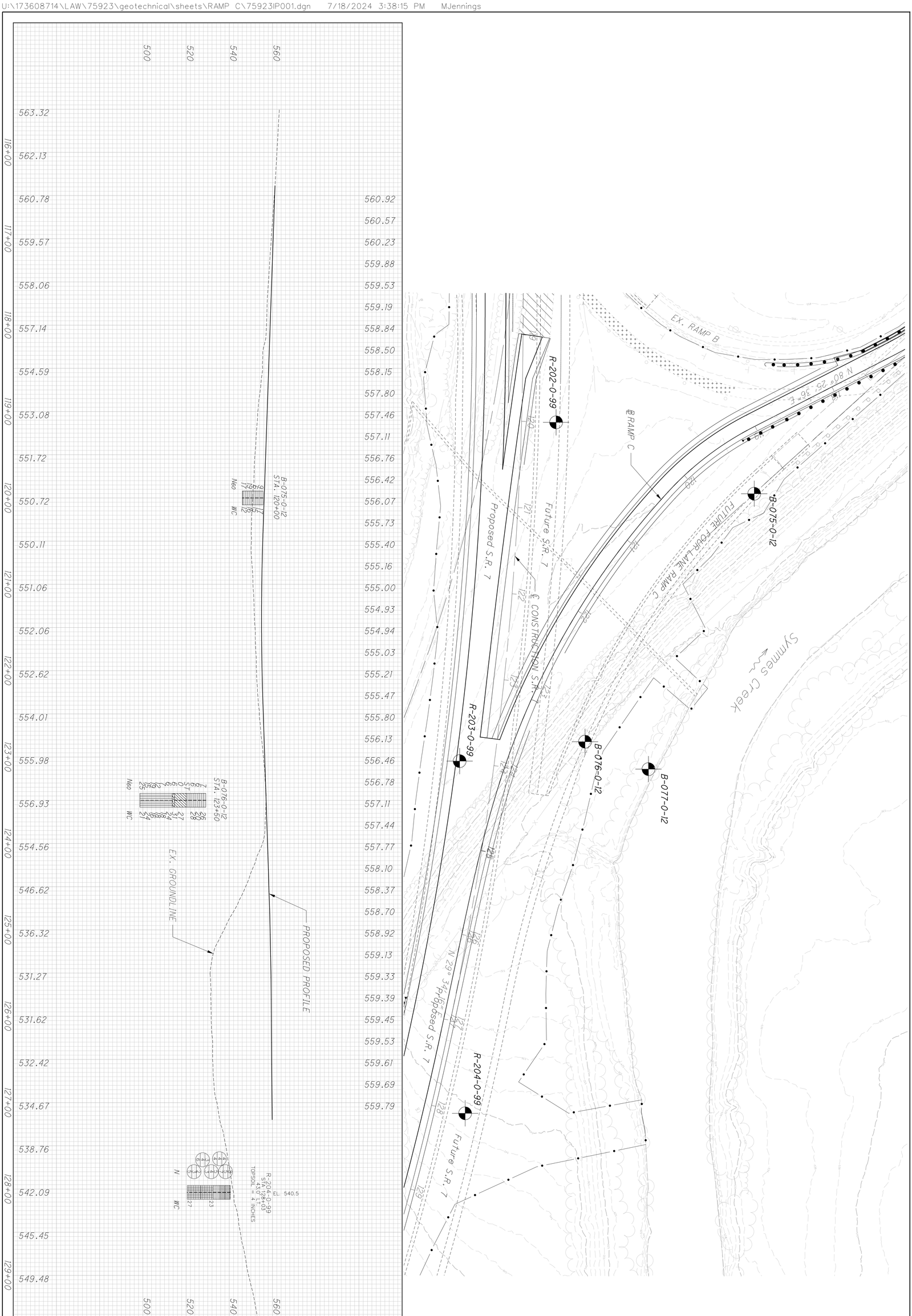
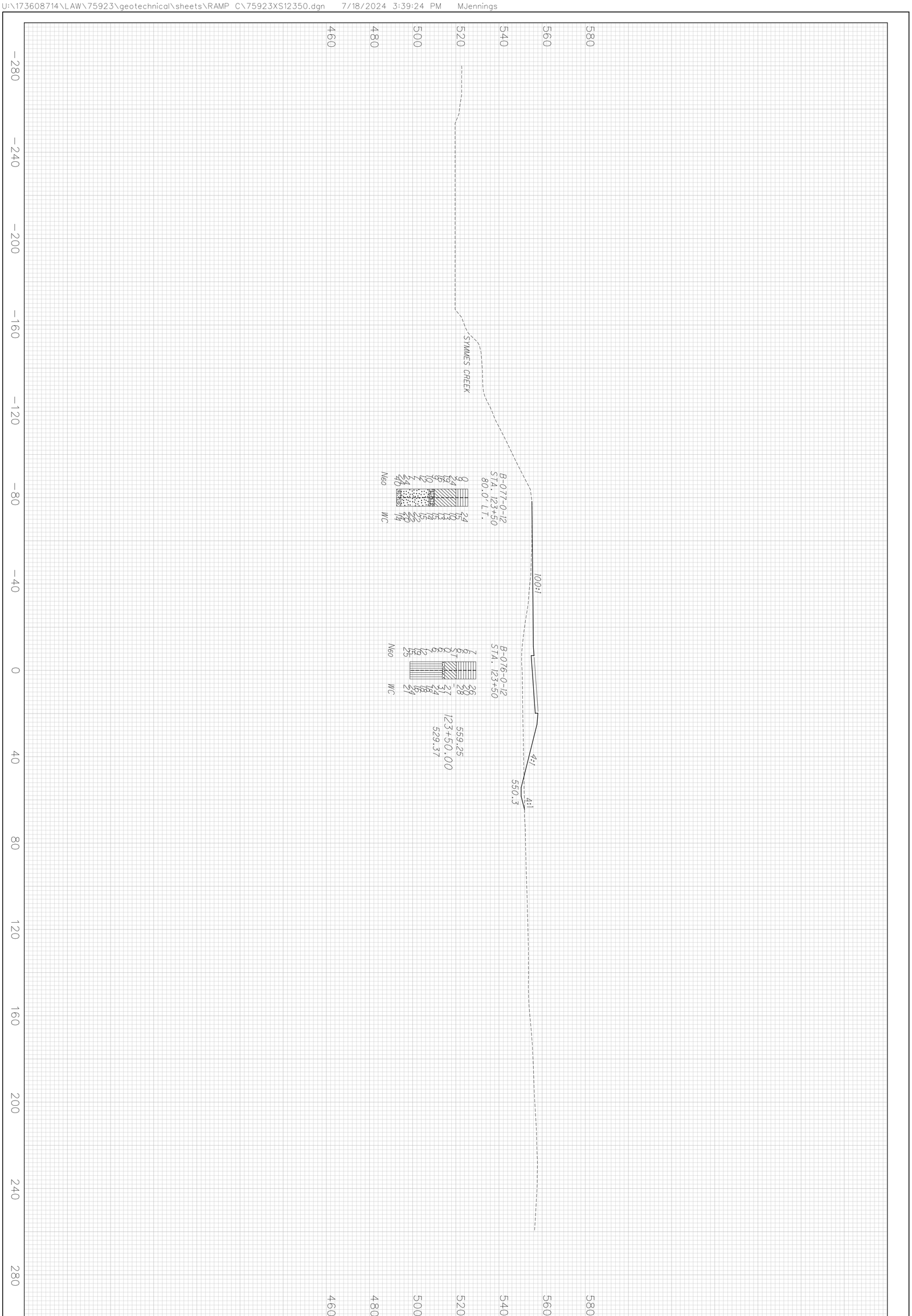


1247 / 1163	122 / 206	LAW-7-2.17	SOIL PROFILE - ROADWAY RAMP C	DRAWN MSJ CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET

U:\173608714\LAW\75923\geotechnical\sheets\RAMP C\75923XS12350.dgn 7/18/2024 3:39:24 PM MJennings



1247 / 1164	123/206	LAW-7-2.17	CROSS SECTION RAMP C STATION 123+50	DRAWN MSJ CHECKED EMK 0 10 20 40 HORIZONTAL SCALE IN FEET

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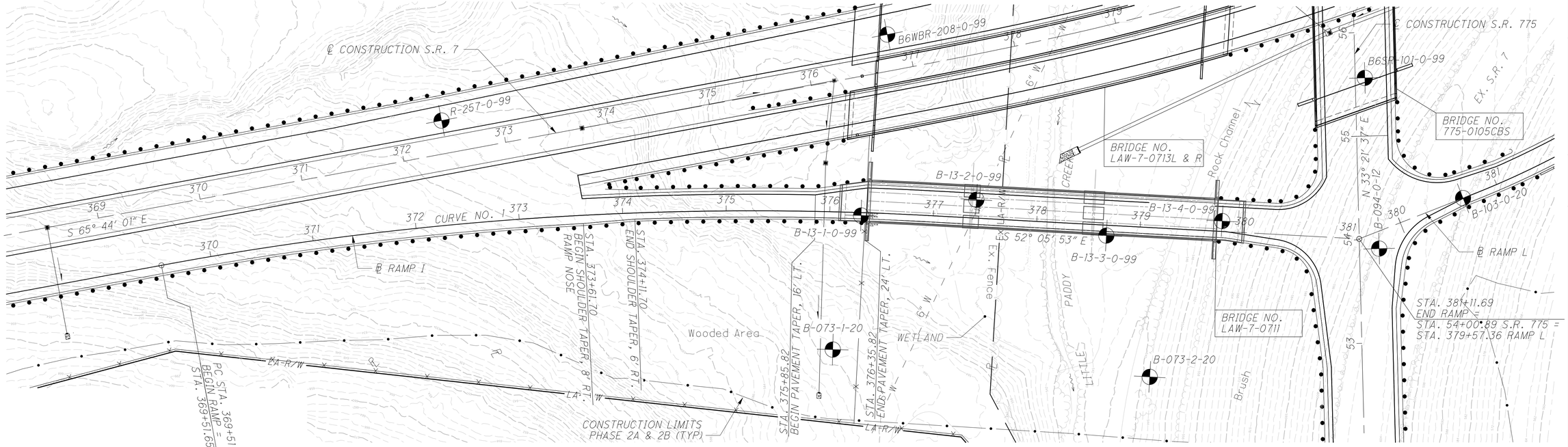
DRAWN MSJ
CHECKED EMK

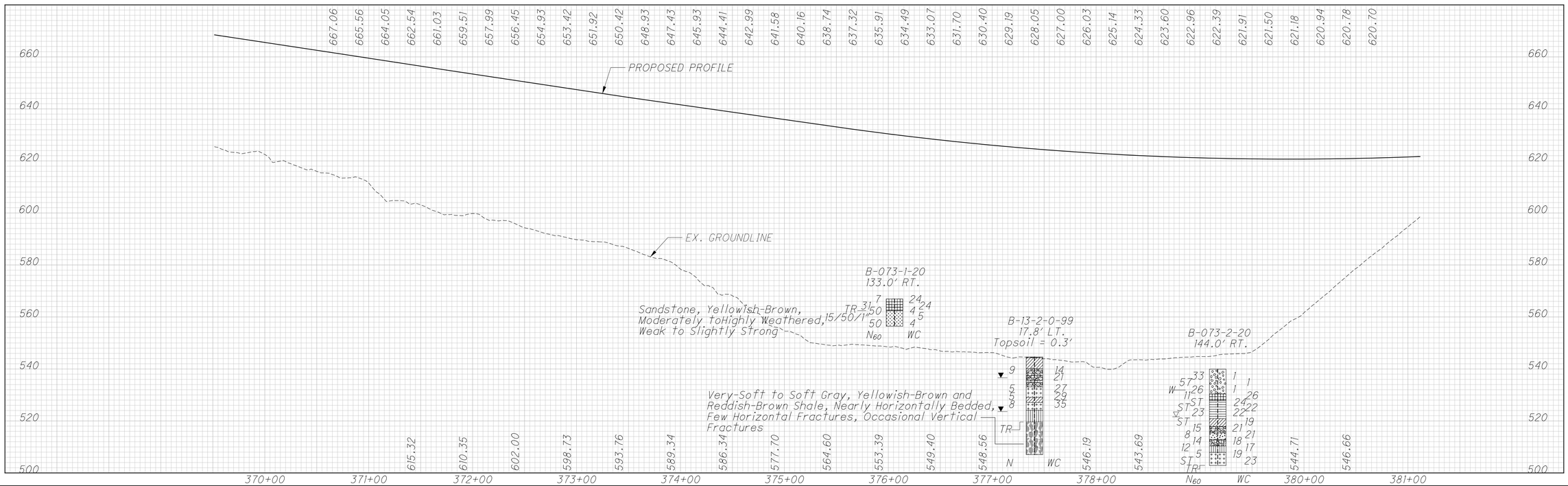
HORIZONTAL SCALE IN FEET
0 25 50 100

SOIL PROFILE - ROADWAY
RAMP D

LAW-7-2.17



FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 70-71
FOR S.R 775 PLAN &PROFILE, SEE SHEETS 147-148
FOR RAMP L PLAN & PROFILE, SEE SHEET 134
FOR BRIDGE LAW-7-0173L & R PLAN & PROFILE, SEE SHEET 72
FOR BRIDGE LAW-7-0711 PLAN & PROFILE, SEE SHEET 127
FOR BRIDGE 775-0105CBS PLAN & PROFILE, SEE SHEET 151
FOR CROSS SECTION 376+00 RAMP I, SEE SHEET 126
FOR CROSS SECTION 379+98.45 RAMP I, SEE SHEET 126



UA\173608714\LAW\75923\geotechnical\sheets\RAMP I\75923IP001.dgn 7/18/2024 4:25:07 PM MJennings

SOIL PROFILE - ROADWAY
RAMP I

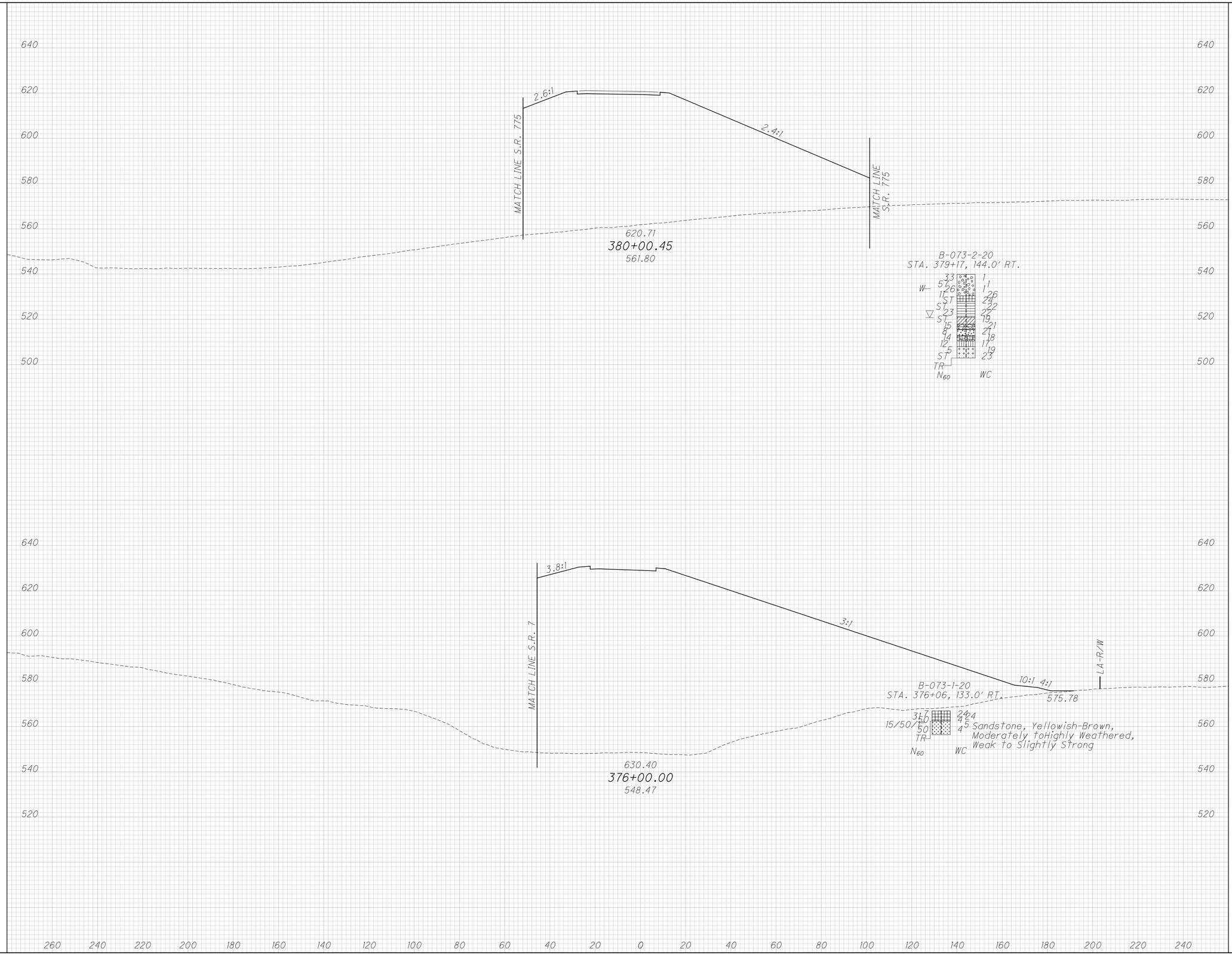
HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN MSJ
CHECKED EMK

LAW-7-2.17

125/206

1166/1247



HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

CROSS SECTIONS
STATIONS 376+00.00 & 379+98.45 - PROPOSED RAMP I

LAW-7-2.17

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HORIZONTAL SCALE IN FEET
0 10 20 40

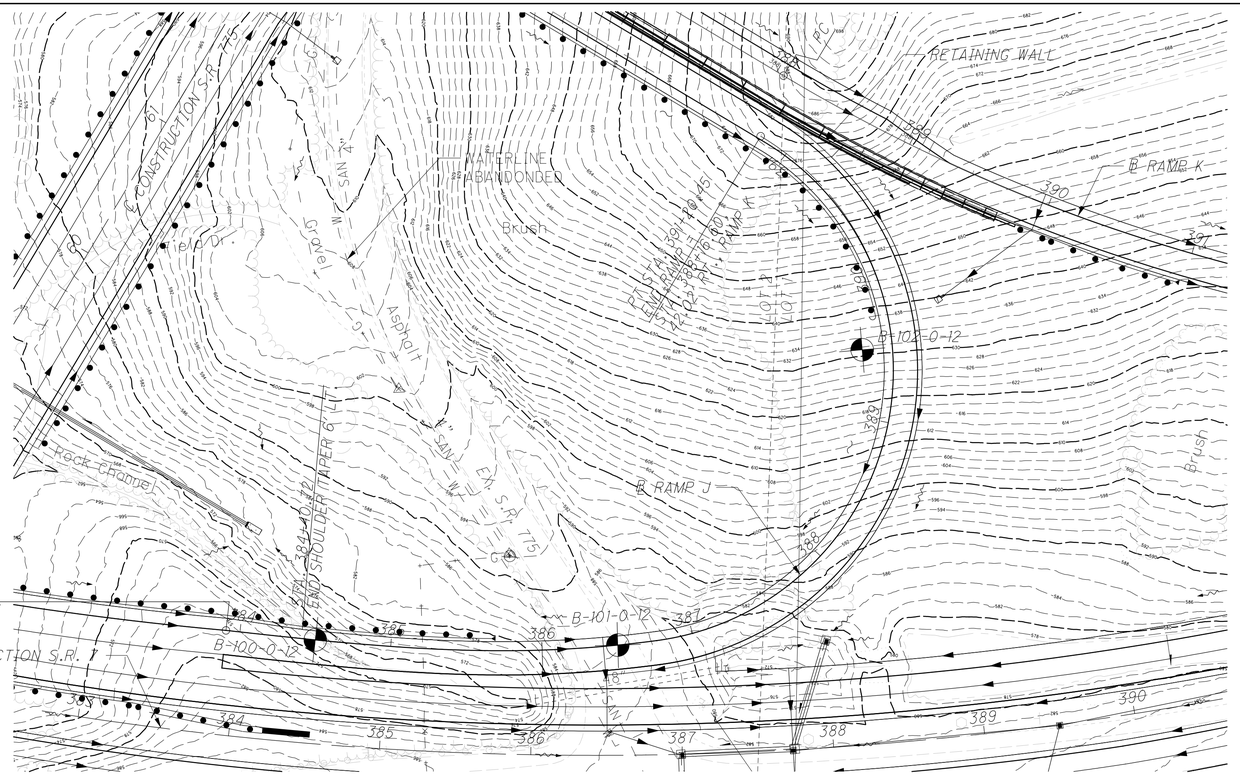
DESIGNED MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. LAW-7-0711P
RAMP I OVER LITTLE PADDY CREEK

LAW-7-2.17

127/206

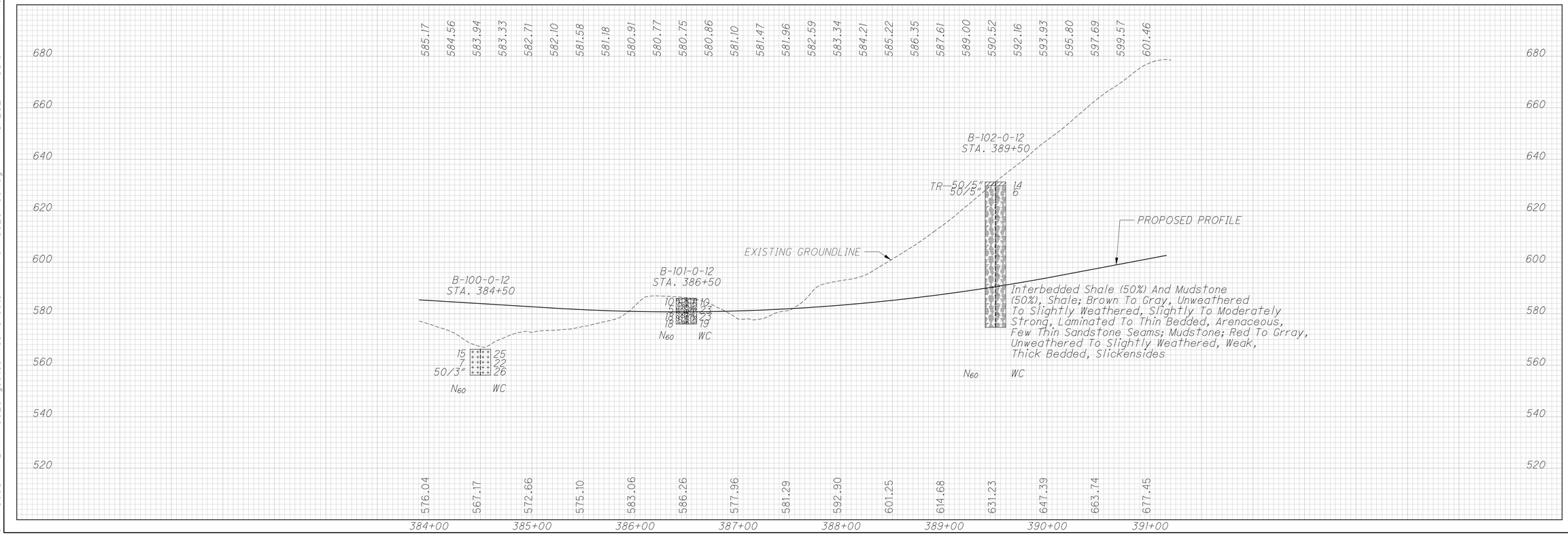
1168/1247



ST STA. 383+90.72
BEGIN SHOULDER TAPER, 8' LT.
BEGIN RAMP
RAMP NOSE =
STA. 383+90.72, 69' RT., S.R. 7

℄ CONSTRUCTION S.R. 7

FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 70-71, 73-74
FOR S.R. 775 PLAN & PROFILE, SEE SHEET 148
FOR RAMP K PLAN & PROFILE, SEE SHEETS 129-130



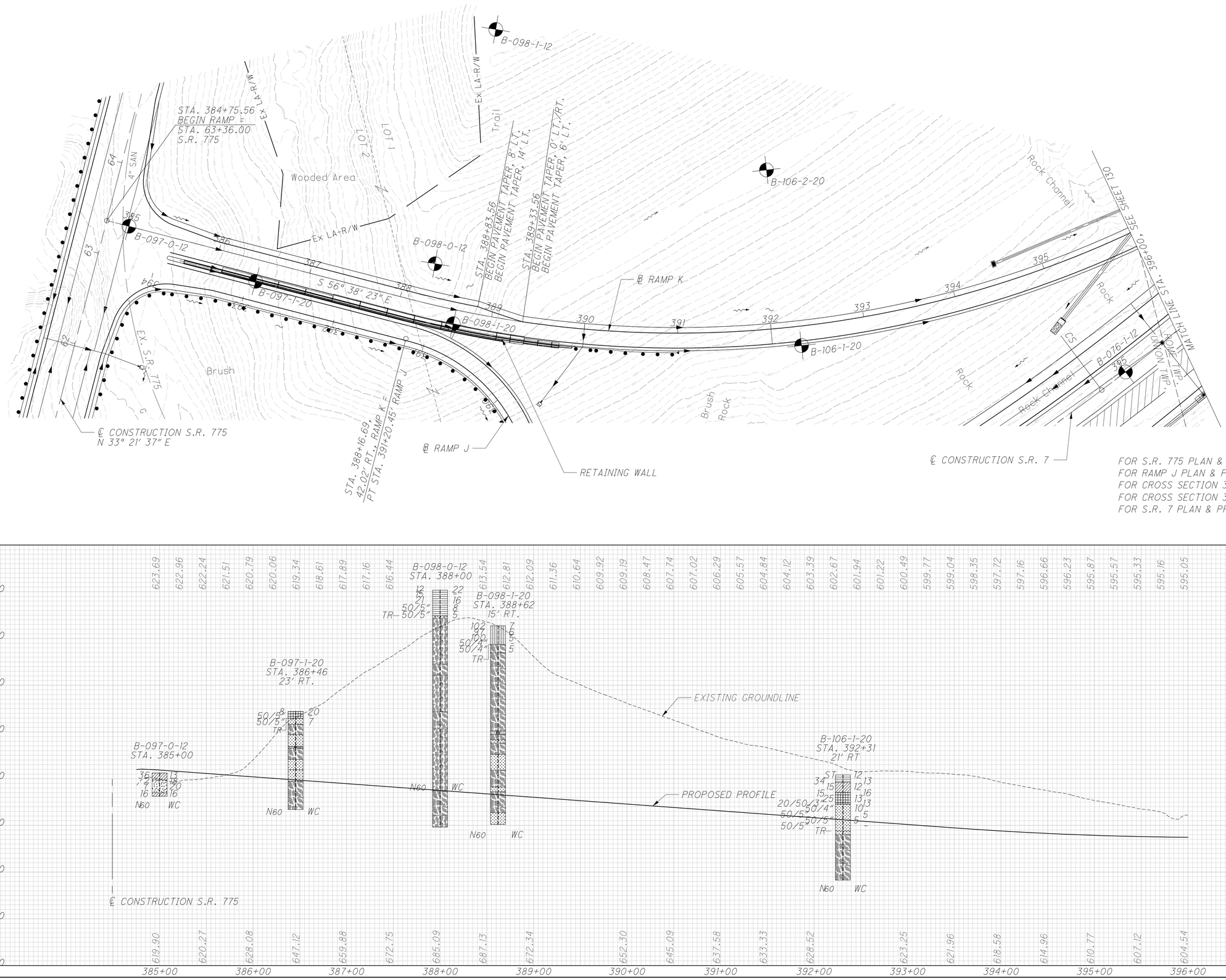
HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN MSJ
CHECKED EMK

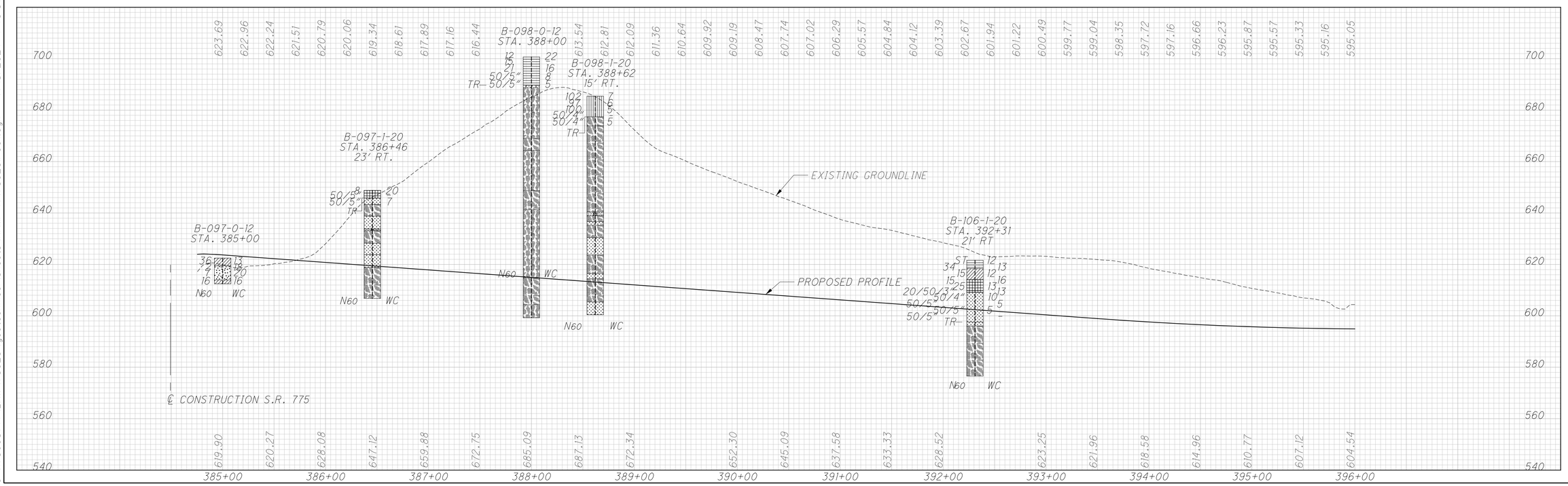
SOIL PROFILE - ROADWAY
RAMP J STA. 383+90.72 TO STA. 391+20.45

LAW-7-2.17

U:\173608714\LAW\75923\geotechnical\sheets\RAMP_J\75923IP001.dgn 7/18/2024 4:38:01 PM MJennings



FOR S.R. 775 PLAN & PROFILE, SEE SHEET 148
FOR RAMP J PLAN & PROFILE, SEE SHEET 128
FOR CROSS SECTION 388+00, SEE SHEET 131
FOR CROSS SECTION 392+00, SEE SHEET 132
FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 73-74



SOIL PROFILE - ROADWAY
RAMP K

LAW-7-2.17

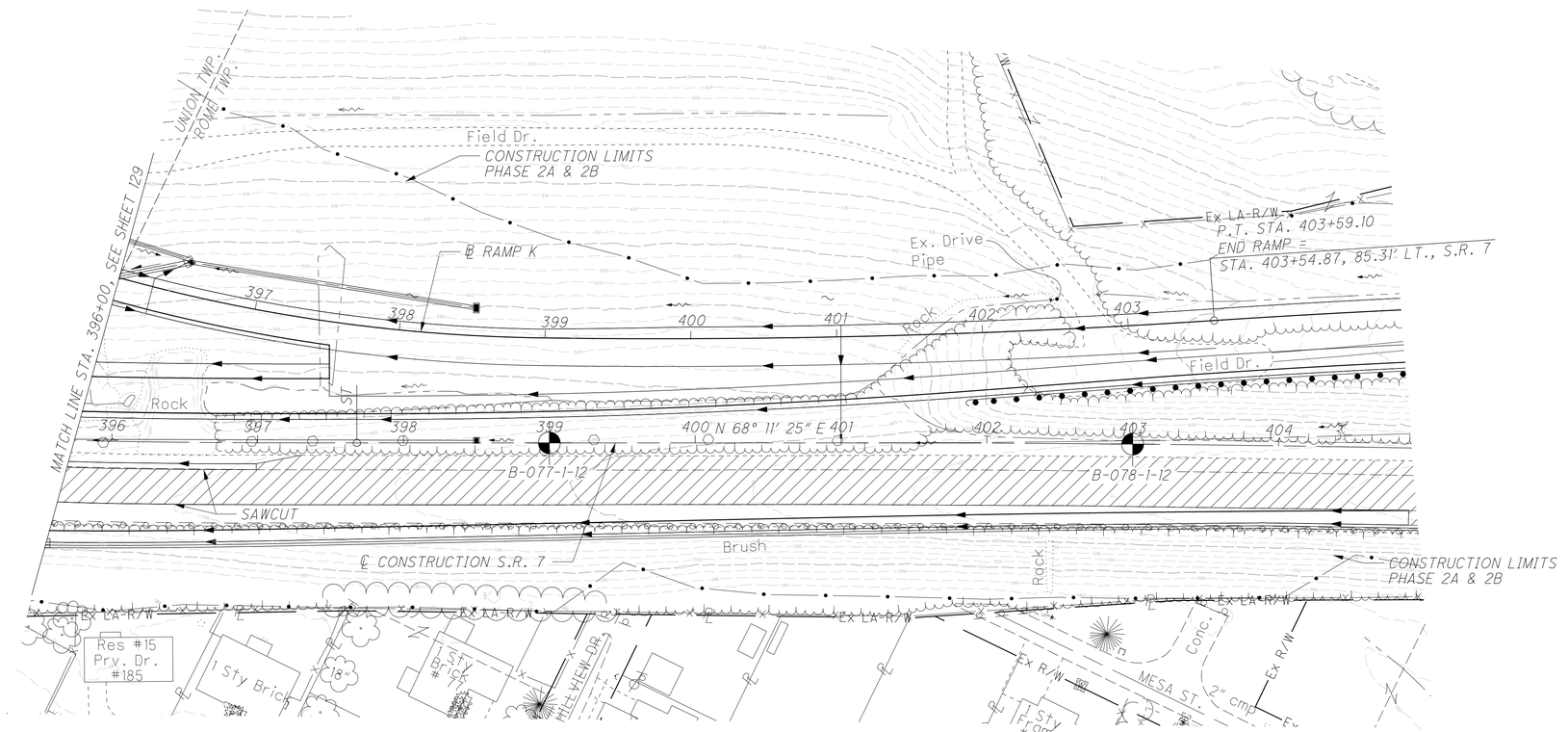
129/206

1170/1247

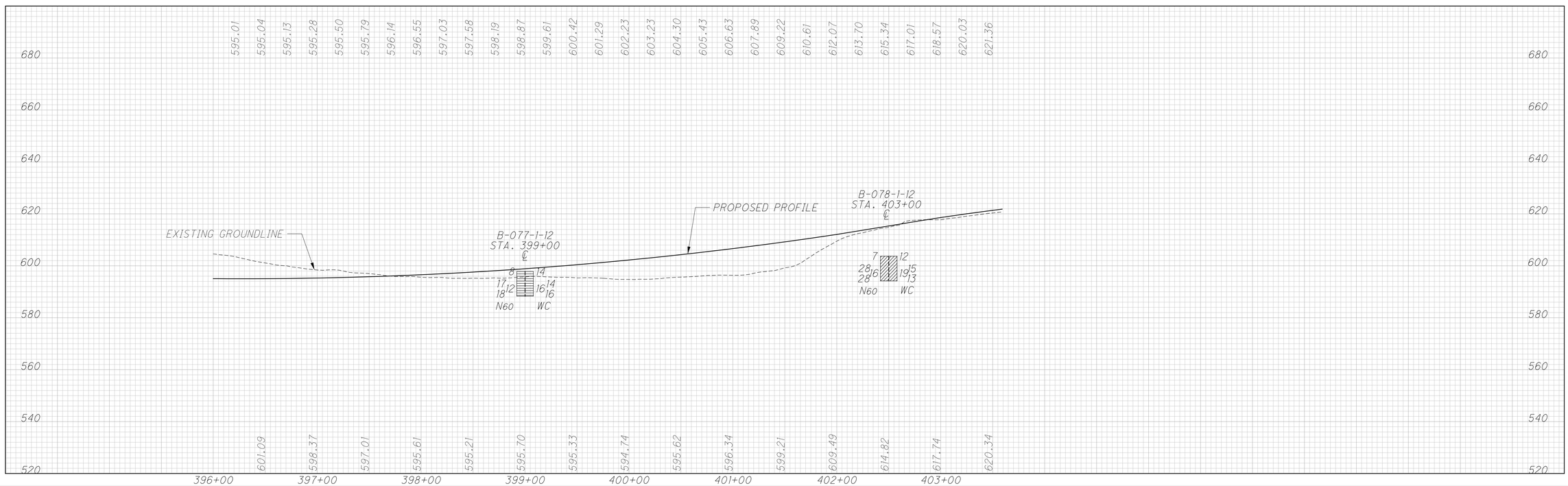
DRAWN MSJ
CHECKED EMK

HORIZONTAL SCALE IN FEET
0 25 50 100

U:\173608714\LAW\75923\geotechnical\sheets\RAMP K\75923IP001.dgn 7/18/2024 4:43:51 PM M.Jennings



FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 73-74



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
RAMP K

LAW-7-2.17

130/206

1171
1247

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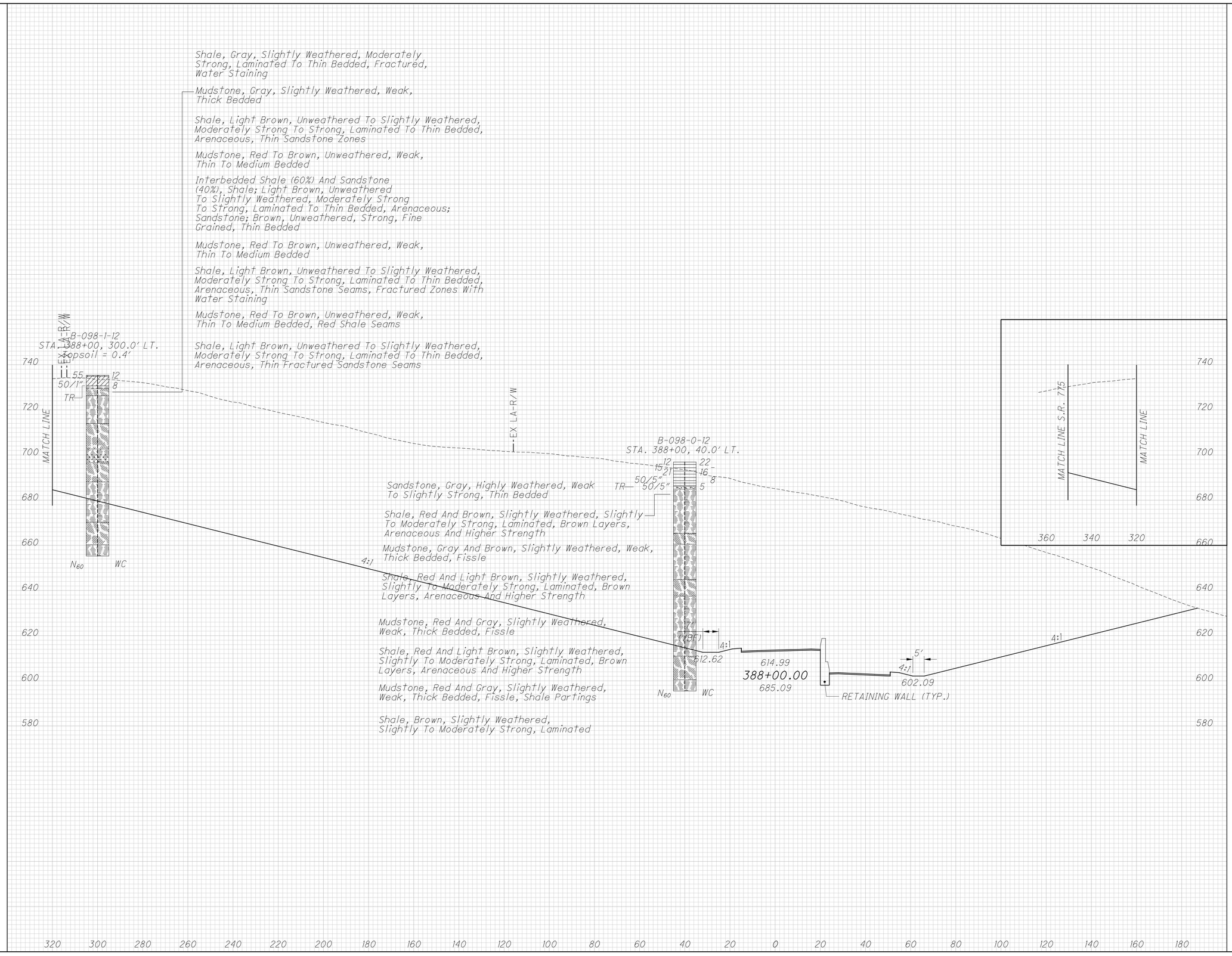


0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTION
STATION 388+00.00 - PROPOSED RAMP K

LAW-7-2.17

U:\173608714\LAW\75923\geotechnical\sheets\RAMP K\75923XS388+00.dgn 7/18/2024 4:48:54 PM MJennings

740
720
700
680
660
640
620
600
580

MATCH LINE

B-106-2-20
STA. 392+10, 170.0' LT.
11 13
TR— 50/5" 5
N_{60} WC

4:1

B-106-1-20
STA. 392+31, 21.0' RT.
ST 12 13
34 15 12 16
15 25 13 13
20/50/3" 50/4" 10 5
50/5 50/5" 5 -
N_{60} WC

10'
4:1
601.11
603.39TR
392+00.00
628.52

8:1

MATCH LINE S.R. 7

EX LA-R/W

4:1

580 560 540 520 500 480 460 440 420 400 380 360 340

320 300 280 260

MATCH LINE

260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240

Sandstone, Tan to Gray, Severely Weathered,

Sandstone, Gray/Tan with Orange, Moderately Weathered, Weak, Fine Grained, Laminated to Thin Bedded, Friable, Moderately Fractured; RQD 21%, REC 100%

Claystone, Reddish Brown to Tan, Moderately Weathered, Very Weak, Very Fine Grained to FIne Grained, Laminated to Thin Bedded, Argillaceous, Slightly Fractured; RQD 32%, REC 70%

Sandstone, Bluish Gray, Slightly to Moderately Weathered, Weak to Slightly Strong, Very Fine Grained to Fine Grained, Laminated to Thin Bedded, Arenaceous, Moderately Fractured; RQD 76%, REC 100%

Claystone, Reddish Brown to Gray, Moderately Weathered, Weak, Very Fine Grained, Laminated to Thin Bedded, Argillaceous, Moderately Fractured, RQD 63%, REC 100%

Sandstone, Tan, Severely Weathered, Laminated to Thin Bedded, Sandstone/Claystone Matrix

Sandstone, Light Brown to Bluish Gray, Slightly Weathered, Slightly to Moderately Strong, Fine to Medium Grained, Laminated to Thin Bedded, Slightly Arenaceous, Moderatly Fractured to Fractured; RQD 44%, REC 100%

Claystone, Light Brown to Gray to Bluish Red, With Depth, Moderately Weathered, Very Weak to Weak, Very Fine to FIne Grained, Laminated to Thin Bedded, Argillaceous, Moderately Fractured to Fractured; RQD 35%, REC 78%

0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

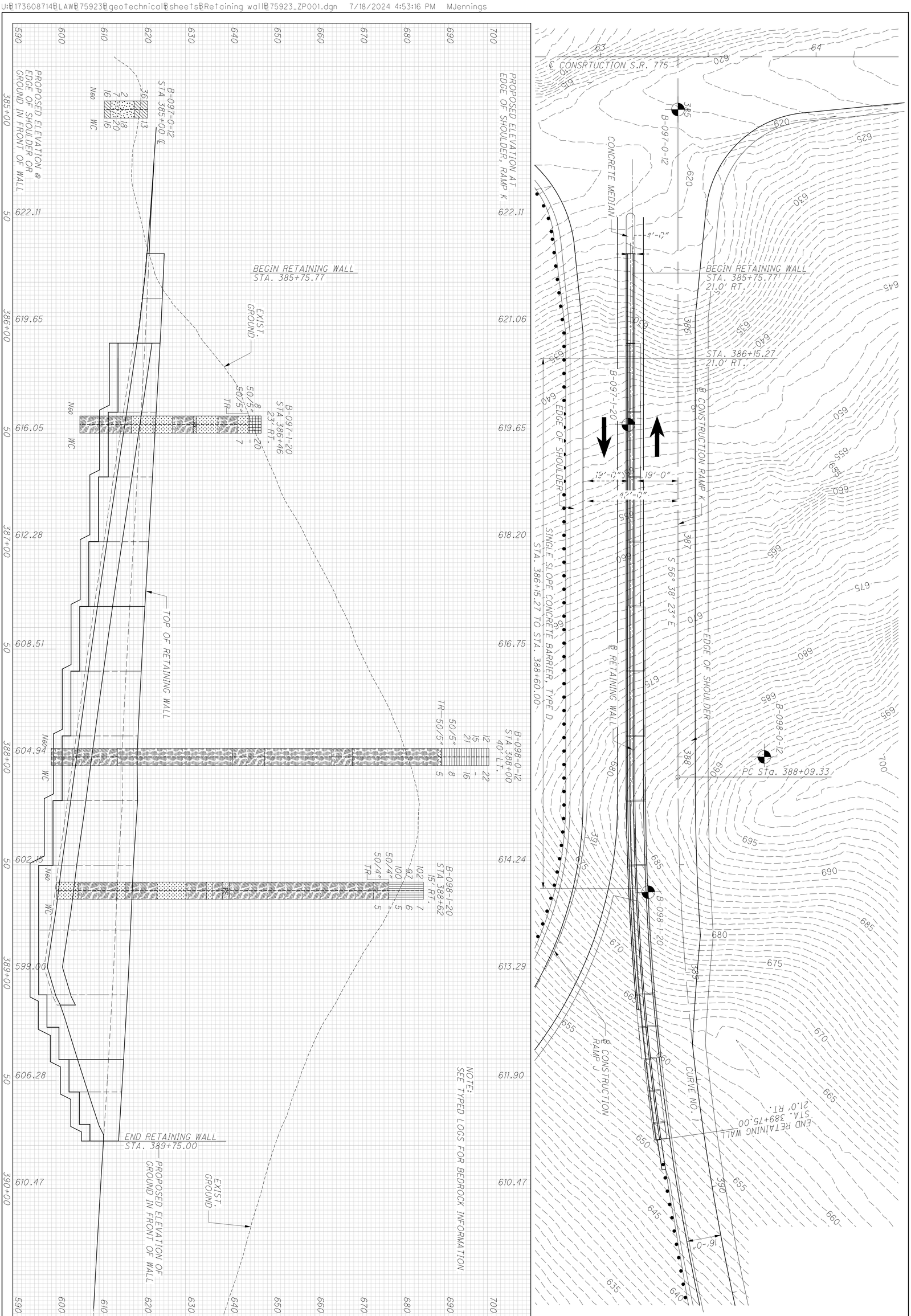
CROSS SECTION
STATION 392+00.00 - PROPOSED RAMP K

LAW-7-2.17

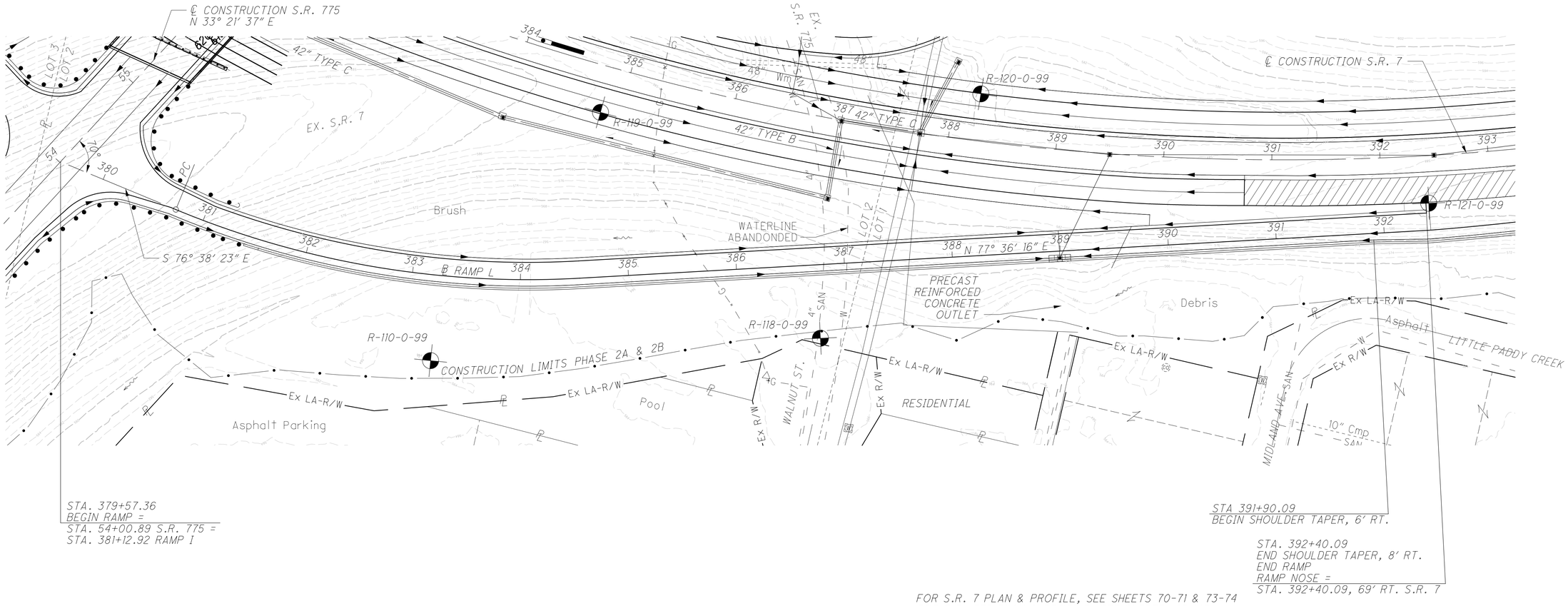
132/206

1173
1247

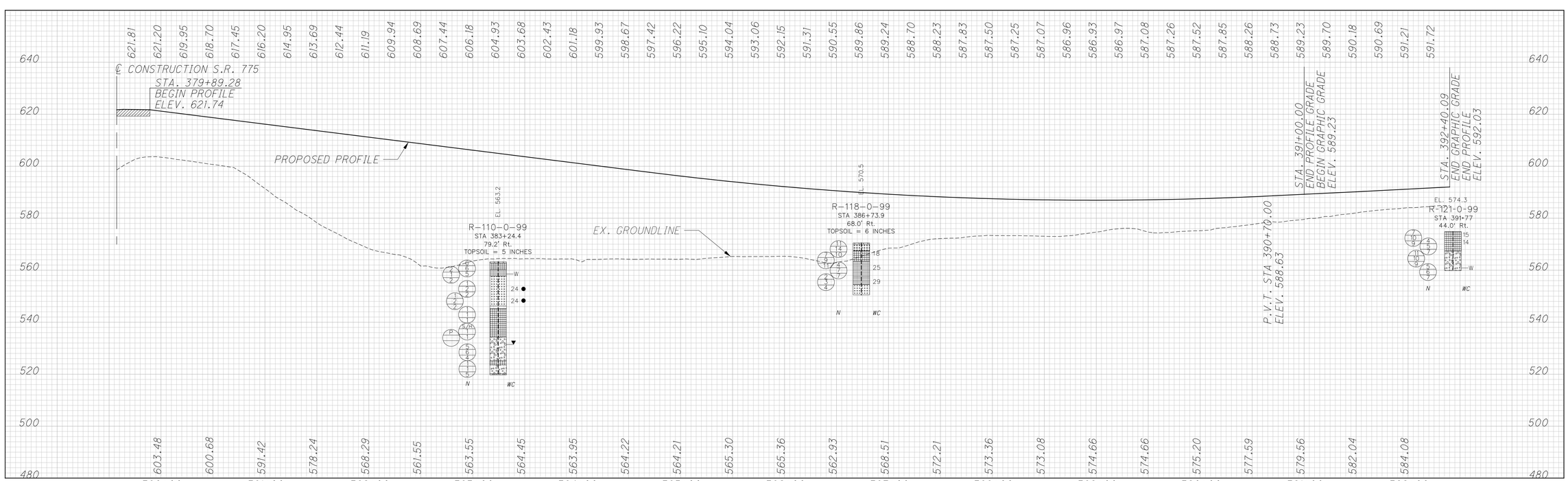
U:\1736087\14\LAW\75923\geotechnical\sheets\RAMP K\75923XS392-00.dgn 7/18/2024 4:50:02 PM MJennings



1174 / 1247	133 / 206	**LAW-7-2.17**	**STRUCTURE FOUNDATION EXPLORATION RAMP J AND RAMP K RETAINING WALL**	DESIGNED MSJ CHECKED EMK	HORIZONTAL SCALE IN FEET



FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 70-71 & 73-74
FOR S.R. 775 PLAN & PROFILE, SEE SHEETS 147-148



HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
RAMP L

LAW-7-2.17

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HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
LYNN LANE STA. 10+00.00 - 14+05.59

LAW-7-2.17

135/206

1176
1247

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B-083-1-12

STA. 14+80.01 S.R. 243 =
STA. 9+68.33 C.R. 69

R-231-0-99

CONSTRUCTION LIMITS
PHASE 2A & 2B

℄ CONSTRUCTION S.R. 243

N 62° 13′ 05″ E

STREAM 10

EX. RCP

FUTURE WESTBOUND LANES

54" TYPE C

LA-R/W

C.R. 69

Trail

Wooded Area

B.R.E.C. ESMT.

Asphalt

Tank

1 Sty Brk
Res.#16804

AC

Asph.

Vacant Lot
20-30
Scrap
Vehicles

Pasture

(3) WM

R/W

TMP

STA. 252+15.58, 36.42′ LT S.R. 7 =
STA. 15+27.31 C.R. 7 RAB =
STA. 10+00.95 S.R. 243

CONSTRUCTION LIMITS
PHASE 2A & 2B

Grass

N 38° 51′ 44″ W

CURVE NO. 2

B-085-0-12

B-084-0-12

N 51° 38′ 34″ W

B-025-0-11

STA. 9+64.02
BEGIN WORK

B-024-0-11

54" TYPE B

Wooded Area

Asph

Conc

1 Sty Frm & Block
Res. #16761

Deck

Split
Rail

Brush

Sat. Dish

2 Sty
Frame

Pole Barn
Metal Bldg.
Auto Repair

℄ CONSTRUCTION S.R. 7

℄ CONSTRUCTION S.R. 7 RAB

℄ CONSTRUCTION C.R. 69

EX. S.R. 243

CONSTRUCTION LIMITS
PHASE 2A & 2B

FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 58-59
FOR CROSS SECTION 11+50 S.R. 243, SEE SHEET 137
FOR CROSS SECTION 13+00 S.R. 243, SEE SHEET 137
FOR C.R. 69 PLAN & PROFILE, SEE SHEETS 138-141

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
S.R. 243 - STA. 9+64.02 - 21+54.00

LAW-7-2.17

136/206

1177
1247

LIMITS OF ROUNDABOUT

620.06 619.43 618.81 618.18 617.56 616.93 616.31 615.68 615.06 614.43 613.81 613.18 612.56 611.93 611.31 610.68 610.06 609.52 609.11 608.82 608.66 608.62 608.71 608.92 609.26 609.73 610.31 611.03 611.87 612.83 613.92 615.13 616.47 617.75 619.14 620.67 622.39 624.29 626.00 627.61 629.43 631.17 632.84

EX. GROUNDLINE

PROPOSED PROFILE

STA. 10+82.95
BEGIN PROFILE
ELEV. 620.48

-2.50 %

B-024-0-11
STA. 13+07.3
95.4′ RT.

B-085-0-12
STA. 14+80.1
7.7′ RT.

B-025-0-11
STA. 17+02.6
46.1 RT.
Asphalt/Pavement= 0.4′

B-084-0-12
STA. 18+00
Asphalt/Pavement= 1.0′
Aggregate Base= 0.5′

STA. 21+54.00
END GRAPHIC GRADE
END PROFILE
ELEV. 633.07

EX. WATER
SERVICE

Weathered Shale
(Augered)

Shale, Brown Grading
to Gray, Moderately
Weathered, Slightly to
Moderately Strong,
Laminated, Highly Fractured

Mudstone, Mottled Red and
Gray, Moderately Weathered,
Weak, Thin Bedded

Siltstone, Gray, Unweathered
to Slighty Weathered, Moderately
Strong to Strong, Thin Bedded

TR- 90

TR- 50

Shale, Gray, Severely
Weathered, (Augered)

Interbedded Shale (80%)
And Mudstone (20%),
Shale; Brown To Gray,
Moderately Weathered,
Very Weak to Weak, Laminated,
Highly Fractured; Mudstone;
Brown To Gray, Moderately
Weathered, Very Weak To Weak,
Thin Bedded, Friable

N_{60} WC

680 660 640 620 600 580 560

9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00

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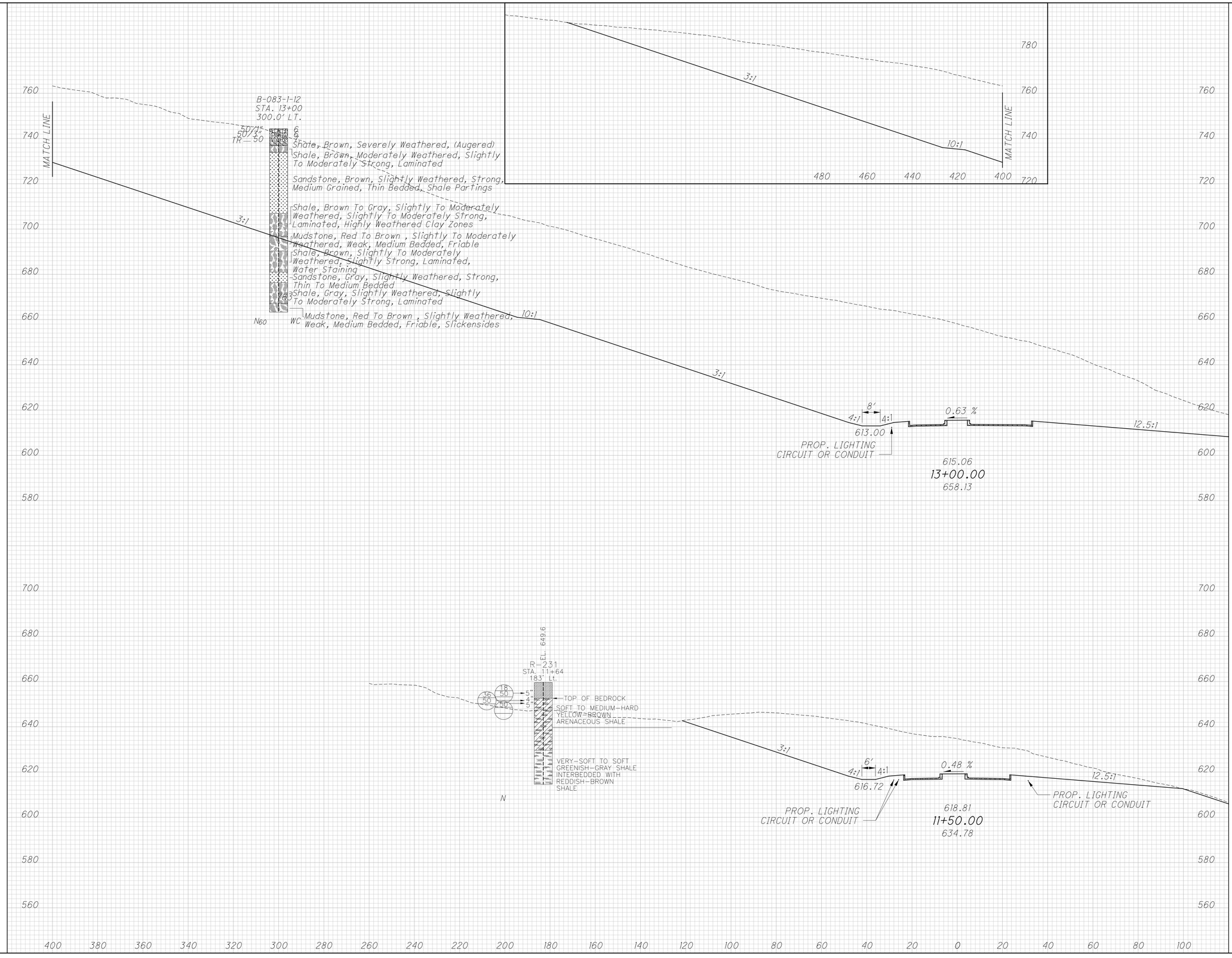

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0 10 20 40
HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTIONS - S.R. 243
STATIONS 11+50.00 & 13+00.00

LAW-7-2.17

137/206

1178
1247

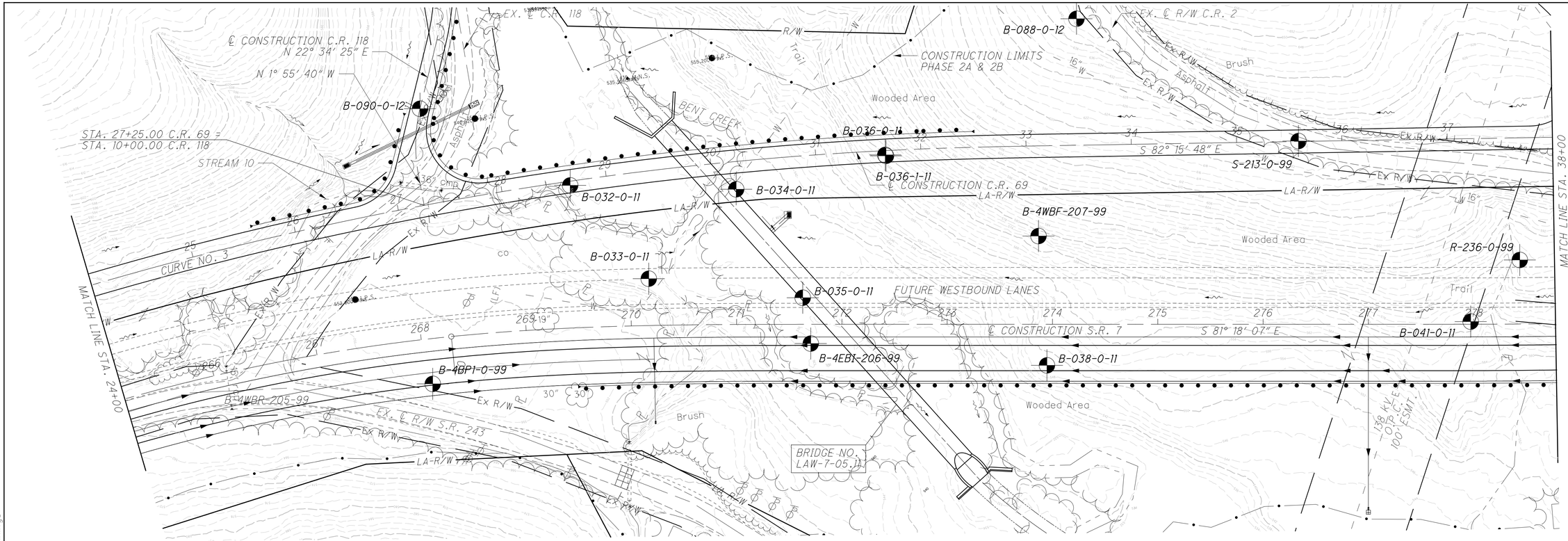
FOR S.R. 7 PLAN & PROFILE, SEE SHEET 58-59
FOR S.R. 243 PLAN & PROFILE, SEE SHEET 136
FOR CROSS SECTION STATION 15+00, SEE SHEET 142
FOR CROSS SECTION STATION 24+00, SEE SHEET 142

B-086-1-12
B-087-1-12
B-085-0-12
B-086-0-12
B-087-0-12
B-027-0-11
B-024-0-11
B-028-0-11
B-030-0-11
N 62° 13' 05" E
Wooded Area
EX R/W S.R. 7
R/W
Ex R/W
LA-R/W
CONSTRUCTION LIMITS PHASE 2A & 2B
STREAM 10C
STREAM 10
Wooded Area
Brush
24"
B.R.E.C. ESMT.
N 87° 30' 30" E
N 72° 47' 57" E
N 66° 04' 40" E
STA. 9+68.33 O.R. 69
BEGIN WORK =
STA. 14+80.02 S.R. 243
℄ CONSTRUCTION S.R. 243
℄ CONSTRUCTION C.R. 69
MATCH LINE STA. 24+00
1 Sty Frm Res. #16949
Stockade Shed
2 Sty Brick & Frm Res. #16971
Deck
AC
Conc
(LF)
1-Sty Duplex Res. 17001
Shed
2 Sty Brick
Excv. Area
Conc
Deck
Garage
2 Sty Brk Res. #17039
Asphalt
Brick Walk
Gravel
4"
Car
FUTURE WESTBOUND LANES
PC
PT
SC
CS
LT
RT
W
F
Wire
Fence
Ex R/W

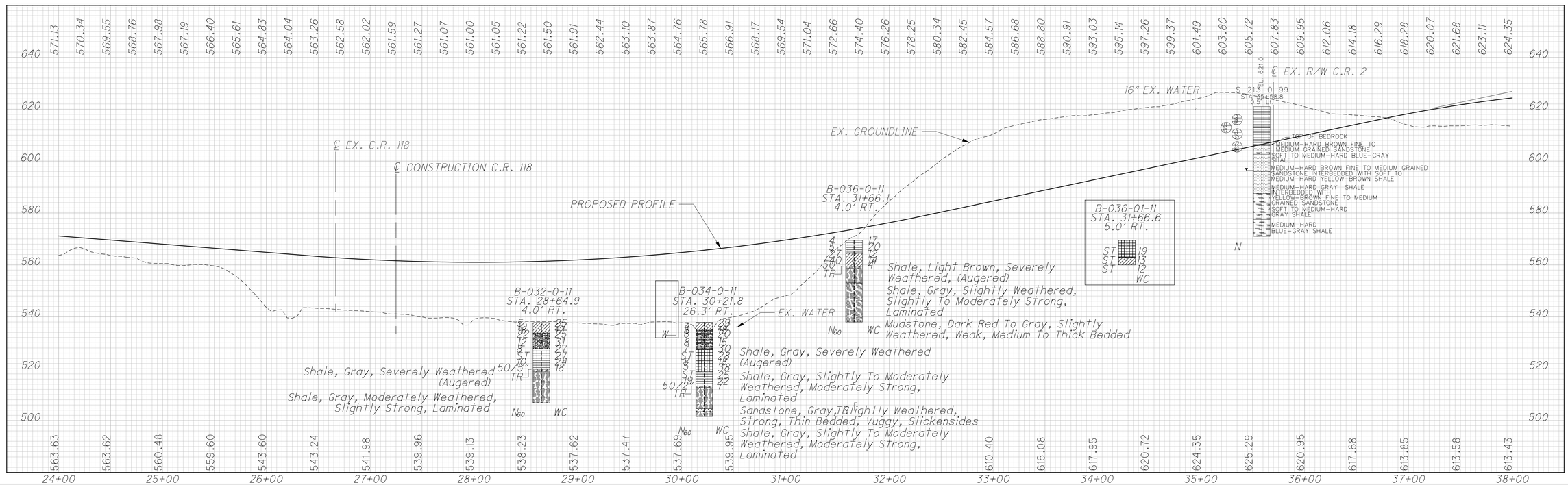
℄ CONSTRUCTION S.R. 243
B-085-0-12
STA. 10+00
B-024-0-11
STA. 10+95.4
7.3' LT.
℄ EX. R/W S.R. 243
B-086-0-12
STA. 15+00
120.0' LT.
B-027-0-11
STA. 13+86.9
11.6' LT.
B-028-0-11
STA. 18+52.8
6.8' LT.
B-030-0-11
STA. 22+84.5
9.0' LT.
B-085-0-12
(ROCK DESCRIPTIONS)
℄ 42" TYPE A
= 592.33
2" EX. WATER
PROPOSED PROFILE
EX. GROUNDLINE
TR
WC
N60
Weathered Shale (Augered)
Shale, Brown Grading to Gray, Moderately Weathered, Slightly to Moderately Strong, Laminated, Highly Fractured Mudstone, Mottled Red and Gray, Moderately Weathered, Weak, Thin Bedded
Siltstone, Gray, Unweathered to Slightly Weathered, Moderately Strong to Strong, Thin Bedded
Weathered Sandstone (Augered)
Sandstone, Brown, Slightly Weathered, Strong, Fine Grained, Thin Bedded, Shale Seams
Shale, Gray, Slightly Weathered, Moderately Strong To Strong, Laminated To Thin Bedded, Arenaceous
Mudstone, Gray To Red, Slightly Weathered, Weak, Thin Bedded, Friable
Shale, Gray, Severely Weathered, (Augered)
Interbedded Shale (80%) And Mudstone (20%), Shale; Brown To Gray, Moderately Weathered, Very Weak to Weak, Laminated, Highly Fractured; Mudstone; Brown To Gray, Moderately Weathered, Very Weak To Weak, Thin Bedded, Friable

660 640 620 600 580 560 540 520
611.61 611.33 610.99 610.65 610.28 609.87 609.42 608.92 608.38 607.79 607.16 606.49 605.77 605.00 604.21 603.43 602.64 601.85 601.06 600.27 599.49 598.70 597.91 597.12 596.34 595.55 594.76 593.97 593.18 592.40 591.61 590.82 590.03 589.25 588.46 587.67 586.88 586.09 585.31 584.52 583.73 582.94 582.16 581.37 580.58 579.79 579.00 578.22 577.43 576.64 575.85 575.07 574.28 573.49 572.70 571.92 571.13
630.70 617.12 602.74 596.60 589.32 587.36 588.52 599.01 604.28 603.47 594.47 589.40 586.65 584.21 581.84 573.19 564.28 561.16 560.37 557.28 559.09 559.61 561.61 562.22 563.52 564.73 563.38 563.91 563.63
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

SOIL PROFILE - ROADWAY
C.R. 69 STA. 9+68.33 - 24+00.00
LAW-7-2.17
HORIZONTAL SCALE IN FEET
0 25 50 100
DRAWN MSJ
CHECKED EMK
138/206
1179/1247



FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 60-61
FOR C.R. 118 PLAN AND PROFILE, SEE SHEET 145
FOR CROSS SECTION STATION 33+50, SEE SHEET 143
FOR BRIDGE LAW-7-05.10 PLAN & PROFILE, SEE SHEET 61
FOR C.R. 2 PLAN & PROFILE, SEE SHEET 146



HORIZONTAL SCALE IN FEET 0 25 50 100

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
C.R. 69 STA. 24+00.00 - 38+00.00

LAW-7-2.17

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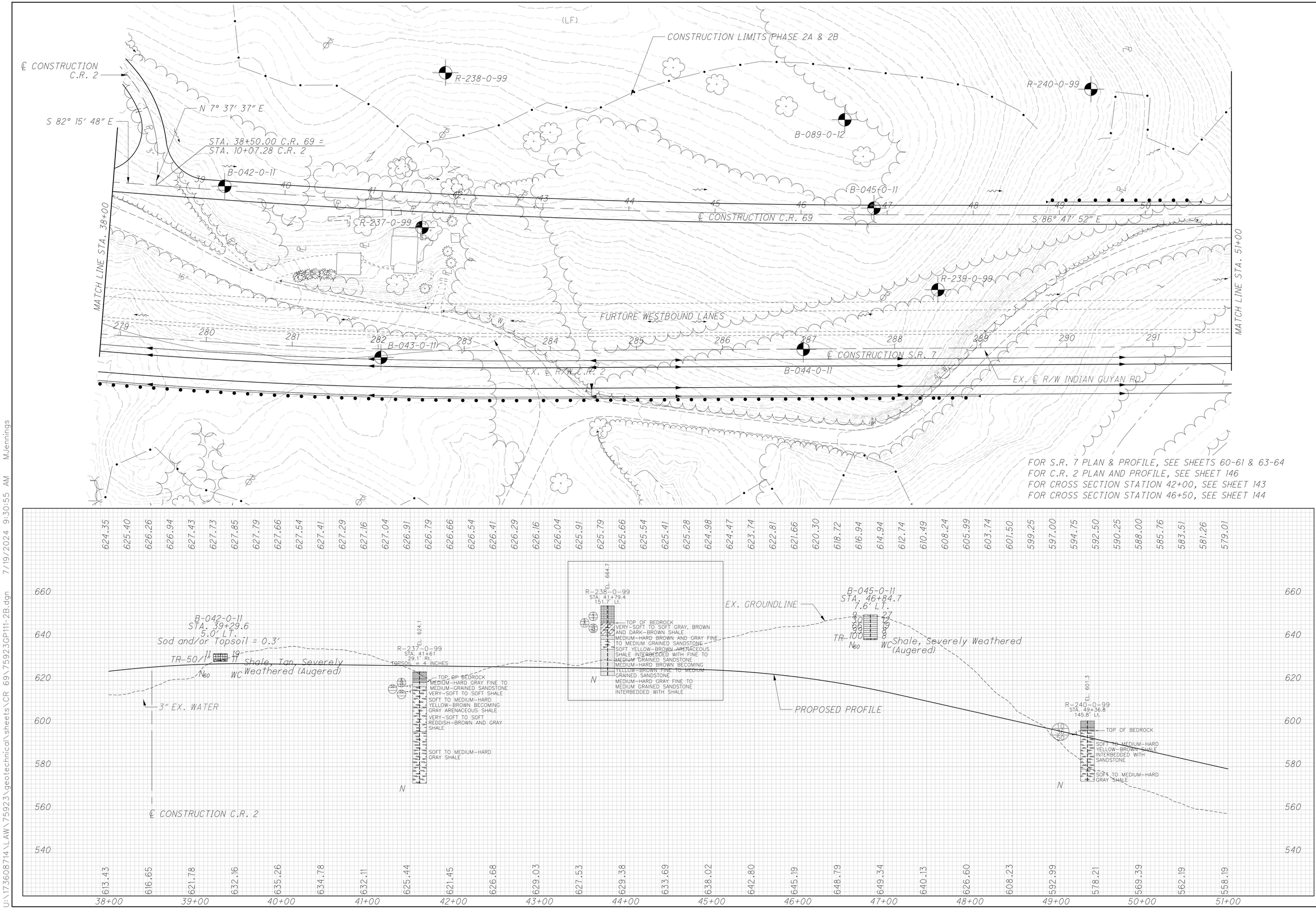

HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
C.R. 69 STA. 38+00.00 - 51+00.00

LAW-7-2.17

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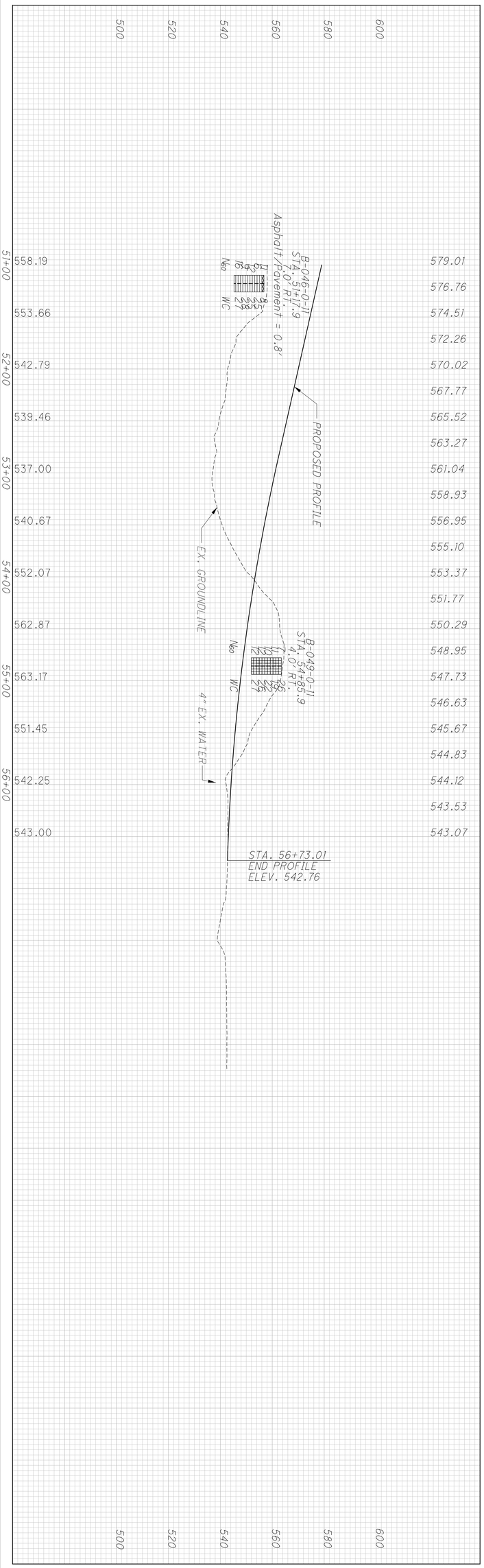
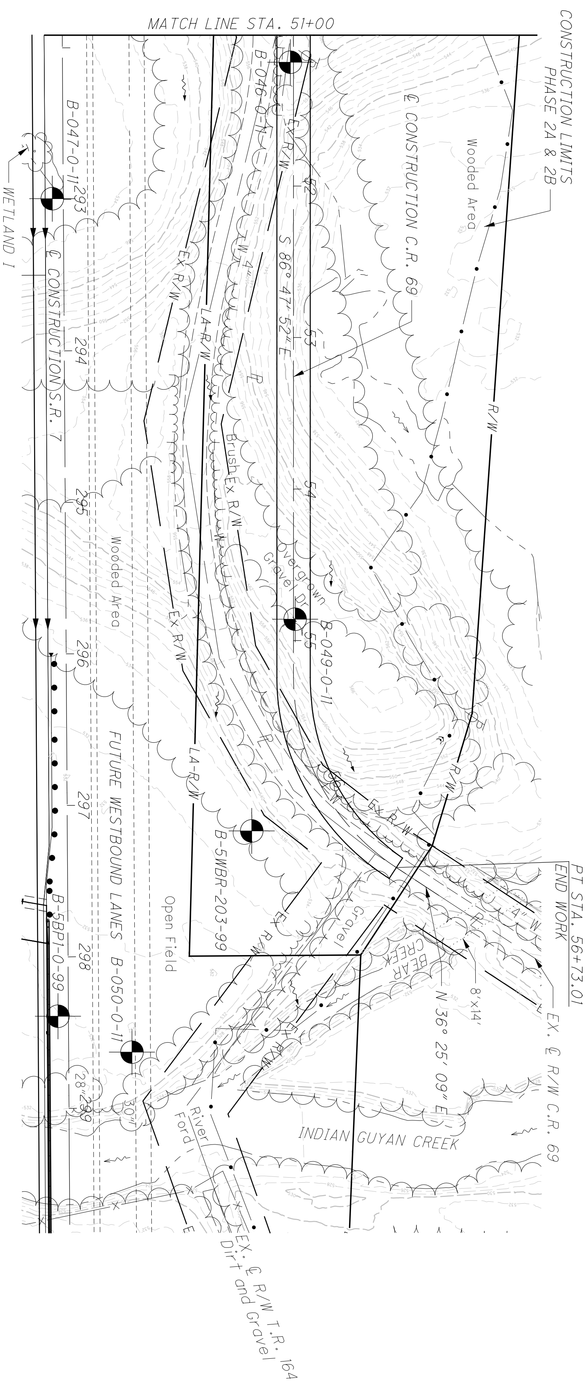
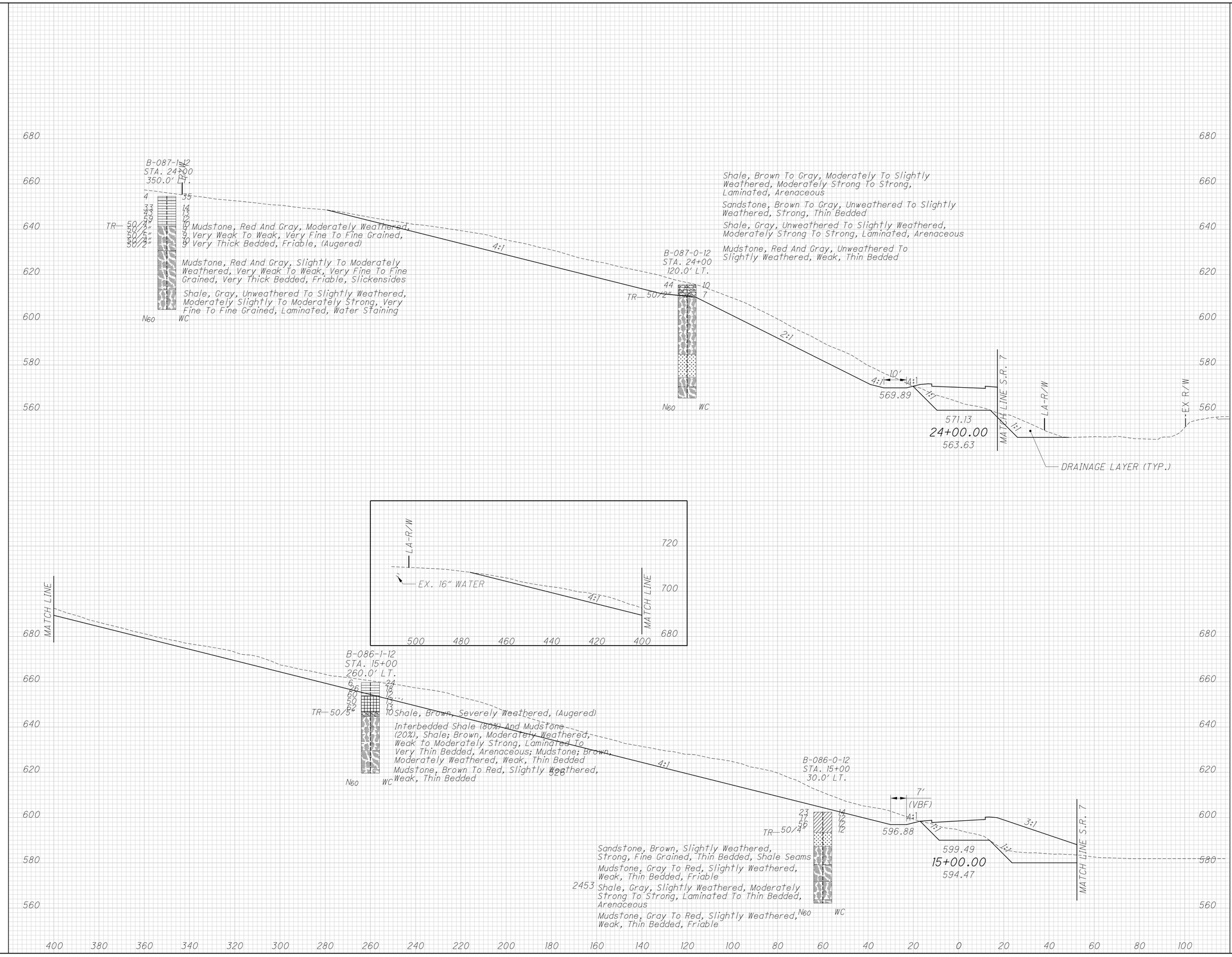




FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 63-64
FOR LAW-7-5.63 PLAN & PROFILE, SEE SHEET 65

1182 / 1247	141 / 206	LAW-7-2.17	SOIL PROFILE - ROADWAY C.R. 69 STA. 51+00.00 - 56+73.01	DRAWN MSJ CHECKED EMK	0 50 25 100 HORIZONTAL SCALE IN FEET



HORIZONTAL SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTIONS - C.R. 69
STATIONS 15+00.00 & 24+00.00

LAW-7-2.17

U:\173608714\LAW\75923\geotechnical\sheets\CR 69\75923XS69-1.dgn 7/19/2024 9:51:30 AM MJennings

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN MSJ
CHECKED EMK

CROSS SECTIONS - C.R. 69
STATIONS 33+50.00 & 42+00.00

LAW-7-2.17

143/206

1184/1247

U:\173608714\LAW\75923\geotechnical\sheets\CR 69\75923XS69-2.dgn 7/19/2024 9:52:39 AM MJennings

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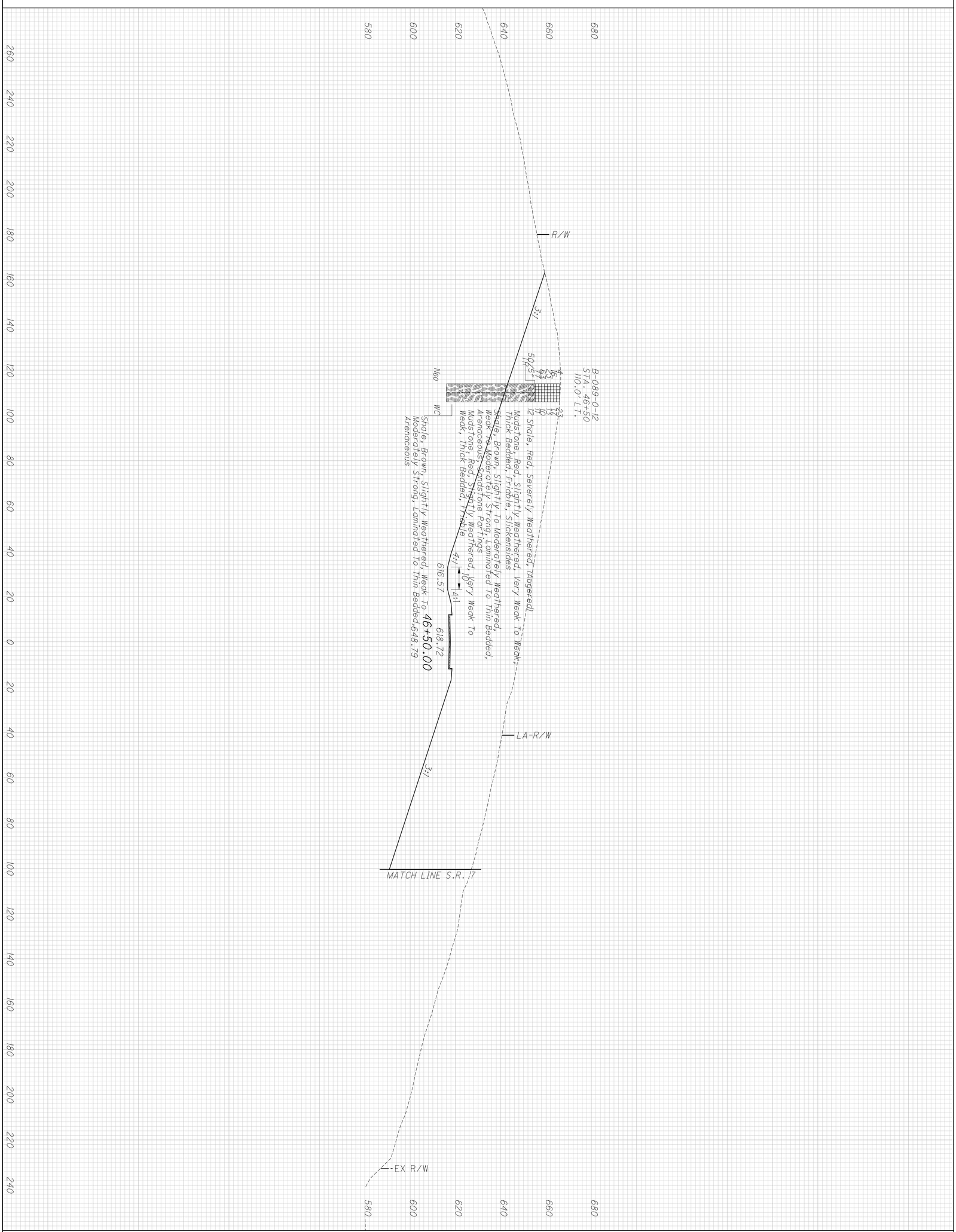


1185 / 1247	144/206	**LAW-7-2.17**	**CROSS SECTION - C.R. 69** **STATION 46+50.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET

FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 60-61
FOR C.R. 69 PLAN & PROFILE, SEE SHEETS 138-141

U:\173608714\LAW\75923\geotechnical\sheets\CR 118\75923IP001.dgn 7/19/2024 10:08:17 AM M.Jennings

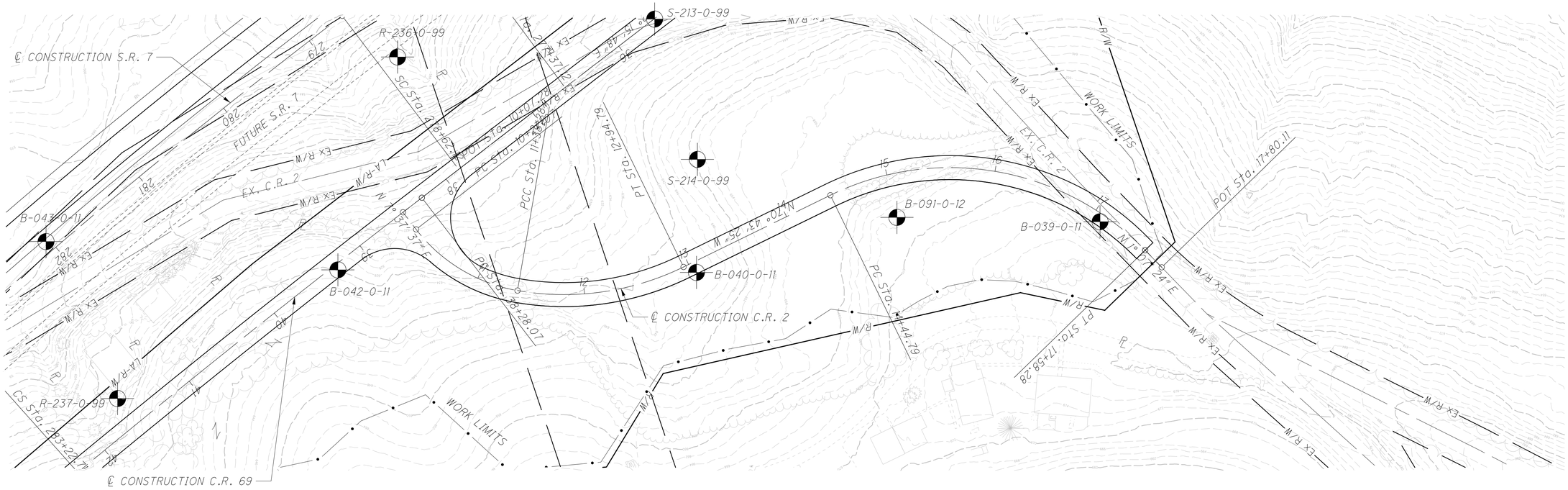
N

0 25 50 100
HORIZONTAL
SCALE IN FEET

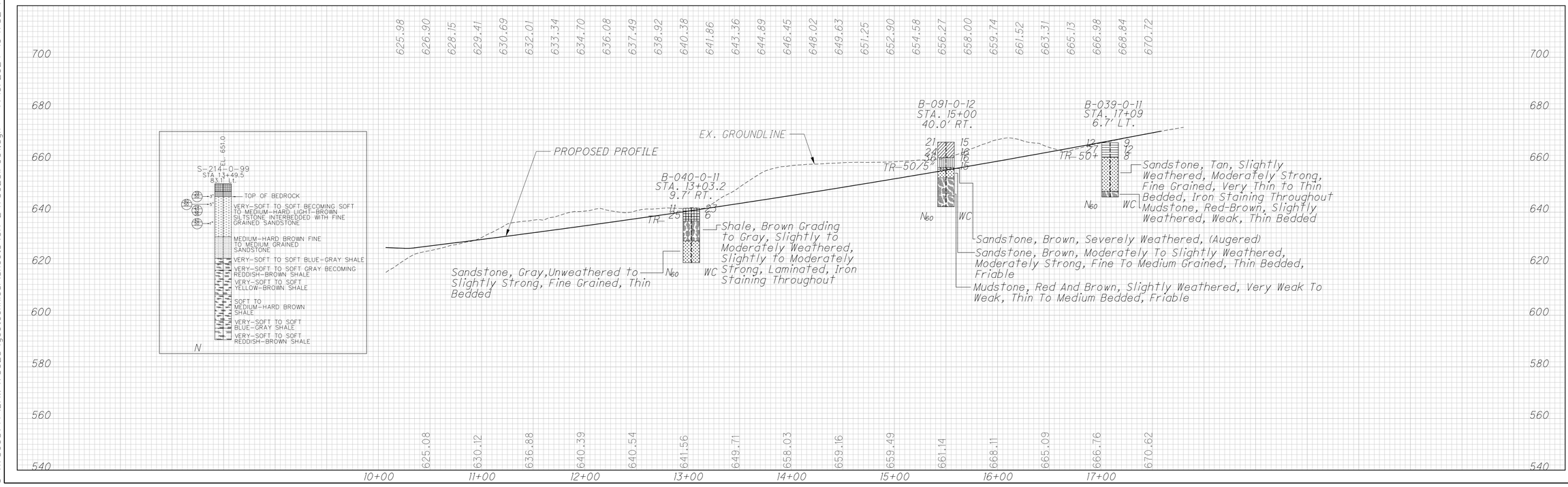
DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
C.R. 118 - STA. 10+00 - 14+76.01

LAW-7-2.17



FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 60-61
FOR C.R. 69 PLAN & PROFILE, SEE SHEETS 138-141



SOIL PROFILE - ROADWAY
C.R. 2 STA. 10+07.28 - 17+58.28

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN MSJ
CHECKED EMK

LAW-7-2.17

146/206

1187
1247

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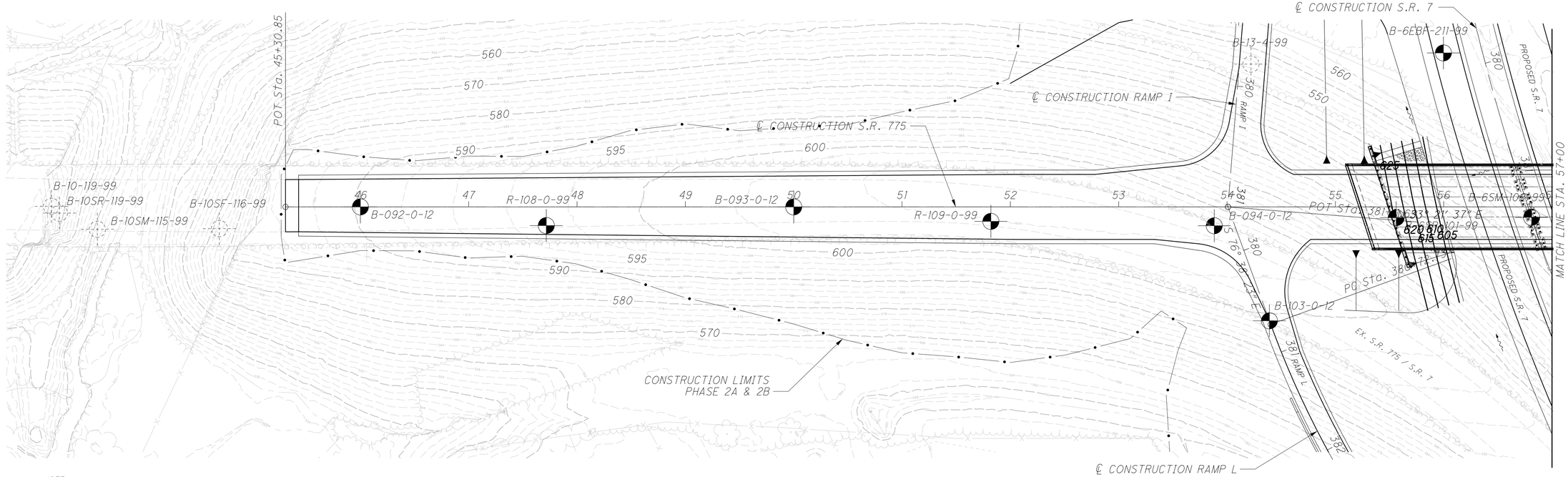
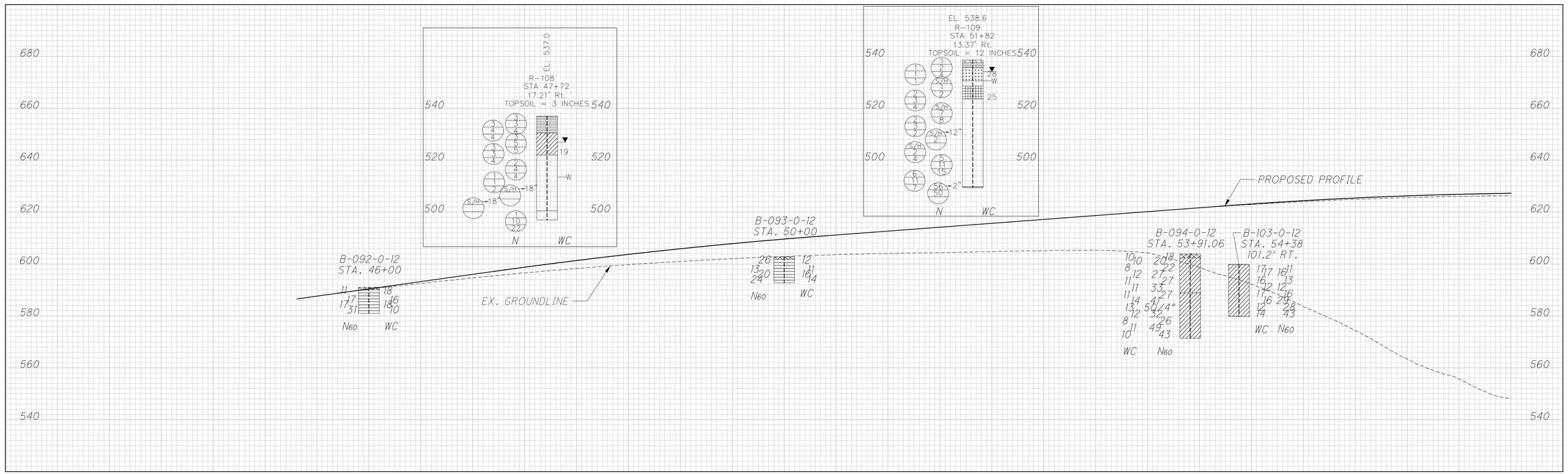


NOTE:
Borings B-10-99 Shown on Plan View are From Previous Exploration Law 7-7.25 By BBCM Dated 10/30/2000. All Available Data is Shown Which Was Available From Those Reports.

FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 70-71
FOR S.R. 775 BRIDGE LAW-775-1.05, SEE SHEET 151
FOR RAMP I PLAN AND PROFILE, SEE SHEET 125
FOR RAMP L PLAN AND PROFILE, SEE SHEET 134



SOIL PROFILE - ROADWAY
S.R. 775 - STA. 45+42.93 - 55+00.00

LAW-7-2.17

147/206

1188/1247

DRAWN MSJ CHECKED EMK

HORIZONTAL SCALE IN FEET
0 25 50 100

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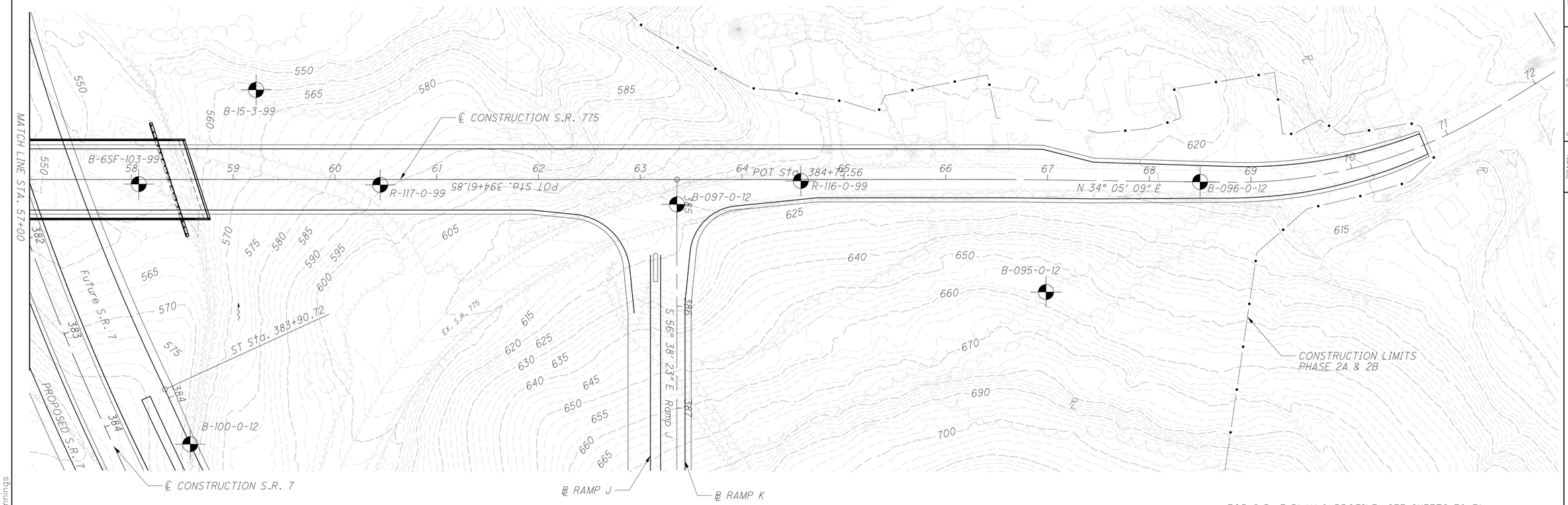
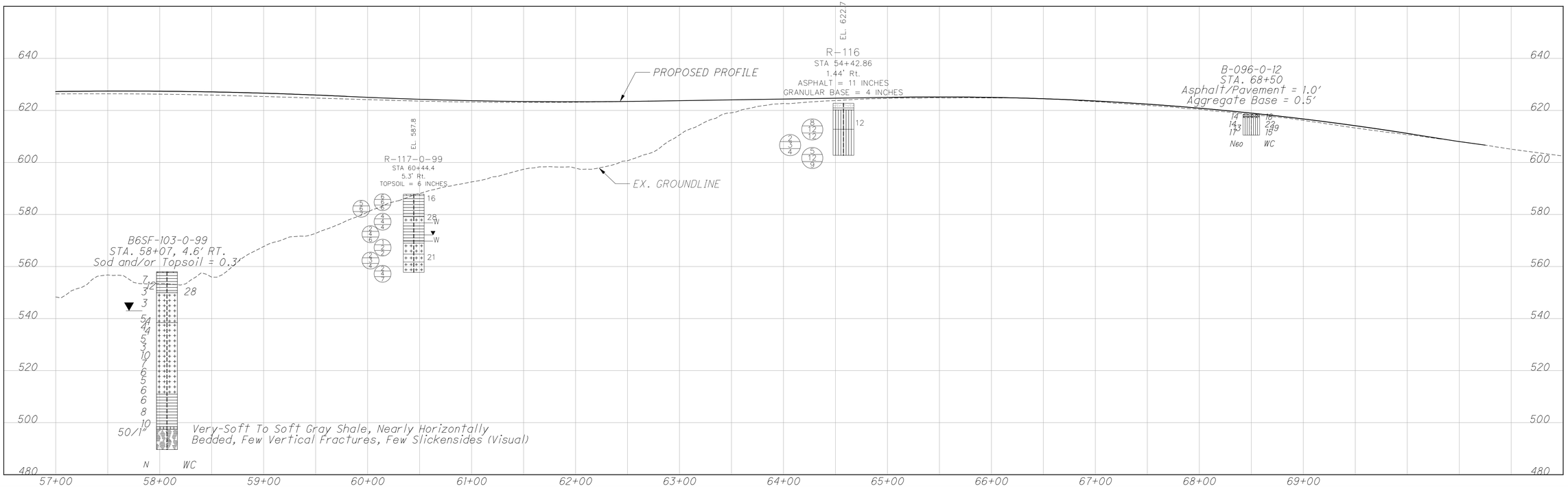


FOR S.R. 7 PLAN & PROFILE, SEE SHEETS 70-71
FOR S.R. 775 BRIDGE LAW-775-1.05, SEE SHEET 151
FOR RAMP J PLAN AND PROFILE, SEE SHEET 128
FOR RAMP K PLAN AND PROFILE, SEE SHEET 129



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN MSJ
CHECKED EMK

SOIL PROFILE - ROADWAY
S.R. 775 - STA. 57+00 - 70+45.38

LAW-7-2.17

148/206

1189
1247

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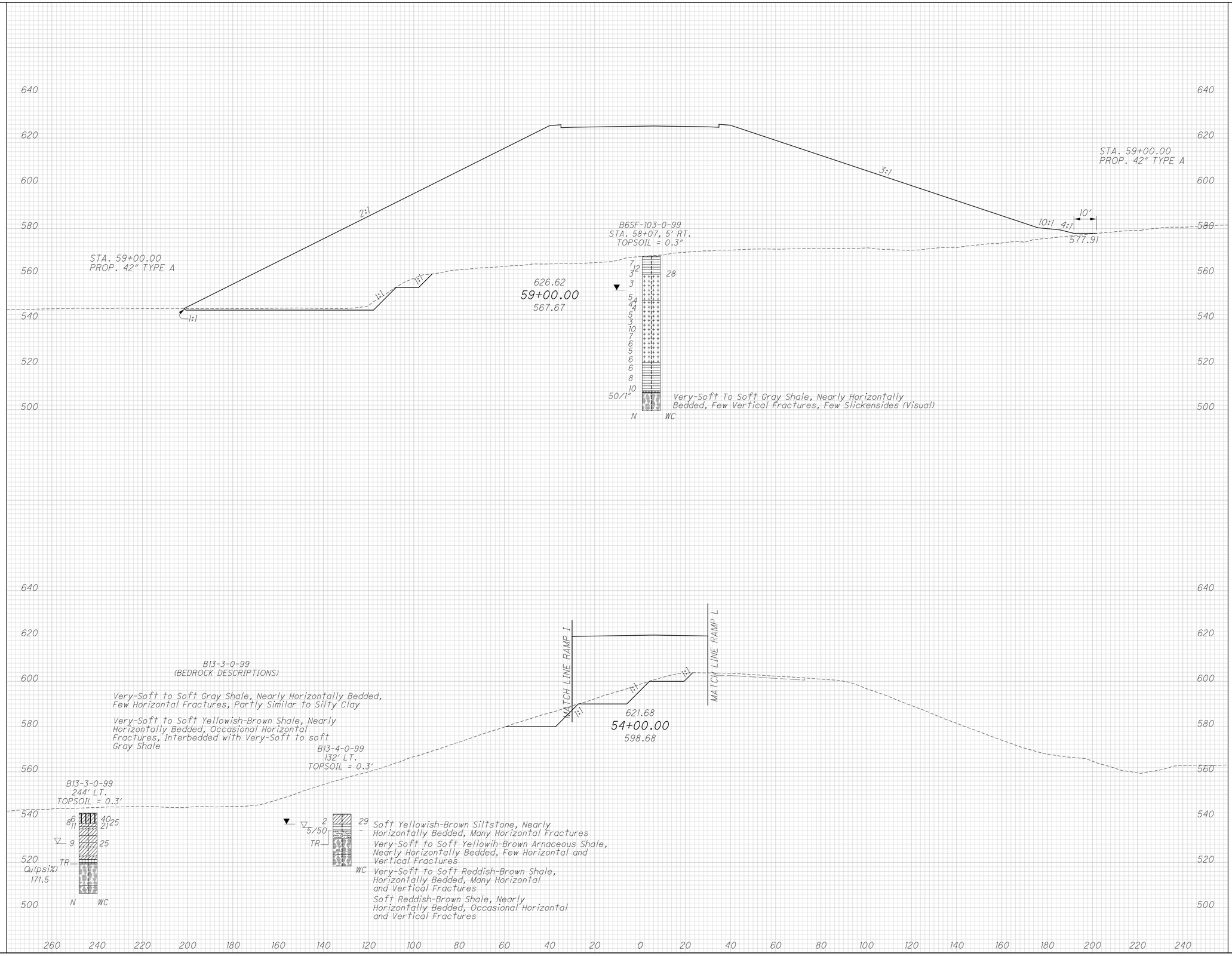

0 10 20 40
HORIZONTAL
SCALE IN FEET

DRAWN MSJ
CHECKED EMK

CROSS SECTIONS - S.R. 775
STATIONS 54+00.00 & 59+00.00

LAW-7-2.17

149/206

1190
1247

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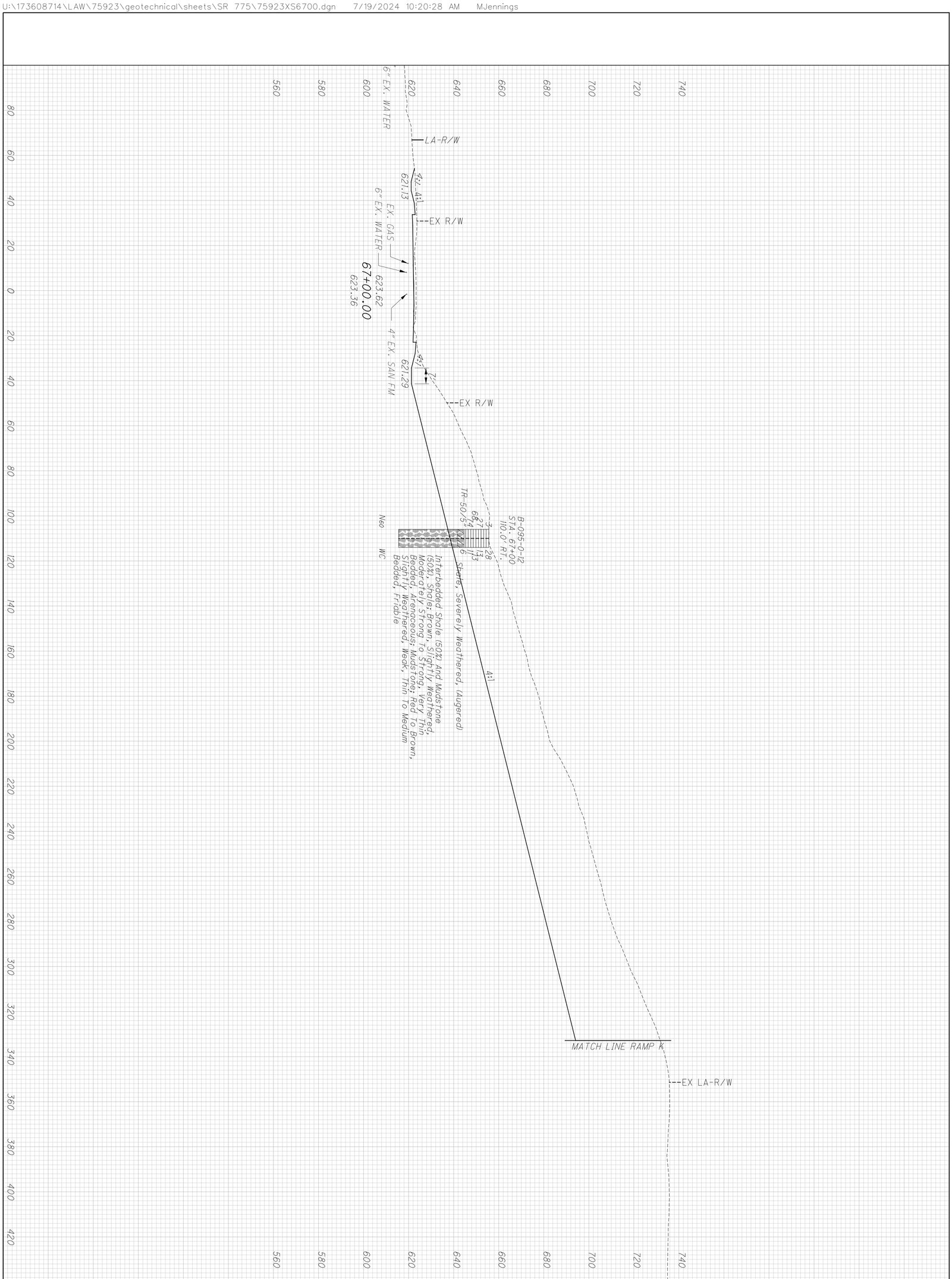
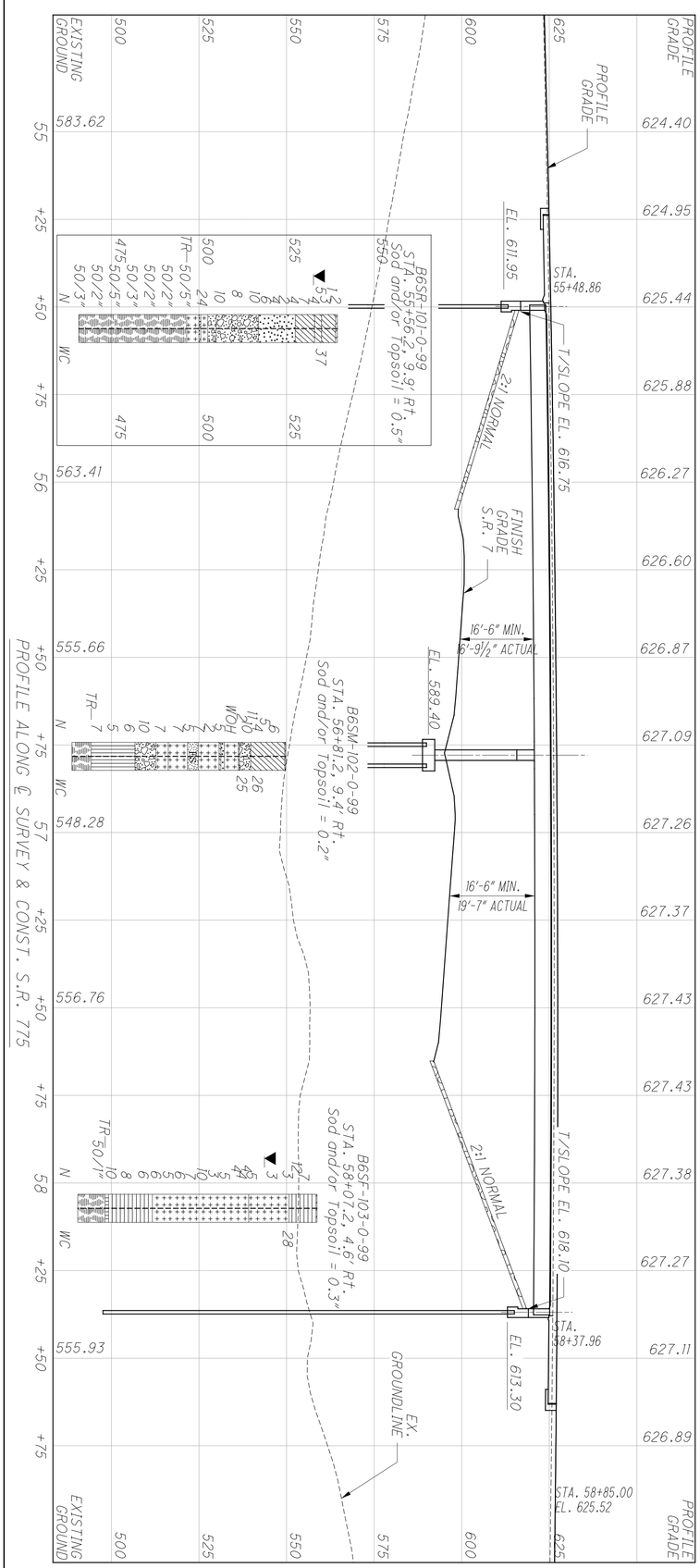
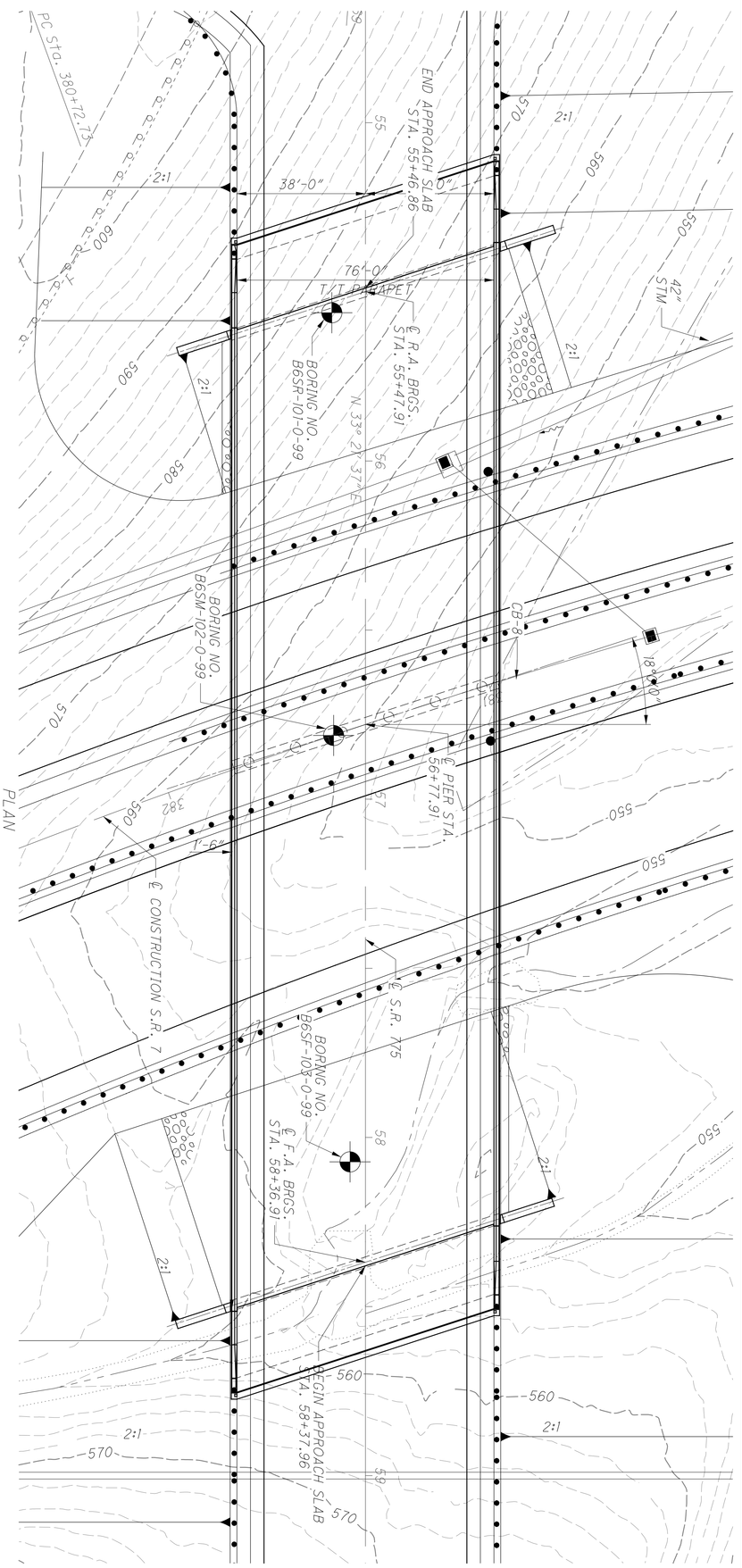


1191 / 1247	150/206	**LAW-7-2.17**	**CROSS SECTION - S.R. 775** **STATION 67+00.00**	DRAWN MSJ CHECKED EMK 0 20 10 40 HORIZONTAL SCALE IN FEET

BRIDGE NO. B-14





1192 / 1247	151 / 206	**LAW-7-2.17**	**STRUCTURE FOUNDATION EXPLORATION** **LAW-775-01.05** **S.R. 775 OVER S.R. 7**	DRAWN MSJ CHECKED EMK	0 25 50 12.5 HORIZONTAL SCALE IN FEET

BRIDGE-LAW-7-02.51: STA. 132+20.7, 1.2' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-02.51

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-1BP1
LAW-7 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 132+20.7, 1.2' Lt. of Proposed SR7 Centerline
COMPLETION DEPTH: 93.1' ELEVATION: 578.1 DATE: 11/9/98 11/10/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 1 INCH
	1	4/12/12	4.5+									Hard light-brown mottled with gray silty clay, trace fine to coarse sand, contains few silt seams, desiccated.
5	2	11/13/14	4.5+	15	51	23	0	1	1	49	49	
	3	10/14/16	4.5+									A-7-6(17)
	4	12/14/12		10								Medium-dense brown silt, little fine sand. Est. A-4b
10	5	8/9/9	4.5+									Hard light-brown silty clay, interbedded with silt, trace fine sand, desiccated. Est. A-6b
	6	8/9/9										Medium-dense brown silt, interbedded with silty clay, trace fine sand.
15	7	10/11/10										
	8	10/11/10		16								Est. A-4b
20												
	9	8/9/9	4.25-4.5									Hard brown mottled with gray silty clay, contains silt seams, slightly desiccated. Est. A-6b
25												
	10A	8/11/11	4.5+									Hard brown silty clay, interbedded with silt and fine sand, desiccated.
30	10B		4.5+									Est. A-6b
	11	6/9/8	4.5+	10	38	26	0	0	3	36	61	Hard brown silty clay, slightly desiccated, few traces of iron oxide staining, contains silt seams. A-6a(9)
35												

WATER LEVEL: ▽
WATER NOTE: Caved at 22.0'
DATE: 11/10/98

JOB: 6405.1 -CONTINUED- PLATE 5

LAW-7-02.51

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-1BP1
LAW-7 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 132+20.7, 1.2' Lt. of Proposed SR7 Centerline
COMPLETION DEPTH: 93.1' ELEVATION: 578.1 DATE: 11/9/98 11/10/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
35												Hard brown silty clay, slightly desiccated, few traces of iron oxide staining, contains silt seams. A-6a(9)
	12	5/6/7	4.0-4.5+									Very-stiff to hard dark-brown mottled with gray silty clay, contains thin seams of silt.
40												
	13	6/7/8	3.75-4.5									Est. A-6b
45												
	14A	6/8/9	3.25-3.5	23								Very-stiff gray-brown silty clay, interbedded with very-thin seams of fine sand. Est. A-6b
	14B		4.5+									Very-stiff to hard gray-brown becoming gray silty clay, trace to little fine sand, few seams of gray silt.
50												
	15	5/6/6	3.0-3.5	24								
55												
	16	7/7/9	3.25-4.5									
60												
	17	5/7/7	2.5-4.0									
65												
	18	4/5/7	1.2-2.7	30	38	24						Est. A-6b
70												Stiff to very-stiff gray silty clay, few to many fine to medium sand seams, few silt seams. Est. A-6b

WATER LEVEL: ▽
WATER NOTE: Caved at 22.0'
DATE: 11/10/98

JOB: 6405.1 -CONTINUED- PLATE 6

LAW-7-02.51

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-1BP1
LAW-7 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 3

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 132+20.7, 1.2' Lt. of Proposed SR7 Centerline
COMPLETION DEPTH: 93.1' ELEVATION: 578.1 DATE: 11/9/98 11/10/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 1 INCH
	1	4/12/12	4.5+									Hard light-brown mottled with gray silty clay, trace fine to coarse sand, contains few silt seams, desiccated.
5	2	11/13/14	4.5+	15	51	23	0	1	1	49	49	
	3	10/14/16	4.5+									A-7-6(17)
	4	12/14/12		10								Medium-dense brown silt, little fine sand. Est. A-4b
10	5	8/9/9	4.5+									Hard light-brown silty clay, interbedded with silt, trace fine sand, desiccated. Est. A-6b
	6	8/9/9										Medium-dense brown silt, interbedded with silty clay, trace fine sand.
15	7	10/11/10										
	8	10/11/10		16								Est. A-4b
20												
	9	8/9/9	4.25-4.5									Hard brown mottled with gray silty clay, contains silt seams, slightly desiccated. Est. A-6b
25												
	10A	8/11/11	4.5+									Hard brown silty clay, interbedded with silt and fine sand, desiccated.
30	10B		4.5+									Est. A-6b
	11	6/9/8	4.5+	10	38	26	0	0	3	36	61	Hard brown silty clay, slightly desiccated, few traces of iron oxide staining, contains silt seams. A-6a(9)
35												

WATER LEVEL: ▽
WATER NOTE: Caved at 22.0'
DATE: 11/10/98

JOB: 6405.1 -CONTINUED- PLATE 5

DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
LAW-7-02.51

LAW-7-2.17

152/206

1193/1247

BRIDGE-LAW-7-02.51: STA. 133+30, 60.0' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-02.51

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B1EBI-201
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 133+30, 60' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 38.0' ELEVATION: 526.0 DATE: 4/4/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													Very-soft to soft brown silty clay, trace fine to coarse sand, trace fine gravel, slightly organic. Est. A-6a
5	1		2/3/5	2.5-3.25									Stiff to very-stiff brown mottled with gray silty clay, trace fine to coarse sand, slightly organic, many silt seams.
	2		2/2/5	2.0-3.5	27	36	23	0	1	4	95		
	3		2/3/4	2.0-3.5									
10	4		3/4/6	2.5-3.75				0	0	2	53	45	
	5		2/4/5	2.5-3.0				0	0	2	48	50	
	6		2/3/4	1.5-2.75				0	0	4	46	50	
15	7		2/2/4	1.0-1.75				0	0	3	49	48	A-6a (9)
	8		2/4/4										Very-loose becoming medium-dense brown and gray fine to medium sand, trace coarse sand, trace to little silt, few seams of gray silty clay.
20	9		1/1/2					0	18	65	17		
	10		4/4/5										
25	11		4/5/5										
	12		4/5/5										
30	13		4/6/5										A-3a (0)
	14		NXM REC 97% RQD 73%										Medium-hard gray fine to medium-grained sandstone, interbedded with siltstone, well cemented, nearly horizontally bedded, few horizontal fractures.
35													Visual
													-Encountered water at 18'
40													
45													

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 01106405.002

PLATE 8

BRIDGE-LAW-7-02.51: STA. 134+58.6, 4.6' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-02.51

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-1BP2
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 134+58.6, 4.6' Lt. of Proposed SR 7 Centerline, Metric
COMPLETION DEPTH: 42.5' ELEVATION: 523.6 DATE: 11/10/98

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													TOPSOIL - 1 INCH
	1		3/3/2	1.75-3.5									Stiff to very-stiff brown silty clay, little fine to medium sand, contains many seams and lenses of fine to medium sand, few roots. Est. A-6a
5	2		2/1/1										Very-loose brown fine to medium sand, little clayey silt, few zones of clayey silt interbedded with fine to medium sand, partly organic. Est. A-3a
	3		1/1/1	0.5-1.0									Medium-stiff to stiff dark-gray organic silty clay, interbedded with fine to medium sand, contains decayed vegetation. Visual
10	4		1/1/1					4	44	35	17		Very-loose gray fine to medium sand, trace coarse sand, little clayey silt, contains wood fragments. A-3a(0)
	5A		2/3/5	1.0	22			7	61	23	3	6	
	5B				29	31	23	0	1	8	54	37	Very-loose gray fine to medium sand, trace coarse sand, trace clayey silt. A-1-b(0)
	5C		2/3/4										
	6							1	14	78	7		Stiff gray clayey silt, trace fine to medium sand, slightly organic. Est. A-4b
	7A		2/2/2					0	23	74	3		
20	7B			0.75									Loose gray fine sand, little to some medium to coarse sand, trace silt, slightly organic. A-3(0)
	8A			1.0									
	8B		2/3/4					2	33	52	9	4	Medium-stiff to stiff organic silty clay, trace fine sand, contains silt and fine sand seams. Visual
	9		5/8/8										Loose to medium-dense dark-gray becoming gray fine to medium sand, trace coarse sand, little clayey silt, trace fine gravel, slightly organic. A-3a(0)
25	10*		9/4/9										
	11#		9/14/10	1.5									Stiff gray silty clay, interbedded with fine to medium sand, slightly organic. Est. A-6a
30	12**		8/8/10										Medium-dense gray fine to medium sand, little clayey silt. Est. A-1-b
	13		40-5"R NXM REC 100% RQD 39%	4.5+									Very-soft to soft gray siltstone. Medium-hard gray siltstone, nearly horizontally bedded, contains many diagonal fractures and fractures along bedding planes, few seams of shale. Visual
35	14												

WATER LEVEL: 9.3
WATER NOTE:
DATE: 11/10/98

JOB: 6405.1

-CONTINUED-

PLATE 9

LAW-7-02.51

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-1BP2
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 134+58.6, 4.6' Lt. of Proposed SR 7 Centerline, Metric
COMPLETION DEPTH: 42.5' ELEVATION: 523.6 DATE: 11/10/98

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
40	15		REC 100% RQD 75%										DESCRIPTION - CONTINUED
													Medium-hard gray shale, nearly horizontally bedded, contains few fractures along bedding planes. Visual
45													- Encountered water at 12.5'. - Encountered auger refusal at 32.0'. - * Blowin during driving. - # 3' of blow-in ("heave") - cleaned out prior to sampling - ** 1' of blow-in ("heave") - cleaned out before blow counts.
50													
55													
60													
65													
70													
75													

WATER LEVEL: 9.3
WATER NOTE:
DATE: 11/10/98

JOB: 6405.1

PLATE 10

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-02.51

LAW-7-2.17

BRIDGE-LAW-7-02.51: STA. 135+60, 35.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-02.51

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B1WBF-202
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel

LOCATION: Sta. 135+60, 35' Lt. of Proposed SR 7 Centerline

COMPLETION DEPTH: 40.0' ELEVATION: 524.0 DATE: 4/3/00

DEPTH, FEET	SAMPLE NO.	SAMPLING EFFORT	HAND PENETROMETER (tsf)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 7 INCHES
	1	2/3/4	0.75-1.75	26	36	24	0	1	20	79		Medium-stiff to stiff brown silty clay, trace fine to medium sand, few silt seams. A-6a (9)
5	2	2/2/2										Very-loose to loose brown and gray fine to medium sand, some to "and" clayey silt, contains decayed wood fragments, slightly organic. Est. A-4a
	3	2/1/1										
10	4	1/1/2										Very-loose to loose brown and gray fine to coarse sand, trace to little clayey silt, trace fine gravel, contains decayed wood fragments, slightly organic.
	5	1/2/3										
	6	2/3/2					4	58	33	5		
15	7	2/1/3										
	8	3/2/2										
20	9	4/5/5										
	10	5/5/5										
25	11	5/5/4										A-1-b (0)
	12	1/2/1	0.5-1.25									Medium-stiff to stiff gray clayey silt, some fine to medium sand. Est. A-4a
30	13	S/H-12"/2										Very-loose gray and brown fine to coarse sand, trace fine to coarse gravel, trace silt. Est. A-3a
35	14	50-0"R NXM REC 90% RQD 83%										Medium-hard to hard gray fine-grained sandstone, nearly horizontally bedded, well cemented, few diagonal fractures, vertical fracture at 38.0'. Visual
40												Medium-hard gray shale, interbedded with siltstone, nearly horizontally bedded, well cemented, few horizontal fractures. Visual
												-Encountered water at 11.5'
45												

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 01106405.002

PLATE 11

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-02.51

LAW-7-2.17

PROJECT: LAW - 7 - 2.17	DRILLING FIRM / OPERATOR: HORN / T.L.	DRILL RIG: CME 55 TRACK	STATION / OFFSET: 196+24, 100 LT	EXPLORATION ID B-009-1-12
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: HORN / T.L.	HAMMER: CME AUTOMATIC	ALIGNMENT: MAINLINE	
PID: 75923 BR ID:	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 4/30/13	ELEVATION: 565.5 (MSL) EOB: 58.7 ft.	PAGE 1 OF 1
START: 5/1/13 END: 5/1/13	SAMPLING METHOD: SPT/ST/NQ	ENERGY RATIO (%): 85.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
MEDIUM STIFF, BROWN, **SANDY SILT**, SOME CLAY, TRACE TO NO GRAVEL, MOIST	565.5		1	4	100	SS-1	-	-	-	-	-	-	-	-	-	21	A-4a (V)	
		2.5	WOH	0	100	SS-2	-	0	0	29	44	27	29	19	10	23	A-4a (7)	
		5.0	3	6	100	SS-3	-	-	-	-	-	-	-	-	-	24	A-4a (V)	
		7.5			92	ST-4	-	12	14	27	27	20	27	17	10	10	A-4a (2)	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, AND SAND, TRACE GRAVEL, DAMP TO MOIST	556.0	10.0	5	30	100	SS-5	-	-	-	-	-	-	-	-	-	13	A-6a (V)	
		12.5			100	ST-6	-	9	14	28	23	26	28	16	12	-	A-6a (3)	
		15.0	4	26	100	SS-7	-	-	-	-	-	-	-	-	-	17	A-6a (V)	
		17.5	6	19	100	SS-8	-	-	-	-	-	-	-	-	-	19	A-6a (V)	
VERY STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, MOIST	546.0	20.0			100	ST-9	-	0	1	16	38	45	35	17	18	-	A-6b (11)	
		22.5	4	21	100	SS-10	-	-	-	-	-	-	-	-	-	21	A-6b (V)	
		25.0	4	16	100	SS-11	-	-	-	-	-	-	-	-	-	24	A-6b (V)	
		27.5	4	19	100	SS-12	-	-	-	-	-	-	-	-	-	20	A-6b (V)	
		30.0	3	10	100	SS-13	-	-	-	-	-	-	-	-	-	18	A-6b (V)	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, LITTLE SILT AND CLAY, WET	533.5	W 32.5	6	20	100	SS-14	-	0	1	74	14	11	NP	NP	NP	25	A-3a (0)	
		35.0	4	14	100	SS-15	-	-	-	-	-	-	-	-	-	23	A-3a (V)	
		37.5																
		40.0	3	23	100	SS-16	-	-	-	-	-	-	-	-	-	22	A-3a (V)	
		42.5																
	520.2	TR 45.0	6	43	100	SS-17	-	-	-	-	-	-	-	-	-	17	Rock (V)	
MUDSTONE, BROWN, SEVERELY WEATHERED, (AUGERED).	516.8	47.5																
MUDSTONE, GRAY AND BROWN, SLIGHTLY WEATHERED, WEAK, THIN BEDDED, GRAY SANDSTONE SEAM 51.3' - 52.2', COAL SEAM 55.5' - 55.9'; RQD 8%, REC 94%.		50.0		17	90	NQ-1											CORE	
		52.5																
		55.0		0	98	NQ-2											CORE	
	506.8	EOB 57.5																

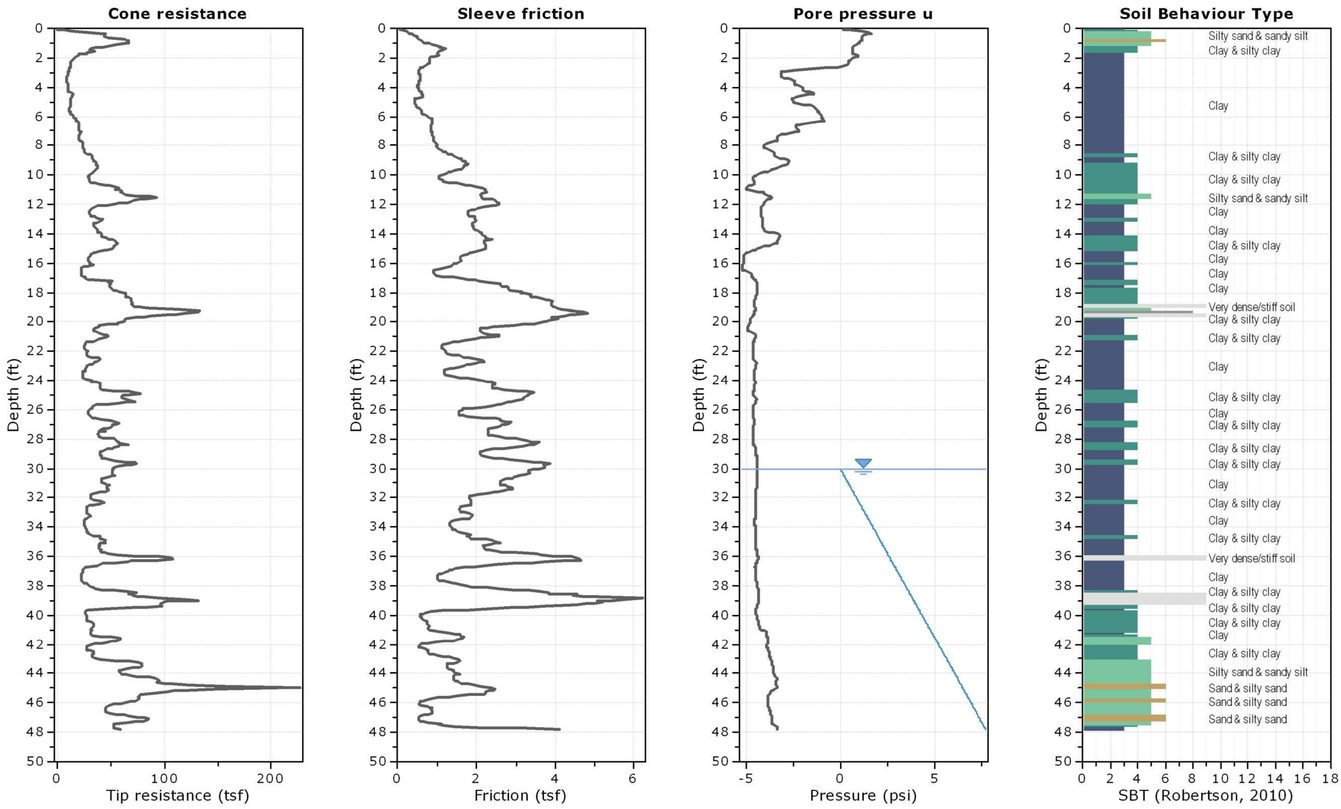
NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES:TREMIED 100 GAL. BENTONITE GROUT

Office of Geotechnical Engineering
Geology, Exploration and, Laboratory Section
http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical

Project: LAW-7-2.17
Location: Lawrence County

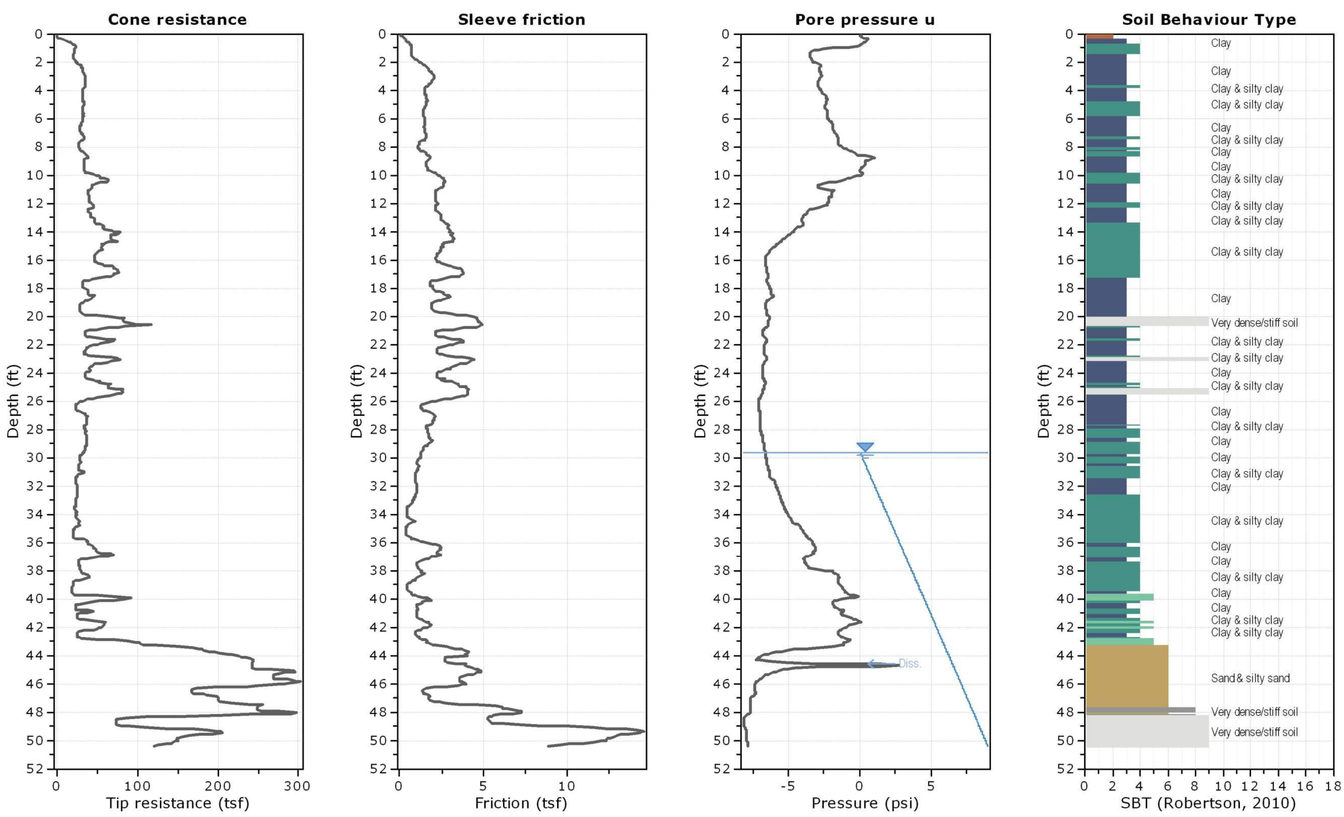
CPT: C-009-2-21
Total depth: 47.80 ft, Date: 11/8/2021
Surface Elevation: 562.5 ft
Coords: lat 38.447334° lon -82.436009°



Office of Geotechnical Engineering
Geology, Exploration and, Laboratory Section
http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical

Project: LAW-7-2.17
Location: Lawrence County

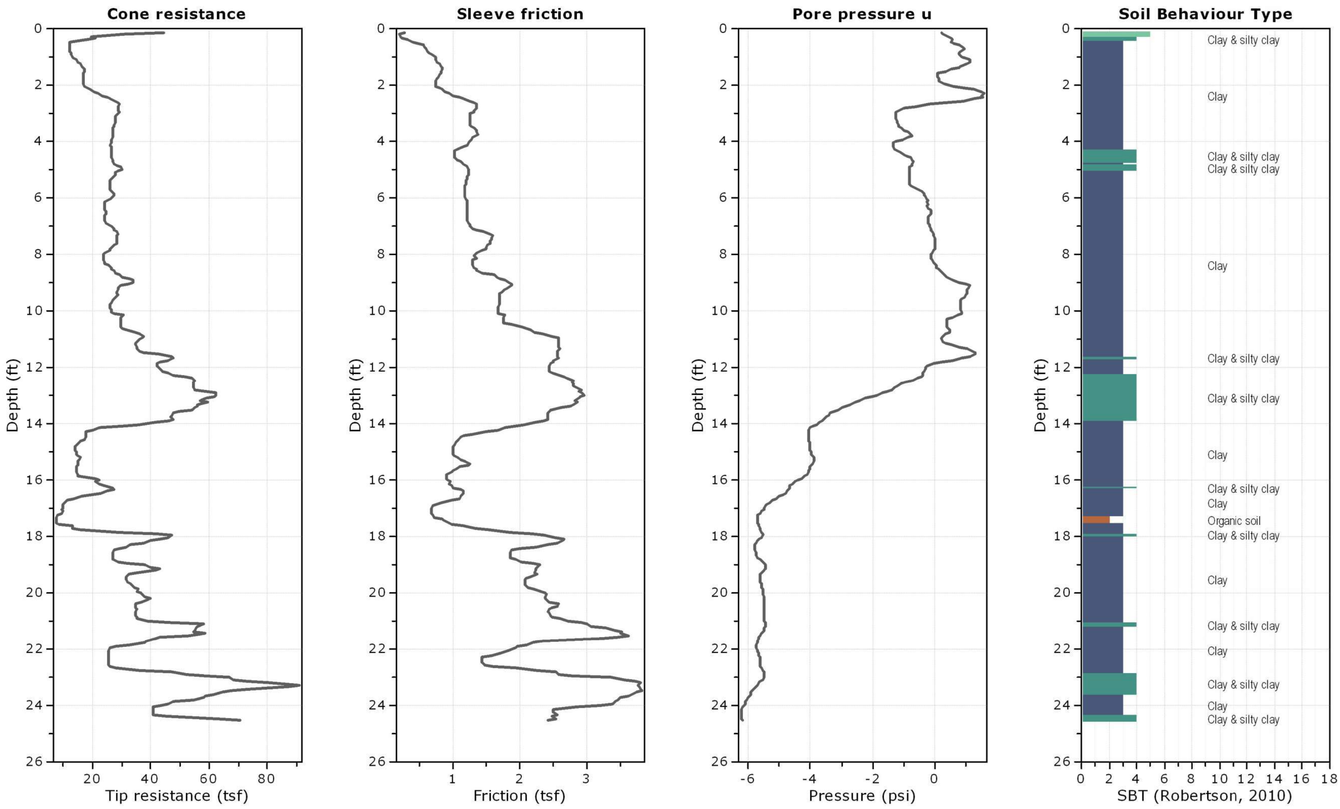
CPT: C-009-3-21
Total depth: 50.36 ft, Date: 11/8/2021
Surface Elevation: 562.0 ft
Coords: lat 38.447604° lon -82.436058°



Office of Geotechnical Engineering
Geology, Exploration and, Laboratory Section
http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical

CPT: C-009-4-21
Total depth: 24.52 ft, Date: 11/8/2021
Surface Elevation: 562.8 ft
Coords: lat 38.447618° lon -82.436062°

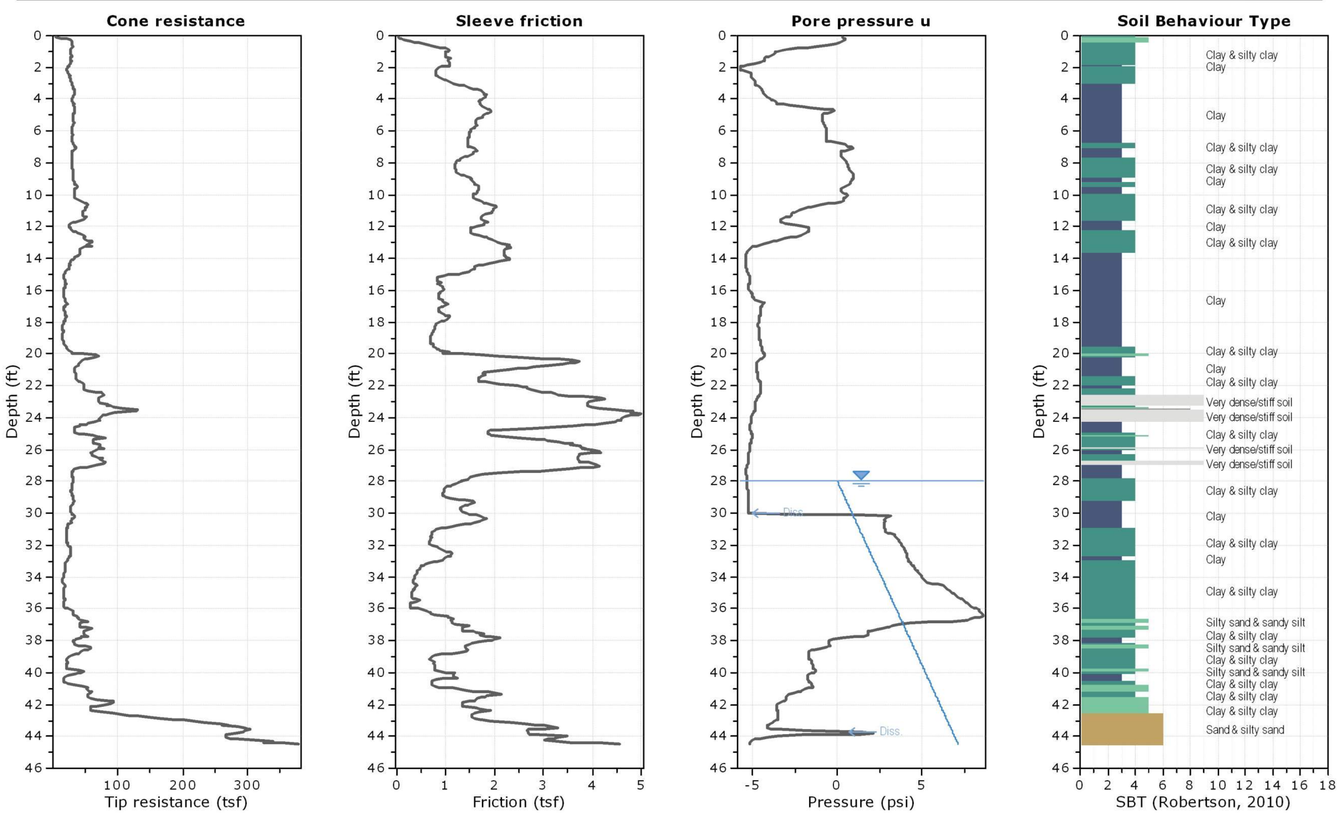
Project: LAW-7-2.17
Location: Lawrence County



Office of Geotechnical Engineering
Geology, Exploration and, Laboratory Section
http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical

CPT: C-009-5-21
Total depth: 44.51 ft, Date: 11/8/2021
Surface Elevation: 562.5 ft
Coords: lat 38.447588° lon -82.436053°

Project: LAW-7-2.17
Location: Lawrence County



BRIDGE-LAW-7-3.70: STA. 195+10, 40.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-3.70

BBCM

LOG OF BORING NO. B16-314
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 3-7/8" Tricone Bit w/ Drilling Mud; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 195+10, 40' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 63.5' ELEVATION: 577+/- DATE: 5/1/02 - 5/2/02

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											EXISTING GRAVEL DRIVEWAY - 1 INCH
	1	2/4/5	2.6-4.5								Very-stiff to hard brown mottled with gray silty clay, trace to little fine to coarse sand, trace fine gravel, contains few silt lenses, desiccated.
5	2	4/6/9	3.7-4.5								
	3	10/12/13	4.5+	22	40	24	0	0	1	33 / 66	A-6b (10)
10	4	12/16/15	4.2-4.5								
	5	3/6/9	4.5+								Very-stiff to hard brown silty clay, trace to little fine to coarse sand, trace fine gravel, contains silt lenses.
15	6	6/7/8	4.5+								
	7	5/7/10	3.0-4.5								Est. A-6b
20	8	4/6/8	2.7-4.5+								Very-stiff to hard reddish-brown silty clay, little to some fine to coarse sand, trace fine to coarse gravel.
	9	7/13/14	2.3-4.5								
25	10	5/8/11	3.0-3.7								Est. A-6a
	11	5/9/10	2.3-3.6								Very-stiff reddish-brown mottled with dark-gray silty clay, some fine to coarse sand, trace to little fine to coarse gravel, contains few sand pockets, few cobbles.
30 ▽											
	12	10/10/14	2.2-2.7	16	31	18	15	12	32	19 / 22	A-6a (2)
35											

WATER LEVEL: ▽ 30.0
WATER NOTE: Before Mud Rotary
DATE: 5/02/02

JOB: 01106405.002

-CONTINUED-

PLATE 5

ODOTLI 16405002.GPJ BBCM.GDT 9/9/02

LAW-7-3.70

BBCM

LOG OF BORING NO. B16-314
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 3-7/8" Tricone Bit w/ Drilling Mud; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 195+10, 40' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 63.5' ELEVATION: 577+/- DATE: 5/1/02 - 5/2/02

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
35											Very-stiff reddish-brown mottled with dark-gray silty clay, some fine to coarse sand, trace to little fine to coarse gravel, contains few sand pockets, few cobbles.
	13	5/9/11	2.0-2.9								A-6a (2)
40											Stiff to very-stiff reddish-brown silty clay interbedded with many seams and pockets of fine to medium sand, trace fine to coarse gravel.
45	14	6/6/10	1.5-2.2								
	15	3/7/17	2.0-2.7								Est. A-6a
50											Hard reddish-brown mottled with gray and brown silty clay, similar to very soft shale, little fine to coarse sand, trace fine gravel.
	16	12/21/34	4.5+								
55		50-0"R NX REC 87% RQD 83%									Visual
60	17										Soft to medium-hard gray shale interbedded with siltstone, nearly horizontally bedded, few diagonal fractures.
											Visual
65											- No seepage or groundwater encountered before switching to mud rotary at 17.5'.
70											

WATER LEVEL: ▽ 30.0
WATER NOTE: Before Mud Rotary
DATE: 5/02/02

JOB: 01106405.002

PLATE 6

ODOTLI 16405002.GPJ BBCM.GDT 9/9/02

DRAWN M.S.J.
CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-3.70

LAW-7-2.17

BRIDGE-LAW-7-3.70: STA. 195+61, CENTERLINE of PROPOSED SR 7

LAW-7-3.70

BBCM

LOG OF BORING NO. B16-315
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 195+61, Centerline of Proposed SR 7 Centerline
COMPLETION DEPTH: 55.0' ELEVATION: 566+/- DATE: 5/2/02 - 5/3/02

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													EXISTING GRAVEL DRIVEWAY - 1 INCH
	1		4/4/4	3.4-4.3									Very-stiff to hard brown mottled with gray silty clay, little to some fine to coarse sand, trace fine to coarse gravel, contains few fine to medium sand seams, desiccated, contains few roots.
5	2		4/5/7	2.1-2.9									Est. A-6b
	3		5/7/10	2.4-4.5									Very-stiff to hard brown mottled with reddish-brown silty clay, some to "and" fine to coarse sand, trace fine gravel.
10	4		13/15/17	3.2-4.5									
	5		6/7/13	3.5-4.5+	13	31	18	15	8	25	25	27	A-6a (5)
15	6		9/10/12										Medium-dense brown and reddish-brown fine to coarse sand, "and" silty clay, trace fine gravel.
	7		10/13/13										Est. A-1-b
20	8		4/5/11	2.4-3.7									Very-stiff reddish-brown mottled with gray silty clay, little to some fine to coarse sand, trace fine to coarse gravel.
	9		3/4/6	2.4-3.1	20	35	19	0	1	17	37	45	
25	10		4/4/7	1.5-3.5									A-6b (10)
	11		3/5/7	2.9-3.1									Very-stiff reddish-brown mottled with brown and gray silty clay, little becoming "and" fine to coarse sand, trace fine to coarse gravel, contains few fine sand and silt lenses.
30													
	12		5/5/5	1.4-3.8									Est. A-6a
35													

WATER LEVEL: ▽ 34.0
WATER NOTE: Before Rock Coring
DATE: 5/03/02

JOB: 01106405.002

-CONTINUED-

PLATE 7

ODOTLJ 16405003.GPJ BBCM.GDT 5/9/02

LAW-7-3.70

BBCM

LOG OF BORING NO. B16-315
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 195+61, Centerline of Proposed SR 7 Centerline
COMPLETION DEPTH: 55.0' ELEVATION: 566+/- DATE: 5/2/02 - 5/3/02

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
35													Very-stiff reddish-brown mottled with brown and gray silty clay, little becoming "and" fine to coarse sand, trace fine to coarse gravel, contains few fine sand and silt lenses.
	13		2/3/5					0	1	78	21		Est. A-6a
40													Loose to medium-dense brown fine to medium sand, trace coarse sand, little to some silt, trace clay.
	14		5/6/7										A-3a (0)
45													Hard reddish-brown mottled with gray silty clay, little fine to coarse sand, trace fine to coarse gravel, similar to very-soft shale. Visual
	15A		4/7/50	4.5+									Soft gray fine-grained sandstone fragments.
50	15B		NX REC 82% RQD 51%										Visual
	15C												Soft to medium-hard reddish-brown and light-gray shale, nearly horizontally bedded, few diagonal and vertical clay filled fractures.
	16												Visual
55													
60													- Encountered seepage from 38.5' to 45.0'.
													- Lost partial water circulation below 52.0' while rock coring.
65													
70													

WATER LEVEL: ▽ 34.0
WATER NOTE: Before Rock Coring
DATE: 5/03/02

JOB: 01106405.002

PLATE 8

ODOTLJ 16405003.GPJ BBCM.GDT 5/9/02

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-3.70

LAW-7-2.17

159/206

1200/1247

BRIDGE-LAW-7-3.70: STA. 195+76, 98.0' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-3.70

LOG OF BORING NO. B-2BP1
LAW-7, PRELIMINARY SUBSURFACE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock-core Barrel
LOCATION: Sta. 195+76, 98' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 66.5' ELEVATION: 567.6(ft) DATE: 10/29/98

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 4 INCHES
	1		5 /7/9	4.5+								Hard brown mottled with gray silty clay, little fine to coarse sand, trace fine gravel. Est. A-7-6
5	2		5 /7/8	4.5+								Hard brown becoming brown mottled with gray silty clay, trace fine to coarse sand.
	3		4 /5/7	4.5+	22	44	23	0	1	5	24 / 70	A-7-6(13)
10	4		5 /7/10	4.5+								
	5		5 /5/9	4.5+	25							Medium-dense brown fine to coarse sand, some clayey silt, little fine to coarse gravel. A-2-4(0)
15	6		4 /6/8	4.5+								
	7		7 /7/7		13	24	17	26	12	28	14 / 20	Very-stiff to hard brown mottled with dark-brown silty clay, trace fine sand, contains silt seams and lenses. Est. A-7-6
20	8		4 /6/8	3.2-4.2								
25	9		3 /4/7	3.0-4.0	18							Very-stiff to hard brown mottled with gray silty clay, some fine to coarse sand, little becoming some fine to coarse gravel.
30	10		6 /7/10	4.5+								Est. A-6a
35												

WATER LEVEL: ▽ 19.2
WATER NOTE: After Rock Coring
DATE: 10/29/98

JOB: 01106405.001

-CONTINUED-

PLATE 9

ODOTLI 16405001.GPJ BBCM.GDT 9/9/02

LAW-7-3.70

LOG OF BORING NO. B-2BP1
LAW-7, PRELIMINARY SUBSURFACE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock-core Barrel
LOCATION: Sta. 195+76, 98' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 66.5' ELEVATION: 567.6(ft) DATE: 10/29/98

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
35	11		3 /6/11	2.5-2.75	14	29	17					Very-stiff to hard brown mottled with gray silty clay, some fine to coarse sand, little becoming some fine to coarse gravel. Est. A-6a
40	12		3 /4/7	2.7-3.2								Very-stiff brown mottled with gray silty clay, little fine to coarse sand, trace fine gravel. Est. A-7-6
45	13		7 /9/12	2.5-4.5+	17							Very-stiff to hard brown silty clay, "and" fine to coarse sand, little fine to coarse gravel. Est. A-6a
50	14		5 /13/12									Medium-dense brown fine to coarse gravel, some fine to coarse sand, little silty clay. Est. A-2-6
55	15		8 /21/33									Very-soft to soft gray weathered shale, nearly horizontally bedded, partly similar to hard silty clay. Visual
60	16		NXM REC 98% RQD 98% NXM REC									Medium-hard light-gray limestone, nearly horizontally bedded. Visual
			REC 93% RQD 57% REC									Very-soft gray weathered shale, nearly horizontally bedded, partly similar to hard silty clay, becoming carbonaceous with depth. Visual
65	17											Medium-hard black coal, nearly horizontally bedded. Visual
70												Very-soft to soft gray weathered shale, partly similar to silty clay, nearly horizontally bedded with many fractures. Visual
												- Encountered water at 52.5'.

WATER LEVEL: ▽ 19.2
WATER NOTE: After Rock Coring
DATE: 10/29/98

JOB: 01106405.001

PLATE 10

ODOTLI 16405001.GPJ BBCM.GDT 9/9/02

DRAWN M.S.J.
CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-3.70

LAW-7-2.17

BRIDGE-LAW-7-3.70: STA. 196+94, 12.0' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-3.70

BBCM

LOG OF BORING NO. B2EBP1-215
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 196+94, 12' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 51.0' ELEVATION: 552+/- DATE: 4/5/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 6 INCHES
												Very-stiff to hard brown silty clay, trace fine to coarse sand, trace fine to coarse gravel, slightly organic. Est. A-6a
5	1		3/5/10	3.0-4.25								
	2		8/15/20		11	27	19	7	24	33	36	Medium-dense to dense brown, gray and reddish-brown fine to coarse sand, "and" clayey silt, trace to little fine to coarse gravel, few silt seams, contains sandstone and shale fragments. Est. A-4a (0)
10	3		7/13/14									
	4		5/10/13	4.5+								Very-stiff to hard brown mottled with gray and reddish-brown silty clay, little to some fine to coarse sand, trace to little fine to coarse gravel, contains sandstone and shale fragments.
15	5		7/14/24	4.5+								Est. A-6a
	6		4/9/19	2.0-4.5+								
	7		7/18/26	3.0-4.5+								
20	8		9/18/27		14	26	21	13	22	31	34	Dense brown and gray fine to coarse sand, some clayey silt, trace fine gravel. A-3a (0)
25	9		3/9/12	2.0-4.5+								Very-stiff to hard brown silty clay, little fine to coarse sand, trace fine to coarse gravel, contains sandstone fragments. Est. A-6a
	10		2/2/5	0.5-1.25								Medium-stiff to stiff brown mottled with gray silty clay, trace fine to medium sand. Est. A-6a
30	11		4/6/14	3.0-4.5+								Very-stiff to hard brown mottled with gray silty clay, trace fine to medium sand, few silt seams. Est. A-6a
	12		5/8/10	2.0-3.0								
35												

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 1640502.GPJ BBCM.GDT 9/9/02

JOB: 01106405.002 -CONTINUED- PLATE 11

LAW-7-3.70

BBCM

LOG OF BORING NO. B2EBP1-215
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 196+94, 12' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 51.0' ELEVATION: 552+/- DATE: 4/5/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
35	13		3/6/9					0	10	84	6	Medium-dense becoming very-loose brown fine to medium sand, trace coarse sand, trace fine gravel, trace to little clayey silt. A-3 (0)
40	14		S/D-18"									Hard (est.) gray mottled with brown silty clay, similar to very-soft shale.
45	15		REC 87% RQD 40%									Medium-hard to hard black coal. Visual
	16		REC 80% RQD 67%									Very-soft to soft gray shale, nearly horizontally bedded, similar to hard silty clay, fragmented below 50.5'. Visual
50												-Encountered water at 35.0
55												
60												
65												
70												

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 1640502.GPJ BBCM.GDT 9/9/02

JOB: 01106405.002 PLATE 12

DRAWN MSJ CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
LAW-7-3.70

LAW-7-2.17

PROJECT: LAW - 7 - 2.17	DRILLING FIRM / OPERATOR: HORN / T.L.	DRILL RIG: CME 55 TRACK	STATION / OFFSET: 199+84, 30 RT	EXPLORATION ID B-010-1-12
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: HORN / T.L.	HAMMER: CME AUTOMATIC	ALIGNMENT: MAINLINE	
PID: 75923 BR ID:	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 4/30/13	ELEVATION: 530.4 (MSL) EOB: 54.0 ft.	PAGE 1 OF 1
START: 5/1/13 END: 5/2/13	SAMPLING METHOD: SPT/ST/NQ	ENERGY RATIO (%): 85.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
SOFT TO MEDIUM STIFF, BROWN, **SILTY CLAY**, SOME SAND, MOIST	530.4		1 1 2	4	100	SS-1	-	-	-	-	-	-	-	-	-	26	A-6b (V)	
		2.5	1 2 2	6	100	SS-2	-	-	-	-	-	-	-	-	-	26	A-6b (V)	
		5.0	1 1 2	4	100	SS-3	-	-	-	-	-	-	-	-	-	25	A-6b (V)	
		7.5			100	ST-4	-	0	0	22	43	35	35	19	16	30	A-6b (10)	
	520.9	W																
LOOSE TO MEDIUM DENSE, BROWN AND GRAY, **COARSE AND FINE SAND**, TRACE TO LITTLE SILT AND CLAY, TRACE GRAVEL, WET		10.0	WOH WOH 2	3	100	SS-5	-	0	26	50	16	8	-	-	-	20	A-3a (V)	
			2 2 2	6	100	SS-6	-	2	37	41	13	7	NP	NP	NP	50	A-3a (0)	
INCREASED GRAVEL		12.5	3 3 2	9	100	SS-7	-	46	20	28	4	2	-	-	-	-	A-3a (V)	
ENCOUNTERED WOOD FROM 14.1' - 15.5'		15.0	WOH 1 2	4	100	SS-8	-	2	17	51	19	11	-	-	-	32	A-3a (V)	
		17.5	WOH 1 2	4	100	SS-9	-	-	-	-	-	-	-	-	-	72	A-3a (V)	
		20.0	1 4 6	14	100	SS-10	-	10	27	30	21	12	21	17	4	20	A-3a (0)	
INCREASED DENSITY		22.5	9 9 10	27	100	SS-11	-	-	-	-	-	-	-	-	-	15	A-3a (V)	
		25.0	13 10 14	34	100	SS-12	-	-	-	-	-	-	-	-	-	16	A-3a (V)	
	503.4	TR																
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	501.4	27.5	38 50/4"	-	100	SS-13	-	-	-	-	-	-	-	-	-	10	Rock (V)	
MUDSTONE, GRAY, MODERATELY WEATHERED, WEAK, THIN BEDDED, FRIABLE; RQD 0%, REC 50%.	499.4	30.0	0		34	NQ-1											CORE	
SHALE, GRAY, UNWEATHERED, MODERATELY STRONG TO STRONG, LAMINATED TO THIN BEDDED, ARENACEOUS, TOP 3' HIGHLY WEATHERED, THIN SANDSTONE SEAMS THROUGHOUT; RQD 46%, REC 85%.		32.5 35.0	42		78	NQ-2											CORE	
UCR Qu=16 tsf		37.5 40.0	70		100	NQ-3											CORE	
		42.5 45.0	70		100	NQ-4											CORE	
		47.5 50.0	30		100	NQ-5											CORE	
	476.4	52.5 EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 100 GAL. BENTONITE GROUT

PROJECT: LAW - 7 - 2.17	DRILLING FIRM / OPERATOR: HORN / T.L.	DRILL RIG: CME 55 TRACK	STATION / OFFSET: 200+80, 50 LT	EXPLORATION ID B-010-2-12
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: HORN / T.L.	HAMMER: CME AUTOMATIC	ALIGNMENT: MAINLINE	
PID: 75923 BR ID:	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 4/30/13	ELEVATION: 529.0 (MSL) EOB: 57.0 ft.	PAGE 1 OF 1
START: 5/2/13 END: 5/2/13	SAMPLING METHOD: SPT/ST/NQ	ENERGY RATIO (%): 85.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
SOFT TO MEDIUM STIFF, BROWN, **SANDY SILT**, SOME CLAY, MOIST	529.0		1 1 2	4	100	SS-1	-	-	-	-	-	-	-	-	-	18	A-4a (V)	
		2.5	1 2 2	6	100	SS-2	-	-	-	-	-	-	-	-	-	23	A-4a (V)	
		5.0	1 2 2	6	100	SS-3	-	0	0	25	49	26	28	18	10	21	A-4a (8)	
SOFT, BROWN, **SILT AND CLAY**, SOME SAND, MOIST	522.0	7.5			100	ST-4	-	0	0	22	50	28	33	19	14	26	A-6a (10)	
LOOSE TO MEDIUM DENSE, BROWN AND GRAY, **SANDY SILT**, TRACE TO LITTLE CLAY, TRACE GRAVEL, WET WOOD FRAGMENTS IN SAMPLE FROM 9.5' - 12.5'	519.5	10.0	1 1 1	3	100	SS-5	-	0	0	54	30	16	NP	NP	NP	27	A-4a (2)	
			WOH WOH	4	100	SS-6	-	1	2	52	30	15	-	-	-	29	A-4a (V)	
	W	12.5	2 1 1	3	100	SS-7	-	7	17	51	17	8	-	-	-	29	A-4a (V)	
		15.0	3 2 3	7	100	SS-8	-	5	31	43	14	7	-	-	-	21	A-4a (V)	
		17.5	1 2 3	7	100	SS-9	-	-	-	-	-	-	-	-	-	33	A-4a (V)	
		20.0	3 4 5	13	100	SS-10	-	-	-	-	-	-	-	-	-	21	A-4a (V)	
		22.5	3 3 3	9	100	SS-11	-	-	-	-	-	-	-	-	-	26	A-4a (V)	
		25.0	4 6 7	19	100	SS-12	-	-	-	-	-	-	-	-	-	23	A-4a (V)	
		27.5	3 5 7	17	100	SS-13	-	1	3	47	30	19	NP	NP	NP	21	A-4a (3)	
	498.5	30.0	6 15 25	57	100	SS-14	-	-	-	-	-	-	-	-	-	19	A-4a (V)	
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	497.0	TR																
SHALE, GRAY, SLIGHTLY TO MODERATELY WEATHERED, MODERATELY STRONG TO STRONG, LAMINATED TO THIN BEDDED, ARENACEOUS, TOP 3' HIGHLY WEATHERED, THIN SANDSTONE SEAMS THROUGHOUT; RQD 48%, REC 92%.		32.5 35.0	48		80	NQ-1											CORE	
		37.5 40.0	48		92	NQ-2											CORE	
		42.5 45.0	53		100	NQ-3											CORE	
		47.5 50.0	8		87	NQ-4											CORE	
UCR Qu=765 tsf		52.5 55.0	80		100	NQ-5											CORE	
	472.0	EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 100 GAL. BENTONITE GROUT

BRIDGE-LAW-7-03.76: STA. 198+87, 35.0' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-03.76

LOG OF BORING NO. B2-316
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 4-1/2" O.D. Continuous-flight Auger; 3-7/8" Tricone Bit w/ Drilling Mud; 2" and 2-1/2" O.D. Split-barrel Samplers; NX Rock Core Barrel
LOCATION: Sta. 198+87, 35' Rt. of Proposed SR. 7 Centerline
COMPLETION DEPTH: 42.5' ELEVATION: 540.3 DATE: 5/17/02

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 6 INCHES
	1		4 /6/7	1.4-2.3								Stiff to very-stiff brown mottled with gray silty clay, little to some fine to coarse sand, trace fine to coarse gravel, desiccated.
5	2		4 /5/6	1.6-2.9								
10	3	SS	3 /4/5	1.4-2.5								
	4A		S/H					0	1	63	36	Est. A-6a
15	4B		S/H /1									Very-loose brown and gray fine to medium sand, trace coarse sand, "and" clayey silt, contains few silt pockets. A-4a (0)
	5		3 /4/5	1.5-3.4								Stiff to very-stiff brown, reddish-brown and gray silty clay, little to some fine to coarse sand, trace fine gravel, contains few silt seams.
	6		6 /9/11	2.6-3.7								
20	7A		5 /7/10	1.4-2.1	19	29	18	0	0	29	71	A-6a (8)
	7B		7 /8/7									
	8		4 /4/5									Loose to medium-dense brown fine to medium sand, trace coarse sand, little silt, contains few silty clay seams.
25	9		3 /3/6									
	10		14/15/23									Est. A-3
30	11		23/25/31									Dense to very-dense brown fine to coarse sand, some fine to coarse gravel, trace silt, partly similar to sandstone.
	12		13/15/22									
35	13		9 /29/45									Est. A-1-b
	14		REC 92%									Very-soft gray shale, nearly horizontally bedded, similar to hard silty clay.
40	15		RQD 50%									Visual
												Soft to medium-hard gray shale, nearly horizontally bedded, highly fractured from 37.5' to 38.5', few horizontal and diagonal fractures from 38.5' to 41.5', many horizontal fractures from 41.5' to 42.5'. Qu = 194.3 psi between 38.8' and 39.3'.
45												Visual
												- Encountered seepage from 12.5' to 16.0'.
50												- Encountered water at 20.0'.

WATER LEVEL: ▽ 11.8 ▼ 11.0
WATER NOTE: Before Mud Rotary After Mud Rotary
DATE: 5/17/02 5/17/02
JOB: 01106405.002

ODOT.LI 1640502.ODT BBCM.ODT 9/9/02

PLATE 5

BRIDGE-LAW-7-03.76: STA. 199+33.7, 26.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-03.76

LOG OF BORING NO. B2WBP2-216
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 199+33.7, 26' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 40.5' ELEVATION: 536+/- DATE: 4/5/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 7 INCHES
	1		4 /7/9	2.0-4.5+								Stiff to hard brown mottled with gray and dark-brown silty clay, little to some fine to medium sand, few silt and fine sand seams.
5	2		4 /6/6	2.0-3.0								
	3		3 /4/6	1.0-2.5	24	34	22	0	2	25	73	
10	4		3 /4/7	2.0-3.0				0	1	12	55 32	A-6a (8)
	5		2 /3/3					0	46	47	7	Very-loose to loose brown and gray fine to medium sand, trace to little silt, contains decayed wood, slightly organic.
	6		1 /1/1					1	3	66	30	Est. A-3a
15	7		2 /1/1		22	22	17	0	1	51	48	Very-loose to loose brown and gray fine to medium sand, "and" clayey silt.
	8		4 /5/5									A-4a (8)
20	9		4 /7/14									Medium-dense to dense brown and gray fine to medium sand, trace coarse sand, trace fine gravel, trace to little clayey silt, contains sandstone and shale fragments, contains decayed wood fragments, slightly organic.
	10		8 /10/9									
25	11		9 /10/18									
	12		14/10/12									
30	13		19/10/30									Est. A-3
35	14		50-5"R NQ REC 43%									Very-soft to soft gray shale, highly fractured, similar to hard clayey silt, few seams of hard gray fine-grained sandstone.
	15		RQD 0%									Visual
40												-Encountered water at 11.0'
45												
50												

WATER LEVEL: ▽
WATER NOTE:
DATE:
JOB: 01106405.002

PLATE 6

DRAWN M.S.J.
CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-03.76

LAW-7-2.17

164/206

1205
1247

BRIDGE-LAW-7-03.76: STA. 201+43, 63.0' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-03.76

BBCM

LOG OF BORING NO. B-2BP2
LAW-7, PRELIMINARY SUBSURFACE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock-core Barrel
LOCATION: Sta. 201+43, 63' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 43.0' ELEVATION: 530.5(ft) DATE: 10/27/98 - 10/28/98

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													TOPSOIL - 2 INCHES
	1		1/1/2										Very-loose to loose brown fine to medium sand, trace coarse sand, trace fine gravel, trace to little clayey silt.
5													
	2		2/2/2					0	19	65	7	9	
	3		2/3/2										A-3a(0)
10													Loose brown fine to medium sand, trace coarse sand, trace fine gravel, trace clayey silt.
	4		3/3/5					4	56	28	8	4	
15	5		2/3/4					1	53	41	5		A-1-b(0)
	6		2/3/3					0	48	50	2		Very-loose brown and gray fine to medium sand, trace coarse sand, trace fine gravel, trace silt.
	7		1/1/2		24			2	45	50	3		- Contains decayed wood fragments from 18.0' to 19.0'.
20	8		4/5/6										A-3(0)
													Medium-dense light-gray fine to medium sand, trace coarse sand, little fine to coarse gravel, trace silt.
	9		3/2/6										Est. A-1-b
25													Loose to medium-dense brown fine to medium sand, trace coarse sand, trace fine gravel, little clayey silt.
	10		7/11/15		18			7	51	30	5	7	
													A-1-b(0)
	11		8/13/31										Medium-dense to dense brown and gray fine to medium sand, trace coarse sand, trace fine gravel, trace silt.
30	12A		3/9/50										Est. A-3a
	12B		50-3"R										Soft gray siltstone, nearly horizontally bedded, poorly cemented, partly similar to dense silt.
	13		NXM REC 100% RQD 100%										Visual
35	14												Medium-hard gray siltstone, nearly horizontally bedded, contains few fractures.
			REC 100% RQD 92%										
40	15												- From 41.0' to 42.5': Soft to medium-hard light-gray shale with carbonaceous seams.
													Visual
45													- Encountered seepage at 8.5'.
													- Encountered water at 11.0'.
50													

WATER LEVEL: ▽ ▼ ▼ ▼ ▼ ▼
WATER NOTE:
DATE:

OB: 01106405.001

PLATE 7

BRIDGE-LAW-7-03.76: STA. 202+03, 38.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-03.76

BBCM

LOG OF BORING NO. B2-317
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 4-1/2" O.D. Continuous-flight Auger; 3-7/8" Tricone Bit w/ Drilling Mud; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 202+03, 38' Lt. of Proposed S.R. 7 Centerline
COMPLETION DEPTH: 38.2' ELEVATION: 533.4 DATE: 5/6/02 - 5/7/02

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													TOPSOIL - 7 INCHES
	1		3/3/3	1.75-2.25									Stiff to very-stiff reddish-brown silty clay, little fine to medium sand, contains many silt seams and lenses. Est. A-6a
5	2		S/H S/H S/H	0.0-0.3	28	31	20		0	26	50	24	Very-soft to medium-stiff reddish-brown silty clay, some fine to medium sand, contains many silt seams.
	3		S/H S/H/2	0.5-0.8									A-6a (8)
10													Loose brown and gray fine to coarse sand, trace fine gravel, trace silt.
	4		S/H 1/3										
15													Est. A-3
	5		3/2/2										Very-soft gray silty clay, trace fine to medium sand, contains few silt seams.
	6A 6B		2/3/3	0.0									Est. A-6a
20	7		2/1/3						13	20	50	17	Loose gray fine to coarse sand, trace fine to coarse gravel, little silt, contains seam of silty clay from 24.2' to 24.3'.
	8		1/3/3										A-3a (0)
	9		4/3/3										Medium-dense to dense brown and gray fine to coarse sand, trace to little fine to coarse gravel, trace to little silt.
25	10		6/6/6										Est. A-3
	11		4/7/10										Very-soft gray shale, nearly horizontally bedded, similar to hard silty clay.
30	12		10/20/26										Visual
	13		REC 71% RQD 47%										Soft gray and reddish-brown shale, nearly horizontally bedded, few diagonal fractures, partly similar to hard silty clay.
35													Visual
													Medium-hard gray sandstone, nearly horizontally bedded, few diagonal fractures.
40													Visual
													- Encountered water at 12.0'.
45													- Encountered auger refusal at 33.2'.
50													

WATER LEVEL: ▽ 15.0 ▼ ▼ ▼ ▼ ▼
WATER NOTE:
DATE: 5/06/02

OB: 01106405.002

PLATE 8

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-03.76

LAW-7-2.17

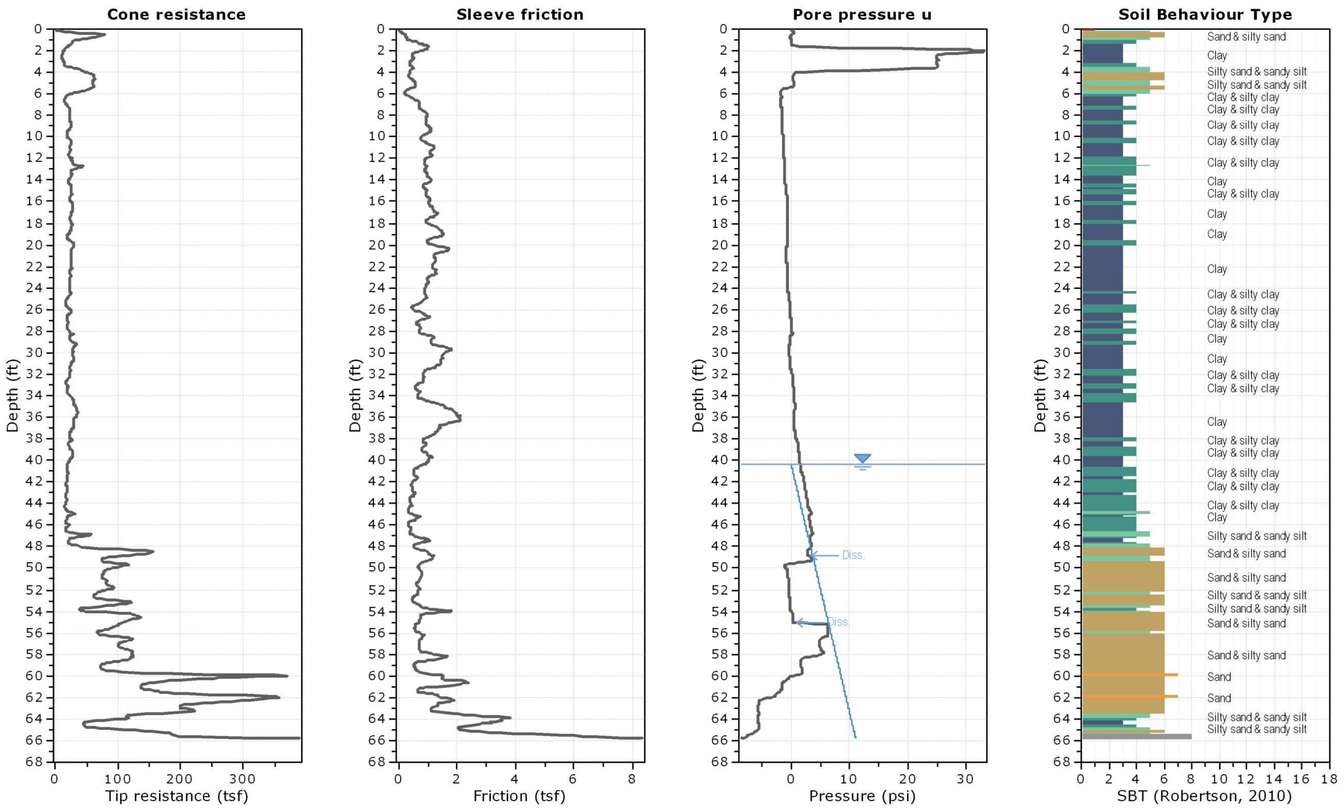
165/206

1206/1247

Office of Geotechnical Engineering
Geology, Exploration and, Laboratory Section
http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical

Project: LAW-7-2.17
Location: Lawrence County

CPT: C-013-1-21
Total depth: 65.82 ft, Date: 11/9/2021
Surface Elevation: 561.3 ft
Coords: lat 38.44887° lon -82.433455°

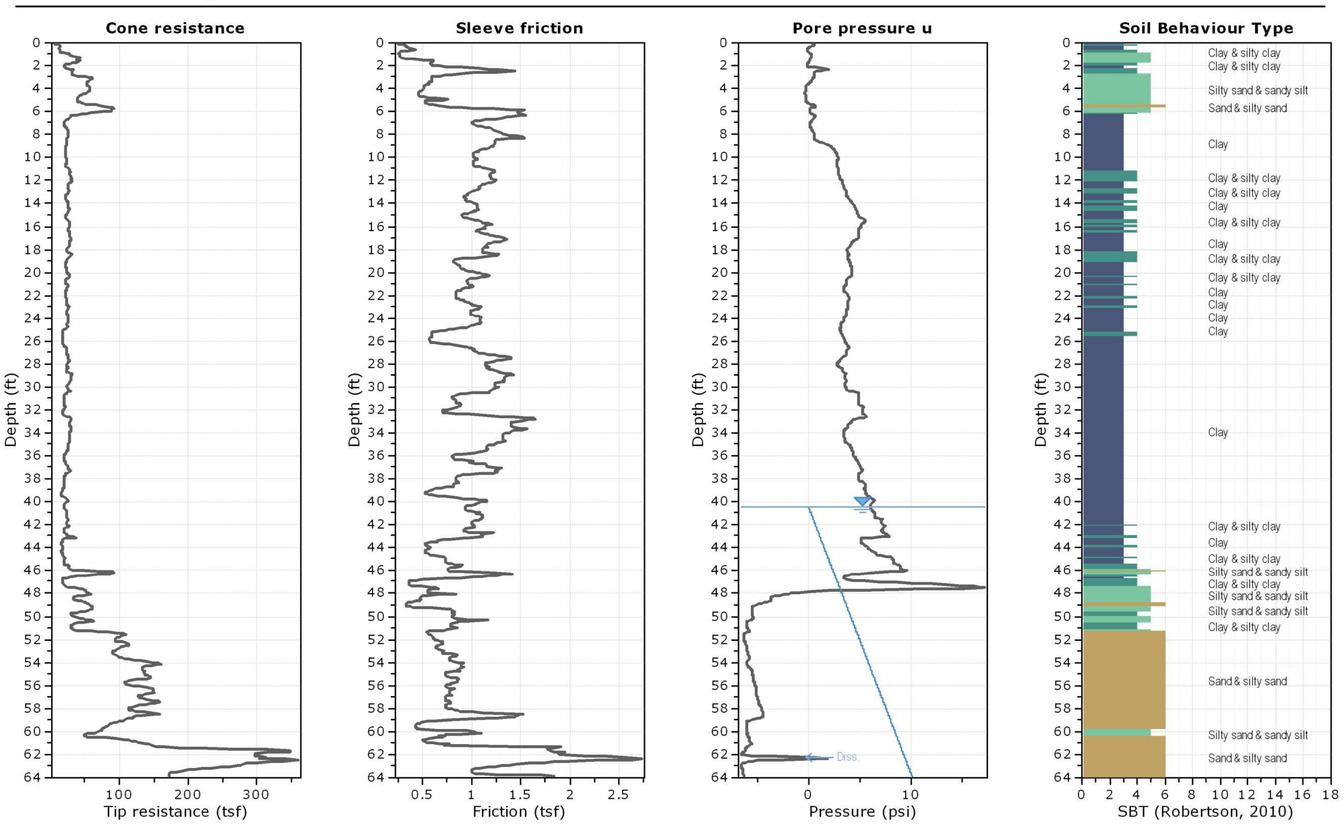


CPeT-IT v.3.6.1.5 - CPTU data presentation & interpretation software - Report created on: 11/16/2021, 6:33:57 AM
Project file: I:\gt\Projects\D09\Lawrence\LAW-7-02.17\geotechnical\explorations\CPT\CPeT-IT\LAW-7-2.17_IM.cpt

Office of Geotechnical Engineering
Geology, Exploration and, Laboratory Section
http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical

Project: LAW-7-2.17
Location: Lawrence County

CPT: C-013-2-21
Total depth: 63.87 ft, Date: 11/9/2021
Surface Elevation: 560.7 ft
Coords: lat 38.449142° lon -82.43351°



CPeT-IT v.3.6.1.5 - CPTU data presentation & interpretation software - Report created on: 11/16/2021, 6:33:58 AM
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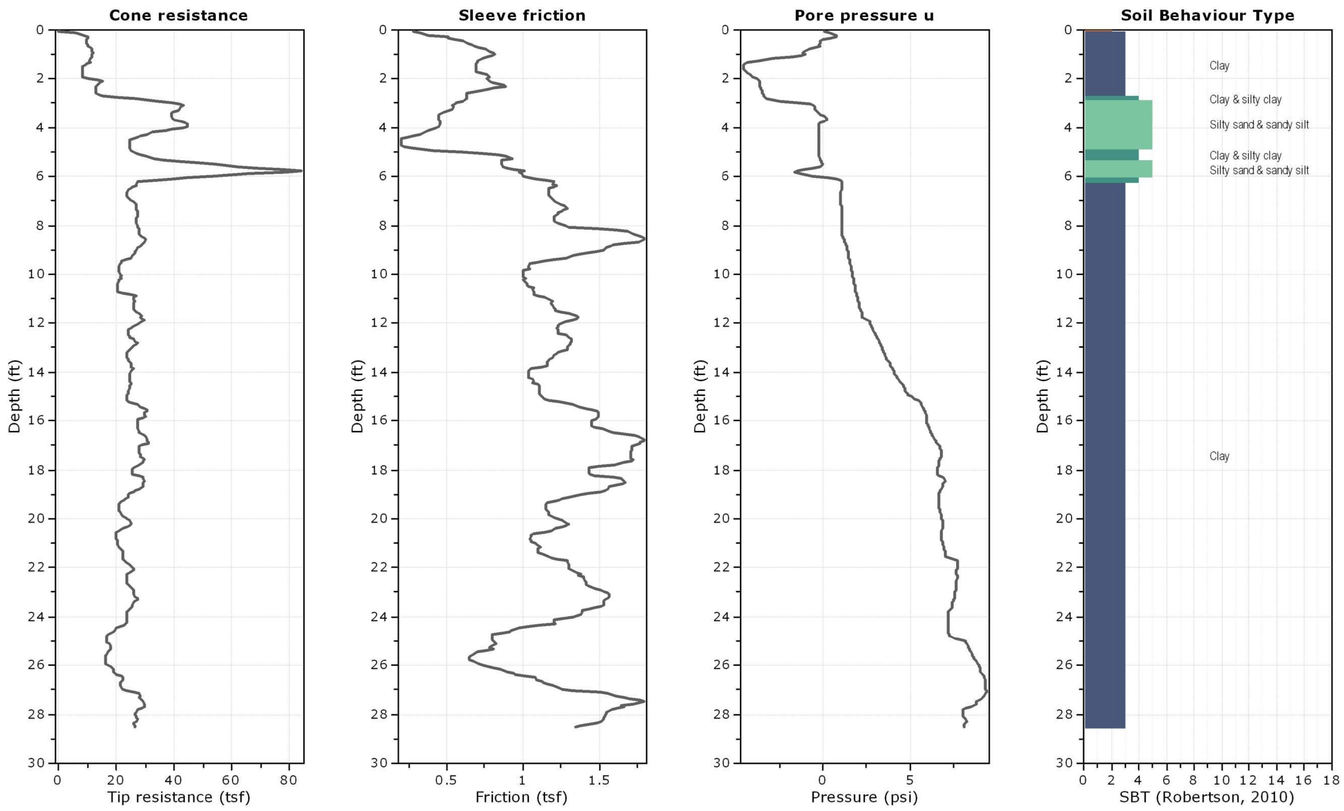
Office of Geotechnical Engineering
Geology, Exploration and, Laboratory Section
http://www.dot.state.oh.us/Divisions/Engineering/Geotechnical

CPT: C-013-3-21
Total depth: 28.54 ft, Date: 11/9/2021
Surface Elevation: 560.5 ft
Coords: lat 38.449152° lon -82.433503°

Project: LAW-7-2.17
Location: Lawrence County



CPeT-IT v.3.6.1.5 - CPTU data presentation & interpretation software - Report created on: 11/16/2021, 6:33:58 AM
Project file: I:\gt\Projects\D09\Lawrence\LAW-7-02.17\geotechnical\explorations\CPT\CPeT-IT\LAW-7-2.17_IM.cpt

BRIDGE-LAW-7-03.87: STA. 204+13.4, 40.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-03.87

LOG OF BORING NO. B2WBP4-217
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 204+13.4, 40' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 43.0' ELEVATION: 535+/- DATE: 4/6/00

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											TOPSOIL - 12 INCHES
	1	3/2/5	2.5-3.25								Very-stiff brown mottled with gray and dark-brown silty clay, little fine to medium sand, few roots.
5	2	3/4/5	2.5-3.5								Est. A-6b
	3	2/3/4	0.5-1.75								Medium-stiff to stiff brown mottled with gray silty clay, little fine sand.
10	4	2/4/4									Est. A-6b
	5	2/2/5					0	4	74	22	Loose becoming very-loose brown and gray fine to medium sand, some silt, few seams of silty clay.
	6	1/2/1									A-3a (0)
15	7	2/1/1									Medium-stiff to stiff gray silty clay, trace to little fine to medium sand, slightly organic.
	8	1/3/4	0.75-1.5	34	42	25	0	1	7	92	
20	9	2/6/17	0.5-1.5								A-7-6 (11)
	10	2/6/7									Medium-dense gray fine to medium sand, some clayey silt, contains seam of silty clay.
25	11	4/5/8									Est. A-3a
	12	4/3/4									Medium-dense gray and brown fine to medium sand, little silt, contains seam of silty clay.
30											Est. A-3
	13	12/15/17									Loose gray, brown, and black fine to medium sand, "and" silty clay.
35		50-0"R									Est. A-4a
	14	REC 80% RQD 40%									Medium-dense to dense gray and black fine to coarse sand, trace fine gravel, trace silt, slightly organic.
40											Est. A-3a
											Medium-hard to hard gray and dark-gray limestone interbedded with shale, nearly horizontally bedded, many horizontal and diagonal fractures.
45											Visual
											-Encountered water at 10.0'

WATER LEVEL:
WATER NOTE:
DATE:

ODOT(L) 1640500.GPJ BRCM.GDT 9/9/02

JOB: 01106405.002

PLATE 5

BRIDGE-LAW-7-03.87: STA. 205+31.2, 1.7' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-03.87

LOG OF BORING NO. B-2BP3
LAW-7, PRELIMINARY SUBSURFACE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock-core Barrel
LOCATION: Sta. 205+31.2, 1.7' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 73.8' ELEVATION: 559.4(ft) DATE: 11/3/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											TOPSOIL - 6 INCHES
	1	3/4/5									Loose brown fine to medium sand, trace coarse sand, little silt.
5	2	3/4/5	2.75-3.5	22	34	21	0	1	6	46 / 47	Est. A-1-b
	3	3/5/7	2.5-3.5								Very-stiff brown mottled with gray silty clay, little fine to medium sand.
10	4	3/3/5	3.25-4.1	29							A-6a(9)
	5	3/4/5	2.25-3.5								Very-stiff to hard brown with gray seams of silty clay, contains silt seams, laminated.
15	6	4/5/6	3.0-4.25	25							Est. A-7-6
	7	4/6/8	2.75-4.2								Very-stiff to hard brown silty clay, trace fine sand with silt lenses.
20	8	4/6/8	3.5-4.5	24							Est. A-7-6
	9	2/3/5	1.75-3.7								Stiff to very-stiff gray silty clay, trace fine to medium sand, contains silt seams.
25											Est. A-7-6
	10	3/6/9	3.75-4.5								Very-stiff to hard gray silty clay, trace fine to medium sand.
30	11	3/4/6	2.5-4.5	13	41	22	0	0	3	33 / 64	
	12	3/4/6	2.75-3.7								A-7-6(12)
35											Stiff gray silty clay, interbedded with silt.
40	13	2/4/5	1.0-1.7								Est. A-6b
45											-CONTINUED-

WATER LEVEL:
WATER NOTE:
DATE:

ODOT(L) 1640500.GPJ BRCM.GDT 9/9/02

JOB: 01106405.001

PLATE 6

LAW-7-03.87

LOG OF BORING NO. B-2BP3
LAW-7, PRELIMINARY SUBSURFACE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock-core Barrel
LOCATION: Sta. 205+31.2, 1.7' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 73.8' ELEVATION: 559.4(ft) DATE: 11/3/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
45											Stiff gray silty clay, interbedded with silt.
	14	S/D-18"									Est. A-6b
50											Very-loose gray fine to medium sand, trace coarse sand, trace silt.
	15	10/6/8					2	48	43	5 / 2	Est. A-1-b
55											Medium-dense to dense gray fine to medium sand, trace fine gravel, trace silt, slightly organic.
	16	8/10/8									A-1-b(0)
60											Very-soft gray siltstone, neary horizontally bedded, few fractures.
	17	12/18/23									Visual
65											Soft to medium-hard gray shale, nearly horizontally bedded, few to many fractures.
	18	50-4"R NXM REC 60% RQD 60%									Visual
70	19										Medium-hard light-gray shale, becoming arenaceous and micaceous with depth, nearly horizontally bedded, few fractures.
75											Visual
											- Encountered water at 38.5'.
80											
85											
90											

WATER LEVEL:
WATER NOTE:
DATE:

ODOT(L) 1640500.GPJ BRCM.GDT 9/9/02

JOB: 01106405.001

PLATE 7

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-03.87

LAW-7-2.17

BRIDGE-LAW-7-03.87: STA. 205+83.6, 34.6' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-03.87

BBCM

LOG OF BORING NO. B17-318
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 205+83.6, 34.6' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 77.4' ELEVATION: 565+/- DATE: 4/29/02 - 4/30/02

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											TOPSOIL - 6 INCHES
	1	2/3/4	1.8-2.1								Stiff becoming hard brown mottled with gray silty clay, little to some fine to coarse sand, trace fine gravel, contains few silt lenses, few roots.
5	2	5/7/7	3.8-4.5+	19	38	20	0	2	21	40 / 37	A-6b (11)
	3	3/4/5									Loose brown fine to medium sand, trace coarse sand, trace silty clay.
	4A										Est. A-3
10	4B	4/4/4	1.4-2.8								Stiff to very-stiff brown mottled with gray silty clay, little fine to coarse sand, trace fine gravel.
	5	6/7/8	2.4-3.0								Est. A-6b
15	6	5/5/6	1.8-3.0	27	35	22	0	1	1	44 / 54	Stiff becoming hard brown silty clay, trace fine to coarse sand, contains many silt seams and few fine sand lenses.
	7	5/6/8	3.6-4.5								
	8	5/5/8	2.3-4.5								
20	9	5/6/8	2.4-3.3								A-6a (9)
	10	5/8/9	2.6-4.5								Stiff to hard gray mottled with brown silty clay, trace to little fine to coarse sand, trace fine gravel, contains many silt seams and few pockets of fine to coarse sand.
25											
	11A	5/7/9	1.4-3.3								
30	11B		2.4-4.5								
	12	3/4/6	1.5-3.7								
35											
	13	3/5/7	2.2-4.5								
40											
	14	3/4/5	1.4-3.6								Est. A-6a
45											

WATER LEVEL: ▽ 41.0
WATER NOTE: After Rock Coring
DATE: 4/30/02

JOB: 01106405.002

-CONTINUED-

PLATE 8

LAW-7-03.87

BBCM

LOG OF BORING NO. B17-318
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: Sta. 205+83.6, 34.6' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 77.4' ELEVATION: 565+/- DATE: 4/29/02 - 4/30/02

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
45											Stiff to hard gray mottled with brown silty clay, trace to little fine to coarse sand, trace fine gravel, contains many silt seams and few pockets of fine to coarse sand.
	15	2/2/3	0.7-1.5	29	36	19	0	0	10	29 / 61	Est. A-6a
50											Medium-stiff to stiff gray silty clay, little fine to coarse sand, contains seam of fine to medium sand.
	16	2/3/3									A-6b (11)
55											Loose to medium-dense gray and brown fine to medium sand, trace coarse sand, trace silt, contains thin seam of silty clay at 53.9'.
	17	5/4/8									Est. A-3
60											Dense brown and gray fine to coarse sand, trace to little fine to coarse gravel, trace silt.
	18	15/22/14									
65											
	19	21/15/15									Est. A-1-b
70											Medium-hard gray coarse-grained sandstone. Visual
	20	50-0"R NX REC 82% RQD 50%									Soft gray limestone, nearly horizontally bedded, few horizontal fractures, highly fractured from 72.6' to 73.2'. Visual
75											
											- Encountered seepage from 4.5' to 8.8'.
80											- Encountered water at 53.5'.
											- Encountered heaving sands at 58.5', (changed to mud rotary drilling techniques).
85											- Lost partial mud circulation below 75.4' while rock coring.
90											

WATER LEVEL: ▽ 41.0
WATER NOTE: After Rock Coring
DATE: 4/30/02

JOB: 01106405.002

PLATE 9

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-03.87

LAW-7-2.17

169/206

1210/1247

PROJECT: LAW – 7 – 2.17	DRILLING FIRM / OPERATOR: STANTEC / S.B.	DRILL RIG: CME 45 TRACK	STATION / OFFSET: 269+48, 135 LT	EXPLORATION ID B-032-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / J.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.10	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 537.7 (MSL) EOB: 30.9 ft.	PAGE 1 OF 1
START: 5/18/11 END: 5/18/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 81.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
MEDIUM STIFF TO STIFF, BROWN, SILT AND CLAY, SOME SAND, TRACE GRAVEL, MOIST	537.7		2	5	67	SS-1	–	5	4	20	47	24	36	21	15	25	A-6a (9)	
			1 2	10	53	SS-2	–	–	–	–	–	–	–	–	–	27	A-6a (V)	
	533.7	2.5	3 3 4	18	60	SS-3	–	–	–	–	–	–	–	–	–	12	A-6a (V)	
MEDIUM DENSE, BROWN, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, LITTLE CLAY, WET		W	8	22	33	SS-4	–	42	16	19	13	10	25	15	10	25	A-2-4 (0)	
		5.0	2 5 4 12															
		7.5	6	12	7	SS-5	–	–	–	–	–	–	–	–	–	31	A-2-4 (V)	
	527.7		4 5															
MEDIUM STIFF TO STIFF, GRAY, SILTY CLAY, LITTLE SAND AND GRAVEL, SAND SEAMS, MOIST		10.0	2	8	67	SS-6	–	–	–	–	–	–	–	–	–	27	A-6b (V)	
			3 3															
		12.5			100	ST-7	–	10	5	8	19	58	37	20	17	27	A-6b (11)	
		15.0	2	10	73	SS-8	–	–	–	–	–	–	–	–	–	24	A-6b (V)	
	519.7		3 4															
		TR 17.5	4	–	67	SS-9	–	–	–	–	–	–	–	–	–	18	Rock (V)	
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	518.7		50/5"															
SHALE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, LAMINATED; RQD 67%, REC 92%.		20.0	18		55	NQ-1											CORE	
		22.5																
		25.0	78		100	NQ-2											CORE	
		27.5																
	506.8	30.0 EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED BENTONITE GROUT

PROJECT: LAW – 7 – 2.17	DRILLING FIRM / OPERATOR: STANTEC / S.B.	DRILL RIG: CME 45 TRACK	STATION / OFFSET: 270+18, 44 LT	EXPLORATION ID B-033-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / J.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.10	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 536.4 (MSL) EOB: 35.4 ft.	PAGE 1 OF 1
START: 5/17/11 END: 5/18/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 81.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
LOOSE TO MEDIUM DENSE, BROWN AND GRAY, GRAVEL WITH SAND, SILT, AND CLAY, MOIST TO WET	536.4		WOH 1	4	60	SS-1	–	–	–	–	–	–	–	–	–	20	A-2-6 (V)	
			2 2	11	53	SS-2	–	–	–	–	–	–	–	–	–	22	A-2-6 (V)	
		2.5	4 3 4	12	73	SS-3	–	37	10	19	18	16	31	16	15	15	A-2-6 (1)	
		5.0	4 2 5	7	67	SS-4	–	–	–	–	–	–	–	–	–	20	A-2-6 (V)	
		7.5	2 6 3															
			4	10	67	SS-5	–	21	21	24	14	20	26	14	12	28	A-2-6 (0)	
	526.4		3															
STIFF, GRAY, SILT AND CLAY, AND SAND, TRACE GRAVEL, MOIST TO WET		W 10.0	4 5 6	15	100	SS-6	–	–	–	–	–	–	–	–	–	24	A-6a (V)	
		12.5			100	ST-7	–	6	10	27	23	34	26	14	12	23	A-6a (5)	
	521.4																	
MEDIUM DENSE, BLUE GRAY, GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT, TRACE CLAY, MOIST		15.0	6 8 6	19	100	SS-8	–	30	25	22	14	9	21	14	7	15	A-2-4 (0)	
		17.5	2 5 4	12	67	SS-9	–	–	–	–	–	–	–	–	–	17	A-2-4 (V)	
		20.0	1 4 6	14	53	SS-10	–	–	–	–	–	–	–	–	–	16	A-2-4 (V)	
	513.2	TR 22.5	8 24 30	74	67	SS-11	–	–	–	–	–	–	–	–	–	13	Rock (V)	
SHALE, BROWN, SEVERELY WEATHERED, (AUGERED).	511.0	25.0	50/5"	–	100	SS-12	–	–	–	–	–	–	–	–	–	16	Rock (V)	
SANDSTONE, GRAY, SLIGHTLY WEATHERED, STRONG, THIN BEDDED; RQD 90%, REC 100%.	510.0																	
SHALE, GRAY, SLIGHTLY TO MODERATELY WEATHERED, SLIGHTLY TO MODERATELY STRONG, LAMINATED; RQD 67%, REC 89%.		27.5																
		30.0	70		90	NQ-1											CORE	
		32.5																
	501.0	35.0 EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED BENTONITE GROUT

PROJECT: LAW - 7 - 2.17	DRILLING FIRM / OPERATOR: HORN / R.C.	DRILL RIG: CME 55 TRACK	STATION / OFFSET: 270+25, 180 LT	EXPLORATION ID B-033-1-12
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: HORN / R.C.	HAMMER: CME AUTOMATIC	ALIGNMENT: MAINLINE	
PID: 75923 BR ID:	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 4/30/13	ELEVATION: 538.5 (MSL) EOB: 36.0 ft.	PAGE 1 OF 1
START: 4/23/13 END: 4/24/13	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 85.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
SOFT TO MEDIUM STIFF, BROWN, **SANDY SILT**, SOME CLAY, LITTLE GRAVEL, MOIST	538.5	W	WOH WOH 2	3	100	SS-1	-	-	-	-	-	-	-	-	-	26	A-4a (V)	
		2.5																
		5.0	1 1 1	3	100	SS-2	-	-	-	-	-	-	-	-	-	20	A-4a (V)	
		7.5	4 5 3	11	100	SS-3	-	13	23	24	17	23	23	15	8	15	A-4a (1)	
	528.5																	
MEDIUM STIFF, BROWN, **SILTY CLAY**, TRACE GRAVEL AND SAND, MOIST	526.0	10.0	1 2 3	7	100	SS-4	-	1	5	5	23	66	38	21	17	28	A-6b (11)	
MEDIUM STIFF TO STIFF, BROWN, **SANDY SILT**, SOME CLAY, LITTLE GRAVEL, MOIST TO WET		12.5	2 4 3	10	100	SS-5	-	13	26	20	18	23	25	15	10	17	A-4a (1)	
		15.0	2 2 3	7	100	SS-6	-	-	-	-	-	-	-	-	-	24	A-4a (V)	
		17.5	2 3 7	14	100	SS-7	-	-	-	-	-	-	-	-	-	16	A-4a (V)	
		20.0	6 4 5	13	100	SS-8	-	-	-	-	-	-	-	-	-	15	A-4a (V)	
	515.5	TR																
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	512.5	22.5	10 21 24	64	100	SS-9	-	-	-	-	-	-	-	-	-	12	Rock (V)	
		25.0	22 50/5"	-	100	SS-10	-	-	-	-	-	-	-	-	-	9	Rock (V)	
SHALE, GRAY, SLIGHTLY WEATHERED, WEAK TO SLIGHTLY STRONG, THIN BEDDED, CALCAREOUS, SMALL ZONES OF GRAY SANDSTONE; RQD 49%, REC 94%.		27.5	57		100	NQ-1											CORE	
		30.0																
		32.5	48		88	NQ-2											CORE	
	502.5	EOB 35.0																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 100 GAL. BENTONITE GROUT

PROJECT: LAW – 7 – 2.17	DRILLING FIRM / OPERATOR: STANTEC / S.B.	DRILL RIG: CME 45 TRACK	STATION / OFFSET: 271+00, 128 LT	EXPLORATION ID B-034-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / J.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.10	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 537.8 (MSL) EOB: 36.2 ft.	PAGE 1 OF 1
START: 5/19/11 END: 5/19/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 81.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
VERY SOFT TO SOFT, BROWN, SILT AND CLAY, AND SAND, MOIST	537.8		WOH	–	67	SS-1	–	0	2	34	41	23	34	20	14	29	A-6a (7)	
			WOH															
	534.8	2.5	1	4	67	SS-2	–	–	–	–	–	–	–	–	–	22	A-6a (V)	
LOOSE, BROWN, GRAVEL WITH SAND, SILT, AND CLAY, MOIST			2 3	8	87	SS-3	–	–	–	–	–	–	–	–	–	18	A-2-6 (V)	
		W	4 2															
		5.0	3 3	8	100	SS-4	–	38	21	19	12	10	28	16	12	20	A-2-6 (0)	
			3															
		7.5	3 3	8	80	SS-5	–	–	–	–	–	–	–	–	–	15	A-2-6 (V)	
	527.3		3															
MEDIUM STIFF, GRAY, CLAY, LITTLE SILT, TRACE SAND AND GRAVEL, MOIST		10.0	2 2 3	7	100	SS-6	–	–	–	–	–	–	–	–	–	30	A-7-6 (V)	
		12.5			100	ST-7	–	6	4	5	17	68	42	20	22	28	A-7-6 (13)	
		15.0	2 3 3	8	100	SS-8	–	–	–	–	–	–	–	–	–	18	A-7-6 (V)	
	518.8	17.5	1 1 3	5	100	SS-9	–	–	–	–	–	–	–	–	–	38	A-7-6 (V)	
STIFF TO VERY STIFF, GRAY GRADING TO DARK BROWN, SILTY CLAY, TRACE SAND AND GRAVEL,, MOIST		20.0			100	ST-10	–	4	2	5	43	46	40	20	20	25	A-6b (12)	
		22.5	3 5 9	19	67	SS-11	–	–	–	–	–	–	–	–	–	22	A-6b (V)	
	513.3	TR																
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	512.6	25.0	50/2"	–	100	SS-12	–	–	–	–	–	–	–	–	–	7	Rock (V)	
SHALE, GRAY, SLIGHTLY TO MODERATELY WEATHERED, MODERATELY STRONG, LAMINATED; RQD 50%, REC 62%.			70		90	NQ-1											CORE	
		27.5																
		30.0	72		90	NQ-2											CORE	
	504.6	32.5																
SANDSTONE, GRAY, SLIGHTLY WEATHERED, STRONG, THIN BEDDED, VUGGY, SLICKENSIDES; RQD 95%, REC 100%.	503.4																	
SHALE, GRAY, SLIGHTLY TO MODERATELY WEATHERED, MODERATELY STRONG, LAMINATED; RQD 66%, REC 100%.	501.6	35.0 EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED BENTONITE GROUT

PROJECT: LAW – 7 – 2.17	DRILLING FIRM / OPERATOR: STANTEC / S.B.	DRILL RIG: CME 45 TRACK	STATION / OFFSET: 271+63, 25 LT	EXPLORATION ID B-035-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / J.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.10	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 536.2 (MSL) EOB: 35.9 ft.	PAGE 1 OF 1
START: 5/19/11 END: 5/20/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 81.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV. 536.2	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
MEDIUM STIFF, BROWN, SILT AND CLAY, AND SAND, LITTLE GRAVEL, MOIST			1 2 2	5	60	SS-1	–	–	–	–	–	–	–	–	–	22	A-6a (V)	
	533.2	2.5	2 3 3	8	67	SS-2	–	19	14	23	26	18	28	15	13	19	A-6a (3)	
LOOSE, BROWN, GRAVEL AND/OR STONE FRAGMENTS WITH SAND, TRACE SILT AND CLAY, MOIST TO WET		W	3 3 4	11	40	SS-3	–	–	–	–	–	–	–	–	–	14	A-1-b (V)	
		5.0	1 4 2	7	100	SS-4	–	35	37	17	7	4	NP	NP	NP	23	A-1-b (0)	
	527.7	7.5	3 2 2	–	80	SS-5 A	–	–	–	–	–	–	–	–	–	17	A-1-b (V)	
MEDIUM STIFF TO STIFF, GRAY, CLAY, SOME SILT, TRACE SAND, MOIST			2 1		100	SS-5 B	–	–	–	–	–	–	–	–	–	33	A-7-6 (V)	
		10.0	3 3 3	8	100	SS-6	–	0	0	1	23	76	41	20	21	31	A-7-6 (13)	
		12.5	3 4 5	12	100	SS-7	–	–	–	–	–	–	–	–	–	29	A-7-6 (V)	
	521.2	15.0			85	ST-8	–	–	–	–	–	–	–	–	–	–	A-3a (V)	
LOOSE, GRAY, COARSE AND FINE SAND, LITTLE SILT AND CLAY, TRACE GRAVEL, WET		17.5	2 3 2	7	113	SS-9	–	3	38	31	12	16	NP	NP	NP	20	A-3a (0)	
		20.0	1 2 4	8	100	SS-10	–	–	–	–	–	–	–	–	–	21	A-3a (V)	
	512.7	22.5 TR	4 8 20	38	100	SS-11	–	–	–	–	–	–	–	–	–	16	A-3a (V)	
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	511.7																	
SHALE, GRAY TO GRAY-BROWN, MODERATELY WEATHERED, SLIGHTLY TO MODERATELY STRONG, LAMINATED, FRIABLE; RQD 58%, REC 95%.		25.0	43		79	NQ-1											CORE	
	505.9	27.5																
SANDSTONE, GRAY, SLIGHTLY WEATHERED, STRONG, THIN BEDDED; RQD 100%, REC 100%.	505.4	30.0	62		100	NQ-2											CORE	
SHALE, GRAY TO GRAY-BROWN, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, LAMINATED, FRIABLE, SLICKENSIDES; RQD 58%, REC 100%.		32.5																
	500.3	35.0 EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED BENTONITE GROUT

PROJECT: LAW – 7 – 2.17	DRILLING FIRM / OPERATOR: STANTEC / S.B.	DRILL RIG: CME 45 TRACK	STATION / OFFSET: 272+41, 161 LT	EXPLORATION ID B-036-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / J.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.10	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 569.4 (MSL) EOB: 31.4 ft.	PAGE 1 OF 1
START: 5/20/11 END: 5/23/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 81.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV. 569.4	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
SOFT TO MEDIUM STIFF, LIGHT BROWN, SILTY CLAY, AND GRAVEL, LITTLE SAND, DAMP			1 1 2	4	60	SS-1	–	35	8	7	25	25	38	21	17	17	A-6b (5)	
		2.5	1 2 2	5	60	SS-2	–	–	–	–	–	–	–	–	–	20	A-6b (V)	
	564.4	5.0	6 10 10	27	40	SS-3	–	–	–	–	–	–	–	–	–	12	A-6a (V)	
VERY STIFF TO HARD, MOTTLED RED AND BROWN, SILT AND CLAY, LITTLE SAND, TRACE GRAVEL, DAMP		7.5	9 11 18	40	93	SS-4	–	1	2	9	44	44	36	21	15	14	A-6a (10)	
	559.4	10.0 TR			100	ST-5	–	–	–	–	–	–	–	–	–	–	Rock (V)	
SHALE, LIGHT BROWN, SEVERELY WEATHERED, (AUGERED).	558.4		50	–	100	SS-6	–	–	–	–	–	–	–	–	–	4	Rock (V)	
SHALE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, LAMINATED; RQD 19%, REC 100%.		12.5	19		100	NQ-1											CORE	
	553.0	15.0																
MUDSTONE, DARK RED TO GRAY, SLIGHTLY WEATHERED, WEAK, MEDIUM TO THICK BEDDED; RQD 0%, REC 85%.		17.5	0		90	NQ-2											CORE	
		22.5																
		25.0																
		27.5	0		76	NQ-3											CORE	
	538.0	30.0 EOB																

NOTES: 16.4' TO 26.4' – CORE SAMPLE SWELLED IN CORE BARREL, RQD UNKNOWN AFTER REMOVAL

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED AUGER CUTTINGS

PROJECT: LAW - 7 - 2.17	DRILLING FIRM / OPERATOR: HORN / R.C.	DRILL RIG: CME 55 TRACK	STATION / OFFSET: 273+35, 130 RT	EXPLORATION ID B-037-1-12
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: HORN / R.C.	HAMMER: CME AUTOMATIC	ALIGNMENT: MAINLINE	
PID: 75923 BR ID:	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 4/30/13	ELEVATION: 532.3 (MSL) EOB: 34.5 ft.	PAGE 1 OF 1
START: 4/25/13 END: 4/26/13	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 85.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV. 532.3	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
MEDIUM STIFF TO STIFF, BROWN, **SANDY SILT**, SOME CLAY, TRACE GRAVEL, MOIST TO WET			1 2 3	7	100	SS-1	-	-	-	-	-	-	-	-	-	35	A-4a (V)	
		2.5																
		5.0	2 2 1	4	100	SS-2	-	-	-	-	-	-	-	-	-	27	A-4a (V)	
		7.5	2 2 4	9	100	SS-3	-	2	18	26	25	29	24	15	9	20	A-4a (4)	
		10.0	3 2 2	6	100	SS-4	-	-	-	-	-	-	-	-	-	18	A-4a (V)	
INCREASING TO VERY STIFF @ 12.5'		12.5	5 7 5	17	100	SS-5	-	-	-	-	-	-	-	-	-	16	A-4a (V)	
	516.3	15.0	5 7 10	24	100	SS-6	-	-	-	-	-	-	-	-	-	18	A-4a (V)	
MEDIUM DENSE TO DENSE, GRAY, **COARSE AND FINE SAND**, SOME SILT, LITTLE GRAVEL AND CLAY, WET		17.5	4 8 6	20	100	SS-7	-	18	21	28	22	11	23	18	5	17	A-3a (0)	
		20.0	7 10 11	30	100	SS-8	-	-	-	-	-	-	-	-	-	14	A-3a (V)	
	509.8 TR	22.5	6 12 17	42	100	SS-9	-	-	-	-	-	-	-	-	-	14	Rock (V)	
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	507.8																	
SHALE, GRAY, SLIGHTLY TO MODERATELY WEATHERED, MODERATELY STRONG, THIN BEDDED, ARENACEOUS, FRACTURED, SOME THIN SANDSTONE ZONES; RQD 14%, REC 78%.		25.0 27.5	28		82	NQ-1											CORE	
		30.0 32.5	0		73	NQ-2											CORE	
	497.8 EOB																	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 100 GAL. BENTONITE GROUT

PROJECT: LAW – 7 – 2.17	DRILLING FIRM / OPERATOR: STANTEC / S.B.	DRILL RIG: CME 45 TRACK	STATION / OFFSET: 273+95, 39 RT	EXPLORATION ID B-038-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / J.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.10	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 548.3 (MSL) EOB: 50.6 ft.	PAGE 1 OF 1
START: 5/24/11 END: 5/24/11	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 81.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
MEDIUM STIFF TO STIFF, BROWN, SILTY CLAY, AND SAND, TRACE GRAVEL, RELATIVE CONSISTENCY INCREASES WITH INCREASING DEPTH, MOIST	548.3		WOH 1 2	4	67	SS-1	–	–	–	–	–	–	–	–	–	21	A-6b (V)	
		2.5	2 2 3	7	60	SS-2	–	–	–	–	–	–	–	–	–	22	A-6b (V)	
		5.0	3 3 4	10	73	SS-3	–	6	9	27	27	31	35	18	17	19	A-6b (7)	
	540.8		3 4 5	12	47	SS-4	–	–	–	–	–	–	–	–	–	19	A-6b (V)	
VERY STIFF, BROWN, CLAY, SOME SILT, TRACE SAND AND GRAVEL, MOIST		7.5	4 5 8	18	87	SS-5	–	–	–	–	–	–	–	–	–	27	A-7-6 (V)	
		10.0			80	ST-6	–	2	1	3	22	72	44	23	21	25	A-7-6 (13)	
	535.8																	
VERY STIFF TO HARD, MOTTLED BROWN AND GRAY, SILT AND CLAY, SOME SAND AND GRAVEL, MOIST		12.5	4 10 8	25	33	SS-7	–	–	–	–	–	–	–	–	–	19	A-6a (V)	
		15.0	4 11 15	35	100	SS-8	–	24	5	24	22	25	26	12	14	15	A-6a (4)	
		17.5	8 15 16	42	87	SS-9	–	–	–	–	–	–	–	–	–	13	A-6a (V)	
		20.0	2 10 10	27	53	SS-10	–	–	–	–	–	–	–	–	–	15	A-6a (V)	
	525.8																	
VERY STIFF TO HARD, BROWN, SANDY SILT, SOME GRAVEL AND CLAY, MOIST		22.5	4 12 18	41	100	SS-11	–	27	8	22	22	21	24	15	9	12	A-4a (2)	
		25.0	2 6 9	20	100	SS-12	–	–	–	–	–	–	–	–	–	14	A-4a (V)	
	520.8																	
VERY STIFF, RED-BROWN, SILT AND CLAY, SOME SAND, LITTLE GRAVEL, MOIST		27.5	1 6 9	20	87	SS-13	–	–	–	–	–	–	–	–	–	23	A-6a (V)	
		30.0	3 5 6	15	100	SS-14	–	16	9	15	28	32	28	14	14	17	A-6a (7)	
	513.3	32.5 TR																
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).		35.0	9 10 43	72	87	SS-15	–	–	–	–	–	–	–	–	–	13	Rock (V)	
	511.4																	
SHALE, GRAY, MODERATELY WEATHERED, SLIGHTLY STRONG, LAMINATED, SLICKENSIDES; RQD 53%, REC 80%.		37.5	30		39	NQ-1											CORE	
		40.0																
		42.5																
		45.0	65		100	NQ-2											CORE	
		47.5																
	497.7	50.0 EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED AUGER CUTTINGS

BRIDGE-LAW-7-05.10: STA. 271+70.4, 18.2' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.10

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B4EBI-206
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel

LOCATION: Sta. 271+70.4, 18.2' Rt. of Proposed SR 7 Centerline

COMPLETION DEPTH: 30.0' ELEVATION: 535.0 DATE: 12/29/99 - 12/30/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											Stiff to very-stiff brown clayey silt, little fine to coarse sand, few roots. Est. A-4a
	1	2/3/6					23	26	31	20	Loose brown fine to coarse sand, little fine to coarse gravel, little silty clay, few roots. A-3a(0)
5	2	4/9/8					61	13	13	13	Medium-dense brown fine to coarse gravel, "and" fine to coarse sand, little silty clay, many sandstone fragments. A-1-a(0)
	3	2/4/4					46	21	17	16	Loose brown fine to coarse sand, some fine to coarse gravel, little silty clay, few sandstone fragments. A-1-b(0)
	4	2/4/6	1.0-2.25	33	44	25	0	0	1	99	Stiff to very-stiff gray silty clay, trace fine sand, few silt lenses. A-7-6(12)
10	5	3/5/6					17	22	26	20 15	Medium-dense gray fine to coarse sand, little silty clay, trace fine gravel, few seams of silty clay. Est. A-1-b
	6	4/4/6	1.0-2.0	25	34	20	10	0	23	23 44	Stiff gray mottled with brown silty clay, some fine to coarse sand, trace fine gravel, few silt and fine sand lenses. A-6a(8)
15	7	4/10/11									Medium-dense gray fine to coarse sand, some fine to coarse gravel (sandstone fragments), some clayey silt. Est. A-1-b
20	8	4/11/9									
	9	5/13/22									Dense gray, brown and reddish-brown fine to coarse sand, some fine to coarse gravel (sandstone fragments), little clayey silt, few zones of fine to medium sand. Est. A-1-b
	10	11/14/23									
25	11	NXM REC 45% RQD 0%									Medium-hard gray and brown siltstone, nearly horizontally bedded, few horizontal fractures. Visual
											Very-soft to soft gray shale, nearly horizontally bedded, fragmental structure, many fractures. Visual
30											- Encountered slight seepage from 4.3' to 7.0' and at 14.5'.
											- Auger refusal at 25.0'.
35											

WATER LEVEL: "Dry"
WATER NOTE: Before Coring
DATE: 12/30/99

JOB: 01106405.002

PLATE 8

ODOTLJ 16405002.GPJ BBCM.GDT 5/20/02

BRIDGE-LAW-7-05.10: STA. 273+86.7, 83.7' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.10

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B4WBF-207
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel

LOCATION: Sta. 273+86.7, 83.7' Lt. of Proposed SR 7 Centerline

COMPLETION DEPTH: 29.5' ELEVATION: 575.6 DATE: 1/10/00 - 1/11/00

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											Medium-dense brown fine to coarse sand, "and" clayey silt, little fine to coarse gravel. A-4a(2)
	1	6/9/5		9	32	23	20	18	19	25 18	Very-stiff gray mottled with brown silty clay, little fine to coarse sand, trace fine to coarse gravel, slightly organic, few shale fragments. Est. A-6b
5	2	4/6/9	3.0-4.0								
	3	10/37/37	4.5+								Hard gray mottled with brown and reddish-brown silty clay, similar to very-soft shale, few calcite streaks. Est. A-6b
10	4	10/26/43	4.5+								
	5	15/42/56	4.5+								
15	6	17/53		9	36	21	61	5	3	17 14	Very-soft to soft brown and gray shale, nearly horizontally bedded, similar to hard silty clay, few thin layers of siltstone. Visual
	7	50-5"R									
20	8	NXM REC 55% RQD 18%									Medium-hard gray fine-grained sandstone, nearly horizontally bedded, well cemented, few horizontal fractures, few seams of shale. Visual
											Soft to medium-hard gray siltstone, nearly horizontally bedded, few diagonal and vertical fractures, partly calcareous, few seams of very-soft shale. Visual
25	9	NXM REC 75% RQD 0%									Very-soft to soft gray becoming reddish-brown shale, nearly horizontally bedded, similar to hard silty clay, highly fractured, few limestone nodules. Visual
30											- No water encountered.
											- Auger refusal at 19.5'.
35											

WATER LEVEL: "Dry"
WATER NOTE: Before Coring
DATE: 01/11/00

JOB: 01106405.002

PLATE 9

ODOTLJ 16405002.GPJ BBCM.GDT 5/20/02

DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.10

LAW-7-2.17

176/206

1217
1247

BRIDGE-LAW-7-05.10: STA. 266+37, 55.7' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.10

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B4WBR-205
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 266+37, 55.7' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 34.5' ELEVATION: 557.5 DATE: 12/28/99 - 12/29/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 14 INCHES
	1	3/9/7	2.5-3.5	23	36	23	2	9	21	31	37	Very-stiff brown silty clay, some fine to coarse sand, trace fine gravel, slightly organic, few roots. A-6a(8)
5	2	6/9/9	4.5+	13								Hard brown clayey silt, "and" fine to coarse sand, some fine to coarse gravel (sandstone and siltstone fragments), desiccated. Est. A-4a
	3	3/9/11	2.5-4.5+									Very-stiff to hard brown mottled with reddish-brown and gray silty clay, little fine to coarse sand, trace to little fine to coarse gravel (shale and sandstone fragments), few seams of clayey silt.
10												Est. A-6a
15	4	3/11/10	3.0-4.5+									Very-soft to soft brown interbedded with reddish-brown shale, nearly horizontally bedded, similar to hard silty clay. Visual
	5	11/50/5"	50-5"R									Very-soft to soft brownish-gray shale, nearly horizontally bedded. Visual
20												
25	6	42/	50-4"R									
	7	35/										Soft to medium-hard gray shale, interbedded with sandstone and siltstone, nearly horizontally bedded, few very-soft seams, few seams of medium-hard limestone. Visual
30	8	NXM REC 48% RQD 27%										
35												- No seepage encountered. -Auger refusal at 29.5'.
40												

WATER LEVEL: 21.0
WATER NOTE: Before Coring
DATE: 12/29/99

JOB: 01106405.002

PLATE 5

ODOTLI 1405902.GPJ BBCM.GDT 4/28/02

BRIDGE-LAW-7-05.10: STA. 268+6.2, 42.8' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.10

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-4BP1
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 268+6.2, 42.8' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 43.8' ELEVATION: 551.5 DATE: 11/16/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 8 INCHES
	1	2/3/5	2.25-3.2									Very-stiff brown silty clay, little fine to coarse sand, trace fine to coarse gravel. Est. A-6b
	2	4/6/8		13	26	18	42	15	16	11	16	Medium-dense brown fine to coarse sand, some clayey silt, some fine gravel. A-2-4(0)
5	3A 3B	3/4/5	3.75-4.5	28	66	26						
	4	6/9/9	4.0-4.5									Very-stiff to hard brown mottled with gray silty clay, trace fine to coarse sand, trace fine gravel. Est. A-7-6
	5	6/8/9	3.25-4.5	26								Very-stiff to hard gray silty clay, trace fine to coarse sand, contains few silt seams.
10	6	5/5/5	3.75-4.2									Est. A-7-6
	7	4/6/7	1.75-2.7	18	38	22						Stiff to very-stiff gray silty clay, some fine to coarse sand, little fine to coarse gravel. Est. A-6b
15	8	5/6/7	2.25-3.2									
	9	5/6/7	2.0-4.5									Very-stiff to hard brown silty clay, some fine to coarse sand, little fine gravel. Est. A-6a
20												
25	10	15/34/44			24	35	24					Very-soft red shale, nearly horizontally bedded, highly weathered, partly similar to silty clay. Visual
	11	37/ 60R			8							Very-soft brown weathered shale, nearly horizontally bedded, partly similar to clayey silt. Visual
30												Soft to medium-hard gray siltstone, nearly horizontally bedded, contains many fractures. Visual
	12	50-4"R										
35	13	NXM REC 69% RQD										Medium-hard gray siltstone, interbedded with shale, nearly horizontally bedded, contains many diagonal fractures. Visual

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 6405.1

-CONTINUED-

PLATE 6

LAW-7-05.10

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-4BP1
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 268+6.2, 42.8' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 43.8' ELEVATION: 551.5 DATE: 11/16/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
40	14	42% REC 98% RQD 87%										Soft to medium-hard gray shale, nearly horizontally bedded, contains few diagonal fractures, few iron-oxide filled fractures.
	15	REC 100% RQD 100%										Visual
45												- Encountered water at 33.5'.
50												
55												
60												
65												
70												

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 6405.1

PLATE 7

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.10

LAW-7-2.17

PROJECT: LAW - 7 - 2.17	DRILLING FIRM / OPERATOR: STANTEC / M.M.	DRILL RIG: CME 55 #1 TRUCK	STATION / OFFSET: 301+30, 41 RT	EXPLORATION ID B-051-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / M.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.63	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 550.4 (MSL) EOB: 28.0 ft.	PAGE 1 OF 1
START: 5/26/11 END: 5/26/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 74.4	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV. 550.4	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
SOFT, BROWN, SILT AND CLAY, SOME GRAVEL, LITTLE SAND, DAMP	547.3	TR	2 1 2	4	53	SS-1	–	34	9	13	22	22	36	21	15	11	A-6a (3)	
SANDSTONE, GRAY, SLIGHTLY WEATHERED, STRONG, FINE GRAINED, THIN BEDDED, IRON STAINING; RQD 100%, REC 100%.	546.7	2.5	7 50/1"	–	100	SS-2	–	–	–	–	–	–	–	–	–	16	A-6a (V)	
SHALE, LIGHT BROWN, SLIGHTLY WEATHERED, MODERATELY STRONG, LAMINATED, ARENACEOUS; RQD 25%, REC 79%.	541.0	5.0	31		100	NQ-1											CORE	
		7.5	32		61	NQ-2											CORE	
MUDSTONE, RED-BROWN, SLIGHTLY WEATHERED, WEAK, THICK BEDDED, SLICKENSIDES; RQD 0%, REC 86%.	532.9	10.0 12.5 15.0 17.5	17		89	NQ-3											CORE	
SANDSTONE, LIGHT BROWN, SLIGHTLY WEATHERED, STRONG, THIN BEDDED; RQD 95%, REC 100%.	529.0	20.0																
SHALE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG, LAMINATED; RQD 100%, REC 100%.	527.0	22.5																
MUDSTONE, RED-BROWN, SLIGHTLY WEATHERED, WEAK, THICK BEDDED, SLICKENSIDES; RQD 0%, REC 85%.	522.4	25.0 27.5 EOB	47		92	NQ-4											CORE	

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED AUGER CUTTINGS

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.63

DRAWN MSJ
CHECKED EMK

PROJECT: LAW – 7 – 2.17	DRILLING FIRM / OPERATOR: STANTEC / M.M.	DRILL RIG: CME 55 #1 TRUCK	STATION / OFFSET: 298+63, 37 LT	EXPLORATION ID B-050-0-11
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: STANTEC / M.M.	HAMMER: CME AUTOMATIC	ALIGNMENT:	
PID: 75923 BR ID: LAW-7-05.63	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 2/24/10	ELEVATION: 532.4 (MSL) EOB: 51.0 ft.	PAGE 1 OF 1
START: 5/23/11 END: 5/24/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 74.4	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	INST.
VERY LOOSE TO LOOSE, BROWN, SANDY SILT, LITTLE CLAY, MOIST	532.4		1	2	100	SS-1	–	–	–	–	–	–	–	–	–	25	A-4a (V)	
		2.5	1	4	73	SS-2	–	0	8	56	22	14	NP	NP	NP	21	A-4a (0)	
	527.9		2	5	87	SS-3	–	0	7	46	29	18	NP	NP	NP	22	A-4a (2)	
MEDIUM STIFF, BROWN, SILT AND CLAY, AND SAND, TRACE GRAVEL, MOIST		5.0	2	5	80	SS-4	–	–	–	–	–	–	–	–	–	24	A-6a (V)	
	524.9		2	5	100	SS-5	–	1	8	31	39	21	27	16	11	22	A-6a (5)	
VERY LOOSE TO LOOSE, BROWN GRADING TO GRAY, COARSE AND FINE SAND, LITTLE GRAVEL AND SILT, TRACE CLAY, MOIST TO WET		7.5	2	6	100	SS-6	–	0	17	59	14	10	NP	NP	NP	23	A-3a (0)	
		10.0	2	5	100	SS-7	–	–	–	–	–	–	–	–	–	27	A-3a (V)	
		W																
		12.5	1	1	100	SS-8	–	–	–	–	–	–	–	–	–	30	A-3a (V)	
		15.0	WOH															
			1	2	100	SS-9	–	18	18	47	10	7	NP	NP	NP	55	A-3a (0)	
		17.5	3	9	80	SS-10	–	–	–	–	–	–	–	–	–	27	A-3a (V)	
	512.4																	
MEDIUM STIFF TO STIFF, GRAY, SILT AND CLAY, TRACE SAND, MOIST		20.0	3	9	100	SS-11	–	0	2	8	47	43	31	18	13	21	A-6a (9)	
		22.5	3	7	100	SS-12	–	–	–	–	–	–	–	–	–	26	A-6a (V)	
	507.4																	
STIFF TO VERY STIFF, GRAY, SILTY CLAY, TRACE SAND AND GRAVEL, DAMP TO MOIST		25.0	5	12	87	SS-13	–	–	–	–	–	–	–	–	–	22	A-6b (V)	
		27.5	6	16	100	SS-14	–	2	1	9	49	39	37	19	18	21	A-6b (11)	
		30.0	3	6	100	SS-15	–	–	–	–	–	–	–	–	–	23	A-6b (V)	
		32.5	8	20	100	SS-16	–	–	–	–	–	–	–	–	–	17	A-6b (V)	
	495.9	35.0	TR															
SHALE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY STRONG, LAMINATED, SANDSTONE SEAM @ 36.7' TO 37.1'; RQD 54%, REC 100%.			11	40	100	SS-17	–	–	–	–	–	–	–	–	–	14	A-6b (V)	
	493.1	37.5	29		100	NQ-1											CORE	
MUDSTONE, BROWN AND GRAY, MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, THICK BEDDED, SLICKENSIDES; RQD 0%, REC 91%.		40.0																
		42.5	0		84	NQ-2											CORE	
		45.0																
		47.5	0		92	NQ-3											CORE	
	481.4	50.0	EOB															

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED BENTONITE GROUT

BRIDGE-LAW-7-05.63: STA. 297+17.6, 116.8 Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B5WBR-203
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel

LOCATION Sta. 297+17.6, 116.8' Lt. of Proposed SR 7 Centerline

COMPLETION DEPTH: 44.9' ELEVATION: 532.5 DATE: 12/22/99 - 12/23/99

DEPTH, FEET	SAMPLE NO.	SAMPLING EFFORT	HAND PENE-TROMETER (tsf)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 18 INCHES
	1	4/4/4	2.25-2.75									Very-stiff to hard brown organic silty clay, little fine to medium sand, few roots.
5	2	4/6/8	3.5-4.5+	23	43	24	0	0	11	89		Visual
	3	3/5/5	3.0-4.5+									Very-stiff to hard brown mottled with gray organic clayey silt, little fine to medium sand, few roots.
10												Visual
	4	3/3/3					0	2	68	30		Very-loose to loose brown and gray fine sand, some clayey silt, trace medium sand, few silt and clayey silt seams.
	5	2/2/3					0	3	63	34		
15	6	2/1/2					0	2	74	24		A-3a(0)
	7	2/1/2					0	33	63	4		Very-loose gray fine to medium sand, trace silt, interbedded with silt and silty clay below 19.0 feet.
20	8	2/1/1										A-3(0)
	9	8/9/16										Loose to medium-dense gray and brown fine to coarse sand, trace to little fine to coarse gravel (shale and sandstone fragments), trace clayey silt.
25	10	2/3/6										
	11	6/6/7										Est. A-3a
30	12	13/19/21										Dense brown and gray fine to coarse sand, little fine gravel, trace to little clayey silt, few sandstone and shale fragments.
	13	14/19/23										
35	14	14/16/21										Est. A-1-b

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 16405002.GPJ BBCM.GDT 5/20/02

JOB: 01106405.002

-CONTINUED-

PLATE 5

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B5WBR-203
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel

LOCATION Sta. 297+17.6, 116.8' Lt. of Proposed SR 7 Centerline

COMPLETION DEPTH: 44.9' ELEVATION: 532.5 DATE: 12/22/99 - 12/23/99

DEPTH, FEET	SAMPLE NO.	SAMPLING EFFORT	HAND PENE-TROMETER (tsf)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
35												Dense brown and gray fine to coarse sand, little fine gravel, trace to little clayey silt, few sandstone and shale fragments. Est. A-1-b
	15	70R										Medium-hard gray fine-grained sandstone, nearly horizontally bedded, well cemented. Visual
40	16	NXM REC 53% RQD 12%										Very-soft to soft gray, brown and reddish-brown shale, nearly horizontally bedded, few horizontal fractures, similar to hard silty clay. Visual
45												
50												- Encountered water from 11.5' to 12.3'. -Auger refusal at 39.9'.
55												
60												
65												
70												

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 16405002.GPJ BBCM.GDT 5/20/02

JOB: 01106405.002

PLATE 6

DRAWN M.S.J.
CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.63

LAW-7-2.17

BRIDGE-LAW-7-05.63: STA. 298+39.1, 11.9 Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-5BP1
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 298+39.1, 11.9' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 46.5' ELEVATION: 530.5 DATE: 10/12/98 10/13/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 4 INCHES
	1	2/3/4										Very-loose to loose brown fine to medium sand, trace coarse sand, little to some silt.
5												Est. A-3a
	2	3/3/3										
	3	1/2/2										
10												
	4	3/3/10					1	60	34	4	1	Medium-dense gray and brown fine to medium sand, trace coarse sand, trace silt.
15	5	4/5/10	2.5-2.75	23	36	21	1	3	10	34	52	A-1-b(0)
	6	5/7/9	2.5-2.75	24	36	21	0	3	5	33	59	Stiff to very-stiff gray silty clay, trace fine to coarse sand, trace fine gravel.
	7	2/5/7	1.75-2.5	26	36	23	0	2	6	31	61	
20	8	3/4/6	1.0-2.2									A-6a(10)
	9	2/5/7	2.5	28	42	23	0	1	6	29	64	Stiff to very-stiff brown mottled with gray silty clay, trace fine to coarse sand.
	10	3/4/5	1.7-2.2									
25	11	2/5/6	1.7-2.3	27								A-7-6(12)
	12	2/2/2										Loose gray fine to medium sand, trace coarse sand, some silty clay.
30												
	13	5/7/3					7	54	29	10		
35												A-1-b(0)

WATER LEVEL: ▽ 11.0 ▼ 9.3
WATER NOTE:
DATE: 10/12/98 10/13/98

JOB: 6405.1 -CONTINUED- PLATE 7

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-5BP1
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 298+39.1, 11.9' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 46.5' ELEVATION: 530.5 DATE: 10/12/98 10/13/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
	14	50-3"R NXM REC 63% RQD 32%										Medium-hard gray shale, nearly horizontally bedded, many directional fractures.
	15											Visual
40												Soft to medium-hard green-brown and red shale, many directional fractures, contains slickensides, no recovery below 41.5'.
	16	REC 0% RQD 0%										
45												Visual
												- Encountered water at 25.9'.
50												- Sample 16 was ground up in core barrel, description based on cuttings.
55												
60												
65												
70												

WATER LEVEL: ▽ 11.0 ▼ 9.3
WATER NOTE:
DATE: 10/12/98 10/13/98

JOB: 6405.1 PLATE 8

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.63

LAW-7-2.17

1222/1247

BRIDGE-LAW-7-05.63: STA. 300+13.3, 41.4 Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-5BP2
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 300+13.3, 41.4' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 40.0' ELEVATION: 532.8 DATE: 10/14/98 10/15/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 4 INCHES
	1	4 / 6 / 7	4.5+									Very-stiff hard brown silty clay, trace to little fine sand, contains silt seams.
5	2	4 / 6 / 8	2.7									Est. A-7-6
	3	3 / 4 / 3										Loose brown fine to medium sand, little silt.
10												Est. A-3a
	4	4 / 6 / 8	2.5-3.75	17	26	17	7	12	18	29	34	Very-stiff red brown mottled with gray clayey silt, fine to coarse sand, trace fine gravel.
15												A-4a(6)
	5	6 / 8 / 14	3.0-4.0	23	45	23	0	1	7	37	55	Very-stiff to hard brown and brown mottled with gray silty clay, trace to little fine to medium sand, trace coarse sand.
	6	6 / 10 / 17	3.0-4.0				1	2	5	35	57	
20	7	5 / 9 / 12	3.5-4.5	21			1	1	13	38	47	
	8	5 / 9 / 15	4.5+									
	9	5 / 7 / 11	3.0-3.75	20			0	1	17	37	45	A-7-6(14)
25	10	3 / 4 / 6	1.0-2.0									Stiff brown mottled with gray silty clay, some fine to medium sand.
												Est. A-7-6
	11	38 / 50-5"R					8	39	23			Very-soft red to gray shale, nearly horizontally bedded, partly similar to silty clay.
30												Visual
	12	NXM REC 80% RQD 60%										Soft to medium-hard gray shale, nearly horizontally bedded, contains many fractures, few seams of red shale.
35												Visual
												Medium-hard to hard gray siltstone, nearly horizontally bedded, few diagonal fractures with iron oxide staining, micaceous.

WATER LEVEL: ▽ 9.5 ▼ 10.5
WATER NOTE:
DATE: 10/15/98 10/16/98

JOB: 6405.1 -CONTINUED- PLATE 9

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B-5BP2
LAW-7-2.17 PRELIMINARY INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 300+13.3, 41.4' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 40.0' ELEVATION: 532.8 DATE: 10/14/98 10/15/98

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
35	13	REC 100% RQD 55%										Visual
												Medium-hard to hard gray siltstone, nearly horizontally bedded, few diagonal fractures with iron oxide staining, micaceous.
40												Visual
												Medium-hard gray shale, nearly horizontally bedded, contains many fractures, few seams of brown shale.
												Visual
45												- Encountered water at 8.5'.
50												
55												
60												
65												
70												

WATER LEVEL: ▽ 9.5 ▼ 10.5
WATER NOTE:
DATE: 10/15/98 10/16/98

JOB: 6405.1 PLATE 10

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.63

LAW-7-2.17

1223
1247

BRIDGE-LAW-7-05.63: STA. 300+67.7, 115.3 Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B5WBF-204
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 300+67.7, 115.3' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 37.0' ELEVATION: 529.1 DATE: 12/27/99 - 12/28/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 8 INCHES
												Very-stiff brown and reddish-brown silty clay,little fine sand, slightly organic, few roots near top of stratum.
5	1		3/5/6	3.0-3.5								Est. A-7-6
	2		3/5/5	3.0-3.5								Medium-stiff to stiff brown clayey silt, "and" fine sand, few silt and fine sand seams. A-4a(5)
10	3		2/3/2	0.5-2.0	26	27	21	0	0	40	39 21	Loose gray fine sand, "and" clayey silt, trace medium sand, few silt and fine sand seams.
	4		2/3/4					0	4	60	36	Est. A-4a
	5		2/2/1					1	24	66	9	Very-loose brown fine to medium sand, trace coarse sand, trace silt. A-3(0)
15	6		1/1/1	0.0-0.25	28	30	17	0	3	28	37 32	Very-soft gray silty clay, some fine to medium sand, few silt and fine sand seams. A-6a(8)
	7		3/2/4	1.0-1.75	32	41	24		0	5	29 66	Stiff gray silty clay, trace fine sand, few sandstone fragments, few silt lenses. A-7-6(11)
20	8		3/6/16	3.0-3.5								Very-stiff gray clayey silt, some fine to coarse sand, little fine to coarse gravel, few shale and sandstone fragments. Est. A-4a
	9		3/7/13	3.0-4.5+								Very-stiff to hard brown mottled with gray silty clay, little fine to coarse sand, trace fine gravel, few shale and sandstone fragments. Est. A-6a
25	10		9/17/19	3.0-4.5+	16	27	21	26	3	11	34 26	Very-stiff to hard brown and gray clayey silt, little fine to coarse sand, little fine to coarse gravel, few shale and sandstone fragments. A-4a(5)
	11		7/13/15	4.5+	18							Hard reddish-brown and brown mottled with gray silty clay, some fine to coarse sand, trace fine gravel, becoming similar to very-soft shale.
	12		9/13/33	4.5+								Est. A-6a
30	13		25/43/50-4"R									Very-soft reddish brown and gray shale, nearly horizontally bedded, partly similar to hard silty clay. Visual
			NXM REC 98%									Medium-hard gray fine-grained sandstone, nearly horizontally bedded, micaceous, well cemented. Visual
35	14											

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 01106405.002

-CONTINUED-

PLATE 11

LAW-7-05.63

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B5WBF-204
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 300+67.7, 115.3' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 37.0' ELEVATION: 529.1 DATE: 12/27/99 - 12/28/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
35		RQD 95%										Medium-hard gray fine-grained sandstone, nearly horizontally bedded, micaceous, well cemented. Visual
												Soft to medium-hard gray shale, nearly horizontally bedded, few horizontal fractures. Visual
40												
45												- Encountered water from 12.0' to 14.0'.
												- Auger refusal at 32.0'.
50												
55												
60												
65												
70												

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 01106405.002

PLATE 12

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-05.63

LAW-7-2.17

BRIDGE-LAW-7-07.13: STA. 376+81.4, 35.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-07.13

LOG OF BORING NO. B6WBR-208
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 376+81.4, 35' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 67.0' ELEVATION: 576.7 DATE: 12/20/99 - 12/21/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													TOPSOIL - 24 INCHES
	1		4 /5 /7	2.0-3.5	25	39	23	0	3	3	58	36	Very-stiff brown silty clay, trace fine to medium sand. A-6b(10)
5	2		5 /10 /11	4.5+									Hard brown mottled with gray silty clay, little fine to medium sand, contains silt filled desiccation cracks. Est. A-6a
10	3		5 /12 /16	4.5+									
	4		4 /6 /10										Medium-dense brown fine to medium sand, trace coarse sand, trace silty clay. Est. A-3
15													
	5		2 /5 /6	2.5									Very-stiff brown becoming gray clayey silt, trace to little fine to medium sand, few silty clay and fine to coarse sand seams.
20													
25	6		3 /5 /6	2.0-3.5	29	26	21	0	1	10	69	20	
	7		4 /7 /8	2.5-3.5									
30	8		3 /5 /5	3.0-3.5	28	27	22	0	0	2	77	21	A-4b(8)
	9		4 /5 /10	0.5-1.0	29								Medium-stiff brown mottled with gray silty clay, some fine to coarse sand, little fine to coarse gravel, few clayey silt seams. Est. A-6a
	10		8 /7 /8					40	12	11	37		
35	11		4 /7 /8					39	10	13	38		Medium-dense brown, gray and reddish-brown fine to coarse sand, "and" silt, some fine gravel, trace clay, many sandstone and shale fragments, few silt and silty clay seams.
	12		4 /4 /8										Est. A-1-b
40	13		11 /18 /22	4.5+									Very-stiff to hard brown, gray and reddish-brown clayey silt, some fine to coarse sand, little fine to coarse gravel (shale and sandstone fragments), desiccated. Est. A-4a
	14		7 /10 /15	3.0-4.5+									

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 1640503.GPJ BBCM.GDT 8/3/02

JOB: 01106405.002

-CONTINUED-

PLATE 5

LAW-7-07.13

LOG OF BORING NO. B6WBR-208
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 376+81.4, 35' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 67.0' ELEVATION: 576.7 DATE: 12/20/99 - 12/21/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
45	15		9 /9 /20	2.5-3.5									Stiff to very-stiff reddish-brown mottled with blue-gray silty clay, little fine sand, few shale and sandstone fragments, slightly organic. A-6a(10)
50	16		3 /5 /7	1.5-2.5	24	34	20	0	0	18	45	37	
	17		13 /21 /26										Very-soft to soft blue-gray mottled with reddish-brown shale, similar to hard silty clay, nearly horizontally bedded. Visual
	18		58R										Very-soft to soft blue-gray shale, nearly horizontally bedded, partly similar to hard silty clay. Visual
55	19		47 /50R										Soft to medium-hard gray mottled with reddish-brown shale, nearly horizontally bedded, few horizontal fractures, few seams of very-soft shale. Visual
60			NQ REC 69% RQD 38%										
65	20												- Encountered seepage from 28.5' to 31.5'. - Encountered water at 31.5'. - Auger refusal at 61.0'.
70													
75													
80													
85													

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 1640503.GPJ BBCM.GDT 8/3/02

JOB: 01106405.002

PLATE 6

BRIDGE-LAW-7-07.13: STA. 377+81.6, 35.0' Rt. of PROPOSED SR 7 CENTERLINE

LAW-7-07.13

LOG OF BORING NO. B6EBI-209
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 377+81.6, 35' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 37.0' ELEVATION: 542.6 DATE: 12/16/99 - 12/17/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													TOPSOIL - 7 INCHES
	1		3 /3 /3	1.0-2.5	33	41	28	0	0	11	60	29	Stiff to very-stiff brown mottled with gray silty clay, little fine sand, desiccated, few roots, slightly organic. A-7-6(9)
5	2		2 /2 /2	0.5-1.5	33	35	23	0	1	11	59	29	Medium-stiff to stiff gray interbedded with brown silty clay, little fine to medium sand, few roots, slightly organic. A-6a(9)
	3		2 /1 /2	0.5-1.5	43								
	4		2 /2 /3	0.5-1.5	30	39	23	0	1	12	52	35	Medium-stiff to stiff brown mottled with gray silty clay, little fine to coarse sand, trace fine to coarse gravel, few seams of very-soft clayey silt, few pockets of fine to coarse gravel.
10	5		2 /1 /2	0.5-1.5									
	6		2 /2 /3	1.5									
15	7		2 /5 /3	0.5-1.5									A-6b(10)
	8		4 /6 /11	2.0-3.0	15	32	20	0	9	17	45	29	Very-stiff blue-gray mottled with reddish-brown silty clay, some fine to medium sand, trace coarse sand, trace fine gravel, few shale and sandstone fragments, partly similar to very-soft shale. A-6a(9)
20	9		22 /50-5"R										Very-soft to soft reddish-brown and gray shale, nearly horizontally bedded, similar to hard silty clay. Visual
	10		50-5"R										Soft to medium-hard gray and reddish-brown shale, nearly horizontally bedded, few seams of very-soft shale, few siltstone seams, many diagonal and vertical fractures.
25													
	11		50-4"R										Visual
30			NQ REC 77% RQD 25%										- Encountered seepage at 10.2'. - Encountered water at 12.7'. - Auger refusal at 30.0'.
35	12												
40													

WATER LEVEL: 14.0
WATER NOTE: Before Coring
DATE: 12/17/99

ODOTLJ 1640503.GPJ BBCM.GDT 8/12/02

JOB: 01106405.002

PLATE 7

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION

LAW-7-07.13

LAW-7-2.17

184/206

1225/1247

BRIDGE-LAW-7-07.13: STA. 378+79.7, 35.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-07.13

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6WBI-210
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 378+79.7, 35' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 34.5' ELEVATION: 542.8 DATE: 12/15/99 - 12/16/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													Medium-stiff to stiff brown clayey silt, "and" fine to coarse sand, trace fine gravel, few roots, slightly organic.
	1		2/2/4	0.5-1.5	24	30	20	2	9	31	36	22	A-4a(5)
5	2		2/2/4	1.5-2.5	25	35	21	2	10	25	39	24	Stiff to very-stiff brown silty clay, some to "and" fine to coarse sand, trace fine gravel, few roots near top of stratum, slightly organic.
	3		3/5/6	2.0-3.5	19	38	21	2	10	13	39	36	A-6a(7)
	4		2/4/4	1.5-3.5	22	36	21	3	6	14	43	34	Very-stiff brown silty clay, little fine to corse sand, trace fine to coarse gravel.
10	5		4/5/13										A-6b(11)
													Stiff to very-stiff brown silty clay, some fine to coarse sand, trace fine gravel.
	6		10/18/17	3.0-4.5+									A-6a(10)
15													Very-stiff to hard brown mottled with gray clayey silt, little to some fine to coarse sand, trace fine gravel (sandstone fragments).
	7		10/11/7										Est. A-4a
													Medium-dense brown fine to coarse gravel (sandstone fragments), some fine to coarse sand, little silty clay, desiccated.
	8		4/4/8	1.5-3.0	20								Est. A-1-b
20													Stiff to very-stiff brown mottled with gray silty clay, little fine to coarse sand, trace fine to coarse gravel (sandstone and siltstone fragments).
	9		7/8/9	0.75-1.5	24	32	20	8	2	17	42	31	Est. A-6a
													Medium-stiff to stiff brown mottled with gray silty clay, some fine to coarse sand, trace fine to coarse gravel.
	10		2/4/7	2.0-2.5									A-6a(8)
25													Very-stiff brown mottled with gray silty clay, little fine to medium sand.
													Est. A-6b
													Very-soft gray shale, similar to hard silty clay, nearly horizontally bedded, highly fractured.
	11		12, 50-5"R										Visual
30													Soft to medium-hard gray siltstone, nearly horizontally bedded, many diagonal and vertical fractures, few seams of very-soft shale.
	12		NQ REC 35% RQD 6%										Visual
35													- Topsoil stripped for levelling pad.
													- Encountered water at 9.0'.
40													- Auger refusal at 29.5'.

WATER LEVEL: ▽ 2.7
WATER NOTE: Before Coring
DATE: 12/16/99

JOB: 01106405.002

PLATE 8

ODOTLJ 16405002.GPJ BBCM.GDT 8/12/02

BRIDGE-LAW-7-07.13: STA. 379+81.1, 35.0' Lt. of PROPOSED SR 7 CENTERLINE

LAW-7-07.13

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6EBF-211
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 379+81.1, 35' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 38.1' ELEVATION: 541.6 DATE: 12/14/99 - 12/15/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													Soft to medium-stiff brown silty clay, some fine to coarse sand, slightly organic, few roots, few silt seams.
	1		2/2/2	0.25-0.75	30	37	23	1	7	24	43	25	A-6a(8)
5	2		1/2/3	0.75-1.25	34	44	25	4	8	23	37	28	Medium-stiff to stiff brown silty clay, some to "and" fine to coarse sand, trace fine gravel, slightly organic, few roots, few silt seams.
	3		2/3/4	0.75-1.5	30	42	23	3	11	24	32	30	A-7-6 (10)
	4		3/3/4	1.5-2.5	25	36	22	0	11	25		64	Stiff to very-stiff brown silty clay, some to "and" fine to medium sand, desiccated.
10	5		2/3/5	1.0-2.25									A-6a(7)
	6		3/5/9	3.5-4.5+									Very-stiff to hard brown mottled with gray silty clay, little fine to coarse sand, trace silt.
15													Est. A-6a
	7		3/5/8	2.5-3.5	24	42	21	0	0	9	46	45	Very-stiff reddish-brown mottled with brown silty clay, trace to little fine sand, few seams of fine to coarse sand, desiccated.
	8		3/5/8	2.5-3.5									A-7-6(13)
20													Very-stiff brown mottled with gray silty clay, trace to little fine sand, desiccated.
	9		3/7/7	2.25-3.5									A-6a(10)
	10		3/3/7	2.0-3.0	25	38	23		0	10	42	48	
25													
	11		7/9/9	2.0-4.0									
30													

WATER LEVEL: ▽ 2.2
WATER NOTE: Before Coring
DATE: 12/15/99

JOB: 01106405.002

-CONTINUED-

PLATE 9

ODOTLJ 16405002.GPJ BBCM.GDT 8/12/02

LAW-7-07.13

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6EBF-211
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 379+81.1, 35' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 38.1' ELEVATION: 541.6 DATE: 12/14/99 - 12/15/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
	12		50-1"R										Medium-hard gray siltstone, interbedded with sandstone, nearly horizontally bedded, micaceous, many horizontal fractures, two vertical fractures near top of stratum.
35													Visual
	13		NQ REC 80% RQD 27%										Soft to medium-hard gray shale, nearly horizontally bedded, few horizontal fractures, few very-soft layers, few seams of siltstone.
													Visual
40													- Encountered water at 4.5'.
													-Auger refusal at 33.0'.
45													
50													
55													
60													

WATER LEVEL: ▽ 2.2
WATER NOTE: Before Coring
DATE: 12/15/99

JOB: 01106405.002

PLATE 10

ODOTLJ 16405002.GPJ BBCM.GDT 8/12/02

DRAWN M.S.J.
CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-07.13

LAW-7-2.17

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6SF-103
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" and 2-1/2" O.D. Split-barrel Samplers; NX Rock Core Barrel
LOCATION: Sta. 380+44.96, 120.88' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 68.3' ELEVATION: 558.6 DATE: 6/29/99 - 6/30/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 3 INCHES
												Very-stiff brown mottled with gray silty clay, little fine to coarse sand, trace fine gravel, many fine sand and silt seams.
	1	3/3/4	2.5-3.0									
5												
	2	5/5/7	3.0-3.5									
												Est. A-6b
	3	1/1/2	1.0-1.5	28	33	23		0	5	71	24	Stiff to very-stiff brown mottled with gray clayey silt, trace to some fine to medium sand, few silt and fine sand seams.
10												
	4	1/2/1	1.75-2.5									
15												
	5A	1/2/3						0	1	27	47	25
	5B							0	0	18	72	10
20	6 2S	3/2/2							0	24	68	8
	7	3/2/2						0	0	24	67	9
	8 2S	2/2/2								12	82	6
25												A-4b (8)
												Very-loose brown and gray silt, little to some fine sand, trace clay, trace medium to coarse sand, trace fine gravel, few fine to coarse sand seams.
	9	2/3/2										
	10	1/1/2										
30												
	11	3/5/5						8	3	4	85	
												Est. A-4b (8)
	12	2/3/4										
35												

WATER LEVEL: 15.0
WATER NOTE: After Core
DATE: 6/30/99

ODOTLJ 16405002.GPJ BBCM.GDT 7/31/02

JOB: 01106405.002

-CONTINUED-

PLATE 9

LAW-775-1.05

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6SF-103
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" and 2-1/2" O.D. Split-barrel Samplers; NX Rock Core Barrel
LOCATION: Sta. 380+44.96, 120.88' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 68.3' ELEVATION: 558.6 DATE: 6/29/99 - 6/30/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
35												Very-loose brown and gray silt, little to some fine sand, trace clay, trace medium to coarse sand, trace fine gravel, few fine to coarse sand seams.
	13	1/2/4										
	14	3/3/2										
40												
	15	2/2/4										
												Est. A-4b (8)
45												Soft to stiff gray silty clay interbedded with silt, trace fine sand, few fine sand seams.
	16	2/3/3	0.25-2.0									
50												
	17	2/3/5	1.0-2.0					0	0	2	98	
												Est. A-6b
55												Stiff gray clayey silt, some fine to coarse sand, little fine to coarse gravel.
	18A	S/H	1.0-1.5									Est. A-4a/
60	18B	/4/6	1.0-2.0									Very-soft gray shale, nearly horizontally bedded, few vertical fractures, few slickensides.
	19	50-1"R										
		NX REC 17% RQD 0%										
65	20											Visual
												- Encountered water at 23.0'.
70												

WATER LEVEL: 15.0
WATER NOTE: After Core
DATE: 6/30/99

ODOTLJ 16405002.GPJ BBCM.GDT 7/31/02

JOB: 01106405.002

PLATE 10

DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
LAW-775-1.05

LAW-7-2.17

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6SM-102
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 380+07.46, 0.11' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 61.0' ELEVATION: 549.7 DATE: 6/23/99 - 6/24/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 2 INCHES
	1	3/3/3	3.5-4.5+									Hard becoming stiff brown silty clay, little fine to medium sand, few roots near top of stratum, few silt and fine sand seams.
5	2	2/2/3	2.0-3.0									
	3	1/2/2	1.5-2.0	26	33	20	0	1	10	62	27	A-6a (9)
10	4	4/5/6					19	52	24	3	2	Loose to medium-dense brown fine to coarse sand, trace to little fine gravel, trace to little clayey silt.
	5	2/4/6					4	70	21	2	3	A-1-b (0)
	6A	2/1/1	1.5-2.0	25			21	46	19	6	8	Stiff brown silty clay, little fine to coarse sand, trace fine to coarse gravel.
	6B						0	1	12	73	14	Est. A-6a
15	6C											
	7	1/0/0										Very-loose brown silt, little fine to medium sand, little clay.
	8	4/3/2										Est. A-4b
20												Loose brown fine to coarse sand, trace fine to coarse gravel, trace silt, few cobbles.
	9	1/1/1										Est. A-3a
												Stiff reddish-brown silty clay, little fine to coarse sand, trace fine gravel.
												Est. A-6a
	10	S/H/2/5					0	1	5	84	10	Very-loose to loose brown and gray silt, trace fine to medium sand, trace fine gravel, few fine sand seams.
25												A-4b(8)
	11	1/2/3										Loose brown fine to medium sand, trace coarse sand, trace silt.
												Est. A-3
	12	3/4/3					8	7	21	64		Loose brown and gray silt, some fine to coarse sand, trace clay, trace fine to coarse gravel.
30												Est. A-4b
	13	1/3/4	1.75-3.5				0	0	7	72	21	Stiff to very-stiff gray mottled with brown clayey silt, trace fine sand.
35												Est. A-4b

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 1640502.GPJ BBCM.GDT 4/10/02

JOB: 01106405.002

-CONTINUED-

PLATE 7

LAW-775-1.05

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6SM-102
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NXM Rock Core Barrel
LOCATION: Sta. 380+07.46, 0.11' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 61.0' ELEVATION: 549.7 DATE: 6/23/99 - 6/24/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION - CONTINUED
	14	5/5/5										Loose gray and brown fine to coarse sand, little fine to coarse gravel, trace silt.
40												Est. A-1-b
	15	1/2/4	2.0-2.5									Stiff to very-stiff gray mottled with brown clayey silt, some fine sand, trace medium to coarse sand, few fragments of sandstone at 55.0'.
45												
	16	1/2/3	1.5-2.25									
50												
	17	1/2/5	1.25-2.0	9	25	19	0	1	29	47	23	A-4a (7)
55		NXM										Very-soft to soft brown and gray shale, nearly horizontally bedded, many horizontal fractures, few diagonal fractures, few slickensides.
	18	REC 62% RQD 24%										Visual
60												- Encountered slight seepage from 12.0' to 13.6'.
												- Encountered water at 25.5'.
65												- Encountered heaving sand at 28.5'.
70												

WATER LEVEL:
WATER NOTE:
DATE:

ODOTLJ 1640502.GPJ BBCM.GDT 4/10/02

JOB: 01106405.002

PLATE 8

DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
LAW-775-1.05

LAW-7-2.17

1228
1247

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6SR-101
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

TYPE: 4-1/2" O.D. Continuous-flight Auger; 3-1/4" I.D. Hollow-stem Auger; 2" and 2-1/2" O.D. Split-barrel Samplers
LOCATION: Sta. 379+70.10, 118.87' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 73.8' ELEVATION: 539.5 DATE: 6/24/99 - 6/28/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0												TOPSOIL - 5 INCHES
	1	1/1/1	2.5-2.75									Stiff to very-stiff brown silty clay, trace fine sand, contains few silt seams, few roots.
	2	S/H-12"/1	1.75-2.5				0	0	5	63	32	
	3	S/H/1/2	1.75-2.5				0	0	9	60	31	Est. A-6a
5	4	2/3/2	0.75-1.0	37	39	24	0	0	21	47	32	Medium-stiff gray mottled with brown silty clay, some fine sand, few roots.
	5	1/2/2	1.5-2.25				0	0	10	48	42	A-6a (10)
10	6	2/3/4	1.75-2.5									Stiff to very-stiff brown mottled with gray silty clay, trace to little fine to coarse sand, trace fine gravel.
	7	1/2/2										Est. A-6a
15	8	2/2/2										Very-loose to loose brown and gray fine sand, trace medium to coarse sand, trace fine gravel, little to some silty clay, contains few silt seams.
	9	S/H/1/1					0	1	66	33		
20	10	1/2/4										A-3a(0)
	11	1/3/7										Loose brown and gray fine to medium sand, trace silt, trace medium sand, few zones of fine to coarse sand.
25	12	3/3/5										
30	13A 13B	2/4/6					1	65	29	5		A-1-b(0)
												Loose brown and gray fine to coarse sand, some fine to coarse gravel, little silty clay.
35												Est. A-1-b
	14A 14B 14C	2/11/13					0	1	16	71	12	Medium-dense brown and gray silt, little fine to medium sand, little clay.
40												A-4b(8)
												Medium-dense greenish-gray fine to coarse gravel, some fine to coarse sand, little silty clay. Est. A-1-b
												Medium-dense gray and brown silt, trace fine to medium sand. Est. A-4b

WATER LEVEL: ▽ 6.8
WATER NOTE:
DATE: 6/28/99

ODOTLJ 1640502.GPJ BBCM.GDT 4/10/02

JOB: 01106405.002

-CONTINUED-

PLATE 5

LAW-775-1.05

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B6SR-101
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7
LAWRENCE COUNTY, OHIO

TYPE: 4-1/2" O.D. Continuous-flight Auger; 3-1/4" I.D. Hollow-stem Auger; 2" and 2-1/2" O.D. Split-barrel Samplers
LOCATION: Sta. 379+70.10, 118.87' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 73.8' ELEVATION: 539.5 DATE: 6/24/99 - 6/28/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	DESCRIPTION - CONTINUED
45	15	26/41/50-5"R	4.5+				Very-soft to soft gray shale, nearly horizontally bedded, highly fissile, similar to hard silty clay, few seams of hard reddish-brown clay.
50	16	20/45/50-2"R	4.5+				
55	17	26/50-2"R	4.5+				
60	18	50-3"R	4.5+				
65	19	50-5"R	4.5+				
70	20	50-2"R	4.5+				
75	21	50-3"R	4.5+				Visual
80							- Encountered water at 7.0'.
85							- Encountered heaving sand at 28.5' and 33.5'.

WATER LEVEL: ▽ 6.8
WATER NOTE:
DATE: 6/28/99

ODOTLJ 1640502.GPJ BBCM.GDT 4/10/02

JOB: 01106405.002

PLATE 6

DRAWN MSJ
CHECKED EMK

STRUCTURE FOUNDATION EXPLORATION
LAW-775-1.05

LAW-7-2.17

BRIDGE-LAW-7-07.11: PROPOSED RAMP I
PROPOSED SR 7 CENTERLINE

LAW-7-0711

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B13-1
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; NQ Rock Core Barrel; 2" O.D. Split-barrel Sampler
LOCATION: Sta. 374+81.3, 132.2' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 26.5' ELEVATION: 547.8 DATE: 11/9/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 3 INCHES
	1		3/5/6	2.0-3.7								Very-stiff brown silty clay, some fine to medium sand, contains roots.
5												Est. A-6b
	2		6/6/5									Medium-dense brown fine to coarse gravel, some fine to coarse sand, some silty clay.
	3		3/4/6	1.3-3.2	21	37	21	6	5	17	40 32	Est. A-2-6
10			5/5/10									Stiff to very-stiff reddish-brown silty clay, some fine to coarse sand, trace fine gravel.
	4		9/10		17			32	13	16	21 18	A-6b (10)
	5		4/5/8									Medium-dense reddish-brown fine to coarse sand, little fine to coarse gravel, "and" silty clay.
15												Est. A-6a
	6		50-5"R									Medium-hard yellowish-brown sandstone fragments.
	7		NQ REC 100% RQD 77%									Medium-hard blue-green and gray fine to medium-grained sandstone, well cemented, nearly horizontally bedded, becoming soft to medium-hard shale, few horizontal fractures, occasional diagonal fractures.
20			REC 90% RQD 70%									Q_u = 188.9 psi between 23.3' and 23.9'.
	8											Very-soft to soft reddish-brown shale, nearly horizontally bedded, few horizontal and diagonal fractures.
25												
30												- No seepage encountered prior to coring.
35												
40												
45												

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 11/09/00

JOB: 01106405.002

ODOTLJ 1640502.DGT 3/24/02 ...\BBCM.GDT 3/24/02

LAW-7-0711

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B13-2
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; NQ Rock Core Barrel; 2" O.D. Split-barrel Sampler
LOCATION: Sta. 375+93.5, 137.4' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 37.5' ELEVATION: 544.6 DATE: 11/8/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 3 INCHES
	1		3/3/2	1.2-2.5								Stiff to very-stiff brown silty clay, little fine to coarse sand, trace fine gravel, contains roots.
5												Est. A-6a
	2		3/5/4		14	34	21	42	12	16	17 13	Loose to medium-dense reddish-brown fine to coarse sand, some fine to coarse gravel, some silty clay.
			7/7/7									
	3		5/8/9									
10			3/4/5									A-2-6 (0)
	4		1/2/3		27	27	25		0	1	79 20	Loose gray silt, some clay, trace fine to medium sand, few clay seams.
												A-4b (8)
	5		1/2/3	0.5-1.5	29	33	22	0	0	8	62 30	Medium-stiff to stiff dark-gray silty clay, trace fine sand, contains decayed vegetation.
15												A-6a (8)
	6		2/3/5	0.6-1.4	35	37	28	1	2	17	52 28	Medium-stiff to stiff gray clayey silt, little fine to coarse sand, trace fine gravel, contains decayed wood fragments, many silt lenses.
												A-4b (8)
	7		4/6/7	1.1-2.1								Stiff to very-stiff gray clayey silt, some fine to coarse sand, little fine to coarse gravel.
20												Est. A-4a
	8		6/6/12	1.7-2.9								Very-soft to soft gray, yellowish-brown and reddish-brown shale, nearly horizontally bedded, few horizontal fractures, occasional vertical fractures.
25												
	9		9/15/50-1"R	4.5+								
30			NQ REC 80% RQD 70%									
	10											
35			REC 100% RQD 92%									- Encountered seepage at 8.0' and 21.0'.
	11											
40												
45												

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 01106405.002

ODOTLJ 1640502.DGT 3/24/02 ...\BBCM.GDT 3/24/02

LAW-7-0711

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B13-3
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; NQ Rock Core Barrel; 2" O.D. Split-barrel Sampler
LOCATION: Sta. 376+97.6, 196.3' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 35.5' ELEVATION: 541.8 DATE: 11/8/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 3 INCHES
	1		3/3/3	0.5-1.0	40	53	36	12	2	16	46 24	Medium-stiff to stiff brown silty clay, trace fine to coarse sand, many roots, partly organic.
5												A-7-5 (12)
	2		2/4/5	0.7-1.4	25	38	24	1	1	15	48 35	Medium-stiff to stiff brown silty clay, little fine to coarse sand, contains many silt lenses. A-6a (10)
	3		3/6/5	1.4-2.4	21	34	22	5	6	16	43 30	Stiff to very-stiff brown silty clay, some fine to coarse sand, trace fine gravel. A-6a (8)
	4		3/3/4	0.7-1.1								Medium-stiff to stiff brown silty clay, some fine to coarse sand, trace fine gravel.
10												Est. A-6a
	5		3/5/7	1.5-2.8								Stiff to very-stiff brown mottled with gray silty clay, little fine to coarse sand, trace fine gravel.
												Est. A-6a
	6		2/4/5	0.5-1.3	25	37	22	0	3	15	45 37	Medium-stiff to stiff brown silty clay, little fine to medium sand, few pockets of fine sand.
15												A-6a (10)
	7		4/4/9	2.0-3.0								Stiff to very-stiff brown silty clay, little to some fine to coarse sand, trace fine to coarse gravel.
	8A			1.4-2.9								Est. A-6a
	8B		7/8/11	3.4-4.5+								Very-stiff to hard yellowish-brown silty clay, some fine to coarse sand, little fine to coarse gravel. Est. A-6a
20												
	9		9/14/30	3.0-4.5+								Very-stiff to hard reddish-brown mottled with gray silty clay, partly similar to very-soft shale.
												Est. A-7-6
	10		30/50/	3.5-4.5+								Very-soft to soft gray shale, nearly horizontally bedded, few horizontal fractures, partly similar to silty clay.
25			50-1"R									
			NQ REC 85% RQD 60%									
	11											
30			REC 96% RQD 92%									Q_u = 171.5 psi between 30.0' and 30.5'.
	12											
35												Very-soft to soft yellowish-brown shale, nearly horizontally bedded, occasional horizontal fractures, interbedded with very-soft to soft gray shale.
40												
45												

WATER LEVEL: ▽ 13.5
WATER NOTE:
DATE: 11/08/00

JOB: 01106405.002

ODOTLJ 1640502.DGT 3/24/02 ...\BBCM.GDT 3/24/02

DRAWN M.S.J. CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-07.11

LAW-7-2.17

BRIDGE-LAW-7-07.11: PROPOSED RAMP I
PROPOSED SR 7 CENTERLINE

LAW-7-0711

BBC&M ENGINEERING, INC.

LOG OF BORING NO. B13-4
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-2.17
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; NQ Rock Core Barrel; 2" O.D. Split-barrel Sampler

LOCATION: Sta. 378+6.7, 209.9' Rt. of Proposed SR 7 Centerline

COMPLETION DEPTH: 23.0' ELEVATION: 541.4 DATE: 11/7/00 - 11/8/00

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER (tsf)	MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	AGG.	C.S.	F.S.	SILT	CLAY	DESCRIPTION
0													TOPSOIL - 3 INCHES
	1		S/H 1/1	0.25-0.3	29	32	21	0	1	26	51	22	Very-soft to soft brown silty clay, some fine sand, trace medium sand, few roots. A-6a (8)
5	2		1/1/1	2.3-2.5									Stiff to very-stiff brown silty clay, little fine sand, few roots.
	3		1/2/2	1.0-2.5									Est. A-6b
	4		5/50 50-1"R										Soft yellowish-brown siltstone, nearly horizontally bedded, many horizontal fractures.
10	5		NQ REC 75% RQD 46%										Very-soft to soft yellowish-brown arenaceous shale, nearly horizontally bedded, few horizontal and vertical fractures.
15	6		REC 100% RQD 47%										Very-soft to soft reddish-brown shale, nearly horizontally bedded, many horizontal and vertical fractures.
20	7		REC 98% RQD 96%										Soft reddish-brown shale, nearly horizontally bedded, occasional horizontal and vertical fractures.
25													
30													- Encountered seepage at 4.5'.
35													- Encountered water at 6.0'.
40													
45													

WATER LEVEL: 6.0
WATER NOTE:
DATE: 11/08/00

JOB: 01106405.002

ODOTLJ 16405002.GPJ ODOT.GDT 3/26/02

DRAWN M.S.J.
CHECKED E.M.K.

STRUCTURE FOUNDATION EXPLORATION
LAW-7-07.11

LAW-7-2.17

PROJECT: LAW - 7 - 2.17
TYPE: STRUCTURE
PID: 75923 BR ID:
START: 5/7/13 END: 5/7/13

DRILLING FIRM / OPERATOR: HORN / T.L.
SAMPLING FIRM / LOGGER: HORN / T.L.
DRILLING METHOD: 3.25" HSA / NQ
SAMPLING METHOD: SPT/ST/NQ

DRILL RIG: CME 55 TRACK
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 4/30/13
ENERGY RATIO (%): 85.9

STATION / OFFSET: 229+50, 170 RT
ALIGNMENT: MAINLINE
ELEVATION: 598.8 (MSL) EOB: 28.7 ft.
LAT / LONG: Not Recorded

EXPLORATION ID B-019-1-12
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
STIFF TO VERY STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP TO MOIST	598.8	W	2 4 2	9	100	SS-1	-	-	-	-	-	-	-	-	-	14	A-6b (V)	
		2.5	2 4 11	21	100	SS-2	-	-	-	-	-	-	-	-	-	16	A-6b (V)	
		5.0	4 5 11	23	100	SS-3	-	-	-	-	-	-	-	-	-	37	A-6b (V)	
		7.5			46	ST-4	-	0	3	13	33	51	40	17	23	20	A-6b (13)	
VERY STIFF, BROWN, **CLAY**, SOME SILT, LITTLE SAND, DAMP TO MOIST	589.8	10.0	3 6 9	21	100	SS-5	-	-	-	-	-	-	-	-	-	21	A-7-6 (V)	
		12.5			79	ST-6	-	0	7	4	26	63	50	23	27	23	A-7-6 (17)	
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	584.3 TR	15.0	10 24 30	77	100	SS-7	-	-	-	-	-	-	-	-	-	14	Rock (V)	
		17.5	11 50/2"	-	100	SS-8	-	-	-	-	-	-	-	-	-	15	Rock (V)	
SHALE, GRAY, SLIGHTLY TO MODERATELY WEATHERED, WEAK TO SLIGHTLY STRONG, LAMINATED; RQD 0%, REC 33%.	580.1	20.0		63	77	NQ-1											CORE	
SANDSTONE, GRAY, UNWEATHERED, VERY STRONG, FINE GRAINED, THICK TO VERY THICK BEDDED; RQD 95%, REC 100%.	578.3	22.5																
		25.0		87		100	NQ-2										CORE	
	570.1 EOB	27.5																

NOTES: NONE
ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 75 GAL. BENTONITE GROUT

PROJECT: LAW - 7 - 2.17
TYPE: STRUCTURE
PID: 75923 BR ID:
START: 5/8/13 END: 5/8/13

DRILLING FIRM / OPERATOR: HORN / T.L.
SAMPLING FIRM / LOGGER: HORN / T.L.
DRILLING METHOD: 3.25" HSA / NQ
SAMPLING METHOD: SPT/ST/NQ

DRILL RIG: CME 55 TRACK
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 4/30/13
ENERGY RATIO (%): 85.9

STATION / OFFSET: 229+70, 300 LT
ALIGNMENT: MAINLINE
ELEVATION: 618.6 (MSL) EOB: 24.0 ft.
LAT / LONG: Not Recorded

EXPLORATION ID B-019-2-12
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
SOFT TO MEDIUM STIFF, BROWN, **CLAY**, SOME SILT, TRACE SAND, DAMP TO MOIST	618.6	W	1 1 1	3	100	SS-1	-	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
		2.5	2 3 3	9	100	SS-2	-	-	-	-	-	-	-	-	-	19	A-7-6 (V)	
		5.0			63	ST-3	-	0	2	4	30	64	41	20	21	17	A-7-6 (13)	
VERY STIFF TO HARD, DARK BROWN, **SILTY CLAY**, SOME STONE FRAGMENTS AND SAND, DAMP TO MOIST	611.1	7.5	3 5 6	16	100	SS-4	-	-	-	-	-	-	-	-	-	20	A-6b (V)	
		10.0	4 12 16	40	100	SS-5	-	25	10	11	24	30	37	19	18	18	A-6b (7)	
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	606.1 TR	12.5	20 50/2"	-	100	SS-6	-	-	-	-	-	-	-	-	-	10	Rock (V)	
SHALE, GRAY TO RED, SLIGHTLY WEATHERED, WEAK TO MODERATELY STRONG, LAMINATED TO THIN BEDDED; RQD 75%, REC 96%.	604.6	15.0		72		92	NQ-1										CORE	
		17.5																
		20.0		78		100	NQ-2										CORE	
	594.6 EOB	22.5																

NOTES: NONE
ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 50 GAL. BENTONITE GROUT

PROJECT: LAW - 7 - 2.17	DRILLING FIRM / OPERATOR: HORN / T.L.	DRILL RIG: CME 55 TRACK	STATION / OFFSET: 184+20, 260 LT	EXPLORATION ID B-008-1-12
TYPE: STRUCTURE	SAMPLING FIRM / LOGGER: HORN / T.L.	HAMMER: CME AUTOMATIC	ALIGNMENT: MAINLINE	
PID: 75923 BR ID:	DRILLING METHOD: 3.25" HSA / NQ	CALIBRATION DATE: 4/30/13	ELEVATION: 650.5 (MSL) EOB: 28.7 ft.	PAGE 1 OF 1
START: 5/8/13 END: 5/9/13	SAMPLING METHOD: SPT / NQ	ENERGY RATIO (%): 85.9	LAT / LONG: Not Recorded	

MATERIAL DESCRIPTION AND NOTES	ELEV. 650.5	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	ABAN-DONED
STIFF, BROWN, **SILT AND CLAY**, SOME SAND, LITTLE GRAVEL, DAMP			2 3 3	9	100	SS-1	-	15	9	22	28	26	32	21	11	18	A-6a (4)	
		2.5	50/5"	-	100	SS-2	-	-	-	-	-	-	-	-	-	16	A-6a (V)	
	645.5	W																
VERY STIFF TO HARD, RED AND BROWN, **CLAY**, AND SILT, TRACE GRAVEL AND SAND, DAMP		5.0	3 6 6	17	100	SS-3	-	-	-	-	-	-	-	-	-	14	A-7-6 (V)	
		7.5	6 13 13	37	100	SS-4	-	-	-	-	-	-	-	-	-	14	A-7-6 (V)	
		10.0	6 13 15	40	100	SS-5	-	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
		12.5	11 16 17	47	100	SS-6	-	9	2	6	42	41	41	19	22	14	A-7-6 (13)	
		15.0	16 27 29	80	100	SS-7	-	-	-	-	-	-	-	-	-	10	A-7-6 (V)	
	633.5	TR																
SHALE, GRAY, SEVERELY WEATHERED, (AUGERED).	631.8	17.5	25 50	-	100	SS-8	-	-	-	-	-	-	-	-	-	10	Rock (V)	
SHALE, GRAY, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, LAMINATED, ARENACEOUS; RQD 89%, REC 99%.		20.0	80		100	NQ-1											CORE	
		22.5																
		25.0	98		98	NQ-2											CORE	
	621.8	27.5 EOB																

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 50 GAL. BENTONITE GROUT

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

LOG OF BORING NO. S-102
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; 5-7/8" Diamter Tricone Bit; 4" Diameter Casing; NX Rock Core Barrel
LOCATION: Sta. 394+81.03, 209.7' L of proposed SR 7 centerline
COMPLETION DEPTH: 36.0' ELEVATION: 650.1 DATE: 7/9/99 - 7/13/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											Hard brown silty clay, trace fine to coarse sand, trace fine gravel, similar to very-soft shale.
	1	7 /9/40									Est. A-7-6
5		50-0"R									BOULDER: Medium-hard brown fine-grained sandstone, well cemented, micaceous, pyritic, nearly vertically bedded.
	2	NX REC 60% RQD 0%									Visual
10											Very-stiff to hard reddish-brown silty clay, trace fine to coarse sand, trace fine to coarse gravel, similar to very-soft shale, contains few sandstone fragments.
	3	6 /10/15	4.5+	12	37	19					
15											Est. A-6b
	4	50-4"R									Soft to medium-hard brown, red and green shale, nearly horizontally bedded, interbedded with siltstone, few vertical fractures, few sand-filled desiccation cracks.
20	5	NX REC 55% RQD 55%									
	6	REC 90% RQD 73%									
25											
		REC 73% RQD 22%									Visual
30	7										Soft gray shale, nearly horizontally bedded, highly fractured, partly similar to hard silty clay.
											Visual
35											- Topsoil stripped for rig access.
40											

WATER LEVEL:
WATER NOTE:
DATE:

ODOT(L 44052 (1).BBCM.GDT 12/7/99
JOB: 6405.2

PLATE 3

LOG OF BORING NO. S-103
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 1 of 1

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler
LOCATION: Sta. 403+44.51, 185.05' L of proposed SR 7 centerline
COMPLETION DEPTH: 30.0' ELEVATION: 645.9 DATE: 8/3/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											Hard reddish-brown silty clay, little fine to coarse sand, trace fine gravel, contains few sandstone and shale fragments.
	1	7 /9/9	4.5+								
5	2	7 /12/20	4.5+								
	3	5 /11/10	4.5+	14	43	25	3	3	3	32	59
10	4	7 /18/24	4.5+								A-7-6(12)
15											Soft to medium-hard brown and green shale, nearly horizontally bedded, fractured.
	5	50-5"R									Visual
20											Medium-hard gray fine-grained sandstone, well cemented, micaceous.
	6	180-4"R									Visual
25											Soft to medium-hard brown, red and green shale, nearly horizontally bedded, highly fractured.
	7	100-5"R									Visual
30											- No seepage encountered.
35											

WATER LEVEL: "Dry"
WATER NOTE:
DATE: 8/3/99

ODOT(L 44052 (2).BBCM.GDT 12/7/99
JOB: 6405.2

PLATE 4

LOG OF BORING NO. S-104
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 417+86.56, 226.07' L of proposed SR 7 centerline
COMPLETION DEPTH: 45.0' ELEVATION: 676.8 DATE: 8/4/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											Hard brown and reddish-brown mottled with gray silty clay, little to some fine to medium sand, trace coarse sand, trace fine gravel, few shale fragments, few roots near top of stratum.
	1	5 /20/22	4.5+								
5	2	10/28/20	4.5+	14	41	23	0	16	10	30	44
10	3	3 /10/16	4.5+								A-7-6(11)
	4	50-5"R									Very-soft reddish-brown shale, nearly horizontally bedded, highly fractured.
15		NQ REC 87% RQD 77%									Visual
20	5										Medium-hard brown and gray fine-grained sandstone, well cemented, nearly horizontally bedded, partly micaceous, contains iron oxide staining.
											Visual
25		REC 89% RQD 73%									Very-soft to soft gray interbedded with reddish-brown shale, nearly horizontally bedded, few horizontal and vertical fractures, few layers of soft to medium-hard shale, similar to soil at 30.5'.
30	6										Visual
		REC 58% RQD 43%									Soft to medium-hard brown and gray siltstone, nearly horizontally bedded, interbedded with fine-grained sandstone, micaceous, iron oxide staining.
35	7										Visual
40											

WATER LEVEL: "Dry"
WATER NOTE:
DATE: 8/4/99

ODOT(L 44052.GPJ BBCM.GDT 12/7/99
JOB: 6405.2

-CONTINUED-

PLATE 5

DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

LOG OF BORING NO. S-104
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

BBC&M ENGINEERING, INC.

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 417+86.56, 226.07' L of proposed SR 7 centerline
COMPLETION DEPTH: 45.0' ELEVATION: 676.8 DATE: 8/4/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
40												Soft to medium-hard brown and gray siltstone, nearly horizontally bedded, interbedded with fine-grained sandstone, micaceous, iron oxide staining.
	8		REC 98% RQD 98%									Visual
45												Soft to medium-hard gray siltstone, nearly horizontally bedded, slightly micaceous.
												Visual
50												- No seepage encountered.
55												
60												
65												
70												
75												
80												

WATER LEVEL: ▽ "Dry" ▼ ▽ ▼ ▽ ▼ ▽ ▼
WATER NOTE:
DATE: 8/4/99

ODOTLJ 6405S2.GPJ BBCM.GDT 12/7/99
JOB: 6405.2
PLATE 6

LOG OF BORING NO. S-105
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

BBC&M ENGINEERING, INC.

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 434+93.55, 421.63' L of proposed SR 7 centerline
COMPLETION DEPTH: 111.2' ELEVATION: 796.2 DATE: 7/16/99 - 7/22/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0												TOPSOIL - 6 INCHES
	1		4 /9/10	4.0-4.5								Hard brown and reddish-brown silty clay, little fine to medium sand, trace coarse sand, trace fine gravel, few cobbles, few roots, desiccated.
5												Est. A-7-6
	2		15/24/39	4.0-4.5								Hard brown silty clay, trace fine to medium sand, similar to very-soft shale, contains few sandstone fragments, desiccated.
	3		14/20/20	4.0-4.5								Est. A-7-6
10												Hard reddish-brown silty clay, trace fine to coarse sand, similar to very-soft shale, desiccated.
	4		25/ 50-4"R	4.0-4.5								Est. A-7-6
15												Very-soft brown shale, nearly horizontally bedded, highly fissile, many horizontal and vertical fractures, micaceous.
	5		44/ 50-4"R									Visual
20												Very-soft brown and gray shale, nearly horizontally bedded, highly fissile, many horizontal fractures, slightly micaceous, few slickensides.
	6		22/36/ 50-1"R	4.0-4.5								Visual
25												Soft to medium-hard black coal, highly fractured.
	7A 7B		30/35/ 50-4"R	4.0-4.5								#9? Mingo Creek
30												Visual
												Very-soft to soft gray shale, nearly horizontally bedded, fissile, few slickensides, slightly micaceous, few thin seams of soft sandstone and siltstone.
	8		50-2"R									Visual
35												

WATER LEVEL: ▽ ▼ ▽ ▼ ▽ ▼ ▽ ▼
WATER NOTE:
DATE:

ODOTLJ 6405S3.GPJ BBCM.GDT 12/7/99
JOB: 6405.2
-CONTINUED-
PLATE 7

LOG OF BORING NO. S-105
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

BBC&M ENGINEERING, INC.

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 434+93.55, 421.63' L of proposed SR 7 centerline
COMPLETION DEPTH: 111.2' ELEVATION: 796.2 DATE: 7/16/99 - 7/22/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
35												Very-soft to soft gray shale, nearly horizontally bedded, fissile, few slickensides, slightly micaceous, few thin seams of soft sandstone and siltstone.
	9		50-2"R									Visual
40												Very-soft to soft gray and red shale, nearly horizontally bedded, similar to hard silty clay, many horizontal fractures.
	10		50-5"R									Visual
45												Very-soft to soft brown and gray shale, interbedded with medium-hard siltstone, nearly horizontally bedded, fragmental structure from 61.2' to 66.2', few diagonal fractures, slightly micaceous.
	11		50-4"R									Visual
50												
	12		43/ 50-3"R									
55												
	13		NQ REC 85% RQD 25%									
60												
	14		REC 70% RQD 0%									
65												
	15		REC 50% RQD 28%									Visual
70												Medium-hard gray siltstone, interbedded with fine-grained sandstone, nearly horizontally bedded, well cemented.
												Visual

WATER LEVEL: ▽ ▼ ▽ ▼ ▽ ▼ ▽ ▼
WATER NOTE:
DATE:

ODOTLJ 6405S4.GPJ BBCM.GDT 12/7/99
JOB: 6405.2
-CONTINUED-
PLATE 8

DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

1235
1247

BBC&M ENGINEERING, INC.

LOG OF BORING NO. S-105
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 3 of 4

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 434+93.55, 421.63' L of proposed SR 7 centerline
COMPLETION DEPTH: 111.2' ELEVATION: 796.2 DATE: 7/16/99 - 7/22/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
70											Medium-hard gray siltstone, interbedded with fine-grained sandstone, nearly horizontally bedded, well cemented. Visual
75											Medium-hard gray fine-grained sandstone, nearly horizontally bedded, well cemented, micaceous. Visual
80	16	REC 0% RQD 0%									Soft to medium-hard brown and gray shale, nearly horizontally bedded, highly fractured, micaceous, thinly bedded. Visual
85	17	REC 83% RQD 57%									Soft to medium-hard gray shale, interbedded with siltstone, nearly horizontally bedded, micaceous, few horizontal fractures. Visual
90											Medium-hard brown and gray argillaceous limestone, massive, partly crystalline structure, few horizontal and vertical fractures. Visual
95	18	REC 94% RQD 59%									Soft to medium-hard brown and gray shale, interbedded with siltstone, few horizontal fractures, few vertical and diagonal fractures from 96.4' to 99.2', iron oxide stained fractures, slightly micaceous. Visual
100											Medium-hard gray siltstone, nearly horizontally bedded, few horizontal fractures, partly micaceous. Visual
105	19	REC 57% RQD 26%									SEE DESCRIPTION ON NEXT PAGE

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 6405.2 -CONTINUED- PLATE 9

ODOTLJ 6405.GPJ BBCM.GDT 12/7/99

BBC&M ENGINEERING, INC.

LOG OF BORING NO. S-105
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 4 of 4

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NQ Rock Core Barrel
LOCATION: Sta. 434+93.55, 421.63' L of proposed SR 7 centerline
COMPLETION DEPTH: 111.2' ELEVATION: 796.2 DATE: 7/16/99 - 7/22/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
105											Soft red interbedded with gray shale, nearly horizontally bedded, few horizontal fractures, few slickensides. Visual
110	2										- Encountered water at 60.0'. - Boring abandoned at 111.2' when air return was lost because of swelling shales below 60.0'.
115											
120											
125											
130											
135											
140											

WATER LEVEL:
WATER NOTE:
DATE:

JOB: 6405.2 PLATE 10

ODOTLJ 6405.GPJ BBCM.GDT 12/7/99

BBC&M ENGINEERING, INC.

LOG OF BORING NO. S-105A
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 1 of 3

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; 5-7/8" Tricone Bit; 4" Diameter Casing; NQ Rock Core Barrel
LOCATION: Sta. 434+54.72, 9.64' L of proposed SR 7 centerline
COMPLETION DEPTH: 98.0' ELEVATION: 693.7 DATE: 7/26/99 - 8/2/99

DEPTH, FEET	SAMPLE NO.	SAMPLES SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
0											Hard brown and reddish-brown mottled with gray silty clay, little to some fine to medium sand, trace coarse sand, trace fine gravel, few sandstone and shale fragments.
5	1	18/13/26	4.5+								A-6b(10)
	2										Very-soft to soft brown and reddish-brown shale, nearly horizontally bedded, fissile. Visual
10	3	9/9/7	4.5+	13	39	22	0	17	11	24	48
15	4	50-5"R NQ REC 51% RQD 47%									Medium-hard brown and gray fine-grained sandstone, interbedded with siltstone, nearly horizontally bedded, well cemented, highly fractured from 18.3' to 18.5', micaceous, partly massive, iron oxide staining. Visual
20	5										Very-soft to soft red shale, interbedded with medium-hard siltstone, nearly horizontally bedded, partly similar to hard silty clay, few horizontal fractures, contains slickensides. Visual
25	6	REC 72% RQD 25%									Medium-hard brown and gray siltstone, nearly horizontally bedded, micaceous. Visual
30	7	REC 78% RQD 69%									Soft blue-gray shale, nearly horizontally bedded, few horizontal fractures, contains slickensides, iron oxide staining.
35											

WATER LEVEL: 6.8
WATER NOTE: Caved at 23.3'
DATE: 6/30/99

JOB: 01106405.002 -CONTINUED- PLATE 11

ODOTLJ 1440S002.GPJ BBCM.GDT 3/13/00

DRAWN MSJ CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

LOG OF BORING NO. S-105A
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 2 of 3

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; 5-7/8" Tricone Bit; 4" Diameter Casing; NQ Rock Core Barrel
LOCATION: Sta. 434+54.72, 9.64' L of proposed SR 7 centerline
COMPLETION DEPTH: 98.0' ELEVATION: 693.7 DATE: 7/26/99 - 8/2/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
35												Soft blue-gray shale, nearly horizontally bedded, few horizontal fractures, contains slickensides, iron oxide staining. Visual
40			REC 83% RQD 78%									Medium-hard brown and gray siltstone, nearly horizontally bedded, few horizontal fractures, iron oxide staining, vertical fracture from 36.4' to 36.9'. Visual
45	8											Medium-hard brown and gray fine-grained sandstone, interbedded with siltstone, well cemented, few horizontal fractures, iron oxide staining, highly fractured from 42.7' to 43.1', partly micaceous. Visual
												Soft to medium-hard gray and brown shale, nearly horizontally bedded, few horizontal and vertical fractures. Visual
50			REC 90% RQD 53%									Medium-hard gray fine to medium-grained sandstone, nearly horizontally bedded, well cemented, partly micaceous. Visual
55	9											Soft to medium hard gray and red shale, interbedded with siltstone, nearly horizontally bedded, few horizontal and vertical fractures, highly fractured from 52.0' to 52.5', 53.8' to 54.0', and 55.4' to 56.3'. Visual
60	10		REC 61% RQD 0%									Very-soft to soft red interbedded with gray shale, nearly horizontally bedded, partly similar to hard silty clay, few slickensides, highly fractured, few thin layers of siltstone and argillaceous limestone.
			REC 13% RQD 0%									
65	11											Visual
70												

WATER LEVEL: ▽ 6.8
WATER NOTE: Caved at 23.3'
DATE: 6/30/99

ODOTLJ 1440502.GPJ BBCM.GDT 3/13/00
JOB: 01106405.002

-CONTINUED-

PLATE 12

LOG OF BORING NO. S-105A
PHASE 2 SUBSURFACE INVESTIGATION, LAW-7-3.669
LAWRENCE COUNTY, OHIO

Page 3 of 3

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; 5-7/8" Tricone Bit; 4" Diameter Casing; NQ Rock Core Barrel
LOCATION: Sta. 434+54.72, 9.64' L of proposed SR 7 centerline
COMPLETION DEPTH: 98.0' ELEVATION: 693.7 DATE: 7/26/99 - 8/2/99

DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
70												Very-soft to soft red interbedded with gray shale, nearly horizontally bedded, partly similar to hard silty clay, few slickensides, highly fractured, few thin layers of siltstone and argillaceous limestone.
75	12		REC 40% RQD 13%									
80	13		REC 40% RQD 15%									
85	4											
90			REC 23% RQD 5%									
95	14											
100												Visual
105												Encountered water at 24' Encountered water at 53'.

WATER LEVEL: ▽ 6.8
WATER NOTE: Caved at 23.3'
DATE: 6/30/99

ODOTLJ 1440502.GPJ BBCM.GDT 3/13/00
JOB: 01106405.002

PLATE 13

LOG OF BORING NO. SL-1
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 421+67.9, 55.5' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 58.0' ELEVATION: 615.7 DATE: 1/7/04 - 1/8/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
612.7	0	1		6 / 8 / 9	4.5+								Hard gray mottled with reddish-brown silty clay, some fine to coarse sand, little fine to coarse gravel (shale and siltstone fragments). 3.0 Est. A-6b
609.2	5	2		2 / 4 / 6	3.5-4.5+	17							Very-stiff to hard reddish-brown mottled with brown silty clay, some fine to coarse sand, some fine to coarse gravel (shale and siltstone fragments), few cobbles. 6.5 Est. A-6a
605.7		3		2 / 5 / 5	1.2-2.3	18	41	23	9	16	9	66	Stiff to very-stiff reddish-brown silty clay, some fine to coarse sand, trace fine to coarse gravel (shale and siltstone fragments).
	10	4A		2 / 3 / 3	1.7-3.5	18							10.0 A-7-6 (10)
		4B			1.8-2.0								Stiff to very-stiff reddish-brown mottled with brown silty clay, little to some fine to coarse sand, little to some fine to coarse gravel (shale fragments).
601.7		5		2 / 4 / 5	1.9-3.5								14.0 Est. A-6b
600.6	15	6		40 / 50-2"R									Very-dense brown fine to coarse gravel, some fine to coarse sand, trace silt, trace clay, similar to highly fractured shale bedrock. 15.1 Est. A-1-b
		7		NX REC 94% RQD 70%									Very-soft to soft light-brown and gray shale interbedded with medium-hard siltstone, nearly horizontally bedded, many diagonal fractures, nearly vertical clay filled fracture from 15.1' to 15.2'.
	20			REC 100% RQD 81%									- Qu = 125.9 psi from 20.0' to 20.6'.
585.7	25	8											30.0 Visual
	30			REC 99% RQD 76%									Very-soft to soft reddish-brown shale, fragmental structure, similar to hard silty clay, many diagonal fractures. - Qu = 63.0 psi from 31.4' to 32.0'.
580.7	35												35.0 Visual

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/08/04

ODOTLJ 1505900.GPJ BBCM.GDT 3/15/04
JOB: 011-09575-000

-CONTINUED-

PLATE 4

DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

196/206

1237/1247

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

BBCM

LOG OF BORING NO. SL-1
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 421+67.9, 55.5' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 58.0' ELEVATION: 615.7 DATE: 1/7/04 - 1/8/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
	35	9											Soft to medium-hard light-brown shale interbedded with siltstone, contains thin seams of argillaceous limestone at 38.4' and 40.3', nearly horizontally bedded, many diagonal fractures, shale has partly fragmental structure.
	40			REC 98% RQD 81%									
	45	10											
565.7	50	11		REC 88% RQD 79%									50.0 Visual Very-soft to soft gray and reddish-gray shale, fragmental structure, many diagonal fractures.
	55	12		REC 71% RQD 50%									
557.7	60												58.0 Visual
	65												- Encountered cobble from 3.5' to 4.0'. - Installed 60' of inclinometer casing with 3.2' of stickup. - No seepage encountered prior to coring rock.
	70												

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/08/04

JOB: 011-09575-000

PLATE 5

BBCM

LOG OF BORING NO. SL-2
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 424+50.4, 45.6' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 55.0' ELEVATION: 592.8 DATE: 1/8/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
	0												Loose gray and reddish-brown fine to coarse gravel (shale fragments), some fine to coarse sand, some silty clay.
589.8		1		1/1/3		8							3.0 Est. A-2-4 Medium-dense brown and gray fine to coarse sand, "and" silty clay, little fine gravel (shale fragments), contains few roots.
587.8	5	2A		4/8/9		13	38	26	12	28	12	48	5.0 A-6a (3) Hard reddish-brown mottled with brown silty clay, some fine to coarse sand, some fine to coarse gravel (shale fragments).
		2B			4.5+	14							6.5 Est. A-6a Very-stiff reddish-brown silty clay, little fine to medium sand, trace coarse sand, trace fine gravel (shale fragments).
586.3		3		2/4/6	2.0-3.8	21	56	25	0	12	8	80	
	10	4		2/3/5	2.2-3.6	19							
580.3		5A		2/10/17	3.3-3.5								12.5 A-7-6 (19) Hard brown silty clay interbedded with silt, trace fine to medium sand, similar to very-soft shale.
		5B			4.5+								14.5 Est. A-7-6 Very-soft to medium-hard yellow-brown shale interbedded with siltstone, nearly horizontally bedded, shale has fragmental structure, contains few thin seams of well cemented fine-grained sandstone and limestone, many diagonal fractures, micaceous.
578.3	15	6		50-2"R									
		7		NX REC 90% RQD 42%									
	20												
567.9		8		REC 97% RQD 82%									24.9 Visual Very-soft to medium-hard reddish-brown and gray shale interbedded with siltstone, fragmental structure, many diagonal fractures, contains many limestone nodules throughout.
557.8	25	9		REC 98% RQD 77%									Visual
	30												

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/08/04

JOB: 011-09575-000

-CONTINUED-

PLATE 6

BBCM

LOG OF BORING NO. SL-2
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 424+50.4, 45.6' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 55.0' ELEVATION: 592.8 DATE: 1/8/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
	30												Very-soft to medium-hard reddish-brown and gray shale interbedded with siltstone, fragmental structure, many diagonal fractures, contains many limestone nodules throughout.
	35	10		REC 100% RQD 100%									
	40			REC 97% RQD 75%									
	45	11											
	50			REC 90% RQD 80%									
527.8	55	12											55.0 Visual - No seepage encountered prior to coring rock.
	60												

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/08/04

JOB: 011-09575-000

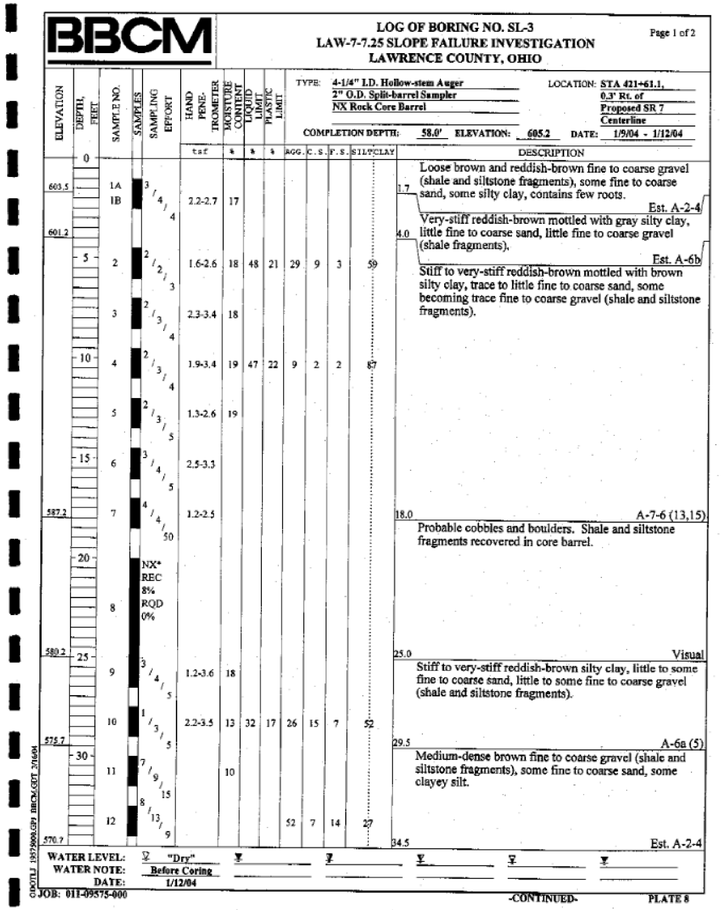
PLATE 7

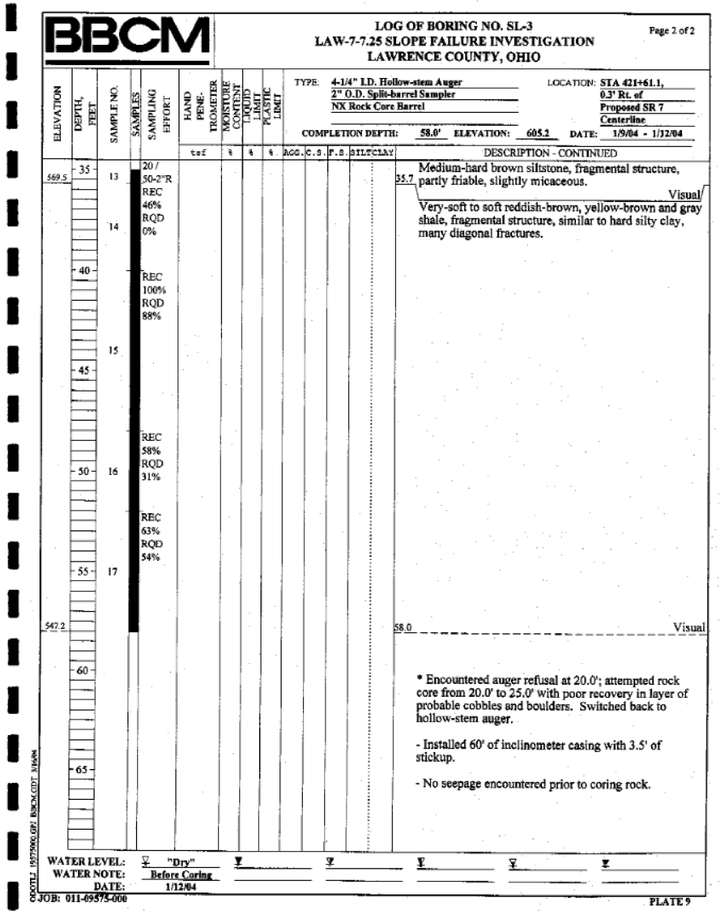
DRAWN MSJ
CHECKED EMK

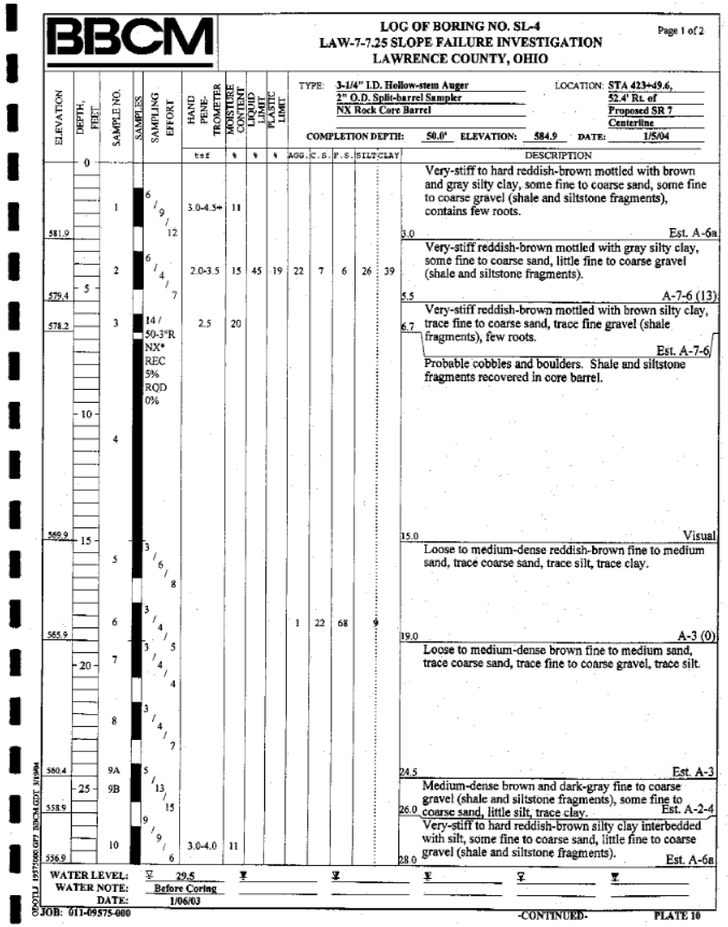
GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS







DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE LAW-7

LAW-7-2.17

BBCM

LOG OF BORING NO. SL-4
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 3-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 423+49.6, 52.4' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 50.0' ELEVATION: 584.9 DATE: 1/5/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
	30	11		2 / 6 / 14	4.5+	15	39	22	0	0	3	41	56	Hard reddish-brown mottled with brown and gray silty clay, trace fine to coarse sand, trace fine gravel (shale and siltstone fragments), desiccated.
552.4		12		14 / 26 / 40	4.5+	11								32.5 A-6b (11) Very-soft to soft reddish-brown shale, fragmental structure, similar to hard silty clay, many diagonal fractures, contains few limestone nodules, soft to medium-hard shale from 35.9' to 44.0'.
	35	13		REC 100% RQD 60%										
	40	14		REC 100% RQD 61%										
	45	15		REC 100% RQD 13%										
534.9	50													50.0 Visual
	55													* Encountered auger refusal at 7.0'; attempted rock core from 7.0' to 15.0' with poor recovery in probable layer of cobbles and boulders. Switched back to hollow-stem auger. - Encountered water at 26.8'.

WATER LEVEL: ▽ 29.5
WATER NOTE: Before Coring
DATE: 1/06/03

ODOT/LJ 1957/000.GPJ BBCM.GDT 3/19/04
JOB: 011-09575-000

PLATE 11

BBCM

LOG OF BORING NO. SL-5
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; Shelby Tube Sampler; NX Rock Core Barrel
LOCATION: STA 422+45.8, 115.9' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 70.0' ELEVATION: 571.3 DATE: 1/6/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
	0												FILL: Loose to medium-dense gray and brown fine to coarse gravel (shale and siltstone fragments), some fine to coarse sand, little to some silty clay.
	5	1		6 / 5 / 9									
		2		P* 50-3"R									
		3											
562.8		4		3 / 3 / 4									8.5 Est. A-2-4
560.8	10	5		3 / 4 / 5	1.7-3.0	11	34	20	30	13	6	43	8	FILL: Stiff to very-stiff reddish-brown mixed with gray and brown silty clay, some fine to coarse sand, little fine to coarse gravel (shale fragments). 10.5 A-6a (5)
		6		1 / 3 / 4	1.5-2.0	22								FILL: Stiff dark-brown mottled with light-brown and reddish-brown silty clay, little to some fine to coarse sand, trace to little fine to coarse gravel (shale fragments).
	15	7		P	1.0-2.0	30	51	26	16	10	6	26	42	
555.3		8		1 / 2 / 4	1.5-2.0	21								16.0 A-7-6 (14) Stiff reddish-brown and brown silty clay, little to some fine to coarse sand, little fine gravel.
		9		2 / 3 / 4										21.0 Est. A-7-6
550.3	20	10		1 / 1 / 3										Very-loose to loose reddish-brown fine to coarse sand, trace fine gravel, trace silt, contains few thin seams of soft to medium-stiff silty clay.
		11		2 / 3 / 5					4	34	58	4		26.0 A-3a (0) Medium-dense brown and dark-brown fine to medium sand, trace coarse sand, "and" fine to coarse gravel, trace silt.
545.3	25	12		2 / 6 / 5										30.5 Est. A-1-b Stiff to very-stiff reddish-brown mottled with brown and gray silty clay, little to some fine to coarse sand, some fine to coarse gravel (shale and siltstone fragments).
540.8		13		1 / 2 / 14										
	30	14		2 / 4 / 5	2.0-3.5	16								
		15		3 / 4 / 6	1.9-2.5	15	37	21	29	8	6	27	30	36.0 A-6b (7) Hard reddish-brown and gray silty clay, little fine to coarse sand, similar to very-soft shale.
535.3	35	16		8 / 12 / 17	4.5+	14								39.0 Est. A-7-6 Very-soft reddish-brown and brown shale, fragmental structure, similar to hard silty clay. 40.5 Visual
532.3		17		19 / 44 / 40										
530.8	40													

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/07/04

ODOT/LJ 1957/000.GPJ BBCM.GDT 3/19/04
JOB: 011-09575-000

-CONTINUED-

PLATE 12

BBCM

LOG OF BORING NO. SL-5
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; Shelby Tube Sampler; NX Rock Core Barrel
LOCATION: STA 422+45.8, 115.9' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 70.0' ELEVATION: 571.3 DATE: 1/6/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
			NX REC 100% RQD 87%			0							Very-soft to soft gray shale, fragmental structure, similar to hard silty clay, many diagonal fractures. - Qu = 99.9 psi from 42.5' to 43.0'.
526.5	45	18											44.8 Visual Hard gray fine to medium-grained sandstone, nearly horizontally bedded, well cemented, micaceous.
		19	REC 100% RQD 100%										
	50												
	55	20	REC 100% RQD 100%										
	60												
	65	21											
501.3	70												20.0 Visual
	75												* Attempt to push a shelby tube at 4.0' resulted in no recovery. - Encountered slight seepage at 26.5'. - Installed 70' of inclinometer casing with 1.1' of stickup.
	80												

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/07/04

ODOT/LJ 1957/000.GPJ BBCM.GDT 3/19/04
JOB: 011-09575-000

PLATE 13

DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

BBCM

LOG OF BORING NO. SL-6
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; Shelby Tube Sampler; NX Rock Core Barrel
LOCATION: STA 422+48.0, 164.3' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 53.2' ELEVATION: 555.2 DATE: 1/12/04 - 1/13/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION
	0												Medium-stiff to stiff reddish-brown silty clay, little fine to coarse sand, some fine to coarse gravel (shale and siltstone fragments), contains few roots.
552.2		1		1/3/4	0.9-1.4	23							3.0 Est. A-6b
	5	2		P 50-400 PSI	1.2-1.5	21 20 24	46	21	1	5	7	29 58	Stiff reddish-brown silty clay, trace to little fine to coarse sand, trace fine gravel (shale fragments).
548.7		3		2/4/3	1.3-1.5	20							6.5 A-7-6 (15)
	10	4		1/3/4	1.2-1.8								Stiff reddish-brown mottled with brown silty clay, some fine to coarse sand, little fine to coarse gravel (shale and siltstone fragments).
544.2		5		1/4/4									11.0 Est. A-6a
	15	6		1/1/4					1	9	84	6	Very-loose to loose reddish-brown and brown fine to medium sand, trace coarse sand, trace fine gravel, trace silt.
		7		2/4/4									
	20	8		2/3/3									
		9		1/1/3									
530.1	25	10A 10B		5/5/4									25.1 A-3 (0) Loose brown fine to coarse gravel, some fine to coarse sand, trace silt, contains few decayed roots.
528.2		11		8/18/15		12				51	8	22 13 6	27.0 Est. A-1-b Dense brown and dark-brown fine to coarse sand, "and" fine to coarse gravel (shale and siltstone fragments),
526.2	30	12		3/5/9	2.4-3.3	14							29.0 little silt, trace clay. A-1-b (0) Very-stiff reddish-brown mottled with gray silty clay, little fine to coarse sand, little fine to coarse gravel (shale fragments).
520.7		13		4/7/8	3.0-3.9	14	33	21	19	6	6	41 28	34.5 A-6a (8)

WATER LEVEL: ▽ 28.5
WATER NOTE: Before Coring
DATE: 1/13/04

JOB: 011-09575-000 -CONTINUED- PLATE 14

BBCM

LOG OF BORING NO. SL-6
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; Shelby Tube Sampler; NX Rock Core Barrel
LOCATION: STA 422+48.0, 164.3' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 53.2' ELEVATION: 555.2 DATE: 1/12/04 - 1/13/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION - CONTINUED
	35	14		3/6/9		10							Medium-dense brown fine to coarse gravel (siltstone fragments), little fine to coarse sand, trace silty clay.
		15		50-5"R									39.2 Est. A-1-b
516.0	40	16		NX REC 100% RQD 100%									Hard gray arenaceous siltstone interbedded with hard gray fine to medium-grained sandstone, nearly horizontally bedded, sandstone is well cemented, few diagonal fractures, micaceous.
	45			REC 98% RQD 98%									
		17											
	50												
502.0													53.2 Visual
	55												- Encountered slight seepage at 20.8'.
	60												- Encountered water at 22.5'.
	65												- Installed 55' of inclinometer casing with 3.2' of stickup.

WATER LEVEL: ▽ 28.5
WATER NOTE: Before Coring
DATE: 1/13/04

JOB: 011-09575-000 PLATE 15

BBCM

LOG OF BORING NO. SL-7
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 423+70.2, 195.1' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 44.5' ELEVATION: 545.4 DATE: 1/13/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION
544.9	0												0.5 TOPSOIL - 6 INCHES
543.7		1A 1B		1/3/7	1.9-2.4								Stiff to very-stiff reddish-brown and dark-gray silty clay, little fine to coarse sand, little fine to coarse gravel (shale and siltstone fragments). 1.7 Est. A-6b
	5	2		5/5/6									Loose to medium-dense reddish-brown and brown fine to medium sand, trace coarse sand, trace fine gravel, trace silt, contains few decayed roots from 9.5' to 9.9'.
		3		2/4/7					3	19	71	7	
	10	4		2/3/3									
533.4		5		1/2/2									12.0 A-3 (0) Very-loose brown fine to medium sand, trace coarse sand, trace fine gravel, trace silt.
	15	6		S/H 1/1/1					0	7	84	9	
528.0		7A 7B		1/3/3									17.4 A-3 (0) Loose to medium-dense brown fine to coarse gravel, some fine to coarse sand, little silt, trace clay.
	20	8		2/5/10									21.5 Est. A-1-b
523.9		9		6/8/9									Medium-dense gray and brown fine to coarse gravel (shale and siltstone fragments), little to some fine to coarse sand, some silty clay.
520.3	25	10A 10B		5/7/9	3.2-4.3	15 18	40	23	6	3	7	40 44	25.1 Est. A-2-4 Very-stiff to hard reddish-brown mottled with brown silty clay, little fine to coarse sand, trace fine gravel
518.4		11		7/7/8		13							27.0 (shale fragments). A-6b (11) Medium-dense reddish-brown and brown fine to coarse gravel (shale and siltstone fragments), some fine to coarse sand, little to some silty clay.
	30	12		4/6/7									
513.4													32.0 Est. A-2-4

WATER LEVEL: ▽ 18.0
WATER NOTE: Before Coring
DATE: 1/13/04

JOB: 011-09575-000 -CONTINUED- PLATE 16

DRAWN MSJ
CHECKED EMK

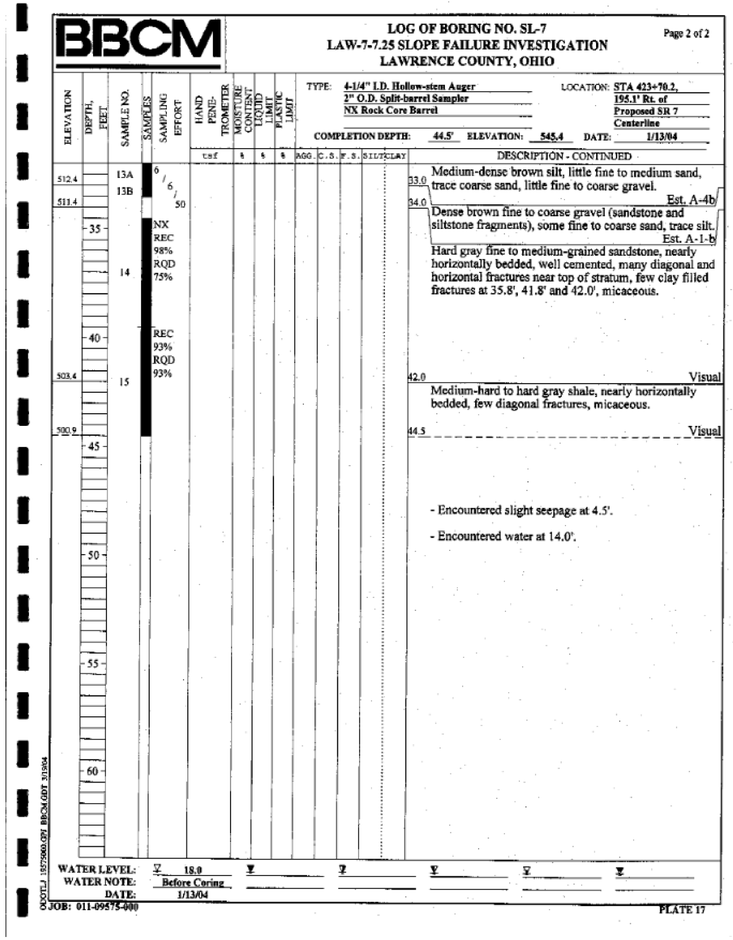
GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

200/206

1241/1247

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS



BBCM

LOG OF BORING NO. SL-7
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 423+70.2, 195.1' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 44.5' ELEVATION: 545.4 DATE: 1/13/04

DESCRIPTION - CONTINUED

512.4 / 511.4 — Medium-dense brown silt, little fine to medium sand, trace coarse sand, little fine to coarse gravel. (33.0) Est. A-4b

(34.0) Dense brown fine to coarse gravel (sandstone and siltstone fragments), some fine to coarse sand, trace silt. Est. A-1-b

Hard gray fine to medium-grained sandstone, nearly horizontally bedded, well cemented, many diagonal and horizontal fractures near top of stratum, few clay filled fractures at 35.8', 41.8' and 42.0', micaceous.

NX REC 98% RQD 75%

REC 93% RQD 93%

503.4 — (42.0) Visual

Medium-hard to hard gray shale, nearly horizontally bedded, few diagonal fractures, micaceous.

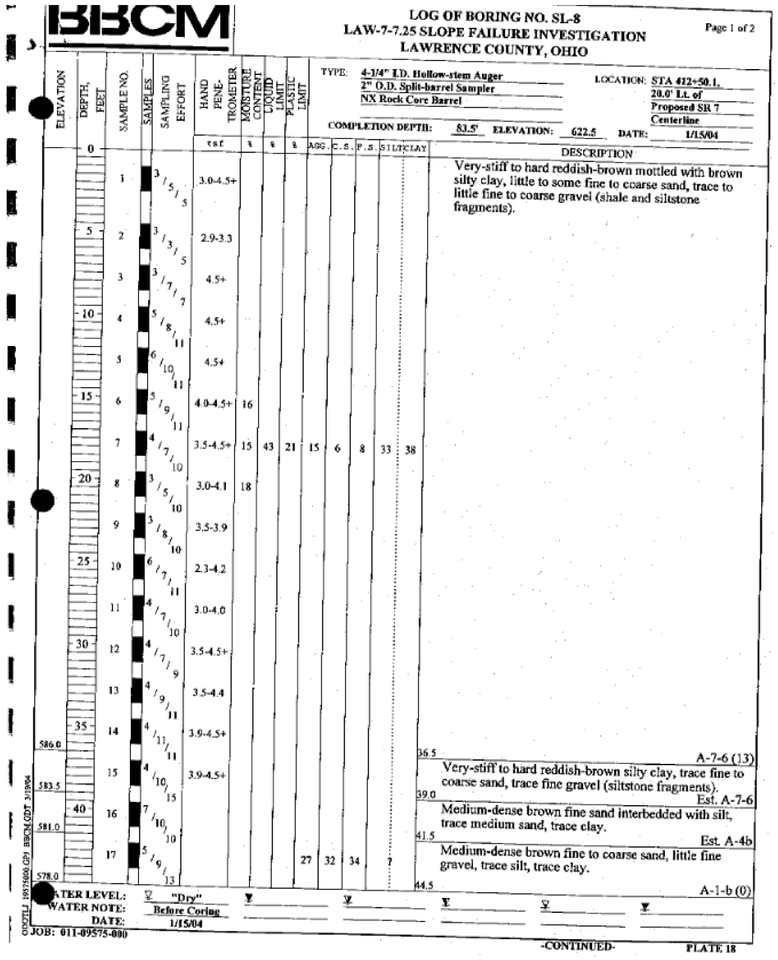
500.9 — (44.5) Visual

- Encountered slight seepage at 4.5'.
- Encountered water at 14.0'.

WATER LEVEL: ▽ 18.0
WATER NOTE: Before Coring
DATE: 1/13/04

JOB: 011-09575-000

PLATE 17



BBCM

LOG OF BORING NO. SL-8
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 412+50.1, 20.0' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 83.5' ELEVATION: 622.5 DATE: 1/15/04

SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY
1		3/5/5	3.0-4.5+							
2		3/3/5	2.9-3.3							
3		3/7/7	4.5+							
4		5/8/11	4.5+							
5		6/10/11	4.5+							
6		5/9/11	4.0-4.5+	16						
7		4/7/10	3.5-4.5+	15	43	21	15	6	8	33 38
8		3/5/10	3.0-4.1	18						
9		3/8/10	3.5-3.9							
10		6/7/11	2.3-4.2							
11		4/7/10	3.0-4.0							
12		4/7/9	3.5-4.5+							
13		4/9/11	3.5-4.4							
14		4/11/11	3.9-4.5+							
15		4/10/15	3.9-4.5+							
16		7/10/10								
17		5/9/13								

DESCRIPTION

Very-stiff to hard reddish-brown mottled with brown silty clay, little to some fine to coarse sand, trace to little fine to coarse gravel (shale and siltstone fragments).

586.0 / 583.5 / 581.0 / 578.0 — (36.5) A-7-6 (13)

Very-stiff to hard reddish-brown silty clay, trace fine to coarse sand, trace fine gravel (siltstone fragments).

(39.0) Est. A-7-6

Medium-dense brown fine sand interbedded with silt, trace medium sand, trace clay.

(41.5) Est. A-4b

Medium-dense brown fine to coarse sand, little fine gravel, trace silt, trace clay.

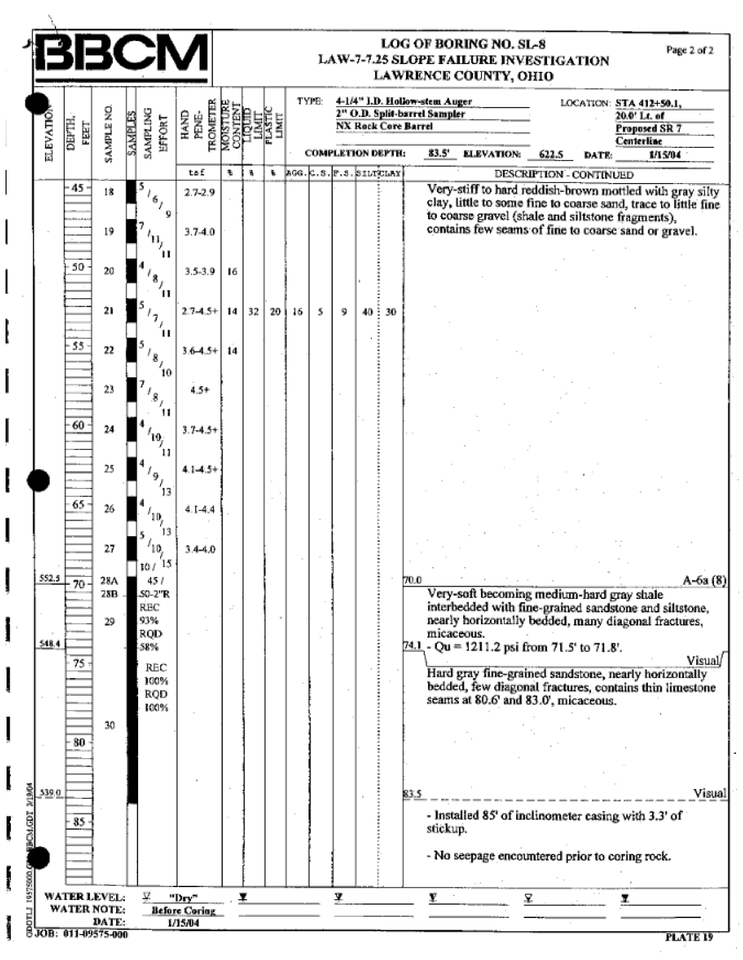
(44.5) A-1-b (0)

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/15/04

JOB: 011-09575-000

-CONTINUED-

PLATE 18



BBCM

LOG OF BORING NO. SL-8
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 412+50.1, 20.0' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 83.5' ELEVATION: 622.5 DATE: 1/15/04

SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY
18		5/6/9	2.7-2.9							
19		7/11/11	3.7-4.0							
20		4/8/11	3.5-3.9	16						
21		5/7/11	2.7-4.5+	14	32	20	16	5	9	40 30
22		5/8/10	3.6-4.5+	14						
23		7/8/11	4.5+							
24		4/10/11	3.7-4.5+							
25		4/9/13	4.1-4.5+							
26		4/10/13	4.1-4.4							
27		5/10/15	3.4-4.0							
28A		10/45/.5								
28B		0"R								
29		REC 93% RQD 58%								
30		REC 100% RQD 100%								

DESCRIPTION - CONTINUED

Very-stiff to hard reddish-brown mottled with gray silty clay, little to some fine to coarse sand, trace to little fine to coarse gravel (shale and siltstone fragments), contains few seams of fine to coarse sand or gravel.

552.5 / 548.4 / 539.0 — (70.0) A-6a (8)

Very-soft becoming medium-hard gray shale interbedded with fine-grained sandstone and siltstone, nearly horizontally bedded, many diagonal fractures, micaceous.

(74.1) - Qu = 1211.2 psi from 71.5' to 71.8'.

Visual

Hard gray fine-grained sandstone, nearly horizontally bedded, few diagonal fractures, contains thin limestone seams at 80.6' and 83.0', micaceous.

(83.5) Visual

- Installed 85' of inclinometer easing with 3.3' of stickup.
- No seepage encountered prior to coring rock.

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/15/04

JOB: 011-09575-000

PLATE 19

DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

BBCM

LOG OF BORING NO. SL-9
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler
LOCATION: STA 414+25.2, 50.0' Lt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 80.3' ELEVATION: 632.4 DATE: 1/16/04 - 1/17/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
	0												
629.4		1		2/6/7									Medium-dense brown and gray fine to coarse gravel (shale and siltstone fragments), some fine to coarse sand, some silty clay. Est. A-2-4
625.9	3.0												Stiff to very-stiff reddish-brown, dark-gray and brown silty clay, little fine to coarse sand (shale and siltstone fragments), little fine to coarse gravel, contains few roots.
	5	2		3/4/10	1.0-2.1	22							
	6.5												Est. A-7-6
	10	3		6/4/7	4.5+	15	47	23	19	9	5	23	44
		4		8/14/16	4.5+	12							Very-stiff to hard reddish-brown mottled with brown silty clay, little to some fine to coarse sand, trace to little fine to coarse gravel (shale and siltstone fragments).
	20	5		14/23/26	4.5+								
	25	6		10/16/16	4.5+								
	30	7		4/7/11	3.8-4.5+								
	35	8		4/6/10	3.2-4.0								
	40	9		4/11/11	2.5-3.0								
583.4	45	10		6/12/16	3.5-4.5+								
	49.0												A-7-6 (13)

WATER LEVEL: ▽ "Dry"
WATER NOTE:
DATE: 1/16/04

JOB: 011-09575-000

-CONTINUED-

PLATE 20

BBCM

LOG OF BORING NO. SL-10
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 412+49.8, 145.0' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 53.5' ELEVATION: 564.3 DATE: 1/14/04 - 1/15/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
	0												
		1		1/2/3	1.1-1.5								Medium-stiff to stiff reddish-brown mottled with brown silty clay, little fine to coarse sand, trace fine to coarse gravel (shale and siltstone fragments), contains few roots.
	5	2		1/3/3	0.9-1.2	26							
		3		1/3/2	0.8-1.1	22	48	23	11	5	12	29	43
556.3	8.0												A-7-6 (15)
		4		1/2/2									Very-loose to loose brown fine to medium sand, trace coarse sand, trace fine gravel, trace silt, contains few seams of silt.
	10	5		2/2/4									
		6		2/3/3									
	15	7		2/2/4					1	5	91	3	
		8		3/5/5									
541.3	20	9		2/3/6									
		10		3/3/7									
	25	11		5/15/7									
535.8	28.5												Est. A-3
	23.0												A-3 (0)
													Loose to medium-dense brown fine to medium sand, trace coarse sand, trace fine gravel, trace silt, contains decayed roots.

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/14/04

JOB: 011-09575-000

-CONTINUED-

PLATE 22

BBCM

LOG OF BORING NO. SL-10
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 412+49.8, 145.0' Rt. of Proposed SR 7 Centerline
COMPLETION DEPTH: 53.5' ELEVATION: 564.3 DATE: 1/14/04 - 1/15/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
534.3	30	12		7/12/14		11							Medium-dense brown fine to coarse gravel (shale and siltstone fragments), some fine to coarse sand, some silty clay.
	30.0												Est. A-2-4
		13		4/6/8	2.7-3.3	13	31	20	37	7	10	26	20
531.1	33.2												A-6a (3)
				NX REC 20% RQD 0%									Very-stiff reddish-brown mottled with brown silty clay, some fine to coarse gravel (shale, limestone and siltstone fragments), some fine to coarse sand.
	35	14											Medium-hard gray fine to medium-grained sandstone, highly fragmented, poorly cemented.
	40												
520.8	43.5												Visual
		15		REC 28% RQD 7%									Hard brown becoming gray fine to medium-grained sandstone, nearly horizontally bedded, well cemented, many diagonal fractures, micaceous, calcareous, contains thin gray siltstone seam near bottom of stratum.
	45												
		16		REC 90% RQD 45%									
510.8	53.5												Visual
	55												- Encountered slight seepage at 8.9'.
													- Installed 55' of inclinometer casing with 2.9' of stickup.

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/14/04

JOB: 011-09575-000

PLATE 23

DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

LOG OF BORING NO. SL-11
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler
LOCATION: STA 414+25.3, 100.0' Rt. of Centerline
COMPLETION DEPTH: 50.8' ELEVATION: 589.2 DATE: 1/14/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION
	0												Very-stiff to hard reddish-brown mottled with brown silty clay, little fine to coarse sand, trace to little fine to coarse gravel (shale and siltstone fragments), contains few roots near top of stratum.
		1	4/8/9		2.5-3.3	17							
584.2	5	2A	5/7/9		4.5+	13	42	21	10	9	6	34	41
		2B			4.5+	19							5.0 A-7-6 (13)
													Hard dark-brown silty clay, little fine to coarse sand, trace fine to coarse gravel (shale and siltstone fragments).
		3	6/12/16		4.5+								
580.2	10												9.0 Est. A-6b
		4	6/16/20										Medium-dense to dense brown fine to coarse sand, some fine to coarse gravel, trace to little silt, trace clay.
		5	4/6/9										
575.2	15	6	3/5/5										14.0 Est. A-1-b
													Loose brown fine to coarse sand, trace fine to coarse gravel, trace silt.
		7	2/3/3										
570.2	20	8	2/3/5										19.0 A-1-b (0)
													Loose to medium-dense brown fine to medium sand, trace coarse sand, trace fine gravel, trace silt, trace clay, contains few decayed roots from 42.0' to 43.1'.
		9	2/3/2										
542.7	25	10	1/3/5										Est. A-3

WATER LEVEL: ▽ "Dry"
WATER NOTE:
DATE: 1/14/04

JOB: 011-09575-000 -CONTINUED- PLATE 24

LOG OF BORING NO. SL-11
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler
LOCATION: STA 414+25.3, 100.0' Rt. of Centerline
COMPLETION DEPTH: 50.8' ELEVATION: 589.2 DATE: 1/14/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION - CONTINUED
		11	2/3/4										Loose to medium-dense brown fine to medium sand, trace coarse sand, trace fine gravel, trace silt, trace clay, contains few decayed roots from 42.0' to 43.1'.
	30	12	2/4/5										
		13	2/3/4										
	35	14	2/6/10										
		15	4/8/11										
	40	16	4/7/9										
		17	3/4/5										
	45	18	2/6/10										
542.7		19A	16/28/37										46.5 Est. A-3
538.4	50	19B											Very-dense brown fine to coarse gravel (shale and siltstone fragments), some fine to coarse sand, trace silt, contains few silty clay seams.
		20	11/18/50-4"R										50.8 Est. A-1-b
													- Encountered slight seepage at 25.5'.

WATER LEVEL: ▽ "Dry"
WATER NOTE:
DATE: 1/14/04

JOB: 011-09575-000 PLATE 25

LOG OF BORING NO. SL-12
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: NX Rock Core Barrel
LOCATION: STA 421+47.7, 103.5' Lt. of Centerline
COMPLETION DEPTH: 63.5' ELEVATION: 626.8 DATE: 1/17/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION
	0												Very-soft yellow-brown and reddish-brown shale, fragmental structure, similar to hard silty clay, many diagonal fractures.
	5												9.2 Visual
617.6													Very-soft reddish-brown shale, fragmental structure, partly similar to hard silty clay, many diagonal fractures.
	10	1	NX REC 96% RQD 95%										
612.5													14.3 Visual
	15												Soft to medium-hard yellow-brown shale, interbedded with siltstone and fine-grained sandstone, nearly horizontally bedded, many diagonal fractures, contains few limestone nodules and seams.
			REC 96% RQD 71%										
	20	2											
	25												
	30		REC 100% RQD 73%										
588.1		3											Visual
	35												

WATER LEVEL: ▽ "Dry"
WATER NOTE: Before Coring
DATE: 1/17/04

JOB: 011-09575-000 -CONTINUED- PLATE 26

DRAWN MSJ | CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE
LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

BBCM

LOG OF BORING NO. SL-12
LAW-7-7.25 SLOPE FAILURE INVESTIGATION
LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: NX Rock Core Barrel
LOCATION: STA 421+47.7, 103.5' Lt. of Centerline
COMPLETION DEPTH: 63.5' ELEVATION: 626.8 DATE: 1/17/04

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION - CONTINUED
	35												Soft to medium-hard yellow-brown shale, interbedded with siltstone and fine-grained sandstone, nearly horizontally bedded, many diagonal fractures, contains few limestone nodules and seams.
588.1													38.7 Visual
	40	4	REC 85% RQD 52%										Very-soft to soft reddish-brown and gray shale, fragmental structure, many diagonal fractures, many limestone nodules from 44.8' to 46.5'.
580.3	45												46.5 Visual
	50		REC 93% RQD 86%										Soft to medium-hard yellow-brown siltstone interbedded with shale, nearly horizontally bedded, many diagonal fractures, contains a clay filled fracture at 59.5'.
	55	5											
567.1	60	6	REC 79% RQD 58%										59.7 Visual
													Soft to medium-hard gray and reddish-brown shale, fragmental structure, many diagonal fractures.
563.3	65												63.5 Visual
	70												- Pad cleared of soil overburden at boring location by bulldozer to facilitate drill rig access. - No seepage noted prior to coring rock. - Installed 65.0' of inclinometer casing with 3' of stickup.

WATER LEVEL: ▽ "Dry" ▼ ▼ ▼ ▼ ▼
WATER NOTE: Before Coring
DATE: 1/17/04

JOB: 011-09575-000

PLATE 27

OGOTLI J9575000.GPJ BBCM.GDT 2/16/04

BBCM

LOG OF BORING NO. SLI-981
DRILLING & INSTRUMENT MONITORING FOR SLIDE 5
LAW-7-7.25, LAWRENCE COUNTY, OHIO

Page 1 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 393+10.4, 54.0' Lt. of Mainline Centerline
COMPLETION DEPTH: 53.8' ELEVATION: 587.5 DATE: 4/6/05 - 4/7/05

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION
586.5	0												Stiff (est.) reddish-brown mixed with gray silty clay, little fine to coarse sand, trace fine gravel.
	1	1		3 5 7									1.0 Est. A-6a
	2	2		7 10 10									Medium-dense brown fine sand, trace medium to coarse sand, some fine to coarse gravel (sandstone and shale fragments), some clayey silt.
	5	SS		4 7 10					35	12	27	26	
579.5	3												8.0 Est. A-2-4
	4	3		4 9 9	4.5+								Very-stiff to hard reddish-brown mottled with greenish-gray clayey silt, some fine to coarse sand, trace to little fine gravel (shale and sandstone fragments).
	10												
	5	4		4 6 10	4.5+								
	6	5		10 14 10	4.0-4.5								
	15												
	7	6		11 8 7	2.0-2.1	18	31	21	10	9	7	49	25
	8	7		4 6 9	4.0-4.5								
567.0	20												20.5 A-4a (8)
	9	8		3 6 8									Medium-dense brown and gray fine to coarse gravel (shale and sandstone fragments), some fine to coarse sand, "and" silty clay.
	10	9		3 9 8									
562.0	25												25.5 Est. A-6a
	11	10		6 18 12	3.0-3.25	15	31	19	9	8	14	42	27
	12	11		10 13 18	4.0	13							Very-stiff to hard reddish-brown mottled with gray silty clay, some fine to coarse sand, trace to little fine gravel (shale and siltstone fragments).
556.5	30												31.0 A-6a (8)

WATER LEVEL: ▽ 6.0 ▼ ▼ ▼
WATER NOTE: End of Day
DATE: 4/06/05

JOB: 011-09575-006

-CONTINUED-

PLATE 1

OGOTLI J9575006.GPJ BBCM.GDT 4/8/05

BBCM

LOG OF BORING NO. SLI-981
DRILLING & INSTRUMENT MONITORING FOR SLIDE 5
LAW-7-7.25, LAWRENCE COUNTY, OHIO

Page 2 of 2

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 393+10.4, 54.0' Lt. of Mainline Centerline
COMPLETION DEPTH: 53.8' ELEVATION: 587.5 DATE: 4/6/05 - 4/7/05

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C. S.	F. S.	SILT/CLAY	DESCRIPTION - CONTINUED
	13	SS		50-4"R									Very-soft to soft gray shale interbedded with fine-grained sandstone and siltstone, nearly horizontally bedded, many diagonal fractures.
	14		REC 54%		RQD 50%	8							
	35												
	15		REC 92% RQD 47%			4							
548.3	40												39.2 Visual
	16		REC 93% RQD 78%										Hard gray fine-grained sandstone, well cemented, few diagonal fractures.
	45		REC 98% RQD 92%										
	17												
536.2	50												51.3 Visual
	18		REC 98% RQD 80%										Very-soft to medium-hard gray shale, nearly horizontally bedded, many diagonal fractures.
533.7	55												53.8 Visual
	60												- Installed inclinometer casing to bottom of boring. - Unconfined Compression (Q_u) Test: Sample S-14: q_{max} = 80.7 psi at 3.0% strain. Sample S-15: q_{max} = 346.0 psi at 4.2% strain.

WATER LEVEL: ▽ 6.0 ▼ ▼ ▼
WATER NOTE: End of Day
DATE: 4/06/05

JOB: 011-09575-006

PLATE 2

OGOTLI J9575006.GPJ BBCM.GDT 4/8/05

DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE LAW-7

LAW-7-2.17

204/206

1245
1247

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS

LOG OF BORING NO. SLI-982 — Page 1 of 1
DRILLING & INSTRUMENT MONITORING FOR SLIDE 5
LAW-7-7.25, LAWRENCE COUNTY, OHIO

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 394+06.8, 205.3' Lt. of Mainline Centerline
COMPLETION DEPTH: 31.2' ELEVATION: 632.3 DATE: 4/11/05 - 4/12/05

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
631.8	0												TOPSOIL - 6 INCHES
		1		5 / 4 / 6	2.5-4.5+	21							0.5 Very-stiff to hard reddish-brown silty clay, some fine to coarse sand, trace fine to coarse gravel (shale fragments).
628.8		2		4 / 7 / 6		8	37	22	44	7	4	25	20 3.5 Est. A-6a Medium-dense reddish-brown fine to coarse gravel (shale and siltstone fragments), some fine to coarse
626.8	5	3		50-5"R									5.5 sand, "and" silty clay. A-6a (4) Very-soft to medium-hard reddish-brown shale, mostly similar to silty clay.
		4		50-5"R									
621.1	10	5		50-3"R									
		6		NX REC 81% RQD 44%									
	15	7		REC 83% RQD 59%									
	20	8		REC 97% RQD 68%									
	25	9		REC 65% RQD 22%									
601.1	30	10		REC 100% RQD 81%									11.2 Visual Very-soft to medium-hard brown, reddish-brown and gray shale, nearly horizontally bedded, many diagonal fractures, some slickensides.
	35												31.2 Visual - Installed inclinometer casing to bottom of boring.

WATER LEVEL: "Dry"
WATER NOTE:
DATE: 4/12/05

JOB: 011-09575-006 PLATE 3

LOG OF BORING NO. SLI-983 — Page 1 of 2
DRILLING & INSTRUMENT MONITORING FOR SLIDE 5
LAW-7-7.25, LAWRENCE COUNTY, OHIO

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 395+96.3, 222.7' Lt. of Mainline Centerline
COMPLETION DEPTH: 41.5' ELEVATION: 642.9 DATE: 4/12/05 - 4/13/05

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION
	0												
		1		7 / 4 / 1	2.25-3.5								Very-stiff to hard reddish-brown silty clay, little to some fine to coarse sand, trace to little fine to coarse gravel (shale, siltstone and sandstone fragments).
		2		1 / 2 / 2	2.0-2.5	17	41	21	15	8	9	27	41
	5	3		4 / 3 / 4	4.0-4.25	17							
		4		4 / 6 / 6	4.5+	18							
629.9	10	5		4 / 5 / 5	4.5+	15	45	21	21	9	6	24	40
		6		25 / 50-5"R									13.0 A-7-6 (11,12) Very-soft to soft reddish-brown shale, similar to hard silty clay, nearly horizontally bedded.
	15	7		24 / 50-4"R									
		8		49 / 50-2"R									
621.4	20	9		50-5"R									
		10		NX REC 100% RQD 60%									
	25												
		11		REC 100% RQD 24%									21.5 Visual Very-soft to soft gray interbedded with reddish-brown shale, nearly horizontally bedded, many diagonal fractures, contains few slickensides.
606.9	30												Visual

WATER LEVEL: "Dry"
WATER NOTE:
DATE: 4/12/05

JOB: 011-09575-006 -CONTINUED- PLATE 4

LOG OF BORING NO. SLI-983 — Page 2 of 2
DRILLING & INSTRUMENT MONITORING FOR SLIDE 5
LAW-7-7.25, LAWRENCE COUNTY, OHIO

TYPE: 4-1/4" I.D. Hollow-stem Auger; 2" O.D. Split-barrel Sampler; NX Rock Core Barrel
LOCATION: STA 395+96.3, 222.7' Lt. of Mainline Centerline
COMPLETION DEPTH: 41.5' ELEVATION: 642.9 DATE: 4/12/05 - 4/13/05

ELEVATION	DEPTH, FEET	SAMPLE NO.	SAMPLES	SAMPLING EFFORT	HAND PENE-TROMETER tsf	MOISTURE CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	AGG.	C.S.	F.S.	SILT/CLAY	DESCRIPTION - CONTINUED
	35												Very-soft to soft gray interbedded with reddish-brown shale, nearly horizontally bedded, many diagonal fractures, contains few slickensides.
606.9				REC 67% RQD 47%									36.0 Visual Hard gray and brown siltstone interbedded with fine-grained sandstone, nearly horizontally bedded, many diagonal fractures.
	40			12									
601.4													41.5 Visual - Installed inclinometer casing to bottom of boring. - Unconfined Compression (Q_u) Test: Sample S-10: q_{max} = 45.8 psi at 3.0% strain. Sample S-10: q_{max} = 36.0 psi at 2.6% strain.
	45												
	50												
	55												
	60												
	65												

WATER LEVEL: "Dry"
WATER NOTE:
DATE: 4/12/05

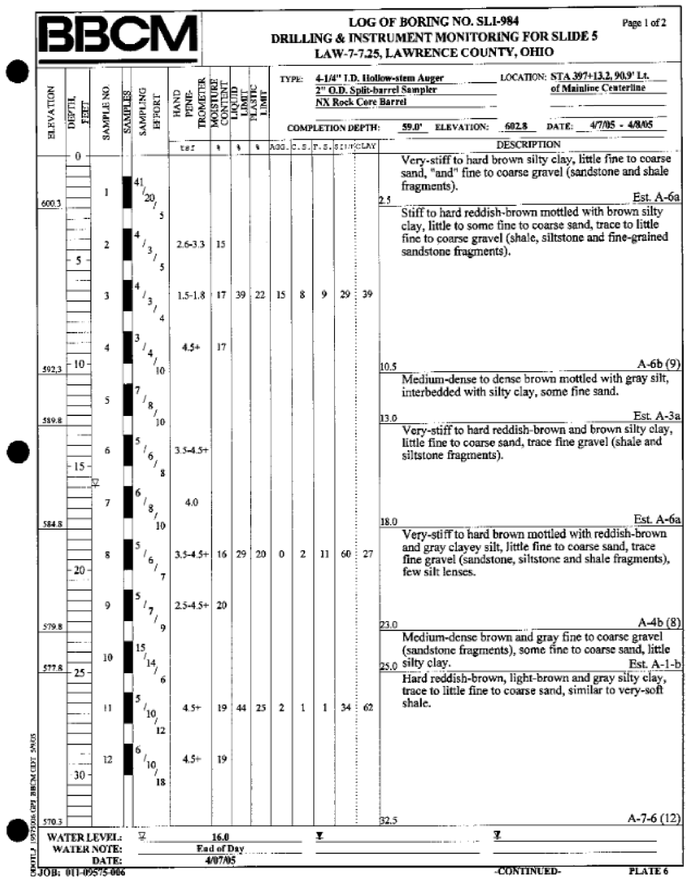
JOB: 011-09575-006 PLATE 5

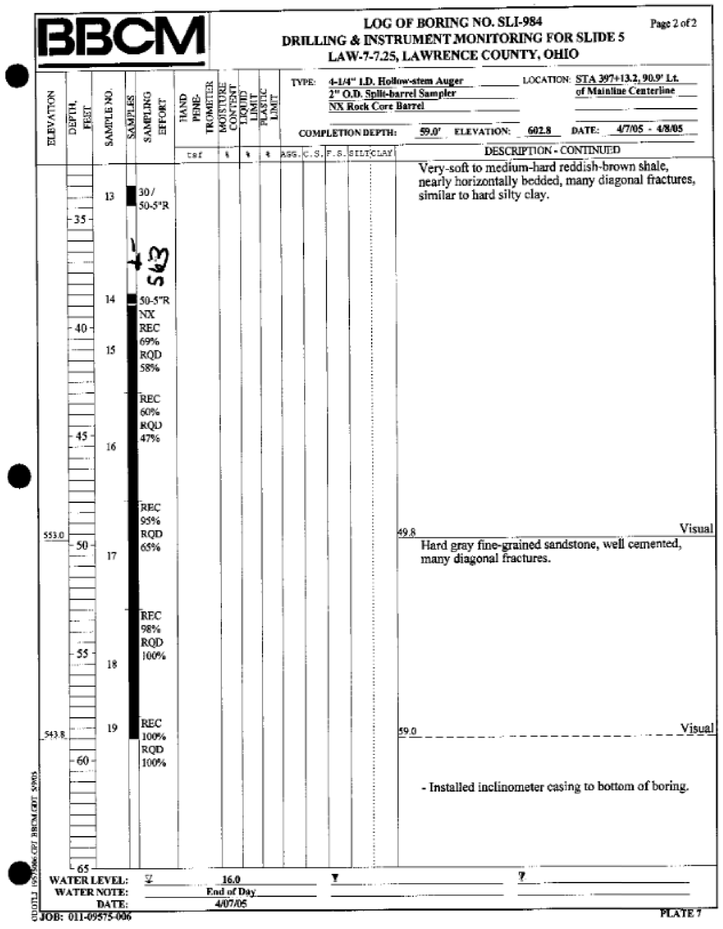
DRAWN MSJ
CHECKED EMK

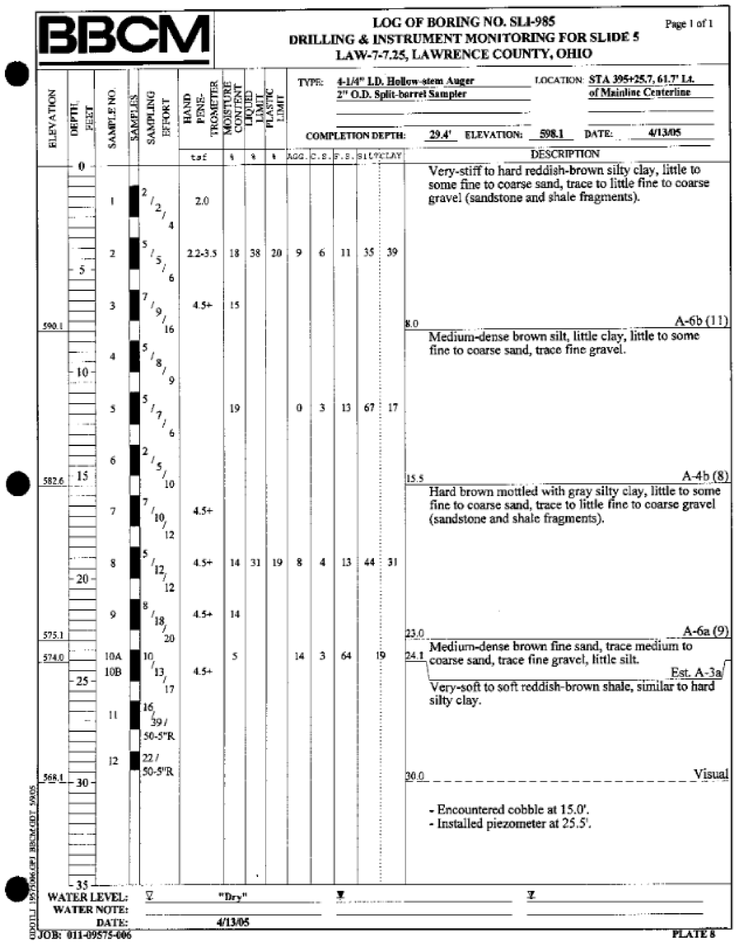
GEOTECHNICAL EXPLORATION - LANDSLIDE LAW-7

LAW-7-2.17

LANDSLIDE BORINGS FROM PREVIOUS SUBSURFACE INVESTIGATIONS







DRAWN MSJ
CHECKED EMK

GEOTECHNICAL EXPLORATION - LANDSLIDE LAW-7

LAW-7-2.17

206/206

1247
1247

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 127+82, 82' RT.	EXPLORATION ID B-001-1-23
TYPE: CULVERT	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 537.3 (MSL) EOB: 41.5 ft.	PAGE 1 OF 1
START: 4/29/24 END: 4/29/24	SAMPLING METHOD: SPT / ST	ENERGY RATIO (%): 80	LAT / LONG: 38.437629, -82.455831	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
STIFF TO HARD, BROWN AND GRAY, **CLAY**, "AND" SILT, TRACE TO LITTLE SAND, TRACE GRAVEL, DAMP TO MOIST	537.3																	
		3	4 7 7	19	100	SS-1	4.00	6	7	9	41	37	42	23	19	22	A-7-6 (12)	
		6	3 3 3	8	44	SS-2	4.25	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
ST ATTEMPT FROM 7.5'-9.5', NO RECOVERY		8	1 2 3	7	39	SS-3	2.25	-	-	-	-	-	-	-	-	32	A-7-6 (V)	
		11	2 2 4	8	100	SS-4	2.00	0	0	1	44	55	50	28	22	31	A-7-6 (15)	
	522.8	14			100	ST-5	2.60	0	0	1	53	46	46	27	19	28	A-7-6 (13)	
SOFT TO STIFF, BROWN AND GRAY, **SANDY SILT**, LITTLE CLAY, TRACE GRAVEL, WET		15	3 2 3	7	100	SS-6	1.50	0	0	48	34	18	23	17	6	24	A-4a (3)	
SS-7 CONTAINS NO INTACT SOIL FOR HP READINGS		18	0 0 3	4	100	SS-7	-	-	-	-	-	-	-	-	-	24	A-4a (V)	
SS-8 CONTAINS NO INTACT SOIL FOR HP READINGS	515.8	21	1 1 2	4	100	SS-8	-	-	-	-	-	-	-	-	-	27	A-4a (V)	
LOOSE, GRAY, **COARSE AND FINE SAND**, LITTLE SILT, LITTLE CLAY, TRACE GRAVEL, WET																		
		W 25	1 2 4	8	100	SS-9	-	-	-	-	-	-	-	-	-	28	A-3a (V)	
		31	3 3 4	9	100	SS-10	-	0	27	46	15	12	NP	NP	NP	22	A-3a (0)	
	504.0																	
STIFF, GRAY AND BROWN, **SANDY SILT**, SOME CLAY, TRACE GRAVEL, SLIGHTLY ORGANIC, WET		36	2 3 2	7	100	SS-11	1.50	-	-	-	-	-	-	-	-	26	A-4a (V)	
	499.0																	
MEDIUM DENSE, GRAY, **COARSE AND FINE SAND**, SOME SILT, TRACE CLAY, TRACE GRAVEL, WET		41	5 4 10	19	100	SS-12	-	-	-	-	-	-	-	-	-	26	A-3a (V)	
	495.8	EOB																

NOTES: GROUNDWATER ENCOUNTERED AT 25.0' DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: POURED 2 BAGS HOLE PLUG; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 164+02, 176' RT.	EXPLORATION ID B-007-1-23
TYPE: CULVERT	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 576.5 (MSL) EOB: 41.5 ft.	PAGE 1 OF 1
START: 4/24/24 END: 4/24/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.442765, -82.445738	

MATERIAL DESCRIPTION AND NOTES	ELEV. 576.5	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
VERY STIFF, BROWN, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, MOIST		1 2 3 4	2 4 5	12	89	SS-1	3.00	-	-	-	-	-	-	-	-	27	A-6a (V)	
	572.0																	
HARD, BROWN, **SILT**, SOME TO "AND" CLAY, TRACE SAND, TRACE GRAVEL, MOIST TO DAMP		5 6 7	3 4 6	13	100	SS-2	4.50	-	-	-	-	-	-	-	-	24	A-4b (V)	
		8 9	2 3 5	11	100	SS-3	4.50	0	0	1	57	42	33	23	10	26	A-4b (8)	
		10 11 12	3 6 6	16	100	SS-4	4.50	-	-	-	-	-	-	-	-	22	A-4b (V)	
		13 14	3 5 6	15	100	SS-5	4.50	-	-	-	-	-	-	-	-	23	A-4b (V)	
		15 16	3 6 8	19	100	SS-6	4.50	-	-	-	-	-	-	-	-	23	A-4b (V)	
	559.5	17																
VERY STIFF TO HARD, BROWN BECOMING GRAY, **SILT AND CLAY**, TRACE SAND, TRACE GRAVEL, MOIST TO DAMP		18 19	4 5 6	15	100	SS-7	3.75	-	-	-	-	-	-	-	-	27	A-6a (V)	
		20 21	3 3 8	15	100	SS-8	3.50	1	0	1	47	51	35	20	15	23	A-6a (10)	
		22 23 24																
		25 26	3 5 7	16	100	SS-9	4.25	-	-	-	-	-	-	-	-	25	A-6a (V)	
		27 28 29																
		30 31	4 5 6	15	100	SS-10	3.75	-	-	-	-	-	-	-	-	27	A-6a (V)	
		32 33 34	W 543.5															
		35 36	3 4 6	13	100	SS-11	3.25	0	1	2	38	59	38	23	15	25	A-6a (10)	
		37 38 39																
		40 41	3 7 10	23	100	SS-12	4.00	-	-	-	-	-	-	-	-	21	A-6a (V)	
	535.0	EOB																

NOTES: GROUNDWATER ENCOUNTERED AT 33.0' DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: POURED 2 BAGS HOLE PLUG; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 174+98, 83' RT.	EXPLORATION ID B-007-2-23	
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7		
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 3/8/24	ELEVATION: 631.5 (MSL) EOB: 17.5 ft.	PAGE 1 OF 1	
START: 4/24/24 END: 5/1/24	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 80	LAT / LONG: 38.443989, -82.442227		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
2.0" ASPHALT (DRILLERS DESCRIPTION)	631.3																	
VERY STIFF, MAROONISH BROWN, **CLAY**, SOME SILT, LITTLE SAND, TRACE GRAVEL, MOIST	631.5		4 2 5	9	39	SS-1	3.00	3	4	12	26	55	50	22	28	23	A-7-6 (17)	
	626.0	TR	5 50	-	83	SS-2	-	-	-	-	-	-	-	-	-	10	Rock (V)	
SHALE, MAROONISH BROWN AND BROWN, SEVERELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK, VERY THIN BEDDED, BEDDING DISCONTINUITIES: LOW ANGLE, JOINT DISCONTINUITY: 12.5'-13.5', FRACTURED TO HIGHLY FRACTURED, OPEN, SLIGHTLY ROUGH, DISINTIGRATED, POOR SURFACE CONDITION; RQD 7%, REC 57%.			50	-	67	SS-3	-	-	-	-	-	-	-	-	-	9	Rock (V)	
			16 50/3"	-	78	SS-4	-	-	-	-	-	-	-	-	-	5	Rock (V)	
			50	-	67	SS-5	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			7		57	NQ2-1											CORE	
	614.0	EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE. OFFSET 2.0' SOUTH.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; POURED 1 BAG HOLE PLUG; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 177+50, 50' RT.	EXPLORATION ID B-007-3-23	
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7		
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 3/8/24	ELEVATION: 659.2 (MSL) EOB: 12.5 ft.	PAGE 1 OF 1	
START: 5/1/24 END: 5/1/24	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 80	LAT / LONG: 38.444310, -82.441429		

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
VERY STIFF, MAROONISH BROWN, **CLAY**, "AND" SILT, TRACE SAND, TRACE GRAVEL, DAMP	659.2																	
	654.7		2 3 8	15	50	SS-1	3.50	2	1	4	39	54	42	21	21	17	A-7-6 (13)	
HARD, MAROONISH BROWN AND BROWN, **SILT AND CLAY**, SOME SAND, LITTLE STONE FRAGMENTS, RESIDUAL ROCK, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	653.2	TR	4 13 50/5"	-	100	SS-2	-	12	11	11	39	27	35	21	14	11	A-6a (8)	
SHALE, BROWN AND MAROONISH BROWN, SEVERELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY THIN TO THIN BEDDED, CONTAINS SIDERITE NODULES, BEDDING DISCONTINUITIES: LOW ANGLE, JOINT DISCONTINUITIES: 8.7'-9.3', 10.0'-10.6', 11.5'-12.5', HIGHLY FRACTURED TO MODERATELY FRACTURED, OPEN TO NARROW, SLIGHTLY ROUGH, DISINTIGRATED TO BLOCKY/DISTURBED/SEAMY, POOR SURFACE CONDITION; RQD 26%, REC 95%.			50/4"	-	100	SS-3	-	-	-	-	-	-	-	-	-	1	Rock (V)	
			26		95	NQ2-1											CORE	
	646.7	EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: POURED 1 BAG HOLE PLUG; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 179+91, 55' RT.	EXPLORATION ID B-007-4-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 3/8/24	ELEVATION: 669.0 (MSL) EOB: 24.0 ft.	PAGE 1 OF 1
START: 5/2/24 END: 5/2/24	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 80	LAT / LONG: 38.444573, -82.440641	

MATERIAL DESCRIPTION AND NOTES	ELEV. 669.0	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
VERY STIFF, ORANGISH BROWN, **SANDY SILT**, LITTLE CLAY, TRACE GRAVEL, DAMP		1 2 3 4	2 3 4	9	61	SS-1	3.50	-	-	-	-	-	-	-	-	13	A-4a (V)	
	664.5																	
HARD, MAROONISH BROWN, **CLAY**, SOME SILT, TRACE SAND, TRACE GRAVEL, DAMP		5 6 7 8 9	3 5 10	20	100	SS-2	4.50	1	1	5	33	60	44	22	22	19	A-7-6 (14)	
			7 10 13	31	100	SS-3	4.50	-	-	-	-	-	-	-	-	13	A-7-6 (V)	
	659.5																	
HARD, MAROONISH BROWN AND GRAY, **SILTY CLAY**, TRACE STONE FRAGMENTS, TRACE SAND, RESIDUAL ROCK, DAMP		10 11 12 13	10 18 13	41	100	SS-4	4.50	9	1	2	38	50	39	21	18	11	A-6b (11)	
	655.5	TR	10 25 50/3"	-	93	SS-5	4.50	-	-	-	-	-	-	-	-	7	A-6b (V)	
SHALE, GRAY BECOMING BROWN AND GRAY, SEVERELY WEATHERED, VERY WEAK, BEDDING DISCONTINUITIES: LOW ANGLE, FRACTURED, OPEN, SLIGHTLY ROUGH, DISINTIGRATED, POOR SURFACE CONDITION; RQD 0%, REC 24%.		14 15 16 17 18 19	50/4"	-	100	SS-6	-	-	-	-	-	-	-	-	-	8	Rock (V)	
			50	-	100	SS-7	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			50/2"	-	50	SS-8	-	-	-	-	-	-	-	-	-	4	Rock (V)	
MATERIAL DEGRADED DURING CORING CONTAINS A 2.5" SILTSTONE LAYER AT UNKNOWN DEPTH WITHIN CORE RUN		20 21 22 23	0		24	NQ2-1											CORE	
			50	-	83	SS-9	-	-	-	-	-	-	-	-	-	12	Rock (V)	
	645.0	EOB 24	50	-	67	SS-10	-	-	-	-	-	-	-	-	-	8	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 50 GAL. BENTONITE GROUT; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 181+87, 103' RT.	EXPLORATION ID B-007-5-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 645.2 (MSL) EOB: 24.0 ft.	PAGE 1 OF 1
START: 5/4/24 END: 5/4/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.444725, -82.439943	

MATERIAL DESCRIPTION AND NOTES	ELEV. 645.2	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
STIFF TO VERY STIFF, MAROONISH BROWN, **CLAY**, SOME SILT, TRACE TO LITTLE SAND, TRACE GRAVEL, MOIST TO DAMP		1 2	1 2 1	4	44	SS-1	1.50	6	4	9	25	56	65	26	39	27	A-7-6 (20)	
		3 4 5	4 6 8	19	50	SS-2	3.75	-	-	-	-	-	-	-	-	21	A-7-6 (V)	
	637.2	6 7 8	7 10 9	25	100	SS-3	3.25	-	-	-	-	-	-	-	-	18	A-7-6 (V)	
VERY STIFF, YELLOWISH BROWN AND BROWN, **CLAY**, "AND" SILT, TRACE SAND, TRACE GRAVEL, DAMP	634.7	9 10	6 10 7	23	100	SS-4	3.50	1	1	4	48	46	48	28	20	20	A-7-6 (14)	
VERY DENSE, BROWN, **STONE FRAGMENTS WITH SAND**, TRACE SILT, TRACE CLAY, RESIDUAL ROCK, DAMP	632.7	11 12 TR	8 15 24	52	28	SS-5	-	55	17	8	10	10	NP	NP	NP	5	A-1-b (0)	
SHALE, GRAY AND YELLOWISH BROWN, HIGHLY WEATHERED, VERY WEAK TO WEAK.		13 14 15	9 19 26	60	33	SS-6	-	-	-	-	-	-	-	-	-	8	Rock (V)	
	627.2	16 17	6 23 32	73	28	SS-7	-	-	-	-	-	-	-	-	-	8	Rock (V)	
SILTSTONE, GRAY AND YELLOWISH BROWN, MODERATELY WEATHERED, SLIGHTLY STRONG.		18 19 20	17 50	-	33	SS-8	-	-	-	-	-	-	-	-	-	5	Rock (V)	
		21 22	38 50/4"	-	30	SS-9	-	-	-	-	-	-	-	-	-	6	Rock (V)	
	621.2	23 24 EOB	50	-	50	SS-10	-	-	-	-	-	-	-	-	-	7	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 185+93, 85' RT.	EXPLORATION ID B-009-1-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 623.7 (MSL) EOB: 24.5 ft.	PAGE 1 OF 1
START: 5/3/24 END: 5/3/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.445433, -82.438781	

MATERIAL DESCRIPTION AND NOTES	ELEV. 623.7	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
HARD, YELLOWISH BROWN, **CLAY**, SOME GRAVEL, SOME SILT, LITTLE SAND, DAMP	620.7	1–3	5 9 12	28	100	SS-1	4.50	32	11	6	30	21	42	24	18	11	A-7-6 (6)	
HARD, MAROONISH BROWN AND YELLOWISH BROWN, **SILT AND CLAY**, SOME SAND, LITTLE STONE FRAGMENTS, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	618.2	3–5	7 16 12	37	100	SS-2	-	20	14	18	30	18	34	20	14	15	A-6a (4)	
VERY DENSE, YELLOWISH BROWN, **STONE FRAGMENTS WITH SAND AND SILT**, TRACE CLAY, RESIDUAL ROCK, DAMP	613.2	5–10 TR	6 16 38	72	89	SS-3	-	45	17	9	22	7	30	21	9	6	A-2-4 (0)	
			21 22 36	77	100	SS-4	-	-	-	-	-	-	-	-	-	7	A-2-4 (V)	
SHALE, GRAY AND YELLOWISH BROWN BECOMING MAROONISH BROWN, HIGHLY WEATHERED, VERY WEAK TO WEAK.	599.2	10–24 EOB	50	-	100	SS-5	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			10 50	-	75	SS-6	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			25 50/5"	-	45	SS-7	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			22 50/5"	-	36	SS-8	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			50	-	83	SS-9	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			50/5"	-	80	SS-10	-	-	-	-	-	-	-	-	-	6	Rock (V)	
			21 50	-	67	SS-11	-	-	-	-	-	-	-	-	-	8	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 193+42, 98' RT.	EXPLORATION ID B-009-2-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 583.9 (MSL) EOB: 24.5 ft.	PAGE 1 OF 1
START: 5/3/24 END: 5/3/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.446815, -82.436821	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
VERY STIFF, BROWN AND ORANGISH BROWN, **CLAY**, SOME TO "AND" SILT, TRACE TO LITTLE SAND, TRACE GRAVEL, IRON STAINING, MOIST TO DAMP	583.9		2 2 3	7	100	SS-1	3.50	-	-	-	-	-	-	-	-	26	A-7-6 (V)	
			2 6 7	17	100	SS-2	3.00	1	4	9	35	51	51	24	27	21	A-7-6 (17)	
			4 5 8	17	100	SS-3	3.25	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
			4 6 9	20	100	SS-4	3.25	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
			5 8 14	29	78	SS-5	3.75	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
			6 9 9	24	33	SS-6	3.75	-	-	-	-	-	-	-	-	18	A-7-6 (V)	
	568.4																	
VERY STIFF TO HARD, MAROONISH BROWN AND YELLOWISH BROWN, **CLAY**, "AND" SILT, LITTLE SAND, LITTLE GRAVEL AND STONE FRAGMENTS, DAMP TO MOIST			5 9 11	27	100	SS-7	4.50	13	8	5	38	36	42	24	18	15	A-7-6 (11)	
			6 9 12	28	72	SS-8	3.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	
			5 10 13	31	100	SS-9	3.00	-	-	-	-	-	-	-	-	19	A-7-6 (V)	
	560.4	TR																
SILTSTONE, GRAY, HIGHLY WEATHERED, SLIGHTLY STRONG.	559.4	EOB	27 50	-	33	SS-10	-	-	-	-	-	-	-	-	-	4	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 212+17, 118' RT.	EXPLORATION ID B-014-1-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 581.4 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 5/6/24 END: 5/6/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.449475, -82.431502	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
HARD, MAROONISH BROWN, **CLAY**, "AND" SILT, LITTLE SAND, TRACE GRAVEL, CONTAINS IRON STAINING AND ROOTS, DAMP	581.4		4 5 5	13	100	SS-1	4.50	1	5	6	40	48	46	24	22	22	A-7-6 (14)	
HARD, YELLOWISH BROWN AND BROWN, **CLAY**, SOME SILT, TRACE SAND, TRACE GRAVEL, DAMP	578.4		4 5 9	19	100	SS-2	4.50	0	0	1	24	75	59	27	32	22	A-7-6 (20)	
			4 7 11	24	100	SS-3	4.50	-	-	-	-	-	-	-	-	20	A-7-6 (V)	
			5 8 12	27	100	SS-4	4.50	-	-	-	-	-	-	-	-	22	A-7-6 (V)	
			5 7 11	24	100	SS-5	4.50	0	0	1	30	69	45	26	19	24	A-7-6 (13)	
			5 7 9	21	100	SS-6	4.50	-	-	-	-	-	-	-	-	22	A-7-6 (V)	
			6 7 11	24	78	SS-7	4.50	-	-	-	-	-	-	-	-	23	A-7-6 (V)	
			4 6 7	17	89	SS-8	4.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	
			3 5 8	17	100	SS-9	4.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	
	556.4	EOB	8 11 16	36	100	SS-10	4.25	-	-	-	-	-	-	-	-	24	A-7-6 (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17
TYPE: NOISE WALL
PID: 75923 SFN: N/A
START: 5/6/24 END: 5/6/24

DRILLING FIRM / OPERATOR: NEAS / J. HODGES
SAMPLING FIRM / LOGGER: NEAS / J. HODGES
DRILLING METHOD: 3.25" HSA
SAMPLING METHOD: SPT

DRILL RIG: CME 55X
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 3/8/24
ENERGY RATIO (%): 80

STATION / OFFSET: 213+75, 95' RT.
ALIGNMENT: LAW-7
ELEVATION: 609.0 (MSL) EOB: 24.0 ft.
LAT / LONG: 38.449658, -82.431007

EXPLORATION ID B-014-2-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
STIFF, BROWN AND MAROONISH BROWN, **SILTY CLAY**, SOME SAND, LITTLE STONE FRAGMENTS, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	609.0		8 6 4	13	83	SS-1	-	16	11	23	24	26	36	20	16	14	A-6b (5)	
HARD, BROWN AND MAROONISH BROWN, **CLAY**, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP	606.0		3 3 7	13	100	SS-2	4.50	7	11	6	29	47	50	26	24	18	A-7-6 (16)	
HARD, BROWN AND GRAY, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, DAMP	603.5		9 16 21	49	100	SS-3	4.50	-	-	-	-	-	-	-	-	9	A-6a (V)	
SS-4 CONTAINS GYPSUM			9 25 31	75	100	SS-4	4.50	-	-	-	-	-	-	-	-	15	A-6a (V)	
SS-5 CONTAINS GYPSUM			13 19 22	55	100	SS-5	4.50	2	12	19	36	31	40	25	15	15	A-6a (8)	
			11 28 39	89	89	SS-6	4.50	-	-	-	-	-	-	-	-	18	A-6a (V)	
			9 31 40	95	100	SS-7	4.50	-	-	-	-	-	-	-	-	15	A-6a (V)	
SILTSTONE, GRAY AND BROWN, MODERATELY WEATHERED, SLIGHTLY STRONG.	590.5 TR		12 29 42	95	33	SS-8	-	-	-	-	-	-	-	-	-	8	Rock (V)	
			10 35 44	105	39	SS-9	-	-	-	-	-	-	-	-	-	5	Rock (V)	
	585.0 EOB		50	-	83	SS-10	-	-	-	-	-	-	-	-	-	7	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17
TYPE: NOISE WALL
PID: 75923 SFN: N/A
START: 5/4/24 END: 5/4/24

DRILLING FIRM / OPERATOR: NEAS / J. HODGES
SAMPLING FIRM / LOGGER: NEAS / J. HODGES
DRILLING METHOD: 3.25" HSA / NQ2
SAMPLING METHOD: SPT / NQ2

DRILL RIG: CME 55X
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 3/8/24
ENERGY RATIO (%): 80

STATION / OFFSET: 216+38, 86' RT.
ALIGNMENT: LAW-7
ELEVATION: 628.0 (MSL) EOB: 15.5 ft.
LAT / LONG: 38.449877, -82.430131

EXPLORATION ID B-014-3-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
HARD, MAROONISH BROWN AND YELLOWISH BROWN, **CLAY**, SOME SILT, TRACE SAND, TRACE GRAVEL, IRON STAINING, DAMP	628.0		3 3 5	11	100	SS-1	4.25	1	0	1	23	75	53	24	29	18	A-7-6 (18)	
HARD, REDDISH BROWN AND YELLOWISH BROWN BECOMING ORANGISH BROWN, **CLAY**, SOME TO "AND" SILT, LITTLE TO SOME SAND, TRACE GRAVEL AND STONE FRAGMENTS, IRON STAINING, RESIDUAL ROCK, DAMP	625.0		8 13 20	44	100	SS-2	4.50	2	7	8	38	45	41	20	21	9	A-7-6 (13)	
			6 11 13	32	33	SS-3	4.50	-	-	-	-	-	-	-	-	11	A-7-6 (V)	
			8 12 16	37	28	SS-4	4.50	-	-	-	-	-	-	-	-	11	A-7-6 (V)	
SILTSTONE, GRAY AND BROWN, SLIGHTLY TO MODERATELY WEATHERED, SLIGHTLY STRONG TO MODERATELY STRONG, VERY THIN TO MEDIUM BEDDED, BEDDING DISCONTINUITIES: LOW ANGLE, PARTIALLY CLAY FILLED HIGH ANGLE JOINT DISCONTINUITIES FROM 12.3'-12.9' AND 14.7'-15.2', HIGHLY FRACTURED TO SLIGHTLY FRACTURED, OPEN TO NARROW, SLIGHTLY ROUGH, BLOCKY, GOOD TO FAIR SURFACE CONDITION; RQD 80%, REC 100%.	618.0 TR		50	-	83	SS-5	-	-	-	-	-	-	-	-	-	5	Rock (V)	
			80		100	NQ2-1												CORE
	612.5 EOB																	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.
ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 50 GAL. BENTONITE GROUT; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 396+04, 102' RT.	EXPLORATION ID B-076-2-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 587.7 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 5/29/24 END: 5/29/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.448656, -82.373197	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
13.0" ASPHALT AND 6.0" BASE (DRILLERS DESCRIPTION)	587.7																	
	586.1																	
HARD, BROWN, **SANDY SILT**, SOME STONE FRAGMENTS, LITTLE CLAY, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	584.7	1	7 18 11	39	100	SS-1	-	26	19	13	28	14	30	20	10	7	A-4a (1)	
HARD, MAROONISH BROWN BECOMING DARK BROWN, **CLAY**, SOME SILT, LITTLE TO SOME SAND, TRACE TO LITTLE GRAVEL, DAMP		2																
		3	5 5 6	15	89	SS-2	4.50	15	7	12	30	36	44	24	20	20	A-7-6 (11)	
		4																
		5																
		6	7 7 8	20	100	SS-3	4.50	-	-	-	-	-	-	-	-	17	A-7-6 (V)	
		7																
		8																
		9	6 5 6	15	72	SS-4	4.50	7	9	15	31	38	42	23	19	19	A-7-6 (11)	
		10																
		11																
		12	3 5 5	13	100	SS-5	4.50	-	-	-	-	-	-	-	-	14	A-7-6 (V)	
	574.7	13																
MEDIUM DENSE, ORANGISH BROWN BECOMING MAROONISH BROWN, **GRAVEL WITH SAND**, TRACE SILT, TRACE CLAY, DAMP		14																
		15	4 5 6	15	28	SS-6	-	32	32	26	5	5	NP	NP	NP	6	A-1-b (0)	
		16																
		17	3 7 8	20	33	SS-7	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
		18																
		19	5 5 7	16	44	SS-8	-	-	-	-	-	-	-	-	-	5	A-1-b (V)	
		20																
		21																
		22	4 6 9	20	100	SS-9	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	
		23																
		24	4 7 9	21	83	SS-10	-	-	-	-	-	-	-	-	-	10	A-1-b (V)	
	562.7	25 EOB																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 398+01, 110' RT.	EXPLORATION ID B-076-3-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 589.9 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 5/29/24 END: 5/29/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.448837, -82.372539	

MATERIAL DESCRIPTION AND NOTES	ELEV. 589.9	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
12.0" ASPHALT AND 6.0" BASE (DRILLERS DESCRIPTION)	588.4	1																
HARD, MAROONISH BROWN AND GRAY, **SILTY CLAY**, LITTLE TO SOME SAND, LITTLE STONE FRAGMENTS, DAMP		2	4 3 7	13	67	SS-1	4.25	12	15	11	31	31	36	20	16	12	A-6b (8)	
	584.4	3																
HARD, BROWN, **SILT AND CLAY**, LITTLE TO SOME SAND, TRACE TO LITTLE STONE FRAGMENTS, DAMP		4	7 7 10	23	100	SS-2	4.50	-	-	-	-	-	-	-	-	16	A-6b (V)	
		5																
		6	6 8 9	23	100	SS-3	4.50	16	12	13	31	28	34	20	14	13	A-6a (6)	
		7																
		8																
		9	5 6 8	19	100	SS-4	4.50	-	-	-	-	-	-	-	-	14	A-6a (V)	
	577.4	10																
MEDIUM DENSE, ORANGISH BROWN, **GRAVEL WITH SAND**, TRACE CLAY, TRACE SILT, IRON STAINING, DAMP		11	6 5 6	15	78	SS-5	4.50	-	-	-	-	-	-	-	-	18	A-6a (V)	
	574.4	12																
MEDIUM DENSE, ORANGISH BROWN, **COARSE AND FINE SAND**, TRACE CLAY, TRACE SILT, TRACE GRAVEL, IRON STAINING, DAMP		13																
		14	5 6 8	19	100	SS-6	-	22	29	30	9	10	NP	NP	NP	8	A-1-b (0)	
	571.9	15																
MEDIUM DENSE, ORANGISH BROWN, **GRAVEL WITH SAND**, LITTLE SILT, TRACE CLAY, IRON STAINING, DAMP		16	4 8 8	21	39	SS-7	-	4	23	59	5	9	NP	NP	NP	7	A-3a (0)	
		17																
		18																
		19	4 5 6	15	50	SS-8	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
		20																
		21	2 6 6	16	44	SS-9	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
		22																
		23																
		24	4 7 9	21	100	SS-10	-	-	-	-	-	-	-	-	-	5	A-1-b (V)	
	564.9	EOB 25																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 399+99, 108' RT.	EXPLORATION ID B-077-2-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 592.6 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 5/30/24 END: 5/30/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.449043, -82.371899	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
12.0" ASPHALT AND 5.5" BASE (DRILLERS DESCRIPTION)	592.6																	
HARD, MAROONISH BROWN AND BROWN, **CLAY**, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP	591.1		4 5 5	13	72	SS-1	4.50	7	9	8	34	42	44	21	23	15	A-7-6 (14)	
VERY STIFF, BROWN AND GRAY, **SANDY SILT**, "AND" GRAVEL, LITTLE CLAY, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	589.6		5 12 6	24	94	SS-2	-	35	9	8	33	15	30	20	10	8	A-4a (3)	
HARD, MAROONISH BROWN AND BROWN, **SILTY CLAY**, SOME SAND, TRACE TO LITTLE GRAVEL, DAMP	587.1		4 8 9	23	100	SS-3	4.50	18	13	10	31	28	38	21	17	13	A-6b (8)	
			5 5 7	16	89	SS-4	4.25	-	-	-	-	-	-	-	-	13	A-6b (V)	
HARD, MAROONISH BROWN, **CLAY**, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP	582.1		4 5 9	19	39	SS-5	4.50	-	-	-	-	-	-	-	-	16	A-7-6 (V)	
			5 6 7	17	72	SS-6	4.25	-	-	-	-	-	-	-	-	17	A-7-6 (V)	
HARD, BROWN, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, DAMP	577.1		5 5 8	17	100	SS-7	4.50	-	-	-	-	-	-	-	-	16	A-6b (V)	
MEDIUM DENSE, ORANGISH BROWN, **FINE SAND**, SOME COARSE SAND, LITTLE GRAVEL, TRACE SILT, TRACE CLAY, IRON STAINING, DAMP	574.6		5 5 7	16	78	SS-8	-	14	27	53	5	1	NP	NP	NP	3	A-3 (0)	
F S			6 6 5	15	33	SS-9	-	-	-	-	-	-	-	-	-	3	A-3 (V)	
	567.6	EOB	2 5 11	21	89	SS-10	-	-	-	-	-	-	-	-	-	4	A-3 (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 402+00, 112' RT.	EXPLORATION ID B-077-3-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 588.8 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 5/30/24 END: 5/30/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.449237, -82.371242	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
13.0" ASPHALT AND 5.0" BASE (DRILLERS DESCRIPTION)	588.8																	
	587.3	1	6 4 12	21	22	SS-1	-	47	7	9	21	16	NP	NP	NP	10	A-4a (0)	
MEDIUM DENSE, MAROONISH BROWN AND BROWN, **SANDY SILT**, "AND" STONE FRAGMENTS, LITTLE CLAY, DAMP	585.8	2																
HARD, MAROONISH BROWN BECOMING BROWN, **SILTY CLAY**, SOME SAND, LITTLE TO SOME GRAVEL, DAMP		3																
		4	6 5 10	20	100	SS-2	4.50	21	12	10	32	25	38	22	16	13	A-6b (7)	
		5																
		6	6 8 11	25	17	SS-3	4.50	-	-	-	-	-	-	-	-	12	A-6b (V)	
		7																
		8																
		9	5 6 6	16	100	SS-4	4.50	17	12	12	34	25	36	20	16	12	A-6b (7)	
		10																
		11																
		12	6 5 7	16	33	SS-5	4.50	-	-	-	-	-	-	-	-	12	A-6b (V)	
		13																
		14	5 4 8	16	44	SS-6	4.25	-	-	-	-	-	-	-	-	16	A-6b (V)	
	573.3	15																
MEDIUM DENSE, BROWN, **STONE FRAGMENTS WITH SAND**, LITTLE SILT, TRACE CLAY, DAMP		16																
	570.8	17	6 7 8	20	44	SS-7	-	-	-	-	-	-	-	-	-	10	A-1-b (V)	
HARD, DARK BROWN, **SILTY CLAY**, "AND" SAND, TRACE GRAVEL, DAMP		18																
		19	5 6 7	17	100	SS-8	4.50	4	13	28	28	27	34	18	16	15	A-6b (6)	
		20																
		21	4 5 8	17	100	SS-9	4.50	-	-	-	-	-	-	-	-	10	A-6b (V)	
	565.8	22																
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND**, LITTLE SILT, TRACE CLAY, DAMP		23																
	563.8	24	5 7 7	19	100	SS-10	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
		EOB 25																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 404+03, 102' RT.	EXPLORATION ID B-078-2-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 595.3 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 5/30/24 END: 5/30/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.449462, -82.370599	

MATERIAL DESCRIPTION AND NOTES	ELEV. 595.3	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
12.5" ASPHALT AND 6.0" BASE (DRILLERS DESCRIPTION)	593.8																	
HARD, MAROONISH BROWN, **SILTY CLAY**, LITTLE TO SOME SAND, TRACE TO LITTLE GRAVEL, DAMP		1	3 5 6	15	100	SS-1	4.25	19	9	9	35	28	38	21	17	13	A-6b (8)	
		2																
		3																
		4	6 7 6	17	100	SS-2	4.50	-	-	-	-	-	-	-	-	13	A-6b (V)	
		5																
		6																
		7	4 5 7	16	100	SS-3	4.50	-	-	-	-	-	-	-	-	16	A-6b (V)	
		8																
	584.8	9	5 9 12	28	50	SS-4	4.50	-	-	-	-	-	-	-	-	16	A-6b (V)	
		10																
HARD, BROWN AND GRAY, **SILT AND CLAY**, SOME GRAVEL AND STONE FRAGMENTS, LITTLE SAND, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP	582.3	11	7 16 12	37	100	SS-5	-	31	10	9	30	20	34	20	14	10	A-6a (4)	
		12																
HARD, MAROONISH BROWN AND BROWN, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, DAMP		13																
		14	6 7 10	23	28	SS-6	4.50	-	-	-	-	-	-	-	-	17	A-6b (V)	
		15																
		16	6 6 7	17	44	SS-7	4.50	-	-	-	-	-	-	-	-	17	A-6b (V)	
		17																
		18																
	574.8	19	6 8 5	17	22	SS-8	4.50	-	-	-	-	-	-	-	-	14	A-6b (V)	
		20																
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, LITTLE CLAY, DAMP	572.3	21	4 4 5	12	28	SS-9	-	-	-	-	-	-	-	-	-	12	A-2-4 (V)	
		22																
HARD, MAROONISH BROWN AND BROWN, **SILT AND CLAY**, "AND" SAND, LITTLE GRAVEL, DAMP		23																
		24	4 6 6	16	100	SS-10	4.50	13	15	25	26	21	30	17	13	13	A-6a (3)	
	570.3 EOB	25																

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS

PROJECT: LAW-7-2.17	DRILLING FIRM / OPERATOR: NEAS / J. HODGES	DRILL RIG: CME 55X	STATION / OFFSET: 406+02, 93' RT.	EXPLORATION ID B-078-3-23
TYPE: NOISE WALL	SAMPLING FIRM / LOGGER: NEAS / J. HODGES	HAMMER: CME AUTOMATIC	ALIGNMENT: LAW-7	
PID: 75923 SFN: N/A	DRILLING METHOD: 3.25" HSA	CALIBRATION DATE: 3/8/24	ELEVATION: 602.4 (MSL) EOB: 25.0 ft.	PAGE 1 OF 1
START: 5/30/24 END: 5/30/24	SAMPLING METHOD: SPT	ENERGY RATIO (%): 80	LAT / LONG: 38.449677, -82.369965	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N60	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
13.0" ASPHALT AND 6.0" BASE (DRILLERS DESCRIPTION)	602.4																	
	600.8		5 2 4	8	33	SS-1	4.50	13	8	10	32	37	41	20	21	16	A-7-6 (11)	
HARD, MAROONISH BROWN, **CLAY**, SOME SILT, LITTLE SAND, LITTLE GRAVEL, DAMP	599.4																	
HARD, MAROONISH BROWN AND BROWN, **SILT AND CLAY**, LITTLE TO SOME GRAVEL, SOME SAND, DAMP			3 4 4	11	89	SS-2	4.50	33	15	10	27	15	34	21	13	10	A-6a (2)	
	594.4		5 5 12	23	100	SS-3	4.50	-	-	-	-	-	-	-	-	12	A-6a (V)	
HARD, MAROONISH BROWN, **CLAY**, SOME SILT, LITTLE SAND, TRACE GRAVEL, DAMP	591.9		6 7 9	21	28	SS-4	4.50	-	-	-	-	-	-	-	-	13	A-7-6 (V)	
VERY STIFF, BROWN, **SILT AND CLAY**, SOME STONE FRAGMENTS, SOME SAND, CONTAINS NO INTACT SOIL FOR HP READINGS, DAMP			5 12 8	27	94	SS-5	-	33	16	10	23	18	36	22	14	10	A-6a (2)	
	586.9		6 7 8	20	22	SS-6	-	-	-	-	-	-	-	-	-	9	A-6a (V)	
HARD, MAROONISH BROWN, **CLAY**, SOME SILT, LITTLE SAND, TRACE TO LITTLE GRAVEL, DAMP			4 4 7	15	17	SS-7	4.50	-	-	-	-	-	-	-	-	14	A-7-6 (V)	
			5 8 8	21	100	SS-8	4.50	11	12	7	33	37	41	21	20	13	A-7-6 (11)	
			6 9 14	31	100	SS-9	4.50	-	-	-	-	-	-	-	-	12	A-7-6 (V)	
	577.4	EOB	6 10 16	35	100	SS-10	4.50	-	-	-	-	-	-	-	-	17	A-7-6 (V)	

NOTES: GROUNDWATER NOT ENCOUNTERED DURING DRILLING. HOLE DID NOT CAVE.

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PLACED 0.5 BAG ASPHALT PATCH; SHOVELED SOIL CUTTINGS