CUY-90-14.90

PID 82119

APPENDIX GE-09

Soil Profile
(Reference Document)

State of Ohio
Department of Transportation
Jerry Wray, Director

Innerbelt Bridge
Construction Contract Group 2 (CCG2)

Revision Date: July 20, 2012

PROJECT DESCRIPTION

AS PART OF THE CUY-90-14.90 PROJECT, IT IS PLANNED TO RECONFIGURE APPROXIMATELY 1.5 MILES OF EASTBOUND (STA. 1977+25.58 TO APPROPRIATE STA. 2058+50.69) IN CLEVELAND, CUYAHOGA COUNTY, OHIO. ASSOCIATED WORK INVOLVED IN THIS PROJECT IS THE CONSTRUCTION OF A NEW FIVE-LANE EASTBOUND BRIDGE STRUCTURE OVER THE CUYAHOGA RIVER VALLEY. ENTRANCE RAMPS AT WEST 14TH STREET AND EXIT RAMPS AT ONTARIO STREET AND EAST 9TH STREET WILL BE RECONFIGURED AND CONSTRUCTED. RECONFIGURATION OF EASTBOUND BRIDGES OVER STARKWEATHER AVENUE, KENILWORTH AVENUE, FAIRFIELD AVENUE, MAIN VIADUCT, ONTARIO STREET, AND EAST 9TH STREET ARE ALSO INCLUDED IN THIS PROJECT.

HISTORIC RECORDS

HISTORICAL INFORMATION WAS FOUND BY BBC&M ENGINEERING, INC. (BBCM) DURING CONSTRUCTION CONTRACT GROUP 1 (CCG1) IN THE GENERAL VICINITY OF THIS PROJECT. THEIR FINDINGS INCLUDE SEVERAL SUBSURFACE INVESTIGATIONS PERFORMED IN THE GENERAL PROJECT VICINITY AS EARLY AS 1923. AVAILABLE INFORMATION WITHIN THE PROJECT LIMITS OBTAINED FROM THE HISTORICAL RECORDS SEARCH IS LISTED AS FOLLOWS:

* SOIL PROFILES WERE AVAILABLE FOR THE 1923 INVESTIGATION PERFORMED BY THE CLEVELAND UNION TERMINAL COMPANY FOR THE CUYAHOGA VIADUCT BRIDGE, WHICH IS NOW OWNED AND OPERATED BY THE GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY.

* MULTIPLE SUBSURFACE INVESTIGATIONS WERE CONDUCTED BY ODOT IN 1958, 1963, 1964, 1990 AND 1992. THE PRE-1990 ODOT INVESTIGATIONS WERE GENERALLY PERFORMED FOR THE PLANNED INNERBELT FREEWAY AND BRIDGE. THE 1990 AND 1992 ODOT BORINGS WERE PERFORMED TO INVESTIGATE THE OBSERVED SLOPE MOVEMENTS IN THE VICINITY OF THE WEST END PIER AND PIER 1 OF THE EXISTING INNERBELT BRIDGE.

*HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS (HNTB) PERFORMED INVESTIGATIONS BETWEEN 1954 AND 1956 PRIMARILY AT THE PROPOSED ABUTMENT AND PIER LOCATIONS FOR THE EXISTING INNERBELT BRIDGE.

* SOIL PROFILES WERE AVAILABLE FOR THE 1955 INVESTIGATION BY NEW YORK, CHICAGO AND ST. LOUIS RAILROAD LINE (NOW OWNED BY NORFOLK SOUTHERN CORPORATION) OVER THE CUYAHOGA RIVER LOCATED IMMEDIATELY TO THE NORTH OF THE EXISTING INNERBELT BRIDGE.

* IN 1986, BORINGS WERE PERFORMED BY THE DAVID V. LEWIN CORPORATION (LEWIN) AT THE SITE OF A PROPOSED DOMED STADIUM. THE SITE IS NOW OCCUPIED BY PROGRESSIVE FIELD.

*IN 1986 AND 1987, R&R INTERNATIONAL, INC. (R&R) PERFORMED BORINGS FOR THE EXISTING ABBEY AVENUE VIADUCT OVER THE EXISTING NORFOLD SOUTHERN RAILROAD AND SCRANTON ROAD.

* IN 2000 AND 2001, DLZ CORPORATION (DLZ) PERFORMED THREE (3) BORINGS ADJACENT TO THE EXISTING INNERBELT BRIDGE AS A PART OF A STABILITY EVALUATION FOR THE CUY-90-15.24 PROJECT.

* BBCM PERFORMED SUBSURFACE INVESTIGATIONS BETWEEN 1994 AND 2006 GENERALLY TO INVESTIGATE VARIOUS ASPECTS OF THE CUY-90-15.24 AND CUY-90-14.52 PROJECTS. THE SUBSURFACE INVESTIGATIONS ALSO INCLUDED INSTALLATION OF INSTRUMENTATION SUCH AS INCLINOMETERS AND PIEZOMETERS. THE PURPOSE OF THE BBCM INVESTIGATIONS IN THE 1990'S WAS TO MONITOR THE SLOPE MOVEMENTS AT THE WEST END PIER AND PIER 1 OF THE EXISTING INNERBELT BRIDGE AND AID THE DESIGN OF A STABILIZATION STRUCTURE WAS COMPLETED IN 1999. AN ADDITIONAL SUBSURFACE INVESTIGATION AT THE WEST BANK OF THE CUYAHOGA RIVER WAS PERFORMED BY BBCM IN 2006 TO EVALUATE THE LIMITS OF INSTABILITY IN THE WEST BANK SLOPE AND EVALUATE VARIOUS ALTERNATIVES FOR STABILIZING THE SLOPE IN SUPPORT OF THE FOUNDATIONS IN THIS AREA FOR THE PROPOSED NEW BRIDGE (WESTBOUND I-90 BRIDGE) TO BE LOCATED JUST NORTH OF THE EXISTING INNERBELT BRIDGE. OHIO UNIVERSITY PERFORMED SEVERAL CPT TESTS IN CONJUNCTION WITH BBCM'S INVESTIGATIONS.

* BBCM PERFORMED A PRELIMINARY SUBSURFACE INVESTIGATION IN 2006 FOR THE PROPOSED WESTBOUND I-90 BRIDGE ALIGNMENT. IN ADDITION TO THE BORINGS PERFORMED FOR THE PROPOSED WESTBOUND I-90 BRIDGE, BORINGS WERE PERFORMED FOR THE FOLLOWING: EXISTING ROADWAYS TO BE REHABILITATED OR RECONFIGURED; NEW ROADWAYS; NEW, REHABILITATED AND/OR RECONFIGURED INTERCHANGE RAMPS; THE I-90 MAINLINE; AND, ASSOCIATED NEW AND REHABILITATED STRUCTURES (I.E. BRIDGES AND RETAINING WALLS).

* BARR & PREVOST DRILLED 80 BORINGS BETWEEN MAY AND OCTOBER OF 2009 AND BBCM DRILLED 7 BORINGS BETWEEN JUNE AND SEPTEMBER OF 2009 TO SUPPLEMENT THE SUBSURFACE INVESTIGATIONS PERFORMED BY BBCM BETWEEN 1994 AND 2006 BASED ON THE MOST RECENT PLANS FOR THE CUY-90-14.90 PROJECT. ADDITIONALLY, ODOT PERFORMED 2 CPT TESTS ON AUGUST 18, 2009.

* B&P PERFORMED AN ADDITIONAL 6 BORINGS BETWEEN APRIL AND MAY OF 2010 AT LOCATIONS REQUESTED BY THE DESIGN BUILD TEAM FINALISTS.

ALL AVAILABLE SOIL INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAVE BEEN SO REPORTED.

- CONTINUE ON SHEET 2 -

NOTES: BORINGS LOGS ON INFORMATION AVAILABLE AT THE TIME OF SUBMITTAL ARE SUBMITTED IN A BINDER UNDER SEPARATE COVER.

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
GRAVEL AND/OR STONE FRAGS.	*A-1-a*	*1*	*10*
GRAVEL AND/OR STONE FRAGS. WITH SAND	*A-1-b*	*75*	*67*
GRAVEL AND/OR STONE FRAGS. WITH SAND AND SILT	*A-2-4*	*10*	*8*
FINE SAND	*A-3*	*22*	*23*
COARSE AND FINE SAND	*A-3a*	*117*	*173*
SANDY SILT	*A-4a*	*63*	*31*
SILT	*A-4b*	*136*	*69*
ELASTIC SILT AND CLAY	*A-5*	*1*	*0*
SILT AND CLAY	*A-6a*	*142*	*90*
SILTY CLAY	*A-6b*	*30*	*27*
ELASTIC CLAY	*A-7-5*	*3*	*5*
CLAY	*A-7-6*	*5*	*3*
ORGANIC CLAY	*A-8b*	*1*	*0*
	TOTAL	*606*	*506*

UNCONTROLLED FILL	*VISUAL*
BOULDERY ZONE	*VISUAL*
SHALE	*VISUAL*
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*
SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*

BORING LOCATION - PLAN VIEW

HISTORIC BORING LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

N_{60} INDICATES STANDARDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

WC INDICATES WATER CONTENT IN PERCENT.

W— INDICATES FREE WATER ELEVATION.

INDICATES STATIC WATER ELEVATION.

INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.

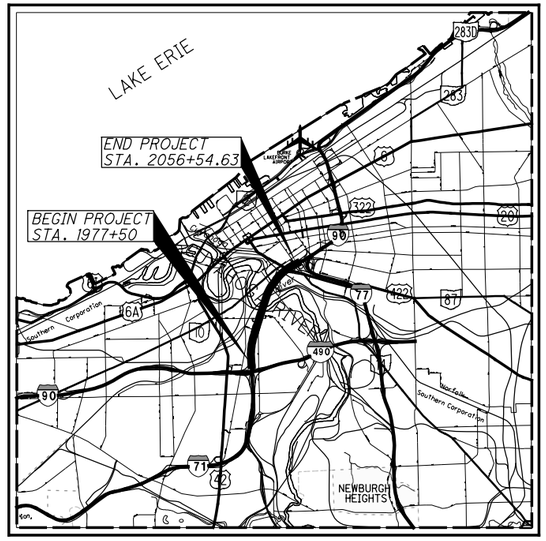
INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25% OR GREATER THAN 19% WITH A WET APPEARANCE.

NP INDICATES A NON-PLASTIC SAMPLE.

SS INDICATES A SPLIT SPOON SAMPLE, STANDARD PENETRATION TEST.

ST INDICATES A SHELBY TUBE SAMPLE.

TR INDICATES TOP OF ROCK.



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

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

INDEX OF SHEETS

LOCATION FROM STA.	TO STA.	PLAN VIEW SHEET	PROFILE SHEET
℄ IR 90 EB			
1977+25	1988+50	21	22
1988+50	2001+00	23	24, 25, 51
2001+00	2013+50	26	27, 28, 29, 30, 45, 46, 47, 52, 53, 54, 55
2013+50	2026+00	31	32, 33, 56, 57, 58, 59, 60
2026+00	2038+50	34	35, 36, 61, 62, 63, 64
2038+50	2051+00	37	38, 39, 40, 48, 49, 65, 66
2051+00	2063+50	41	42, 49, 50, 67
2063+50	2067+00	43	44
℄ RAMP B2			
200+00	207+00	26	45
℄ E. 14TH ST. NB			
0+00	8+00	26	46
℄ RAMP B3			
5340+00	5362+00	37, 41	48, 49
℄ E. 9TH ST.			
31+00	44+00	41	50

DRILLING - RW 06/13/11-08/22/11, 03/14-15/2012
DRAWN - CMH 08/01/11-10/21/11, 04/10-14/2012
REVIEWED - JEP 11/02/2011, 04/16/2012

DESIGN AGENCY
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PID NO. 82119

SOIL PROFILE
IR-90 EB

CUY-90-14.90

GEOLOGY

THE SITE IS LOCATED ON THE ERIE LAKE PLAIN PHYSIOGRAPHIC PROVINCE IN NORTHERN OHIO, NEAR THE SHORELINE OF LAKE ERIE. THIS PROVINCE CONSISTS OF THE EDGE OF AN ICE-AGE LAKE BASIN WITH PLEISTOCENE-AGE LACUSTRINE SAND, SILT, CLAY, AND WAVE-PLANED TILL OVER DEVONIAN AND MISSISSIPPIAN-AGE SHALES AND SANDSTONES.

EXPLORATION FINDINGS

IN GENERAL, THE BORINGS ENCOUNTERED SOIL CONDITIONS CONSISTENT WITH THE GEOLOGICAL MODEL FOR THE SITE.

THE MAJORITY OF THE PROJECT LIMITS LIE WITHIN THE PRESENT CUYAHOGA RIVER VALLEY. A LARGE PORTION OF THE CUYAHOGA RIVER VALLEY IS CLASSIFIED AS "MADE LAND" WITH URBAN COVER COMPOSED OF FILL MATERIALS OF VARIABLE COMPOSITION AND DEPTH. BENEATH THE FILL MATERIALS, APPROXIMATELY 20-50 FEET OF ALLUVIUM DEPOSITS OF HOLOCENE AGE CONSISTING PREDOMINATELY OF VERY-LOOSE TO MEDIUM-DENSE SANDS AND SILTS AND VERY SOFT TO MEDIUM STIFF AND ORGANIC CLAY IN SOME LOCATIONS WERE GENERALLY ENCOUNTERED. THE ALLUVIUM MATERIALS WERE DEPOSITED BY PRECURSOR TO THE CUYAHOGA RIVER. FOLLOWING THE ALLUVIUM DEPOSITS ARE APPROXIMATELY 55 TO 100 FEET OF LACUSTRINE DEPOSITS CONSISTING PRIMARILY OF MEDIUM-STIFF TO VERY STIFF SILTY CLAYS. THESE LACUSTRINE SOILS WERE DEPOSITED BY A SERIES OF LARGE PROGLACIAL LAKES WHICH COVERED THE GREATER CLEVELAND AREA NEAR THE END OF THE WISCONSINAN GLACIAL PERIOD. MANY SLOPE FAILURES HAVE BEEN OBSERVED OVER THE YEARS ON THE SIDE SLOPES ADJACENT TO THE CUYAHOGA RIVER. THEY HAVE OCCURRED PRIMARILY WITHIN THESE LACUSTRINE DEPOSITS. BELOW THE LACUSTRINE DEPOSITS, APPROXIMATELY 25 TO 65 FEET OF WISCONSINAN OR ILLINOIAN GLACIAL TILL WERE ENCOUNTERED. THE TILL PRIMARILY CONSISTS OF DENSE TO VERY-DENSE SANDY SILT OR VERY STIFF TO HARD CLAYEY SILT. THE TILL OVERLIES OHIO DEVONIAN SHALE WHICH WAS ENCOUNTERED AT AN ELEVATION OF 398 TO 455 FT MEAN SEA LEVEL.

SUBSURFACE EXPLORATION

B&P PERFORMED A SUBSURFACE INVESTIGATION FOR CUY-90-14.90 PROJECT BETWEEN JUNE AND AUGUST OF 2011. IT INCLUDES 11 ROADWAY BORINGS AT VARIOUS LOCATIONS, 2 STRUCTURES BORINGS AT BRIDGE I-90 OVER STARKWEATHER AVENUE, 2 STRUCTURE BORINGS AT BRIDGE I-90 OVER KENILWORTH AVENUE, 2 STRUCTURE BORINGS AT BRIDGE I-90 OVER FAIRFIELD AVENUE, 18 STRUCTURE BORINGS AT MAIN VIADUCT BRIDGE I-90 OVER CUYAHOGA RIVER AND RAMP OVER ABBEY, 9 RETAINING WALL BORINGS, 3 STRUCTURE BORINGS AT BRIDGE I-90 OVER ONTARIO STREET, AND 3 STRUCTURE BORINGS AT BRIDGE I-90 OVER EAST 9TH STREET.

ADDITONAL FIVE BORINGS WITH DEPTHS OF 25 FEET WERE DRILLED FOR HIGH MAST LIGHTING TOWERS ON MARCH 14 AND 15, 2012. THEY INCLUDE 1 BORING CLOSE TO THE BRIDGE I-90 OVER FAIRFIELD AVENUE, 4 BORINGS IN EAST END ROADWAY.

THE BORINGS WERE DRILLED WITH A TRUCK MOUNTED MOBILE B-61 ORV RIG, USING 3¼ -INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. THE TRICONE RIG WAS ALSO USED IN HARD DRILLING CONDITIONS. MOST DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 2.5-FOOT AND 5.0-FOOT INTERVALS AND PLACED IN SEALED JARS. SOME OF THE DISTURBED SOIL SAMPLES WERE OBTAINED AT 10-FOOT INTERVALS AT SOIL BELOW 50 FEET. UNDISTURBED SOIL SAMPLES WERE OBTAINED AT THE DEPTHS SHOWN ON THE LOGS AND IN THE PROFILE, IN ACCORDANCE WITH AASHTO T207. WHERE ENCOUNTERED, BEDROCK WAS CORED USING AN NQ ROCK CORE BARREL WITH WATER AS A CIRCULATING/COOLING FULID. RETRIVED ROCK CORE SAMPLES WERE STORED IN COMPARTMENTAL CORE BOXES. UPON COMPLETION, THE DEPTH TO ANY ACCUMULATED GROUNDWATER WAS MEASURED, THE BORINGS WERE BACKFILLED OR SEALED IN ACCORDANCE WITH ODOT REQUIREMENTS, AND THE SURFACE OF THE EXISTING PAVEMENT AT THE BORING LOCATIONS WAS REPAIRED USING COLD-PATCH ASPHALT OR CONCRETE, WHERE APPROPRIATE.

THE LOGS OF BORINGS FOR THESE 2011 SUBSURFACE INVESTIGATIONS HAVE ALSO INCLUDED SEPARATELY IN THE AFORMENTIONED BINDER OF LOGS.

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS (WITH REVISION THROUGH JANUARY 2011).

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

SUMMARY OF SOIL TEST DATA

IR 90 EB

STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-001-0-11	01.00-02.50	SS-1	89	17	29	33	16	5	NP	NP	NP	8	A-3a (0)
STA. 1977+48.9, 91.1' RT	03.50-05.00	SS-2	83			SAME AS SS-3						10	A-4a (V)
NORTHING = 660332.480	06.00-07.50	SS-3	83	5	14	39	34	8	NP	NP	NP	12	A-4a (1)
EASTING = 2189843.135													
B-002-0-11	01.00-02.50	SS-1	78	19	25	35	14	7	NP	NP	NP	9	A-3a (0)
STA. 1979+17.5, 20.5' RT	03.50-05.00	SS-2	67	23	23	39	12	3	NP	NP	NP	16	A-3a (0)
NORTHING = 660496.338	06.00-07.50	SS-3	100			SAME AS SS-2						6	A-3a (V)
EASTING = 2189762.245													
B-005-0-11	01.00-02.50	SS-1	78	14	25	41	14	6	NP	NP	NP	7	A-3a (0)
STA. 1983+49.4, 41.0' RT	03.50-05.00	SS-2	94	19	20	44	11	6	NP	NP	NP	7	A-3a (0)
NORTHING = 660925.716	06.00-07.50	SS-3	100			SAME AS SS-2						8	A-3a (V)
EASTING = 2189769.528													
B-006-0-11	01.00-02.50	SS-1	100	23	29	24	17	7	NP	NP	NP	7	A-1-b (0)
STA. 1987+23.8, 32.6' RT	03.50-05.00	SS-2	94			SAME AS SS-3						10	A-3a (V)
NORTHING = 661296.045	06.00-07.50	SS-3	100	13	20	40	19	8	NP	NP	NP	8	A-3a (0)
EASTING = 2189787.055													
B-009-0-11	01.00-02.50	SS-1	78	15	33	32	14	6	NP	NP	NP	8	A-3a (0)
STA. 1991+67.5, 30.1' RT	03.50-05.00	SS-2	100			SAME AS SS-1						7	A-3a (V)
NORTHING = 661733.053	06.00-07.50	SS-3	89			SAME AS SS-1						9	A-3a (V)
EASTING = 2189853.956													
B-010-0-11	01.00-02.50	SS-1	72	12	24	45	16	3	NP	NP	NP	9	A-3a (0)
STA. 1997+40.7, 41.3' LT	03.50-05.00	SS-2	100	3	19	51	18	9	NP	NP	NP	10	A-3a (0)
NORTHING = 662310.127	06.00-07.50	SS-3	83			SAME AS SS-2						10	A-3a (V)
EASTING = 2189879.361													
B-032-2-11	01.50-03.00	SS-1	89	44	23	21	7	5	NP	NP	NP	14	A-1-b (0)
STA. 2051+05.4, 225.8' RT	03.50-05.00	SS-2	89	30	27	29	8	6	NP	NP	NP	12	A-1-b (0)
NORTHING = 666666.460	06.00-07.50	SS-3	78			SAME AS SS-2						10	A-1-b (V)
EASTING = 2192496.732													
B-037-0-11	01.00-02.50	SS-1	28	30	21	28	14	7	NP	NP	NP	3	A-1-b (0)
STA. 2055+50.6, 221.4' LT	03.50-05.00	SS-2	83	16	27	31	21	5	NP	NP	NP	8	A-3a (0)
NORTHING = 667251.358	06.00-07.50	SS-3	89			SAME AS SS-2						7	A-3a (V)
EASTING = 2192715.250													
B-038-1-11	01.00-02.50	SS-1	22			SAME AS B-032-2-11 SS-1						3	A-1-b (V)
STA. 2056+21.8, 102.8' RT	03.50-05.00	SS-2	56	34	15	29	17	5	NP	NP	NP	3	A-2-4 (0)
NORTHING = 666979.725	06.00-07.50	SS-3	39	32	9	43	12	4	NP	NP	NP	5	A-3a (0)
EASTING = 2192905.956													
B-041-0-11 (ALIGNMENT: EX. IR 90)	01.00-02.50	SS-1	94	17	34	27	13	9	NP	NP	NP	10	A-1-b (0)
STA. 67+80.3, 110.8' LT	03.50-04.50	SS-2	83	20	37	32	7	4	NP	NP	NP	14	A-1-b (0)
NORTHING = 667499.564	04.50-05.00	SS-2	83			SAME AS B-039-0-11 SS-25						19	A-6a (V)
EASTING = 2193443.797	06.00-07.50	SS-3	100			SAME AS B-038-1-11 SS-3						7	A-3a (V)
B-042-0-11 (ALIGNMENT: EX. IR 90)	01.00-02.50	SS-1	100	23	4	52	16	5	NP	NP	NP	8	A-3a (0)
STA. 70+73.1, 45.2' LT	03.50-05.00	SS-2	78	8	12	56	18	6	NP	NP	NP	8	A-3a (0)
NORTHING = 667596.495	06.00-07.50	SS-3	78			SAME AS SS-2						7	A-3a (V)
EASTING = 205850.687													

DRAWN CMH
CHECKED JEP

SOIL PROFILE

CUY-90-14.90

BARR & PREVOST
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5710 Westbourne Avenue
Columbus, OH 43213
614-892-0162

Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-1, Depth: 159.2 - 159.7 ft)

Tested Date: 6/23/2011

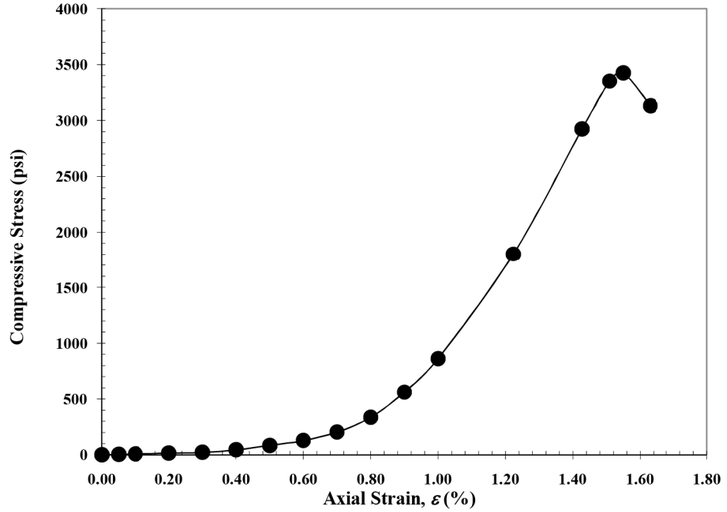
Specimen Properties

Average Dia., D_{avg} (in):	1.97
Average Height, H_{avg} (in):	4.90
Area, A (in^2):	3.06
Volume, V (in^3):	15.02
Wet Mass of Specimen (lb):	1.4
Moisture Content (%):	2.9
Dry Mass of Specimen (lb):	1.4
Wet Unit Weight, γ (lb/ft^3):	160.0
Dry Unit Weight, γ_d (lb/ft^3):	155.6

Final Specimen Figure

Results

Unconfined Compressive Strength (psi):	**3425**
Strain (%):	**1.6**



NOTES: Slightly strong, dark gray to black, SHALE.

BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

5710 Westbourne Avenue
Columbus, OH 43213
614-892-0162

Unconfined Compressive Strength Test

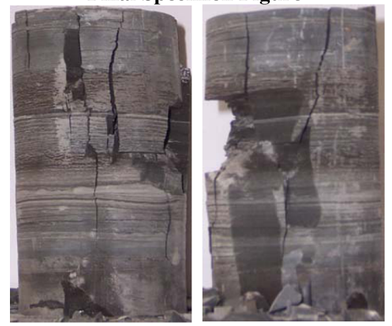
(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-2, Depth: 165.1 - 165.5 ft)

Tested Date: 6/23/2011

Specimen Properties

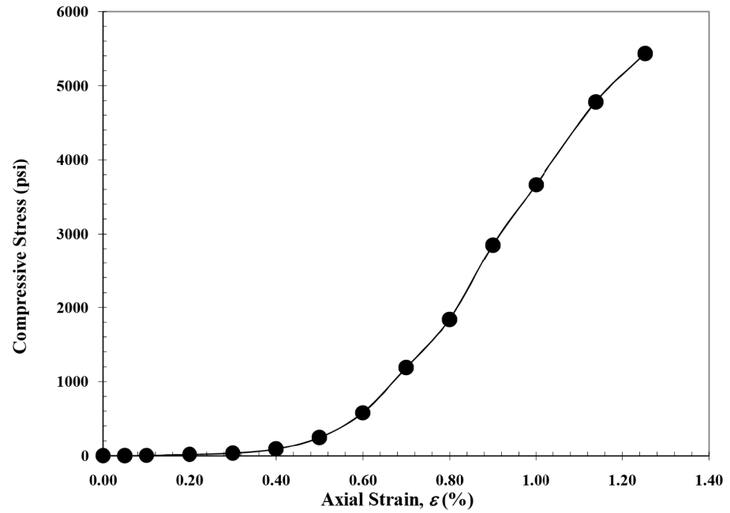
Average Dia., D_{avg} (in):	1.97
Average Height, H_{avg} (in):	4.39
Area, A (in^2):	3.06
Volume, V (in^3):	13.42
Wet Mass of Specimen (lb):	1.2
Moisture Content (%):	2.5
Dry Mass of Specimen (lb):	1.2
Wet Unit Weight, γ (lb/ft^3):	160.8
Dry Unit Weight, γ_d (lb/ft^3):	156.8

Final Specimen Figure



Results

Unconfined Compressive Strength (psi):	**5431**
Strain (%):	**1.3**



NOTES: Moderately strong, dark gray , SHALE.

DRAWN CMH | CHECKED JEP

SOIL PROFILE & LABORATORY TEST DATA

CUY-90-14.90

BARR & PREVOST
ENGINEERING | TESTING | SURVEYING

5710 Westbourne Avenue
Columbus, OH 43213
614-892-0162

Unconfined Compressive Strength Test

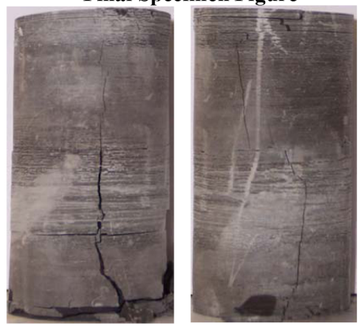
(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-3 , Depth: 172.9 - 173.3 ft)

Tested Date: 6/23/2011

Specimen Properties

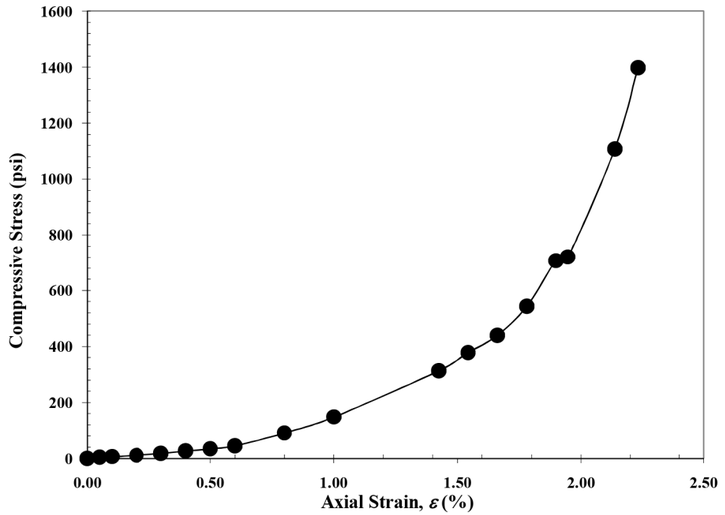
Average Dia., D_{avg} (in):	1.98
Average Height H_{avg} (in):	4.21
Area, A (in^2):	3.07
Volume, V (in^3):	12.94
Wet Mass of Specimen (lb):	1.2
Moisture Content (%):	2.5
Dry Mass of Specimen (lb):	1.2
Wet Unit Weight, γ (lb/ft^3):	159.6
Dry Unit Weight, γ_d (lb/ft^3):	155.8

Final Specimen Figure



Results

Unconfined Compressive Strength (psi):	**1398**
Strain (%):	**2.2**



NOTES: Weak, dark gray, SHALE.

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Unconfined Compressive Strength Test

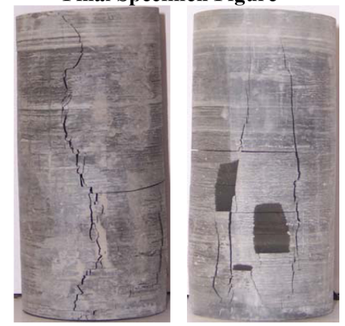
(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-4, Depth: 174.0 - 174.4 ft)

Tested Date: 6/23/2011

Specimen Properties

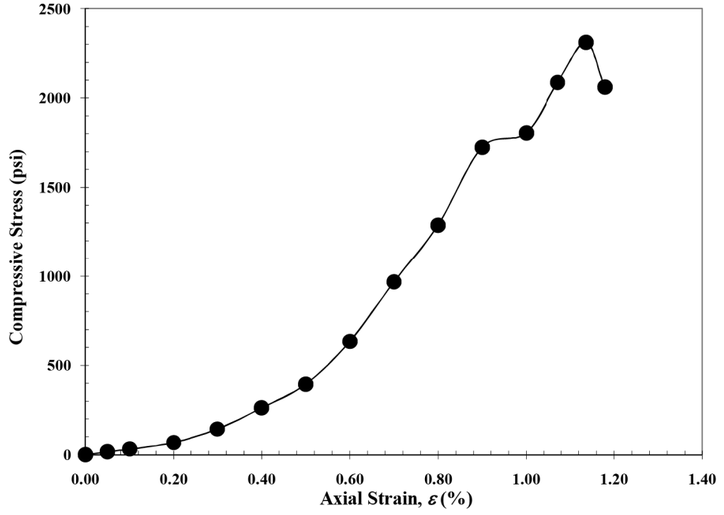
Average Dia., D_{avg} (in):	1.98
Average Height H_{avg} (in):	4.66
Area, A (in^2):	3.07
Volume, V (in^3):	14.30
Wet Mass of Specimen (lb):	1.3
Moisture Content (%):	2.6
Dry Mass of Specimen (lb):	1.3
Wet Unit Weight, γ (lb/ft^3):	158.7
Dry Unit Weight, γ_d (lb/ft^3):	154.7

Final Specimen Figure



Results

Unconfined Compressive Strength (psi):	**2310**
Strain (%):	**1.1**



NOTES: Slightly strong, gray to dark gray, SHALE.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location:B-017-0-11, R-5, Depth: 181.6 - 182.0 ft)

Tested Date: 6/23/2011

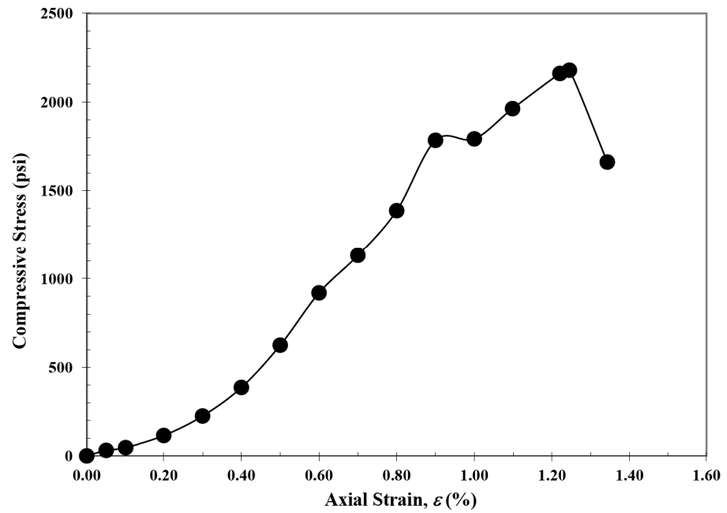
Specimen Properties

Average Dia., D_{avg} (in):	1.98
Average Height, H_{avg} (in):	4.10
Area, A (in^2):	3.09
Volume, V (in^3):	12.65
Wet Mass of Specimen (lb):	1.2
Moisture Content (%):	2.4
Dry Mass of Specimen (lb):	1.1
Wet Unit Weight, γ (lb/ft^3):	159.2
Dry Unit Weight, γ_d (lb/ft^3):	155.4

Final Specimen Figure

Results

Unconfined Compressive Strength (psi):	**2179**
Strain (%):	**1.3**



NOTES: Slightly strong, gray to dark gray, SHALE.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-6, Depth: 186.0 - 186.5 ft)

Tested Date: 6/23/2011

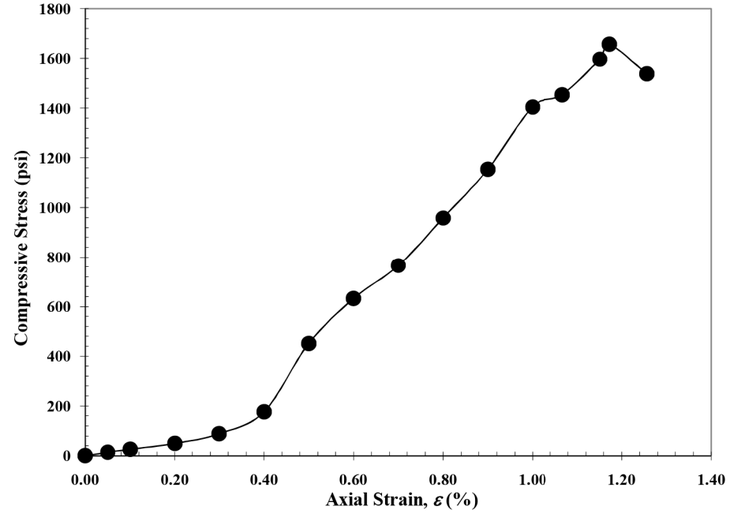
Specimen Properties

Average Dia., D_{avg} (in):	1.97
Average Height, H_{avg} (in):	4.78
Area, A (in^2):	3.06
Volume, V (in^3):	14.62
Wet Mass of Specimen (lb):	1.4
Moisture Content (%):	2.7
Dry Mass of Specimen (lb):	1.3
Wet Unit Weight, γ (lb/ft^3):	163.9
Dry Unit Weight, γ_d (lb/ft^3):	159.5

Final Specimen Figure

Results

Unconfined Compressive Strength (psi):	**1656**
Strain (%):	**1.2**



NOTES: Slightly strong, gray, SHALE.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-7, Depth: 189.3 - 189.7 ft)

Tested Date: 6/23/2011

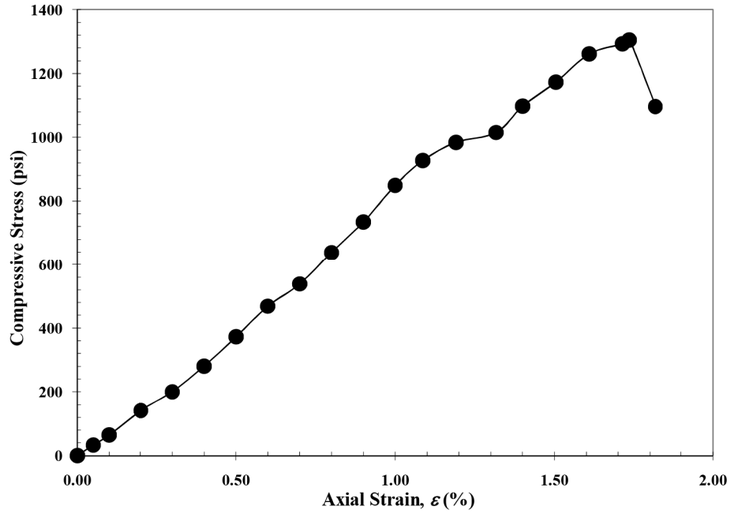
Specimen Properties

Average Dia., D_{avg} (in):	1.97
Average Height, H_{avg} (in):	4.78
Area, A (in^2):	3.05
Volume, V (in^3):	14.61
Wet Mass of Specimen (lb):	1.4
Moisture Content (%):	3.0
Dry Mass of Specimen (lb):	1.3
Wet Unit Weight, γ (lb/ft^3):	162.2
Dry Unit Weight, γ_d (lb/ft^3):	157.5

Final Specimen Figure

Results

Unconfined Compressive Strength (psi):	**1305**
Strain (%):	**1.7**



NOTES: Weak, darkgray , SHALE.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-8, Depth: 194.8 - 195.1 ft)

Tested Date: 6/23/2011

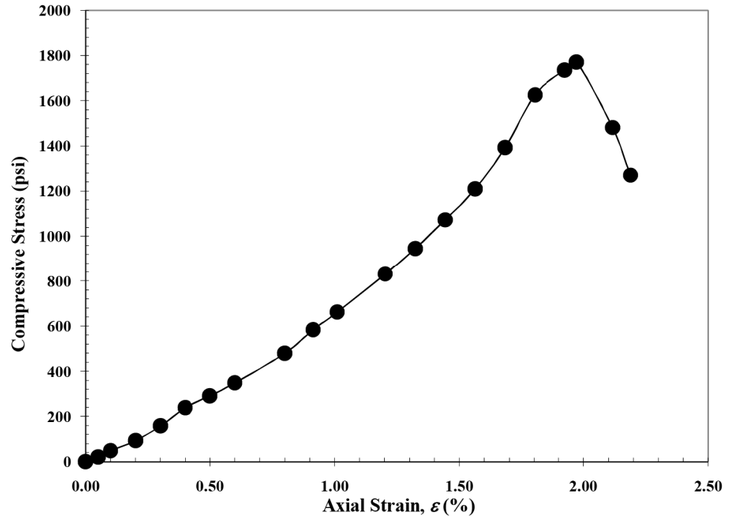
Specimen Properties

Average Dia., D_{avg} (in):	1.98
Average Height, H_{avg} (in):	4.16
Area, A (in^2):	3.07
Volume, V (in^3):	12.74
Wet Mass of Specimen (lb):	1.2
Moisture Content (%):	3.0
Dry Mass of Specimen (lb):	1.2
Wet Unit Weight, γ (lb/ft^3):	161.5
Dry Unit Weight, γ_d (lb/ft^3):	156.8

Final Specimen Figure

Results

Unconfined Compressive Strength (psi):	**1771**
Strain (%):	**2.0**



NOTES: Slightly strone, dark gray, SHALE.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-017-0-11, R-9, Depth: 201.4 - 201.8 ft)

Tested Date: 6/23/2011

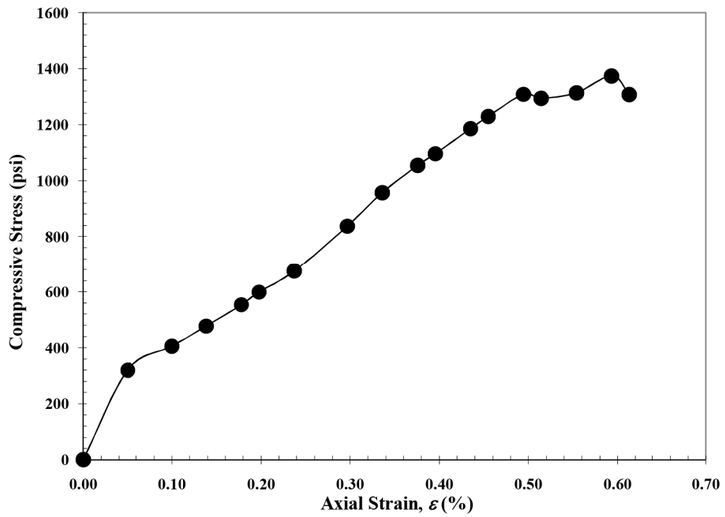
Specimen Properties

Average Dia., D_{avg} (in):	1.97
Average Height, H_{avg} (in):	5.06
Area, A (in^2):	3.06
Volume, V (in^3):	15.45
Wet Mass of Specimen (lb):	1.5
Moisture Content (%):	2.4
Dry Mass of Specimen (lb):	1.4
Wet Unit Weight, γ (lb/ft^3):	162.4
Dry Unit Weight, γ_d (lb/ft^3):	158.6

Final Specimen Figure

Results

Unconfined Compressive Strength (psi):	**1374**
Strain (%):	**0.6**



NOTES: Weak, dark gray , SHALE.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90 , Boring Location:B-017-0-11 ,R-10 , Depth: 207.6 - 207.9 ft)

Tested Date: 6/23/2011

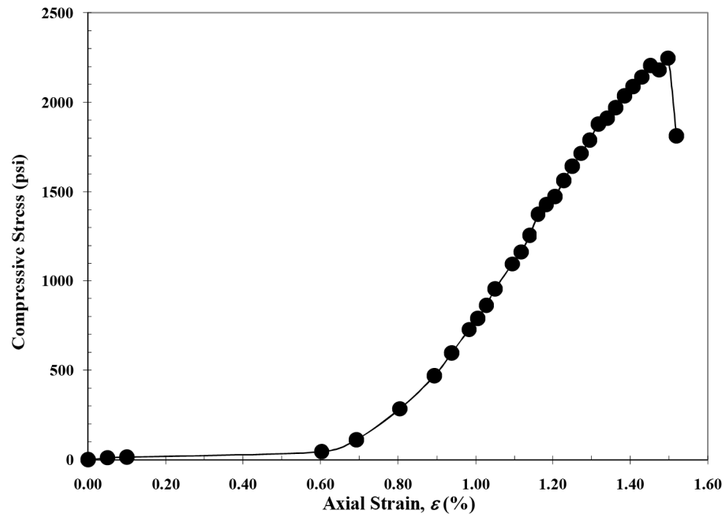
Specimen Properties

Average Dia., D_{avg} (in):	1.98
Average Height, H_{avg} (in):	4.48
Area, A (in^2):	3.07
Volume, V (in^3):	13.73
Wet Mass of Specimen (lb):	1.3
Moisture Content (%):	2.3
Dry Mass of Specimen (lb):	1.3
Wet Unit Weight, γ (lb/ft^3):	162.3
Dry Unit Weight, γ_d (lb/ft^3):	158.7

Final Specimen Figure

Results

Unconfined Compressive Strength (psi):	**2246**
Strain (%):	**1.5**



NOTES: Slightly strong, dark gray, SHALE.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-007-0-11, ST-24, Depth: 88.5 - 90.5 ft)

Tested Date: 8/5/2011

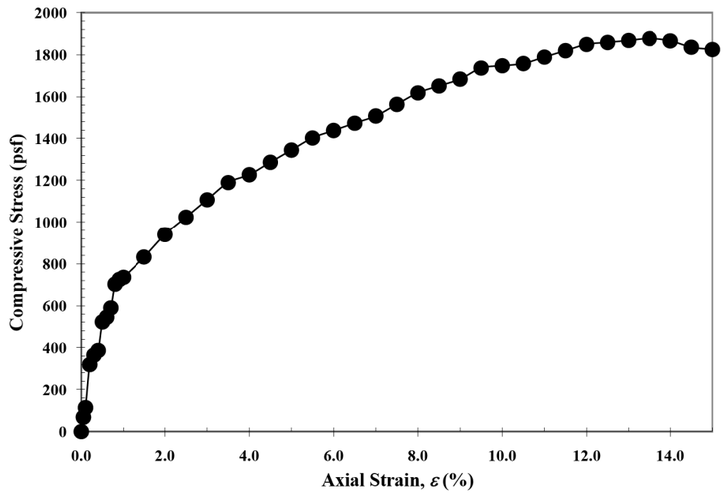
Specimen Properties

Average Dia., D_{avg} (in):	2.83
Average Height, H_{avg} (in):	5.96
Area, A (in^2):	6.31
Volume, V (in^3):	37.59
Wet Mass of Specimen (lb):	2.7
Moisture Content (%):	27.4
Dry Mass of Specimen (lb):	2.1
Wet Unit Weight, γ (lb/ft^3):	123.5
Dry Unit Weight, γ_d (lb/ft^3):	97.0

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**1876.2**
Strain (%):	**13.5**



Notes: Medium Stiff, Gray, **Silt**, "And" Clay, Trace Sand, Wet.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-007-0-11, ST-26, Depth: 98.5 - 100.5 ft)

Tested Date: 8/5/2011

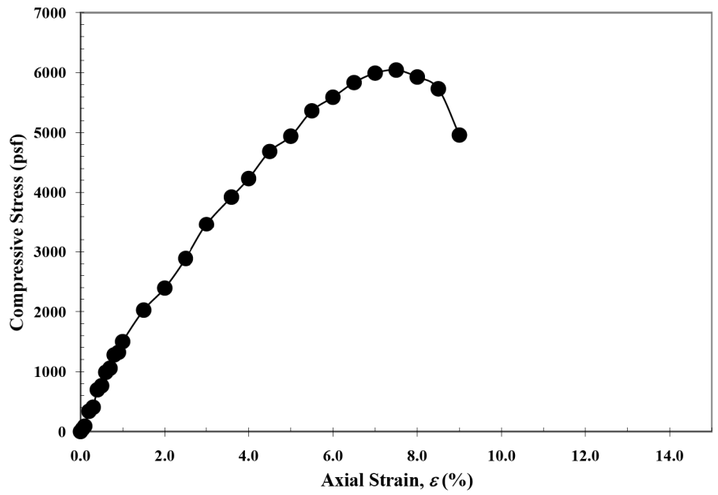
Specimen Properties

Average Dia., D_{avg} (in):	2.85
Average Height, H_{avg} (in):	5.96
Area, A (in^2):	6.37
Volume, V (in^3):	37.95
Wet Mass of Specimen (lb):	2.9
Moisture Content (%):	20.1
Dry Mass of Specimen (lb):	2.4
Wet Unit Weight, γ (lb/ft^3):	131.4
Dry Unit Weight, γ_d (lb/ft^3):	109.5

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**6042.7**
Strain (%):	**7.5**



Notes: Very Stiff, Gray, **Silt**, Some Clay, Trace Fine Sand, Contains Many Silt Lenses, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-008-0-11, ST-17, Depth: 53.5 - 55.5 ft)

Tested Date: 8/5/2011

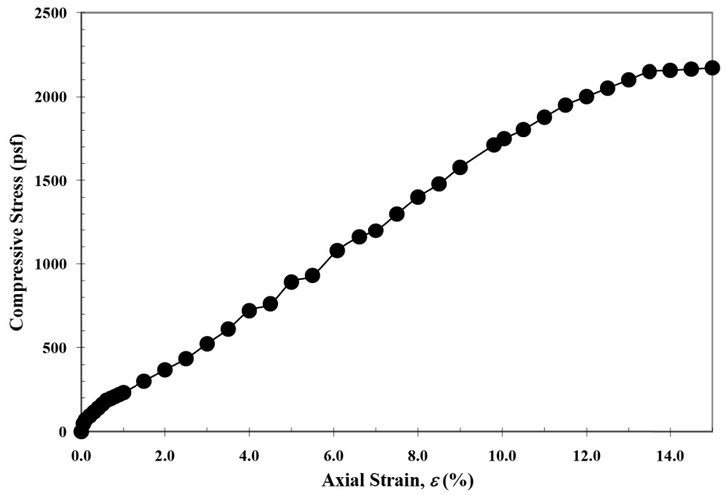
Specimen Properties

Average Dia., D_{avg} (in):	2.80
Average Height, H_{avg} (in):	5.73
Area, A (in^2):	6.15
Volume, V (in^3):	35.23
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	20.2
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	138.3
Dry Unit Weight, γ_d (lb/ft^3):	115.0

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**2170.8**
Strain (%):	**15.0**



Notes: Stiff, Brown, **Silt**, Some Clay, Trace Fine Sand, Wet.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-008-0-11, ST-26, Depth: 98.5 - 100.5 ft)

Tested Date: 8/5/2011

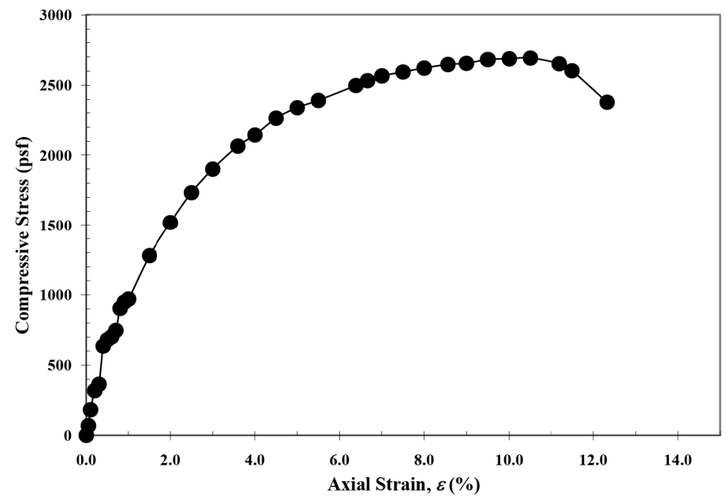
Specimen Properties

Average Dia., D_{avg} (in):	2.84
Average Height, H_{avg} (in):	5.84
Area, A (in^2):	6.32
Volume, V (in^3):	36.90
Wet Mass of Specimen (lb):	2.6
Moisture Content (%):	30.2
Dry Mass of Specimen (lb):	2.0
Wet Unit Weight, γ (lb/ft^3):	122.8
Dry Unit Weight, γ_d (lb/ft^3):	94.4

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**2692.9**
Strain (%):	**10.5**



Notes: Stiff, Gray, **Silty Clay**, Trace Sand, Trace Gravel, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-014-0-11, ST-19, Depth: 70.5 - 72.5 ft)

Tested Date: 8/11/2011

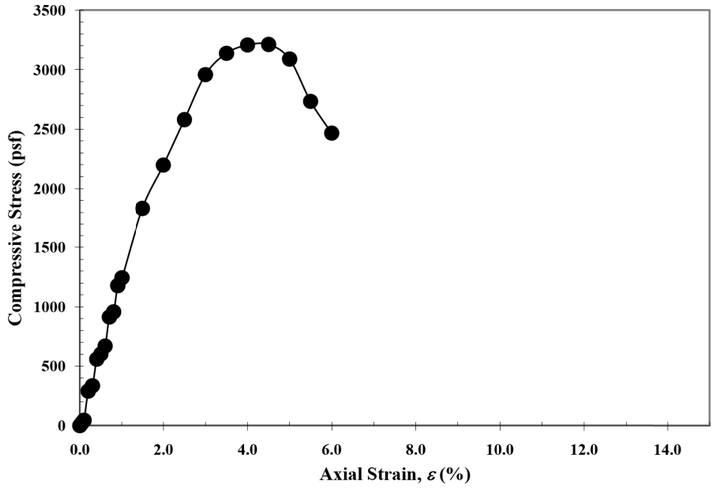
Specimen Properties

Average Dia., D_{avg} (in):	2.86
Average Height, H_{avg} (in):	6.00
Area, A (in^2):	6.42
Volume, V (in^3):	38.50
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	23.9
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	125.2
Dry Unit Weight, γ_d (lb/ft^3):	101.0

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**3212.6**
Strain (%):	**4.5**



Notes: Stiff, Gray, **Silt**, "And" Clay, Trace Sand, Contains Many Silt Lenses, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-014-0-11, ST-24, Depth: 108.5 - 110.5 ft)

Tested Date: 8/11/2011

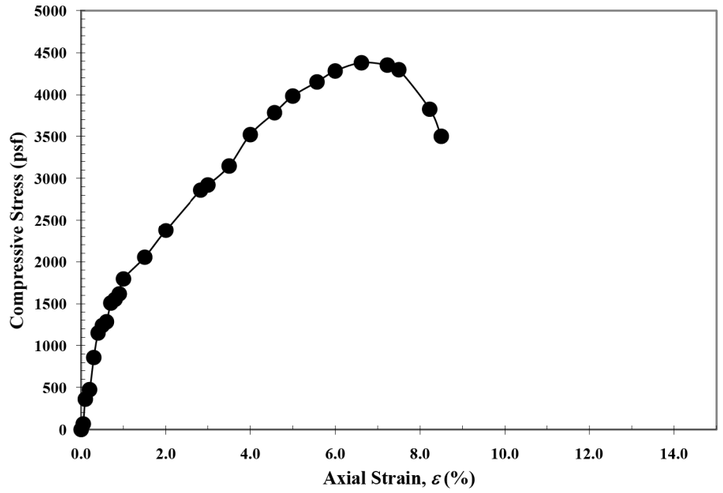
Specimen Properties

Average Dia., D_{avg} (in):	2.84
Average Height, H_{avg} (in):	5.91
Area, A (in^2):	6.36
Volume, V (in^3):	37.55
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	20.0
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	128.8
Dry Unit Weight, γ_d (lb/ft^3):	107.3

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**4379.0**
Strain (%):	**6.6**



Notes: Very Stiff, Gray, **Silt and Clay**, Trace Sand, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-015-0-11, ST-18, Depth: 61.5 - 63.5 ft)

Tested Date: 8/10/2011

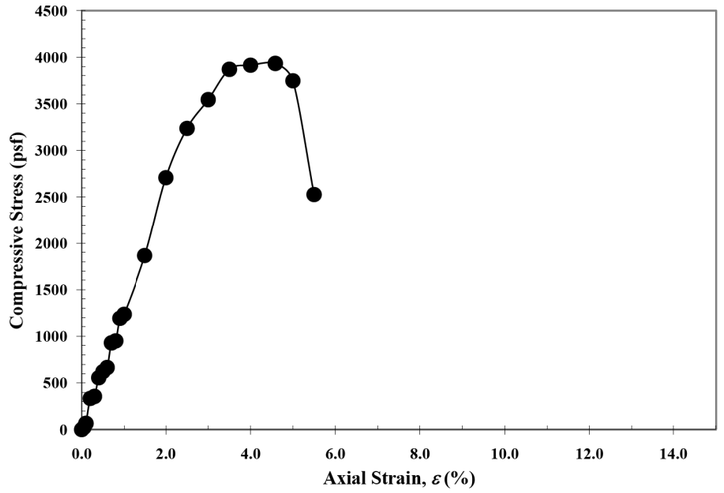
Specimen Properties

Average Dia., D_{avg} (in):	2.87
Average Height, H_{avg} (in):	5.98
Area, A (in^2):	6.46
Volume, V (in^3):	38.62
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	22.7
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	123.8
Dry Unit Weight, γ_d (lb/ft^3):	101.0

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**3933.6**
Strain (%):	**4.6**



Notes: Stiff, Gray, **Silt and Clay**, Trace Sand, Contains Many Silt Lenses, Moist.

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Unconfined Compressive Strength Test

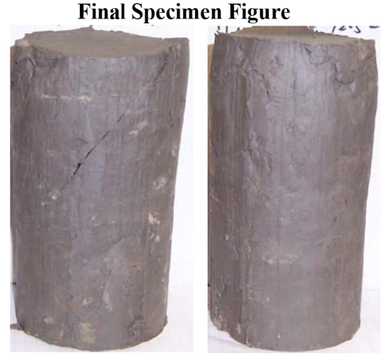
(Project: CUY-90-14.90, Boring Location: B-015-0-11, ST-22, Depth: 92.0 - 94.0 ft)

Tested Date: 8/11/2011

Specimen Properties

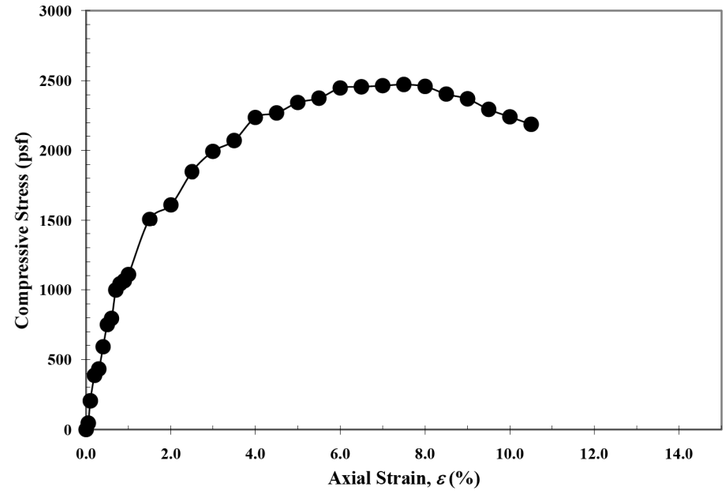
Average Dia., D_{avg} (in):	2.83
Average Height, H_{avg} (in):	6.07
Area, A (in^2):	6.31
Volume, V (in^3):	38.26
Wet Mass of Specimen (lb):	2.6
Moisture Content (%):	27.6
Dry Mass of Specimen (lb):	2.1
Wet Unit Weight, γ (lb/ft^3):	119.5
Dry Unit Weight, γ_d (lb/ft^3):	93.7

Final Specimen Figure



Results

Unconfined Compressive Strength (psf):	**2471.7**
Strain (%):	**7.5**



Notes: Stiff, Gray, **Silt and Clay**, Trace Sand, Trace Gravel, Contains Many Silt Lenses, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-015-1-11, ST-22, Depth:101.0 - 103.0 ft)

Tested Date: 8/10/2011

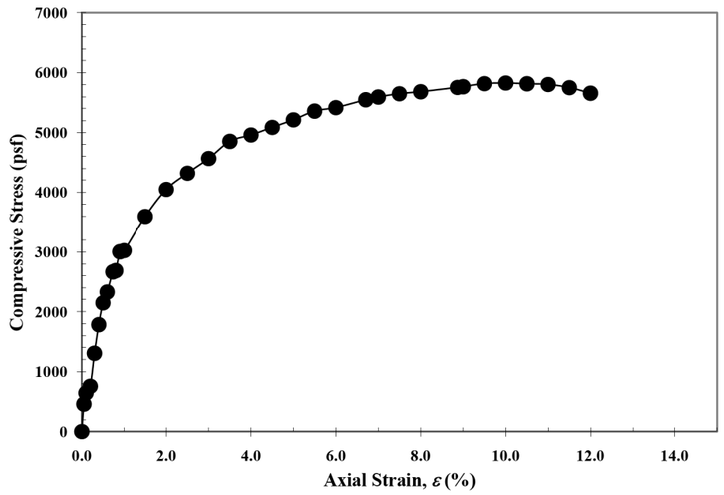
Specimen Properties

Average Dia., D_{avg} (in):	2.83
Average Height, H_{avg} (in):	6.01
Area, A (in^2):	6.27
Volume, V (in^3):	37.71
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	26.3
Dry Mass of Specimen (lb):	2.2
Wet Unit Weight, γ (lb/ft^3):	126.0
Dry Unit Weight, γ_d (lb/ft^3):	99.8

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**5825.1**
Strain (%):	**10.0**



Notes: Very Stiff, Gray, **Silt and Clay**, Trace Sand, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-016-0-11, ST-18, Depth: 68.5 - 70.5 ft)

Tested Date: 8/10/2011

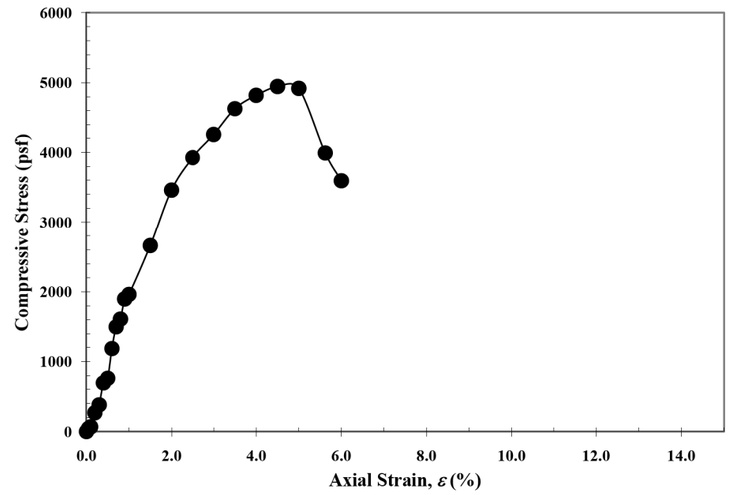
Specimen Properties

Average Dia., D_{avg} (in):	2.85
Average Height, H_{avg} (in):	5.96
Area, A (in^2):	6.40
Volume, V (in^3):	38.13
Wet Mass of Specimen (lb):	2.7
Moisture Content (%):	20.2
Dry Mass of Specimen (lb):	2.3
Wet Unit Weight, γ (lb/ft^3):	124.3
Dry Unit Weight, γ_d (lb/ft^3):	103.4

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**4943.3**
Strain (%):	**4.5**



Notes: Very Stiff, Gray, **Silt**, Some Clay, Contains Many Silt Lenses, Wet.

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SOIL PROFILE & LABORATORY TEST DATA

CUY-90-14.90

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-016-0-11, ST-22, Depth: 101.5 - 103.5 ft)

Tested Date: 8/12/2011

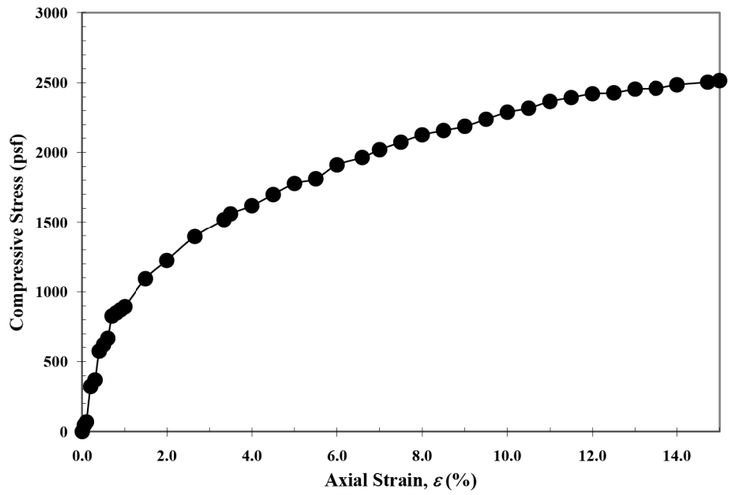
Specimen Properties

Average Dia., D_{avg} (in):	2.82
Average Height, H_{avg} (in):	5.98
Area, A (in^2):	6.23
Volume, V (in^3):	37.25
Wet Mass of Specimen (lb):	2.6
Moisture Content (%):	30.6
Dry Mass of Specimen (lb):	2.0
Wet Unit Weight, γ (lb/ft^3):	121.5
Dry Unit Weight, γ_d (lb/ft^3):	93.0

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**2514.5**
Strain (%):	**15.0**



Notes: Stiff, Gray, **Silty Clay**, Trace Fine Sand, Contains Few Silt Lenses, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-024-0-11, ST-19, Depth: 70.5 - 72.5 ft)

Tested Date: 8/10/2011

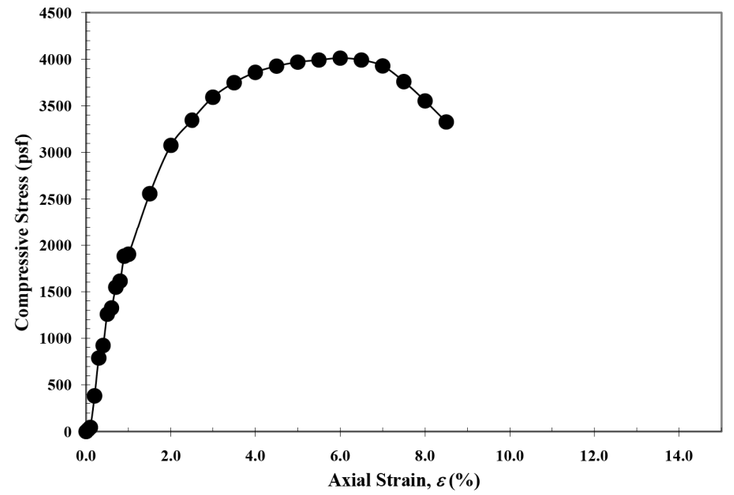
Specimen Properties

Average Dia., D_{avg} (in):	2.85
Average Height, H_{avg} (in):	5.93
Area, A (in^2):	6.38
Volume, V (in^3):	37.78
Wet Mass of Specimen (lb):	2.6
Moisture Content (%):	29.5
Dry Mass of Specimen (lb):	2.0
Wet Unit Weight, γ (lb/ft^3):	120.6
Dry Unit Weight, γ_d (lb/ft^3):	93.2

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**4012.4**
Strain (%):	**6.0**



Notes: Very Stiff, Gray, **Silty Clay**, Trace Sand, Trace Gravel, Moist.

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SOIL PROFILE & LABORATORY TEST DATA

CUY-90-14.90

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-025-0-11, ST-22, Depth: 90.5 - 92.5 ft)

Tested Date: 8/11/2011

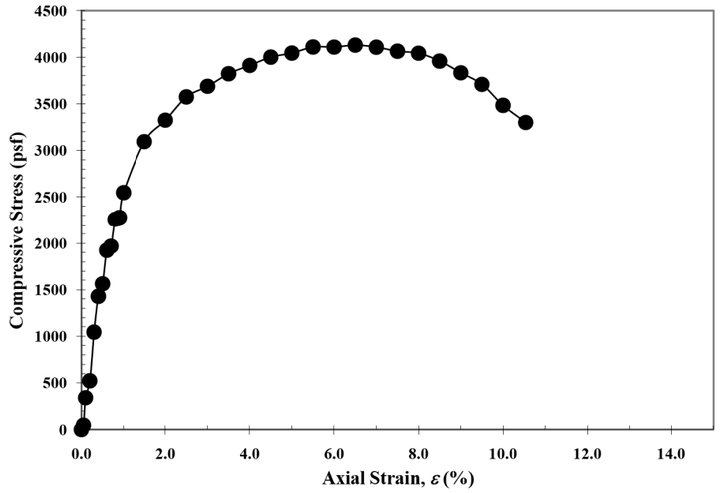
Specimen Properties

Average Dia., D_{avg} (in):	2.84
Average Height, H_{avg} (in):	5.94
Area, A (in^2):	6.32
Volume, V (in^3):	37.57
Wet Mass of Specimen (lb):	2.7
Moisture Content (%):	28.2
Dry Mass of Specimen (lb):	2.1
Wet Unit Weight, γ (lb/ft^3):	122.6
Dry Unit Weight, γ_d (lb/ft^3):	95.6

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**4130.2**
Strain (%):	**6.5**



Notes: Very Stiff, Gray, **Silty Clay**, Trace Sand, Moist.

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Unconfined Compressive Strength Test

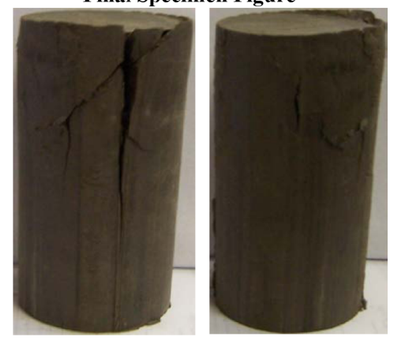
(Project: CUY-90-14.90, Boring Location: B-026-0-11, ST-20, Depth: 70.5 - 72.5 ft)

Tested Date: 8/10/2011

Specimen Properties

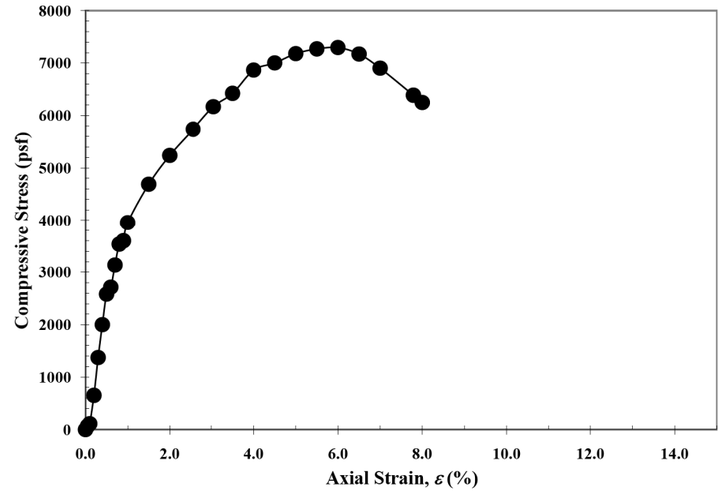
Average Dia., D_{avg} (in):	2.85
Average Height, H_{avg} (in):	5.98
Area, A (in^2):	6.38
Volume, V (in^3):	38.17
Wet Mass of Specimen (lb):	2.9
Moisture Content (%):	20.8
Dry Mass of Specimen (lb):	2.4
Wet Unit Weight, γ (lb/ft^3):	131.3
Dry Unit Weight, γ_d (lb/ft^3):	108.7

Final Specimen Figure



Results

Unconfined Compressive Strength (psf):	**7295.9**
Strain (%):	**6.0**



Notes: Very Stiff, Gray, **Silt and Clay**, Trace Sand, Wet.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-026-0-11, ST-25, Depth: 110.5 - 112.5 ft)

Tested Date: 8/11/2011

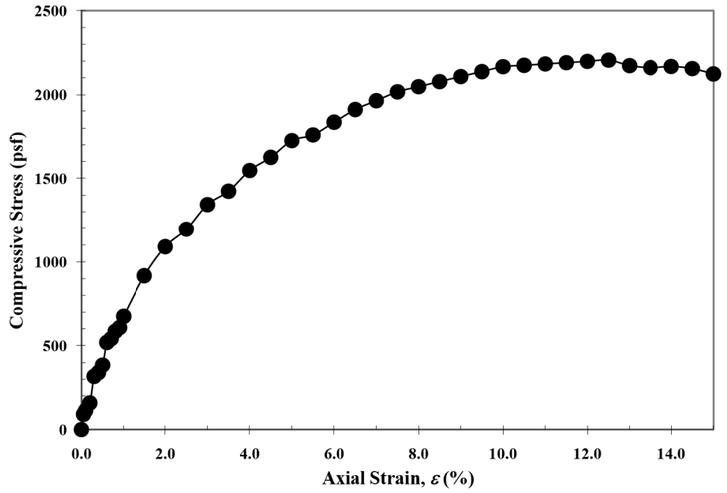
Specimen Properties

Average Dia., D_{avg} (in):	2.84
Average Height, H_{avg} (in):	5.59
Area, A (in^2):	6.34
Volume, V (in^3):	35.43
Wet Mass of Specimen (lb):	2.5
Moisture Content (%):	32.0
Dry Mass of Specimen (lb):	1.9
Wet Unit Weight, γ (lb/ft^3):	120.0
Dry Unit Weight, γ_d (lb/ft^3):	90.9

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**2204.9**
Strain (%):	**12.5**



Notes: Stiff, Gray, **Clay**, Little Silt, Trace Sand, Moist.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-031-0-11, ST-22, Depth: 78.5 - 80.5 ft)

Tested Date: 8/5/2011

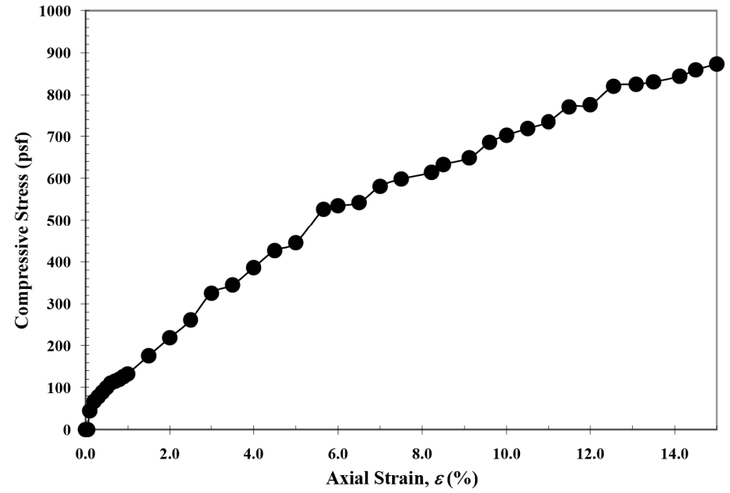
Specimen Properties

Average Dia., D_{avg} (in):	2.87
Average Height, H_{avg} (in):	5.81
Area, A (in^2):	6.45
Volume, V (in^3):	37.51
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	25.0
Dry Mass of Specimen (lb):	2.2
Wet Unit Weight, γ (lb/ft^3):	127.2
Dry Unit Weight, γ_d (lb/ft^3):	101.8

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**872.8**
Strain (%):	**15.0**



Notes: Soft, Brown, **Silt and Clay**, Trace Sand, Wet. Fuel Odor.

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Unconfined Compressive Strength Test

(Project: CUY-90-14.90, Boring Location: B-039-0-11, ST-26, Depth: 98.5 - 100.5 ft)

Tested Date: 8/5/2011

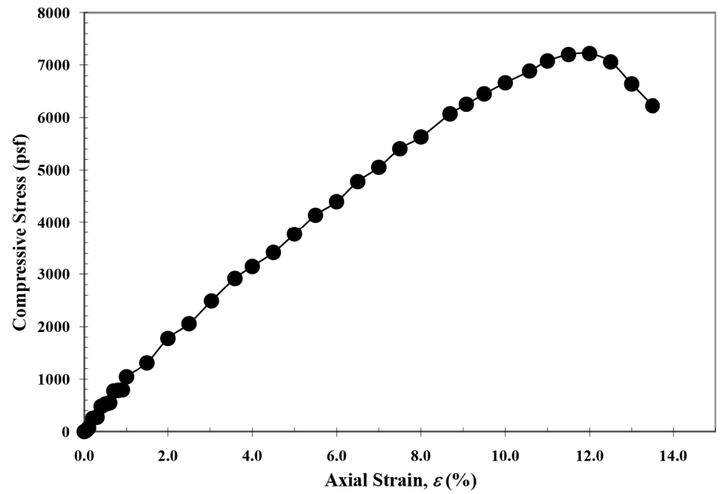
Specimen Properties

Average Dia., D_{avg} (in):	2.83
Average Height, H_{avg} (in):	5.94
Area, A (in^2):	6.28
Volume, V (in^3):	37.31
Wet Mass of Specimen (lb):	2.8
Moisture Content (%):	19.8
Dry Mass of Specimen (lb):	2.4
Wet Unit Weight, γ (lb/ft^3):	131.0
Dry Unit Weight, γ_d (lb/ft^3):	109.3

Final Specimen Figure

Results

Unconfined Compressive Strength (psf):	**7220.5**
Strain (%):	**12.0**



Notes: Very Stiff, Brown, **Silt**, Some Clay, Moist.

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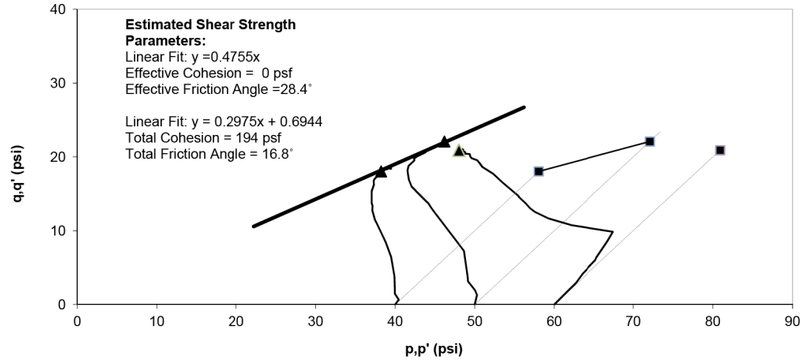
Project: CUY-90-14.90 Project ID: 82119
Sample ID: Boring B-013-0-11, ST-20 (81.0'-83.0')
Description: Medium Stiff, Gray, Silt and Clay, Contains Few Silt Lenses, Moist.

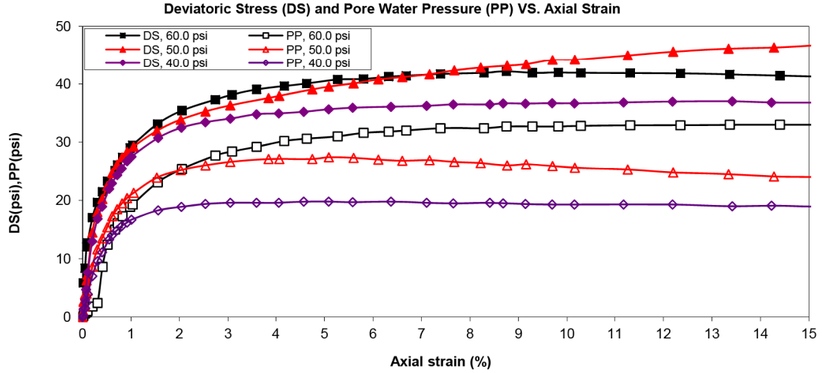
Sample No.	Height (in)	Diameter (in)	Moisture (%)	Bulk Density (pcf)	Dry Density (pcf)
1	5.53	2.84	25.2%	134.2	107.2
2	5.97	2.86	24.7%	125.6	100.8
3	5.97	2.84	26.0%	122.3	97.0

Failure Criterion : Maximum Effective Principal Stress Ratio

Total and Effective Stress Paths and Effective Stress Strength Envelope



Deviatoric Stress (DS) and Pore Water Pressure (PP) VS. Axial Strain



Assumed Specific Gravity Gs = 2.70.

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CUY-90-14.90

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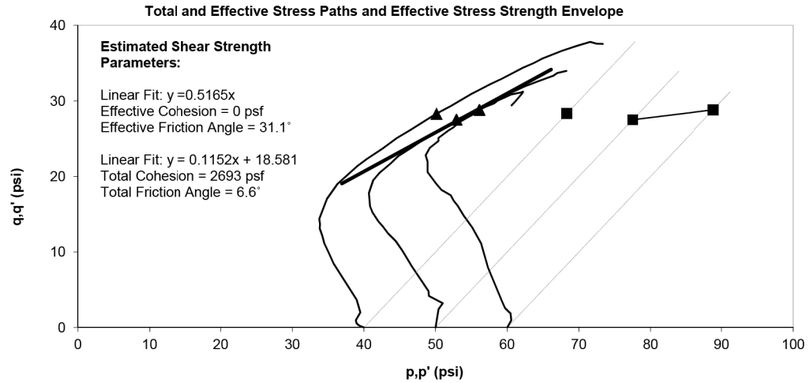
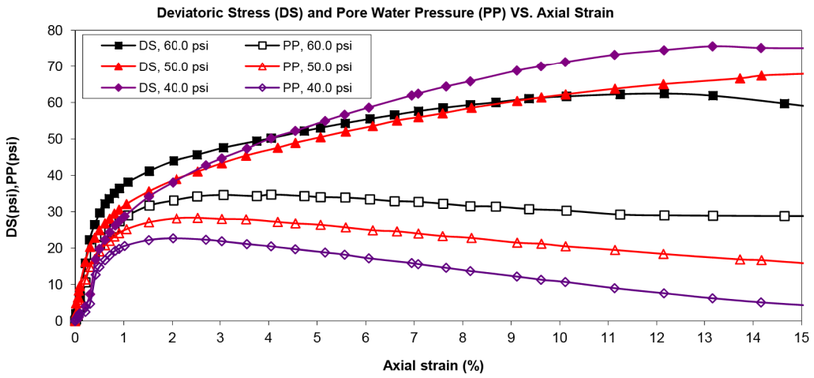
Project: CUY-90-14.90 Project ID: 82119
Sample ID: Boring B-013-1-11, ST-18 (61.5'-63.5')
Description: Soft to very stiff, gray, Silt, "and" Clay, contains many clay lenses, wet.

Sample No.	Height (in)	Diameter (in)	Moisture (%)	Bulk Density (pcf)	Dry Density (pcf)
1	5.27	2.85	22.1%	127.1	104.1
2	5.27	2.85	24.8%	129.1	103.4
3	5.78	2.84	22.5%	128.5	104.9

Failure Criterion : Maximum Effective Principal Stress Ratio





Assumped Specific Gravity Gs = 2.70.

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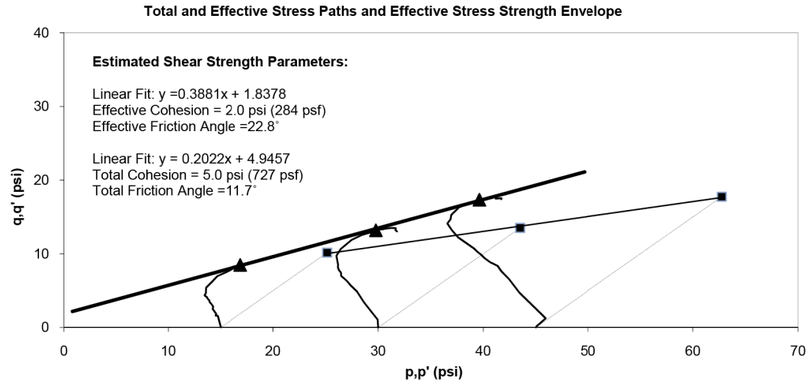
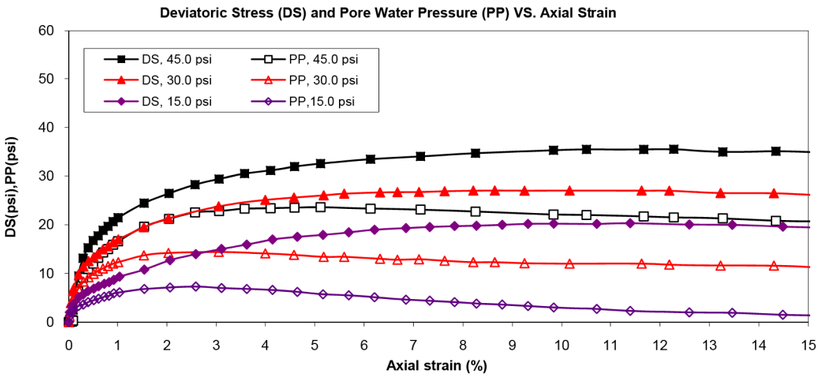
Project: CUY-90-14.90 Project ID: 82119
Sample ID: Boring B-017-0-11, ST-13 (33.0'-35.0')
Description: Medium stiff, gray, Silty Clay, trace sand, trace gravel, moist.

Sample No.	Height (in)	Diameter (in)	Moisture (%)	Bulk Density (pcf)	Dry Density (pcf)
1	5.37	2.85	22.0	128.0	105.0
2	4.90	2.84	21.1	131.8	108.9
3	5.05	2.82	22.9	127.9	104.1

Failure Criterion : Maximum Effective Principal Stress Ratio





Assumped Specific Gravity Gs = 2.70. Height to diameter ratio is smaller than ASTM requirement (~1.8:1).

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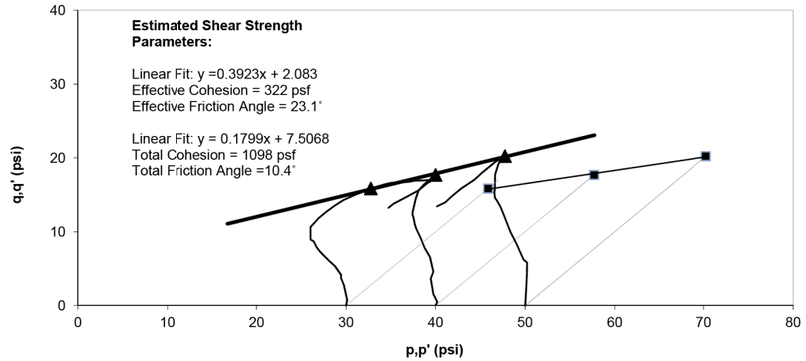
Project: CUY-90-14.90 Project ID: 82119
Sample ID: Boring B-028-0-11, ST-28 (103.5' - 105.5')
Description: Medium Stiff, Gray, **Silt and Clay**, Trace Sand, Contains Few Silt Lenses, Moist.

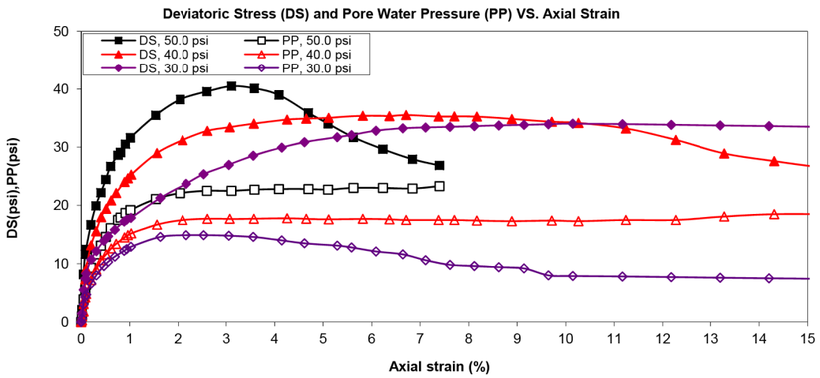
Sample No.	Height (in)	Diameter (in)	Moisture (%)	Bulk Density (pcf)	Dry Density (pcf)
1	5.85	2.84	24.5%	125.9	101.1
2	5.96	2.86	25.7%	124.9	99.4
3	6.05	2.85	24.9%	127.5	102.1

Failure Criterion : Maximum Effective Principal Stress Ratio

Total and Effective Stress Paths and Effective Stress Strength Envelope



Deviatoric Stress (DS) and Pore Water Pressure (PP) VS. Axial Strain



Assumped Specific Gravity Gs = 2.70.

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2800 Corporate Exchage Dr.
Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

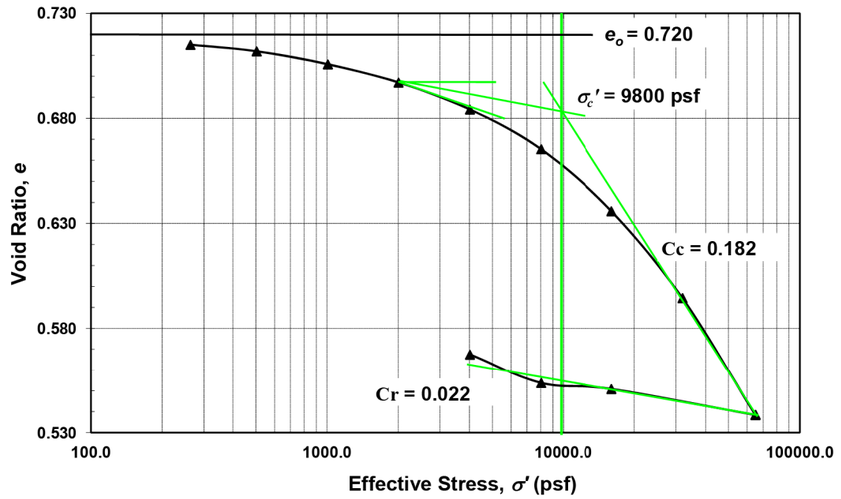
Project Name: CUY-90-14.90 Prepared by: CH
Source: B-013-0-11 (ST-20, 80.5 to 82.5 ft) Checked by: EC
Description: Soft to medium stiff, **Silt and Clay**, contains few silt lenses. Date: 11/7/2011

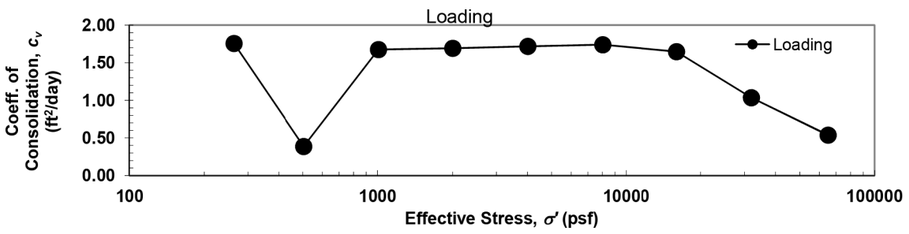
Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.720 Initial Bulk Unit Weight (lb/ft^3): 123.0
In-situ Vertical Effective Stress: 7000 psf Dry Unit Weight (lb/ft^3): 98.0

Compression and Swelling Index

Compression Index (Cc): 0.182 Preconsolidation Pressure (σ_c'): **9800 psf**
Recompression Index (Cr): 0.022 Over-Consolidation Ratio (OCR): **1.40**

Consolidation Curve





SOIL PROFILE AND LABORATORY TEST DATA

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2800 Corporate Exchage Dr.
Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

Project Name: CUY-90-14.90
Source: B-013-1-11 (ST-22, 90.5 to 92.5 ft)
Description: Very soft to soft, **Silty Clay**, contains many silt lenses.

Prepared by: CH
Checked by: EC
Date: 11/2/2011

Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.903
In-situ Vertical Effective Stress: 6100 psf

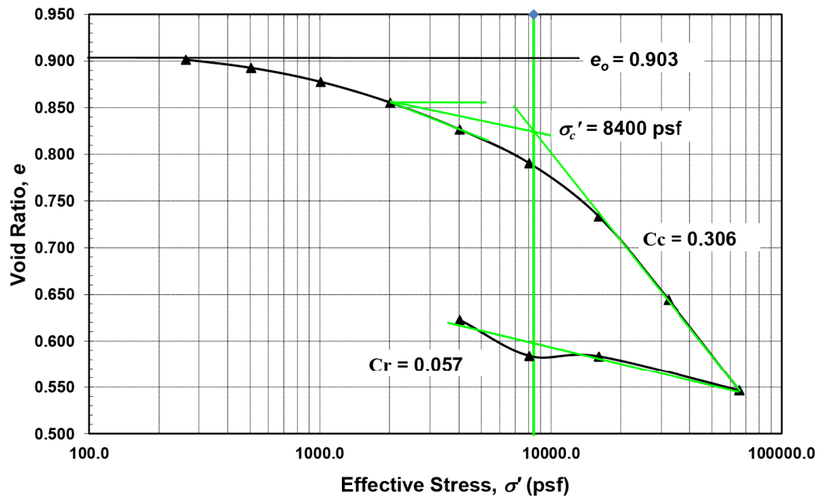
Initial Bulk Unit Weight (lb/ft^3): 118.7
Dry Unit Weight (lb/ft^3): 88.6

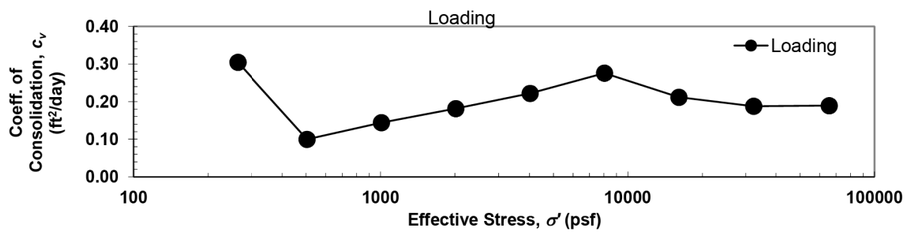
Compression and Swelling Index

Compression Index (Cc): 0.306
Recompression Index (Cr): 0.057

Preconsolidation Pressure (σ_c'): **8400 psf**
Over-Consolidation Ratio (OCR): **1.38**

Consolidation Curve





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Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

Project Name: CUY-90-14.90
Source: B-016-0-11 (ST-22, 101.6 to 101.7 ft)
Description: Very soft to soft, **Silty Clay**, trace fine sand.

Prepared by: CH
Checked by: EC
Date: 10/21/2011

Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.684
In-situ Vertical Effective Stress: 7100 psf

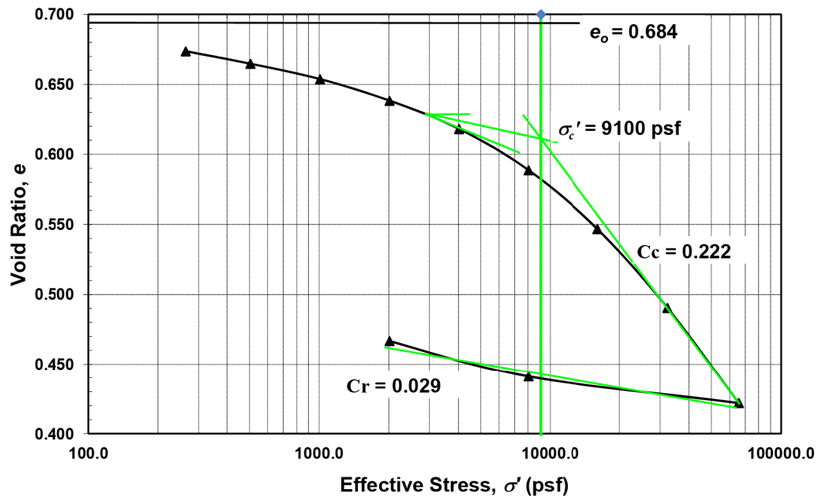
Initial Bulk Unit Weight (lb/ft^3): 120.1
Dry Unit Weight (lb/ft^3): 100.1

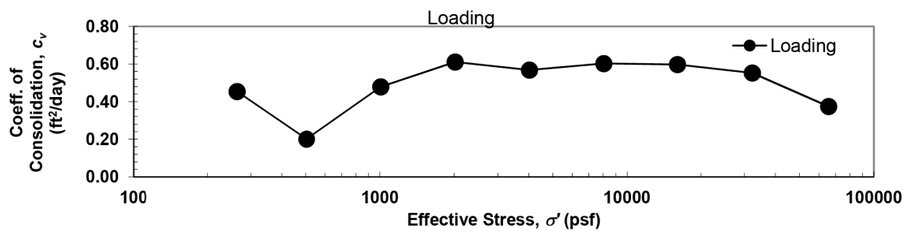
Compression and Swelling Index

Compression Index (Cc): 0.222
Recompression Index (Cr): 0.029

Preconsolidation Pressure (σ_c'): **9100 psf**
Over-Consolidation Ratio (OCR): **1.28**

Consolidation Curve





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CHECKED JEP

SOIL PROFILE & LABORATORY TEST DATA

CUY-90-14.90

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Barr Prevost
2800 Corporate Exchage Dr.
Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

Project Name: CUY-90-14.90
Source: B-028-0-11 (ST-23, 78.7 to 78.8 ft)
Description: Medium stiff to hard, **Silt and Clay**, trace sand.

Prepared by: CH
Checked by: EC
Date: 10/21/2011

Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.510
In-situ Vertical Effective Stress: 6820 psf

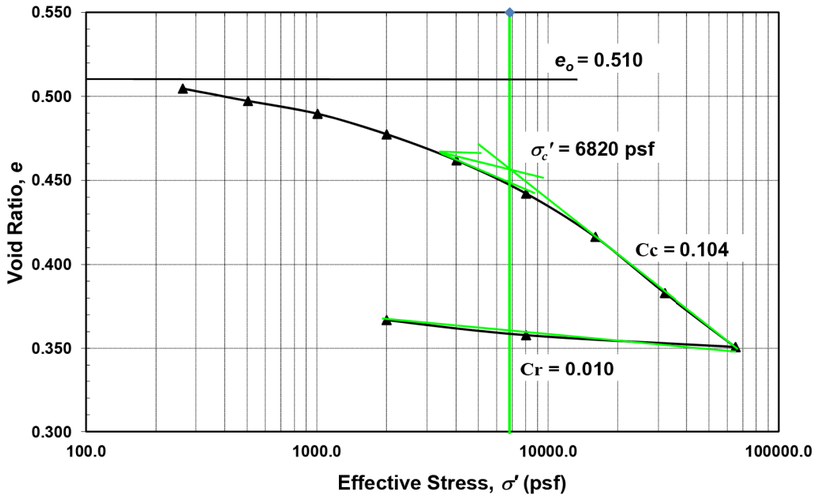
Initial Bulk Unit Weight (lb/ft^3): 126.3
Dry Unit Weight (lb/ft^3): 111.6

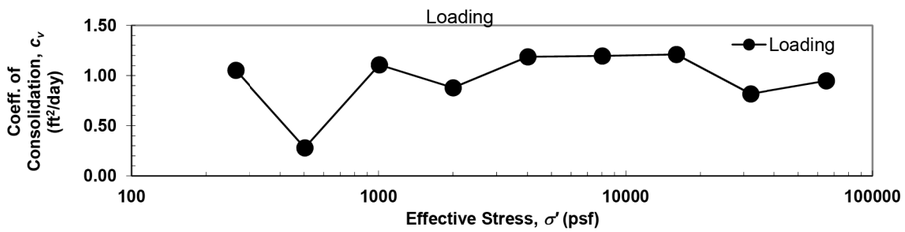
Compression and Swelling Index

Compression Index (Cc): 0.104
Recompression Index (Cr): 0.010

Preconsolidation Pressure (σ_c'): **6820 psf**
Over-Consolidation Ratio (OCR): **1.00**

Consolidation Curve





Barr Prevost
2800 Corporate Exchage Dr.
Suite 240, Columbus, OH 43231

Contact Information
Voice: 614-714-0270
Fax: 614-714-0323

Consolidation Test

Project Name: CUY-90-14.90
Source: B-029-0-11 (ST-25, 88.6 to 90.6 ft)
Description: Soft to hard, **Silt and Clay**, contains silt lenses.

Prepared by: CH
Checked by: EC
Date: 11/2/2011

Test Specification: ASTM D 2435-04
Initial Void Ratio: 0.549
In-situ Vertical Effective Stress: 7700 psf

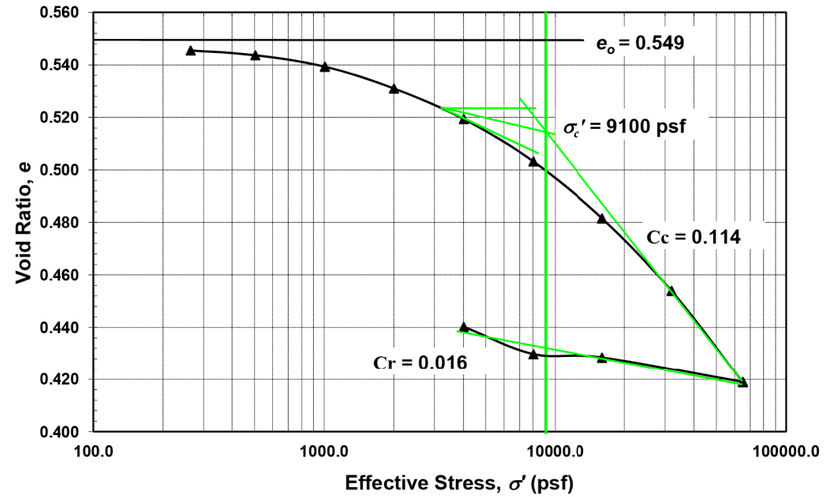
Initial Bulk Unit Weight (lb/ft^3): 130.8
Dry Unit Weight (lb/ft^3): 108.8

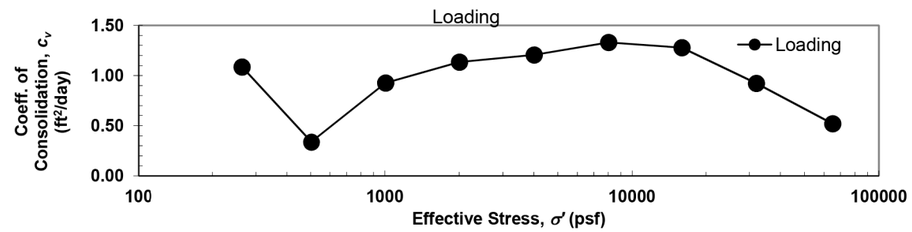
Compression and Swelling Index

Compression Index (Cc): 0.114
Recompression Index (Cr): 0.016

Preconsolidation Pressure (σ_c'): **9100 psf**
Over-Consolidation Ratio (OCR): **1.18**

Consolidation Curve





DRAWN CMH
CHECKED JEP

SOIL PROFILE
LABORATORY TEST DATA

CUY-90-14.90

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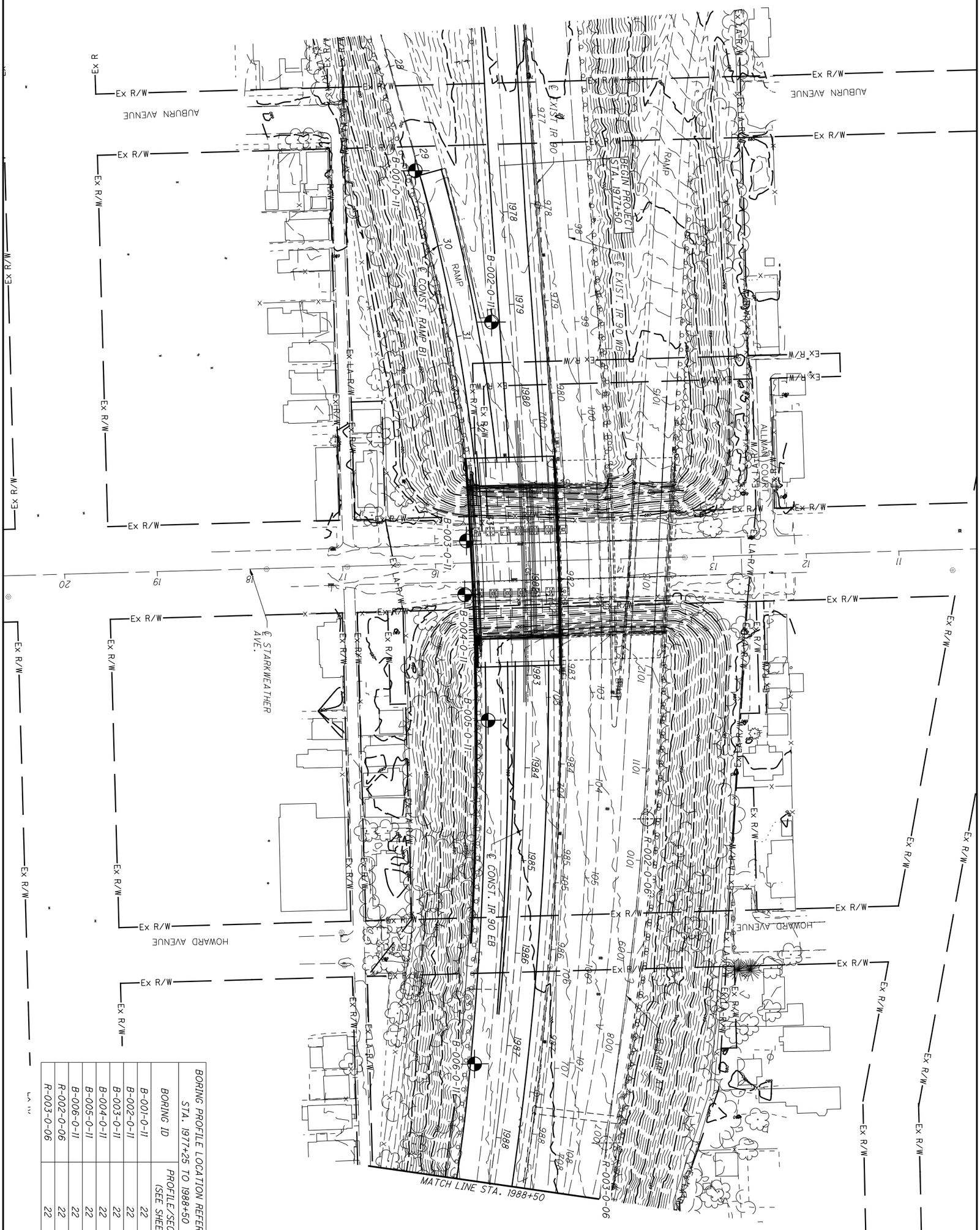


BORING PROFILE LOCATION REFERENCE STA. 1977+25 TO 1988+50	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-001-0-11	22
B-002-0-11	22
B-003-0-11	22
B-004-0-11	22
B-005-0-11	22
B-006-0-11	22
R-002-0-06	22
R-003-0-06	22

21/67

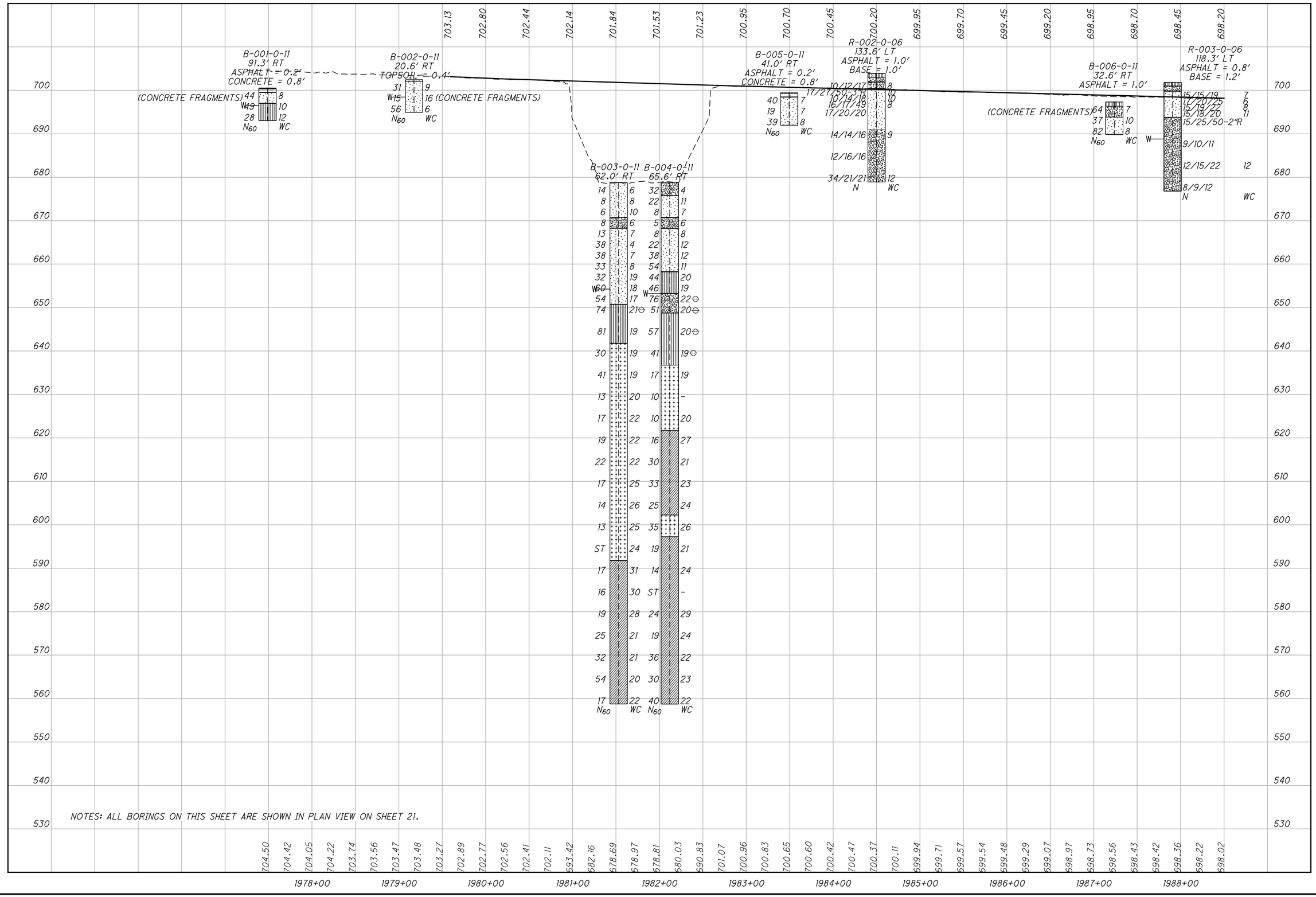
CUY-90-14.90

SOIL PLAN
STA. 1977+25 TO STA. 1988+50 IR 90 EB

DRAWN CMH
CHECKED JEP

0 50
25 100
HORIZONTAL SCALE IN FEET

N



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH | CHECKED JEP

SOIL PROFILE
STA. 1977+25 TO STA. 1988+50 IR 90 EB

CUY-90-14.90

22 / 67

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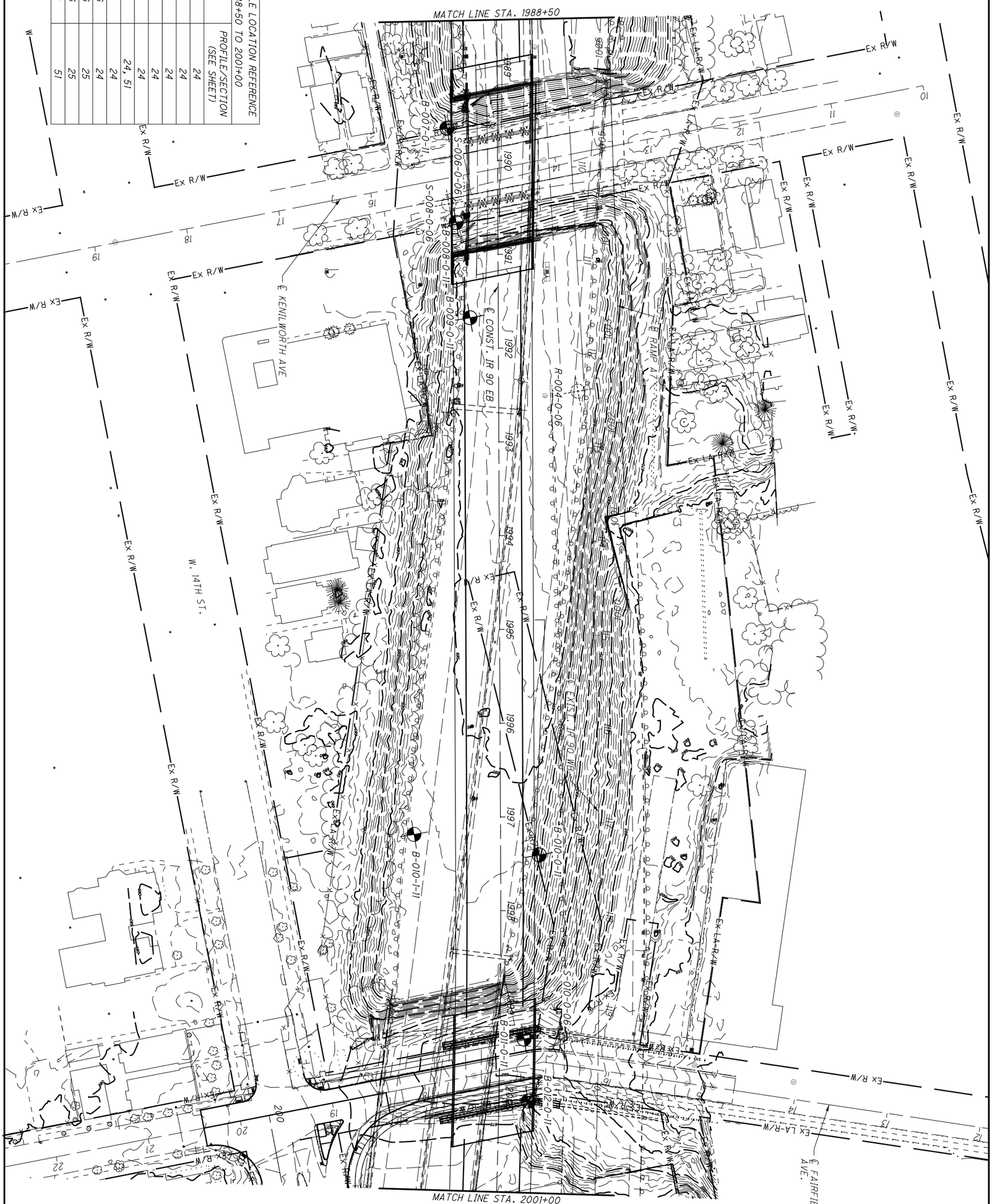
BORING PROFILE LOCATION REFERENCE STA. 1988+50 TO 2001+00	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-007-0-11	24
B-008-0-11	24
B-009-0-11	24
B-010-0-11	24
B-010-1-11	24
B-011-0-11	24, 51
B-012-0-11	24
R-004-0-06	24
S-006-0-06	25
S-008-0-06	25
S-010-0-06	51



	23/67	CUY-90-14.90	SOIL PLAN STA. 1988+50 TO STA. 2001+00 IR 90 EB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET

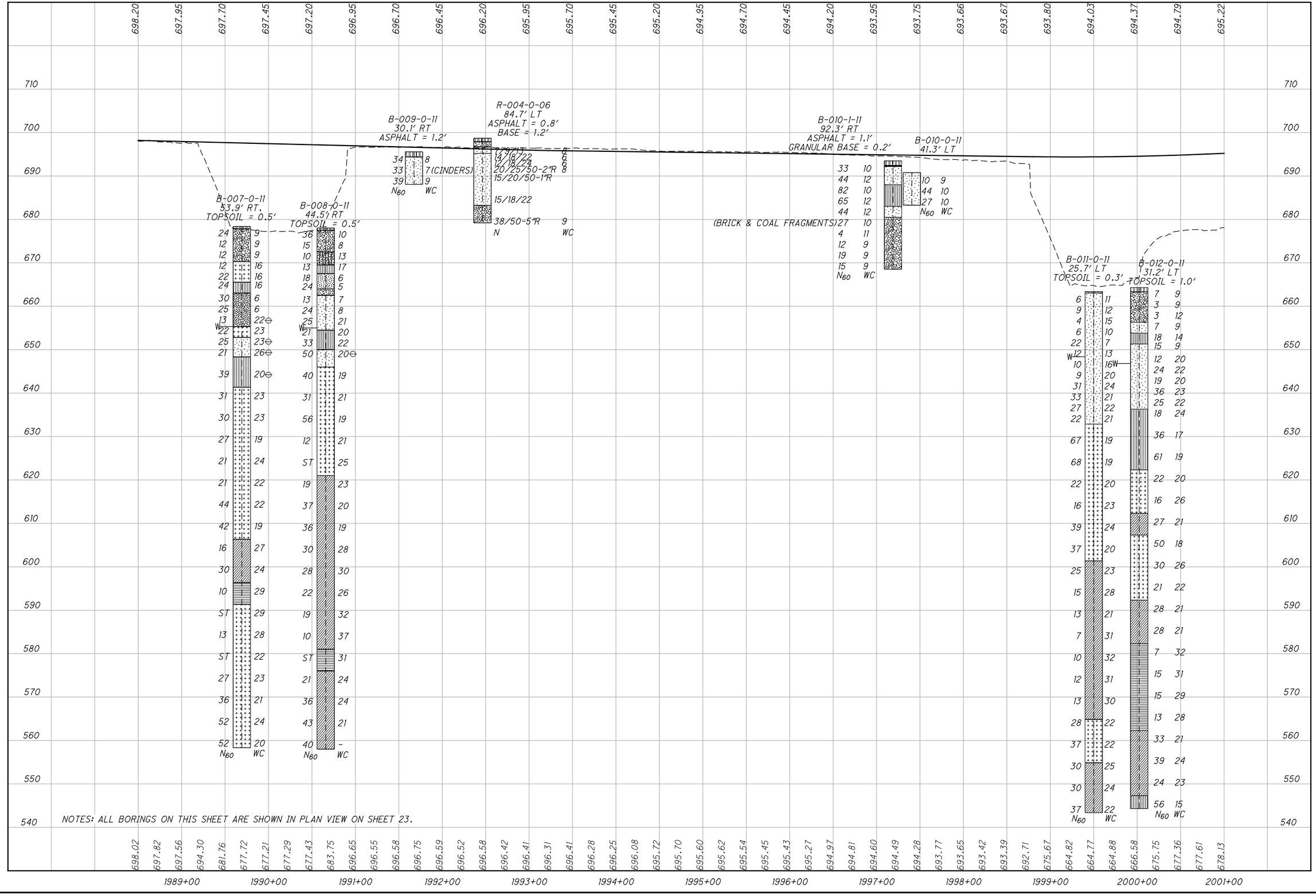
SOIL PROFILE

STA. 1988+50 TO STA. 2001+00 IR 90 EB

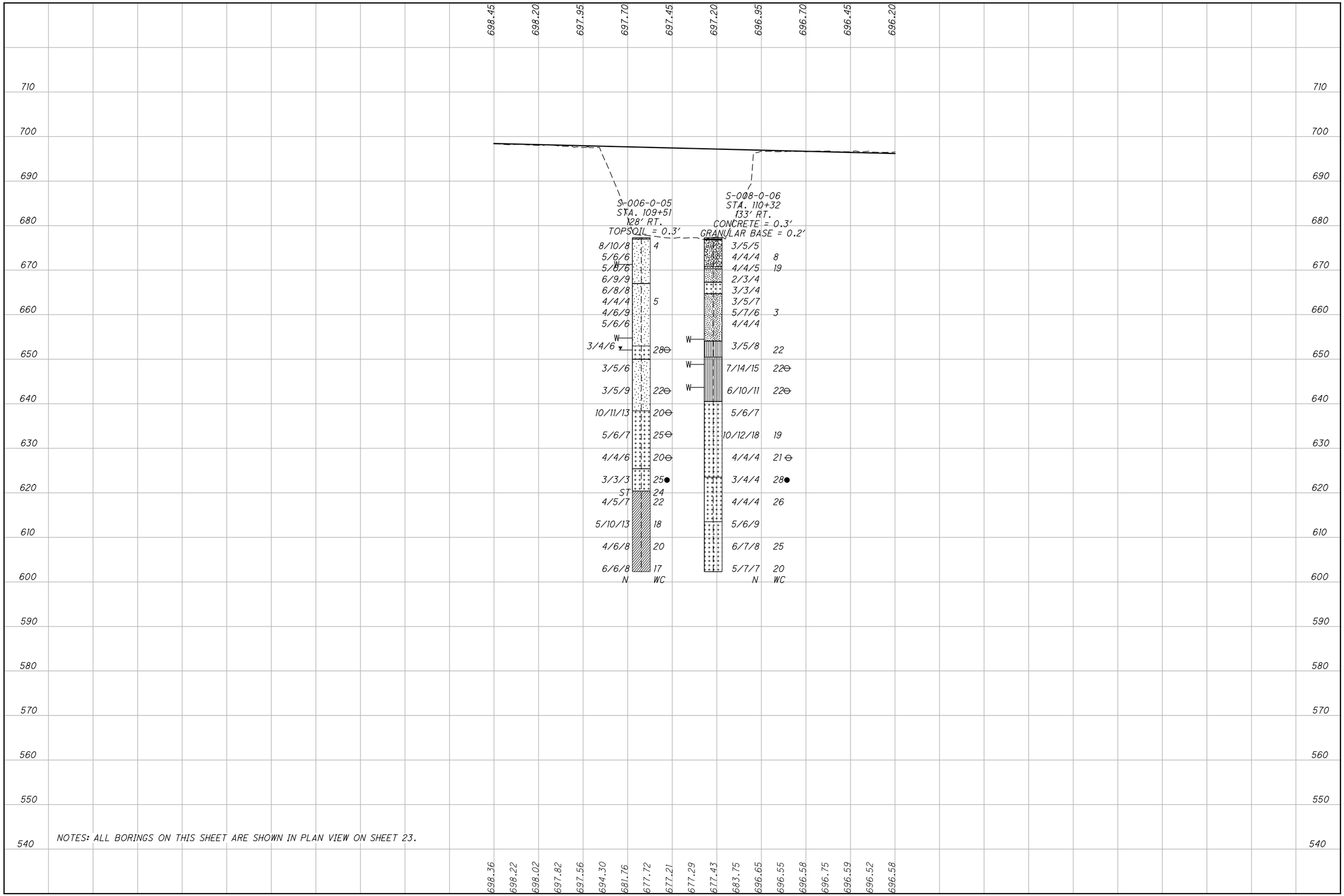
HORIZONTAL SCALE IN FEET: 0, 25, 50, 100

DRAWN CMH | CHECKED JEP

CUY-90-14.90



NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 23.



NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 23.

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0 25 50 100
HORIZONTAL SCALE IN FEET

DRAWN CMH | CHECKED JEP

SOIL PROFILE
STA. 1988+00 TO STA. 1991+50 IR 90 EB

CUY-90-14.90

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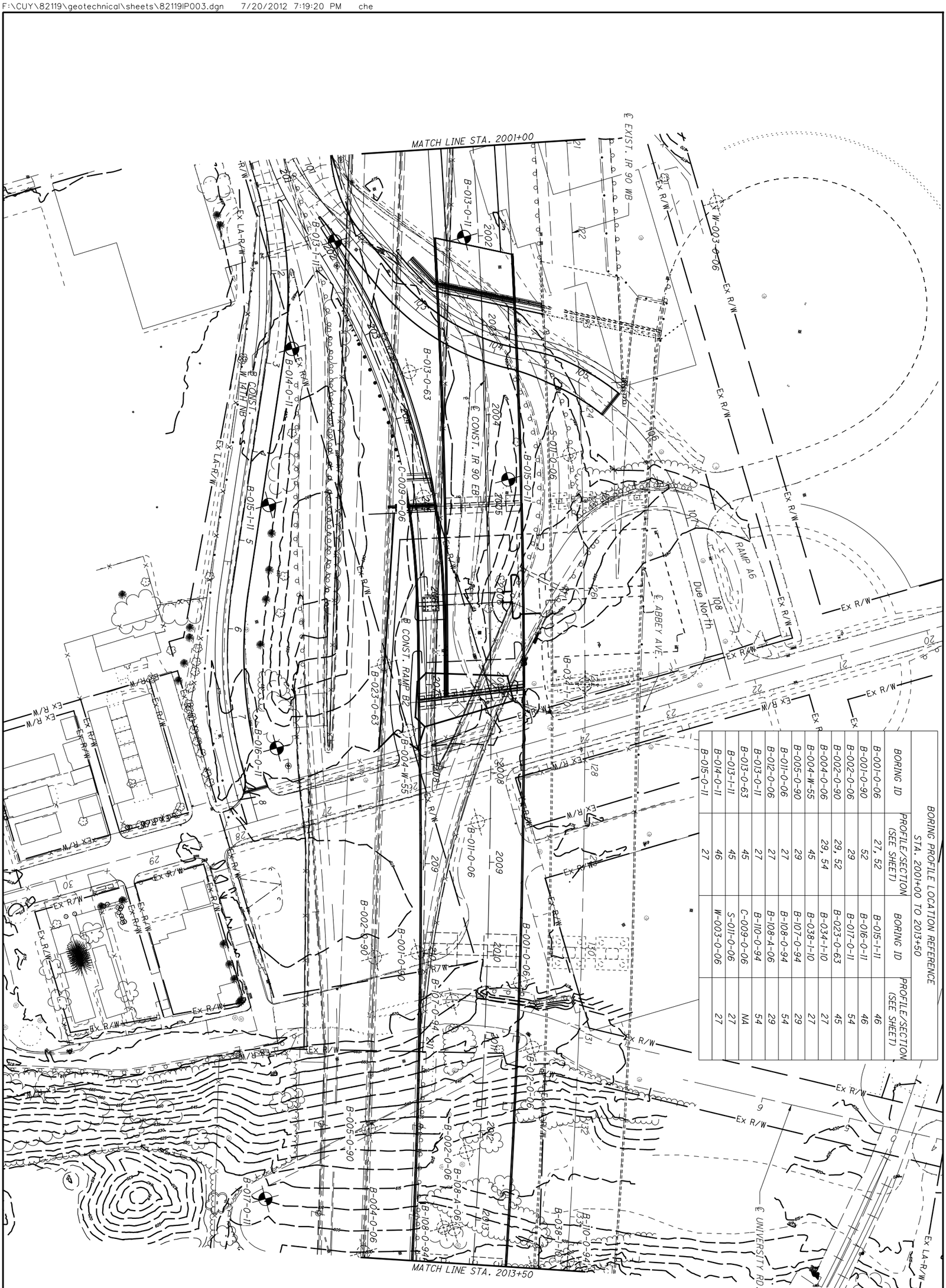

BORING PROFILE LOCATION REFERENCE
STA. 2001+00 TO 2013+50

BORING ID	PROFILE/SECTION (SEE SHEET)	BORING ID	PROFILE/SECTION (SEE SHEET)
B-001-0-06	27, 52	B-015-1-11	46
B-001-0-90	52	B-016-0-11	46
B-002-0-06	29	B-017-0-11	54
B-002-0-90	29, 52	B-023-0-63	45
B-004-0-06	29, 54	B-034-1-10	27
B-004-W-55	45	B-038-1-10	27
B-005-0-90	29	B-107-0-94	29
B-011-0-06	27	B-108-0-94	54
B-012-0-06	27	B-108-A-06	29
B-013-0-11	27	B-110-0-94	54
B-013-0-63	45	C-009-0-06	NA
B-013-1-11	45	S-011-0-06	27
B-014-0-11	46	W-003-0-06	27
B-015-0-11	27		

26/67	CUY-90-14.90	SOIL PLAN STA. 2001+00 TO STA. 2013+50 IR 90 EB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 26.

695.22 695.65 696.08 696.51 696.94 697.37 697.79 698.21 698.62 699.04 699.45 699.86 700.27 700.68 701.10 701.51 701.92 702.33 702.74 703.16 703.57 703.98 704.39 704.80 705.21 705.63

700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

W-003-0-06
TOPSOIL = 3"
1/1/2
2/2/3
2/2/2 8
1/3/5 19
5/6/8 4
2/2/3
1/1/5
6/6/7 4
5/7/7
5/7/9
5/6/7
5/5/6
2/2/5 26
N WC

B-013-0-11
16.0' RT
11 10
8 8
7 10
4 13
1 8
7 6
8 10
7 7
16 5
20 24
18 5
15 13
46 20
51 16
19 24
22 25
14 22
15 23
3 25
ST 24
7 26
0 33
ST 32
14 23
31 22
27 22
31 21
N60 WC

S-011-0-06
ASPHALT = 3"
GRANULAR BASE = 4"
8/10/13
15/20/23 11
9/11/13
3/3/3
2/3/3 7
3/3/3
6/7/9 4
4/3/5
6/8/13
5/3/8 7
5/6/7
6/6/9
6/7/7 19
6/7/9
7/9/13 16
9/16/17
19/31/48 17
3/4/6 21
1/2/3 28
3/5/6 24
6/8/12
7/7/11 23
N WC

B-015-0-11
22.6' LT
9 7
5 8
19 7
22 8
11 21
15 6
12 5
12 7
19 5
18 6
15 12
28 23
47 18
38 22
26 20
57 19
4 30
ST 22
18 20
24 18
0 32
ST 30
0 31
30 22
28 22
28 20
27 19
N60 WC

B-034-1-10
STA. 127+05, ℄
CHAIN: ℄ IR 90 WB
5
5
12
12
17
11
7
4
9
11
15
21
42
38 23
36
15 21
ST
13
28 18
ST
17
12
13 24
ST
7
7 23
23
31
ST 20
32
36
31 20
22
N60 WC

B-011-0-06
STA. 128+63.0, 147.5' RT
CHAIN: ℄ IR 90 WB
ASPHALT = 6"
CONCRETE = 9"
4/6/7
6/5/4
3/4/4 5
3/5/4
7/11/14
6/8/9 8
9/9/9
6/7/8 24
9/9/9
9/15/18 22
3/5/8 18
10/16/20
24/29/40 15
14/18/12
3/5/6
4/6/9 26
5/10/11
5/6/7
5/8/9
3/6/8
6/7/8 26
6/8/9
4/6/9
2/3/3
ST
ST
5/7/8
8/10/15 21
5/6/11
6/12/14
7/11/14
8/13/18 20
8/13/18
6/11/15
7/11/15
6/10/15
5/10/17 21
N WC

B-001-0-06
STA. 130+41.9, 91.6' RT
CHAIN: ℄ IR 90 WB
ASPHALT = 4"
CONCRETE = 9"
3/5/4
3/2/2
2/2/2
2/3/3 9
2/3/5
4/6/7 20
4/4/6
5/8/9 7
3/5/4
11/13/15
3/5/9
6/4/6
ST
2/4/5
3/6/5
2/3/4
2/2/4 24
3/6/7
6/9/13
4/7/13
7/10/14
6/12/18
8/11/14
4/8/11 21
9/10/14
ST
ST
3/4/6 28
4/6/8
6/9/13
6/8/9
5/8/12 23
8/11/12
11/13/17
5/8/10 23
8/13/21
N WC

B-012-0-06
STA. 131+14.7, 74.2' RT
CHAIN: ℄ IR 90 WB
CONCRETE = 11"
GRANULAR BASE = 2"
5/6/5
3/2/3
2/2/3 13
2/3/3
2/5/2
6/8/8
8/9/11
22 40/13/13 17
10/12/11
2/4/5
ST
3/6/5
2/3/4
2/2/4 24 4/5/7
3/6/7 6/7/10 23
6/9/13 5/7/9
4/7/13 5/9/11
7/10/14 6/8/10 23
6/12/18 12
5/6/11
6/6/10 21
4/5/7 23
3/4/7
4/6/7
3/6/7 12
3/5/7 26
3/4/3
4/5/7
ST
4/5/8 22
5/7/7
5/8/13
5/10/12
5/7/10
5/8/11 23
6/10/13
6/10/14
7/12/14
8/14/18 20
7/10/14
N WC

B-038-1-10
STA. 133+50, ℄
CHAIN: ℄ IR 90 WB
ASPHALT = 10"
12
5
12
2
2
6
6 12
6
9 22
5
ST 27
11
12 24
15
17 24
ST
N60 WC

678.13 677.86 677.77 677.80 677.54 677.28 678.38 678.10 678.10 677.51 677.18 676.71 676.56 676.33 676.07 675.68 675.06 674.73 674.37 674.60 678.01 677.76 676.14 675.33 674.54 675.02 675.19 675.31 674.93 674.60 674.48 674.44 674.46 674.58 674.62 674.57 674.50 674.66 674.71 658.28 655.02 647.64 643.75 630.36 620.53 617.89 616.51 614.30 603.04 600.50 598.60

2001+00 2002+00 2003+00 2004+00 2005+00 2006+00 2007+00 2008+00 2009+00 2010+00 2011+00 2012+00 2013+00

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 2001+00 TO STA. 2013+50 IR 90 EB

CUY-90-14.90

27 / 67

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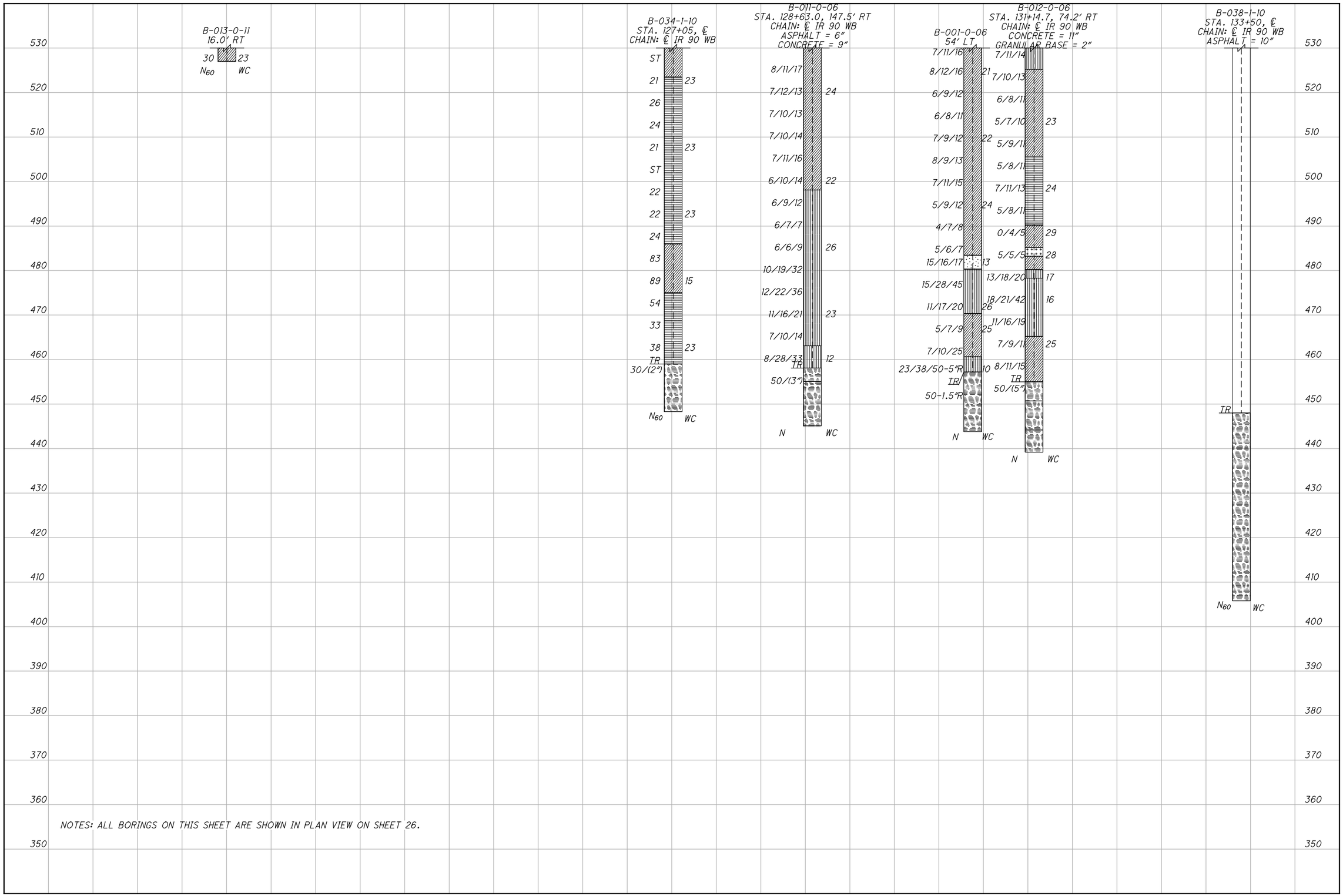

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 26.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 2001+00 TO STA. 2013+50 IR 90 EB

CUY-90-14.90

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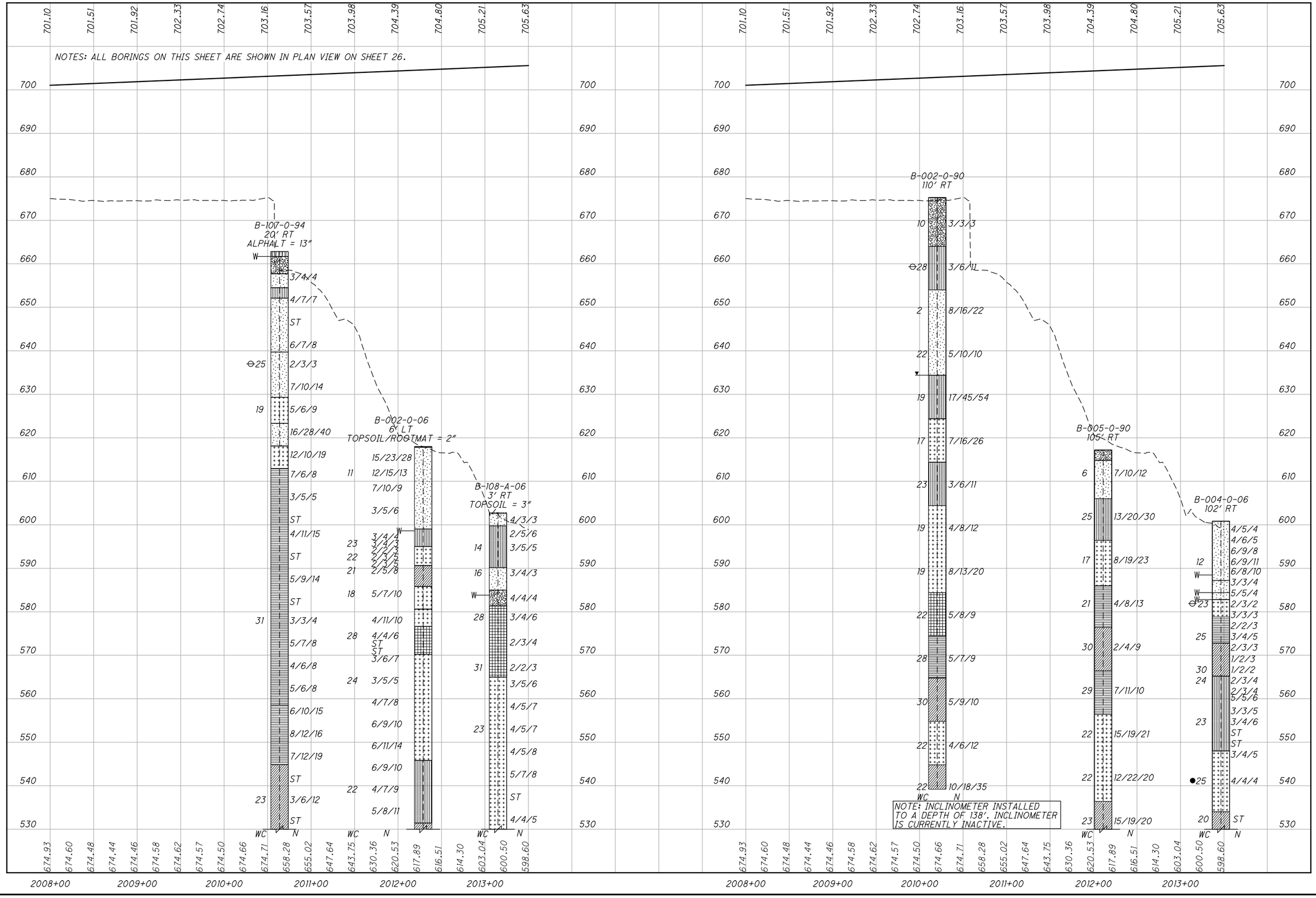
NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 26.



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE

STA. 2008+00 TO STA. 2013+50 IR 90 EB

CUY-90-14.90

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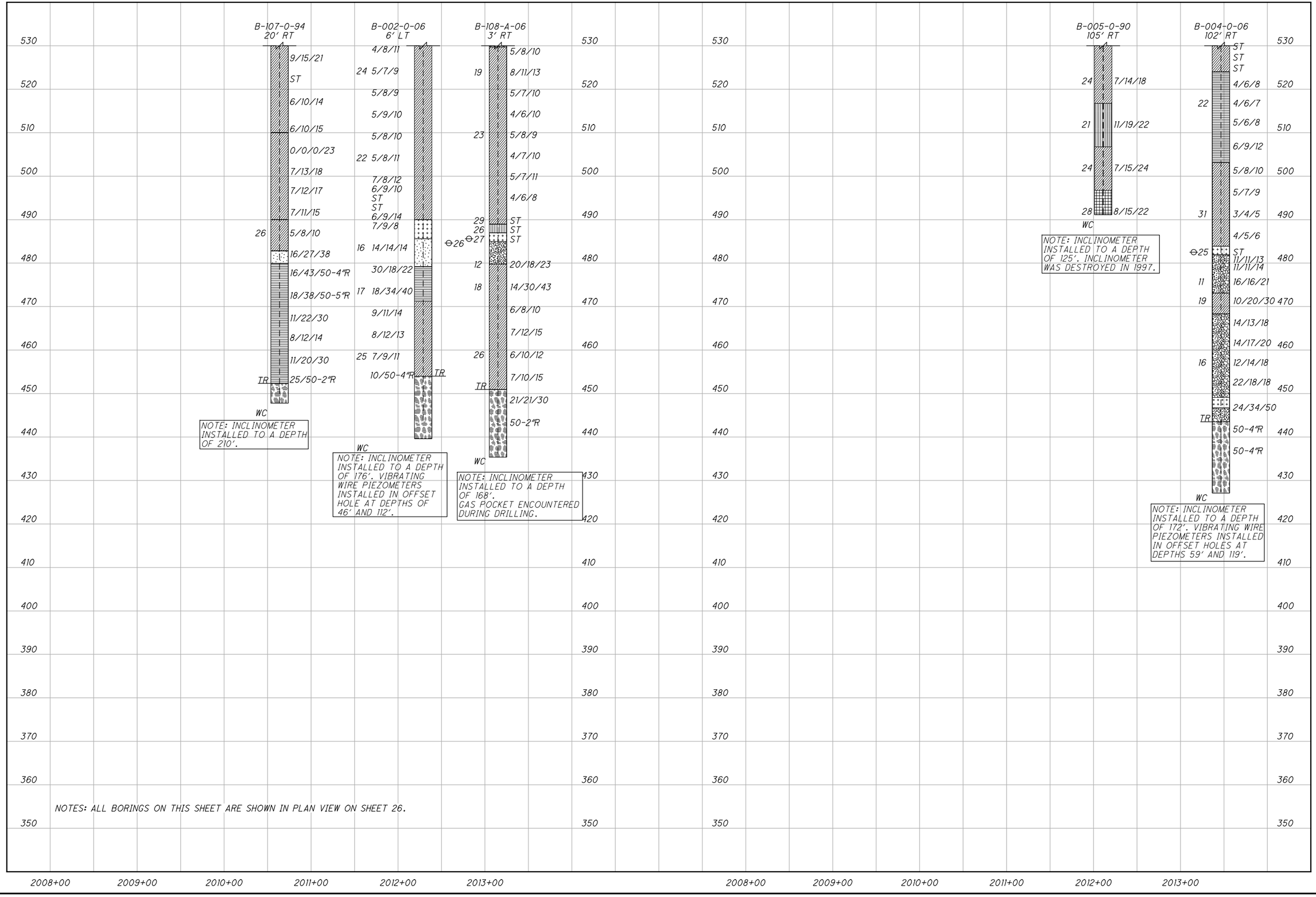

0 25 50 100
HORIZONTAL SCALE IN FEET

DRAWN CMH | CHECKED JEP

SOIL PROFILE
STA. 2008+00 TO STA. 2013+50 IR 90 EB

CUY-90-14.90

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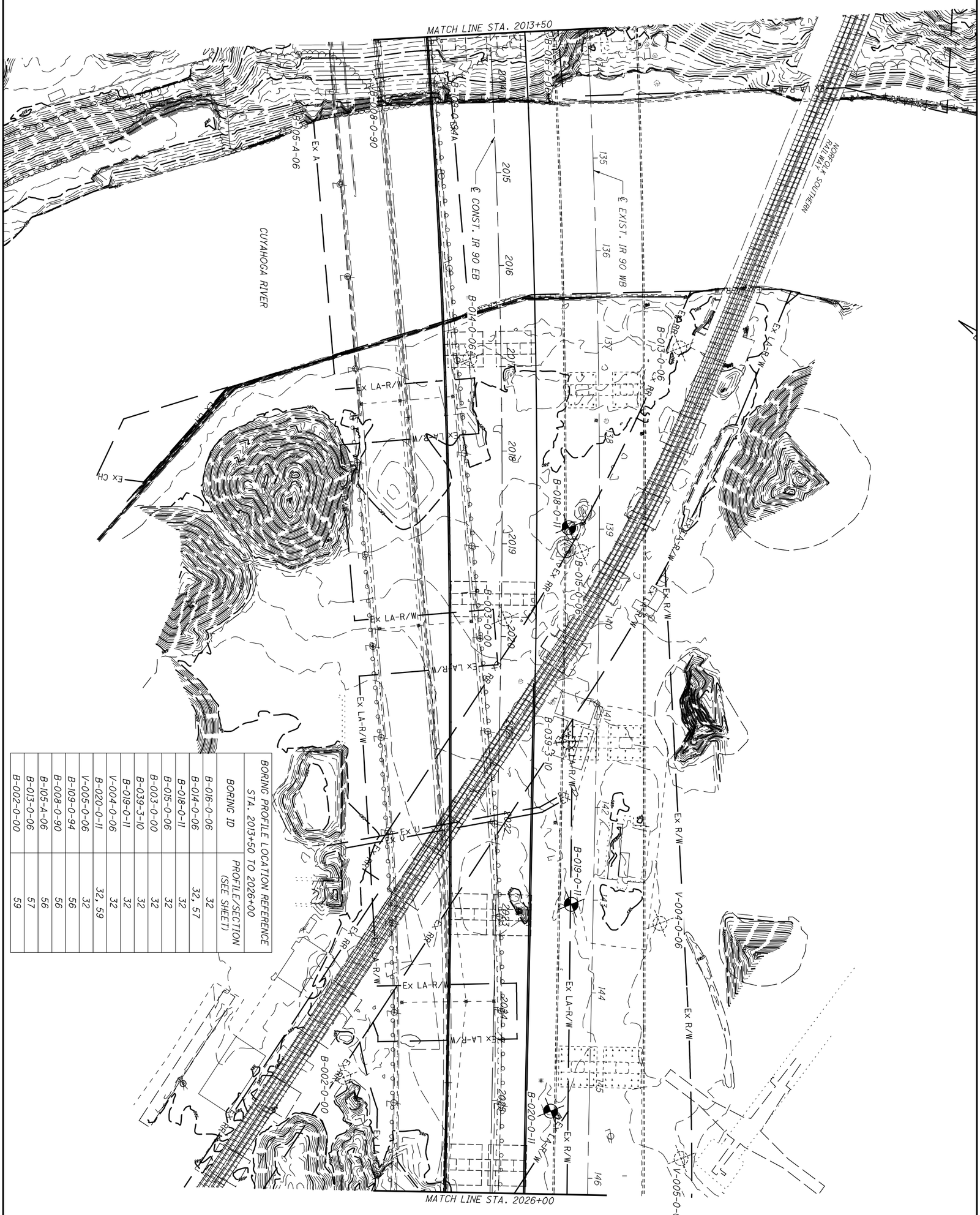
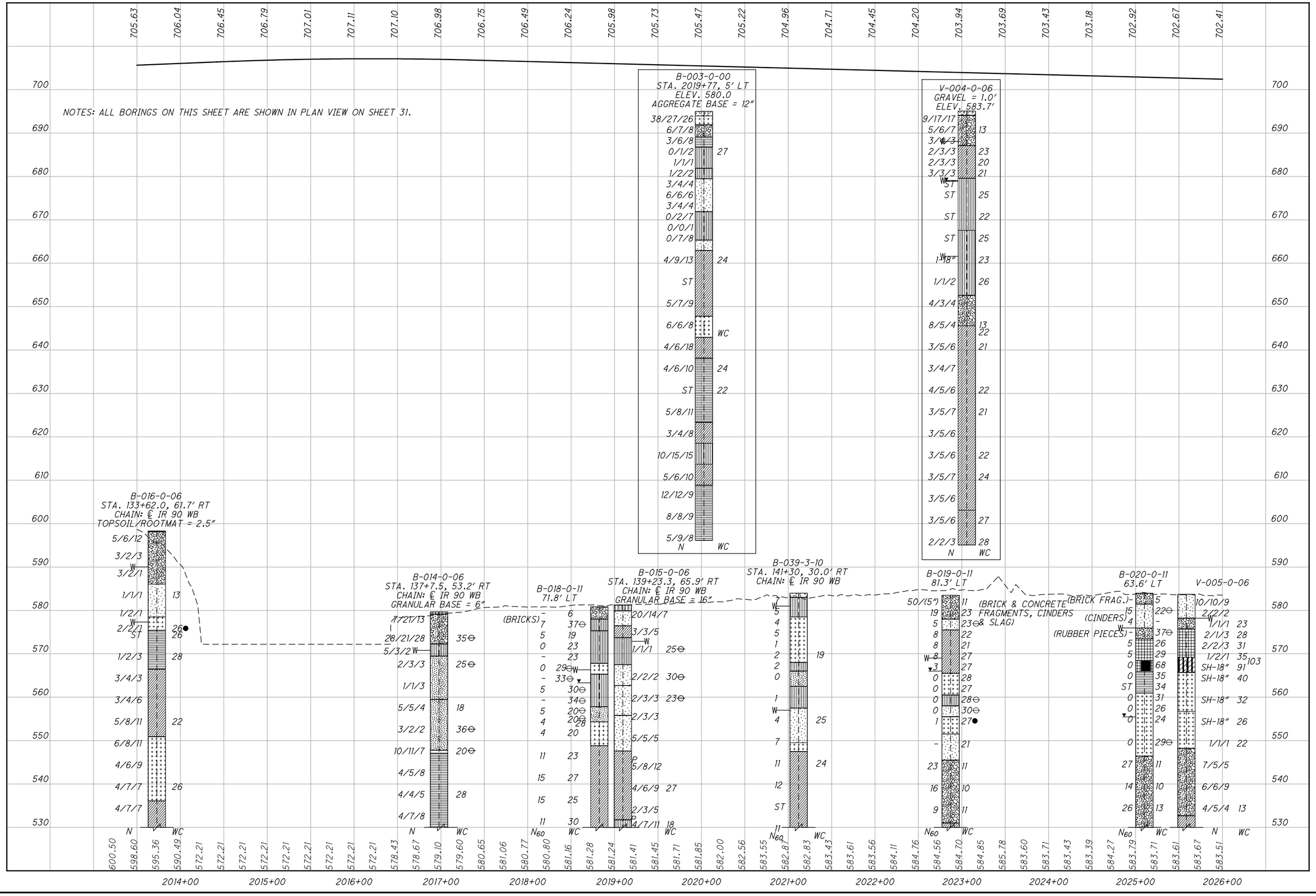


BORING PROFILE LOCATION REFERENCE STA. 2013+50 TO 2026+00	
BORING ID	PROFILE/SECTION (SEE SHEET)
B-016-0-06	32
B-014-0-06	32, 57
B-018-0-11	32
B-015-0-06	32
B-003-0-00	32
B-039-3-10	32
B-019-0-11	32
V-004-0-06	32
B-020-0-11	32, 59
V-005-0-06	32
B-109-0-94	56
B-008-0-90	56
B-105-A-06	56
B-013-0-06	57
B-002-0-00	59

	31/67	CUY-90-14.90	SOIL PLAN STA. 2013+50 TO STA. 2026+00 IR 90 EB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET	N

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 31.

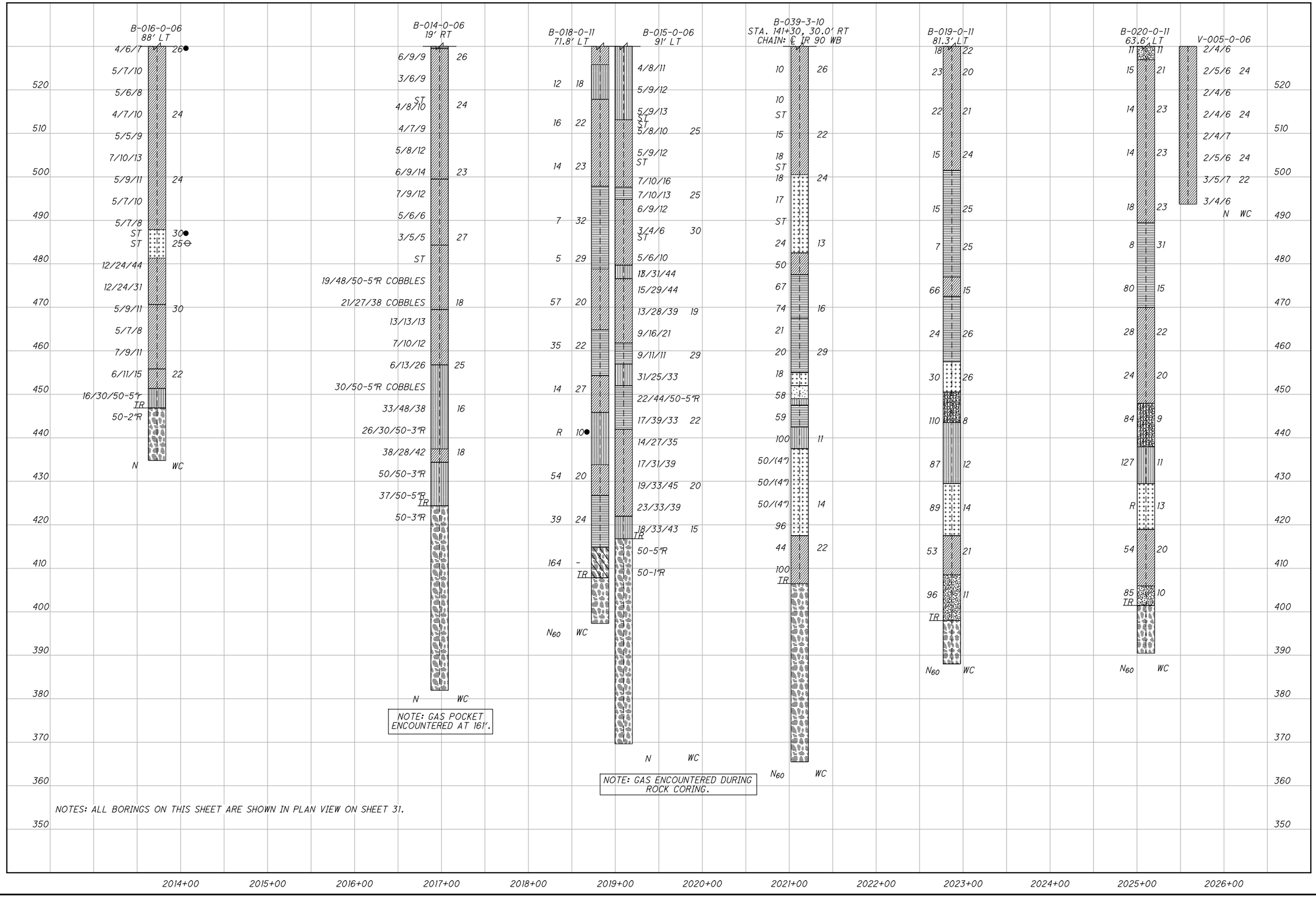


HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH CHECKED JEP

SOIL PROFILE
STA. 2013+50 TO STA. 2026+00 IR 90 EB

CUY-90-14.90



NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 31.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 2013+50 TO STA. 2026+00 IR 90 EB
CUY-90-14.90

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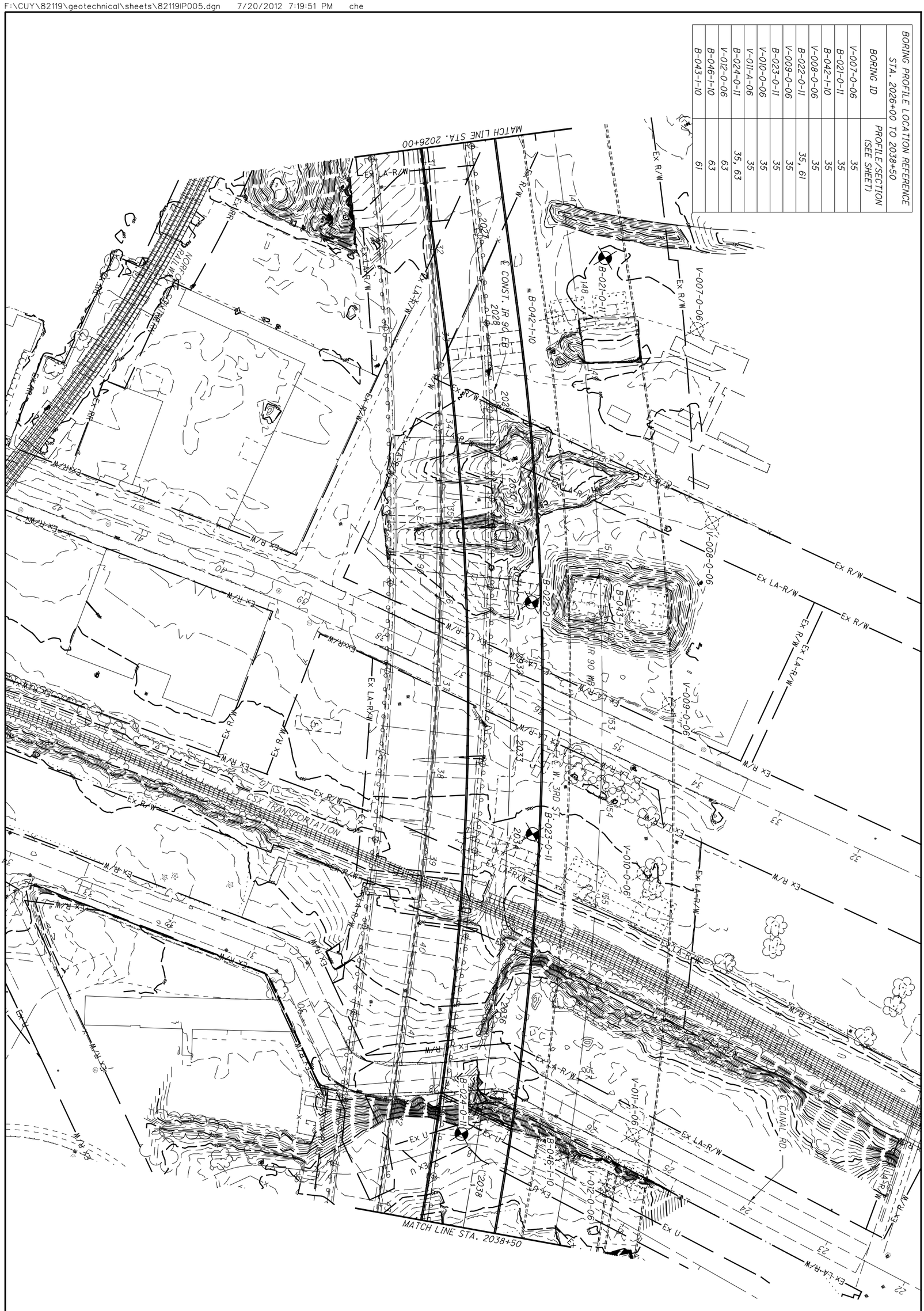
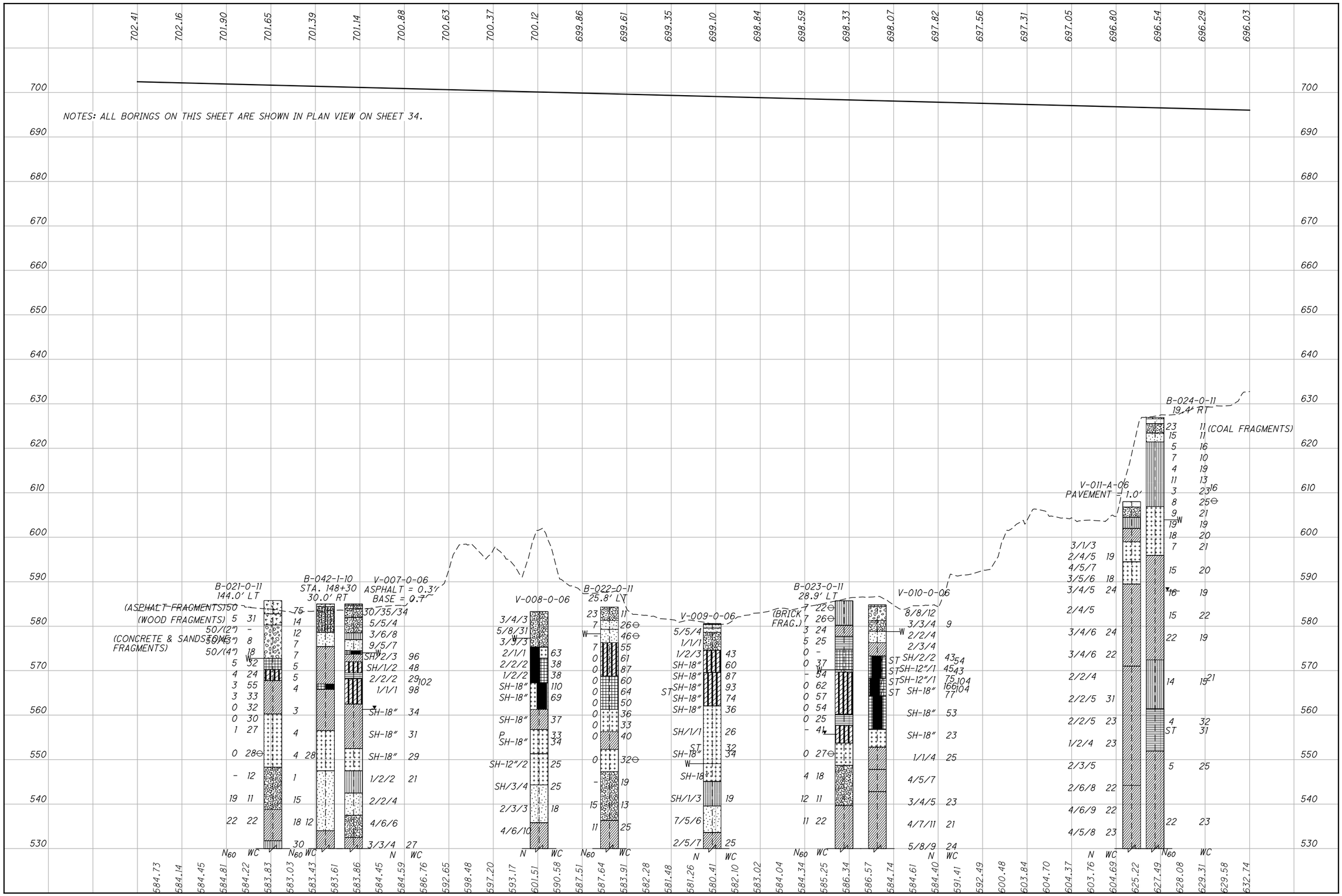
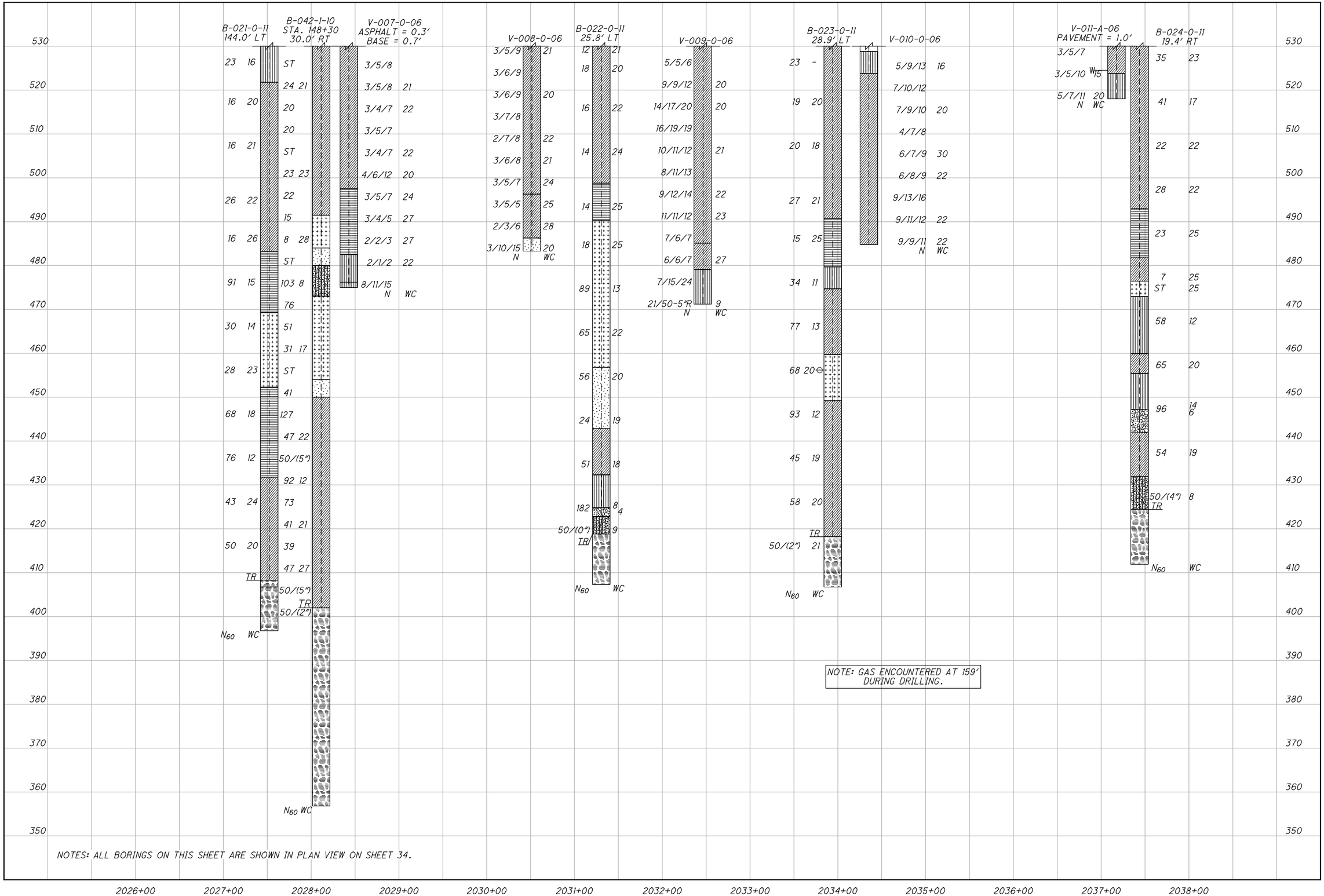
BORING PROFILE LOCATION REFERENCE STA. 2026+00 TO 2038+50	
BORING ID	PROFILE/SECTION (SEE SHEET)
V-007-0-06	35
B-021-0-11	35
B-042-1-10	35
V-008-0-06	35
B-022-0-11	35, 61
V-009-0-06	35
B-023-0-11	35
V-010-0-06	35
V-011-A-06	35
B-024-0-11	35, 63
V-012-0-06	63
B-046-1-10	63
B-043-1-10	61



34/67	CUY-90-14.90	SOIL PLAN STA. 2026+00 TO 2038+50 IR 90 EB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET	N

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 34.





0 25 50 100 HORIZONTAL SCALE IN FEET

DRAWN CMH CHECKED JEP

SOIL PROFILE

STA. 2026+00 TO STA. 2038+50 IR 90 EB

CUY-90-14.90

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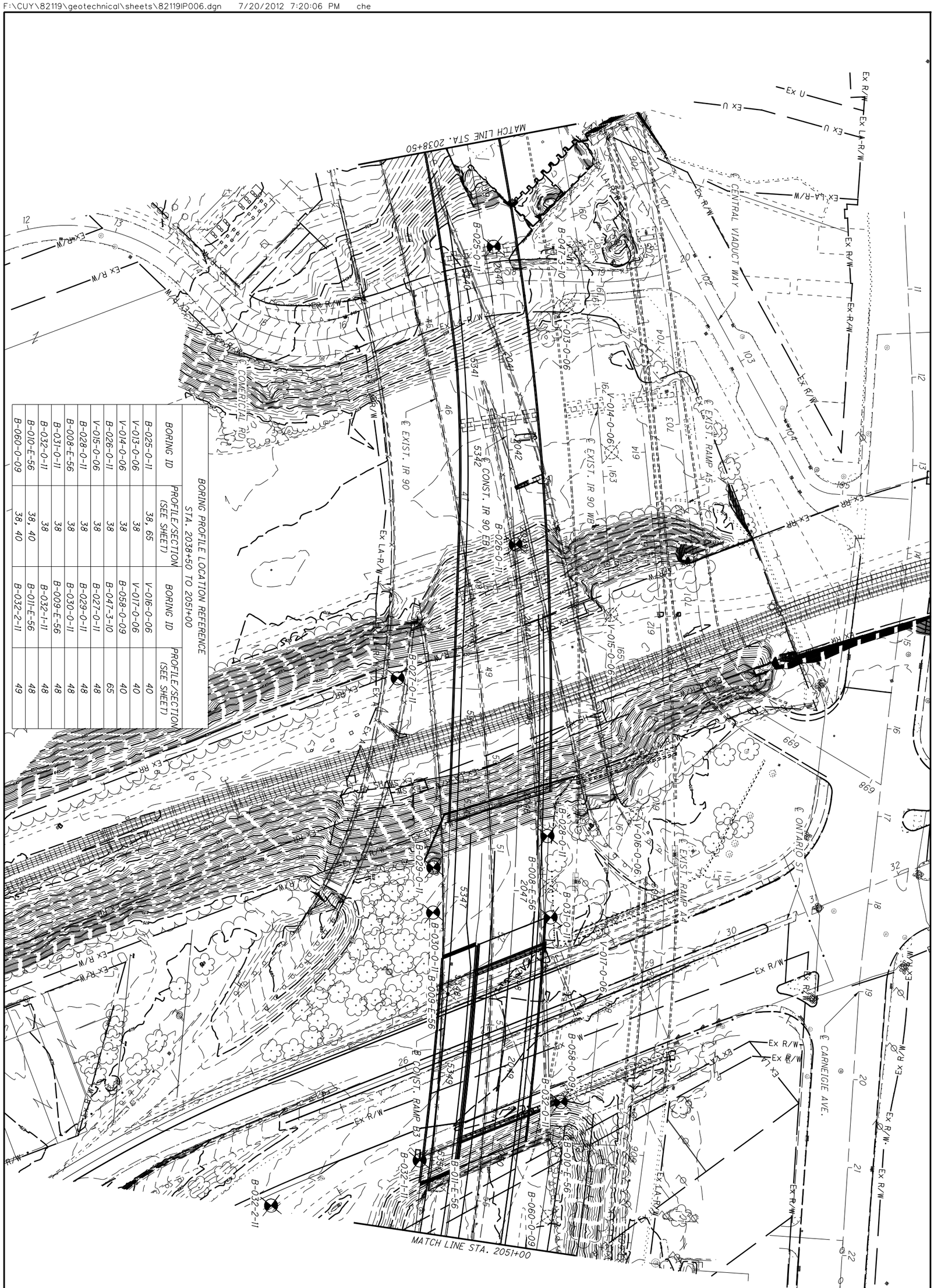
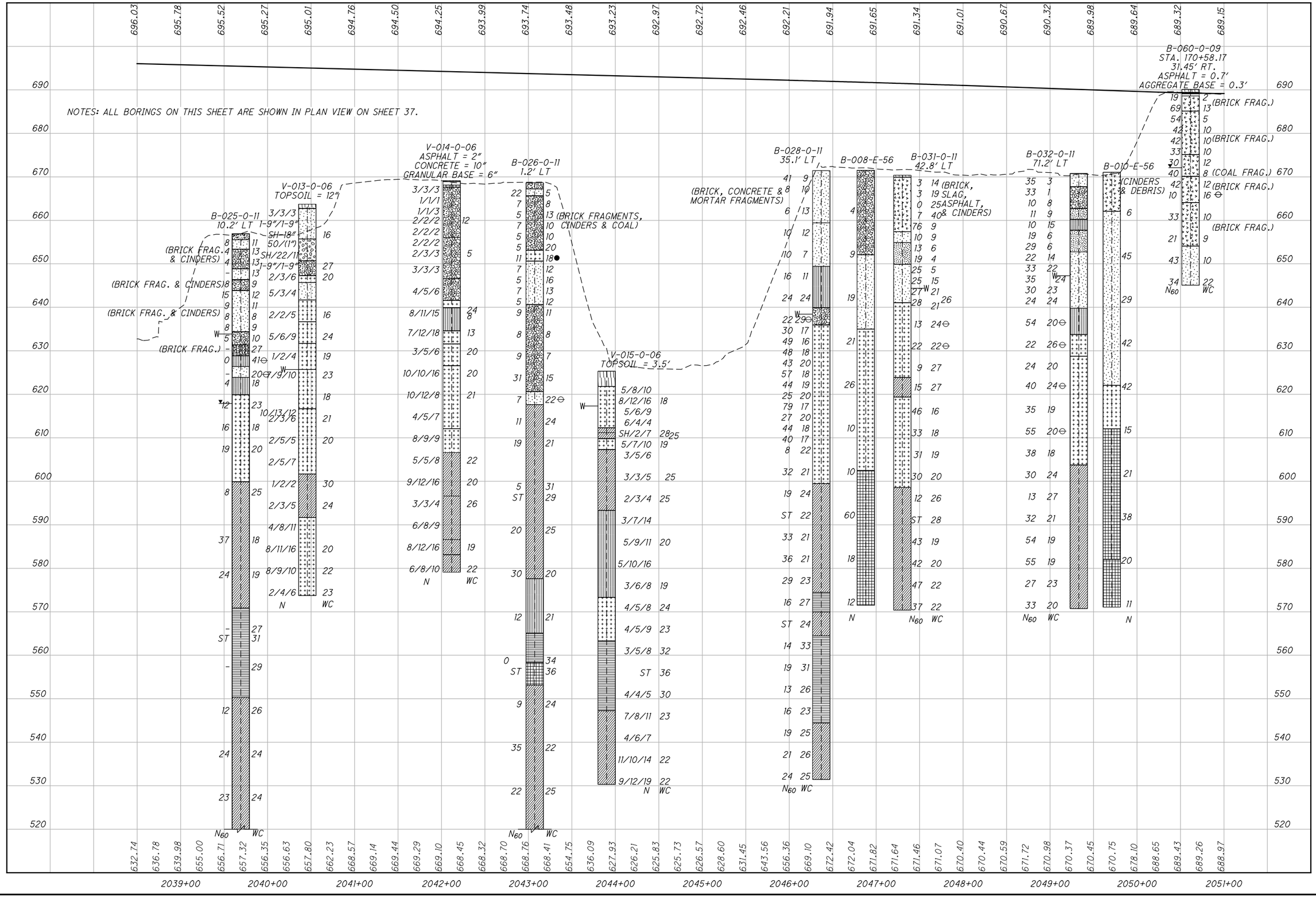


BORING PROFILE LOCATION REFERENCE
STA. 2038+50 TO 2051+00

BORING ID	PROFILE/SECTION (SEE SHEET)	BORING ID	PROFILE/SECTION (SEE SHEET)
B-025-0-11	38, 65	V-016-0-06	40
V-013-0-06	38	V-017-0-06	40
V-014-0-06	38	B-058-0-09	40
B-026-0-11	38	B-047-3-10	65
V-015-0-06	38	B-027-0-11	48
B-028-0-11	38	B-029-0-11	48
B-008-E-56	38	B-030-0-11	48
B-031-0-11	38	B-009-E-56	48
B-032-0-11	38	B-032-1-11	48
B-010-E-56	38, 40	B-011-E-56	48
B-060-0-09	38, 40	B-032-2-11	49

	37/67	CUY-90-14.90	SOIL PLAN STA. 2038+50 TO STA. 2051+00 IR 90 EB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 37.



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 2038+50 TO STA. 2051+00 IR 90 EB

CUY-90-14.90

38 / 67

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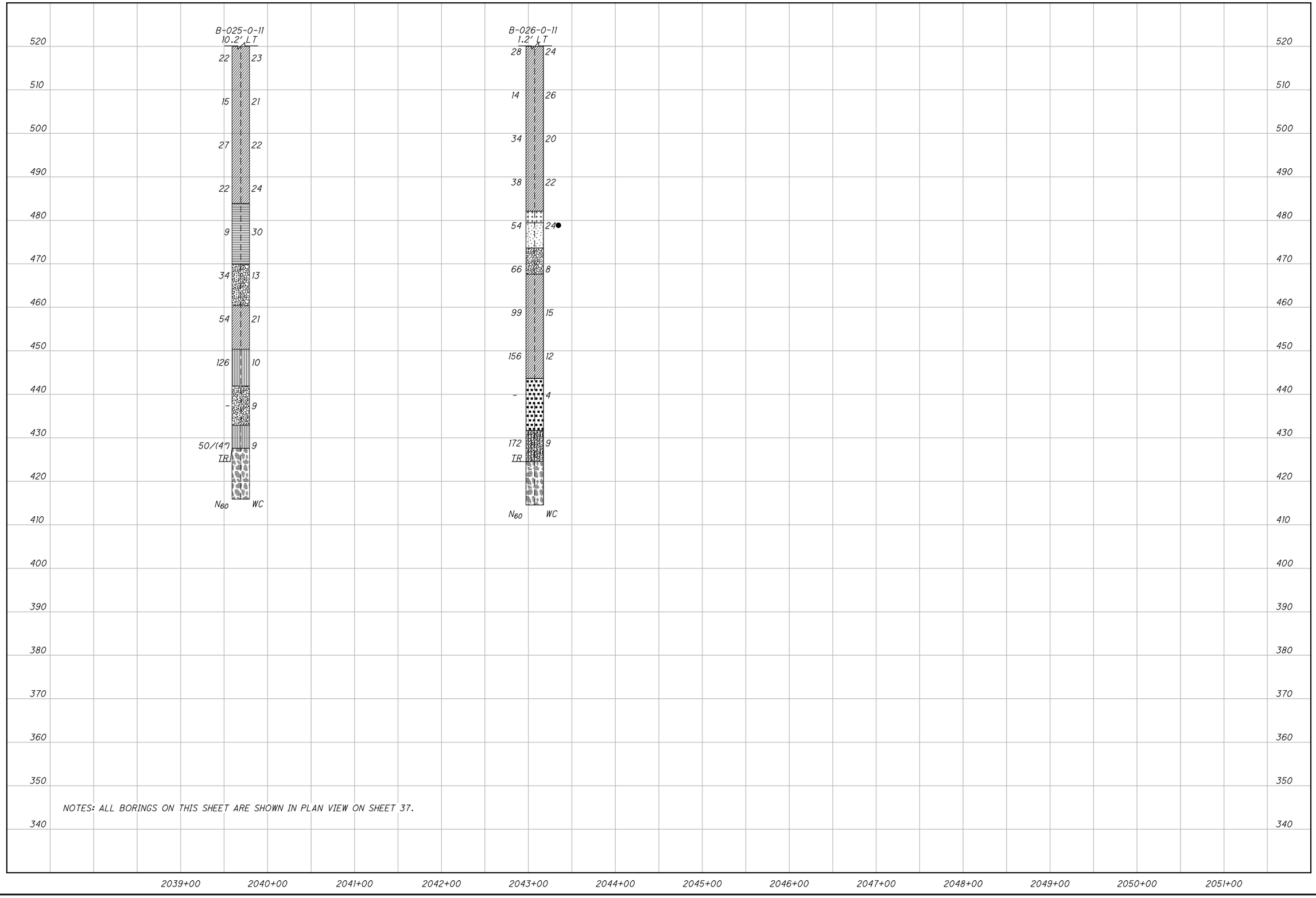

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 37.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 2038+50 TO STA. 2051+00 IR 90 EB

CUY-90-14.90

39 67

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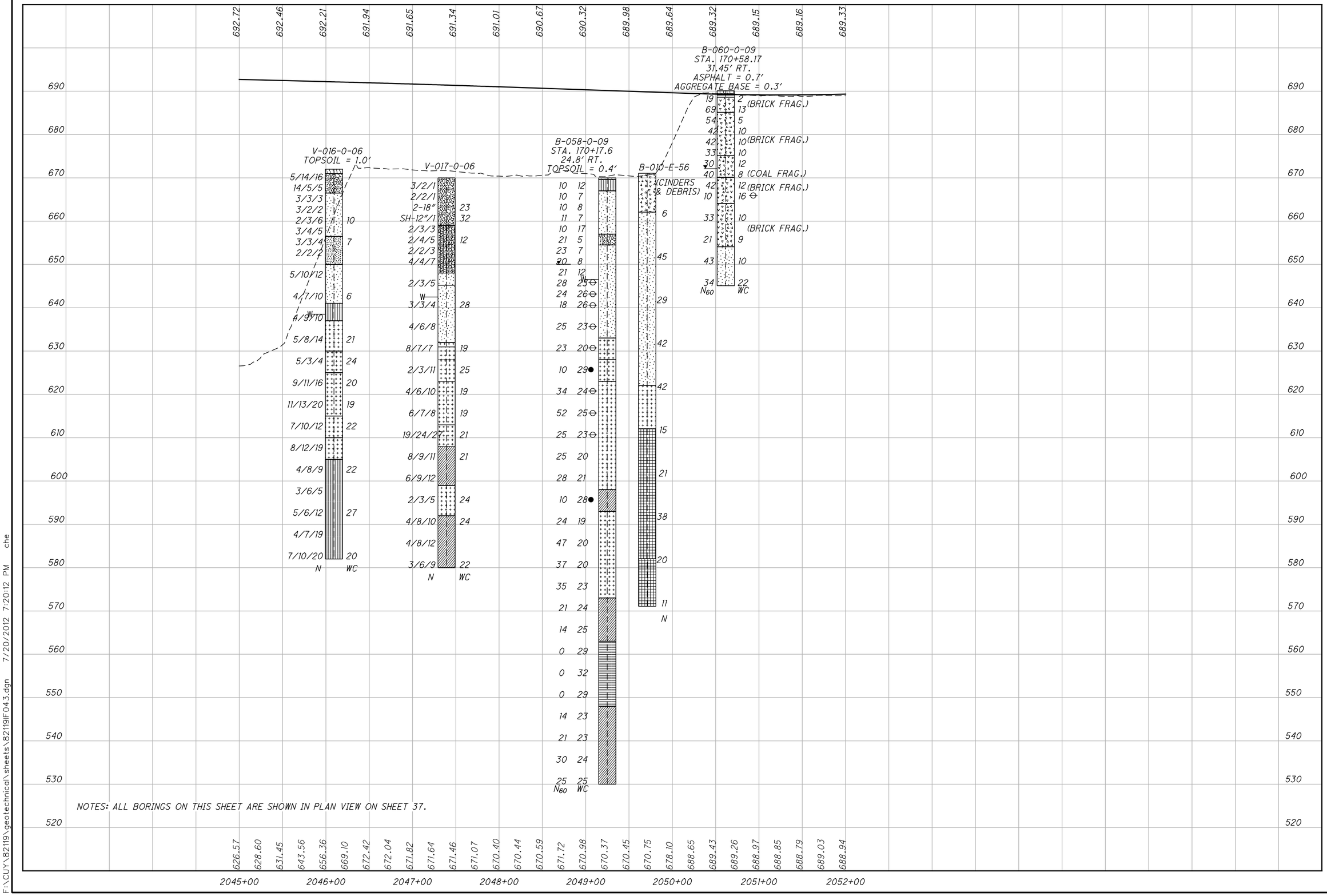

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 37.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 2045+00 TO STA. 2052+00 IR 90 EB

CUY-90-14.90

40 / 67

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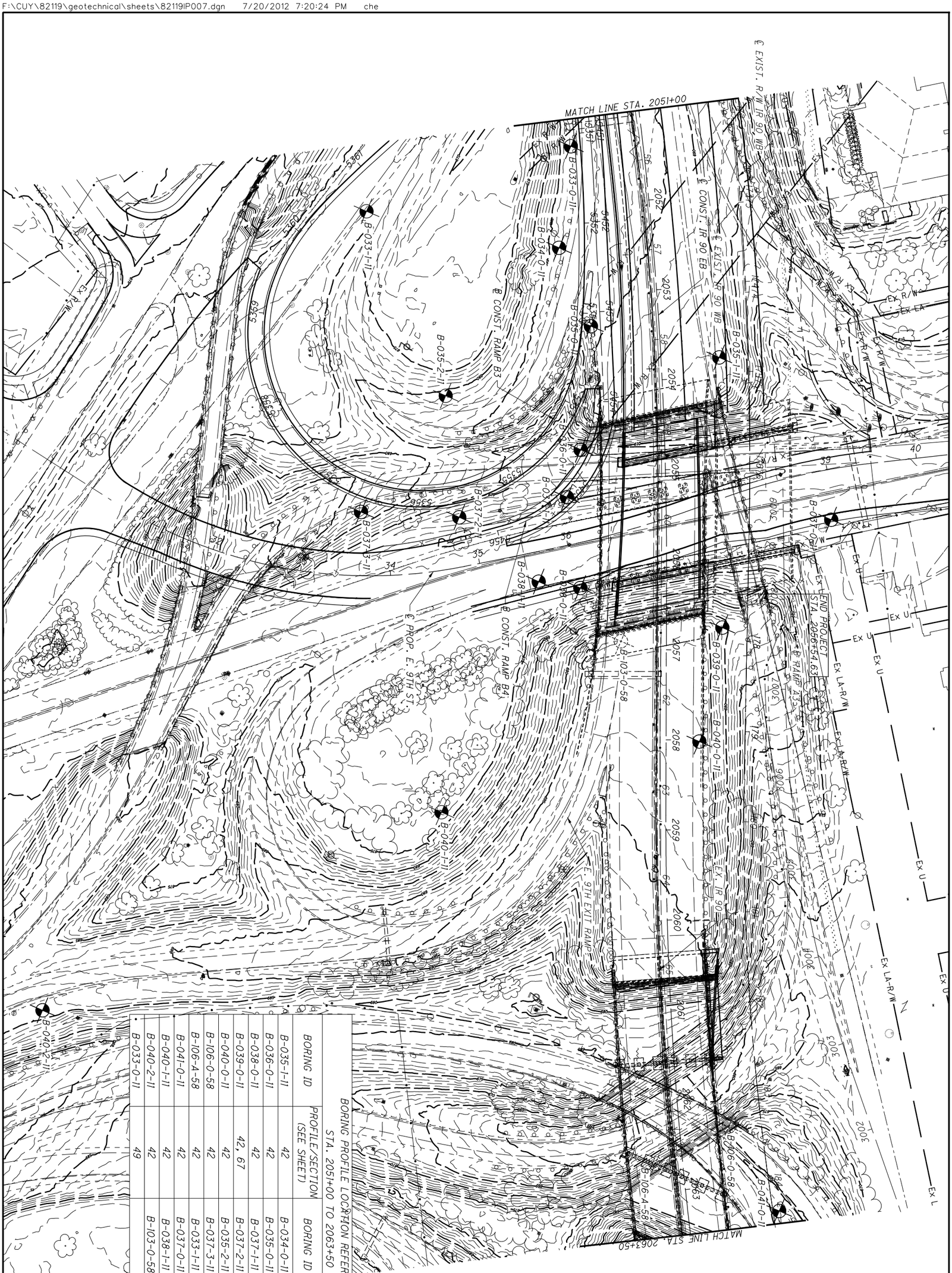


BORING PROFILE LOCATION REFERENCE
STA. 2051+00 TO 2063+50

BORING ID	PROFILE/SECTION (SEE SHEET)	BORING ID	PROFILE/SECTION (SEE SHEET)
B-035-1-11	42	B-034-0-11	49
B-036-0-11	42	B-035-0-11	49
B-038-0-11	42	B-037-1-11	49
B-039-0-11	42, 67	B-037-2-11	49
B-040-0-11	42	B-035-2-11	49
B-106-0-58	42	B-037-3-11	49
B-106-A-58	42	B-033-1-11	49
B-041-0-11	42	B-037-0-11	50
B-040-1-11	42	B-038-1-11	50
B-040-2-11	42	B-103-0-58	67
B-033-0-11	49		

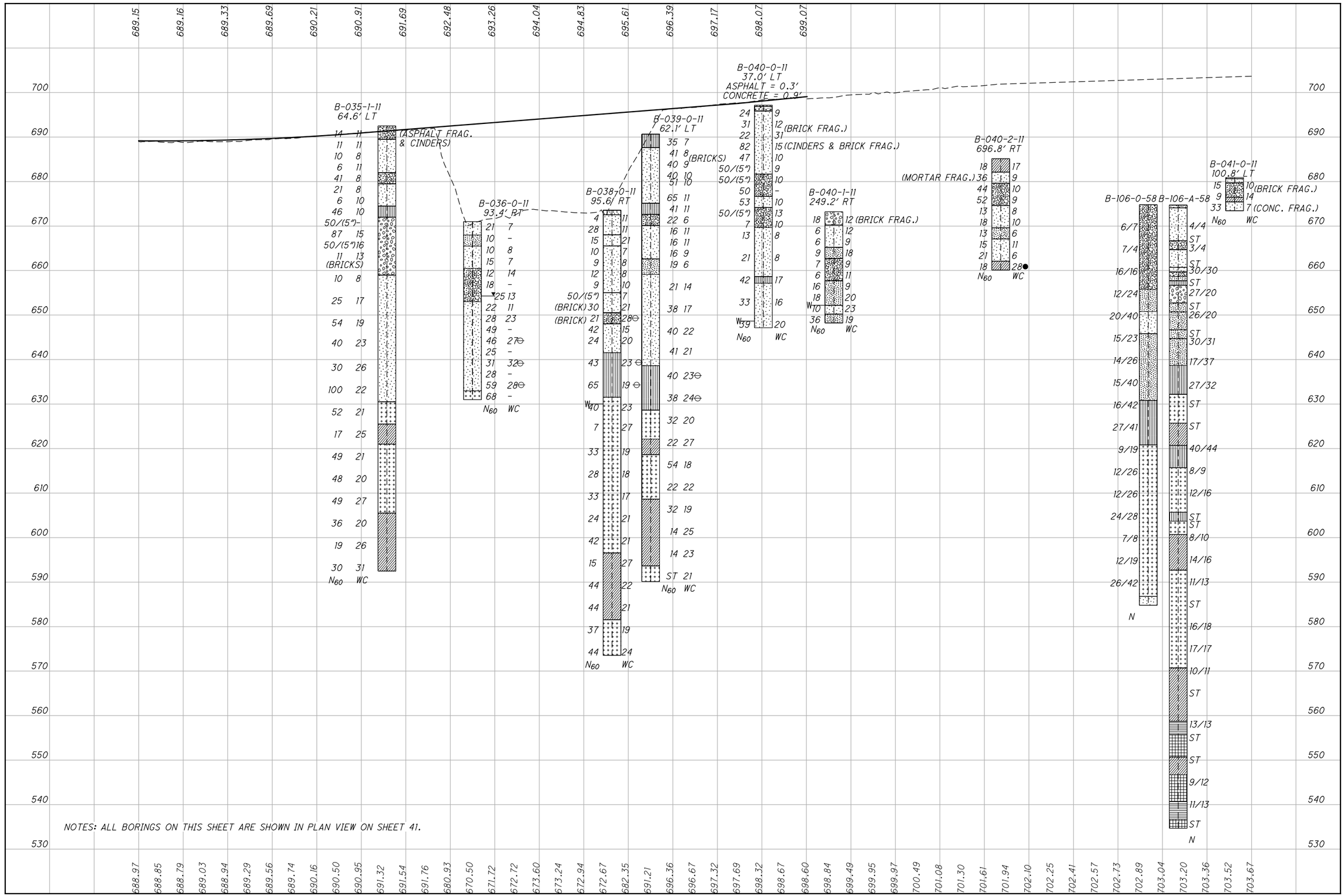
41/67

CUY-90-14.90

SOIL PLAN
STA. 2051+00 TO STA. 2063+50 IR 90 EB

DRAWN CMH
CHECKED JEP

0 50
25 100
HORIZONTAL SCALE IN FEET



NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 41.

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HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 2051+00 TO STA. 2063+50 IR 90 EB

CUY-90-14.90

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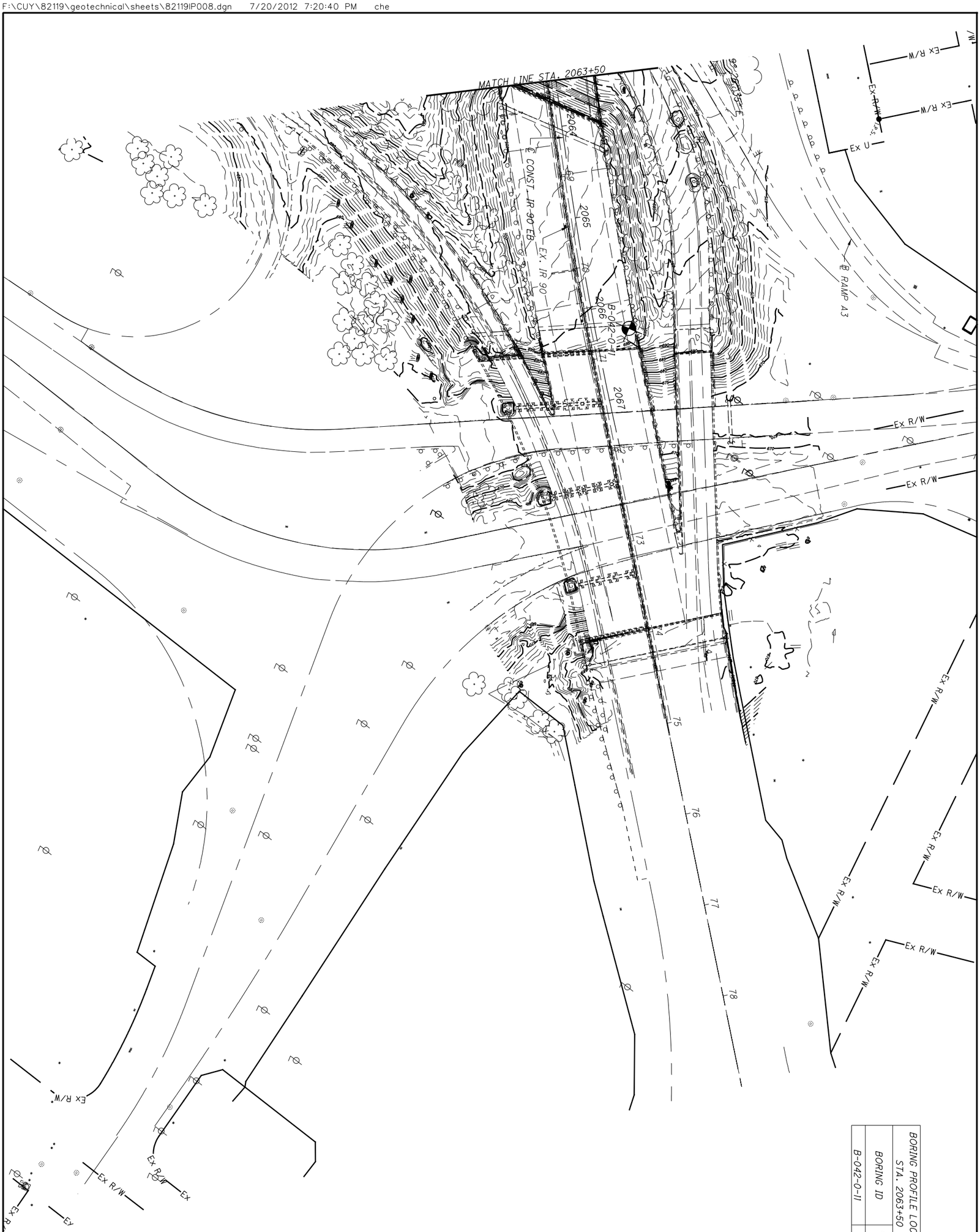

BORING PROFILE LOCATION REFERENCE
STA. 2063+50 TO 2067+00

BORING ID	PROFILE/SECTION (SEE SHEET)
B-042-0-11	44

	43/67	CUY-90-14.90	SOIL PLAN STA. 2063+50 TO STA. 2067+00 IR 90 EB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET

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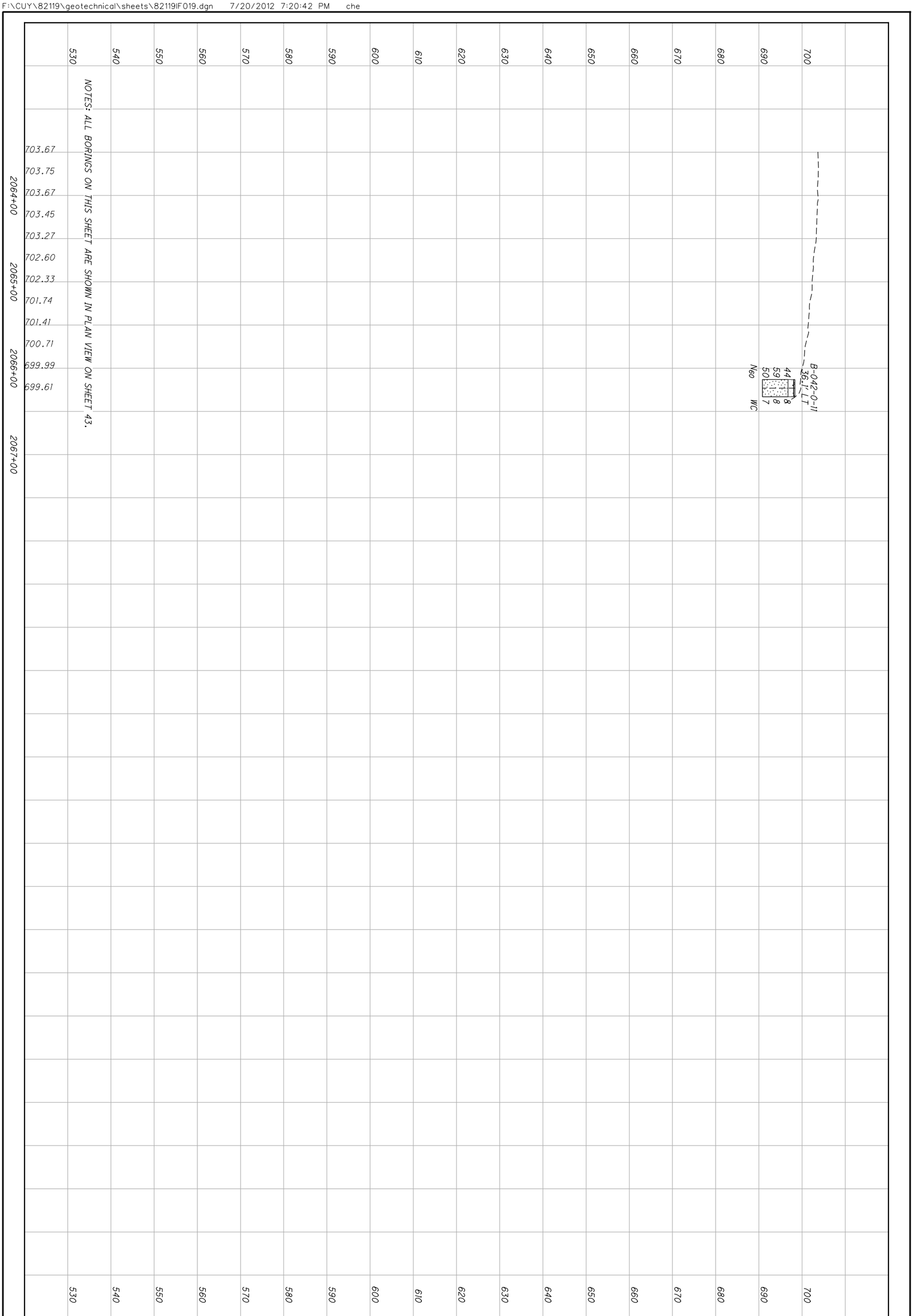

44/67	CUY-90-14.90	SOIL PROFILE STA. 2063+50 TO STA. 2067+00 IR 90 EB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET

676.22 675.86 676.24 677.30 679.02 681.36 683.82 686.28 688.73 691.19 693.55 695.52 697.08 698.23 698.96

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 26.

690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520

B-013-1-11
STA. 2001+97.4
160.2' RT
TOPSOIL = 0.3'

19	8
7	8
4	9
3	26
12	11
18	15
30	8
30	14
26	9
26	15
37	17
23	22⊖
W 27	22⊖
18	22⊖
18	22⊖
20	19
8	28
ST	24
15	22
4	25
0	32
ST	33
23	31
22	22
39	20
27	22
23	22
26	23
N_{60}	WC

B-013-0-63
STA. 8+47
55' LT

5/8	10
5/7	12
3/4	22
7/13	11
8/10	11
6/7	19
10/1	13
11/15	14
9/12	24
27/41	18
32/42	17
30/47	18
24/25	18
32/40	20
10/13	21
7/8	27
6/7	22
22/19	22
22/23	18
PS	23
17/23	22
PS	24
12/13	26
–	25
7/8	31
9/10	31
PS	27
10/12	25
PS	23
11/14	22
PS	28
12/17	23
10/11	23
PS	19
9/14	23
PS	22
8/15	23
PS	21
15/20	21
11/17	21
8/18	22
11/18	24
	WC

B-023-0-63

7/6	8
7/7	7
9/10	10
19/31	6
13/19	9
13/17	12
9/13	17
13/16	9
15/18	9
14/18	17
17/38	15
50 REFUSAL	17
30/33	9
18/50	17
46 REFUSAL	14
12/14	28
8/9	26
15/21	23
17/19	22
N	WC

B-004-W-55

11	
15	
31	
54	
19	
6	
17	
29	
16	
11	
N	

676.22 676.03 676.29 677.57 678.78 678.45 675.71 675.12 675.23 675.22 674.83 674.55 674.59 674.34 674.56

200+00 201+00 202+00 203+00 204+00 205+00 206+00 207+00

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 200+00 TO STA. 207+00 RAMP B2

CUY-90-14.90

45 / 67

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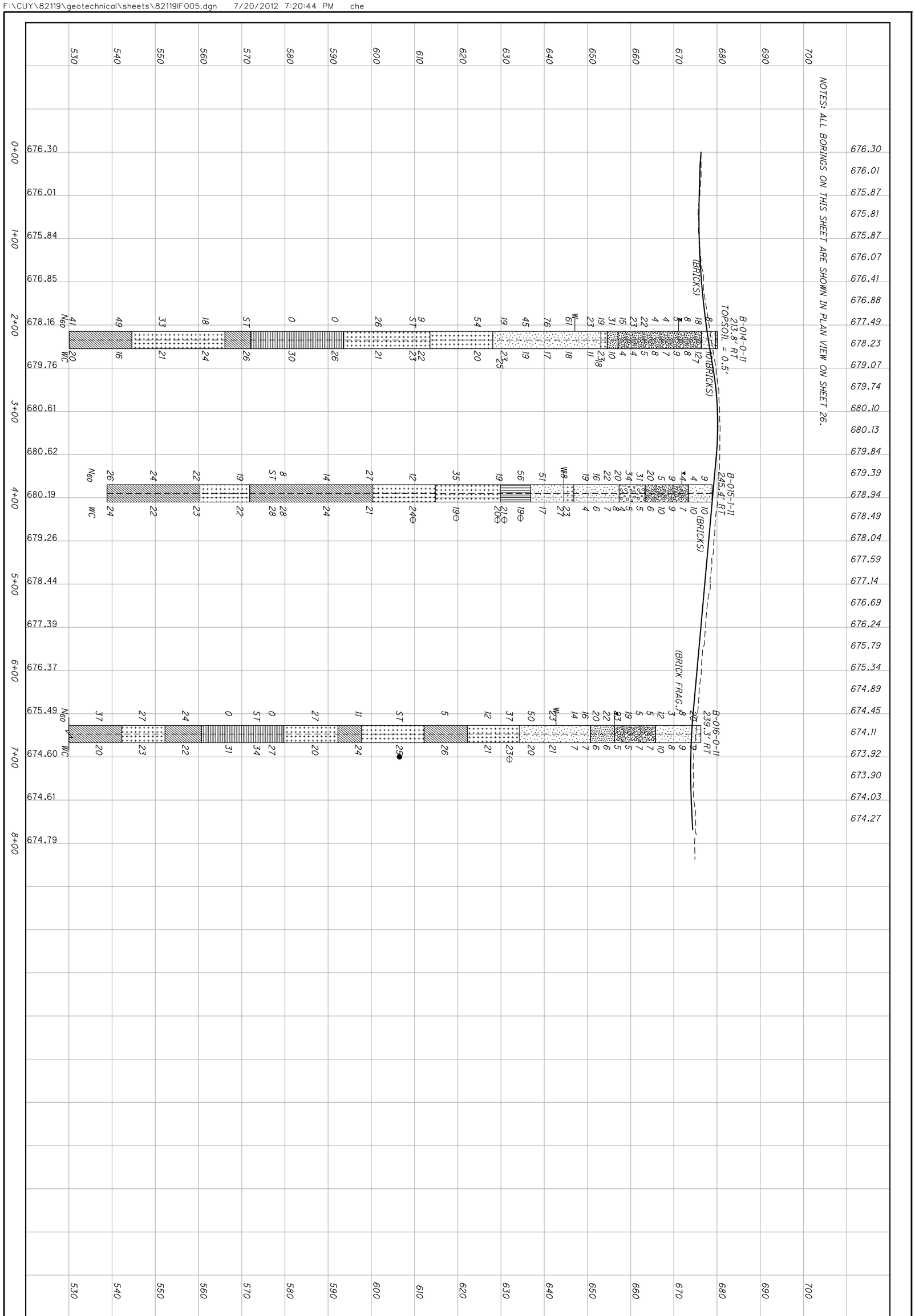
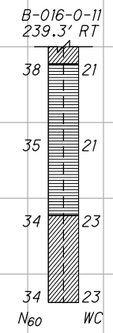


	46/67	CUY-90-14.90	SOIL PROFILE STA. 0+00 TO STA. 8+00 W. 14TH ST NB	DRAWN CMH CHECKED JEP	0 50 25 100 HORIZONTAL SCALE IN FEET



530 520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 26.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 0+00 TO STA. 8+00 W. 14TH ST NB

CUY-90-14.90

47 / 67

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NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 37.

692.09 692.01 692.00 692.04 692.15 692.32 692.55 692.84 693.04 693.15 693.15 693.06 692.86 692.56 692.15 691.65 691.04 690.33 689.52 688.60

690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520

B-027-0-11
℄ RAMP B3
STA. 5344+54.54
72.75' RT

23 11
24 16 (BRICK FRAGMENTS)
12 19
19 20
8 22
9 22
14 20
11 22
W 12 21
12 22
18 20
7 29
20 19
26 19
22 19
24 21
3 30
ST –
5 22
11 24
15 23
31 22
N_{60} WC

B-029-0-11
℄ RAMP B3
STA. 5346+67.92
24.80' RT

21 8
13 10
11 8
13 7
11 11
16 10
17 6
17 17W
17 26W
21 26
27 24
30 23
30 18
35 18
25 21
44 20
19 21
30 20
27 20
30 20
24 21
16 25
25 20
27 20
ST 22
60 WC

B-030-0-11
℄ RAMP B3
STA. 5347+19.38
22.52' RT

53 10
16 11
3 18
9 9
6 8
6 8
9 7
9 18
18 5
19 8
15 9
15 26
22 22
34 21
24 17
24 20
44 19
36 18
N_{60} WC

B-009-E-56

5
16
26
16
27
29
18
36
33
15
N

B-032-1-0-11
℄ RAMP B3
STA. 5361+78.14
17.47' RT

(BRICK/ COAL FRAG.) 12 11
9 9
9 9
9 9
7 6
9 7
9 8
13 7
W 28 23
28 23
30 24
16 22
30 22
67 20
13 20
37 19
18 22
25 21
27 19
36 18
16 23
34 20
42 21
33 19
33 20
39 19
N_{60} WC

B-011-E-56

22
21
24
37
44
13
44
9
23
12
N

653.78 654.69 668.10 669.05 668.78 668.61 667.99 654.32 640.01 626.55 628.14 629.46 649.15 672.35 672.59 672.04 671.04 670.59 671.44 670.58 674.28 687.95 687.55

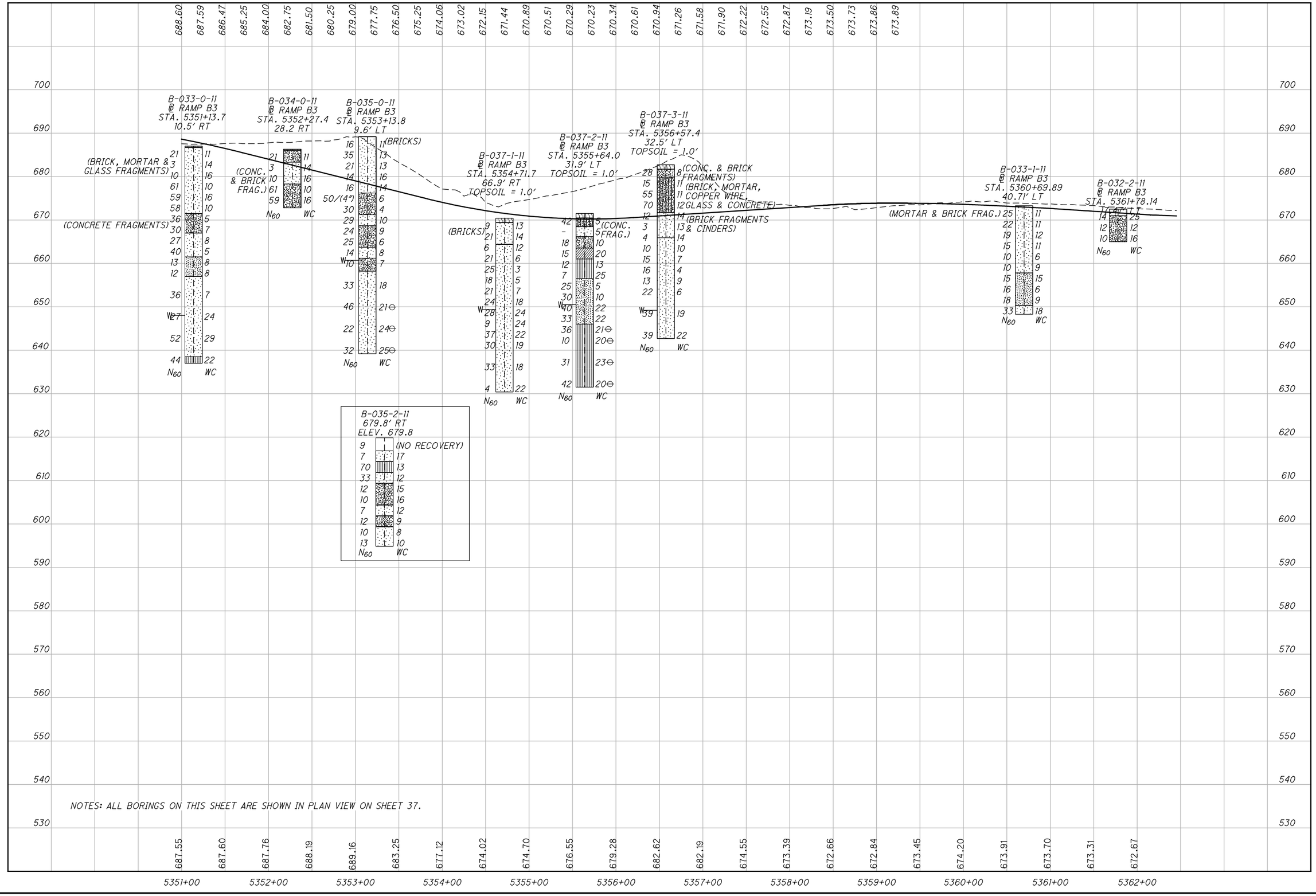
5340+00 5341+00 5342+00 5343+00 5344+00 5345+00 5346+00 5347+00 5348+00 5349+00 5350+00 5351+00

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 5340+00 TO STA. 5351+00 RAMP B3

CUY-90-14.90



NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 37.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
STA. 5351+00 TO STA. 5362+00 RAMP B3

CUY-90-14.90

49 / 67

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675.75 675.35 674.99 674.71 674.51 674.38 674.34 674.38 674.49 674.69 674.92 675.16 675.39 675.59 675.72 675.77 675.74 675.64 675.47 675.25 675.04 674.83 674.62 674.41 674.20 673.99 673.78 673.56 673.35 673.14 672.93 672.72 672.50 672.28 672.04 671.80 671.55 671.30 671.09 671.00 671.04 671.20 671.49 671.88

700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530

B-037-0-11
32.8' RT.
CHAIN: E. 9TH ST.
ELEV. = 672.5'
ASPHALT = 0.3'
CONCRETE = 0.7'

49	3	(CONC. & BRICK FRAGMENTS)
37	8	
39	7	
N_{60}	WC	

B-038-1-11
55.3' RT.
CHAIN: E. 9TH ST.
ELEV. = 673.2'
ASPHALT = 0.3'
CONCRETE = 0.7'

39	3	
42	3	(CONC. & BRICK FRAGMENTS)
18	5	
N_{60}	WC	

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 41.

672.47 689.39 696.48 690.89 677.72 673.78 673.70 673.78 673.72 673.59 673.35 673.01 672.79 672.69 672.84 672.77 672.65 672.36 671.79 671.55 671.54 671.61 671.33 671.18 670.88 671.12 670.84

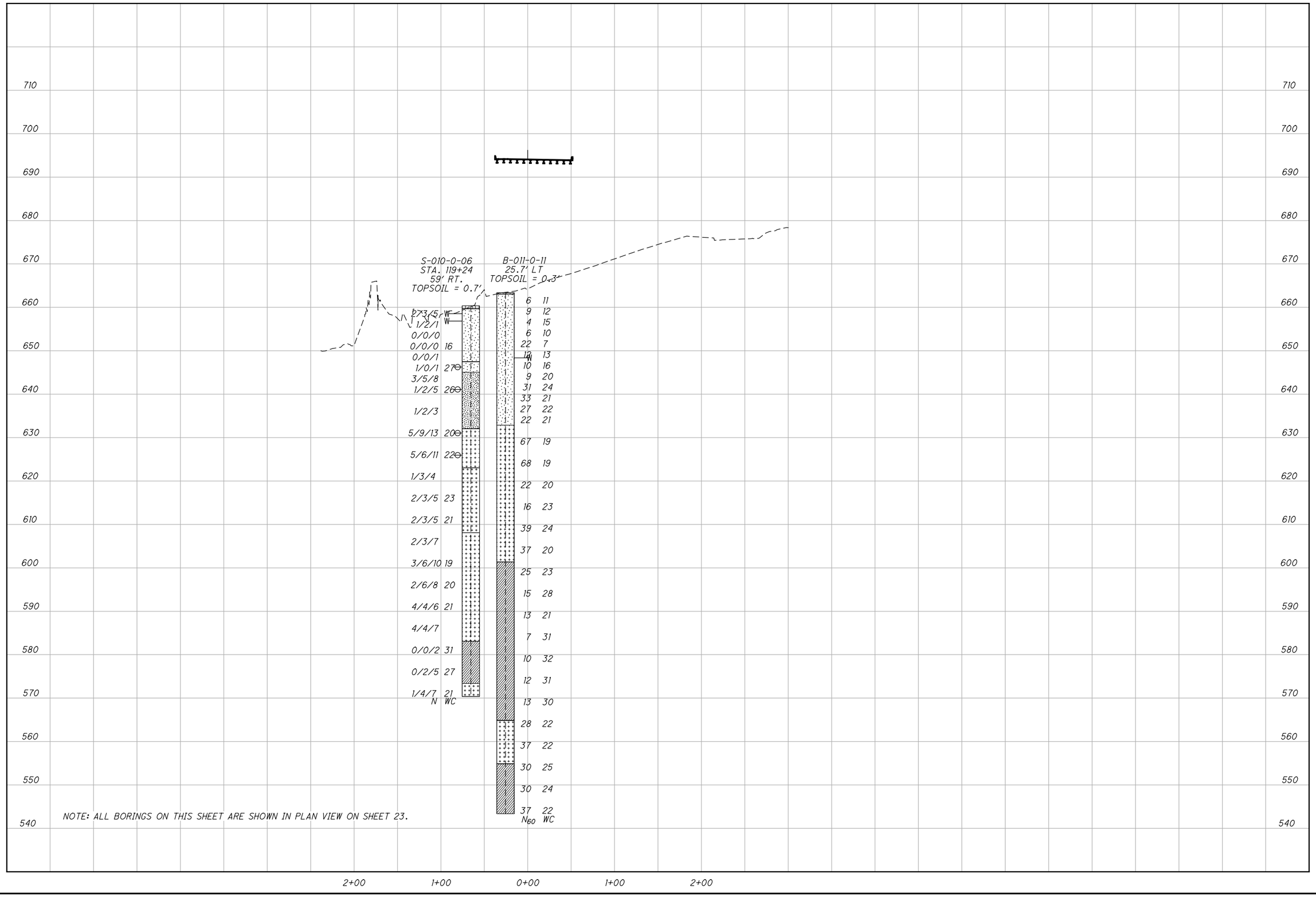
31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00

0 25 50 100 HORIZONTAL SCALE IN FEET

DRAWN CMH | CHECKED JEP

SOIL PROFILE
STA. 31+00 TO STA. 44+00 E. 9TH ST.

CUY-90-14.90



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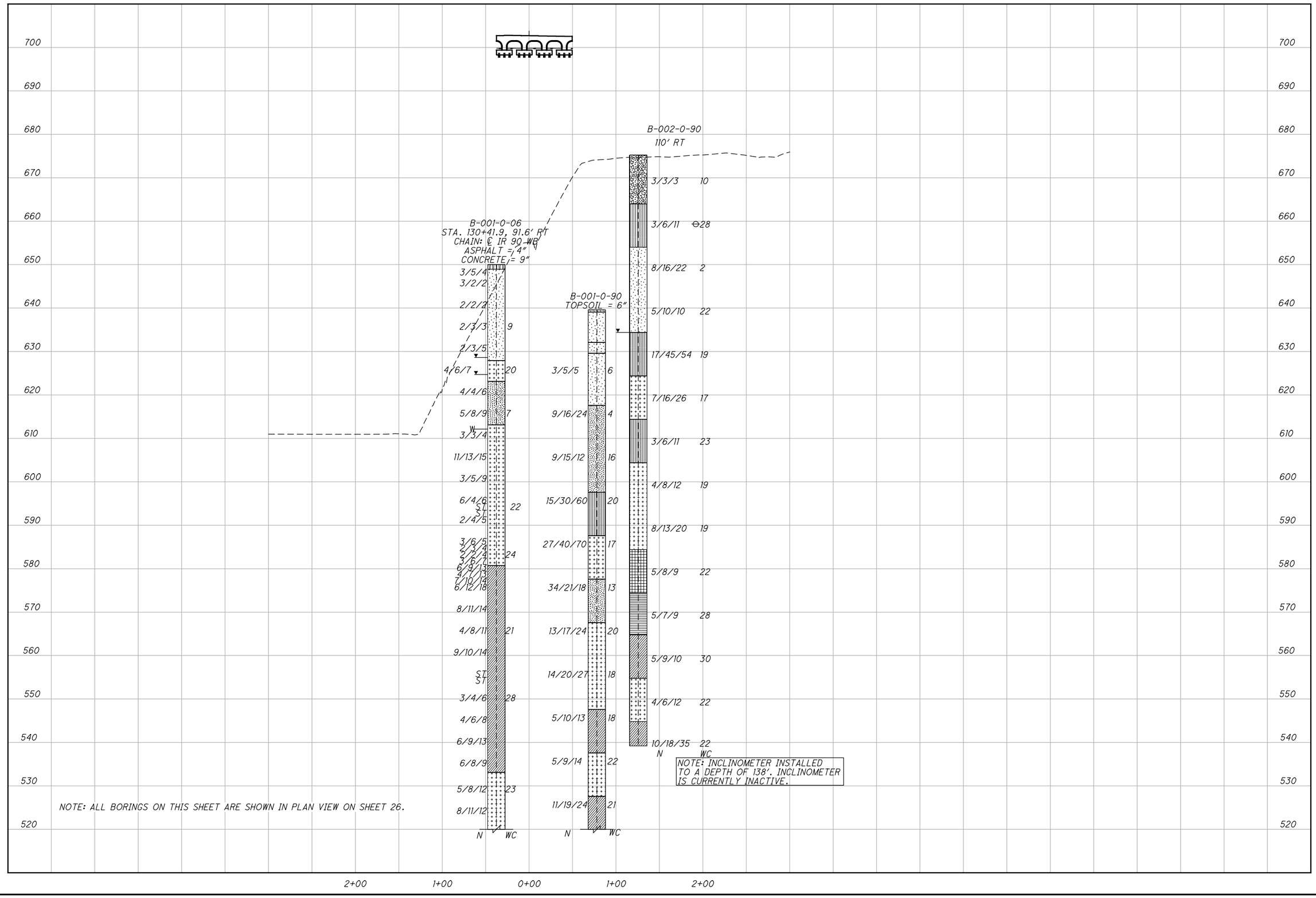
HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 1999+50 IR 90 EB

CUY-90-14.90



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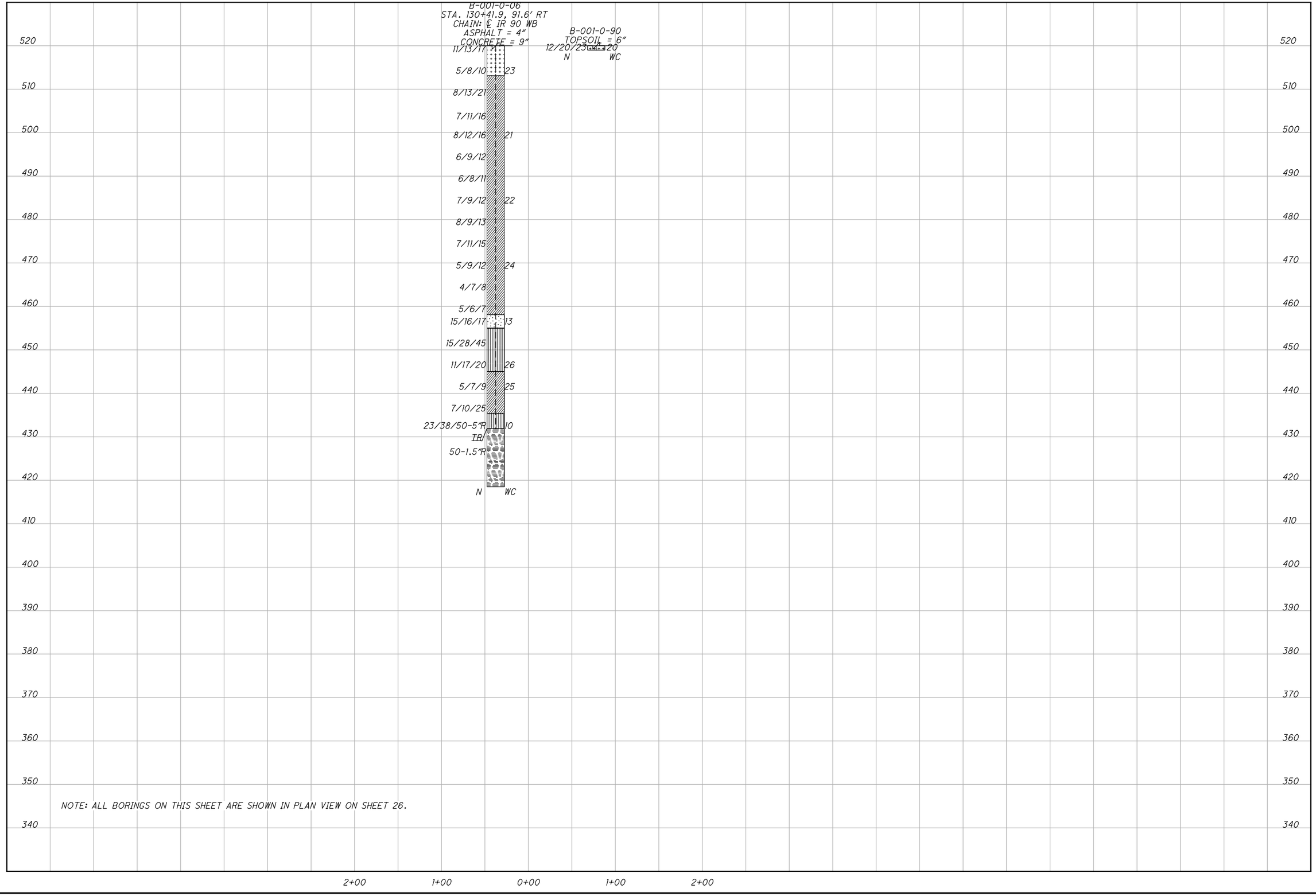
0 25 50 100
HORIZONTAL SCALE IN FEET

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2010+00 IR 90 EB
CUY-90-14.90



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0 25 50 100
HORIZONTAL SCALE IN FEET

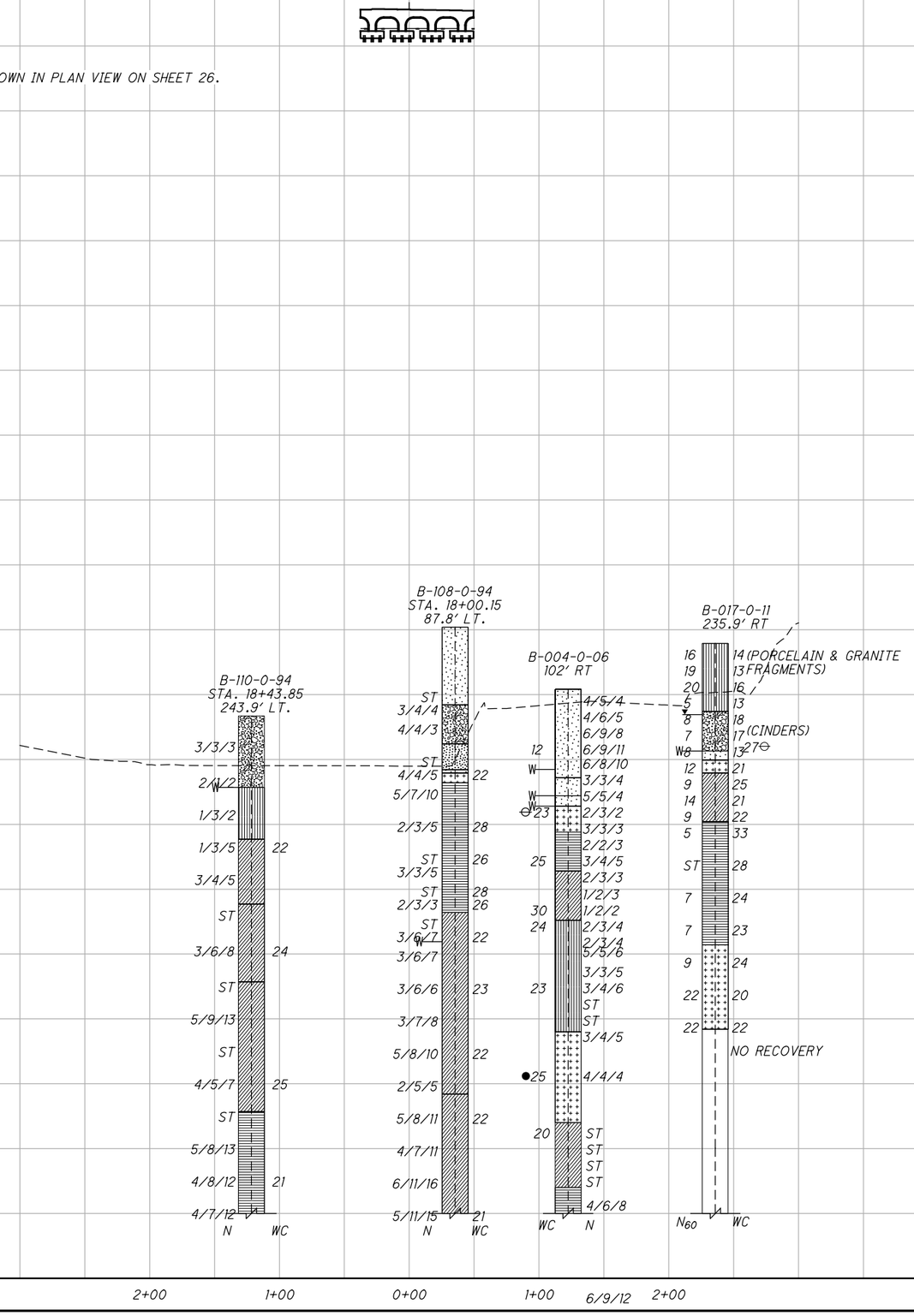
DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2010+00 IR 90 EB

CUY-90-14.90

53 / 67

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 26.



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2013+50 IR 90 EB

CUY-90-14.90

54/67

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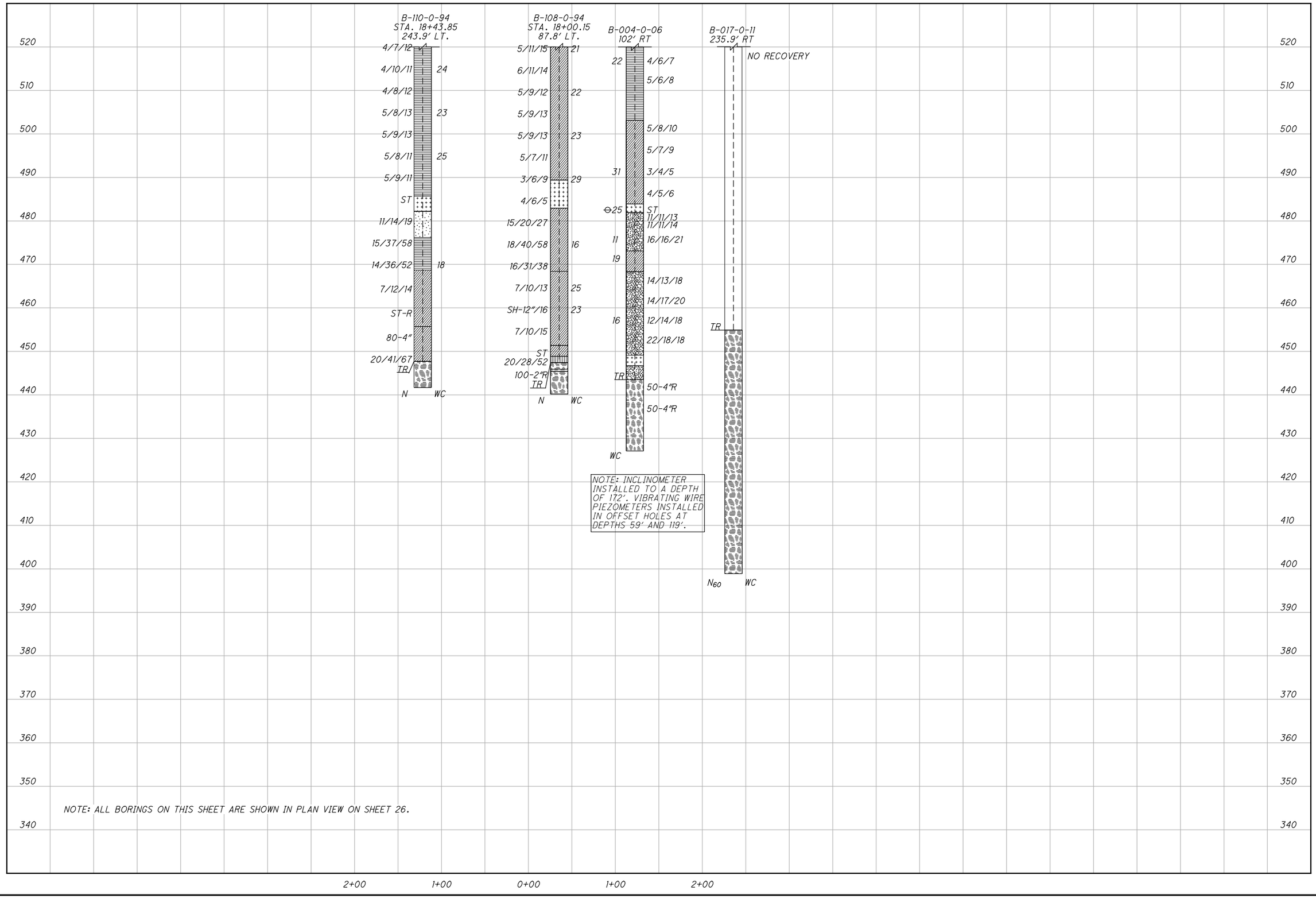

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 26.

0 25 50 100
HORIZONTAL SCALE IN FEET

DRAWN CMH
CHECKED JEP

SOIL PROFILE
SECTION 2013+50 IR 90 EB
CROSS SE

CUY-90-14.90

55/67

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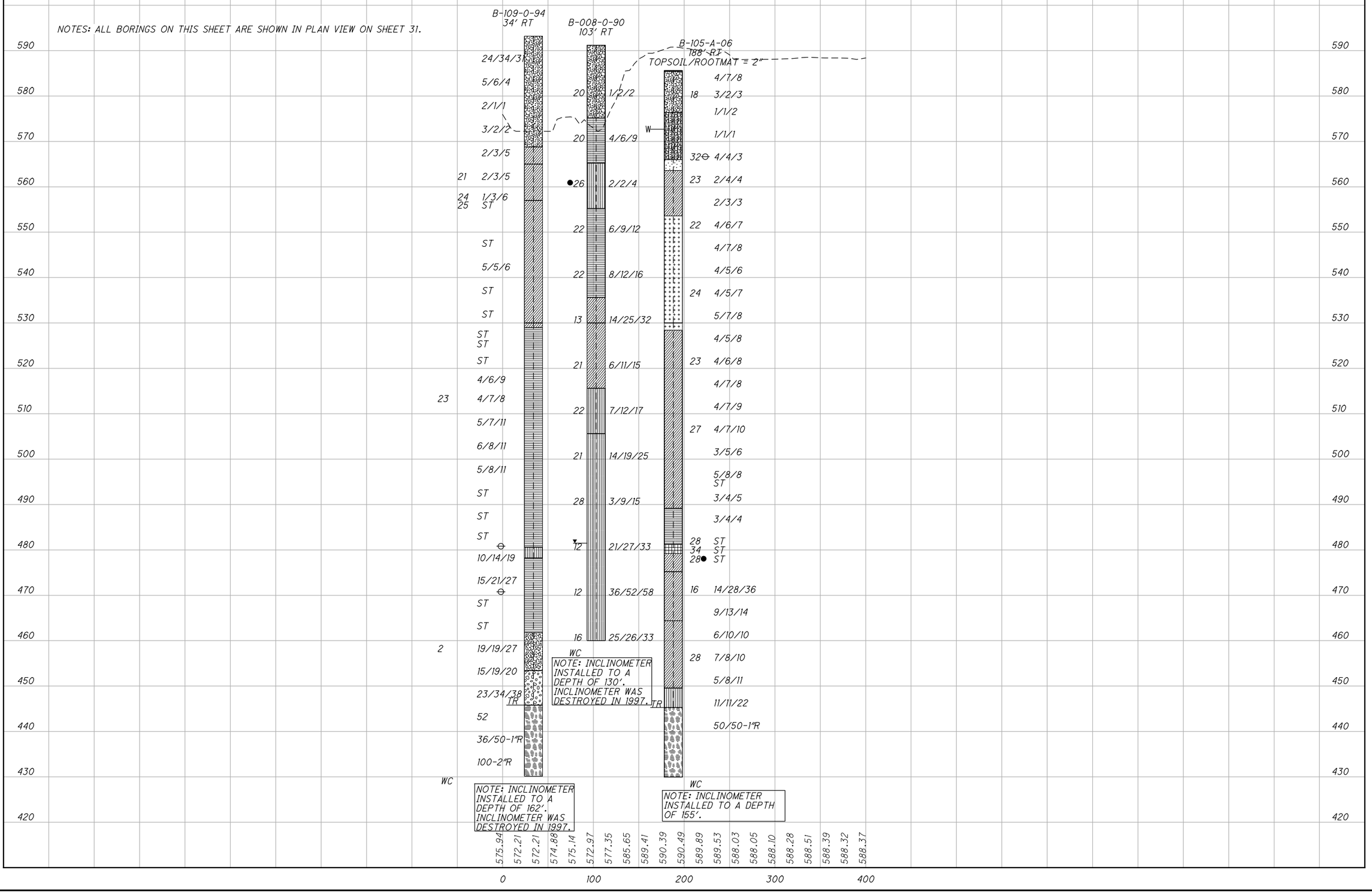
NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 31.



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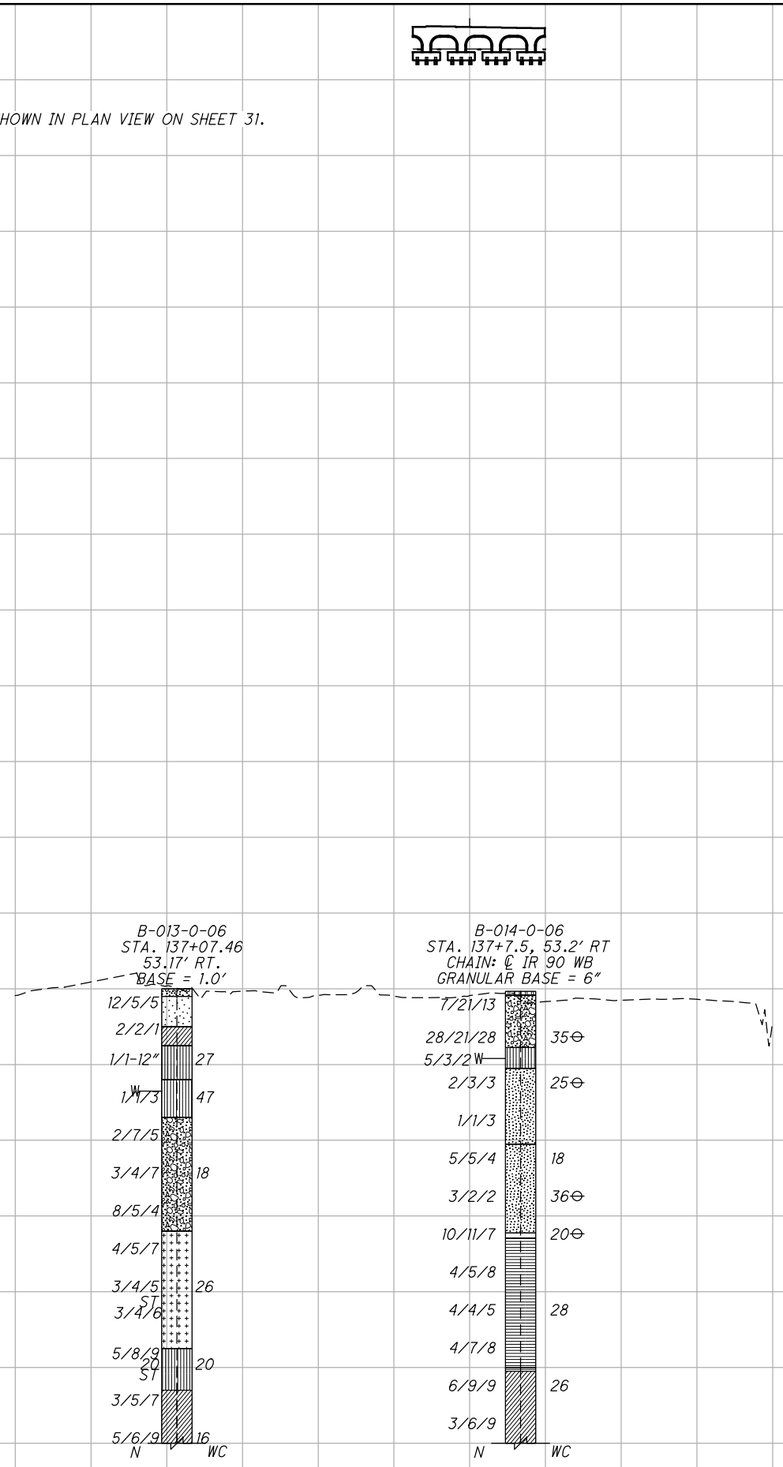
HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
SECTION 2014+00 RT IR 90
CROSS SECTION

CUY-90-14.90

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 31.



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2017+00 IR 90 EB

CUY-90-14.90

57 / 67

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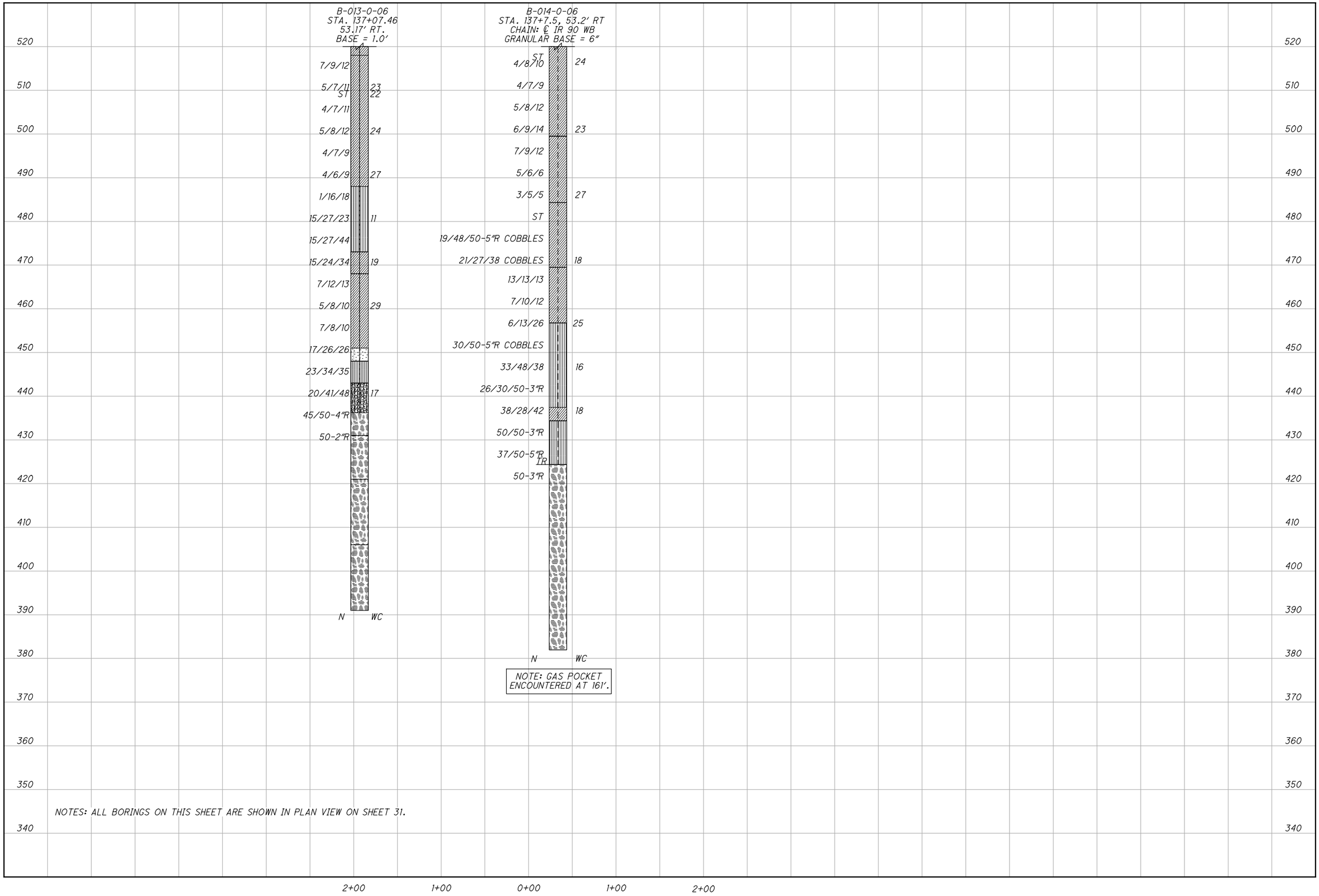

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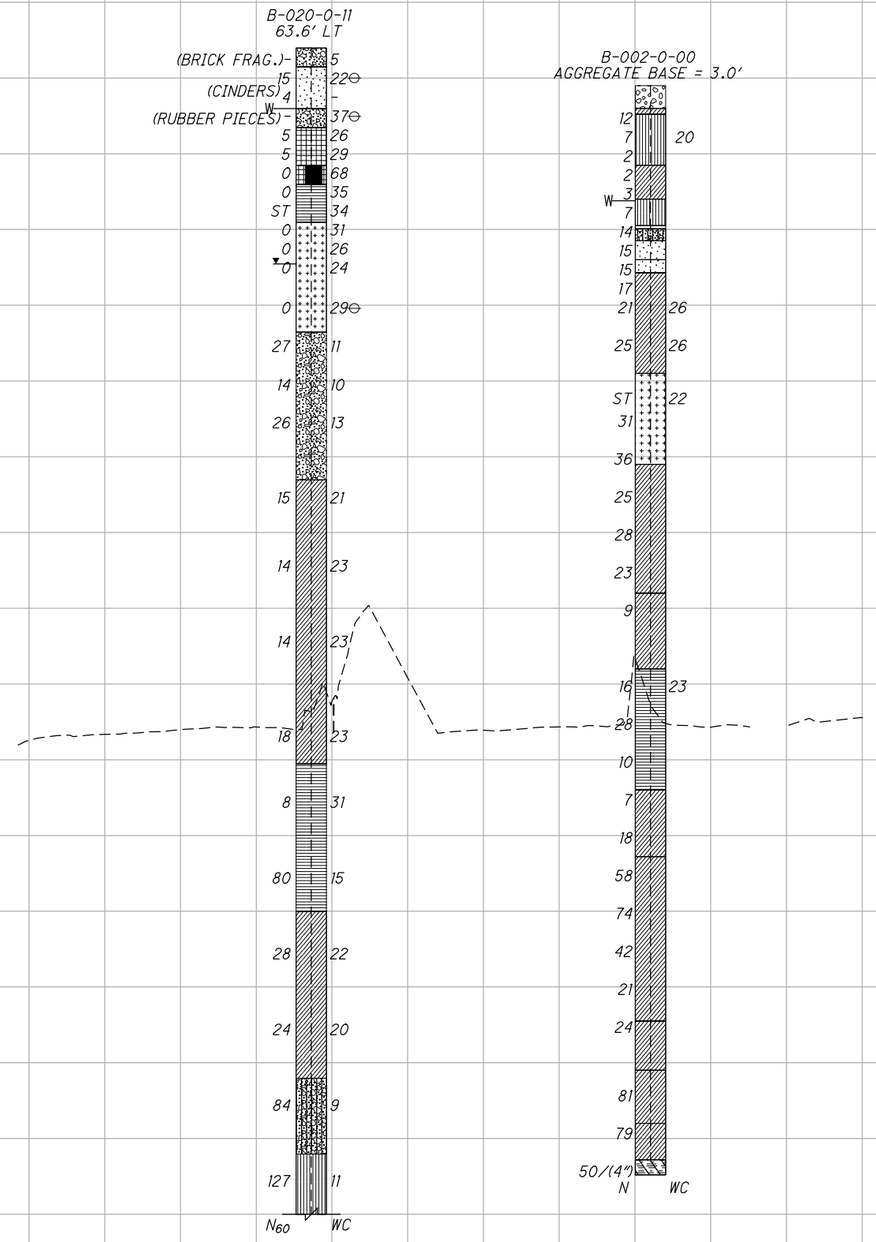
0 25 50 100
HORIZONTAL SCALE IN FEET

DRAWN CMH
CHECKED JEP

SOIL PROFILE
SECTION 2017+00 IR 90 EB
CROSS SE

CUY-90-14.90

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 31.



HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2025+00 IR 90 EB

CUY-90-14.90

59/67

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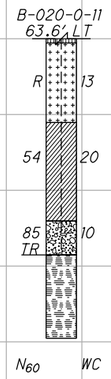

520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350 340

2+00 1+00 0+00 1+00 2+00

NOTES: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 31.

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2025+00 IR 90 EB

CUY-90-14.90

60/67

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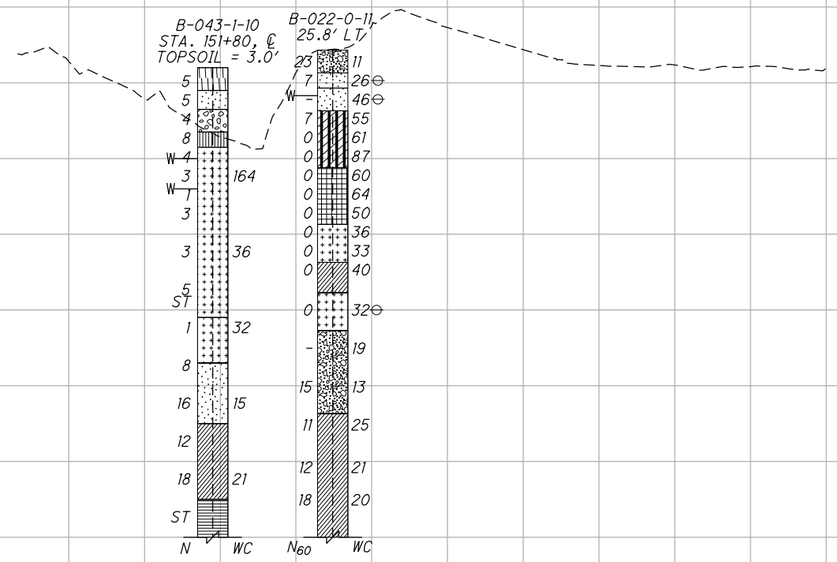
NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 34.



700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520

2+00 1+00 0+00 1+00 2+00

HORIZONTAL SCALE IN FEET
0 25 50 100

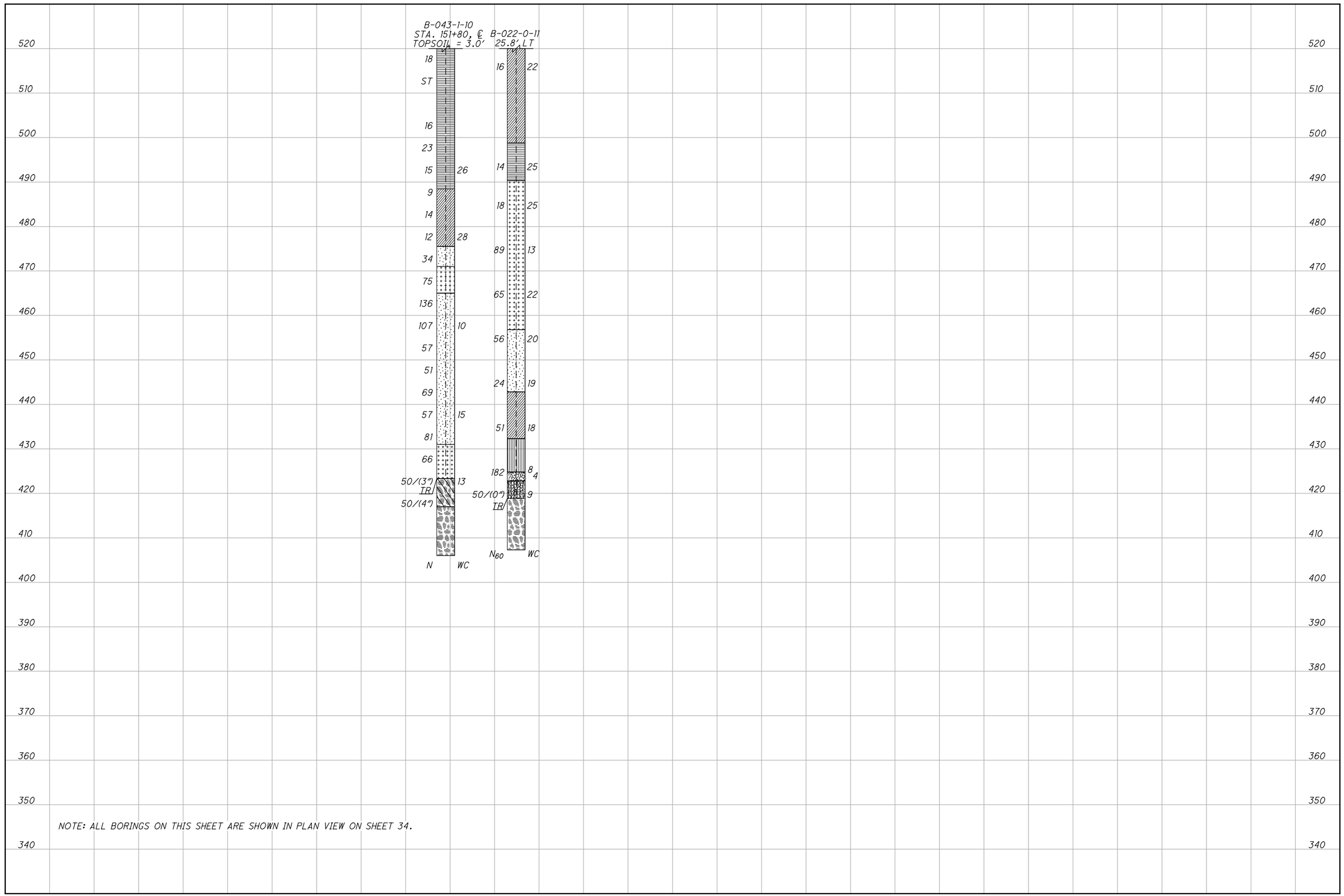
DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2031+50 IR 90 EB

CUY-90-14.90

61 / 67

F:\CUY\82119\geotechnical\sheets\82119IF033.dgn 7/20/2012 7:20:56 PM che



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 34.

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HORIZONTAL SCALE IN FEET
0 25 50 100

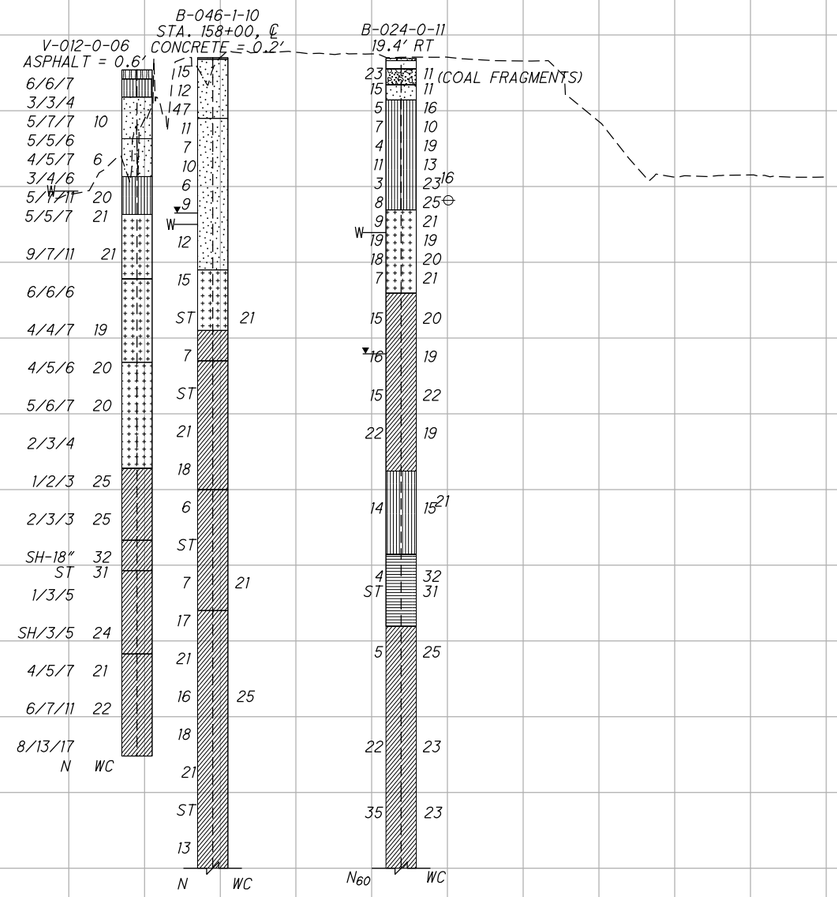
DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2031+50 IR 90 EB

CUY-90-14.90

62/67

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 34.



HORIZONTAL SCALE IN FEET
0 25 50 100

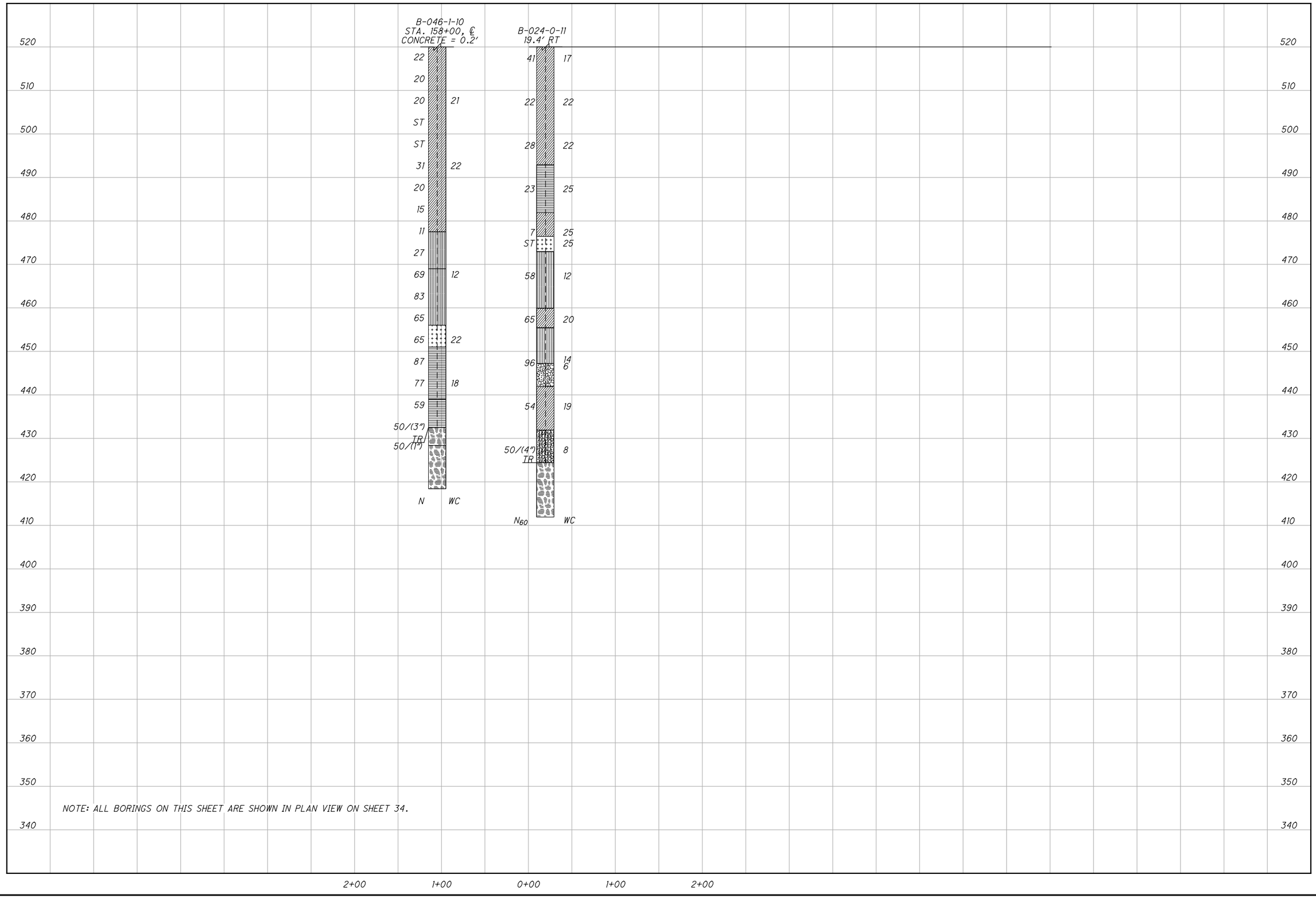
DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2037+50 IR 90 EB

CUY-90-14.90

63 67

F:\CUY\82119\geotechnical\sheets\82119IF035.dgn 7/20/2012 7:20:58 PM che



NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 34.

0 25 50 100
HORIZONTAL SCALE IN FEET

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2037+50 IR 90 EB

CUY-90-14.90

64/67

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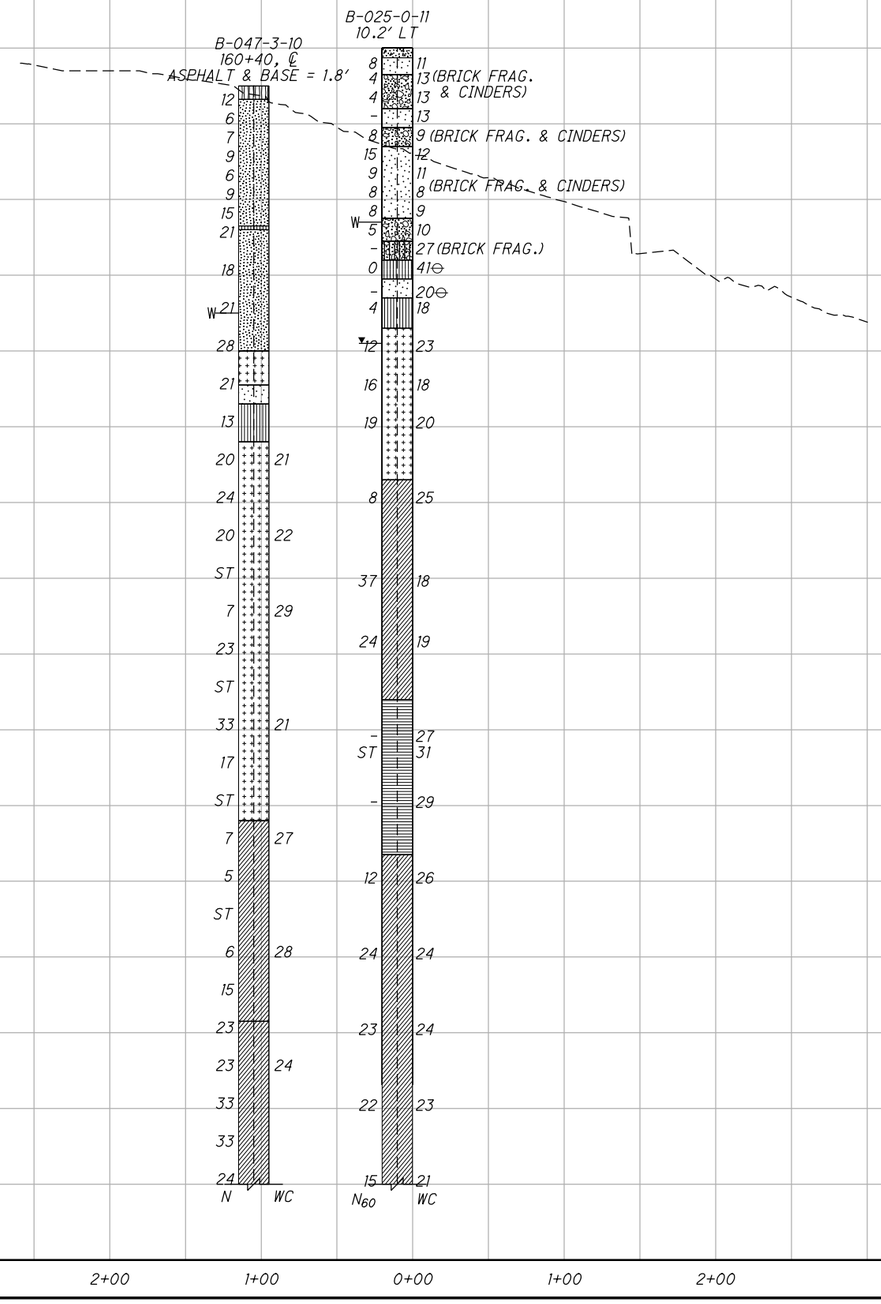
NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 37.



700 690 680 670 660 650 640 630 620 610 600 590 580 570 560 550 540 530 520

2+00 1+00 0+00 1+00 2+00

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2040+00 IR 90 EB

CUY-90-14.90

65/67

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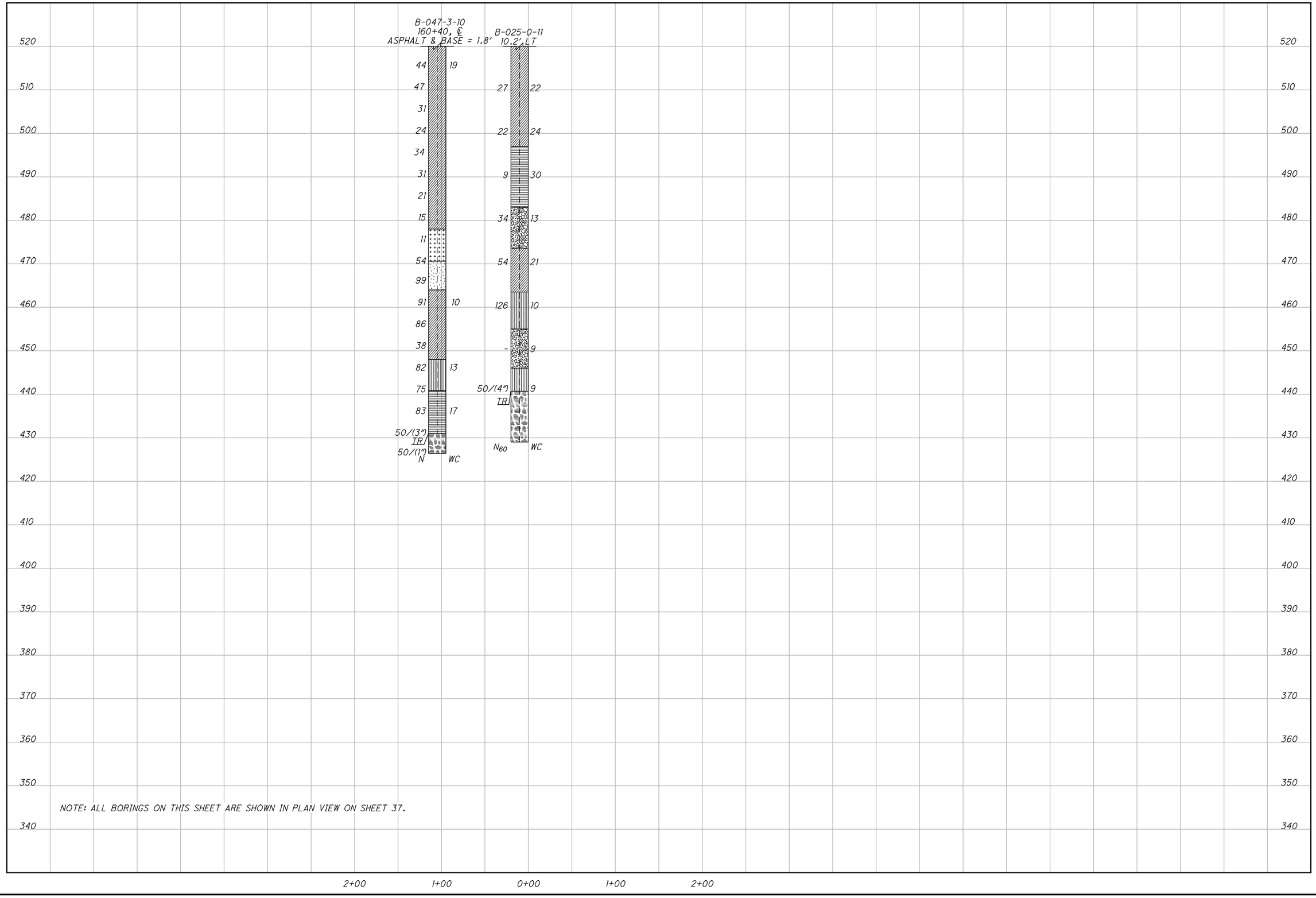


NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 37.

HORIZONTAL SCALE IN FEET
0 25 50 100

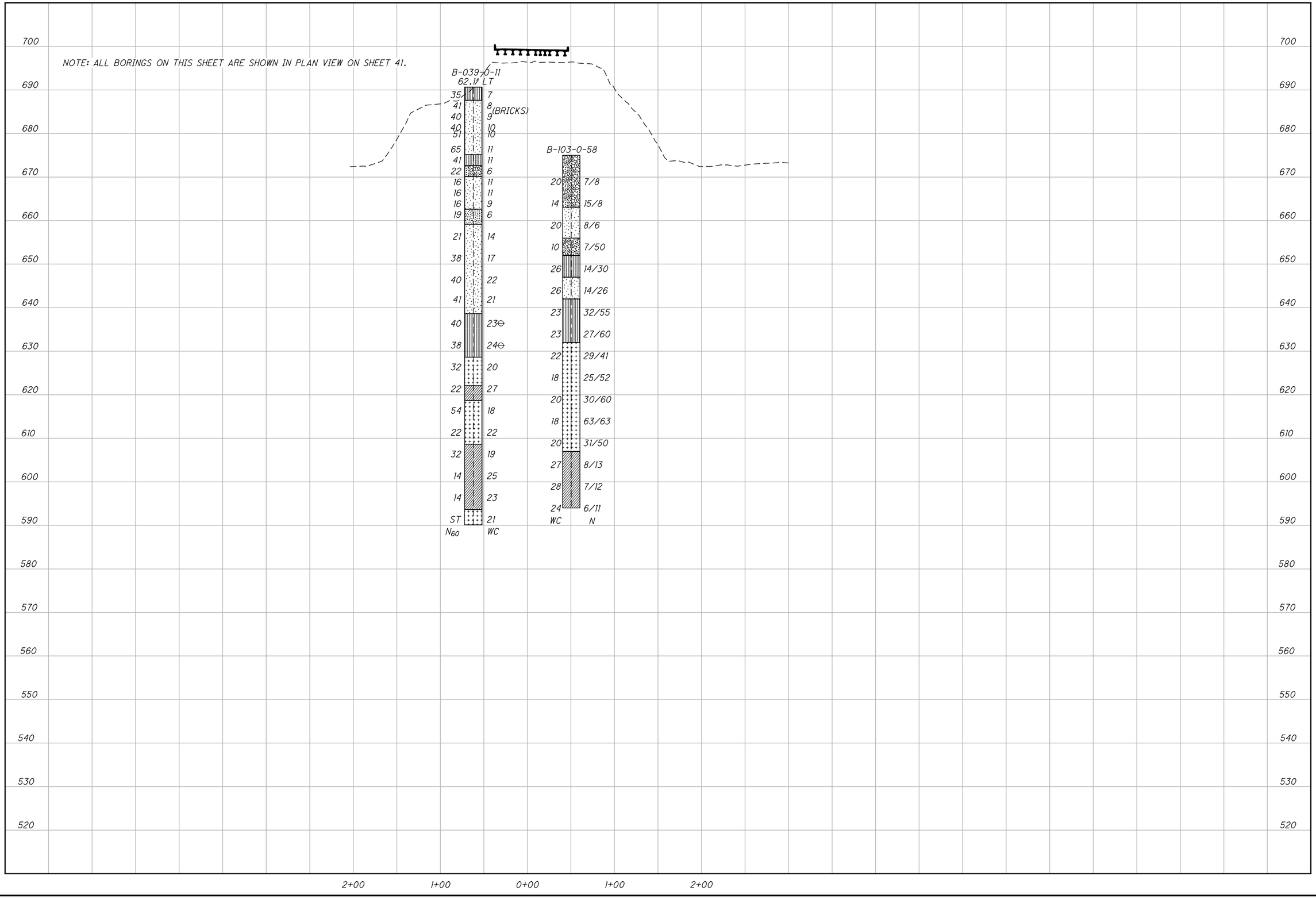
DRAWN CMH
CHECKED JEP

CROSS SECTION 2040+00 IR 90 EB

SOIL PROFILE

CUY-90-14.90

NOTE: ALL BORINGS ON THIS SHEET ARE SHOWN IN PLAN VIEW ON SHEET 41.



HORIZONTAL SCALE IN FEET
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DRAWN CMH
CHECKED JEP

SOIL PROFILE
CROSS SECTION 2057+00 IR 90 EB

CUY-90-14.90

67/67

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