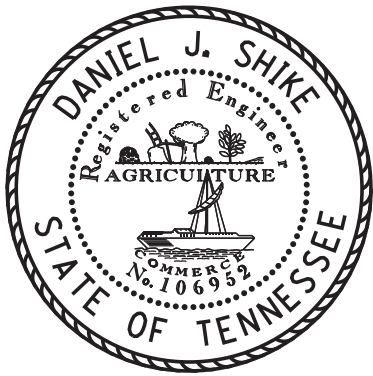


2/14/2022  
P:\Structdrop\Drop\1218\ASig1218a.dgn



THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:

Dan Shike

Digitally signed by Dan Shike  
Date: 2022.03.02 08:16:21 -06'00'

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON THE ELECTRONIC DOCUMENTS.

TENNESSEE DEPARTMENT OF TRANSPORTATION  
JAMES K. POLK BUILDING, SUITE 1100  
505 DEADERICK STREET  
NASHVILLE, TN 37243  
DANIEL J. SHIKE, P.E. NO. 106952

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE OF TENN. CODE ANN. §62-2-306.

SHEET NAME SHEET NO.

SIGNATURE SHEET .....WALL-SIGN1

RETAINING WALL NO. 5  
GEOMETRIC ALIGNMENT AND PROFILE .....U-62-89  
GENERAL NOTES AND ESTIMATED QUANTITIES .....U-62-90  
RETAINING WALL NO. 5 .....U-62-92  
RETAINING WALL NO. 5 .....U-62-93  
RETAINING WALL NO. 5 .....U-62-94  
RETAINING WALL NO. 5 DETAILS .....U-62-95  
RETAINING WALL NO. 5 DETAILS .....U-62-96  
RETAINING WALL NO. 5 DETAILS .....U-62-97

RETAINING WALL NO. 6  
GEOMETRIC ALIGNMENT AND PROFILE .....U-62-98  
GENERAL NOTES AND ESTIMATED QUANTITIES .....U-62-99  
RETAINING WALL NO. 6 .....U-62-101  
RETAINING WALL NO. 6 .....U-62-102  
RETAINING WALL NO. 6 .....U-62-103  
RETAINING WALL NO. 6 .....U-62-104  
RETAINING WALL NO. 6 DETAILS .....U-62-105  
RETAINING WALL NO. 6 DETAILS .....U-62-106  
RETAINING WALL NO. 6 DETAILS .....U-62-107  
RETAINING WALL NO. 6 DETAILS .....U-62-108

NOISE WALL NO. 1  
LAYOUT OF NOISE WALL .....U-62-109  
GENERAL NOTES AND ESTIMATED QUANTITIES .....U-62-110  
DETAILS FOR NOISE WALL .....U-62-114  
PROFILE OF NOISE WALL .....U-62-115  
POST, CAISSON AND PANEL DATA .....U-62-116  
PANEL AND FOUNDATION DETAILS .....U-62-117  
POST DETAILS .....U-62-118  
POST EXTENSION DETAILS .....U-62-119  
PANEL DETAILS .....U-62-120

YEAR	PROJECT NO.	SHEET NO.
2022	NH-I-40-5(146)	WALL-SIGN1

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

SIGNATURE  
SHEET

02-14-22

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R1

LIST OF DRAWINGS

SHEET NO.

STRUCTURES  
DWG. NO.

LAST  
REV. DATE

SIGNATURE SHEET 1 .....	WALL-SIGN1 .....		
RETAINING WALL AND NOISE WALL INDEX .....	R1 .....		

RETAINING WALL NOS.1,2,3 & 4

RETAINING DESIGN NOTES AND REQUIREMENTS .....	R2 .....		
RETAINING WALL GEOMETRIC LAYOUT (R-1) .....	R3 .....		
RETAINING WALL GEOMETRIC PROFILE (R-1) .....	R4 .....		
RETAINING WALL BORING PROFILE (R-1) .....	R5 .....		
RETAINING WALL GEOMETRIC LAYOUT AND PROFILE (R-2) .....	R6 .....		
RETAINING WALL BORING PROFILE (R-2) .....	R7 .....		
RETAINING WALL GEOMETRIC LAYOUT (R-3) .....	R8 .....		
RETAINING WALL GEOMETRIC PROFILE (R-3) .....	R9 .....		
RETAINING WALL BORING PROFILE (R-3) .....	R10 .....		
RETAINING WALL BORING PROFILE (R-3) .....	R11 .....		
RETAINING WALL GEOMETRIC LAYOUT AND PROFILE (R-4) .....	R12 .....		
RETAINING WALL BORING PROFILE (R-4) .....	R13 .....		
RETAINING WALL TYPICAL DETAIL .....	R14 .....		

RETAINING WALL NO.5

GEOMETRIC ALIGNMENT AND PROFILE .....	R15 .....	U-62-89 .....
GENERAL NOTES AND ESTIMATED QUANTITIES .....	R16 .....	U-62-90 .....
FOUNDATION DATA .....	R17 .....	U-62-91 .....
RETAINING WALL NO.5 .....	R18 .....	U-62-92 .....
RETAINING WALL NO.5 .....	R19 .....	U-62-93 .....
RETAINING WALL NO.5 .....	R20 .....	U-62-94 .....
RETAINING WALL NO.5 DETAILS .....	R21 .....	U-62-95 .....
RETAINING WALL NO.5 DETAILS .....	R22 .....	U-62-96 .....
RETAINING WALL NO.5 DETAILS .....	R23 .....	U-62-97 .....

RETAINING WALL NO.6

GEOMETRIC ALIGNMENT AND PROFILE .....	R24 .....	U-62-98 .....
GENERAL NOTES AND ESTIMATED QUANTITIES .....	R25 .....	U-62-99 .....
FOUNDATION DATA .....	R26 .....	U-62-100 .....
RETAINING WALL NO.6 .....	R27 .....	U-62-101 .....
RETAINING WALL NO.6 .....	R28 .....	U-62-102 .....
RETAINING WALL NO.6 .....	R29 .....	U-62-103 .....
RETAINING WALL NO.6 .....	R30 .....	U-62-104 .....
RETAINING WALL NO.6 DETAILS .....	R31 .....	U-62-105 .....
RETAINING WALL NO.6 DETAILS .....	R32 .....	U-62-106 .....
RETAINING WALL NO.6 DETAILS .....	R33 .....	U-62-107 .....
RETAINING WALL NO.6 DETAILS .....	R34 .....	U-62-108 .....

NOISE WALL NO.1

LAYOUT OF NOISE WALL .....	R35 .....	U-62-109 .....
GENERAL NOTES AND ESTIMATED QUANTITIES .....	R36 .....	U-62-110 .....
FOUNDATION DATA .....	R37 .....	U-62-111 .....
FOUNDATION DATA .....	R38 .....	U-62-112 .....
FOUNDATION DATA .....	R39 .....	U-62-113 .....
DETAILS FOR NOISE WALL .....	R40 .....	U-62-114 .....
PROFILE OF NOISE WALL .....	R41 .....	U-62-115 .....
POST,CAISSON,AND PANEL DATA .....	R42 .....	U-62-116 .....
PANEL AND FOUNDATION DETAILS .....	R43 .....	U-62-117 .....
POST DETAILS .....	R44 .....	U-62-118 .....
POST EXTENSION DETAILS .....	R45 .....	U-62-119 .....
PANEL DETAILS .....	R46 .....	U-62-120 .....

LIST OF STANDARD DRAWINGS

DWG. NO.

LATEST  
REV. DATE

STANDARD PILE DETAILS .....	STD-5-2 .....	5-1-14
BIKE AND PEDESTRIAN SAFETY RAIL .....	MM-BPR-1 .....	1-28-22
51" HALF SIZE SINGLE SLOPE CONCRETE BARRIER WALL .....	S-SSMB-3 .....	10-29-21

LIST OF SPECIAL PROVISIONS

DWG. NO.

LAST  
REV. DATE

REGARDING DRILLED CAISSONS .....	SP204C .....	1-1-21
----------------------------------	--------------	--------

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

RETAINING  
WALL AND  
NOISE WALL  
INDEX

2/8/2022 7:23:31 PM  
\\AG03SDCWF00008.net.ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00-I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R2 Notes.sht

ACCEPTABLE WALL TYPES

THE RETAINING WALLS SHALL BE ONE OF THE WALL TYPES AS LISTED ON "RETAINING WALL DETAIL-GEOMETRIC LAYOUT" SHEETS. ANY PROPRIETARY RETAINING WALL SYSTEM SHALL BE LISTED AS PRE-APPROVED IN OPL 38.

RETAINING WALL DESIGN NOTES

UNLESS SPECIFICALLY STATED OTHERWISE IN THE CONTRACT PLANS, THE BIDDING FOR, THE DESIGN OF AND THE CONSTRUCTION OF RETAINING WALLS SHOWN IN THE PLANS SHALL BE GOVERNED BY THE TENNESSEE DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION 624 REGARDING RETAINING WALLS. THIS SPECIAL PROVISION SHALL BE CONSIDERED AS ONE OF THOSE DOCUMENTS WHICH THE BIDDER/CONTRACTOR HAS EXAMINED AND MADE HIMSELF FAMILIAR WITH AS DESCRIBED IN SECTION 102.04 - EXAMINATION OF THE SITE, THE WORK, THE PLANS, AND THE SPECIFICATIONS IN THE TDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

EXCAVATION FOR THE WALL AND/OR ITS FOOTING SHALL NOT BE ACCOMPLISHED UNTIL THE CONTRACTOR HAS SUBMITTED WALL DESIGNS AND CALCULATIONS AND HAS BEEN ISSUED AN APPROVED SET OF WALL PLANS AND HAS LABOR AND MATERIAL RESOURCES AVAILABLE TO BEGIN AND CONTINUE WALL CONSTRUCTION IMMEDIATELY AFTER EXCAVATION.

THIS WALL SHALL BE DESIGNED IN ACCORDANCE WITH LRFD DESIGN PROCEDURES AND REQUIREMENTS AS DESCRIBED IN:  
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2017  
- PUBLICATION FHWA-NHI-10-024/FHWA GEC 011, DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES, NOVEMBER 2009 FOR MSE WALLS

FOR PROPRIETARY WALL SYSTEMS THAT HAVE BEEN APPROVED AS SHOWN IN OPL 38, THE WALL DESIGNER SHALL BE RESPONSIBLE FOR PROVIDING WALL DESIGNS INCORPORATING MATERIALS AND COMPONENTS (I.E. REINFORCEMENT CONNECTION DEVICES, SPECIFIC MANUFACTURER AND PROPERTIES OF GEOGRID) AS WAS ORIGINALLY SUBMITTED AND APPROVED BY TDOT. IF A MATERIAL AND/OR COMPONENT OF THE WALL SYSTEM HAVE BEEN MODIFIED FROM THE ORIGINALLY APPROVED SYSTEM, A WALL DESIGN AND SET OF PLANS AND CALCULATIONS FOR THIS WALL SYSTEM CANNOT BE SUBMITTED FOR REVIEW AND APPROVAL UNTIL THE WALL SYSTEM DESIGNER WHO ORIGINALLY SUBMITTED THE WALL SYSTEM FOR APPROVAL BY TDOT SUBMITS A REQUEST FOR RE-APPROVAL UTILIZING THE MODIFIED ELEMENTS OF THE WALL. THIS SUBMITTAL DOES NOT GUARANTEE APPROVAL OF THE MODIFIED SYSTEM. IF THIS RE-APPROVAL PROCESS DOES NOT MEET THE CONTRACTOR'S SCHEDULE OR IF THE MODIFIED SYSTEM IS NOT APPROVED, THE CONTRACTOR/WALL DESIGNER SHALL PROVIDE A WALL DESIGN FOR ONE OF THE APPROVED SYSTEMS AT NO CHANGE IN CONTRACT PRICE FOR THE RETAINING WALL AND NO CHANGE IN PROJECT SCHEDULE REQUIREMENTS WILL BE ALLOWED.

THE WALL DESIGNER SHALL PROVIDE RETAINING WALL PLANS, DETAILS AND CALCULATIONS AS REQUIRED BY SPECIAL PROVISION 624 AND AS REQUIRED HEREIN.

- THE WALL DESIGNER SHALL UTILIZE THE GEOTECHNICAL PARAMETERS AND RESISTANCE FACTORS AS PROVIDED FOR EACH PROJECT RETAINING WALL ON THE "RETAINING WALL DETAIL" SHEET(S) TO PREPARE AND SUBMIT DESIGN CALCULATIONS. LOAD FACTORS AND OTHER PERTINENT DESIGN REQUIREMENTS PROVIDED IN AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2017 AND INTERIMS SHALL BE USED FOR NON-MSE WALLS AND PUBLICATION FHWA-NHI-10-024/FHWA GEC 011, DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES, NOVEMBER 2009 FOR MSE WALLS.

- CALCULATIONS FOR BOTH INTERNAL AND EXTERNAL STABILITY (SLIDING, ECCENTRICITY, AND BEARING CAPACITY-GLOBAL STABILITY AND SETTLEMENT BEING THE EXCEPTIONS) SHALL BE PROVIDED FOR EACH CRITICAL WALL SECTION WHICH DEMONSTRATES THE REQUIRED CAPACITY TO DEMAND RATIO OF 1.0 IS MET UTILIZING THE DESIGN PARAMETERS PROVIDED. FOR MSE WALLS, THE WALL DESIGNER MUST ADJUST THE REINFORCEMENT LENGTHS BEYOND THOSE MINIMUM REQUIRED LENGTHS, IF REQUIRED, TO MEET BOTH INTERNAL AND EXTERNAL REQUIREMENTS. THE WALL DESIGNER/CONTRACTOR PLANS MUST INCLUDE ANY FOUNDATION IMPROVEMENTS AS REQUIRED HEREIN ON THE WALL DESIGNER/CONTRACTOR'S WALL ELEVATION VIEWS AND ANY CROSS-SECTIONAL DETAIL DRAWINGS.

- UNLESS OTHERWISE STATED, THE WALL DESIGNER CAN ASSUME THAT MINIMUM GLOBAL STABILITY AND SETTLEMENT CRITERIA IS ACHIEVED WITH A WALL DESIGN MEETING OTHER MINIMUM EXTERNAL STABILITY REQUIREMENTS AND ASSUMING WALL FOUNDATION BEARING IMPROVEMENTS ARE MET. WHILE THE WALL DESIGNER'S DESIGN MUST DEMONSTRATE COMPLIANCE WITH EXTERNAL STABILITY REQUIREMENTS AS DISCUSSED ABOVE, THE WALL DESIGNER PROVIDES CERTIFICATION (BY SIGNING AND STAMPING BY PROFESSIONAL ENGINEER REGISTERED IN STATE OF TENNESSEE) OF THE WALLS, PLANS, AND CALCULATIONS "FOR INTERNAL STABILITY ONLY".

- LOAD COMBINATIONS STRENGTH I, EXTREME EVENT I, AND EXTREME EVENT II SHALL BE EVALUATED AS GIVEN IN AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2017 AND INTERIMS. FOR MSE WALLS, LOAD COMBINATIONS STRENGTH I, EXTREME EVENT I, AND EXTREME EVENT II AS GIVEN IN TABLE 4-1 OF PUBLICATION FHWA-NHI-10-024/FHWA GEC 011, DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES, NOVEMBER 2009 FOR MSE WALLS SHALL BE EVALUATED.

NOTE REGARDING CONSTRUCTION SLOPES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING THE EXCAVATION IN ACCORDANCE WITH OSHA AND OTHER APPLICABLE STATE AND LOCAL REGULATIONS REGARDING CONSTRUCTION SLOPES AND TRENCHES. IN ADDITION TO FOLLOWING APPLICABLE REGULATORY REQUIREMENTS, AS A MINIMUM REQUIREMENT, ALL TEMPORARY CONSTRUCTION SLOPES SHALL BE PLACED AT A MAXIMUM OF A 1:1 SLOPE IN SOIL AND SHALL NOT BE LEFT OPEN WITHOUT SHORING FOR ANY LONGER THAN ABSOLUTELY NECESSARY. THE CONTRACTOR BUILDING THE WALL SHALL ENSURE THAT THESE TEMPORARY BACK SLOPES ARE NOT AND DO NOT BECOME UNSTABLE. IF SLOPE IS UNSTABLE, BECOMES UNSTABLE, IS CUT STEEPER THAN A 1:1 SLOPE OR IS UNACCEPTABLE FOR ANOTHER REASON, THEN TEMPORARY SHORING SHALL BE USED. ANY UNUSUAL SOIL CONDITIONS OTHER THAN THOSE ASSUMED SHOULD BE REPORTED TO THE PROJECT ENGINEER.

TABLE 1-DESIGN REQUIREMENTS AND PARAMETERS

DESCRIPTION	MSE WALLS	CIP WALLS	NOTE
DESIGN LIFE	75 YEARS	75 YEARS	

SEISMIC ACCELERATION COEFFICIENTS			
As	0.085	0.085	
S <sub>DS</sub>	0.205	0.205	
S <sub>D1</sub>	0.077	0.077	

EFFECTIVE (DRAINED) FRICTION ANGLE			
RETAINED BACKFILL-UNCLASSIFIED SITE OR BORROW SOIL	28 °	28 °	
RETAINED BACKFILL-SELECT BACKFILL	34 ° TO MAX 40 °	34 ° TO MAX 40 °	1
REINFORCED BACKFILL	34 ° TO MAX 40 °	34 ° TO MAX 40 °	1

UNIT WEIGHT			
UNCLASSIFIED SITE OR BORROW SOIL	120 POUNDS PER CUBIC FOOT	120 POUNDS PER CUBIC FOOT	
SELECT BACKFILL MATERIAL	VARIES	VARIES	1A

DESIGN BASIS			
COEFFICIENT OF SLIDING FRICTION	SEE TABLE 2	SEE TABLE 3	3
NOMINAL BEARING RESISTANCE	SEE TABLE 2	SEE TABLE 3	3
MINIMUM LENGTH OF SOIL REINFORCEMENT, L	GREATER OF 8-FT OR 0.7H OR AS SPECIFIED ON THE PLANS	NOT APPLICABLE	2,2A,2B
LIMITING ECCENTRICITY	L/4 (SOIL), 3L/8 (ROCK)	B/3 (SOIL), 9B/20 (ROCK)	

RESISTANCE FACTORS			
SLIDING-STATIC	1.0	1.0	4
SLIDING-COMBINED STATIC+EARTHQUAKE	1.0	1.0	4
BEARING-STATIC	0.65	0.55	5
BEARING-COMBINED STATIC+EARTHQUAKE	0.9	0.8	5

PULLOUT RESISTANCE			
STATIC	0.90	NOT APPLICABLE	6
COMBINED STATIC/EARTHQUAKE	1.20	NOT APPLICABLE	6

TENSILE RESISTANCE OF METALLIC REINFORCEMENTS AND CONNECTORS			
STATIC			
-STRIP REINFORCEMENT	0.75	NOT APPLICABLE	7
-GRID REINFORCEMENT	0.65		7,8
COMBINED STATIC/EARTHQUAKE			
-STRIP REINFORCEMENT	1.00	NOT APPLICABLE	7
-GRID REINFORCEMENT	0.85		7,8

TENSILE RESISTANCE OF GEOSYNTHETIC REINFORCEMENTS AND CONNECTORS			
STATIC	0.90	NOT APPLICABLE	
COMBINED STATIC/EARTHQUAKE	1.20	NOT APPLICABLE	

NOTES FOR TABLE 1	
NO.	NOTE
1	A MAXIMUM FRICTION ANGLE OF 34 DEGREES CAN BE ASSUMED FOR MATERIAL MEETING SPECIFICATIONS IN SECTION F, PART 1. MATERIALS OF TENNESSEE DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION 624 REGARDING RETAINING WALLS. A HIGHER FRICTION ANGLE THAN 34 DEGREES CAN BE UTILIZED IF THE CONTRACTOR SUBMITS INDEPENDENT TESTING AND IT IS VERIFIED BY TDOT. HOWEVER, IN NO CASE SHALL THE FRICTION ANGLE FOR ANALYSIS EXCEED 40-DEGREES. INDEPENDENT TESTING MUST BE VERIFIED ANNUALLY.
1A	SELECT BACKFILL UNIT WEIGHT TO BE DETERMINED BY CONTRACTOR/DESIGNER DEPENDING ON ACTUAL BACKFILL MATERIAL USED. SELECT BACKFILL IS DEFINED AS MATERIAL MEETING SPECIFICATIONS IN SECTION F, PART 1. MATERIALS OF TENNESSEE DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION 624 REGARDING RETAINING WALLS. IN ORDER TO UTILIZE ϕ FOR SELECT BACKFILL DESIGN, SELECT BACKFILL MUST BE PLACED FOR A MINIMUM ZONE FORMED BY A 1:1 SLOPE FROM 2 FEET BEHIND THE BOTTOM OF BACK OF WALL FOOTING OR REINFORCED SOIL ZONE FOR MSE WALLS UP TO FINISHED GRADE.
2	H IS DESIGN HEIGHT OF THE WALL AND IS DEFINED AS THE DIFFERENCE IN ELEVATION BETWEEN THE FINISHED GRADE AT THE TOP OF THE WALL AND THE TOP OF LEVELING PAD OR BOTTOM OF FOOTING FOR NON-MSE WALLS. THE TOP OF THE LEVELING PAD SHALL ALWAYS BE BELOW THE MINIMUM EMBEDMENT REFERENCE LINE AS INDICATED ON THE PLANS FOR THAT LOCATION. THE LENGTH OF THE SOIL REINFORCEMENT, L, IS MEASURED FROM THE BACKFACE OF THE WALL FACING UNIT. IN CASE OF GRID TYPE REINFORCEMENTS THE LENGTH OF THE SOIL REINFORCEMENT IS MEASURED FROM THE BACKFACE OF THE WALL FACING UNIT TO THE LAST FULL TRANSVERSE MEMBER. FOR MODULAR BLOCKFACING UNITS, THE TOTAL LENGTH OF THE REINFORCEMENT, B, AS MEASURED FROM THE FRONT FACE OF THE WALL IS THE LENGTH L AS DEFINED ABOVE PLUS THE WIDTH OF THE MODULAR BLOCK UNIT (THE HORIZONTAL DIMENSION OF THE BLOCK UNIT MEASURED PERPENDICULAR TO THE WALL FACE).
2A	WALL DESIGNER MUST ADJUST THE REINFORCEMENT LENGTHS BEYOND THOSE MINIMUM REQUIRED LENGTHS, IF REQUIRED, TO MEET BOTH INTERNAL AND EXTERNAL STABILITY REQUIREMENTS. MINIMUM REINFORCEMENT LENGTHS MAY BE REQUIRED FOR GLOBAL STABILITY. THIS REQUIREMENT WILL BE SHOWN IN THE PLANS.
2B	ALL DESIGN SECTION REINFORCEMENT LENGTHS SHALL BE EQUAL.
3	THESE VALUES WILL BE PROVIDED IN TABLES 2 AND/OR 3
4	PASSIVE RESISTANCE SHALL <u>NOT</u> BE CONSIDERED IN EVALUATION OF SLIDING RESISTANCE. NO SHEAR KEYS NOR DOWELS WILL BE PERMITTED. FOR CAST-IN-PLACE CONCRETE CANTILEVER WALLS, THE FOOTING SHALL BE UNIFORM IN THICKNESS THROUGHOUT THE DESIGN SECTION.
5	FOR ALL LIMIT STATES, THE DESIGN LOADING FOR THE RETAINING WALL SYSTEM SHALL NOT EXCEED THE ALLOWABLE BEARING RESISTANCE, WHICH IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE SPECIFIED IN TABLES 2 AND/OR 3 AND THE APPROPRIATE RESISTANCE FACTOR.
6	LIVE LOAD DUE TO VEHICULAR TRAFFIC SHALL BE INCLUDED IN THE COMPUTATIONS TO DETERMINE THE MAXIMUM TENSILE FORCES IN REINFORCEMENT LAYERS, BUT SHALL BE NEGLECTED IN THE COMPUTATIONS FOR PULLOUT RESISTANCE.
7	APPLY TO GROSS CROSS-SECTION LESS SACRIFICIAL AREA. FOR SECTIONS WITH HOLES, REDUCE GROSS AREA IN ACCORDANCE WITH ARTICLE 6.8.3 OF AASHTO (2017) AND APPLY TO NET SECTION LESS SACRIFICIAL AREA.
8	APPLIES TO GRID REINFORCEMENTS CONNECTED TO A RIGID FACING ELEMENT, E.G., A CONCRETE PANEL OR BLOCK. FOR GRID REINFORCEMENTS CONNECTED TO A FLEXIBLE FACING MAT OR WHICH ARE CONTINUOUS WITH THE FACING MAT, USE THE RESISTANCE FACTOR FOR STRIP REINFORCEMENTS.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R2

TABLE 2-FOUNDATION PARAMETERS AND REQUIREMENTS FOR MSE WALLS  
SEE CORRESPONDING "RETAINING WALL GEOMETRIC LAYOUT" SHEET(S).

TABLE 3-FOUNDATION PARAMETERS AND REQUIREMENTS FOR OTHER GRAVITY OR SEMI-GRAVITY WALLS  
SEE CORRESPONDING "RETAINING WALL GEOMETRIC LAYOUT" SHEET(S).

TABLE 4-DESIGN PARAMETERS FOR PILE-SUPPORTED WALLS  
SEE CORRESPONDING "RETAINING WALL GEOMETRIC LAYOUT" SHEET(S).

OTHER DESIGN REQUIREMENTS

THE WALL SHALL HAVE A DRAINAGE GUTTER AT THE TOP DESIGNED TO CARRY SURFACE RUNOFF TO EITHER OR BOTH ENDS OF WALLS. DETAILS OF THIS DRAINAGE FEATURE SHALL BE PROVIDED IN WALL DESIGNER/CONTRACTOR'S WALL DESIGN PLANS AND COSTS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALL.

IF A CONCRETE CANTILEVER WALL IS USED, THE WALL DESIGNER MUST PROVIDE FOR A DRAINAGE LAYER BEHIND THE WALL STEM WITH ADEQUATE DRAINAGE PROVIDED VIA WEEP HOLES.

ANY SHIMMING PLATES MUST BE PERMANENT (NO ASPHALT SHIMS).

IF REQUIRED, THE RETAINING WALL FOOTING HEEL OR REINFORCED ZONE MUST BE CONSTRUCTED WITH ALLOWANCES MADE TO ENABLE THE PILES FOR THE ABUTMENTS TO BE DRIVEN (SONOTUBE, ETC).

ALL WALL ELEMENTS SHALL BE WITHIN TDOT ROW.

ALL CONSTRUCTION MUST STAY WITHIN TDOT ROW, SLOPE EASEMENT, AND CONSTRUCTION EASEMENT.

IF A STEEPER THAN 1:1 BACKSLOPE IS REQUIRED BEHIND RETAINING WALL OR TEMPORARY SHORING, THE EFFECTIVE FRICTION ANGLE FOR SELECT BACKFILL WILL NOT BE ALLOWABLE FOR DESIGN AND THE EFFECTIVE FRICTION ANGLE FOR UNCLASSIFIED SITE OR BORROW SITE SHALL BE REQUIRED.

THE CONTRACTOR SHALL COORDINATE AND PERFORM ALL UTILITY RELOCATION SO THAT IT DOES NOT INTERFERE WITH THE RETAINING WALL INSTALLATION.

FOR FOUNDATION IMPROVEMENT AND EXCAVATION ZONE DETAILS, SEE TYPICAL DETAIL FOR UNDERCUTTING AND BACKFILLING DETAIL ON ACCOMPANYING SHEET.

FOR MSE WALLS, A MINIMUM HORIZONTAL BENCH 4 FEET WIDE AS MEASURED FROM THE FACE SHALL BE PROVIDED IN FRONT OF WALLS FOUNDED ON SLOPES. THE BENCH MAY BE FORMED OR THE SLOPE CONTINUED ABOVE THAT LEVEL. SEE ARTICLE 11.10.2.2, AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2014 AND INTERIMS. ALTERNATIVELY, THE EMBEDMENT DEPTH MAY BE INCREASED TO SATISFY THE REQUIREMENTS.

FOUNDATIONS IN ROCK SHALL BE PLACED BELOW ANY BOULDER FILL AND VOIDS/CAVITIES ENCOUNTERED.

SEE SPECIAL NOTES ON CORRESPONDING RETAINING WALL GEOMETRIC LAYOUT SHEETS.

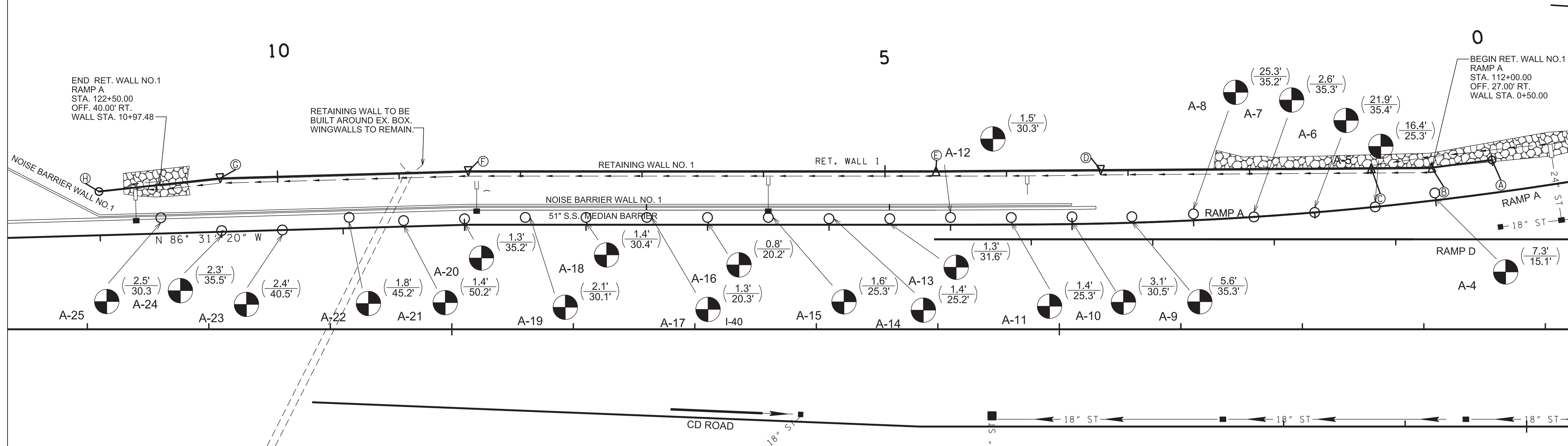
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

RETAINING WALL  
DETAIL-  
GEOTECHNICAL  
DESIGN NOTES &  
REQUIREMENTS

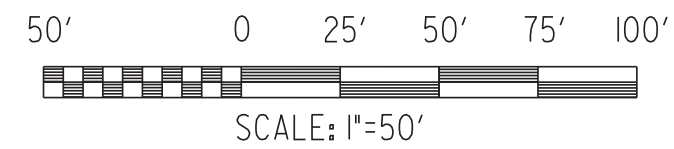
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R3

PROPOSED WALL 1 ALIGNMENT										
	WALL STA.	CODE	LOCATION	RAMP STA.	N	E	RAMP OFFSET	FROM-TO	BEARING	LENGTH
①	0+00.00	(A)	RAMP A	111+49.52	659047.2851	1770959.5083	27.00 RT.	(A) - (B)	S 87° 52' 32" W	50.00
①	0+50.00	(B)	RAMP A	112+00.00	659045.4315	1770909.5427	27.00 RT.	(B) - (C)	S 85° 21' 18" E	49.74
①	0+99.74	(C)	RAMP A	112+50.00	659049.4592	1770859.9696	32.00 RT.	(C) - (D)	S 85° 16' 57" E	222.74
①	3+22.48	(D)	RAMP A	114+75.46	659067.7781	1770637.9822	44.01 RT.	(D) - (E)	N 85° 18' 02" E	135.56
①	4+58.04	(E)	RAMP A	116+11.97	659078.8842	1770502.8790	44.00 RT.	(E) - (F)	S 84° 53' 06" E	384.98
①	8+43.02	(F)	RAMP A	119+96.33	659113.2068	1770119.4309	44.00 RT.	(F) - (G)	S 86° 31' 20" E	204.30
①	10+47.32	(G)	RAMP A	122+00.00	659125.5999	1769915.5044	44.00 RT.	(G) - (H)	N 88° 54' 14" E	100.32
	11+47.64	(H)	RAMP A	123+00.00	659123.6806	1769815.2033	36.00 RT.			

① WALL P.I. STATION.



### PLAN VIEW OF RETAINING WALL NO. 1



### ESTIMATED QUANTITIES FOR RETAINING WALL

ITEM NO.	604-07.01
DESCRIPTION	RETAINING WALL (WALL NO. 1) S.F.
QUANTITY	12,048

TABLE 2-FOUNDATION PARAMETERS AND REQUIREMENTS FOR MSE WALLS

STATION LIMITS	FOUNDATION (REINFORCED ZONE) BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 8+00 (111+50 TO 119+50)	ON SOIL AT MINIMUM EMBEDMENT DEPTH	3	0.35
0+00 TO 8+00 (111+50 TO 119+50)	UNDERCUT 4 FEET BELOW PROPOSED FOOTING ELEVATION OR TO BEDROCK WHICHEVER IS SHALLOWER AND REPLACE WITH GRADED SOLID ROCK	6	0.60
8+00 TO 10+00 (119+50 TO 121+50)	UNDERCUT 4 FEET BELOW PROPOSED FOOTING ELEVATION OR TO BEDROCK WHICHEVER IS SHALLOWER AND REPLACE WITH GRADED SOLID ROCK	6	0.60
10+00 TO 11+48 (121+50 TO 123+00)	ON SOIL AT MINIMUM EMBEDMENT DEPTH	3	0.35
10+00 TO 11+48 (121+50 TO 123+00)	UNDERCUT 4 FEET BELOW PROPOSED FOOTING ELEVATION OR TO BEDROCK WHICHEVER IS SHALLOWER AND REPLACE WITH GRADED SOLID ROCK	6	0.60

TABLE 3-FOUNDATION PARAMETERS AND REQUIREMENTS FOR GRAVITY  
OR SEMI-GRAVITY WALLS

STATION LIMITS	FOUNDATION (REINFORCED ZONE) BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 7+00 (111+50 TO 118+50)	UNDERCUT 3 FEET BELOW PROPOSED FOOTING ELEVATION OR TO BEDROCK WHICHEVER IS SHALLOWER AND REPLACE WITH GRADED SOLID ROCK	6	0.60
7+00 TO 10+00 (118+50 TO 121+50)	UNDERCUT 4 FEET BELOW PROPOSED FOOTING ELEVATION OR TO BEDROCK WHICHEVER IS SHALLOWER AND REPLACE WITH GRADED SOLID ROCK	6	0.60
10+00 TO 11+48 (121+50 TO 123+00)	UNDERCUT 3 FEET BELOW PROPOSED FOOTING ELEVATION OR TO BEDROCK WHICHEVER IS SHALLOWER AND REPLACE WITH GRADED SOLID ROCK	5	0.60

SPECIAL NOTES

SADDLE SHALL BE BUILT TO PROTECT EXISTING BOX CULVERT DURING CONSTRUCTION.

ALL EXPOSED WALL SURFACES SHALL BE FORMLINER FINISHED WITH ONE OF THE FOLLOWING PATTERNS OR AN APPROVED EQUAL. THE FORMLINER PATTERN SHOULD MATCH THAT OF THE NOISE WALL SURFACE. COST TO BE INCLUDED IN UNIT PRICE OF THE RETAINING WALL.

MANUFACTURER	FORM LNER
FITZGERALD FORMLINERS	16986 GEORGETOWN ASHLAR
CUSTOM ROCK	12020 TOLLWAY ASHLAR
SYMONS	ROUGH ASHLAR STONE

ALL EXPOSED COMPONENTS OF THE RETAINING WALL SYSTEM SHALL BE TEXTURE COATED WITH COLOR WOODLAND-IN-WAVERLY, AMS-STD-595A, COLOR NO. 36373. COST TO BE INCLUDED IN UNIT PRICE OF THE RETAINING WALL.

BID PRICE FOR WALLS SHALL INCLUDE AS REQUIRED; ALL COSTS FOR GRADING AND COMPACTION OF THE WALL FOUNDATION, LEVELING PAD EXCAVATION, CAST-IN-PLACE OR PRECAST COPING, CAST-IN-PLACE LEVEL UP CONCRETE FOR TOP PANELS, REINFORCEMENT STRIPS OR MESH, TIE STRIPS OR RODS, FASTENERS, CONNECTORS, JOINT MATERIALS, LEVELING PADS, FOOTINGS, SHEETING, SHORING, SELECT GRANULAR MATERIAL IN THE REINFORCED MASS, FILLING, HARDWARE FILTER CLOTH, REINFORCEMENT STEEL, AND ALL MISCELLANEOUS MATERIAL AND LABOR REQUIRED FOR THE CONSTRUCTION OF THE WALL.

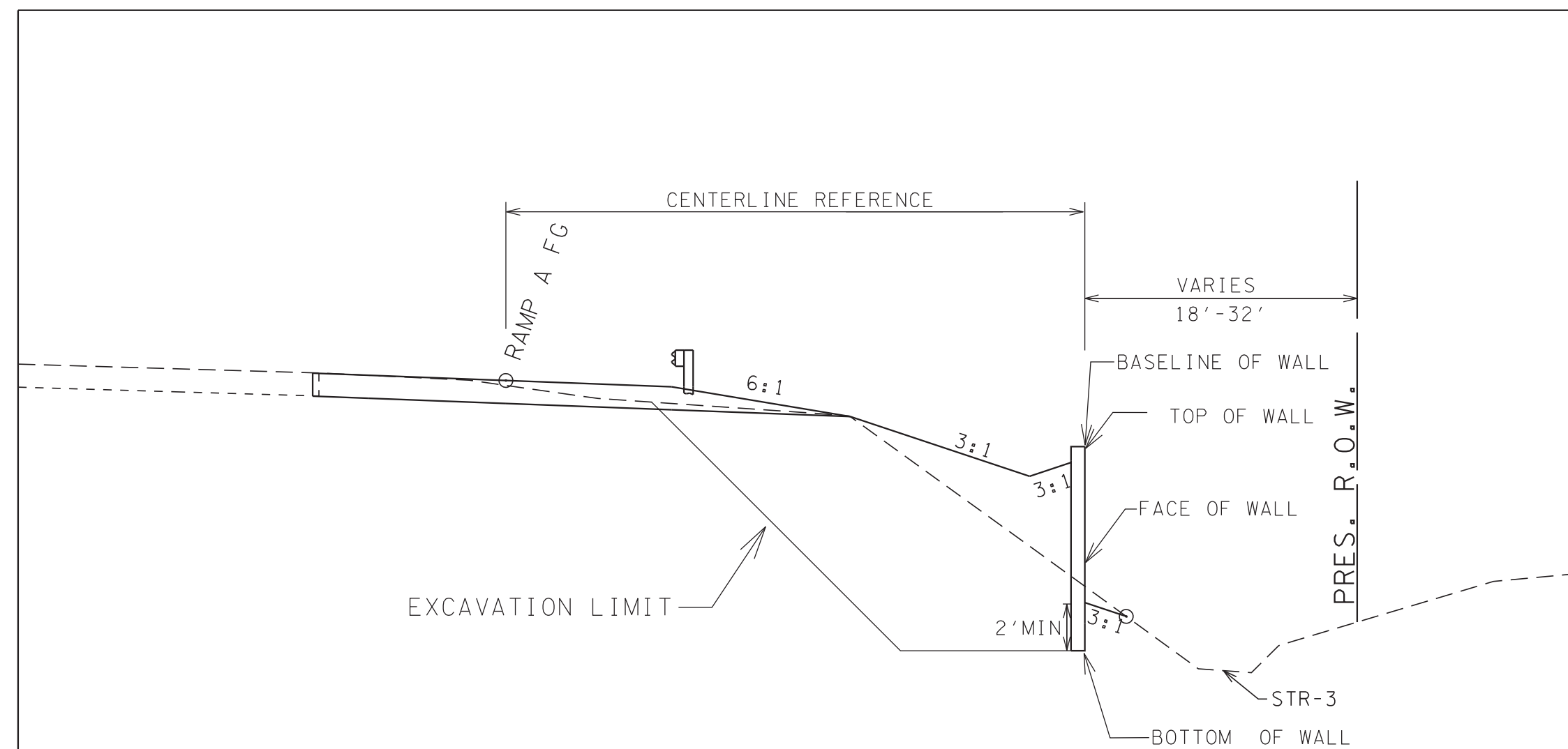
### ACCEPTABLE WALL TYPES

## CAST-IN-PLACE CANTILEVER WALL

### MECHANICALLY STABILIZED EARTH (MSE) WALL - SEGMENTAL PRECAST

## MECHANICALLY STABILIZED EARTH (MSE) WALL - MODULAR BLOCK

CAST-IN-PLACE CONCRETE GRAVITY WALL (STATIONS 111+50 TO 112+00, 116+25 TO 118+50, 122+50 TO 123+00 ONLY)

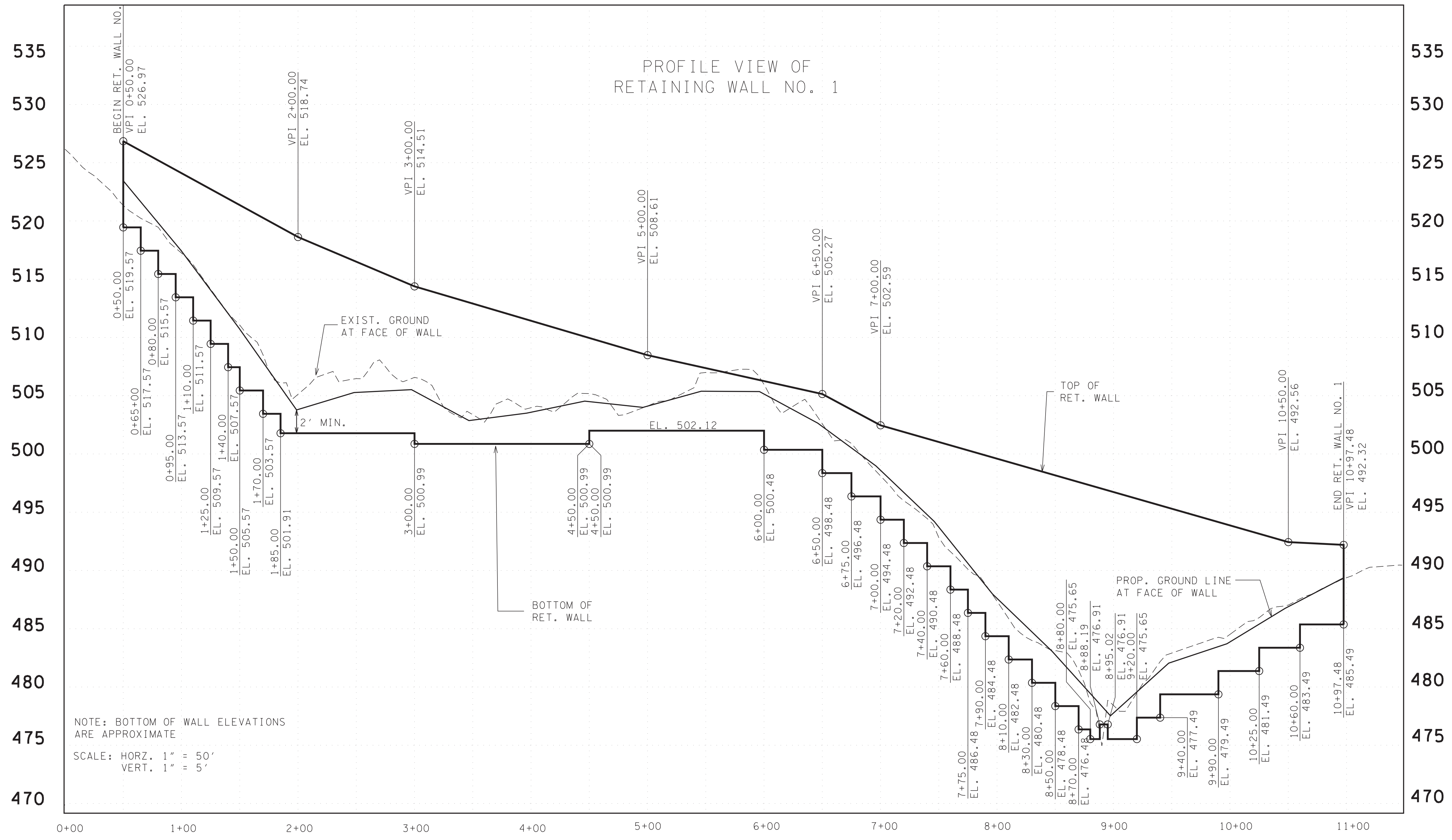


TYPICAL FILL SECTION WALL NO. 1 DETAILS  
NOT TO SCALE

RAMP A  
114+00.00

# RETAINING WALL (R-1A) GEOMETRIC LAYOUT

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R4

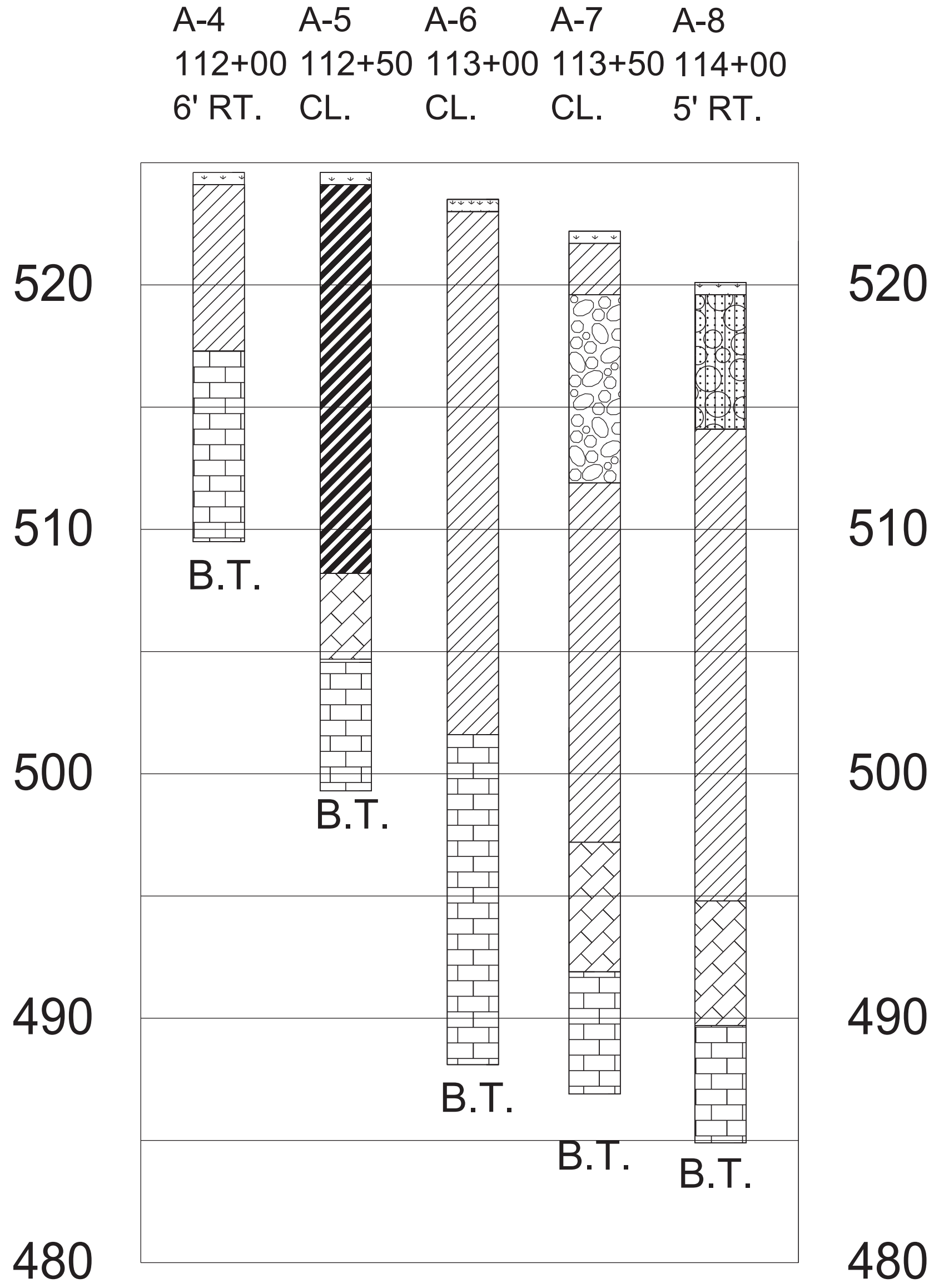


STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

RETAINING WALL  
(R-1B)  
GEOMETRIC  
PROFILE

2/8/2022 7:28:34 PM  
\\AG03SDCWF00008.net\ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R5 Wall 1.sht

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R5


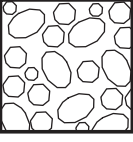
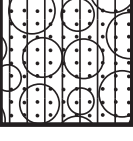
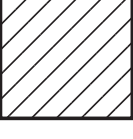

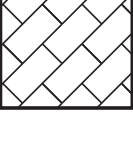
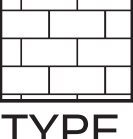


BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
A-4	112+00	RT 6'	524.9'	517.6'	15.1'
A-5	112+50	CL	524.9'	508.5'	25.3'
A-6	113+00	CL	523.8'	501.9'	35.4'
A-7	113+50	CL	522.5'	497.5'	35.3'
A-8	114+00	RT 5'	520.4'	495.1'	35.2'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

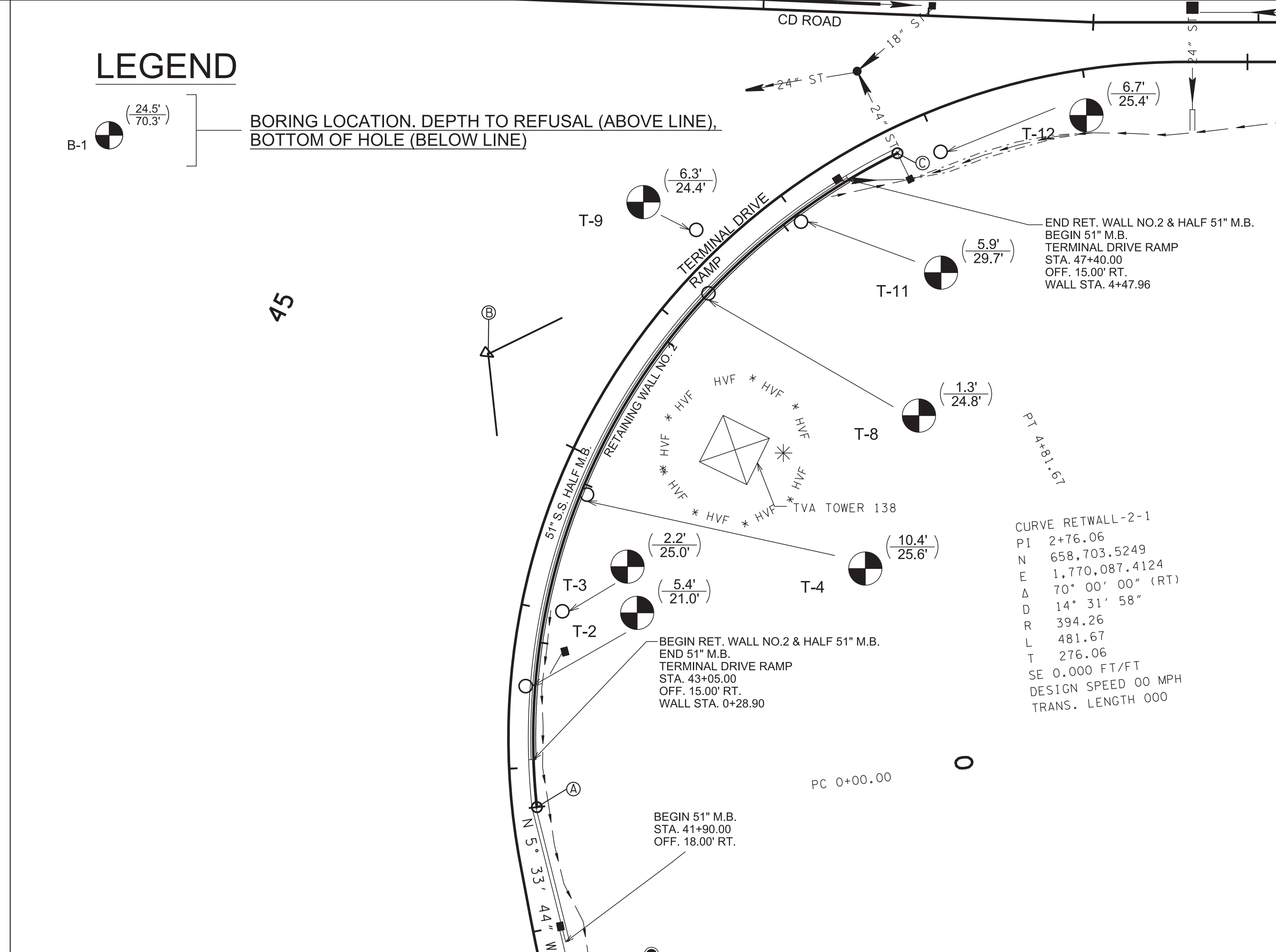
SEE SHEET R38 AND R39 FOR BORING A-9 TO A-25

LEGEND

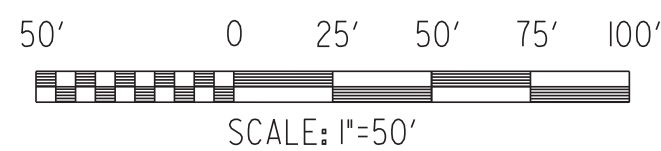
-  TOPSOIL
-  BOULDER / COBBLE
-  SILTY GRAVEL WITH SAND (TYPE A MATERIAL)
-  CLAY (TYPE A MATERIAL)
-  FAT CLAY (TYPE A MATERIAL)
-  WEATHERED LIMESTONE (TYPE D MATERIAL)
-  LIMESTONE (TYPE B MATERIAL)
- TYPE MATERIAL-SEE DEFINITION OF EARTHWORK TERMS ON NOTES AND GEOTECHNICAL EST. QTYS. SHEET.  
B.T.= BORING TERMINATED

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

(R-1C)  
GEOTECHNICAL  
BORING  
PROFILE



### PLAN VIEW OF RETAINING WALL NO. 2



PROPOSED WALL 2 ALIGNMENT										
	WALL STA.	CODE	LOCATION	RAMP STA.	N	E	RAMP OFFSET	FROM-TO	BEARING	LENGTH
①	0+00.00	(A)	TERMINAL DRIVE RAMP	42+75.00	658427.5084	1770092.3231	15.00 RT.	(A) - (B)	N 1° 01' 09" W	276.06
	2+40.84	(B)	TERMINAL DRIVE RAMP	45+25.00	658703.5249	1770087.4124	15.00 RT.	(B) - (C)	N 68° 58' 50" E	276.06
	4+81.67	(C)	TERMINAL DRIVE RAMP	47+75.00	658802.5431	1770345.1034	15.00 RT.			

① WALL P.I. STATION.

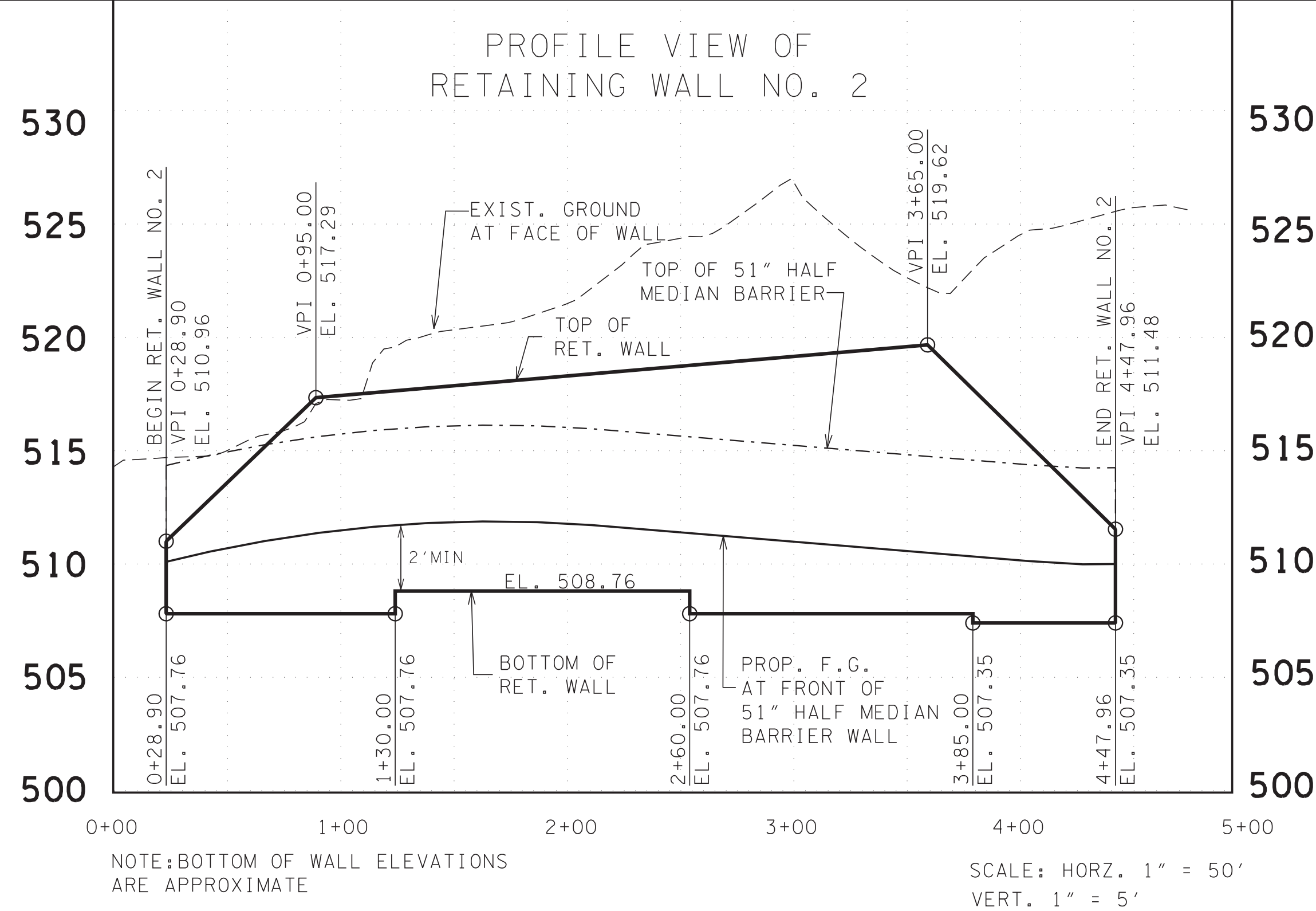
### SPECIAL NOTES

- \* THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PRESERVING THE INTEGRITY AND FUNCTION OF THE TVA TOWER DURING CONSTRUCTION AND THROUGHOUT THE DESIGN LIFE OF THE WALL.
- \* STABILITY OF THE TVA TOWER AND CONSTRUCTION SLOPES SHALL ADHERE TO THE TVA BUFFER REQUIREMENTS. IF TEMPORARY SHORING IS REQUIRED, BID PRICE FOR THE WALL SHALL INCLUDE ALL COSTS FOR TEMPORARY SHORING UNDER SQUARE FOOT COST OF THE WALL.
- ALL EXPOSED WALL SURFACES SHALL BE FORMLINER FINISHED WITH ONE OF THE FOLLOWING PATTERNS OR AN APPROVED EQUAL. THE FORMLINER PATTERN SHOULD MATCH THAT OF THE NOISE WALL SURFACE. COST TO BE INCLUDED IN UNIT PRICE OF THE RETAINING WALL.

MANUFACTURER	FORMLINER
FITZGERALD FORMLINERS	16986 GEORGETOWN ASHLAR
CUSTOM ROCK	12020 TOLLWAY ASHLAR
SYMONS	ROUGH ASHLAR STONE

ALL EXPOSED COMPONENTS OF THE RETAINING WALL SYSTEM SHALL BE TEXTURE COATED WITH COLOR GRAY, AMS-STD-595A, COLOR NO. 36440. COST TO BE INCLUDED IN UNIT PRICE OF THE RETAINING WALL.

BID PRICE FOR WALLS SHALL INCLUDE AS REQUIRED: ALL COSTS FOR GRADING AND COMPACTION OF THE WALL FOUNDATION, LEVELING PAD EXCAVATION, CAST-IN-PLACE OR PRECAST COPING, CAST-IN-PLACE LEVEL UP CONCRETE FOR TOP PANELS, REINFORCEMENT STRIPS OR MESH, TIE STRIPS OR RODS, FASTENERS, CONNECTORS, JOINT MATERIALS, LEVELING PADS, FOOTINGS, SHEETING, SHORING, SELECT GRANULAR MATERIAL IN THE REINFORCED MASS, FILLING, HARDWARE FILTER CLOTH, REINFORCEMENT STEEL, AND ALL MISCELLANEOUS MATERIAL AND LABOR REQUIRED FOR THE CONSTRUCTION OF THE WALL.



## ACCEPTABLE WALL TYPES

## CAST-IN-PLACE CANTILEVER WALL

MECHANICALLY STABILIZED EARTH (MSE) WALL - SEGMENTAL PRECAST

## MECHANICALLY STABILIZED EARTH (MSE) WALL - MODULAR BLOCK

### ESTIMATED QUANTITIES FOR RETAINING WALL

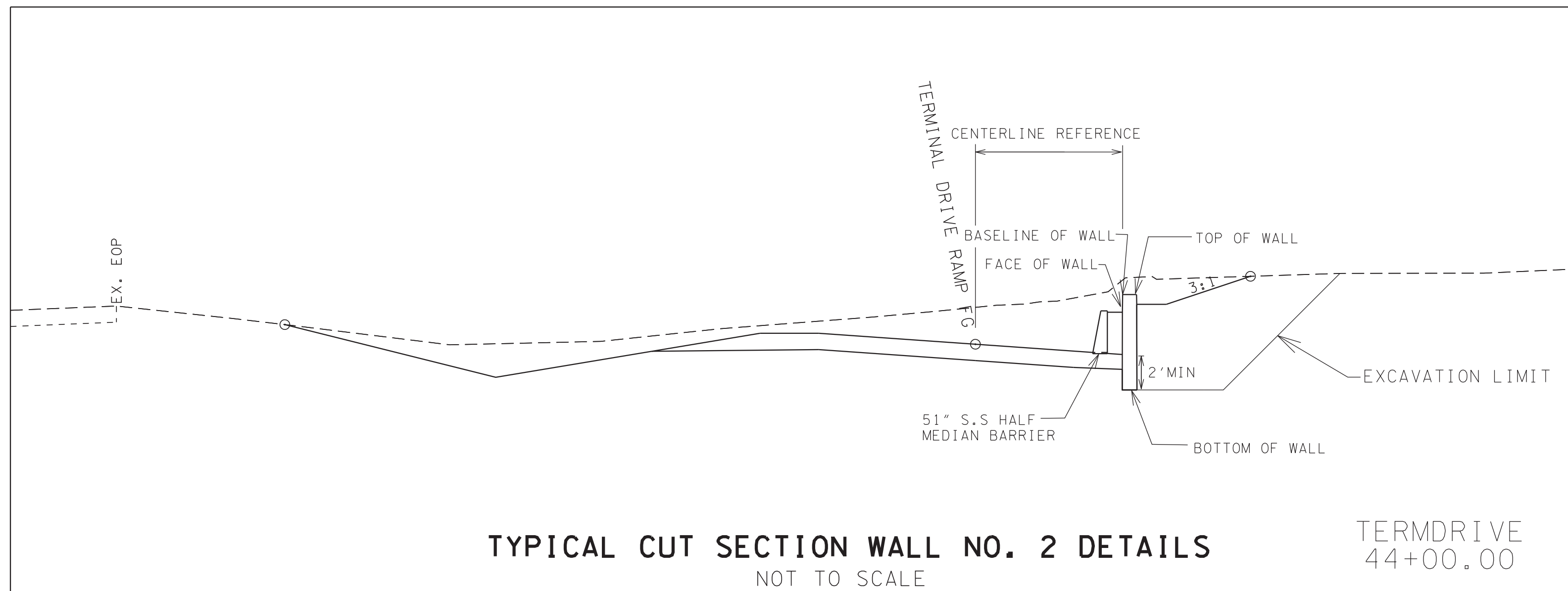
ITEM NO.	604-07.02
DESCRIPTION	RETAINING WALL (WALL NO. 2 S.F.
QUANTITY	3,852

TABLE 2-FOUNDATION PARAMETERS AND REQUIREMENTS FOR MSE WALLS

STATION LIMITS	FOUNDATION (REINFORCED ZONE) BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 3+25 (42+75 TO 46+00)	COMPETENT BEDROCK	75	0.65
3+25 TO 4+82 (46+00 TO 47+75)	IN-PLACE ROCK (WEATHERED)	30	0.60

TABLE 3-FOUNDATION PARAMETERS AND REQUIREMENTS FOR GRAVITY  
OR SEMI-GRAVITY WALLS

STATION LIMITS	FOUNDATION BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 3+25 (42+75 TO 46+00)	COMPETENT BEDROCK	75	0.65
3+25 TO 4+82 (46+00 TO 47+75)	IN-PLACE ROCK (WEATHERED)	30	0.60



TERMDRIVE  
44+00.00

**STATE OF TENNESSEE**  
**DEPARTMENT OF TRANSPORTATION**

# RETAINING WALL (R-2A) GEOMETRIC LAYOUT & PROFILE

2/8/2022 7:33:03 PM  
\\AG03SDCWF00008.net\ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R7 Wall 2.sht

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R7

T-2

43+50

10' RT.

T-3

44+00

25' RT.

T-4

44+75

20' RT.

T-8

46+25

15' RT.

T-9

46+50

18' LT.

T-11

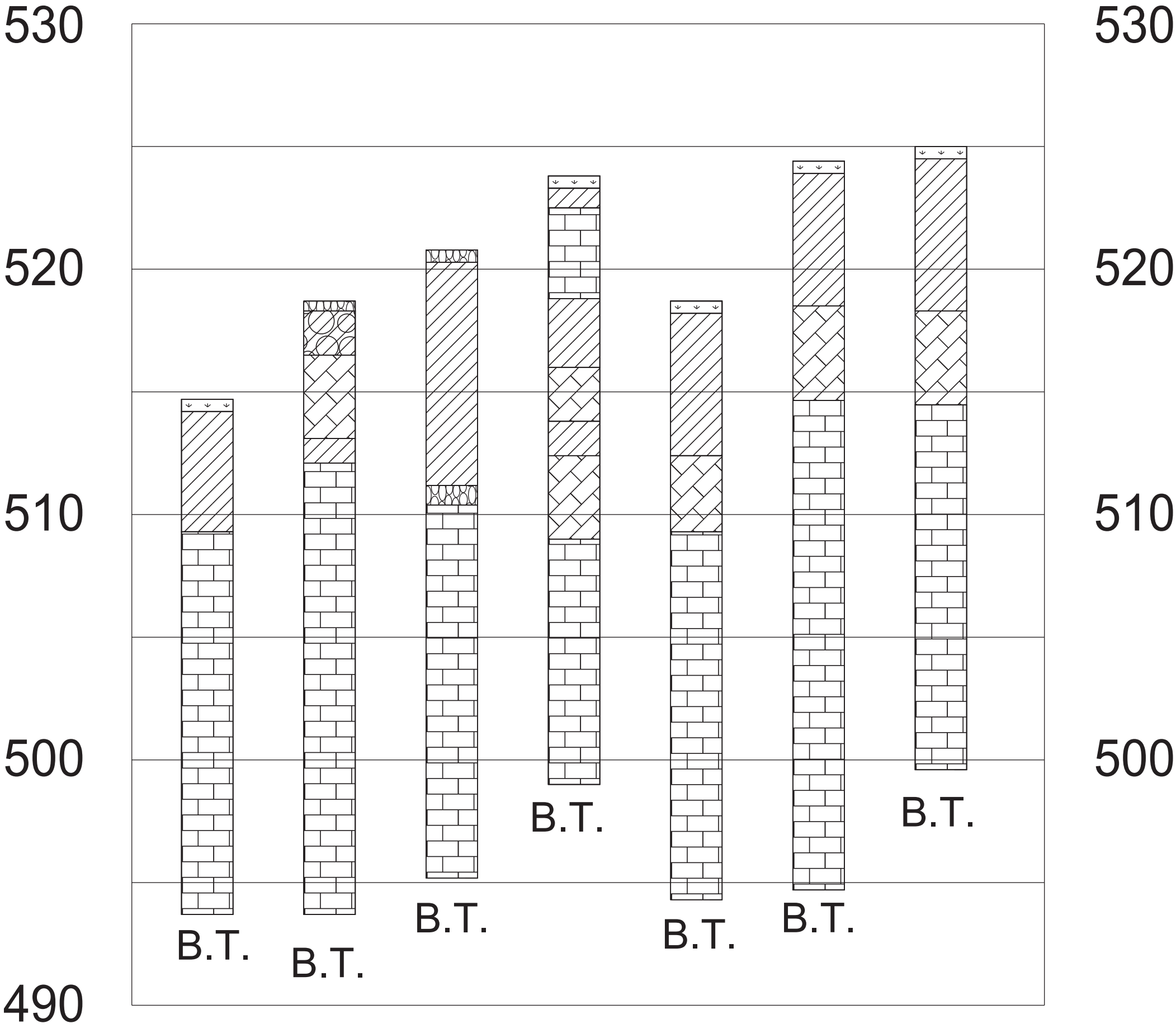
47+00

20' RT.

T-12

48+00

20' RT.



BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
T-2	43+50	RT 10'	515.0'	509.6'	21.0'
T-3	44+00	RT 25'	519.0'	516.8'	25.0'
T-4	44+75	RT 20'	521.1'	510.7'	25.6'
T-8	46+25	RT 15'	524.1'	522.8'	24.8'
T-9	46+50	LT 18'	519.0'	512.7'	24.4'
T-11	47+00	RT 20'	524.7'	518.8'	29.7'
T-12	48+00	RT 20'	526.0'	519.3'	25.4'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

LEGEND

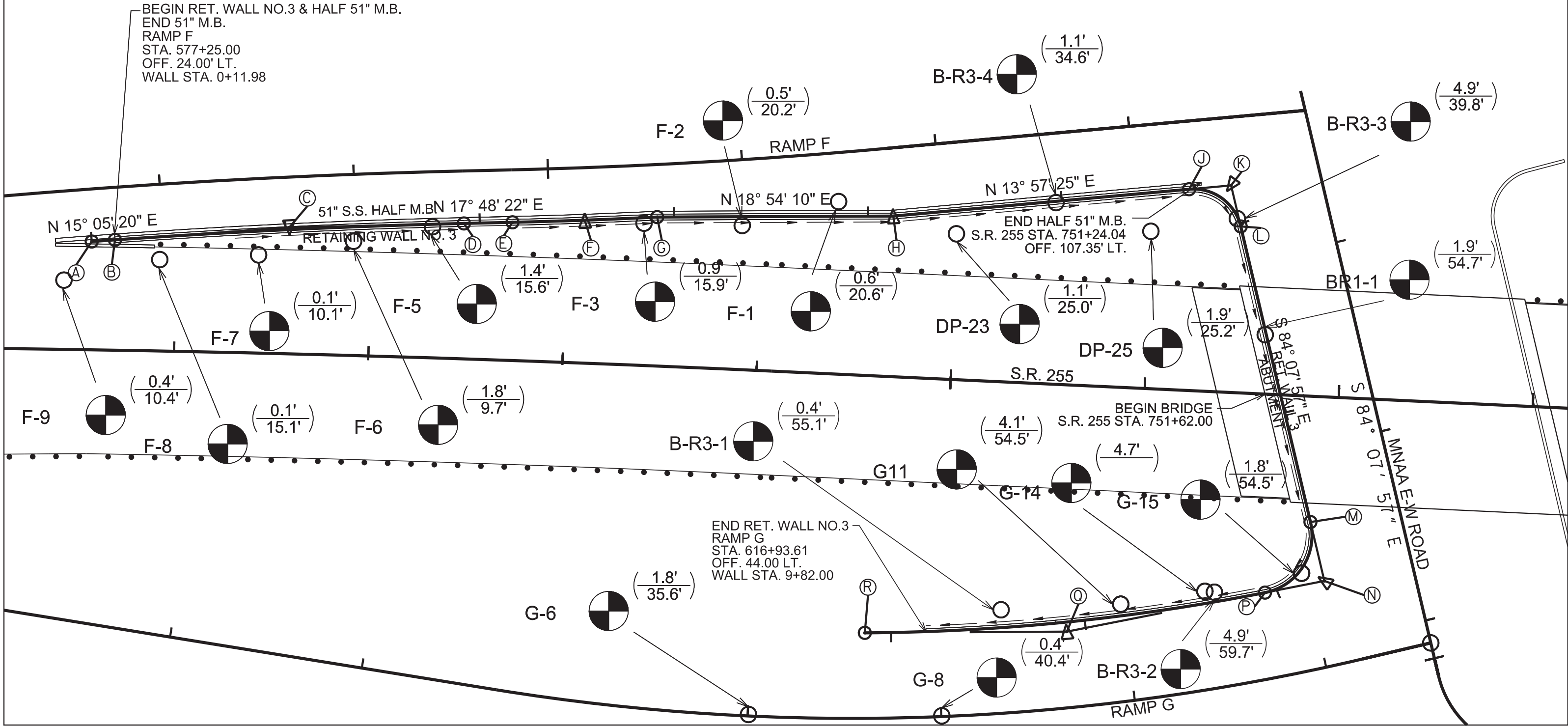
- TOPSOIL
- ASPHALT
- GRAVELY CLAY (TYPE A MATERIAL)
- CLAY (TYPE A MATERIAL)
- WEATHERED LIMESTONE (TYPE D MATERIAL)
- LIMESTONE (TYPE B MATERIAL)

TYPE MATERIAL-SEE DEFINITION OF EARTHWORK TERMS ON NOTES AND GEOTECHNICAL EST. QTYS. SHEET.  
B.T.= BORING TERMINATED

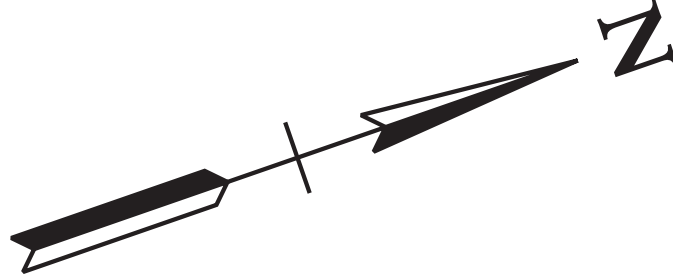
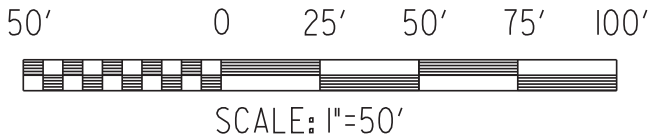
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

(R-2B)  
GEOTECHNICAL  
BORING  
PROFILE

2/8/2022 7:34:20 PM \\AG03SDCWF00008.net.ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R8 Wall 3.sht



## PLAN VIEW OF RETAINING WALL NO. 3



## LEGEND

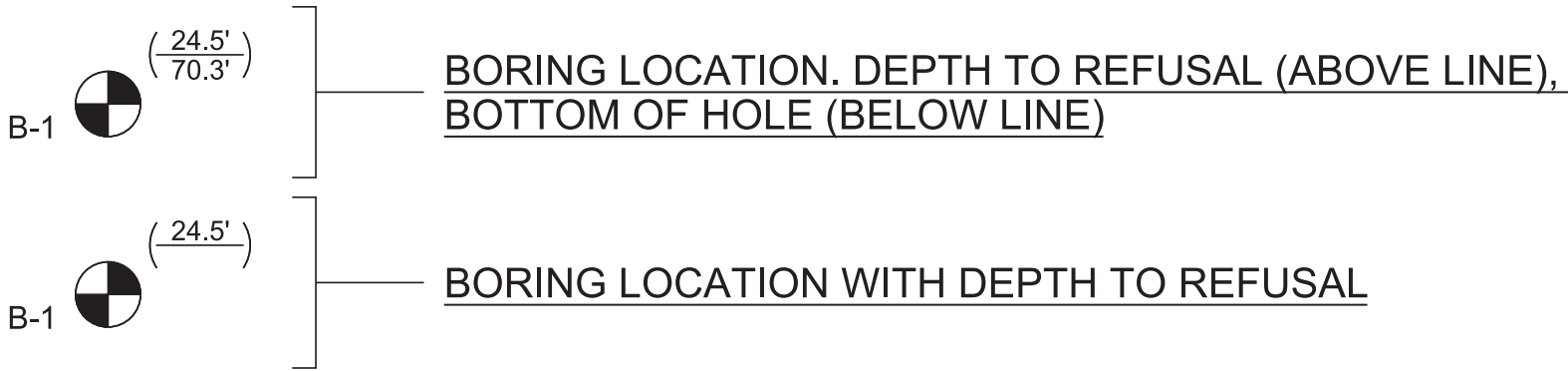


TABLE 2-FOUNDATION PARAMETERS AND REQUIREMENTS FOR MSE WALLS

STATION LIMITS	FOUNDATION (REINFORCED ZONE) BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 0+68 (577+37 TO 576+00)	COMPETENT BEDROCK	80	0.65
0+68 TO 2+96 (576+00 TO 574+50)	IN-PLACE ROCK (WEATHERED)	35	0.60
2+96 TO 9+86 (574+50 TO 572+97, 520+56 TO 522+68, 618+12 TO 616+90)	COMPETENT BEDROCK	80	0.65

TABLE 3-FOUNDATION PARAMETERS AND REQUIREMENTS FOR GRAVITY  
OR SEMI-GRAVITY WALLS

STATION LIMITS	FOUNDATION BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 0+68 (577+37 TO 576+00)	COMPETENT BEDROCK	80	0.65
0+68 TO 2+96 (576+00 TO 574+50)	IN-PLACE ROCK (WEATHERED)	35	0.60
2+96 TO 9+86 (574+50 TO 572+97, 520+56 TO 522+68, 618+12 TO 616+90)	COMPETENT BEDROCK	80	0.65

ESTIMATED QUANTITIES FOR RETAINING WALL

ITEM NO.	604-07.03
DESCRIPTION	RETAINING WALL (WALL NO. 3) S.F.
QUANTITY	15,132

## ACCEPTABLE WALL TYPES

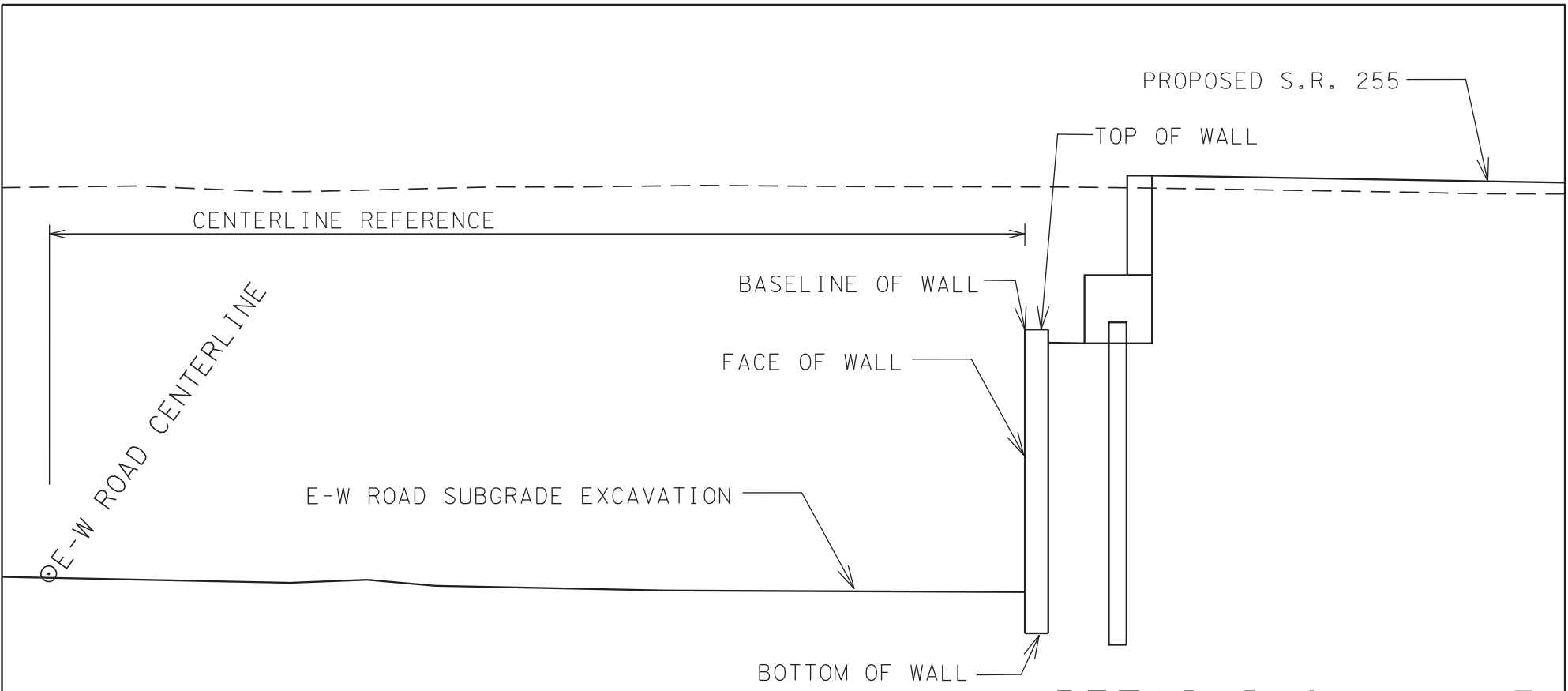
CAST-IN-PLACE CANTILEVER WALL  
MECHANICALLY STABILIZED EARTH (MSE) WALL - SEGMENTAL PRECAST  
MECHANICALLY STABILIZED EARTH (MSE) WALL - MODULAR BLOCK

## SPECIAL NOTES

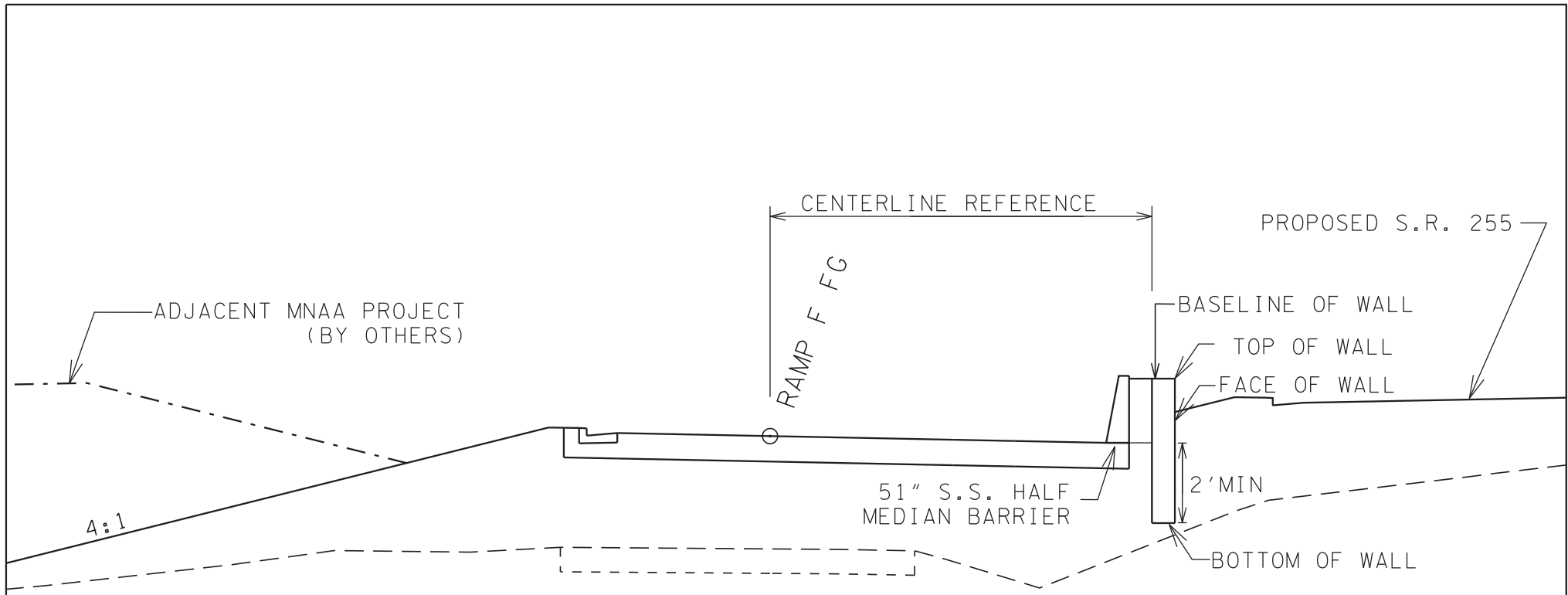
ALL EXPOSED WALL SURFACES SHALL BE FORMLINER FINISHED WITH "17910  
RANDOM ROUGH STACKED ROCK" FROM MANUFACTURE FITZGERALD FORMLINERS  
OR AN APPROVED EQUAL. THE FORMLINER PATTERN SHOULD MATCH THAT OF  
RETAINING WALL NO. 4. COST TO BE INCLUDED IN UNIT PRICE OF THE  
RETAINING WALL.

ALL EXPOSED COMPONENTS OF THE RETAINING WALL SYSTEM SHALL BE TEXTURE  
COATED WITH COLOR GRAY, AMS-STD-595A, COLOR NO. 36440. COST TO BE  
INCLUDED IN UNIT PRICE OF THE RETAINING WALL.

BID PRICE FOR WALLS SHALL INCLUDE AS REQUIRED: ALL COSTS FOR GRADING  
AND COMPACTION OF THE WALL FOUNDATION, LEVELING PAD EXCAVATION,  
CAST-IN-PLACE OR PRECAST COPING, CAST-IN-PLACE LEVEL UP CONCRETE FOR TOP  
PANELS, REINFORCEMENT STRIPS OR MESH, TIE STRIPS OR RODS, FASTENERS,  
CONNECTORS, JOINT MATERIALS, LEVELING PADS, FOOTINGS, SHEETING, SHORING,  
SELECT GRANULAR MATERIAL IN THE REINFORCED MASS, FILLING, HARDWARE  
FILTER CLOTH, REINFORCEMENT STEEL, AND ALL MISCELLANEOUS MATERIAL AND  
LABOR REQUIRED FOR THE CONSTRUCTION OF THE WALL.



TYPICAL CUT SECTION WALL NO. 3 DETAILS  
NOT TO SCALE



TYPICAL FILL SECTION WALL NO. 3 DETAILS  
NOT TO SCALE

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

RETAINING WALL  
(R-3A)  
GEOMETRIC  
LAYOUT

CURVE C-RET.WALL 3	CURVE F-RET.WALL 3	CURVE K-RET.WALL 3
PI 1+01.93	PI 2+54.13	PI 5+87.54
N 656,694.9272	N 656,839.8686	N 657,160.0678
E 1,773,194.8001	E 1,773,241.3525	E 1,773,333.3179
Δ 2° 43' 02" (RT)	Δ 1° 28' 36" (LT)	Δ 81° 54' 38" (RT)
D 1° 30' 38"	D 1° 58' 53"	D 229° 10' 59"
R 3,792.72	R 2,891.79	R 25.00
L 179.87	L 74.53	L 35.74
T 89.95	T 37.27	T 21.70
PC 0+11.98	PC 2+16.87	PC 5+65.84
PT 1+91.85	PT 2+91.40	PT 6+01.58

CURVE N-RET.WALL 3	CURVE O-RET.WALL 3
PI 7+89.02	PI 8+91.16
N 657,138.6882	N 657,023.6431
E 1,773,541.3571	E 1,773,525.1623
Δ 92° 08' 43" (RT)	Δ 8° 49' 32" (RT)
D 190° 59' 09"	D 5° 11' 59"
R 30.00	R 1,101.92
L 48.25	L 169.73
T 31.14	T 85.03
PCC 8+06.12	PC 7+57.88
PT 9+75.86	PCC 8+06.12

## PROPOSED WALL 3 ALIGNMENT

WALL STA.	CODE	LOCATION	RDWY. STA.	N	E	RDWY OFFSET	FROM-TO	BEARING	LENGTH
0+00.00	(A)	RAMP F	577+37.07	656596.5067	1773168.2650	26.98 LT.	(A) - (B)	N 15° 05' 20" E	11.98
0+11.98	(B)	RAMP F	577+25.00	656608.0764	1773171.3843	27.00 LT.	(B) - (C)	N 15° 05' 20" E	89.95
1+01.92	(C)	RAMP F	576+34.42	656694.9272	1773194.8001	27.00 LT.	(C) - (D)	N 17° 48' 22" E	89.95
1+91.85	(D)	RAMP F	575+43.85	656780.5703	1773222.3070	27.00 LT.	(D) - (E)	S 17° 48' 22" W	25.01
2+16.87	(E)	RAMP F	575+18.83	656804.3865	1773229.9563	27.00 LT.	(E) - (F)	N 17° 48' 22" E	37.27
2+54.13	(F)	RAMP F	574+81.92	656839.8686	1773241.3525	27.00 LT.	(F) - (G)	N 16° 19' 46" E	37.27
2+91.40	(G)	RAMP F	574+45.00	656875.6327	1773251.8305	27.00 LT.	(G) - (H)	N 18° 54' 10" E	121.54
4+12.93	(H)	RAMP F	573+25.00	656990.6149	1773291.2041	35.00 LT.	(H) - (J)	S 13° 57' 25" W	153.24
5+65.84	(J)	E-W ROAD	520+56.06	657139.0104	1773328.0845	67.48 RT.	(J) - (K)	N 13° 57' 25" E	21.70
5+83.71	(K)	E-W ROAD	520+59.12	657160.0678	1773333.3179	52.12 RT.	(K) - (L)	S 84° 07' 57" E	21.70
6+01.58	(L)	E-W ROAD	520+80.81	657157.8497	1773354.9022	46.00 RT.	(L) - (M)	S 84° 07' 57" E	156.29
7+57.88	(M)	E-W ROAD	522+37.11	657141.8721	1773510.3754	46.00 RT.	(M) - (N)	S 84° 07' 57" E	31.14
7+82.00	(N)	E-W ROAD	522+68.25	657138.6882	1773541.3571	55.19 RT.	(N) - (P)	S 08° 00' 46" W	31.14
8+06.12	(P)	RAMP G	618+76.51	657107.8474	1773537.0157	44.00 LT.	(P) - (Q)	S 08° 00' 46" W	103.97
9+09.79	(Q)	RAMP G	617+68.70	657004.8878	1773522.5222	44.00 LT.	(Q) - (R)	S 18° 47' 37" W	103.97
10+13.46	(R)	RAMP G	616+60.66	656906.4564	1773489.0257	44.00 LT.			

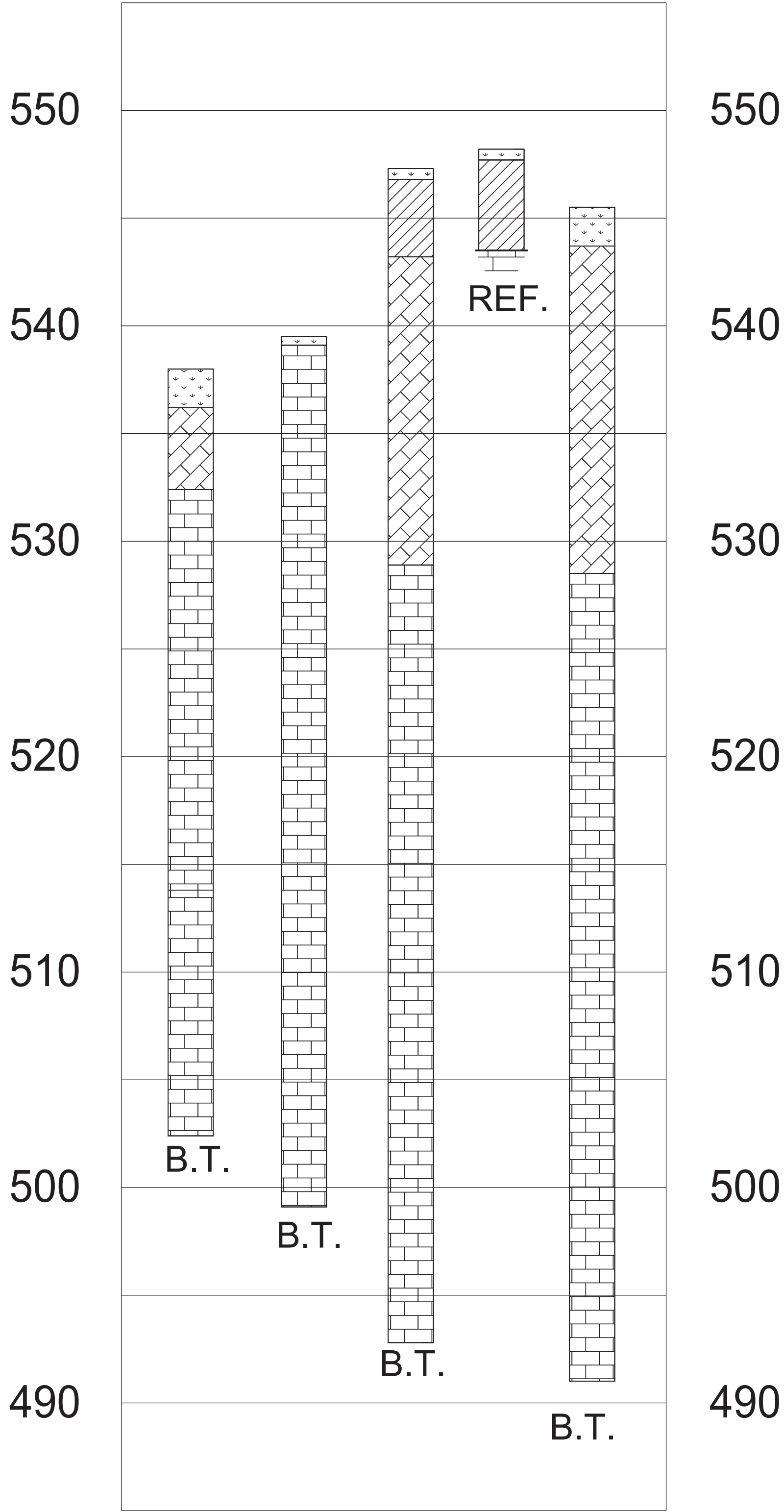
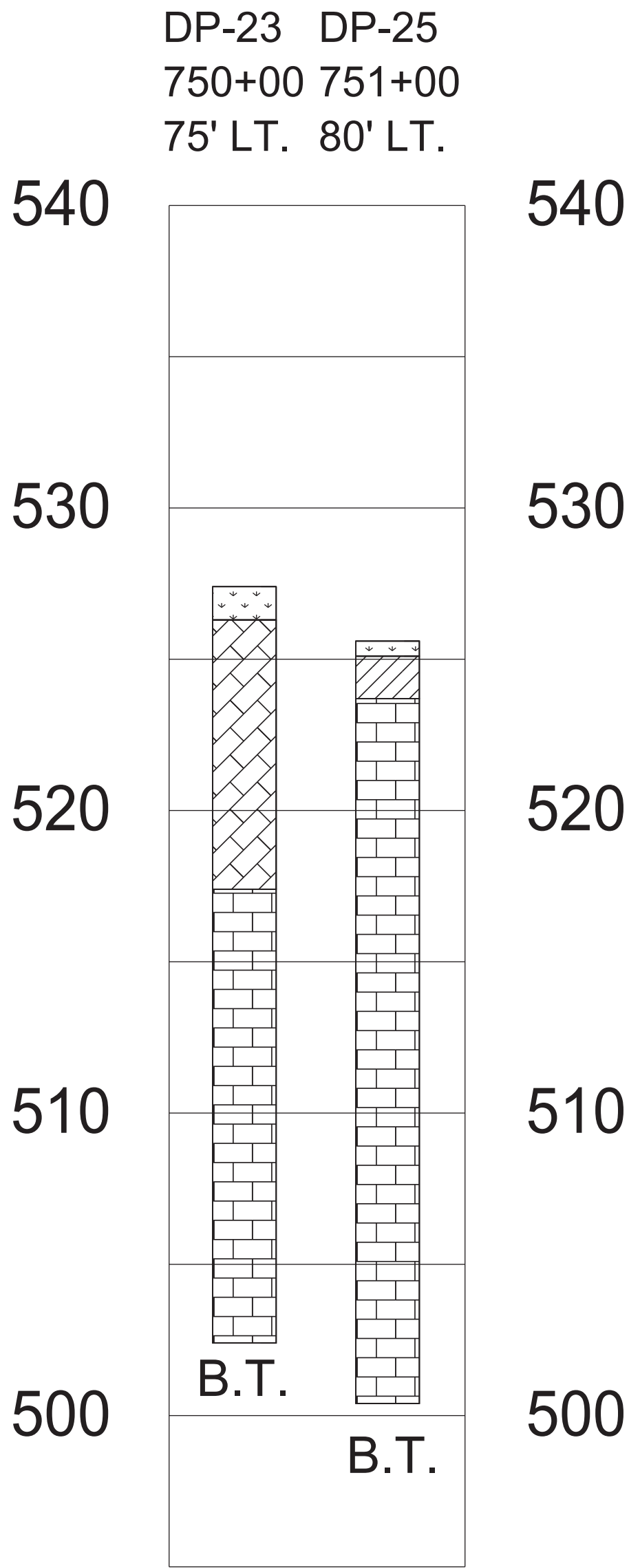
① WALL P.I. STATION.



2/8/2022 7:36:44 PM  
\\AG03SDCWF00008.net\ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R10 Wall 3.dgn

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R10

G-6      G-8      G-11      G-14      G-15  
616+00 617+00 618+00 618+50 619+00  
CL.      CL.      50' LT. 50' LT. 50' LT.



BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
DP-23	750+00	LT 75'	527.5'	526.4'	25.0'
DP-25	751+00	LT 80'	525.7'	523.8'	25.2'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
G-6	616+00	CL	538.0'	536.2'	35.6'
G-8	617+00	CL	539.5'	539.1'	40.4'
G-11	618+00	LT 50'	547.3'	543.2'	54.5'
G14	618+50	LT 50'	548.2'	543.5'	4.7'
G-15	619+00	LT 50'	545.1'	543.3'	54.5'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

LEGEND

- TOPSOIL
- CLAY (TYPE A MATERIAL)
- WEATHERED LIMESTONE (TYPE D MATERIAL)
- LIMESTONE (TYPE B MATERIAL)

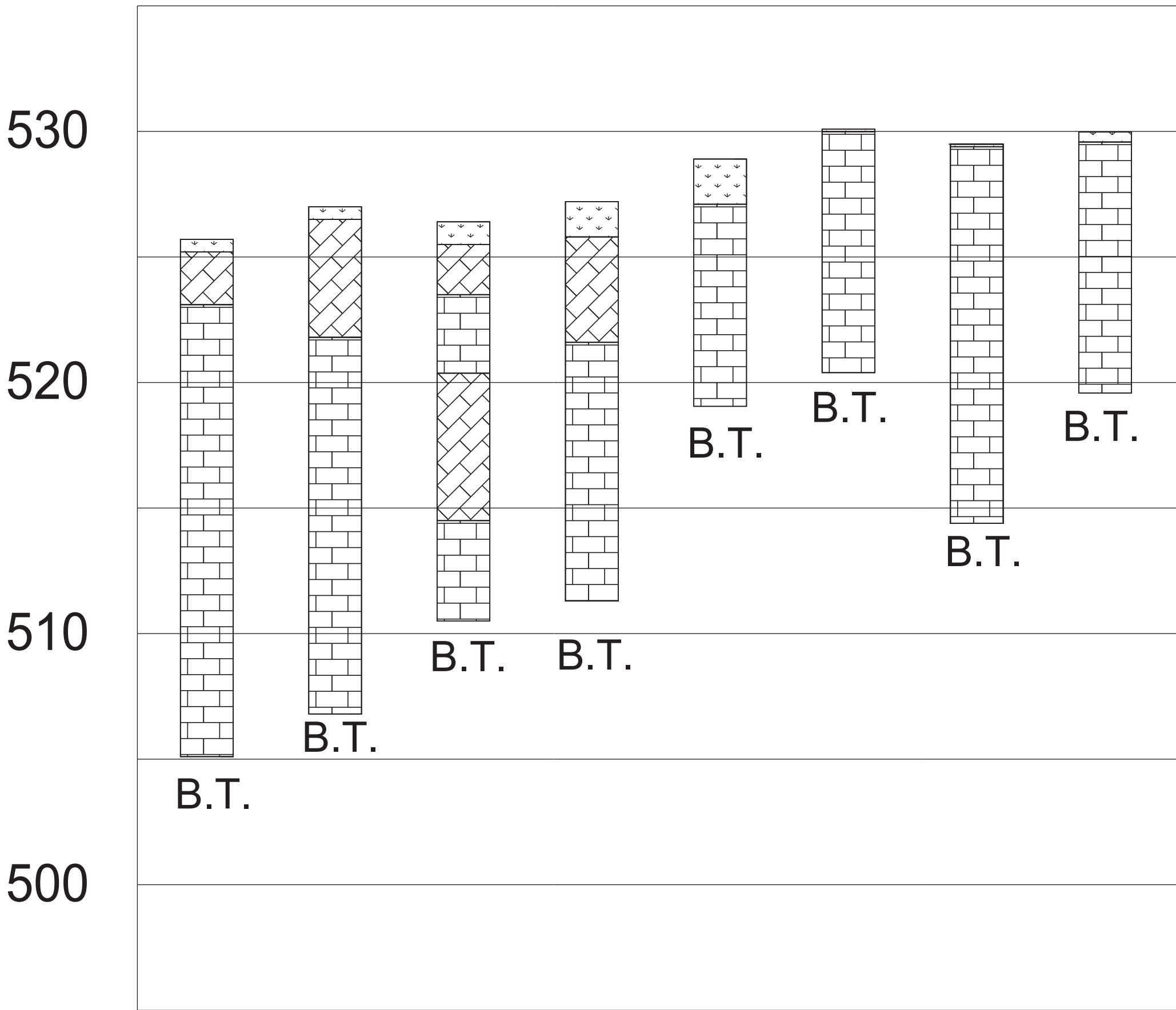
TYPE MATERIAL-SEE DEFINITION OF EARTHWORK TERMS ON NOTES AND GEOTECHNICAL EST. QTYS. SHEET.  
B.T.= BORING TERMINATED  
REF.= AUGER REFUSAL

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

(R-3C)  
GEOTECHNICAL  
BORING  
PROFILE

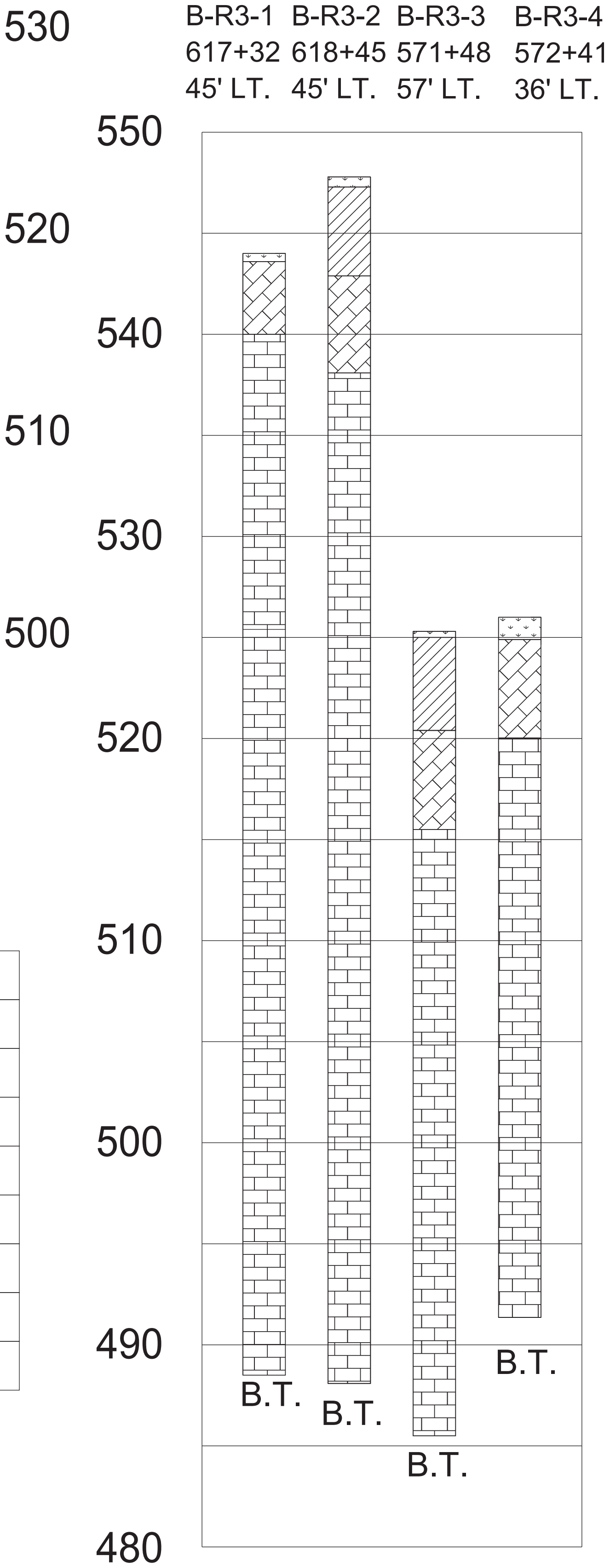
2/8/2022 7:37:50 PM  
\\AG03SDCWF00008.net\ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R11 Wall 3.dgn

F-1 F-2 F-3 F-5 F-6 F-7 F-8 F-9  
573+50 574+00 574+50 575+60 576+00 576+50 577+00 577+50  
26' LT. 35' LT. 30' LT. 30' LT. 34' LT. 37' LT. 40' LT. 46' LT.

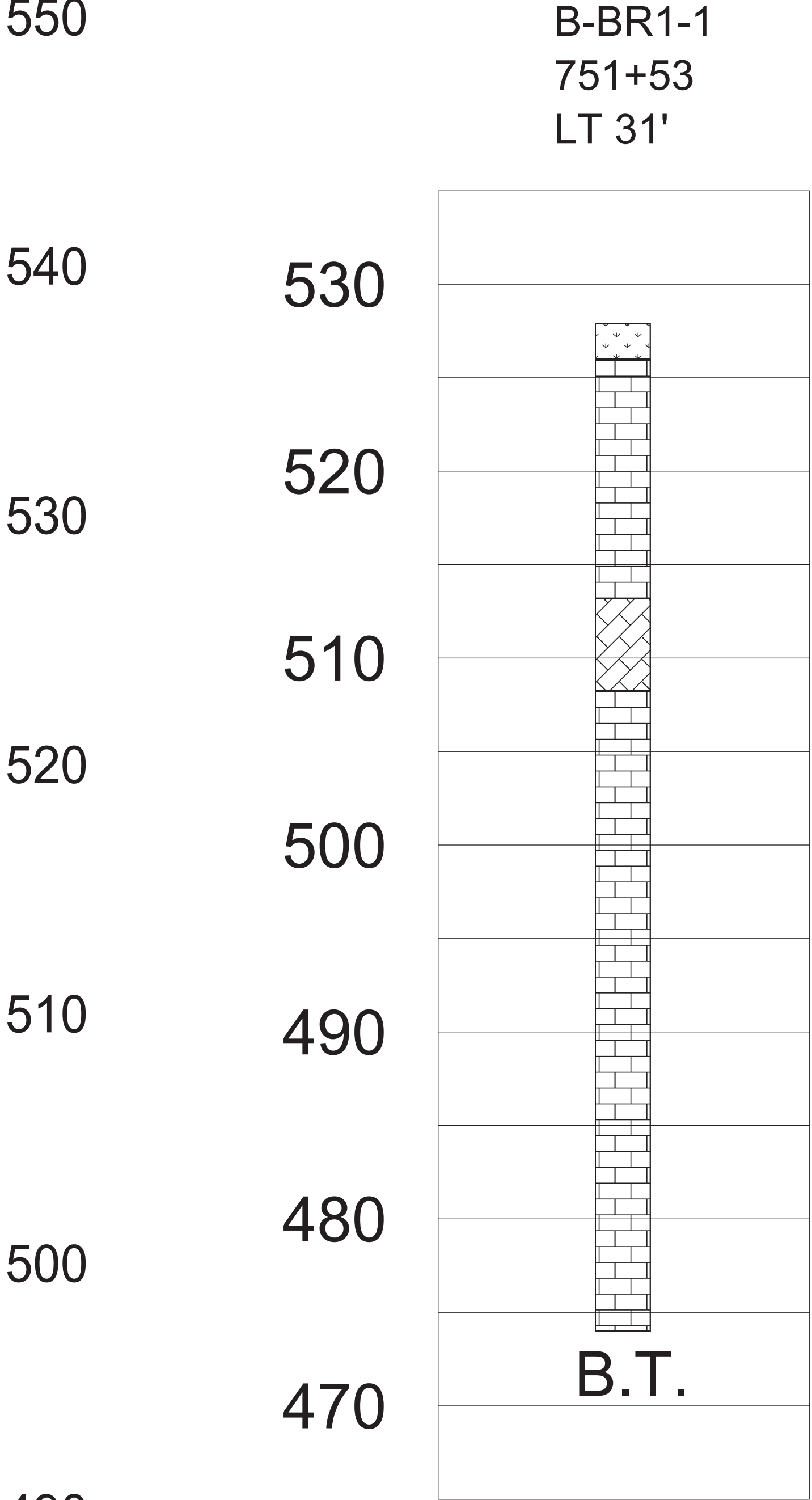


BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
F-1	573+50	LT 26'	526.0'	525.4'	20.6'
F-2	574+00	LT 35'	527.0'	526.5'	20.2'
F-3	574+50	LT 30'	526.4'	525.5'	15.9'
F-5	575+60	LT 30'	527.2'	525.8'	15.6'
F-6	576+00	LT 34'	529.2'	527.4'	9.7'
F-7	576+50	LT 37'	530.1'	530.0'	10.1'
F-8	577+00	LT 40'	529.5'	529.4'	15.1'
F-9	577+50	LT 46'	530.0'	529.6'	10.4'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL  
AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.



B-R3-1 B-R3-2 B-R3-3 B-R3-4  
617+32 618+45 571+48 572+41  
45' LT. 45' LT. 57' LT. 36' LT.



B-BR1-1  
751+53  
LT 31'

BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
B-BR1-1	751+53	LT 31'	528.9'	527.0'	54.7'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL  
AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R11

LEGEND

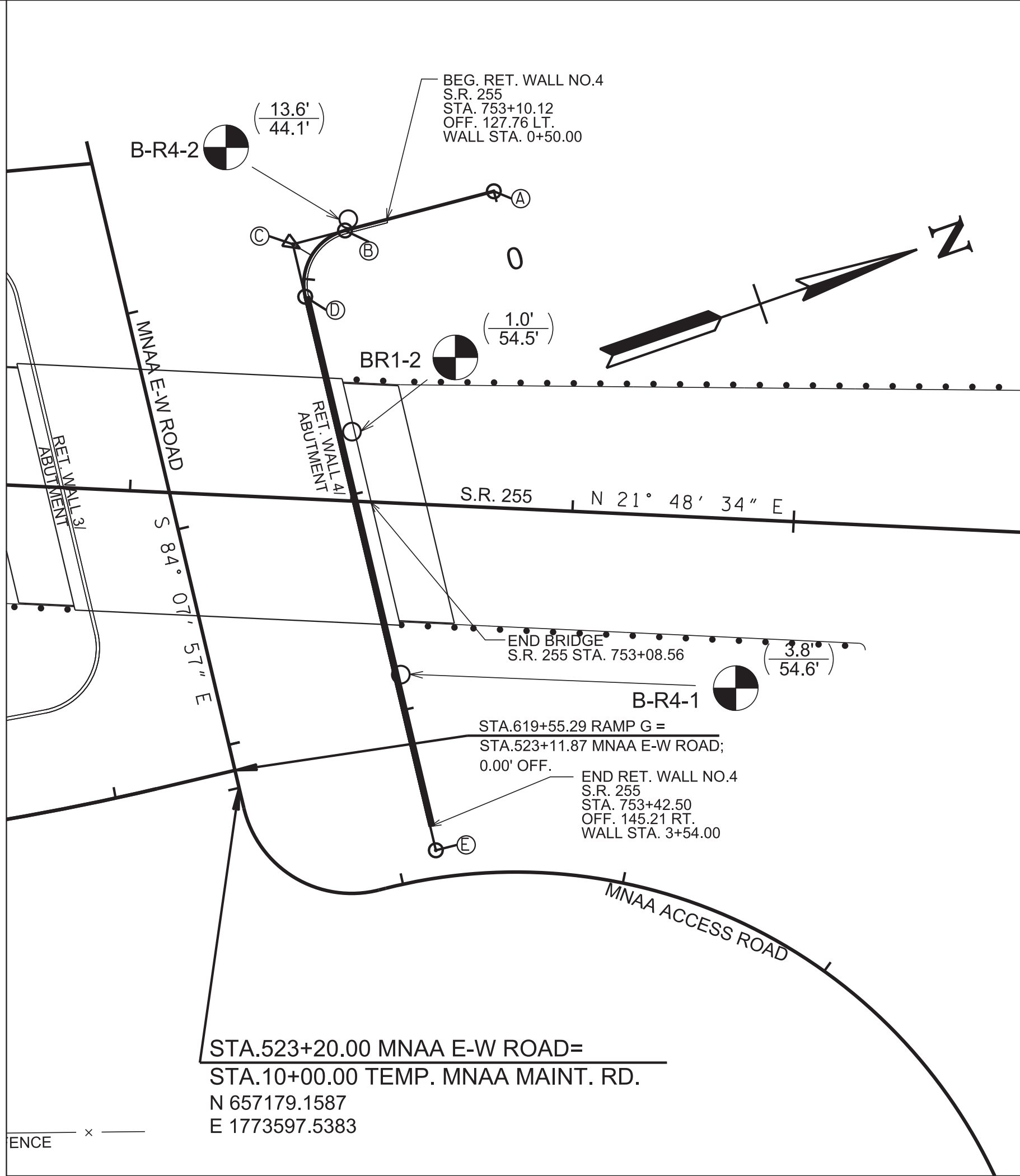
- TOPSOIL
- CLAY (TYPE A MATERIAL)
- WEATHERED LIMESTONE (TYPE D MATERIAL)
- LIMESTONE (TYPE B MATERIAL)

TYPE MATERIAL-SEE DEFINITION  
OF EARTHWORK TERMS ON  
NOTES AND GEOTECHNICAL EST.  
QTYS. SHEET.  
B.T.= BORING TERMINATED

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

(R-3D)  
GEOTECHNICAL  
BORING  
PROFILE

2/11/2022 8:08:57 AM  
\\AG03SDCWF00008.net.ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R12 Wall 4.sht



PROPOSED WALL 4 ALIGNMENT									
WALL STA.	CODE	LOCATION	ROAD STA.	N	E	ROAD OFFSET	FROM-TO	BEARING	LENGTH
0+00.00	(A)	S.R. 255	753+57.83	657376.1858	1773380.7239	142.74 LT.	(A) - (B)	S 04° 22' 54" W	69.50
0+69.50	(B)	S.R. 255	752+91.52	657306.8875	1773375.4140	104.35 LT.	(B) - (C)	S 04° 22' 54" W	24.36
0+88.81	(C)	E-W ROAD	520+86.61	657282.5987	1773373.5529	87.10 LT.	(C) - (D)	S 84° 07' 57" E	24.36
1+08.12	(D)	E-W ROAD	521+10.97	657280.1084	1773397.7852	80.00 LT.	(D) - (E)	S 84° 07' 57" E	256.88
3+65.00	(E)	S.R. 255	753+45.52	657253.8482	1773353.3163	155.79 RT.			

① WALL P.I. STATION.

ACCEPTABLE WALL TYPES

- CAST-IN-PLACE CANTILEVER WALL
- MECHANICALLY STABILIZED EARTH (MSE) WALL - SEGMENTAL PRECAST
- MECHANICALLY STABILIZED EARTH (MSE) WALL - MODULAR BLOCK

SPECIAL NOTES

ALL EXPOSED WALL SURFACES SHALL BE FORMLINER FINISHED WITH "17910 RANDOM ROUGH STACKED ROCK" FROM MANUFACTURE FITZGERALD FORMLINERS OR AN APPROVED EQUAL. THE FORMLINER PATTERN SHOULD MATCH THAT OF RETAINING WALL NO. 3. COST TO BE INCLUDED IN UNIT PRICE OF THE RETAINING WALL.

ALL EXPOSED COMPONENTS OF THE RETAINING WALL SYSTEM SHALL BE TEXTURE COATED WITH COLOR GRAY, AMS-STD-595A, COLOR NO. 36440. COST TO BE INCLUDED IN UNIT PRICE OF THE RETAINING WALL.

BID PRICE FOR WALLS SHALL INCLUDE AS REQUIRED: ALL COSTS FOR GRADING AND COMPACTION OF THE WALL FOUNDATION, LEVELING PAD EXCAVATION, CAST-IN-PLACE OR PRECAST COPING, CAST-IN-PLACE LEVEL UP CONCRETE FOR TOP PANELS, REINFORCEMENT STRIPS OR MESH, TIE STRIPS OR RODS, FASTENERS, CONNECTORS, JOINT MATERIALS, LEVELING PADS, FOOTINGS, SHEETING, SHORING, SELECT GRANULAR MATERIAL IN THE REINFORCED MASS, FILLING, HARDWARE FILTER CLOTH, REINFORCEMENT STEEL, AND ALL MISCELLANEOUS MATERIAL AND LABOR REQUIRED FOR THE CONSTRUCTION OF THE WALL.

CURVE C-RET.WALL 4  
PI 0+93.86  
N 657,282.5987  
E 1,773,373.5529  
Δ 88° 30' 51" (LT)  
D 229° 10' 59"  
R 25.00  
L 38.62  
T 24.36  
PC 0+69.50  
PT 1+08.12

TABLE 2-FOUNDATION PARAMETERS AND REQUIREMENTS FOR MSE WALLS

STATION LIMITS	FOUNDATION (REINFORCED ZONE) BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 3+65 (520+84 TO 523+22)	COMPETENT ROCK	100	0.65

TABLE 3-FOUNDATION PARAMETERS AND REQUIREMENTS FOR GRAVITY OR SEMI-GRAVITY WALLS

STATION LIMITS	FOUNDATION BEARING CONDITION REQUIREMENT	NOMINAL BEARING RESISTANCE (ksf)	COEFFICIENT OF SLIDING FRICTION
0+00 TO 3+65 (520+84 TO 523+22)	COMPETENT ROCK	100	0.65

LEGEND

B-1 (24.5' / 70.3') BORING LOCATION. DEPTH TO REFUSAL (ABOVE LINE), BOTTOM OF HOLE (BELOW LINE)

550

545

540

535

530

525

520

515

510

505

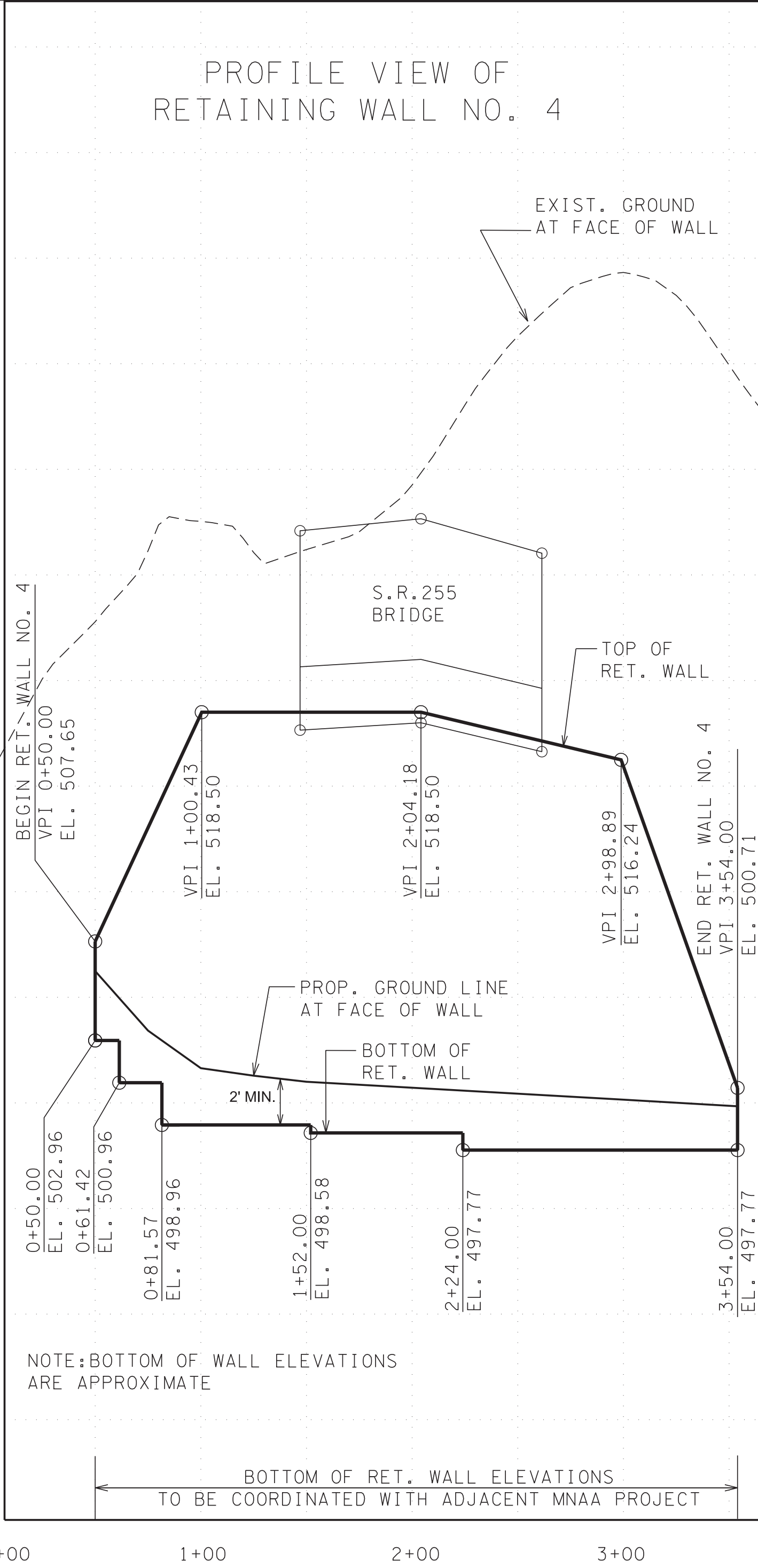
500

495

490

485

480



550

545

540

535

530

525

520

515

510

505

500

495

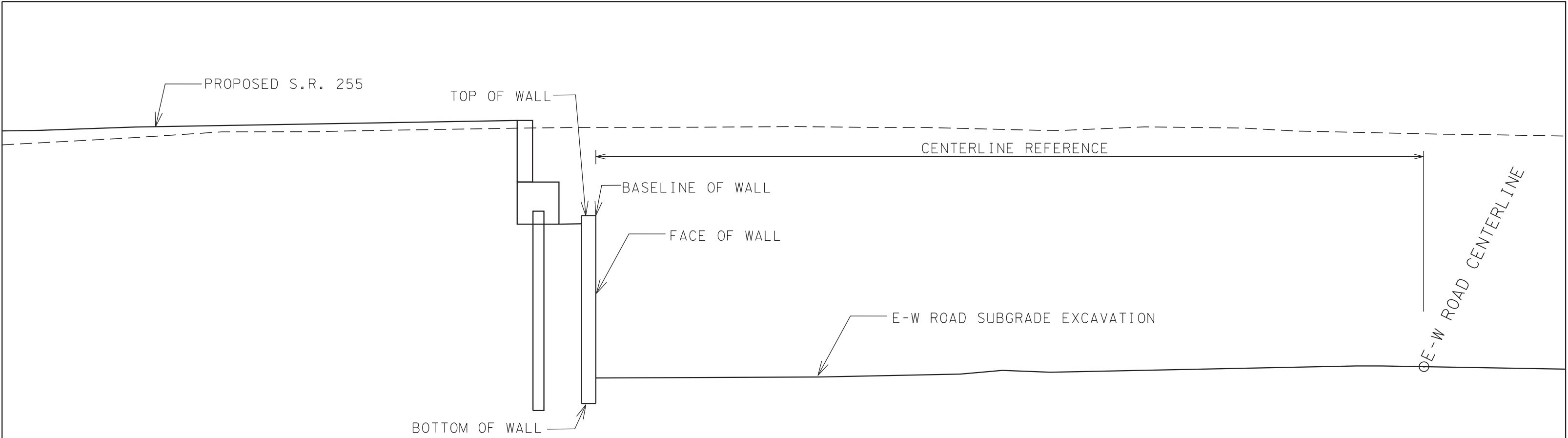
490

485

480

ESTIMATED QUANTITIES FOR RETAINING WALL

ITEM NO.	604-07.04
DESCRIPTION	RETAINING WALL (WALL NO. 4) S.F.
QUANTITY	5,105



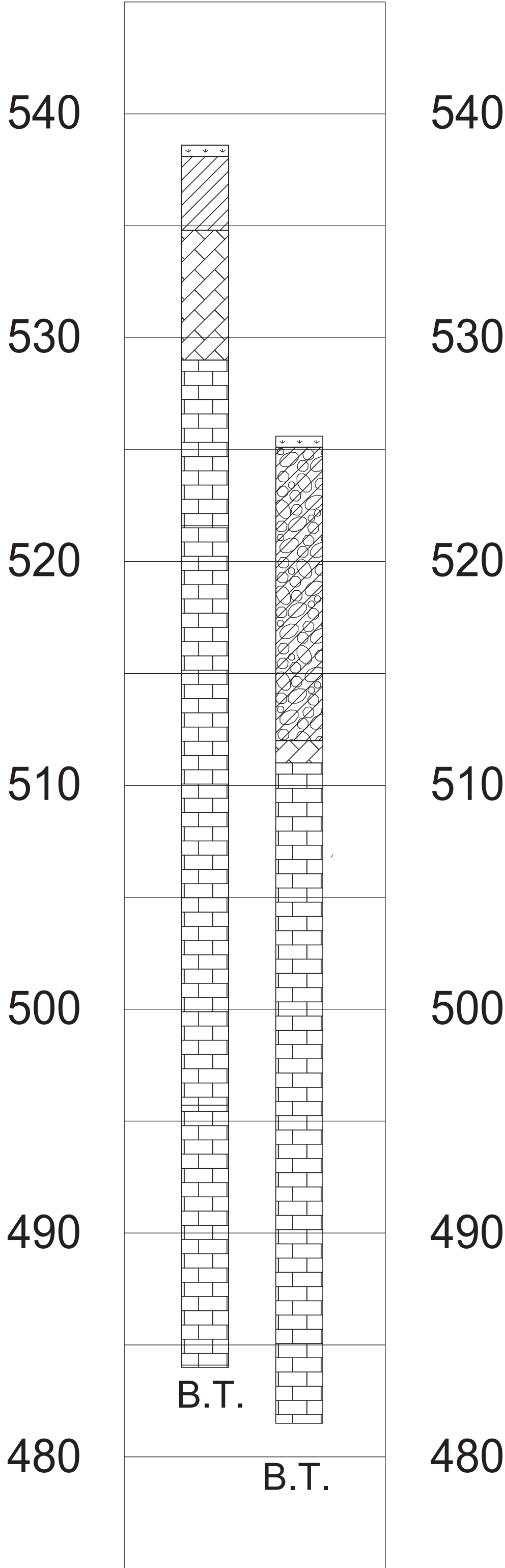
RETAINING WALL 4  
2+00.00

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

RETAINING WALL  
(R-4A)  
GEOMETRIC  
LAYOUT & PROFILE

2/8/2022 7:40:14 PM  
\\AG03SDCWF00008.net.ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R13 Wall 4.sht

B-R4-1 B-R4-2  
522+83 520+87  
81' LT. 104' LT.



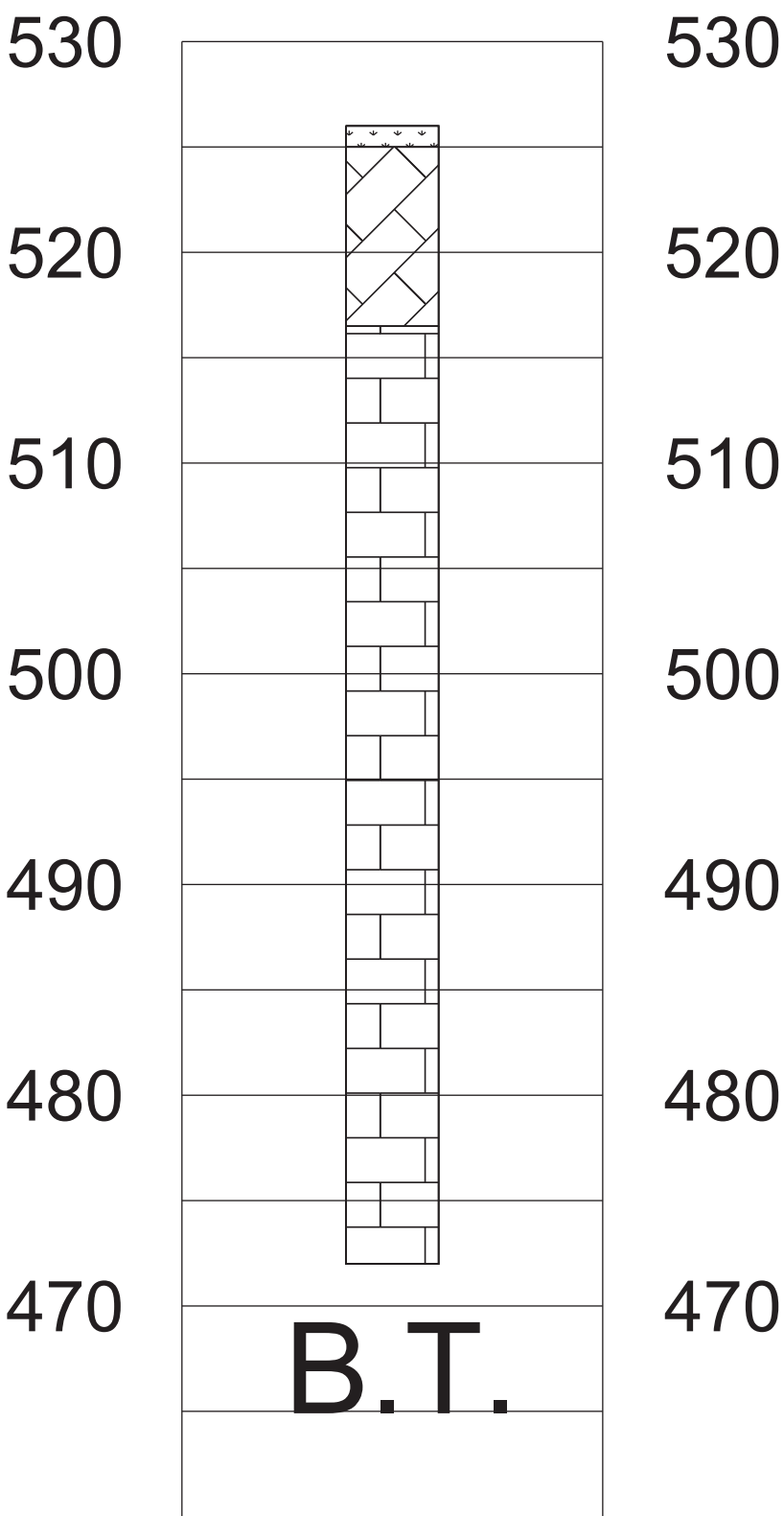
BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
B-R4-1	522+83	LT 81'	538.6'	534.8'	54.6'
B-R4-2	520+87	LT 104'	525.6'	512.0'	44.1'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
B-BR1-2	753+00	LT 31'	526.1'	525.1'	54.5'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

B-BR1-2  
753+00  
LT 31'



TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R13

LEGEND

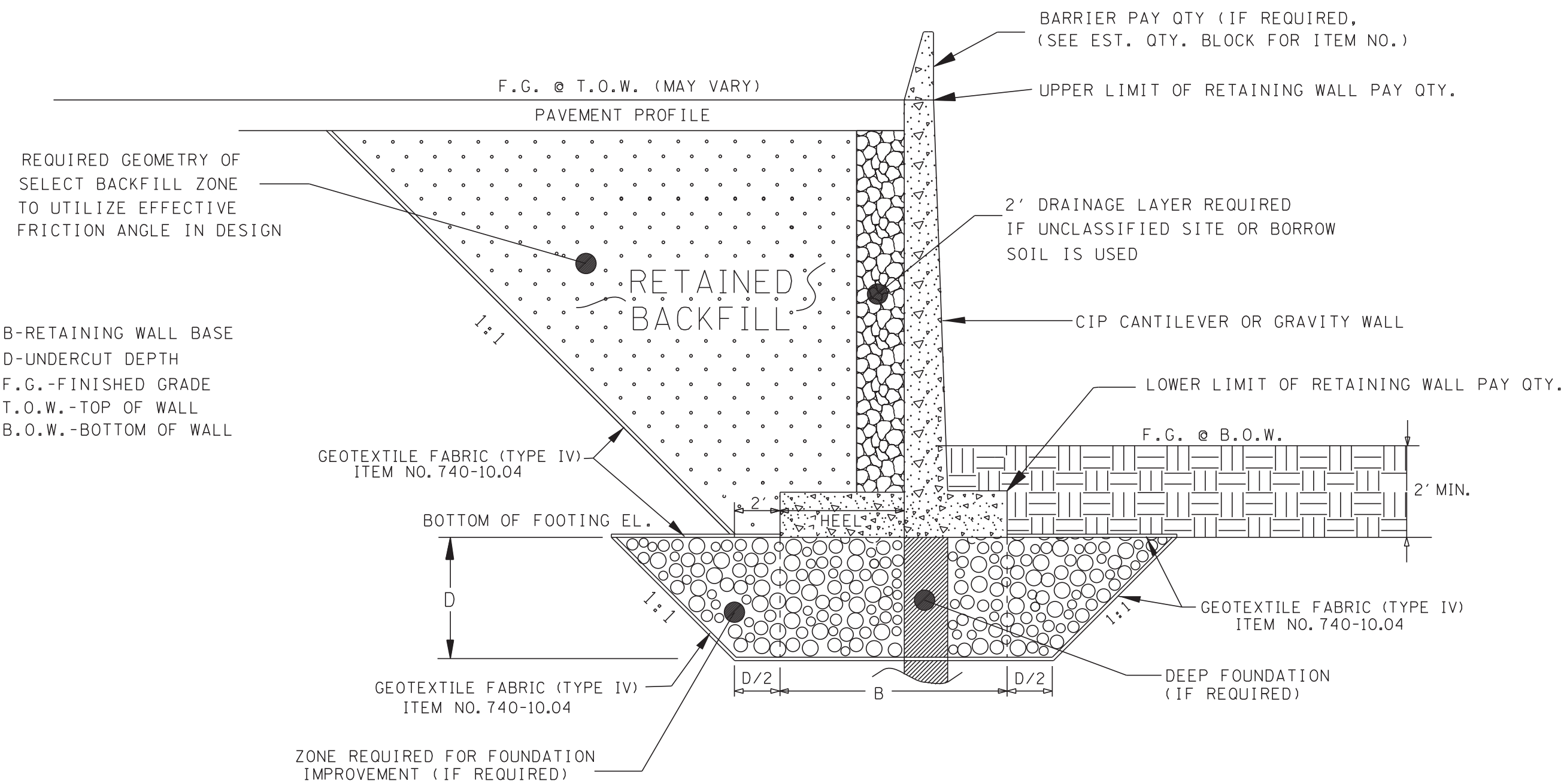
- TOPSOIL
- CLAY (TYPE A MATERIAL)
- BOULDERS \ COBBLES WITH CLAY (TYPE A MATERIAL)
- WEATHERED LIMESTONE (TYPE D MATERIAL)
- LIMESTONE (TYPE B MATERIAL)

TYPE MATERIAL-SEE DEFINITION OF EARTHWORK TERMS ON NOTES AND GEOTECHNICAL EST. QTYS. SHEET.  
B.T.= BORING TERMINATED

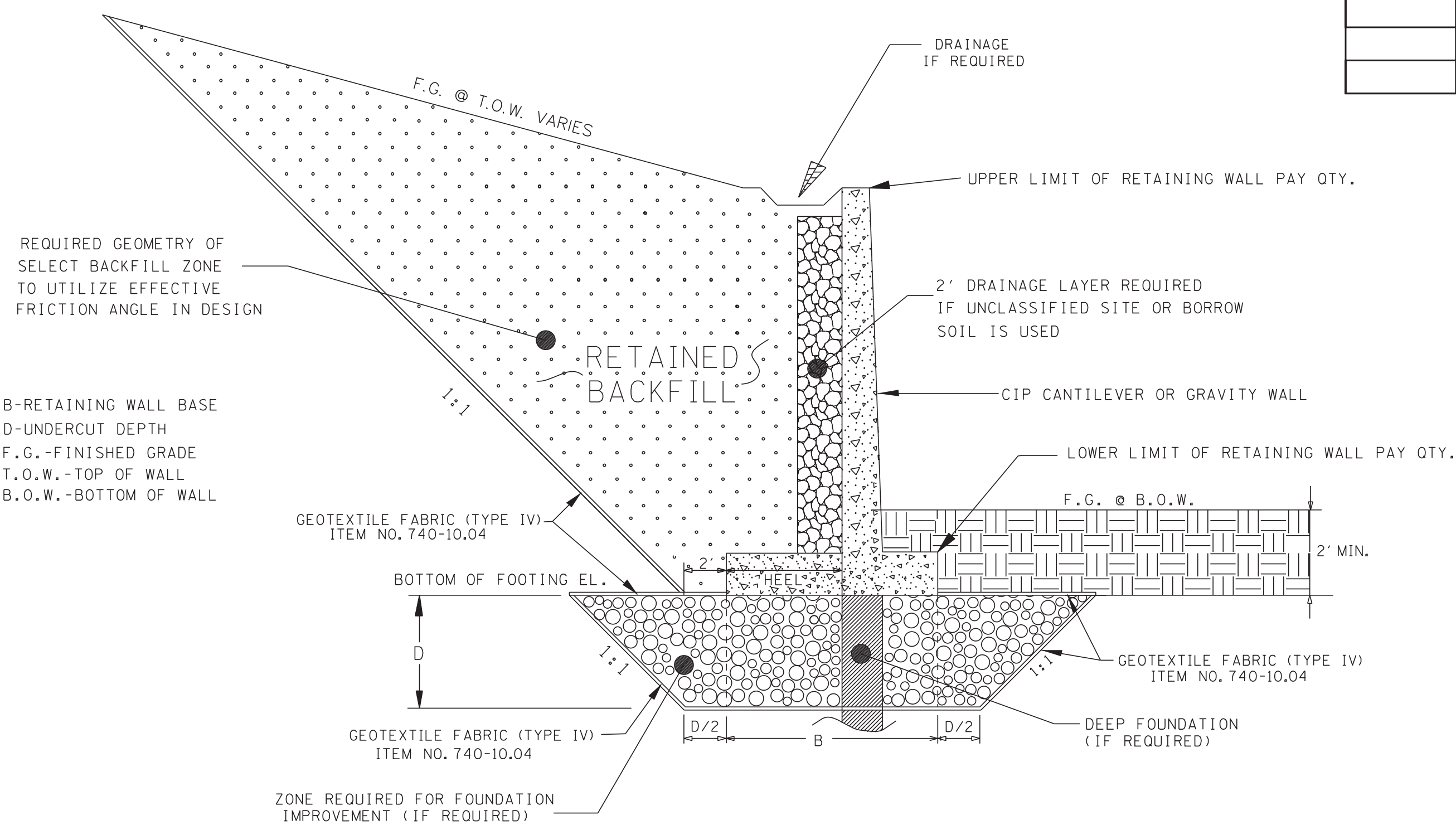
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

(R-4B)  
GEOTECHNICAL  
BORING  
PROFILE

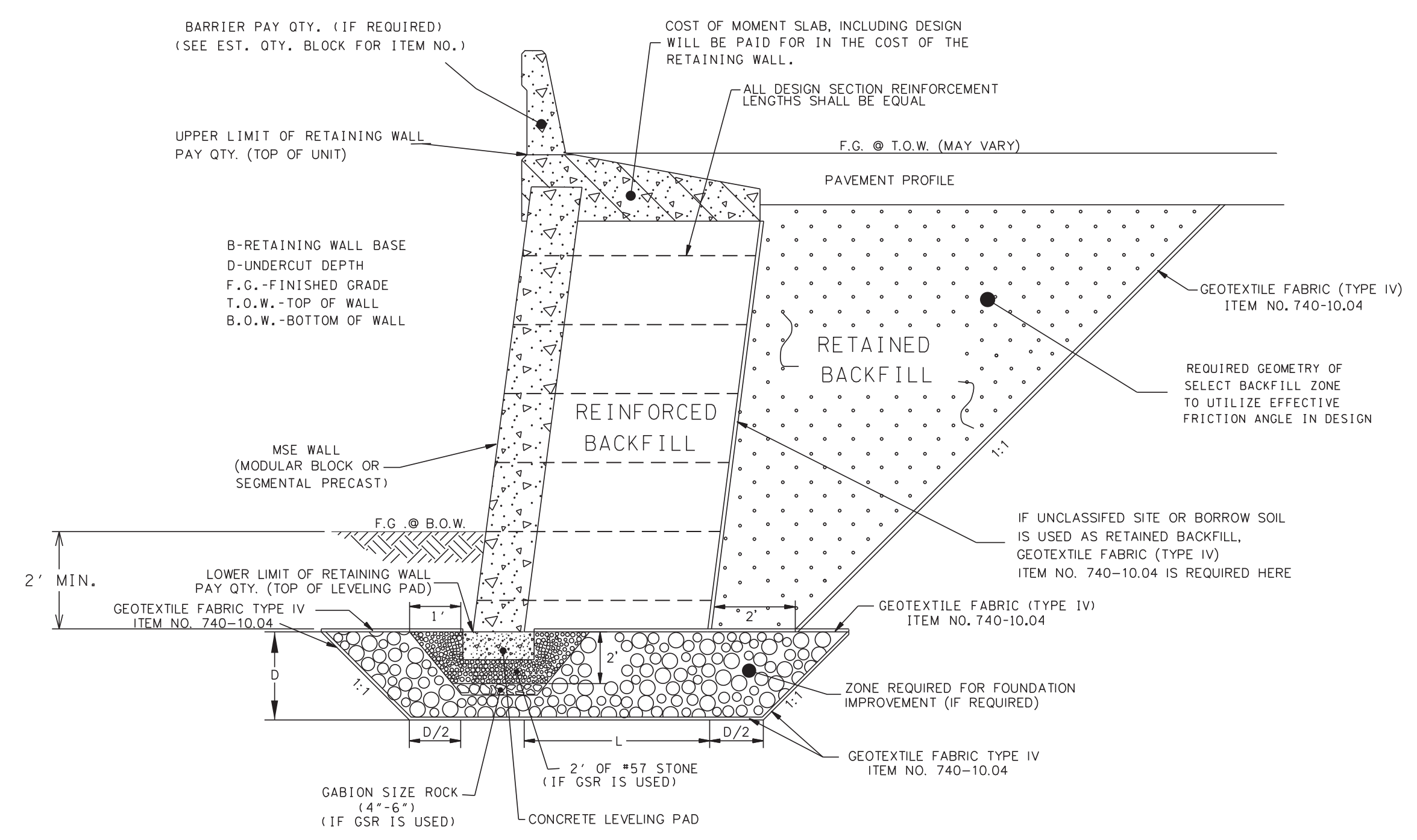
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2022	NH-I-40-5(146)	R14



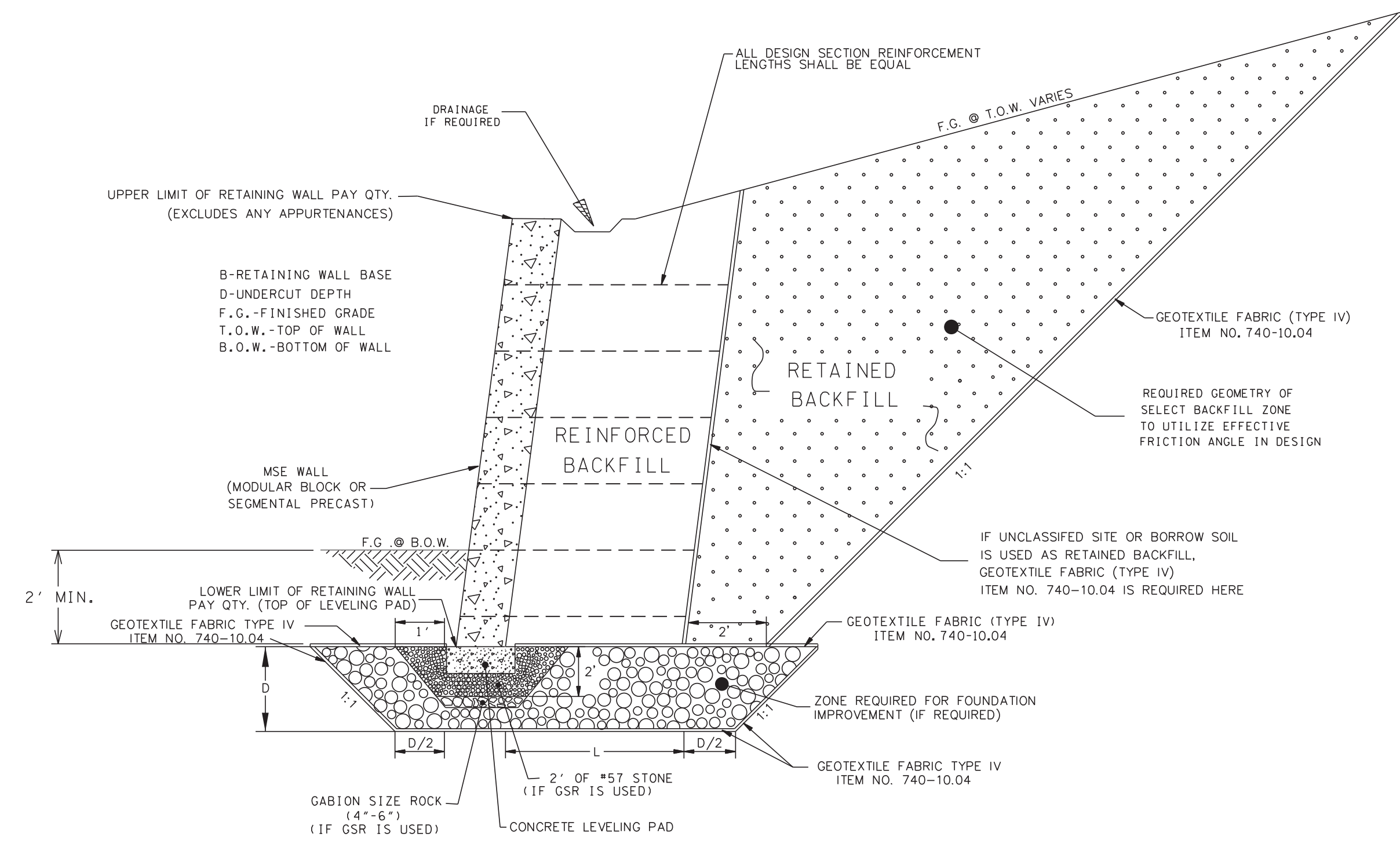
TYPICAL DETAIL  
CIP CONCRETE CANTILEVER OR GRAVITY WALL  
BARRIER REQUIRED



TYPICAL DETAIL  
CIP CONCRETE CANTILEVER OR GRAVITY WALL



TYPICAL DETAIL  
MSE WALL – MODULAR BLOCK\SEGMENTAL PRECAST  
BARRIER REQUIRED

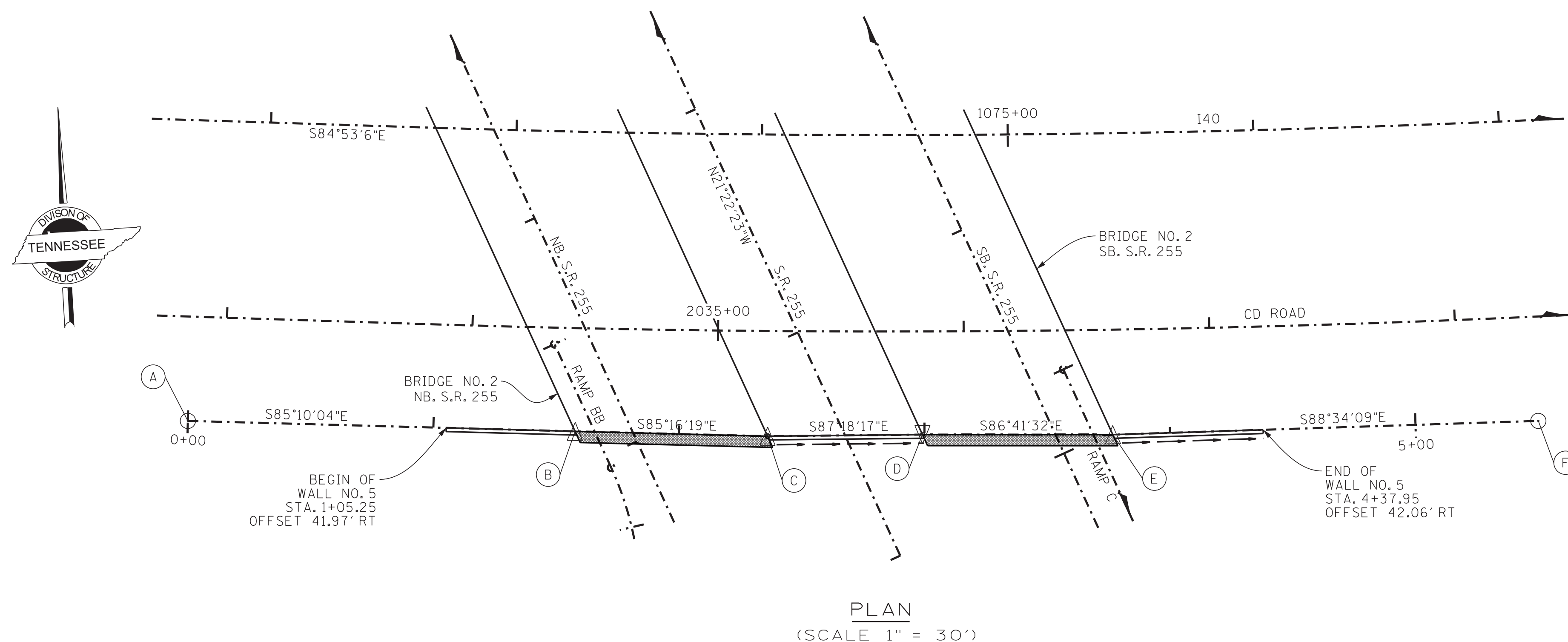


TYPICAL DETAIL  
MSE WALL – MODULAR BLOCK\SEGMENTAL PRECAST

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

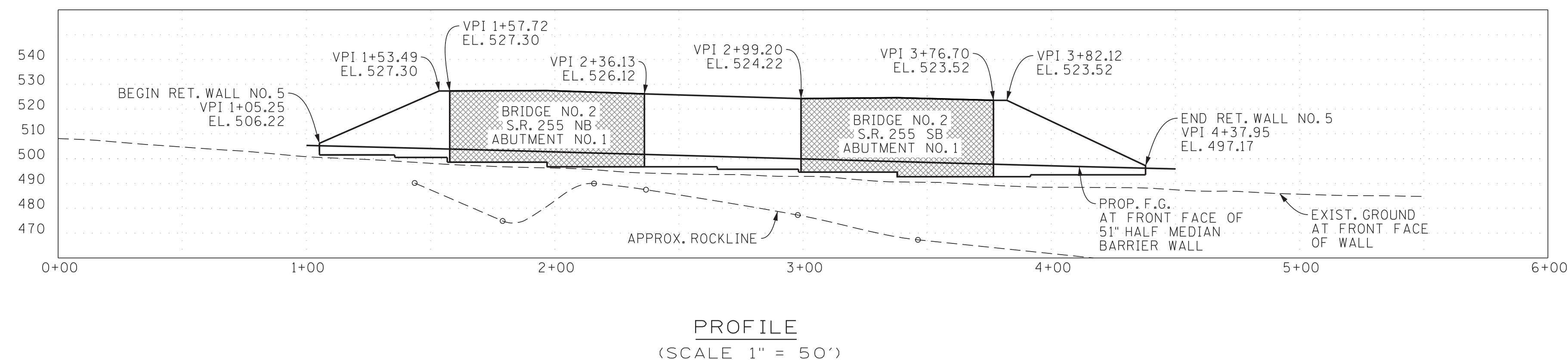
TYPICAL DETAIL  
CIP CANTILEVER WALL  
GRAVITY WALL  
MSE MODULAR BLOCK  
MSE SEGMENTAL PRECAST

2/8/2022 7:41:19 PM  
\\AG03SDCWF00008.net\ads.state.tn.us\13\SHARED\STRUC\_DS\Region IV\19-Davidson\116896-00 I-40 Donelson Interchange\Drawings\Walls\116896-00-RW-R14 Wall Detail.dgn



PROPOSED WALL 5 ALIGNMENT										
	WALL STA.	CODE	LOCATION	CD ROAD STA.	N	E	CD ROAD OFFSET	FROM-TO	BEARING	LENGTH
	0+00.00	(A)	CD ROAD	2032+85.40	658580.3029	1773240.8706	42.49 RT.	(A) - (B)	S 85° 10' 04" E	157.72
①	1+57.72	(B)	CD ROAD	2034+42.68	658567.0171	1773398.0248	42.02 RT.	(B) - (C)	S 85° 16' 19" E	78.41
①	2+36.13	(C)	CD ROAD	2035+20.52	658560.5536	1773476.1713	42.83 RT.	(C) - (D)	S 87° 18' 19" E	63.07
①	2+99.20	(D)	CD ROAD	2035+83.13	658557.5879	1773539.1679	42.00 RT.	(D) - (E)	S 86° 41' 32" E	77.50
①	3+76.70	(E)	CD ROAD	2036+60.06	658553.1166	1773616.5347	42.74 RT.	(E) - (F)	S 88° 34' 09" E	173.34
	5+50.03	(F)	CD ROAD	2038+32.14	658548.7886	1773789.8249	42.46 RT.			

① WALL P.I. STATION AND CONNECTION TO BRIDGE ABUTMENT WALLS.

[illegible]

PROJECT NO.	YEAR	SHEET NO.
NH-I-40-5(146)	2022	R15

[illegible]

<u>LIST OF DRAWINGS</u>	<u>DWG. NO.</u>	<u>LATEST REV. DATE</u>
GEOMETRIC ALIGNMENT AND PROFILE	U-62-89	
GENERAL NOTES AND ESTIMATED QUANTITIES	U-62-90	
FOUNDATION DATA	U-62-91	
RETAINING WALL NO. 5	U-62-92	
RETAINING WALL NO. 5	U-62-93	
RETAINING WALL NO. 5	U-62-94	
RETAINING WALL NO. 5 DETAILS	U-62-95	
RETAINING WALL NO. 5 DETAILS	U-62-96	
RETAINING WALL NO. 5 DETAILS	U-92-97	

<u>LIST OF STANDARD DRAWINGS</u>	<u>DWG. NO.</u>	<u>LATEST REV. DATE</u>
STANDARD PILE DETAILS	STD-5-2	5-1-14
BIKE AND PEDESTRIAN SAFETY RAIL	MM-BPR-1	1-28-22
51" HALF SIZE SINGLE SLOPE		
CONCRETE BARRIER WALL	S-SSMB-3	10-29-21



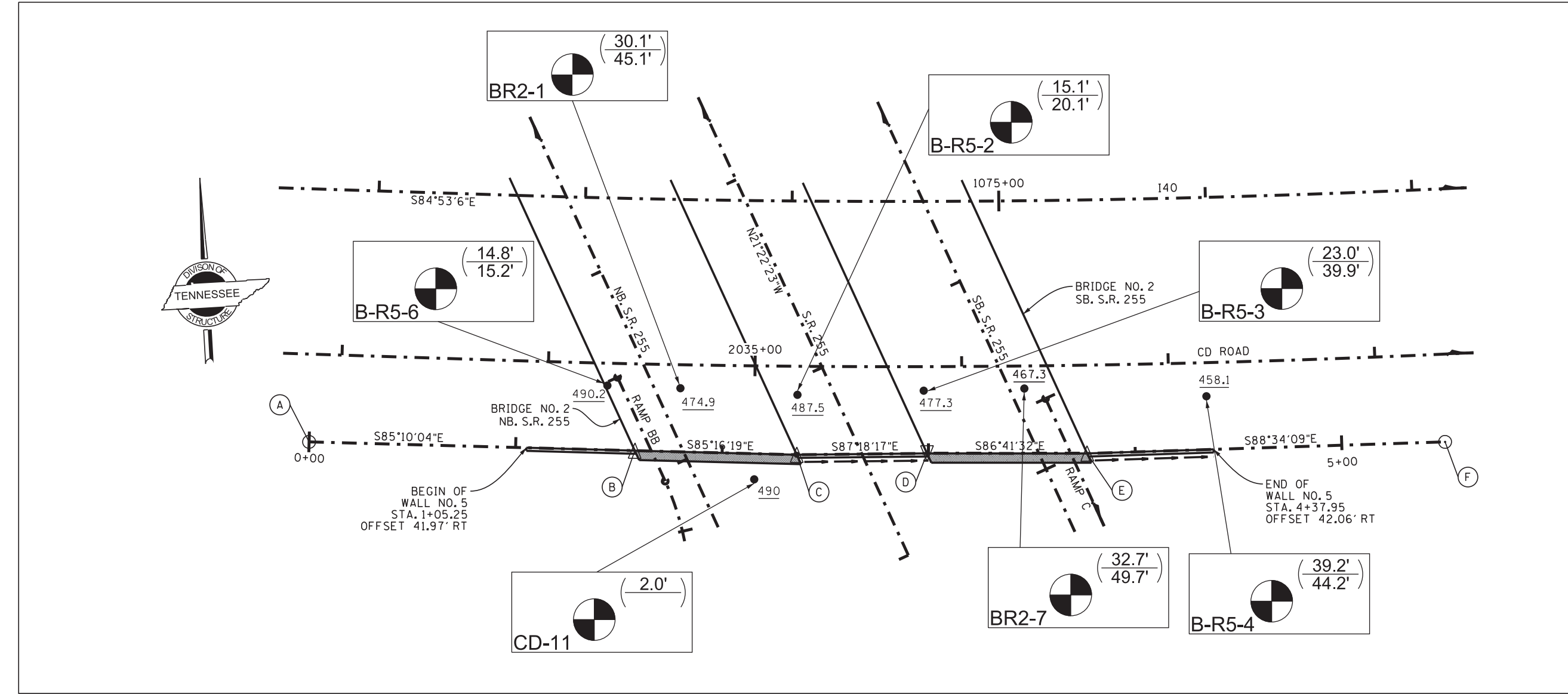
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
GEOMETRIC ALIGNMENT  
AND PROFILE  
FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022

DESIGNED BY <u>J. SHOULDERS</u>	DATE <u>09-20</u>
DRAWN BY <u>P. MOSHER</u>	DATE <u>10-20</u>
SUPERVISED BY <u>STEELE/SHIKE</u>	DATE <u>10-20</u>
CHECKED BY <u>S. DASGUPTA</u>	DATE <u>11-20</u>

CORRECT Ted A Kruszewy  
ENGINEER OF STRUCTURES

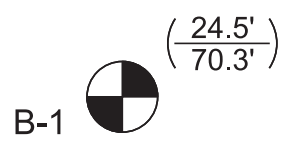
U-62-89





PLAN VIEW OF RETAINING WALL NO. 5  
(SCALE 1" = 50')

LEGEND

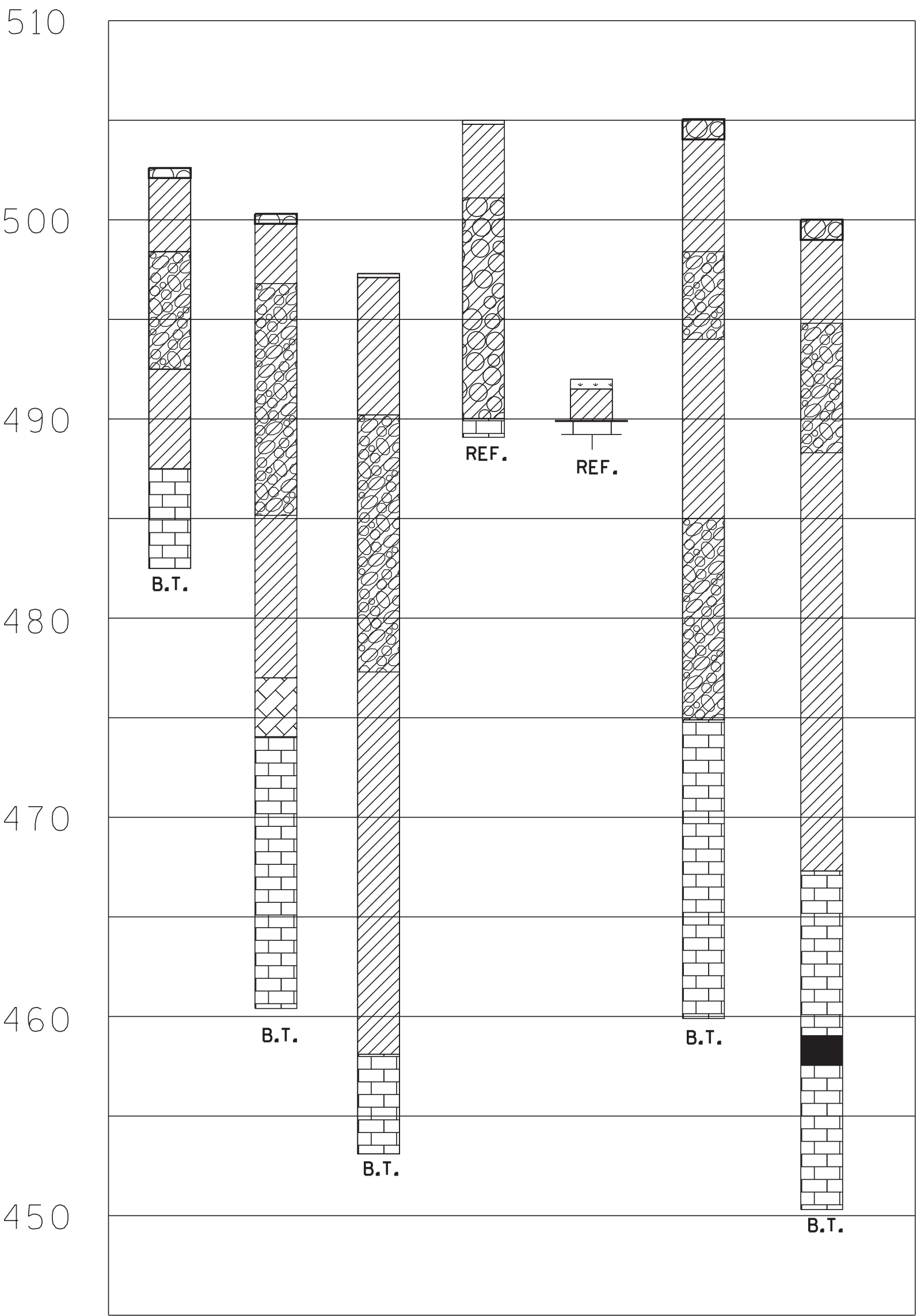


BORING LOCATION, DEPTH TO REFUSAL (ABOVE LINE),  
BOTTOM OF HOLE (BELOW LINE)

BORING NO.	LOCATION	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
B-R5-2	CD ROAD	2035+21	RT 13'	502.6'	487.5'	20.1'
B-R5-3	CD ROAD	2035+82	RT 11'	500.3'	477.3'	39.9'
B-R5-4	CD ROAD	2037+19	RT 15'	497.3'	458.1'	44.2'
B-R5-6	CD ROAD	2034+30	RT 11'	505.0'	490.2'	15.2'
B-BR2-1	S.R. 255	811+38	RT 14'	505.0'	474.9'	45.1'
B-BR2-7	S.R. 255	910+50	RT 5'	500.0'	467.3'	49.7'
CD-11	CD ROAD	2034+95	RT 55'	492.0'	490.0'	2.0'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL  
AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

B-R5-2	B-R5-3	B-R5-4	B-R5-6	CD-11	B-BR2-1	B-BR2-7
2035+21	2035+82	2037+19	2034+30	2034+95	811+38	910+50
13' RT.	11' RT.	15' RT.	11' RT.	55' RT.	RT 14'	RT 5'



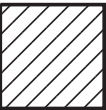
LEGEND



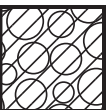
TOPSOIL



VOID



CLAY (TYPE  
A MATERIAL)



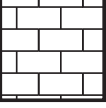
GRAVELLY CLAY  
(TYPE A MATERIAL)



BOULDERS \ COBBLES  
WITH CLAY  
(TYPE A MATERIAL)



WEATHERED LIMESTONE  
(TYPE D MATERIAL)



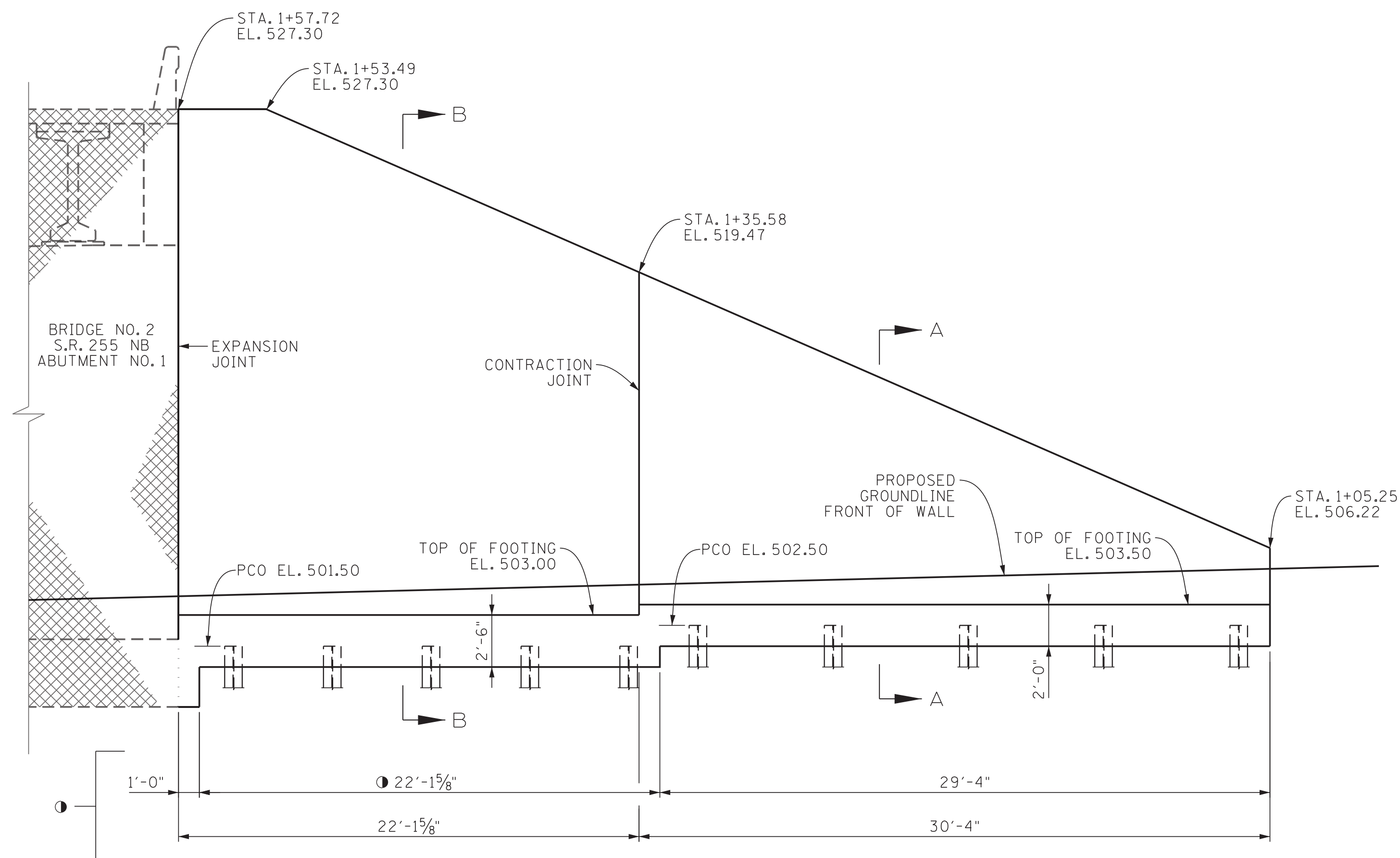
LIMESTONE (TYPE  
B MATERIAL)

TYPE MATERIAL-SEE DEFINITION  
OF EARTHWORK TERMS ON  
NOTES AND GEOTECHNICAL EST.  
QTY'S SHEET.

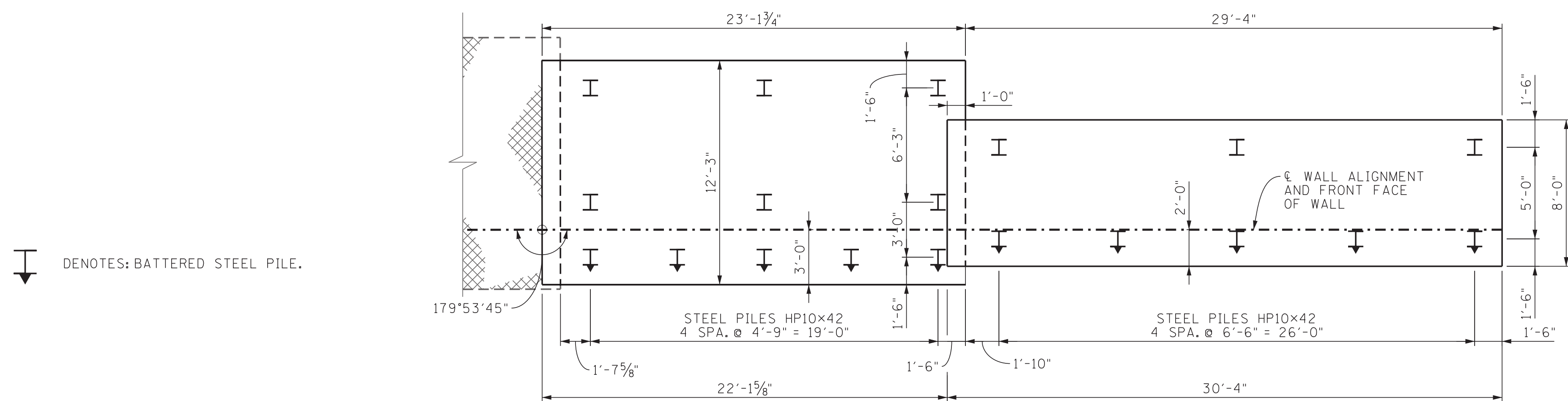
B.T.= BORING TERMINATED  
REF.= AUGER REFUSAL

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
FOUNDATION DATA  
FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022

CORRECT *Ed A. K...*  
ENGINEER OF STRUCTURES

[illegible]ELEVATION

● DENOTES: MEASURED ALONG C WALL ALIGNMENT  
AND FRONT FACE OF WALL.



PLAN OF FOOTING

 DENOTES: BATTERED STEEL PILE.

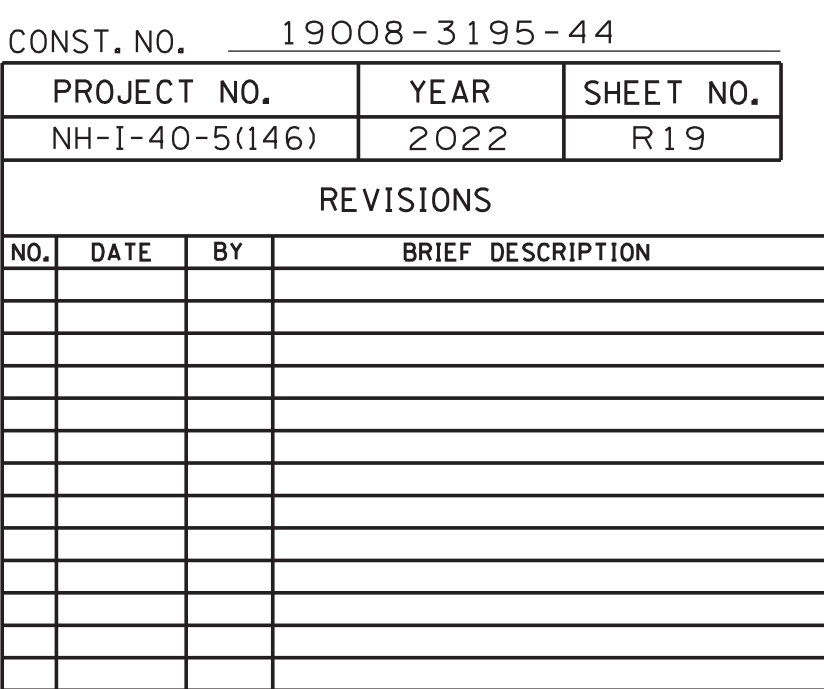


STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
FROM WALL STA. 1+05.25  
TO WALL STA. 1+57.72  
FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022

CORRECT Del A Krniewyca  
ENGINEER OF STRUCTURES

U-62-92

2/8/2022 7:11:52 PM  
\\AG03SDCNF00008.net.ads.state.tx.us\I3SHARED\StructuredDrop\I223\RET1223.dgn



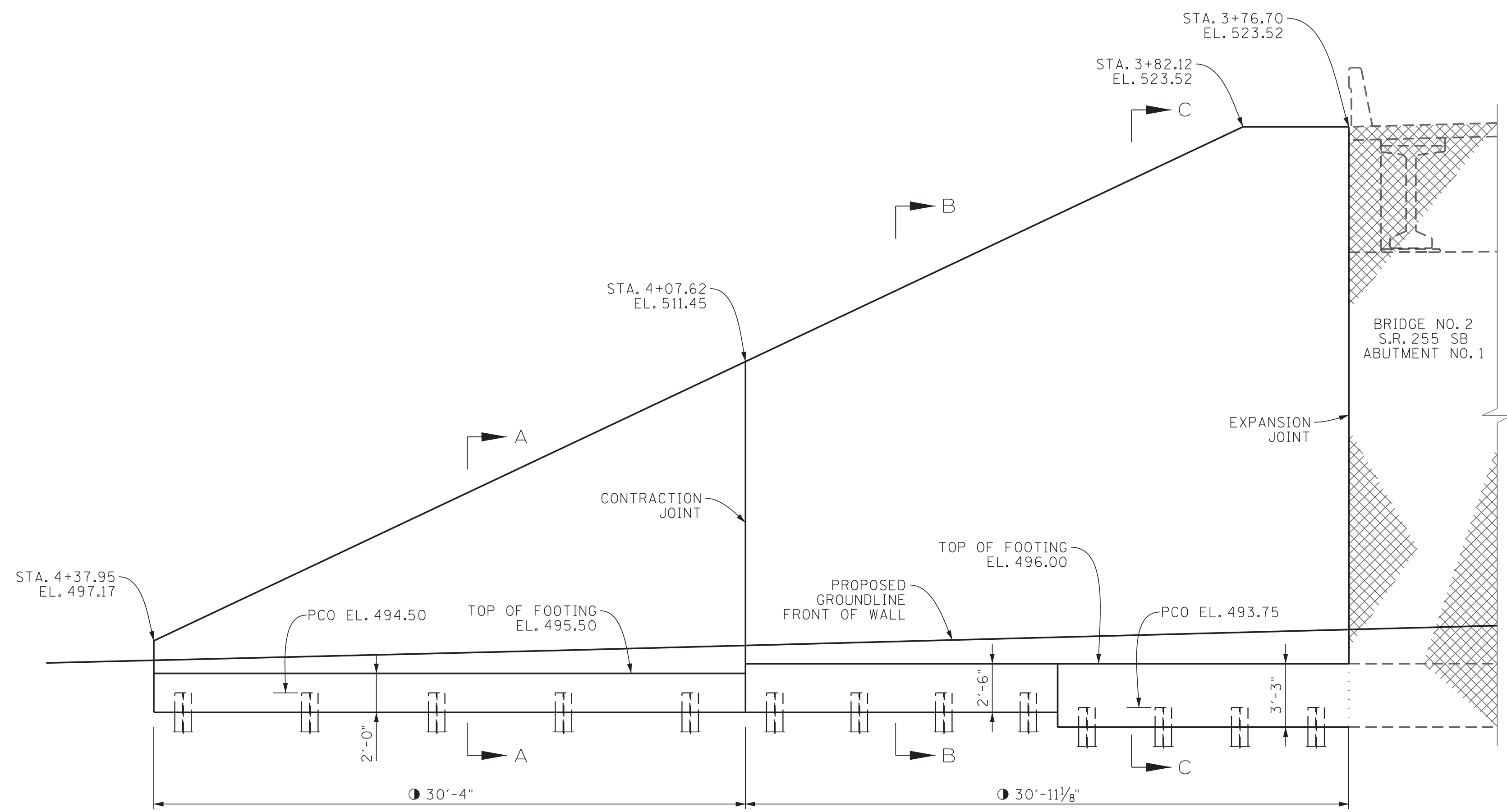
① DENOTES: MEASURED ALONG C WALL ALIGNMENT  
AND FRONT FACE OF WALL.



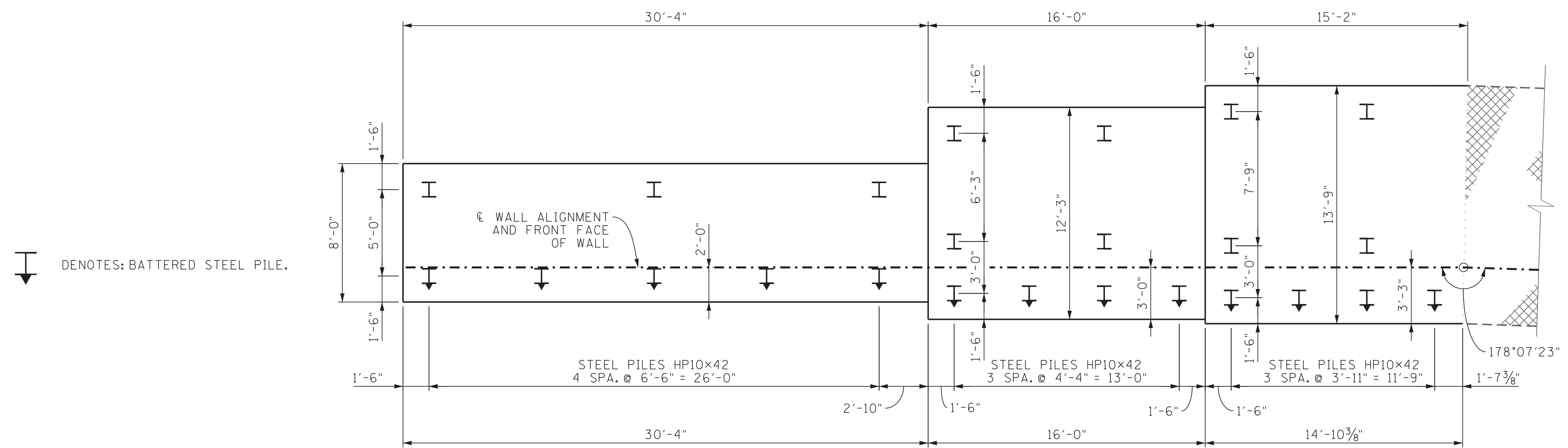
CORRECT Jed A Kmiazewicz  
ENGINEER OF STRUCTURES

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
FROM WALL STA. 2+36.13  
TO WALL STA. 2+99.20  
FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022



[illegible]

① DENOTES: MEASURED ALONG C WALL ALIGNMENT  
AND FRONT FACE OF WALL.



PLAN OF FOOTING

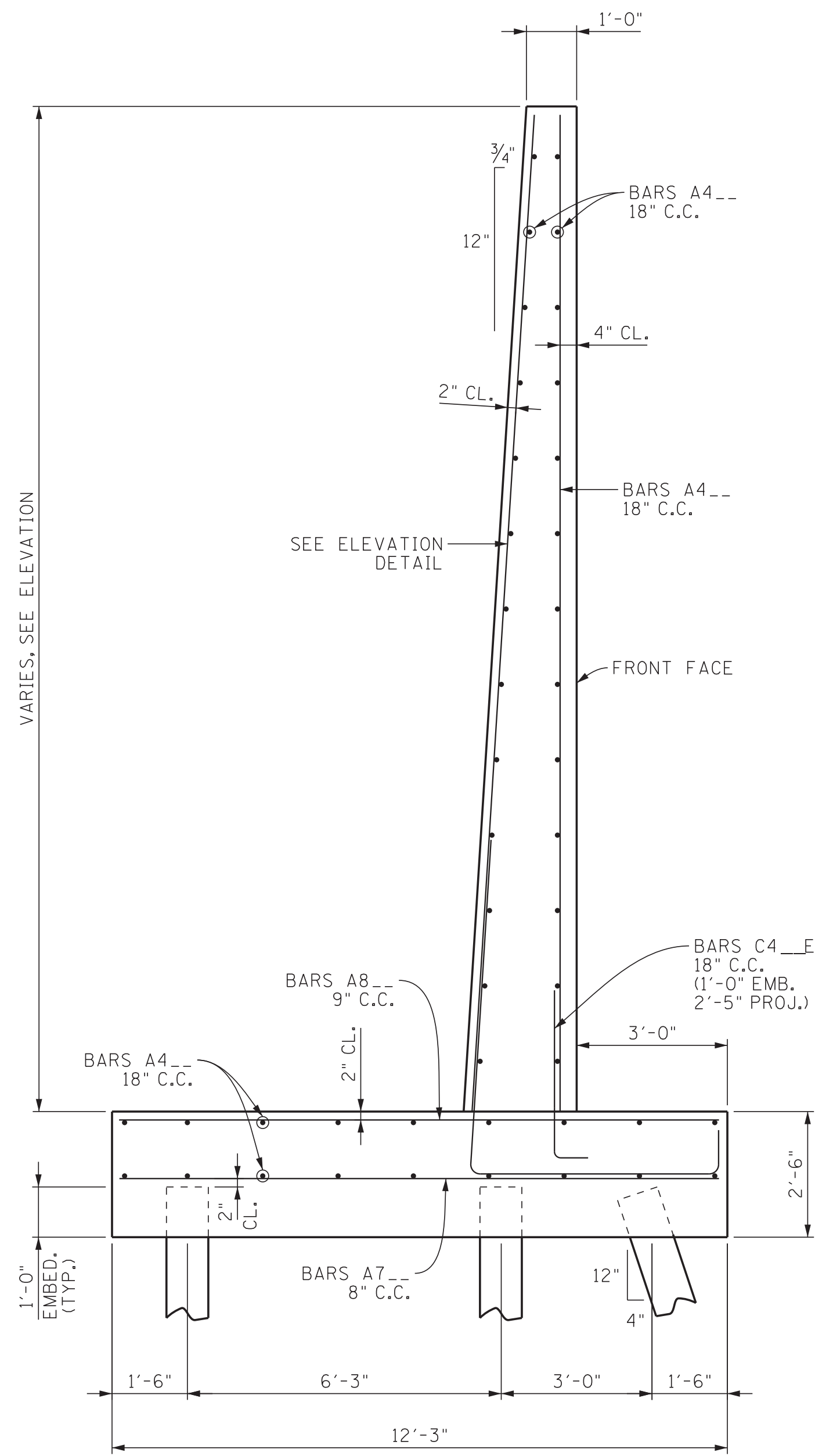
DESIGNED BY J. SHOULDERS DATE 09-20  
 DRAWN BY P. MOSHER DATE 10-20  
 SUPERVISED BY STEELE/SHIKE DATE 10-20  
 CHECKED BY S. DASGUPTA DATE 11-20

CORRECT Jed A. Kniagawya  
ENGINEER OF STRUCTURES

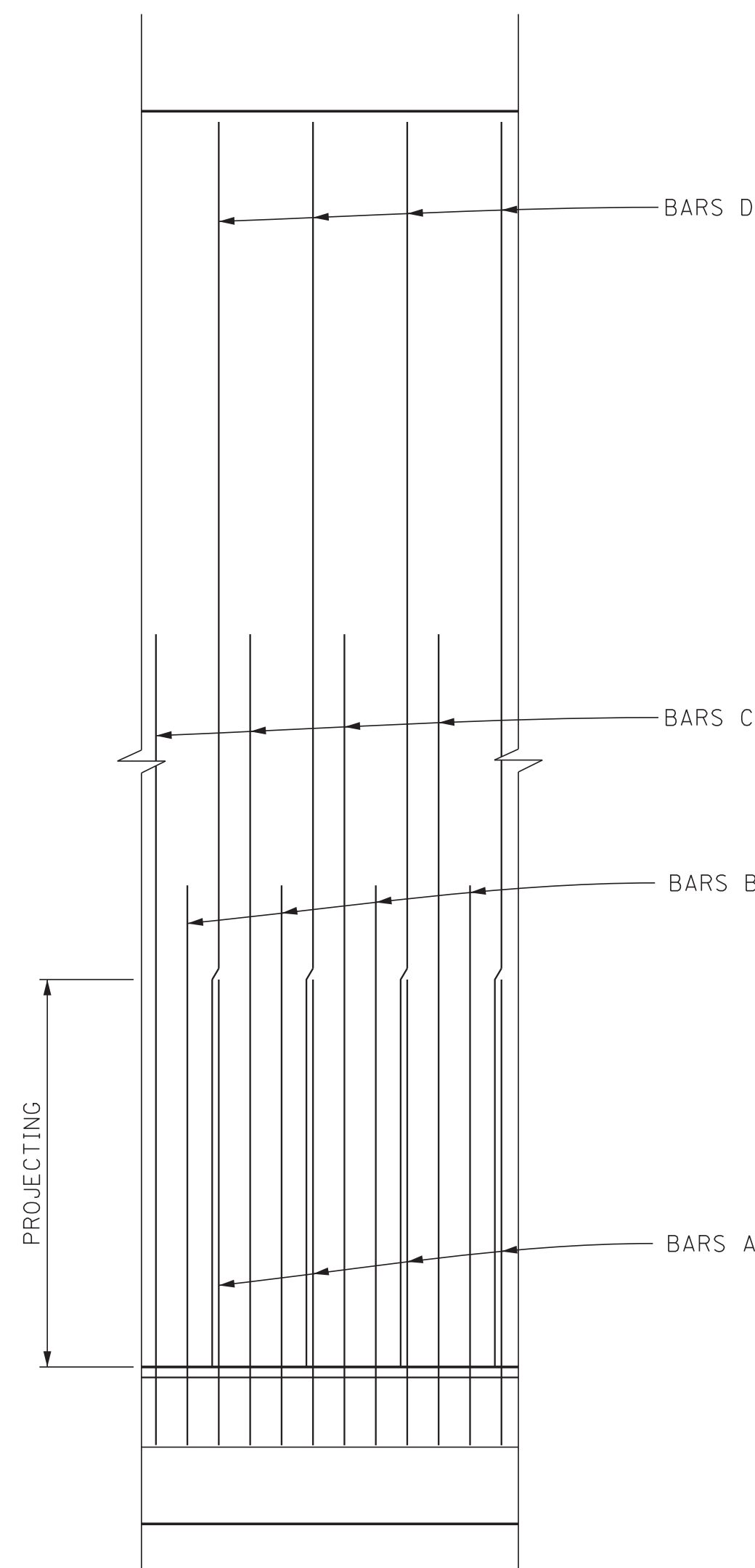


STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
FROM WALL STA. 3+76.70  
TO WALL STA. 4+37.95  
FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022

2/8/2022 7:12:40 PM \\AG03SDCWF00008.net.ads.state.tx.us\3SHARED\Structdrop\Drop\1223\RETI223.dgn

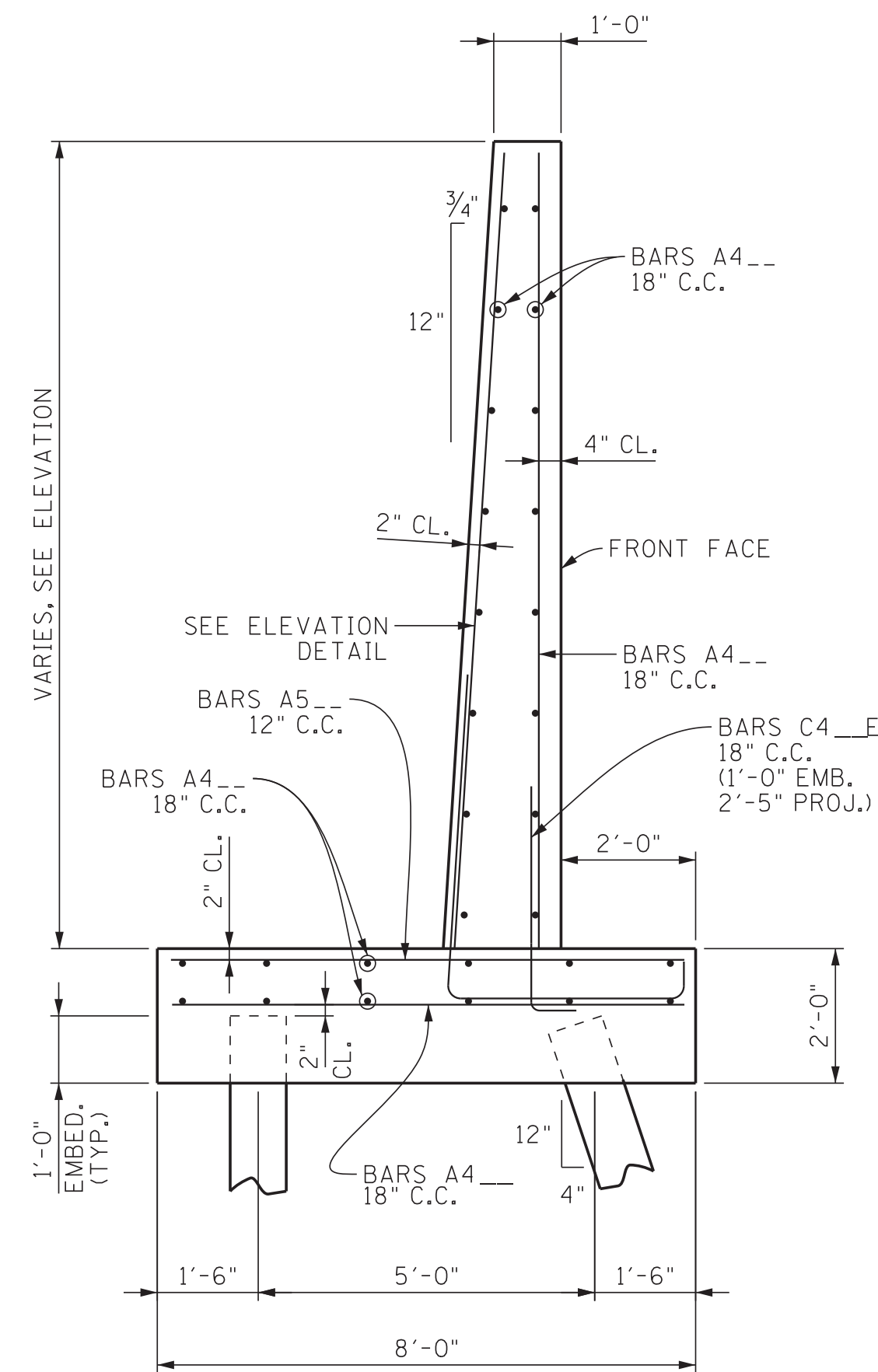
[illegible]

SECTION B-B

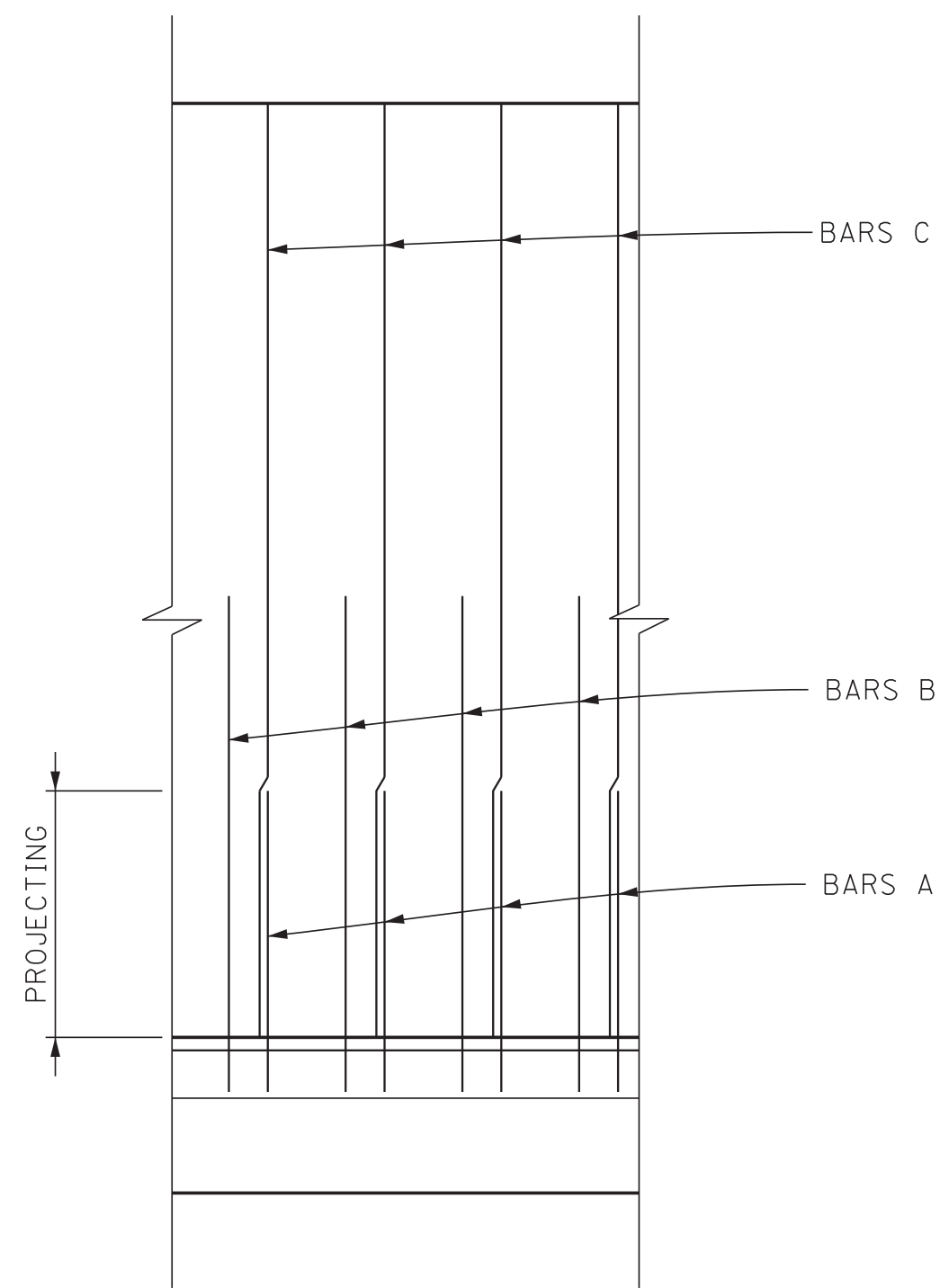


BARS	TYPE	SPACING	LENGTH PROJECTING
A	HB7__E	18"	5'-8"
B	HB7__E	18"	7'-2"
C	HB6__E	18"	11'-3"
D	A6__	18"	FULL HEIGHT

ELEVATION  
(BACK FACE OF WALL)



SECTION A-A



BARS	TYPE	SPACING	LENGTH PROJECTING
A	HB6__E	18"	4'-3"
B	HB5__E	18"	5'-3"
C	A5__	18"	FULL HEIGHT

ELEVATION  
(BACK FACE OF WALL)



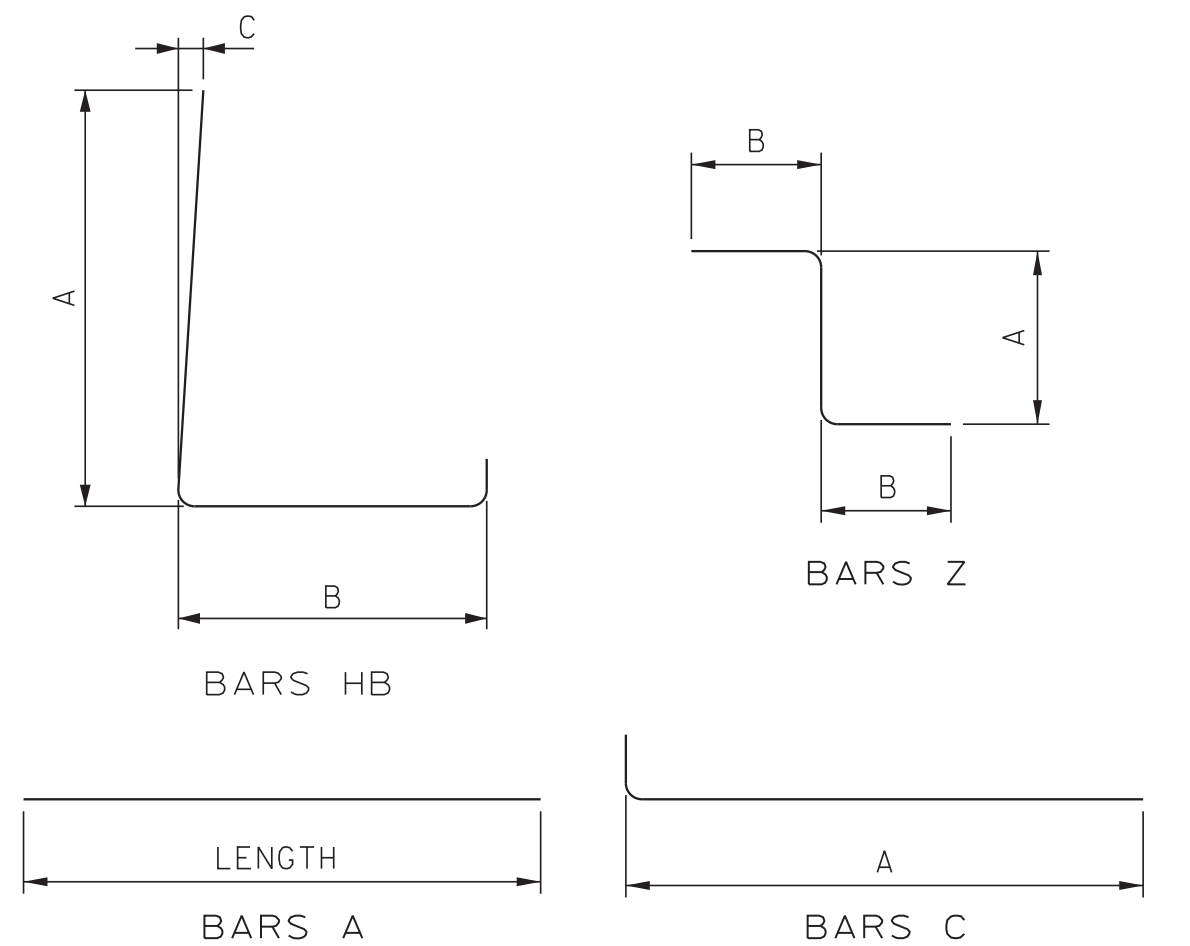
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
DETAILS  
FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022

CORRECT Ted A. Kmienewyaz  
ENGINEER OF STRUCTURES

DESIGNED BY J. SHOULDERS DATE 09-20  
 DRAWN BY P. MOSHER DATE 10-20  
 SUPERVISED BY STEELE/SHIKE DATE 10-20  
 CHECKED BY S. DASGUPTA DATE 11-20

[illegible]

## REINFORCING STEEL DESIGNATIONS



## REINFORCING STEEL CODE

TYPE	SIZE	SERIES
A	5	01

NOTE: STANDARD C.R.S.I. HOOK DETAILS SHALL APPLY.

NOTE: THE SUFFIX "E" FOR BARS SO MARKED DENOTES EPOXY COATED REINFORCEMENT.

NOTE: SERIES NOT DESIGNATED ON THESE PLANS. BILL OF STEEL TO BE COMPLETED BY CONTRACTOR.

# REINFORCING STEEL CONTINUITY LENGTH

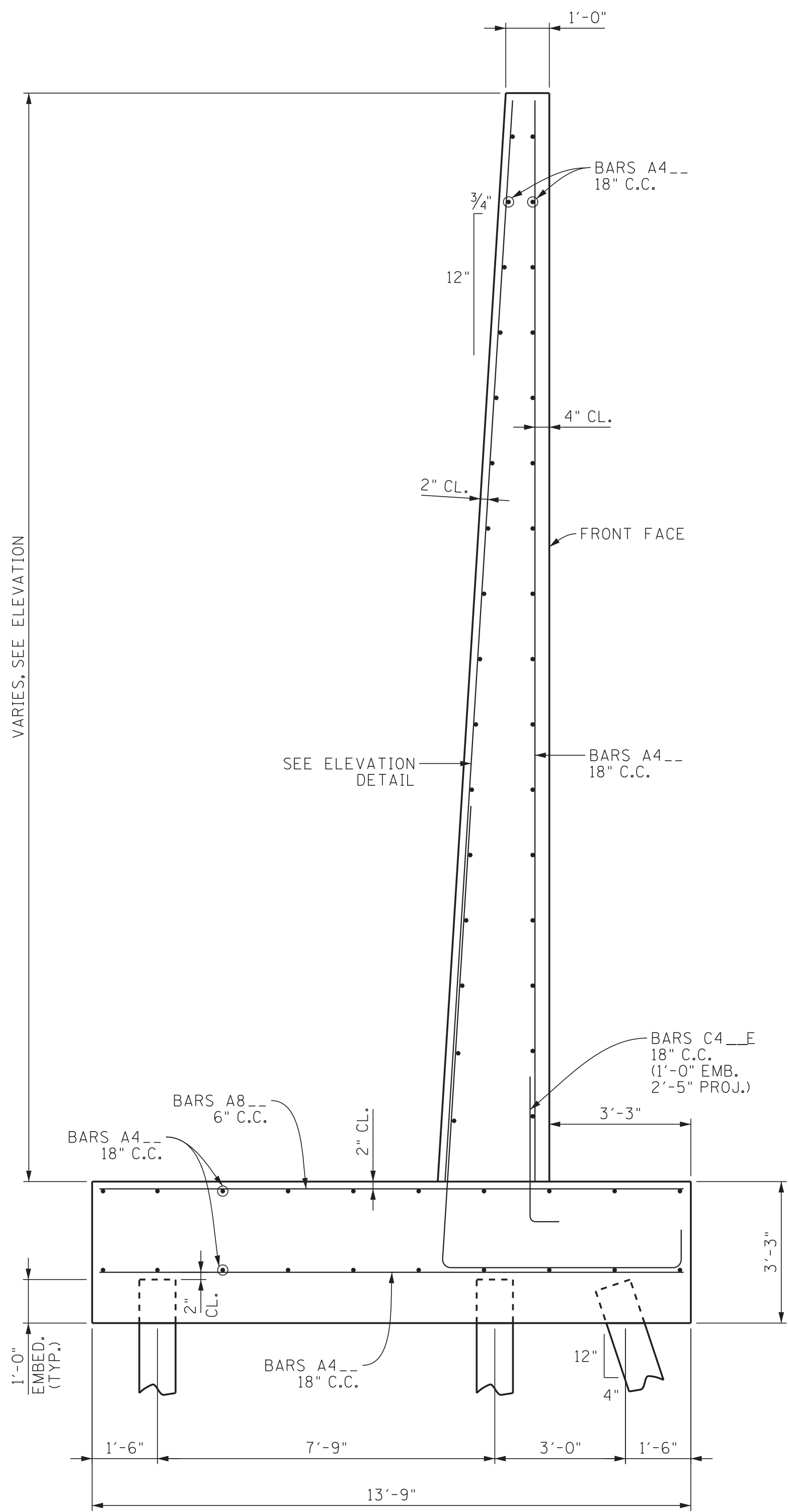
BAR SIZE	DEVELOPMENT LENGTH	SPLICE LENGTH
4	1'-7"	2'-1"
5	2'-0"	2'-7"
6	2'-5"	3'-1"
7	2'-9"	3'-7"
8	3'-2"	4'-1"
9	3'-11"	5'-1"

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
DETAILS  
FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022

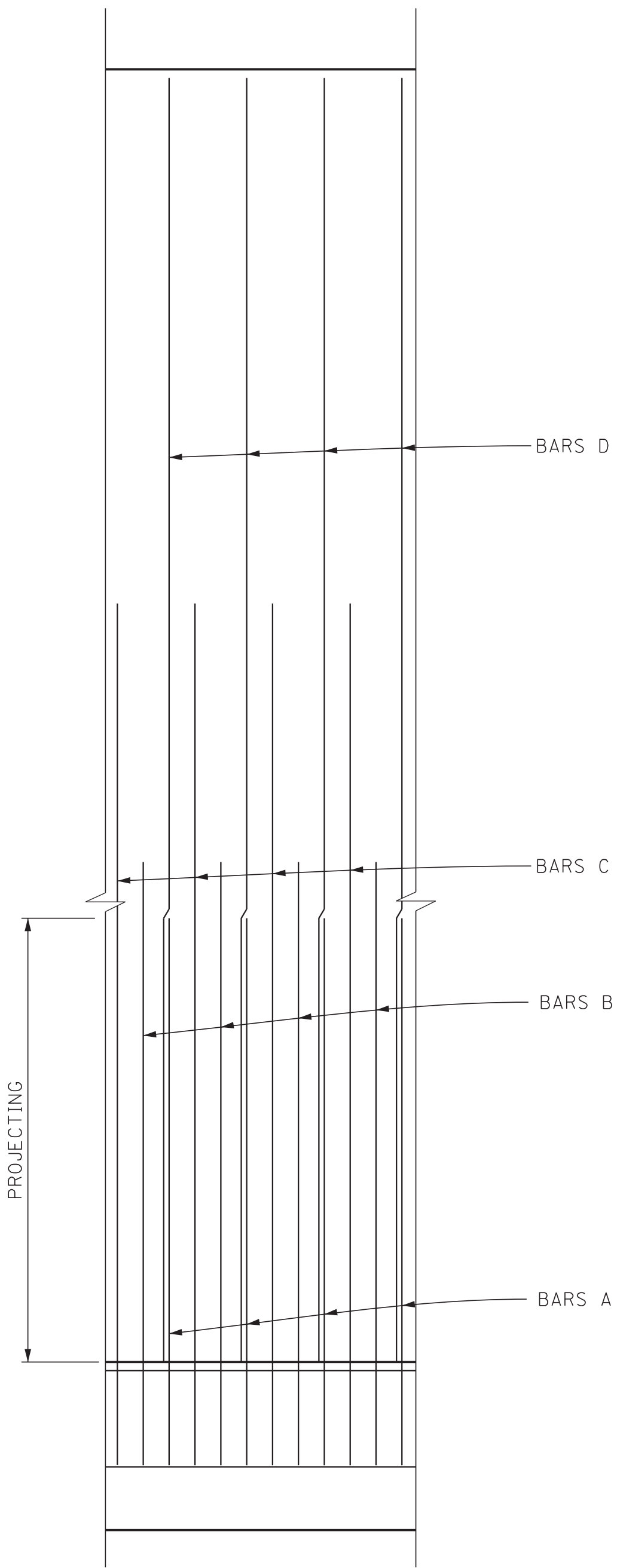


CORRECT Ted A. Kniagawicz  
ENGINEER OF STRUCTURES

U-62-96



SECTION C-C



BARS	TYPE	SPACING	LENGTH PROJECTING
A	HB9__E	18"	8'-0"
B	HB7__E	18"	9'-2"
C	HB7__E	18"	14'-2"
D	A7__	18"	FULL HEIGHT

ELEVATION  
(BACK FACE OF WALL)

2/8/2022 7:13:21 PM  
\\AG03SDCWF00008.net.ads.state.tx.us\I3SHARED\StructDrop\Drop\I223\RETI223.dgn

DESIGNED BY	<u>J. SHOULDERS</u>	DATE	<u>09-20</u>
DRAWN BY	<u>P. MOSHER</u>	DATE	<u>10-20</u>
SUPERVISED BY	<u>STEELE/SHIKE</u>	DATE	<u>10-20</u>
CHECKED BY	<u>S. DASGUPTA</u>	DATE	<u>11-20</u>



Cross-section diagram of a footing and column showing reinforcement details. The diagram includes labels for "TOP OF FOOTING", "BARS Z4", "Ø 1'-0" C.C.", "FOOTING STEEL (TYP.)", and dimensions: "2'-0" for the footing width, "1'-0" for the column width, and "2'-0" for the footing depth. Arrows indicate the placement of reinforcement bars and the center of gravity (C.C.).

### STEP DETAIL

CONTRACTION JOINT

## EXPANSION JOINT DETAIL

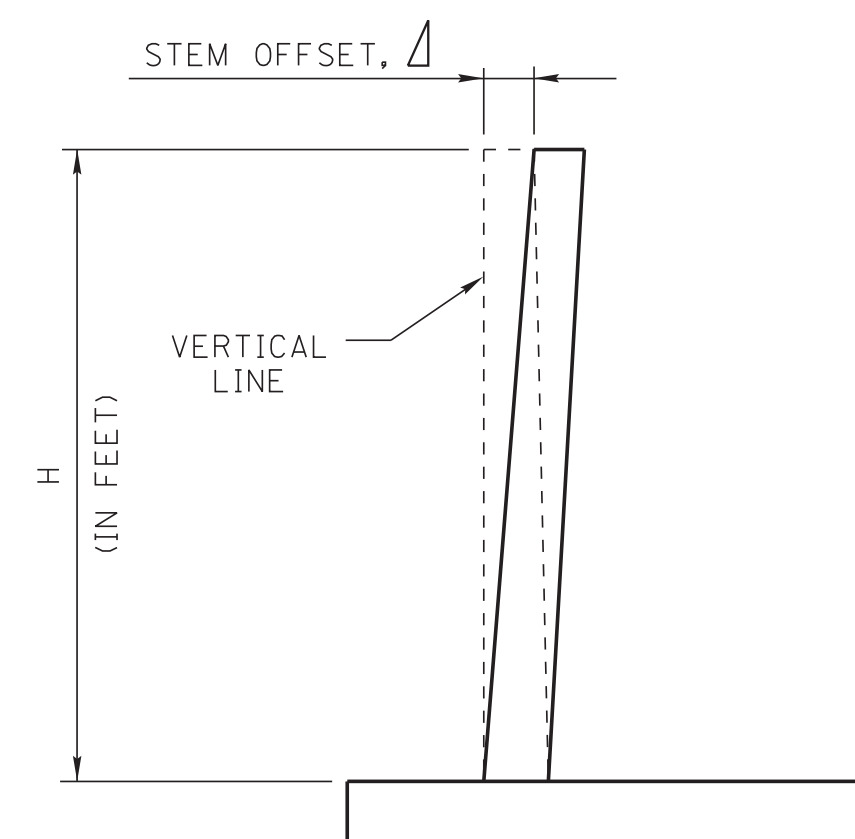
d DENOTES WIDTH OF WINGWALL  
● DENOTES HOLLOW BULB TYPE  
RUBBER OR PLASTIC  
WATERSTOP

## WALL JOINT DETAILS

STEM OFFSET

$$\Delta = \frac{H}{16}, \text{ FOR } H \leq 12'-0"$$

$$\Delta = \frac{H - 6}{8}, 2\frac{1}{2}" \text{ MAX.}, \text{ FOR } H > 12'-0"$$

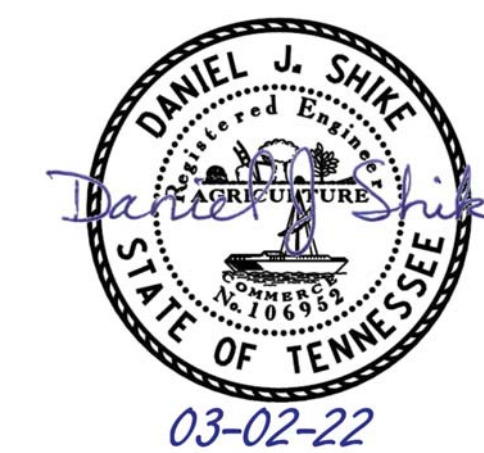


### STEM OFFSET VALUES

CONST. NO. 19008-3195-44

PROJECT NO.	YEAR	SHEET NO.
NH-I-40-5(146)	2022	R23

## REVISIONS

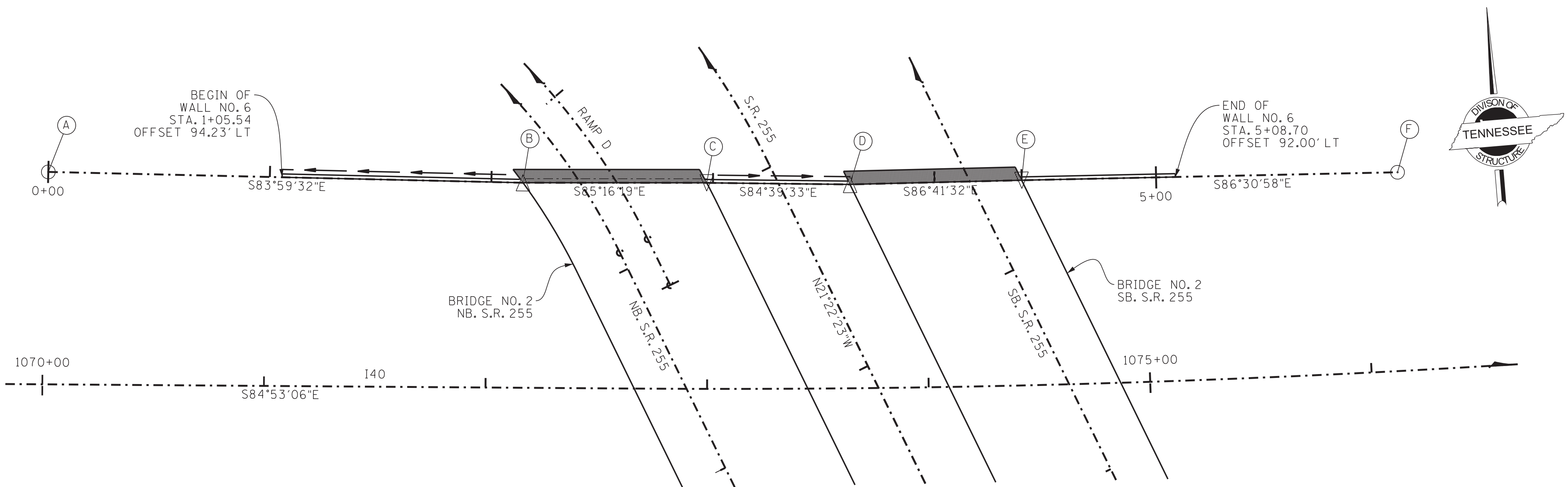
[illegible]

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 5  
DETAILS

FROM CD ROAD STA. 2033+90.60  
TO CD ROAD STA. 2037+20.87  
DAVIDSON COUNTY  
2022

DESIGNED BY	<u>J. SHOULDERS</u>	DATE	<u>09-20</u>
DRAWN BY	<u>P. MOSHER</u>	DATE	<u>10-20</u>
SUPERVISED BY	<u>STEELE/SHIKE</u>	DATE	<u>10-20</u>
CHECKED BY	<u>S. DASGUPTA</u>	DATE	<u>11-20</u>

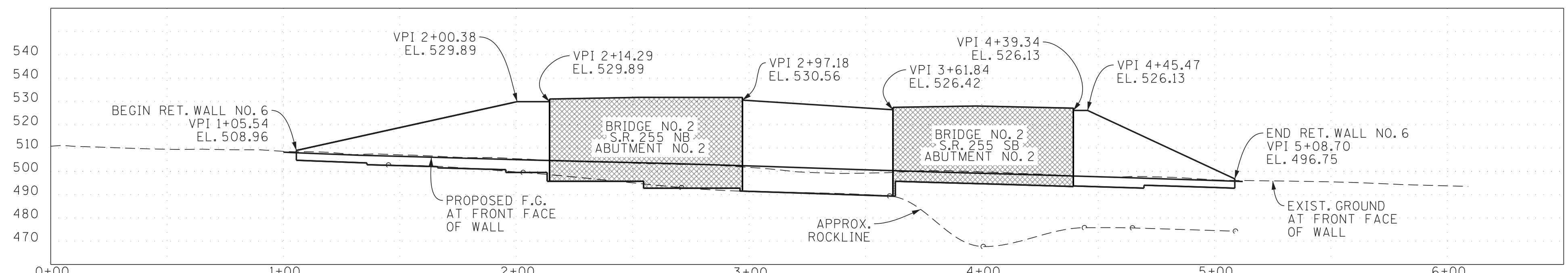
CORRECT Ted A Krniewy  
ENGINEER OF STRUCTURES



PLAN  
(SCALE 1" = 30')

PROPOSED WALL 6 ALIGNMENT									
WALL STA.	CODE	LOCATION	I-40 STA.	N	E	I-40 OFFSET	FROM-TO	BEARING	LENGTH
0+00.00	(A)	I-40	1070+02.00	658812.7789	1773093.0092	95.88 LT.	(A) - (B)	S 83° 59' 32" E	214.28
2+14.28	(B)	I-40	1072+16.30	658790.3510	1773306.1150	92.54 LT.	(B) - (C)	S 85° 16' 19" E	82.89
2+97.17	(C)	I-40	1072+99.66	658783.5188	1773388.7197	93.00 LT.	(C) - (D)	S 84° 39' 33" E	64.67
3+61.84	(D)	I-40	1073+65.39	658777.4998	1773453.1051	92.02 LT.	(D) - (E)	S 86° 41' 32" E	77.50
4+39.34	(E)	I-40	1074+44.15	658773.0285	1773530.4719	92.60 LT.	(E) - (F)	S 86° 30' 58" E	169.66
6+09.00	(F)	I-40	1076+16.54	658762.7187	1773699.8157	89.64 LT.			

① WALL P.I. STATION AND CONNECTION TO BRIDGE ABUTMENT WALLS.



PROFILE  
(SCALE 1" = 30')

LIST OF DRAWINGS	DWG. NO.	LATEST REV. DATE
GEOMETRIC ALIGNMENT AND PROFILE.....	U-62-98	-----
GENERAL NOTES AND ESTIMATED QUANTITIES.....	U-62-99	-----
FOUNDATION DATA.....	U-62-100	-----
RETAINING WALL NO. 6.....	U-62-101	-----
RETAINING WALL NO. 6.....	U-62-102	-----
RETAINING WALL NO. 6.....	U-62-103	-----
RETAINING WALL NO. 6.....	U-62-104	-----
RETAINING WALL NO. 6 DETAILS.....	U-62-105	-----
RETAINING WALL NO. 6 DETAILS.....	U-62-106	-----
RETAINING WALL NO. 6 DETAILS.....	U-62-107	-----
RETAINING WALL NO. 6 DETAILS.....	U-62-108	-----

LIST OF STANDARD DRAWINGS	DWG. NO.	LATEST REV. DATE
STANDARD PILE DETAILS.....	STD-5-2	5-1-14
BIKE AND PEDESTRIAN SAFETY RAIL.....	MM-BPR-1	1-28-22



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
GEOMETRIC ALIGNMENT  
AND PROFILE  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT *Ded A. K...*  
ENGINEER OF STRUCTURES

U-62-98

DESIGNED BY J. SHOULDERS DATE 09-20  
DRAWN BY P. MOSHER DATE 10-20  
SUPERVISED BY STEELE/SHIKE DATE 10-20  
CHECKED BY S. DASGUPTA DATE 11-20

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE  
TENNESSEE DEPARTMENT OF TRANSPORTATION (JANUARY 1, 2021 EDITION).  
DESIGN SPECIFICATIONS: 9TH EDITION (2020) AASHTO LRFD BRIDGE  
DESIGN SPECIFICATIONS.  
REINFORCING STEEL: TO BE ASTM A615 GRADE 60.  
CONCRETE: TO BE CLASS 'X' (CAST-IN-PLACE) EXCEPT AS NOTED OTHERWISE.  
CLASS 'X' CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH  
OF 4,000 PSI AND SHALL MEET ALL OTHER CRITERIA FOR CLASS 'A'  
CONCRETE AS SPECIFIED IN SECTION 604 OF THE STANDARD SPECIFICATIONS.

PILE TIPS: PILES SHALL BE EQUIPPED WITH CAST STEEL POINTS. ALSO, SEE STANDARD DRAWING STD-5-1 FOR ADDITIONAL NOTES.

END-BEARING STEEL PILES: TO BE HP10x42 DRIVEN TO REFUSAL ON ROCK OR  
A MINIMUM BEARING OF 76 TONS. ALL PILES SHALL BE ASTM A709  
GRADE 50 STEEL.

SPREAD FOOTINGS FOR WALL: AFTER EXCAVATION TO ROCK FOR FOOTING HAS BEEN COMPLETED, HOLES 6" DEEP SHALL BE DRILLED AT POINTS DESIGNATED BY THE ENGINEER. FROM THE RESULTS OBTAINED, THE ENGINEER SHALL DETERMINE THE FINAL FOOTING ELEVATIONS. NO REINFORCING STEEL FOR WALL SHALL BE ORDERED UNTIL FINAL FOOTING ELEVATIONS HAVE BEEN DETERMINED.

PLANS SHOW RECOMMENDED DESIGN BASED ON AVAILABLE DATA. IF SITE CONDITIONS REVEAL THE NEED FOR ADJUSTMENTS TO FOOTING ELEVATIONS, THE CONTRACTOR WILL SUBMIT SURVEY RESULTS TO THE STATE FOR EVALUATION. SHOULD A REDESIGN BE REQUIRED, THE STATE WILL EXECUTE THE DESIGN.

WALL FINISH: THE FRONT FACE OF WALL SHALL RECIEVE A FORMLINER FINISH  
EQUAL TO ONE OF THE FOLLOWING OR AN APPROVED EQUAL:

MANUFACTURER	FORMLINER
FITZGERALD FORMLINERS	16986 GEORGETOWN ASHLAR
CUSTOM ROCK	12020 TOLLWAY ASHLAR
SYMONS	ROUGH ASHLAR STONE

FORMLINER FINISH SHOULD MATCH THAT USED FOR NOISE WALL NO.1 AND RETAINING WALLS NO.1, NO.2, AND NO.5.

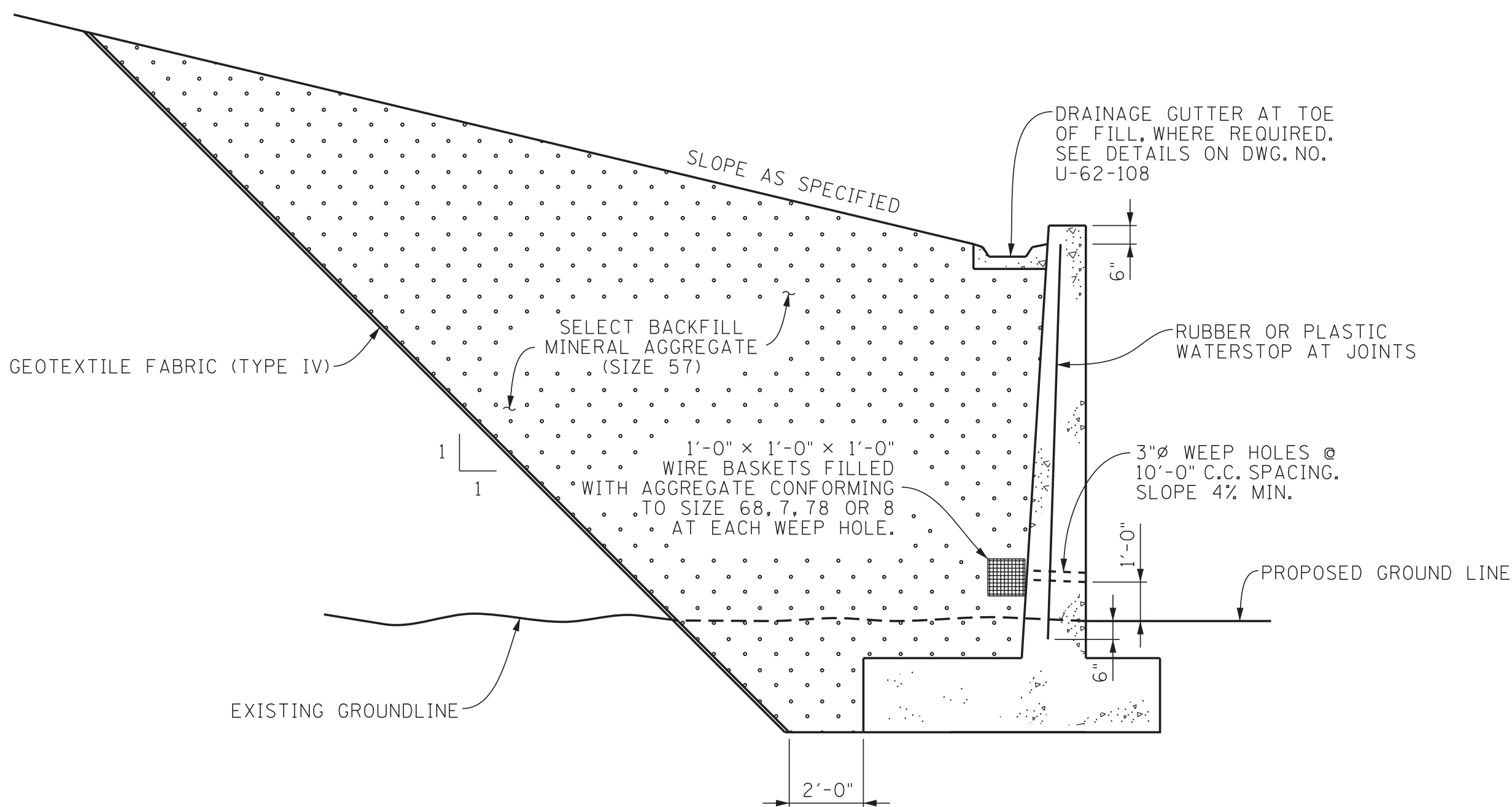
ALL EXPOSED SURFACES OF WALL SHALL RECIEVE AN APPLIED TEXTURE FINISH  
(GRAY, AMS-STD-595A, COLOR NO. 36440).



NOTE: PRIOR TO CONSTRUCTION OF RETAINING WALL NO. 6, THE CONTRACTOR SHALL SUBMIT A PROPOSED BILL OF STEEL TO THE ENGINEER FOR APPROVAL.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
604-01.20	BOX TUBE SAFETY RAIL	L.F.	65
604-02.03	EPOXY COATED REINFORCING STEEL	LB.	38,497
604-03.02	STEEL BAR REINFORCEMENT (BRIDGES)	LB.	30,070
604-03.74	CLASS 'X' CONCRETE	C.Y.	641
604-04.01	APPLIED TEXTURE FINISH (NEW STRUCTURES)	S.Y.	492
606-02.03	STEEL PILES (10 INCH)	L.F.	577
606-02.06	PILE TIPS (STEEL PILES, 10 INCH)	EACH	30

- ① NOTE: INCLUDES ALL COSTS FOR ASHLAR STONE FORMLINER FINISH MATERIALS AND INSTALLATION.
- ② NOTE: MATERIAL AND LABOR NECESSARY TO INSTALL DRAINAGE BASKETS, WATER STOPS, AND WEEP HOLES TO BE INCLUDED WITH COST OF ITEM NO. 604-03.74, CLASS "X" CONCRETE.



NOTE: SEE ROADWAY PLANS FOR SELECT BACKFILL AND  
GEOTEXTILE FABRIC QUANTITIES.

COSTS FOR EXCAVATION OF THE WALL WILL NOT BE PAID FOR DIRECTLY PER SP205A. THE VOLUME OF EMBANKMENT DISPLACED BY THE STRUCTURAL BACKFILL HAS BEEN DEDUCTED FROM THE EMBANKMENT QUANTITY: 203-10 EMBANKMENT (COMPACTED IN PLACE) IN THE ROADWAY PLANS.

NOTE: MATERIAL AND LABOR NECESSARY TO INSTALL DRAINAGE BASKETS, WATER STOPS, AND WEEP HOLES TO BE INCLUDED WITH COST OF CLASS "X" CONCRETE.

- \* MATERIAL DESIGN AND PARAMETER REQUIREMENTS:
- UNIT WEIGHT = 120 PCF
  - EFFECTIVE (DRAINED) FRICTION ANGLE = 38°
  - THE MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION LIMITS AND BE TESTED AT THE ESTABLISHED FREQUENCIES IN THE FOOTING CONSTRUCTION AND TESTING AND ACCEPTANCE OF MATERIAL AND PRODUCTS(SOP 111). THE CONTRACTOR SHALL ALSO PROVIDE TEST DATA FROM AN APPROVED LABORATORY CERTIFYING THAT THE MATERIAL MEETS THE FOLLOWING:

GRADATION AS DETERMINED BY AASHTO T27.

SIEVE SIZE	PERCENT PASSING
4 INCHES	100
$\frac{3}{8}$ INCHES	0-75
NO. 4	0-25
NO. 8	0-10
NO. 16	0-5

NOTE: SIZE NOS. 1 THROUGH 78 AS LISTED IN ORDER OF TABLE 1  
STANDARD SIZES OF PROCESSED AGGREGATE IN SECTION 903.22  
OF STANDARD SPECIFICATIONS MEET THE ABOVE GRADATION  
REQUIREMENTS.



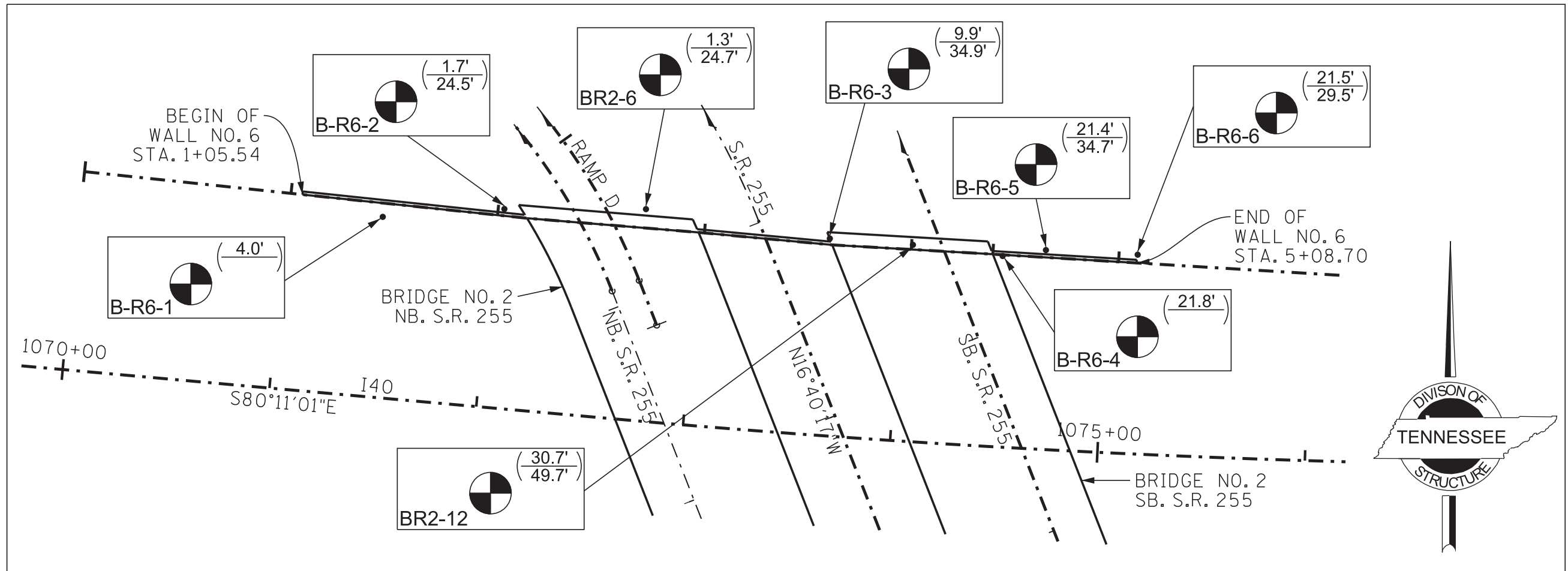
03-02-22

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
GENERAL NOTES AND  
ESTIMATED QUANTITIES  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT

Ted A Kmiazewicz  
ENGINEER OF STRUCTURES

U-62-99



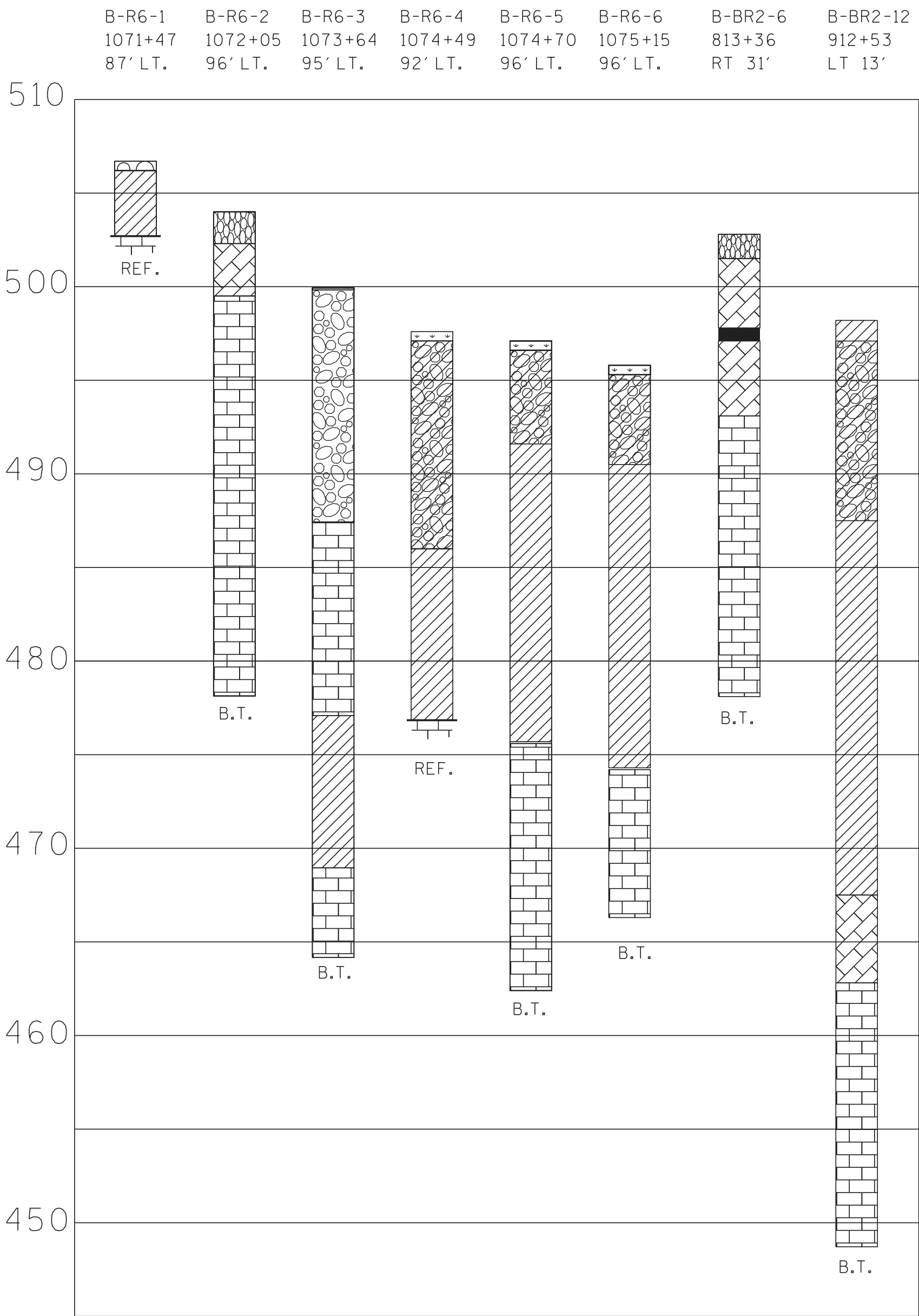
PLAN VIEW OF RETAINING WALL NO. 6  
(SCALE 1" = 50')

LEGEND

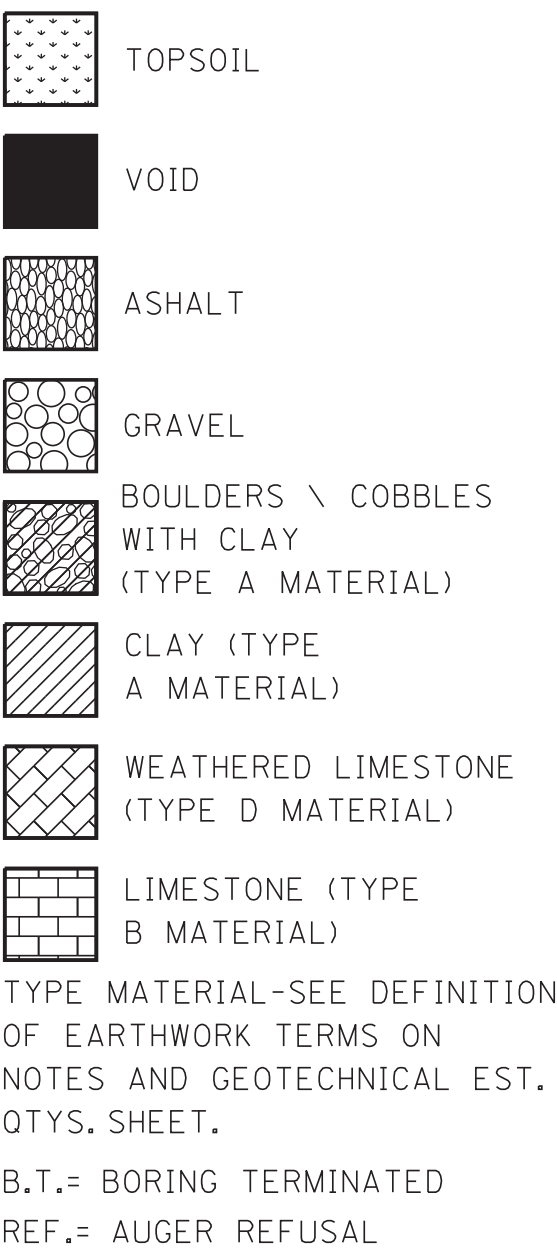


BORING NO.	LOCATION	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
B-R6-1	I40	1071+47	LT 87'	506.7'	502.7'	4.0'
B-R6-2	I40	1072+05	LT 96'	504.6'	502.9'	24.5'
B-R6-3	I40	1073+64	LT 95'	499.3'	489.4	34.9'
B-R6-4	I40	1074+49	LT 92'	497.6'	475.8'	21.8'
B-R6-5	I40	1074+70	LT 96'	497.1'	475.7'	34.7'
B-R6-6	I40	1075+15	LT 96'	495.8'	474.3'	29.5'
B-BR2-6	S.R. 255	813+36	RT 31'	502.8'	501.5	24.7'
B-BR2-12	S.R. 255	912+53	LT 13'	498.4'	467.7'	49.7'

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL  
AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.  
TO S.R. 255.



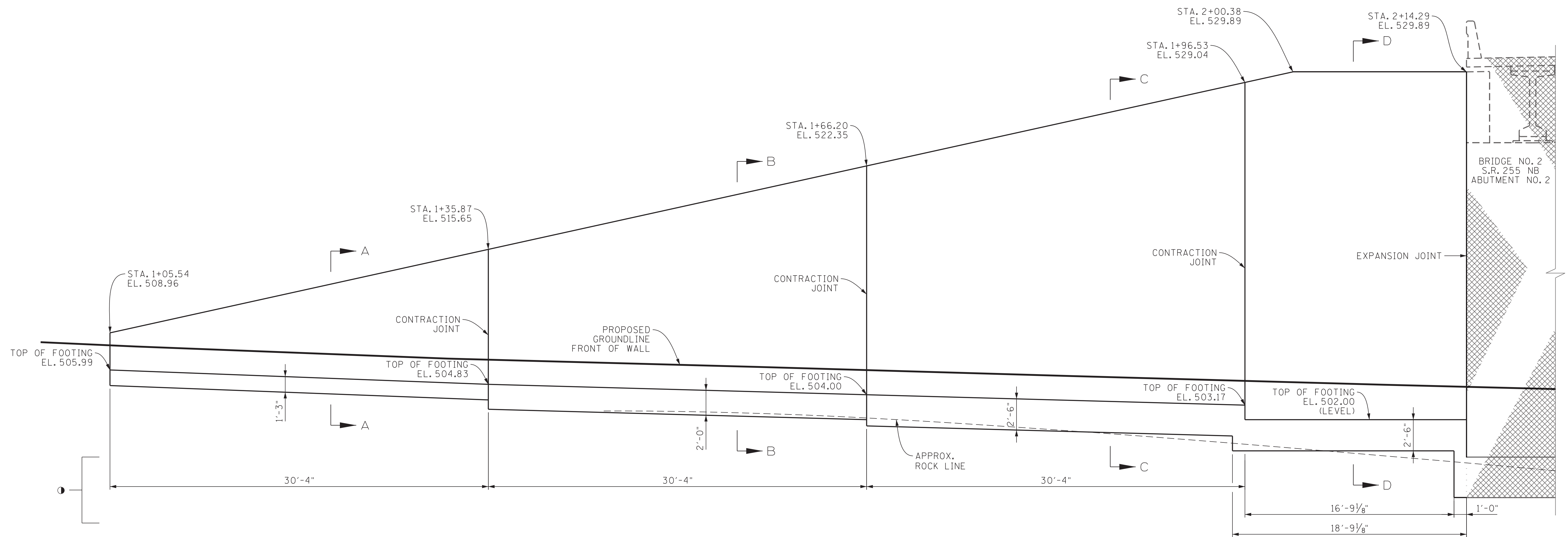
LEGEND



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
FOUNDATION DATA  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT *Ed A. K...*  
ENGINEER OF STRUCTURES

DESIGNED BY J. SHOULDERS DATE 09-20  
DRAWN BY P. MOSHER DATE 10-20  
SUPERVISED BY STEELE/SHIKE DATE 10-20  
CHECKED BY S. DASGUPTA DATE 11-20

[illegible]ELEVATION

● DEFINOTES MEASURED ALONG C WALL ALIGNMENT



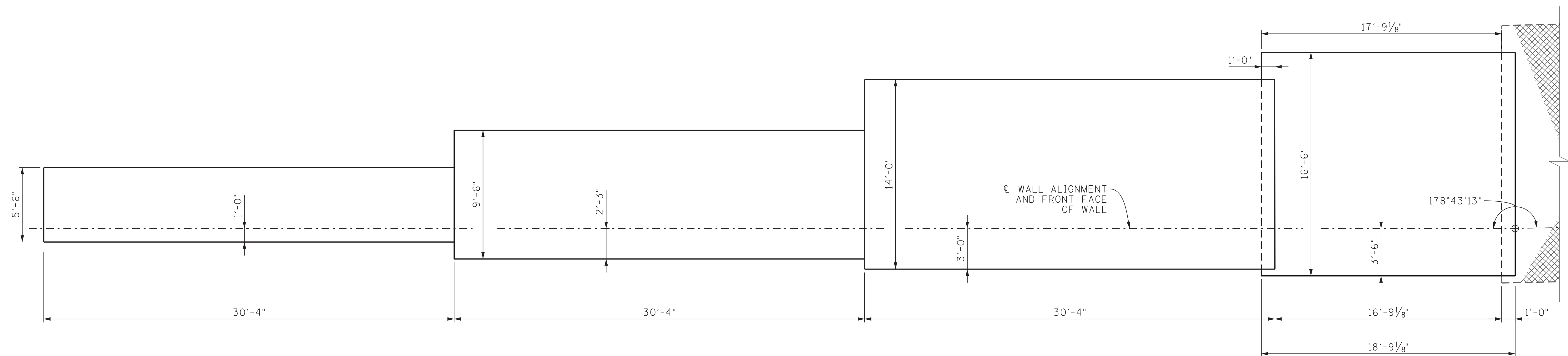
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
FROM STA. 1+05.54  
TO STA. 2+14.29  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT Ped A Kniagewyaz  
ENGINEER OF STRUCTURES

U-62-101

DESIGNED BY J. SHOULDERS DATE 09-20  
 DRAWN BY P. MOSHER DATE 10-20  
 SUPERVISED BY STEELE/SHIKE DATE 10-20  
 CHECKED BY S. DASGUPTA DATE 11-20

2/8/2022 7:16:28 PM \\A603SDCNF00008.net.ads.state.tx.us\I3SHARED\Strucdrop\Drop\I224\RET1224.dgn

[illegible]

### PLAN OF FOOTING

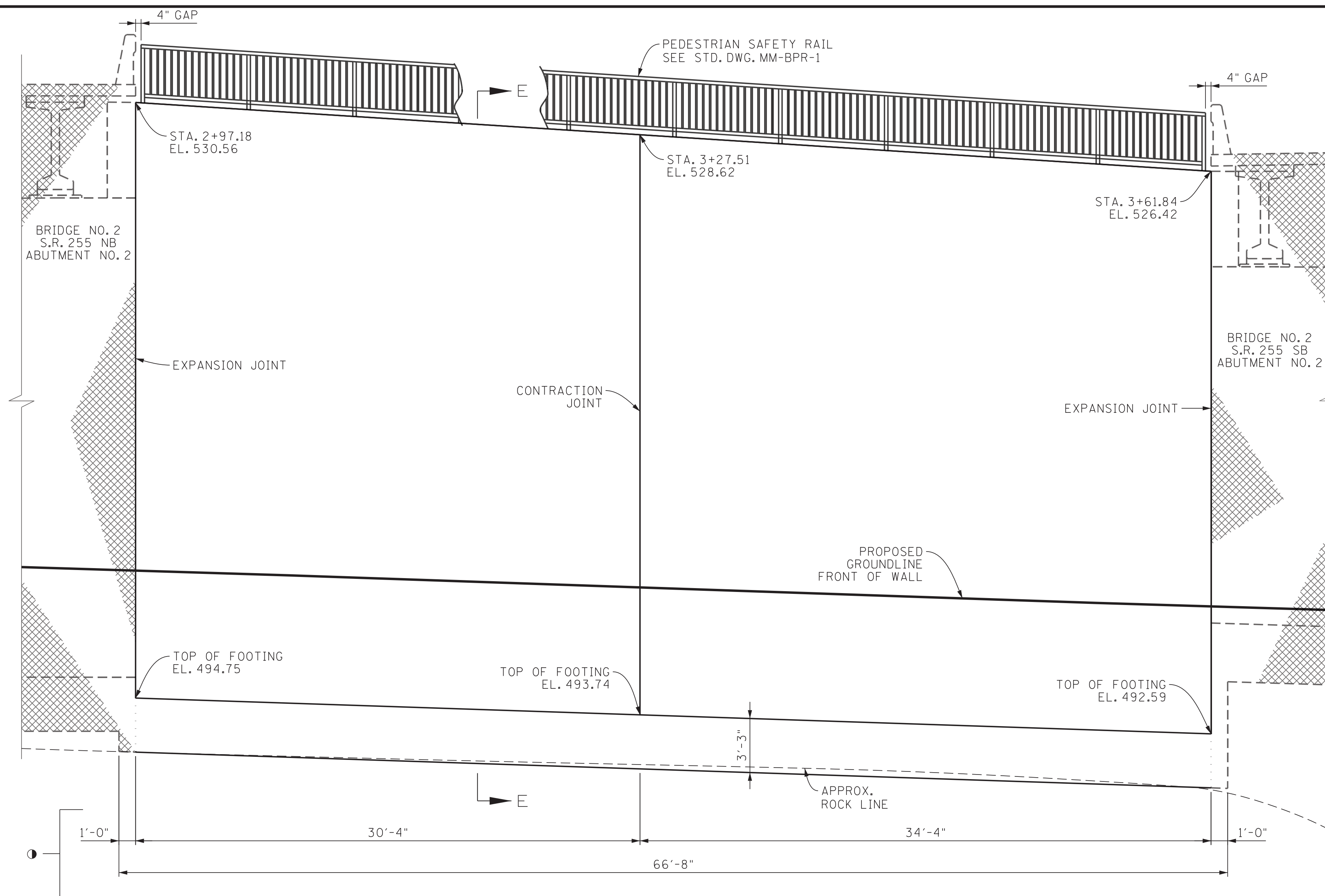


STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
FROM STA. 1+05.54  
TO STA. 2+14.29  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

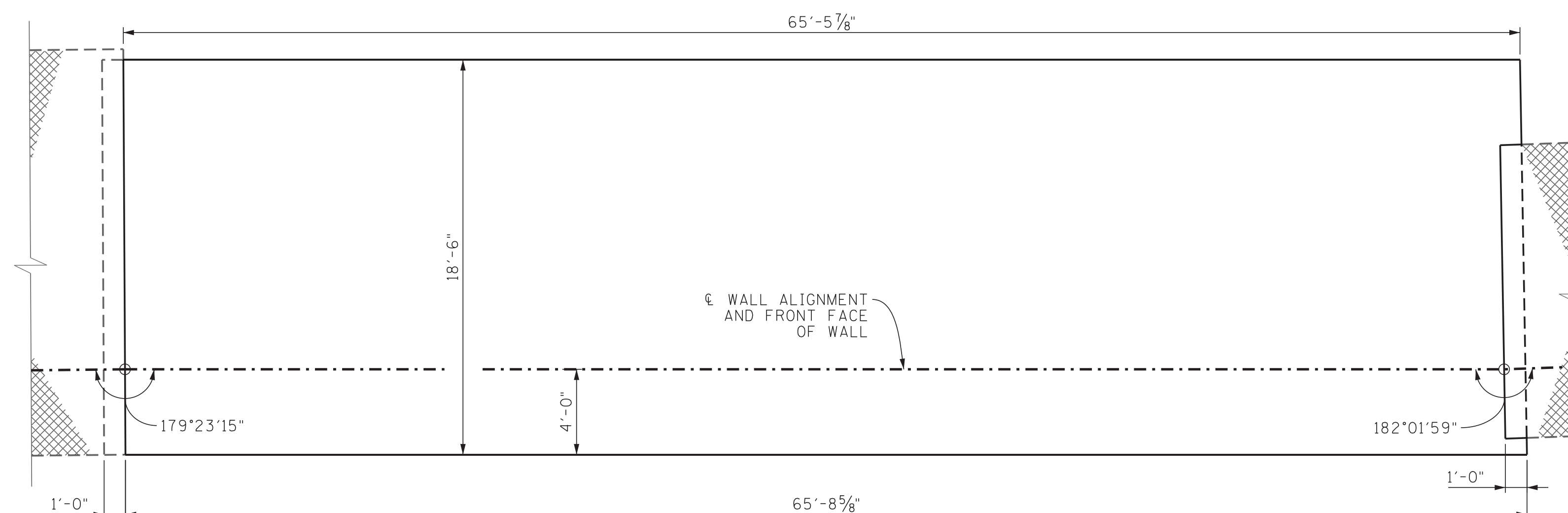
CORRECT Jed A Zmijewicz  
ENGINEER OF STRUCTURES

U-62-102

2/8/2022 7:16:50 PM  
\\AG03\$DCWF00008.net\ads.state.tx.us\3\$SHARED\Structdrop\Drop\1224\RET1224.dgn

ELEVATION

● DENOTES: MEASURED ALONG & WALL ALIGNMENT

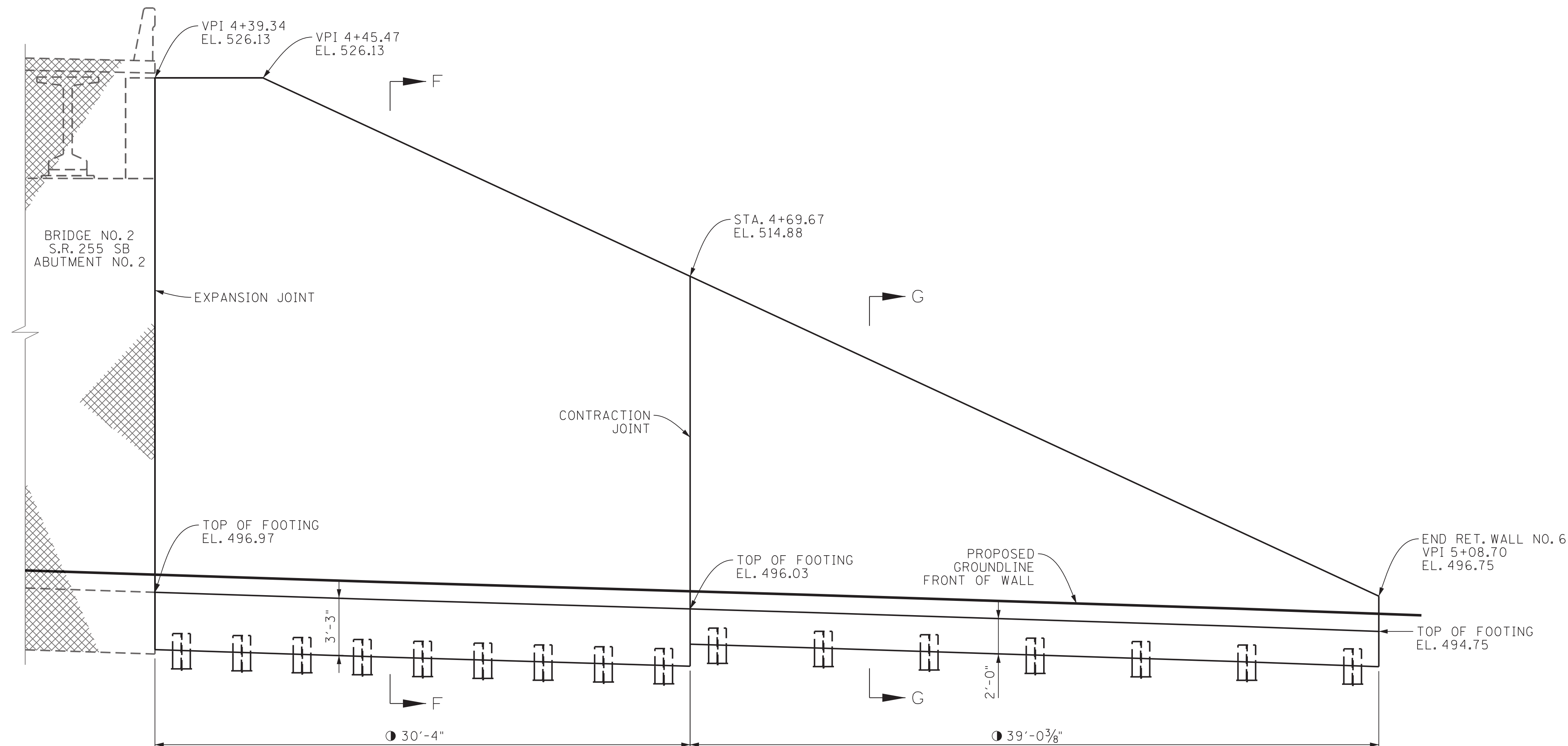


PLAN OF FOOTING

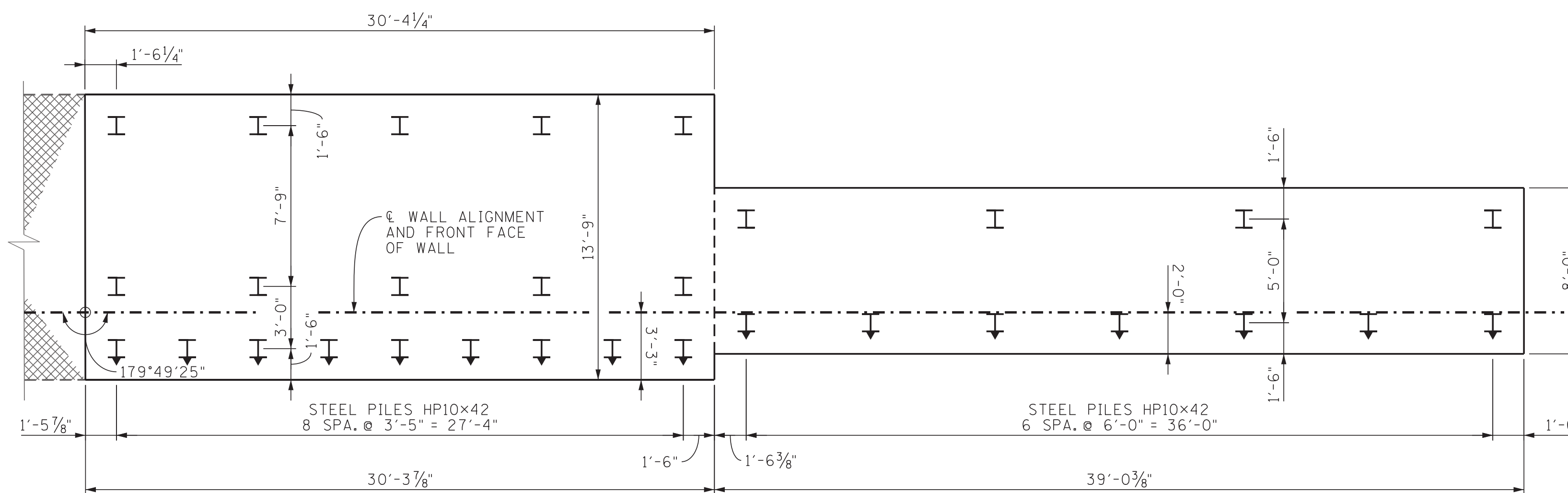
[illegible]

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
FROM STA. 2+97.18  
TO STA. 3+61.84  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT Ted A Krnigewicz  
ENGINEER OF STRUCTURES

[illegible]ELEVATION

● DENOTES: MEASURED ALONG & WALL ALIGNMENT  
AND FRONT FACE OF WALL.



PLAN OF FOOTING

DESIGNED BY J. SHOULDERS DATE 09-20  
 DRAWN BY P. MOSHER DATE 10-20  
 SUPERVISED BY STEELE/SHIKE DATE 10-20  
 CHECKED BY S. DASGUPTA DATE 11-20

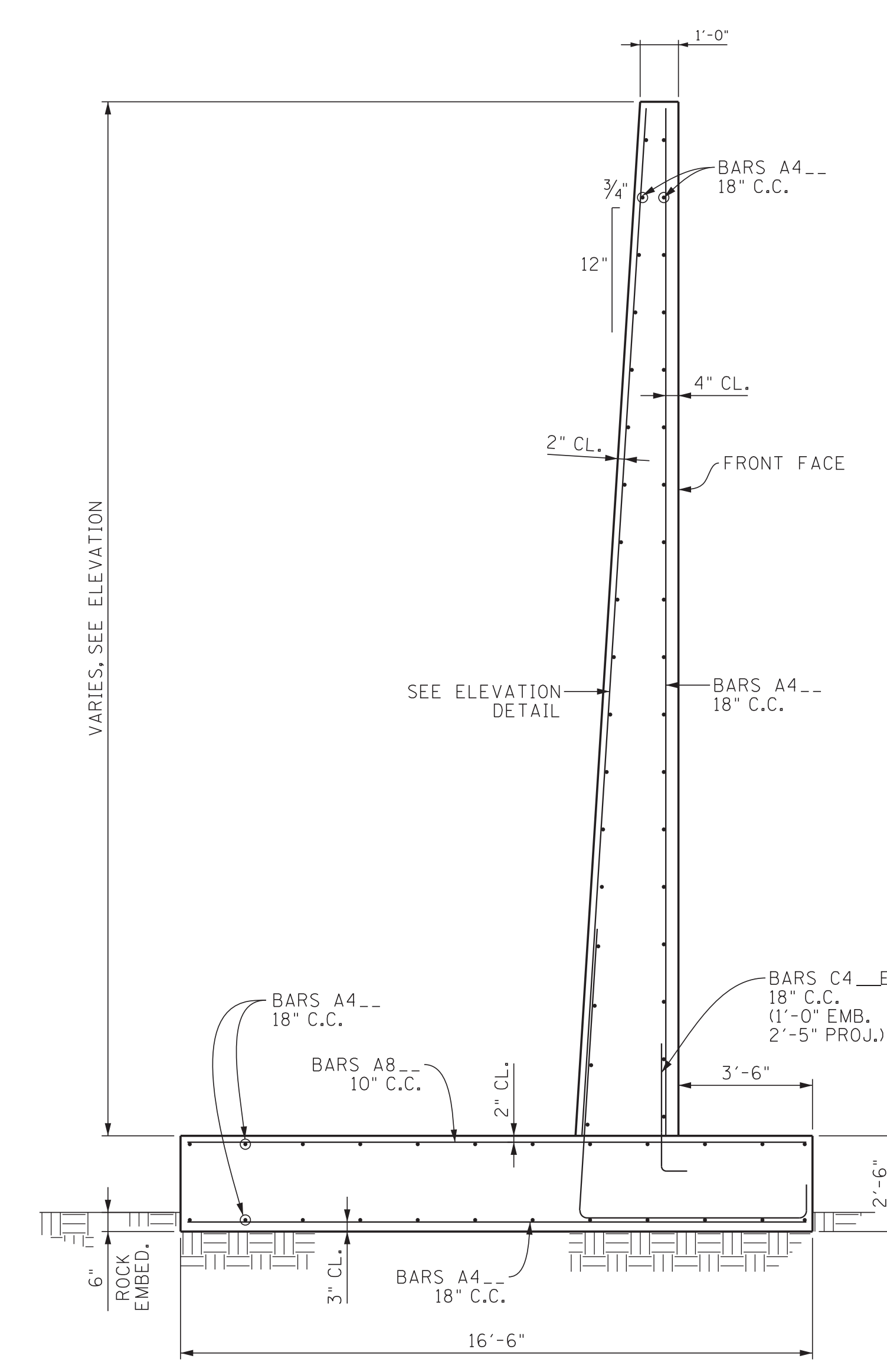
CORRECT Ted A Krnigewicz  
ENGINEER OF STRUCTURES



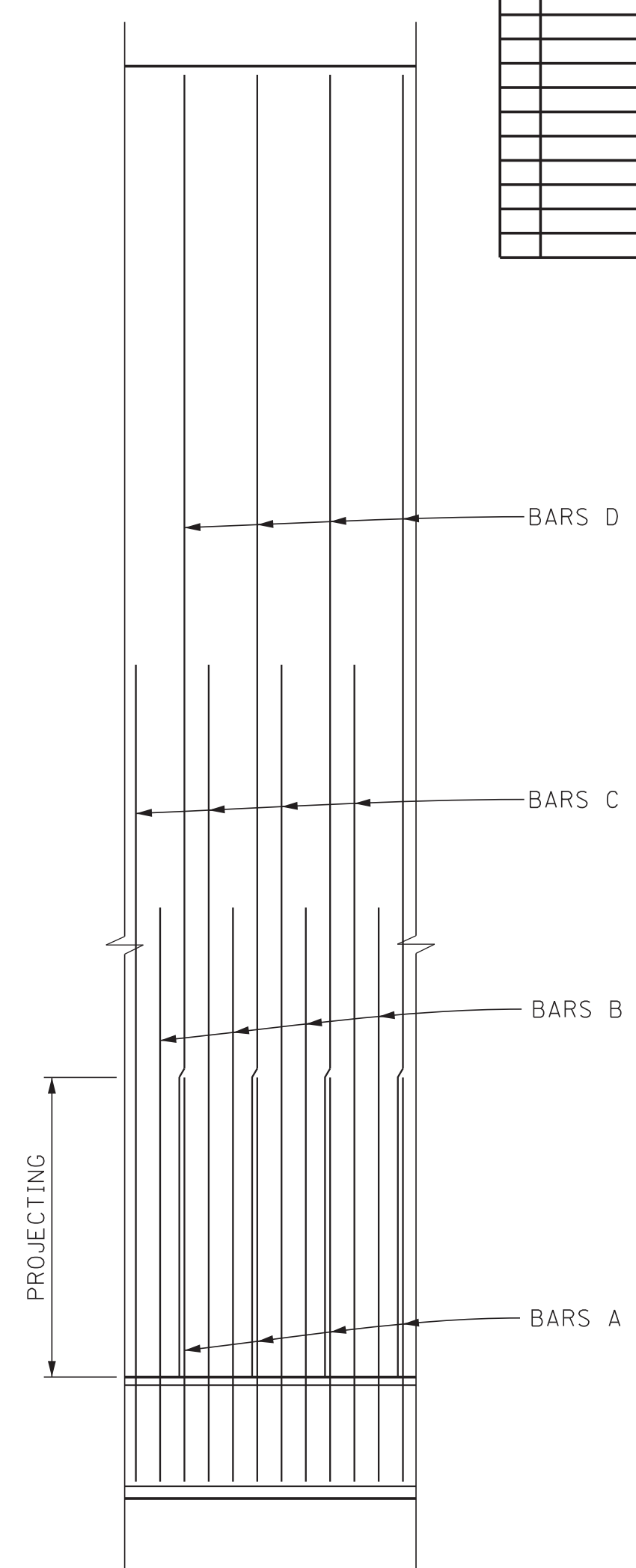
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
FROM STA. 4+39.34  
TO STA. 5+08.70  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022



CORRECT Del A Kruszewy  
ENGINEER OF STRUCTURES



SECTION D-D

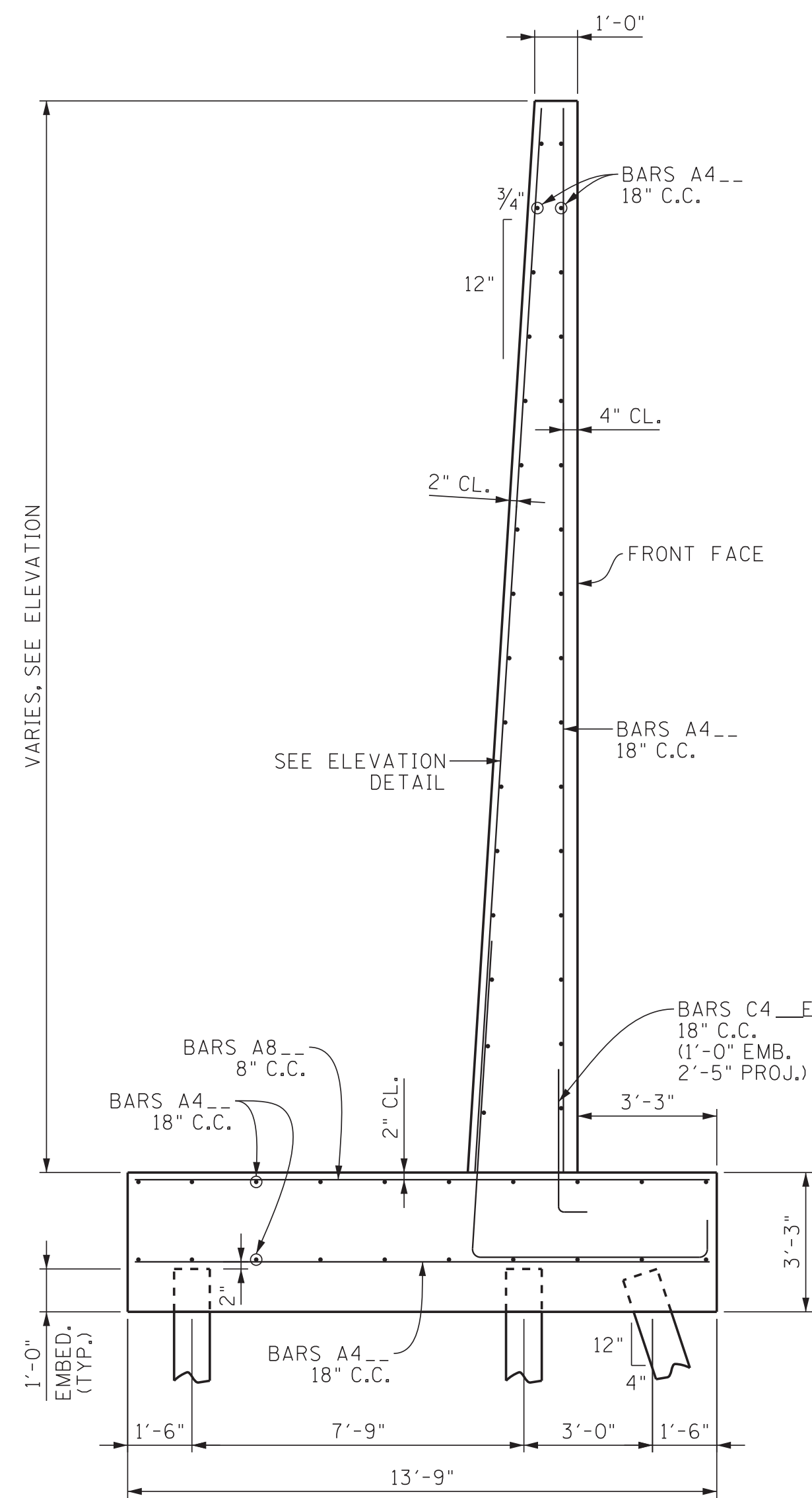


ELEVATION  
(BACK FACE OF WALL)

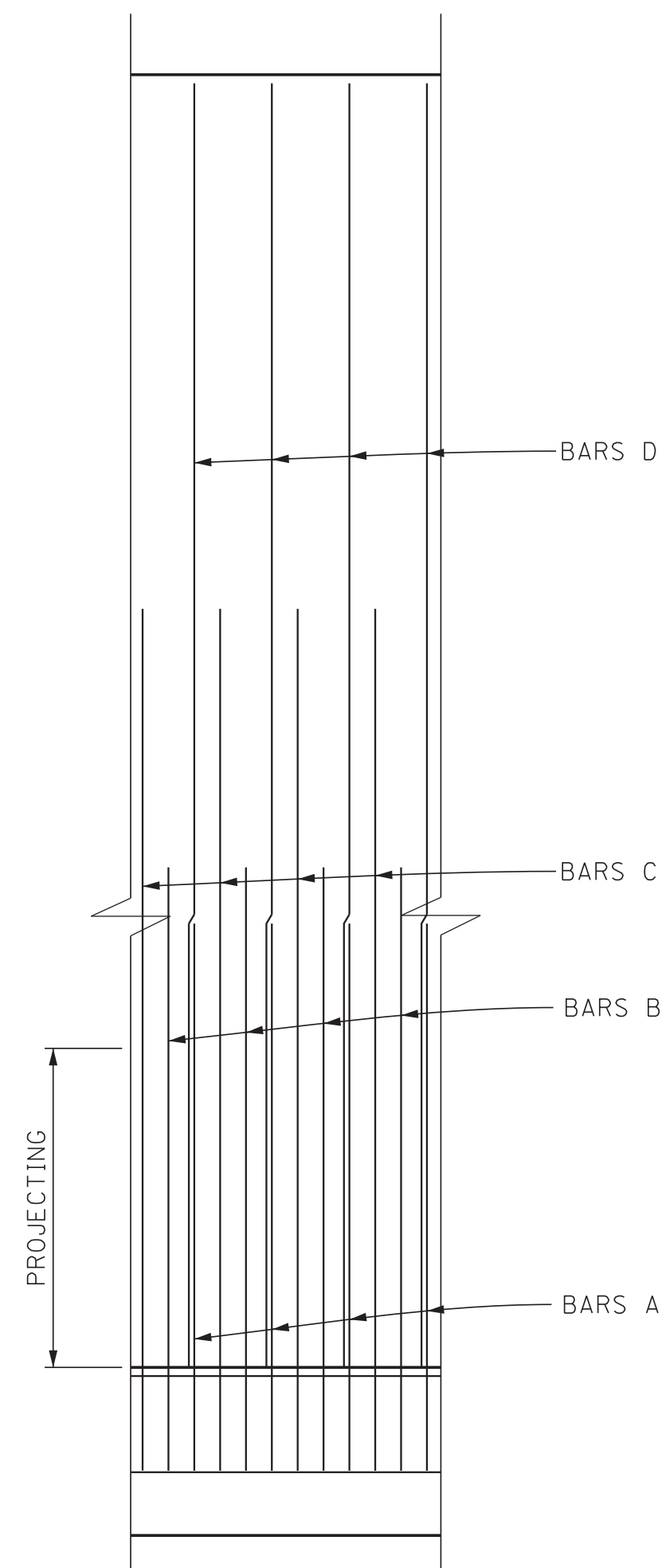
[illegible]

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
DETAILS  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT Del A Kniagowicz  
ENGINEER OF STRUCTURES

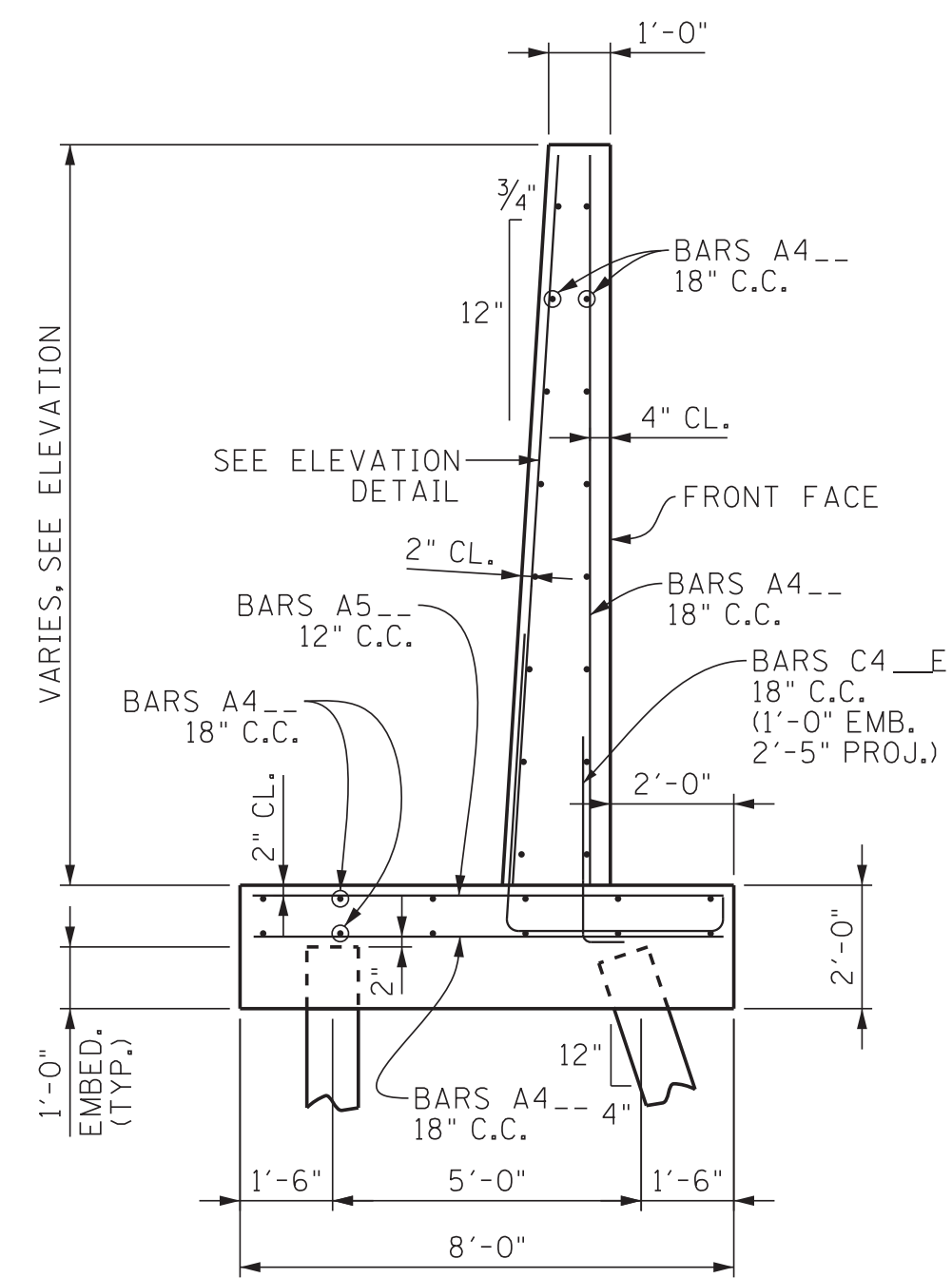
[illegible]

SECTION F-F

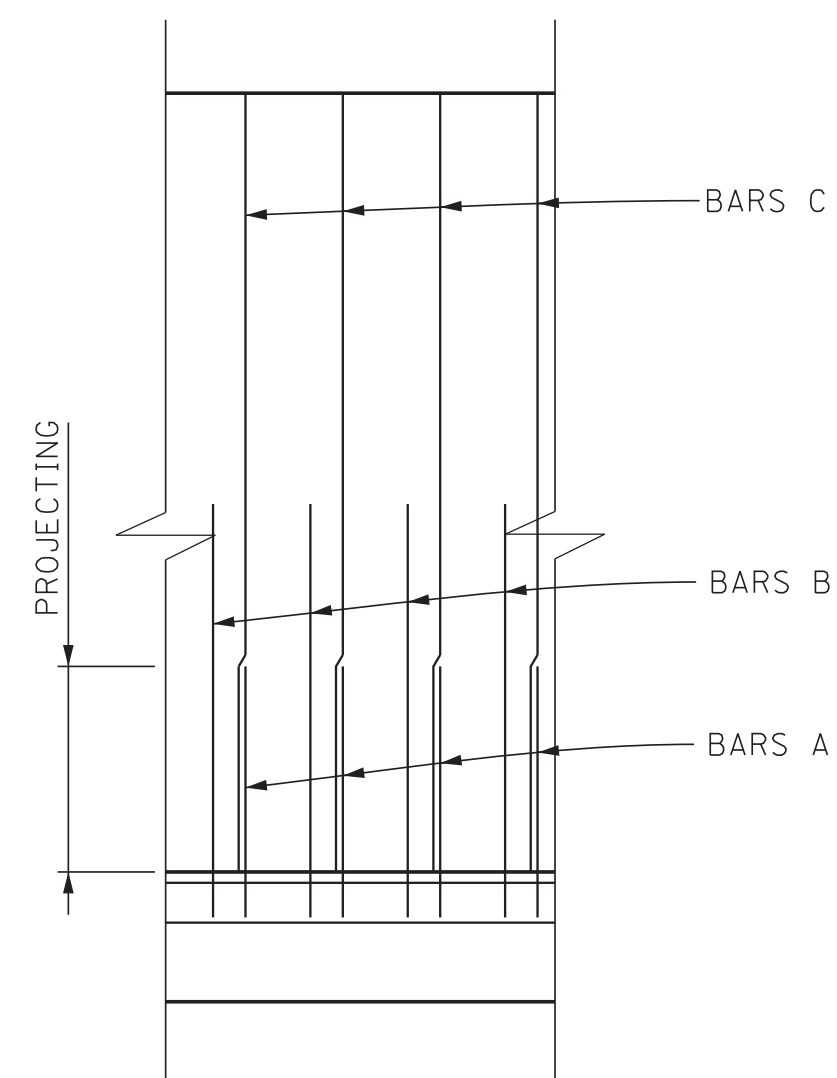


BARS	TYPE	SPACING	LENGTH PROJECTING
A	HB9__E	18"	8'-0"
B	HB8__E	18"	10'-2"
C	HB7__E	18"	15'-2"
D	A7__	18"	FULL HEIGHT

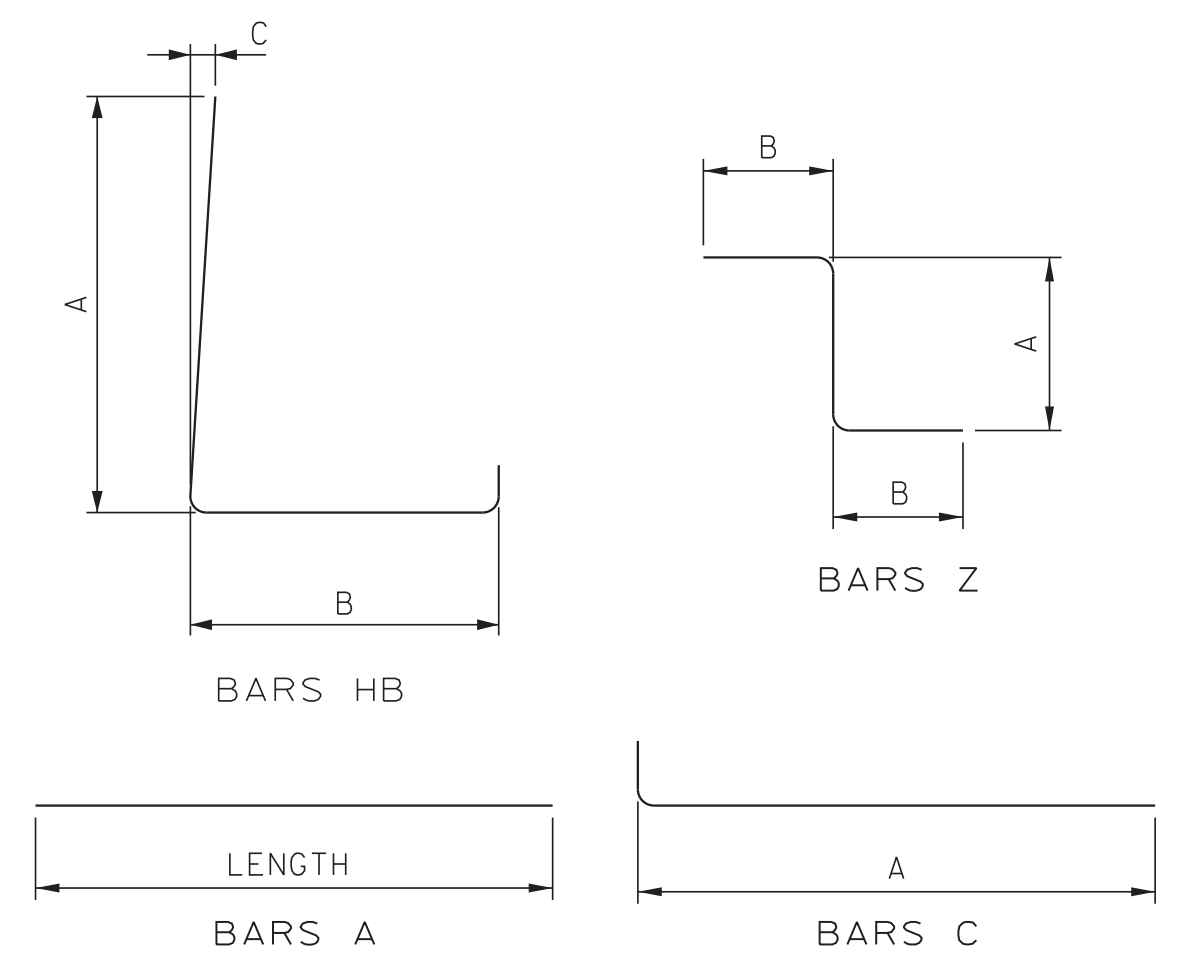
ELEVATION  
(BACK FACE OF WALL)



SECTION G-G



ELEVATION  
(BACK FACE OF WALL)



REINFORCING STEEL CODE

TYPE	SIZE	SERIES
A	5	01

NOTE: STANDARD C.R.S.I. HOOK DETAILS SHALL APPLY.

NOTE: THE SUFFIX "E" FOR BARS SO MARKED DENOTES EPOXY COATED REINFORCEMENT.

NOTE: SERIES NOT DESIGNATED ON THESE PLANS. BILL OF STEEL TO BE COMPLETED BY CONTRACTOR.

REINFORCING STEEL  
CONTINUITY LENGTH

BAR SIZE	DEVELOPMENT LENGTH	SPLICE LENGTH
4	1'-7"	2'-1"
5	2'-0"	2'-7"
6	2'-5"	3'-1"
7	2'-9"	3'-7"
8	3'-2"	4'-1"
9	3'-11"	5'-1"

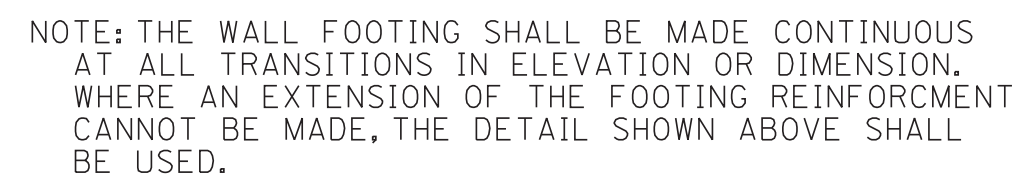
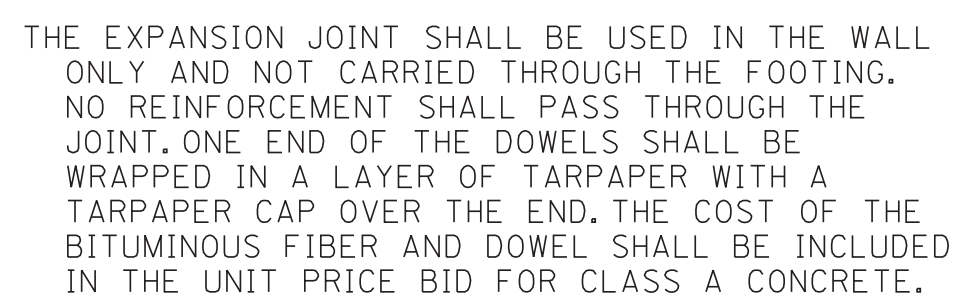


STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
DETAILS  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT Ted A Kmiazewicz  
ENGINEER OF STRUCTURES

U-62-107

DESIGNED BY J. SHOULDERS DATE 09-20  
 DRAWN BY P. MOSHER DATE 10-20  
 SUPERVISED BY STEELE/SHIKE DATE 10-20  
 CHECKED BY S. DASGUPTA DATE 11-20

[illegible]

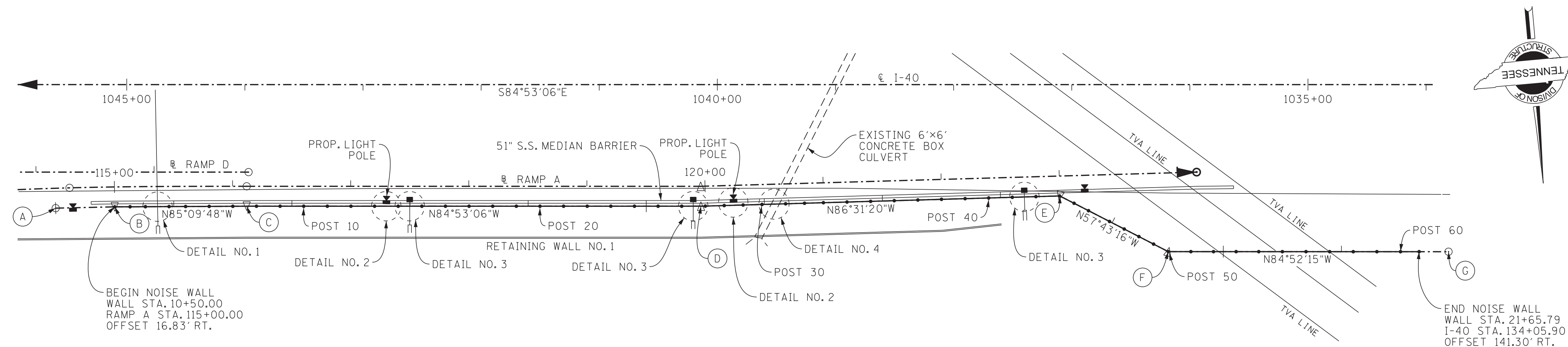
NOTE: CONSTRUCT FORMS TO COMPENSATE FOR STEM OFFSET.



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
RETAINING WALL NO. 6  
DETAILS  
FROM I-40 STA. 1071+07.53  
TO I-40 STA. 1075+14.66  
DAVIDSON COUNTY  
2022

CORRECT Ted A Kmiazewicz  
ENGINEER OF STRUCTURES

U-62-108

[illegible]

## PLAN OF NOISE WALL

NOISE BARRIER WALL 1 ALIGNMENT										
	WALL STA.	CODE	LOCATION	RAMP STA.	N	E	RAMP OFFSET	FROM-TO	BEARING	LENGTH
①	10+00.00	(A)	RAMP A	114+49.73	659039.0439	1770661.6733	16.83 RT.	(A) - (B)	N 86° 08' 56" W	50.00
①	10+50.00	(B)	RAMP A	115+00.00	659042.4021	1770611.7862	16.83 RT.	(B) - (C)	N 85° 09' 48" W	111.73
①	11+61.73	(C)	RAMP A	116+11.97	659051.8224	1770500.4567	16.83 RT.	(C) - (D)	S 84° 53' 06" E	384.59
①	15+46.32	(D)	RAMP A	119+96.33	659086.1104	1770117.3953	16.83 RT.	(D) - (E)	S 86° 31' 20" E	303.91
①	18+50.23	(E)	RAMP A	123+00.00	659104.5459	1769814.0404	16.83 RT.	(E) - (F)	N 57° 43' 16" W	103.16
①	19+53.39	(F)	I-40	1036+18.30	659159.6375	1769726.8235	141.24 LT.	(F) - (G)	S 84° 52' 15" E	212.40
	21+90.69	(G)	I-40	1033+81.00	659180.8521	1769490.4749	141.30 LT.			

① WALL P.I. STATION.

## LIST OF DRAWINGS

LAYOUT OF NOISE WALL .....  
 GENERAL NOTES AND ESTIMATED QUANTITIES .....  
 FOUNDATION DATA .....  
 FOUNDATION DATA .....  
 FOUNDATION DATA .....  
 DETAILS FOR NOISE WALL .....  
 PROFILE OF NOISE WALL .....  
 POST, CAISSON, AND PANEL DATA .....  
 PANEL AND FOUNDATION DETAILS .....  
 POST DETAILS .....  
 POST EXTENSION DETAILS .....  
 PANEL DETAILS .....

DWG. NO.	LAST REV. DATE

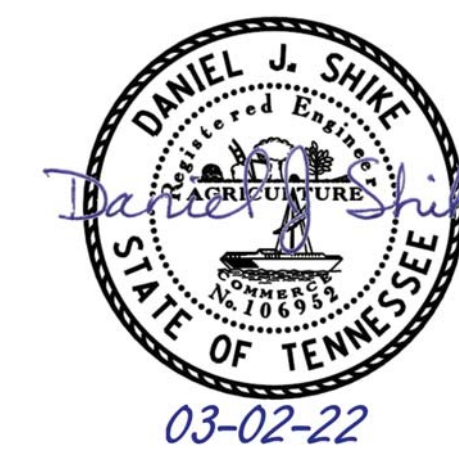
U-62-109	-----
U-62-110	-----
U-62-111	-----
U-62-112	-----
U-62-113	-----
U-62-114	-----
U-62-115	-----
U-62-116	-----
U-62-117	-----
U-62-118	-----
U-62-119	-----
U-62-120	-----

## LIST OF SPECIAL PROVISIONS

REGARDING DRILLED CAISSONS .....

DWG. NO.	LAST REV. DATE

SP204C 01-01-21



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
LAYOUT OF NOISE WALL  
I-40/DONELSON PIKE  
INTERCHANGE  
RAMP 'A' STA. 115+00.00  
TO I-40 STA. 134+05.90  
DAVIDSON COUNTY  
2022

CORRECT Ted A Krzyewy  
ENGINEER OF STRUCTURES

U-62-109

GENERAL NOTES

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION (JANUARY 1, 2021 EDITION).

DESIGN SPECIFICATIONS: 9TH EDTION (2020) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

REINFORCING STEEL: TO BE ASTM A615 GRADE 60.

PRECAST CONCRETE PANELS; THE WIDTH, LENGTH AND HEIGHT OF PANELS ARE DETAILED WITHIN.

CONCRETE TO BE CLASS "A"  $f'c = 3000$  PSI.

DURING HANDLING AND SHIPPING, SUFFICIENT LATERAL SUPPORT WILL BE REQUIRED TO PREVENT EXCESSIVE BOWING AND WARPING, DURING HANDLING, TRANSPORTATION AND STORAGE. PANELS SHALL BE ADEQUATELY PROTECTED BY PADDING OR OTHER MEANS TO PREVENT CRACKING, STAINING, CHIPPING OR SPALLING OF THE CONCRETE.

IF A PANEL IS DAMAGED, THE ENGINEER WILL DETERMINE AS TO WHETHER OR NOT IT CAN BE REPAIRED OR DISCARDED. IF ACCEPTABLE TO THE ENGINEER, DAMAGED PANELS SHALL BE REPAIRED IN A MANNER APPROVED BY THE ENGINEER. CRACKED PANELS OR PANELS WHICH, AS DETERMINED BY THE ENGINEER, CANNOT BE REPAIRED, SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ADDITIONAL INSPECTIONS BY THE ENGINEER WILL BE MADE PRIOR TO ERECTION TO DETERMINE IF ANY DAMAGE OCCURRED DURING STORAGE OR TRANSPORTATION AND AFTER ERECTION TO DETERMINE IF ANY DAMAGE HAS OCCURRED DURING ERECTION.

PANELS SHALL BE ERECTED CENTERED BETWEEN POSTS. ALL HORIZONTAL JOINTS SHALL ALIGN WITH ADJACENT SECTIONS. REGARDING BOTTOM PANEL ONLY, THE MINIMUM HEIGHT OF A PANEL IS 2'-0". THE MAXIMUM HEIGHT OF A PANEL IS 4'-0". 5'-0" IS ALLOWED ON TAPERED PANELS.

THE STRENGTH AND TYPE OF LIFTING INSERTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TYPE AND LOCATION OF LIFTING INSERTS SHALL BE SUBMITTED FOR APPROVAL WITH THE WORKING DRAWINGS. AFTER PANEL ERECTION, REMOVABLE LIFTING INSERTS SHALL BE PLUGGED WITH GROUT AND NONREMOVABLE MECHANISMS SHALL BE BURNED FLUSH WITH PANEL JOINT OR FACE WITH EPOXY PAINT.

SPECIAL NOTE-CAISSON DRILLING: CAISSONS LOCATED IN MATERIAL THAT CAN NOT BE DRILLED OR AUGERED MAY BE "CHURN" DRILLED OR EXCAVATED AND "CASED". SEE SPECIAL PROVISION 204DC.

NON-PAY ITEMS: ONLY ITEMS SHOWN ON THE PROPOSAL AS PAY ITEMS WILL BE PAID. COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND INCIDENTALS FOR THE ENTIRE CONTRACT SHALL BE INCLUDED IN THE PRICE BID FOR PAY ITEMS.

PLANS SHOW RECOMMENDED LAYOUT OF NOISE BARRIERS. TOP OF POST AND WALL ELEVATIONS SHALL NOT BE LOWERED. GROUND ELEVATIONS, POST HEIGHT AND WALL HEIGHT IS BASED ON AVAILABLE DATA. CONTRACTOR SHALL PERFORM A SURVEY TO DETERMINE EXACT GROUNDLINE, POST AND WALL EMBEDMENT ELEVATIONS, PRIOR TO PREPARATION OF SHOP DRAWINGS. IN THE EVENT THAT THE CONTRACTOR ELECTS TO REDESIGN THE WALL SYSTEM, HE SHALL BE RESPONSIBLE FOR THE DESIGN OF PANELS, WALLS AND DRILLED FOOTINGS. IF THE CONTRACTOR ELECTS TO UTILIZE THE STATE'S DESIGN, BUT THE FIELD SURVEY REVEALS THE NEED TO ADJUST COLUMN HEIGHTS THE STATE WILL EXECUTE THE DESIGN.

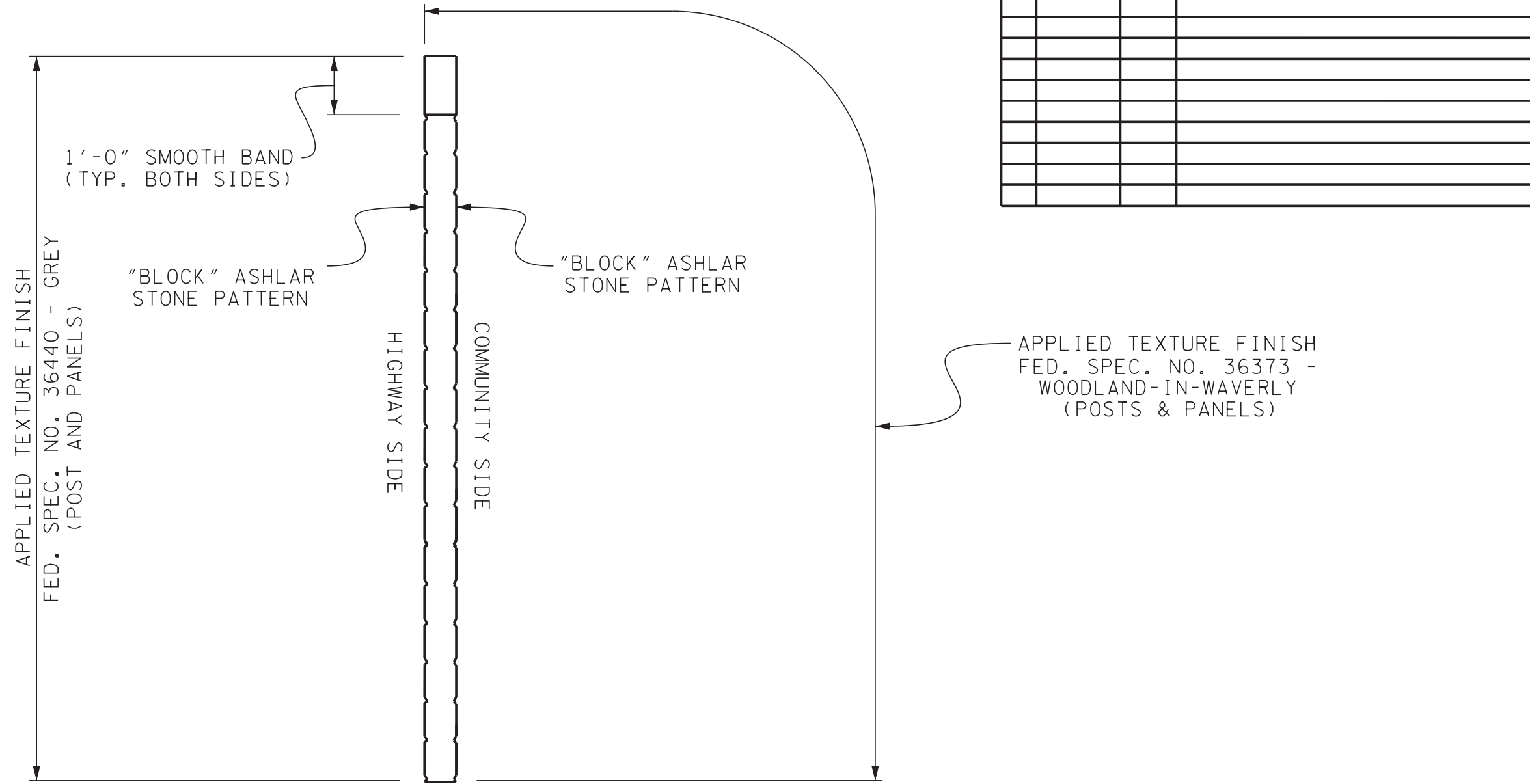
SPECIAL NOTE FOR UTILITIES: IT IS INTENDED THAT THE COST OF MATERIALS AND LABOR NECESSARY FOR THE COMPLETE INSTALLATION OF UTILITIES, IF ANY, SHALL BE BORNE BY OTHERS AND SHALL NOT BE PAID FOR AS A PART OF THIS CONTRACT. THE CONTRACTOR SHALL COOPERATE WITH OTHERS IN THE INSTALLATION OF UTILITIES WITH NO ADDITIONAL COMPENSATION ALLOWED THE CONTRACTOR AS A RESULT.

NOTE: THE LOCATION OF EXISTING UTILITIES SHALL BE FIELD VERIFIED HORIZONTALLY AS WELL AS VERTICALLY PRIOR TO CONSTRUCTION IN AREA.

NOTE: NO GAPS SHALL EXIST BETWEEN THE BASE OF THE BARRIER PANELS AND THE GROUND.

NOTE: THE PANELS SHALL BE FLUSH WITH ONE ANOTHER. GAPS BETWEEN BARRIER PANELS SHALL NOT BE PERMITTED.

NOTE: THE TOPS OF ALL POSTS SHALL BE CUT FLUSH WITH PANEL TOPS.



SURFACE FINISH SKETCH

CONCRETE FORMLINERS SHALL BE USED TO ACHIEVE THE SPECIFIED PATTERN AND TEXTURE ON BOTH THE HIGHWAY AND COMMUNITY SIDES OF THE BARRIER. METHODS THAT INVOLVE ROLLING OF ANY KIND TO ACHIEVE THE SPECIFIED PATTERN AND TEXTURE WILL NOT BE PERMITTED.

A MINIMUM 1" DEPTH OF REVEAL AT JOINTS SHALL BE ACHIEVED ON BOTH THE HIGHWAY AND COMMUNITY SIDES OF THE NOISE BARRIER.

THE FORMLINER USED ON BOTH THE HIGHWAY AND COMMUNITY SIDES OF THE NOISE BARRIER SHALL BE ONE OF THE FOLLOWING OR AN APPROVED EQUAL:

MANUFACTURER	FORMLINER
FITZGERALD FORMLINERS	16986 GEORGETOWN ASHLAR
CUSTOM ROCK	12020 TOLLWAY ASHLAR
SYMONS	ROUGH ASHLAR STONE

FORMLINER FINISH SHOULD MATCH THAT USED FOR RETAINING WALLS NO. 1, NO. 2, NO. 5, AND NO. 6.

TEXTURE COATING SHALL BE APPLIED TO ENSURE THAT ALL PANELS AND POSTS APPEAR UNIFORM IN COLOR. SEVERAL APPLICATIONS MAY BE REQUIRED TO ENSURE COLOR UNIFORMITY. COST TO BE INCLUDED IN OTHER ITEMS.

CONST. NO. 19008-3195-44			
PROJECT NO.		YEAR	SHEET NO.
NH-I-40-5(146)		2022	R36
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNITS	NOISE WALL NO. 1
204-02.10	DRILLED CAISSON - EARTH (30" DIA.)	L.F.	345
204-02.11	DRILLED CAISSON - EARTH (36" DIA.)	L.F.	589
204-02.21	DRILLED CAISSON (ROCK) (36" DIA.)	L.F.	48
② 604-03.01	CLASS "A" CONCRETE (BRIDGES)	C.Y.	163
① 718-01.01	NOISE BARRIER (NOISE WALL NO. 1)	S.F.	18,358

- ① PRICE BID FOR ITEM 718-01.01 INCLUDES ALL MATERIAL AND LABOR FOR COMPLETE INSTALLATION OF NOISE BARRIERS AS DETAILED ON THESE PLANS, FROM TOP OF FOUNDATION TO TOP OF NOISE BARRIER INCLUDING TOTAL LENGTH OF POST.
- ② PRICE BID FOR ITEM 604-03.01 INCLUDES ALL MATERIAL AND LABOR FOR COMPLETION OF DRILLED CAISSON, AS DETAILED ON THESE PLANS, FROM BOTTOM OF DRILLED CAISSON TO TOP OF DRILLED CAISSON (EXCLUDING DRILLING). SHOULD POST EXTENSION BE REQUIRED, COST OF NECESSARY REINFORCEMENT SHOULD BE INCLUDED WITH THIS ITEM.

DESIGNED BY J. SHOULDERS DATE 06-20  
DRAWN BY T. WISEMAN DATE 12-20  
SUPERVISED BY STEELE/SHIKE DATE 12-20  
CHECKED BY D. SHIKE DATE 01-21

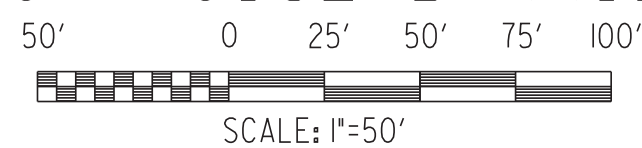


STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
GENERAL NOTES AND  
ESTIMATED QUANTITIES  
I-40/DONELSON PIKE  
INTERCHANGE  
RAMP 'A' STA. 115+00.00  
TO I-40 STA. 134+05.90  
DAVIDSON COUNTY  
2022

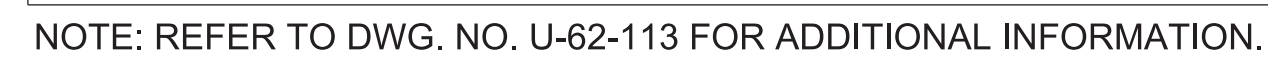
CORRECT Jed A. Krugewyga  
ENGINEER OF STRUCTURES

 NOT TO BE USED AS NOISE WALL LAYOUT.

PLAN VIEW OF NOISE BARRIER WALL NO. 1



CORRECT Ed A. Krawczyk  
ENGINEER OF STRUCTURES



LEGEND

- CORRECT

U-62-112

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
FOUNDATION DATA  
I-40/DONELSON PIKE  
INTERCHANGE  
RAMP 'A' STA. 115+00.00  
TO I-40 STA. 134+05.90  
DAVIDSON COUNTY  
2022

BORING NO.	STATION	OFFSET	GROUND ELEVATION	ROCK ELEVATION	TOTAL DEPTH
A-9	114+50	RT 5'	519.1'	493.8'	35.3'
A-10	115+00	RT 7'	517.6'	497.1'	30.5'
A-11	115+50	RT 6'	516.3'	496.3'	25.3'
A-12	116+00	RT 6'	514.9'	493.4'	30.3'
A-13	116+50	RT 5'	513.8'	492.2'	31.6'
A-14	117+00	RT 5'	512.3'	496.0'	25.2'
A-15	117+50	RT 6'	510.6'	493.6'	25.3'
A-16	118+00	RT 6'	509.3'	499.9'	20.2'
A-17	118+60	RT 6'	507.5'	502.2'	20.3'
A-18	119+00	RT 6'	505.7'	495.7'	30.4'
A-19	119+50	RT 6'	504.2'	494.1'	30.1'
A-20	120+00	RT 5'	502.9'	482.7	35.2'
A-21	120+50	RT 5'	501.4'	471.2'	50.2'
A-22	120+95	RT 9'	500.0'	465.2'	45.2'
A-23	121+50	CL	499.4'	468.9'	40.5'
A-24	122+00	RT 1'	498.2'	467.7'	35.5'
A-25	122+50	RT 12'	495.8'	475.5'	30.3'

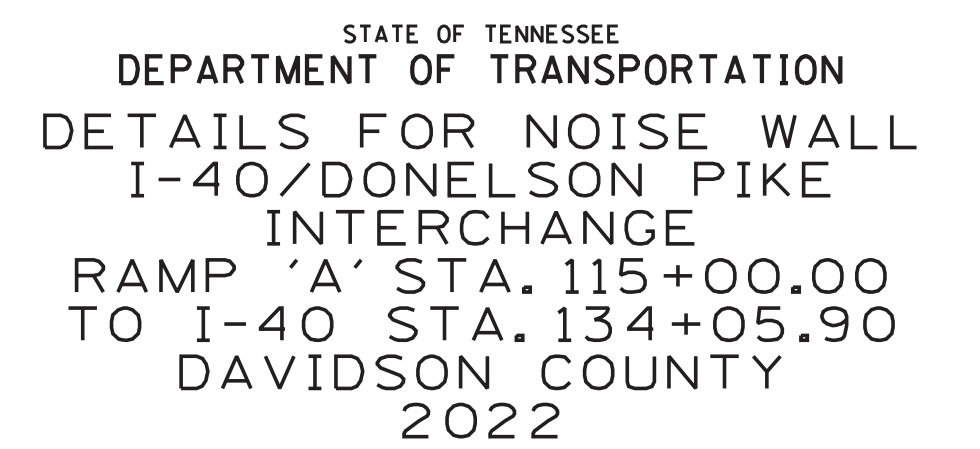
BORING PROFILE  
ON DWG. NO.  
U-62-112

NOTE:  
BORING DEPICTIONS SHOWN ON FOUNDATION DATA SHEET INDICATE GENERAL SOIL  
AND ROCK TYPES AT THE SPECIFIC BORING LOCATIONS.

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
FOUNDATION DATA  
I-40/DONELSON PIKE  
INTERCHANGE  
RAMP 'A' STA. 115+00.00  
TO I-40 STA. 134+05.90  
DAVIDSON COUNTY  
2022

CORRECT Ted A. Kmienewyca  
ENGINEER OF STRUCTURES

DESIGNED BY <u>J. SHOULDERS</u>	DATE <u>06-20</u>
DRAWN BY <u>T. WISEMAN</u>	DATE <u>12-20</u>
SUPERVISED BY <u>STEELE/SHIKE</u>	DATE <u>12-20</u>
CHECKED BY <u>D. SHIKE</u>	DATE <u>01-21</u>



CORRECT Ted A. Kniagewicz  
ENGINEER OF STRUCTURES



The seal is circular with a double-lined border. The outer ring contains the text "DANIEL J. SHIKE" at the top and "STATE OF TENNESSEE" at the bottom. The inner circle features a central illustration of a person standing on a pedestal, holding a staff with a plumb line. Above the figure is a sun and a gear. The text "REGISTERED ENGINEER" is arched above the figure, and "AGRICULTURE" is arched below it. At the bottom of the inner circle, it says "NUMBER 106959". The name "Daniel Shike" is written in purple cursive across the seal. Below the seal, the date "03-02-22" is written in purple.

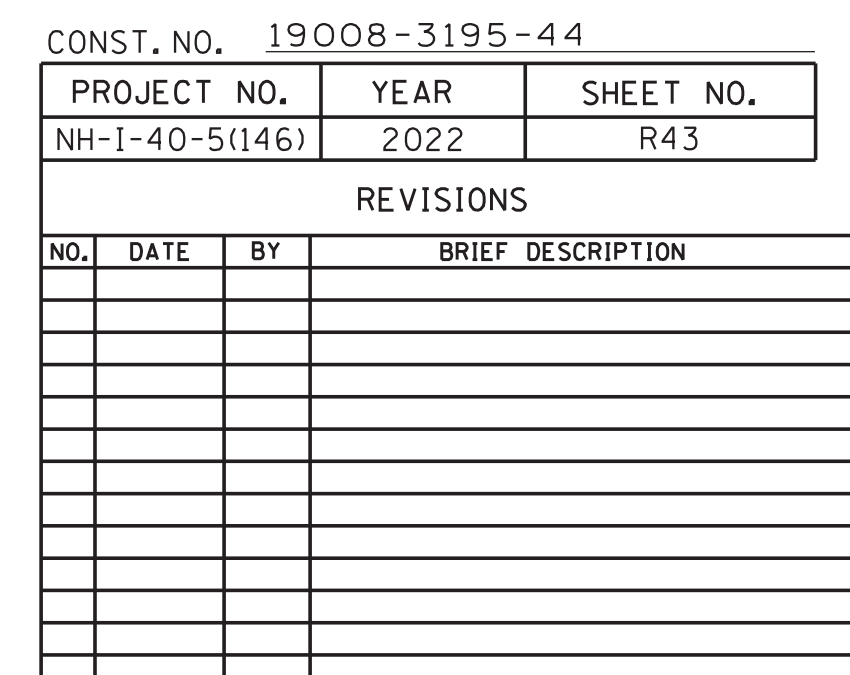
CORRECT

Ted A. Kinnear  
ENGINEER OF STRUCTURES

CORRECT Jed A. Kniagewicz  
ENGINEER OF STRUCTURES

NOTE: ALL DIMENSIONS ARE IN FEET.

DESIGNED BY <u>J. SHOULDERS</u>	DATE <u>06-20</u>
DRAWN BY <u>T. WISEMAN</u>	DATE <u>12-20</u>
SUPERVISED BY <u>STEELE/SHIKE</u>	DATE <u>12-20</u>
CHECKED BY <u>D. SHIKE</u>	DATE <u>01-21</u>



NOTE: THE SEAM BETWEEN TWO ADJACENT PANELS SHALL  
BE IN-LINE OVER FULL LENGTH OF WALL

PROPOSED GROUND LINE

3" MIN.

BOTTOM OF PANEL (TYP.)

$\frac{3}{8}$ " NEOPRENE PAD  
GLUED TO TOP SURFACE

DETAIL A-A

DETAIL A-A



\* \* DENOTES: ROCK SOCKET DEPTH VARIES.

DETAIL C-C  
(ROCK IS ENCOUNTERED)

PRECAUTIONS SHOULD BE TAKEN TO PERMIT THE CAISSON TO BE DRILLED AND CONCRETED UNDER DRY CONDITIONS. IT MAY BE NECESSARY TO UTILIZE A TEMPORARY STEEL CASING TO SUPPORT THE WALLS OF THE SHAFT. COST OF THE CASING TO BE INCLUDED IN THE PRICE BID FOR DRILLED CAISSONS, SEE SPECIAL PROVISION 204DC.



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
PANEL AND  
FOUNDATION DETAILS  
I-40/DONELSON PIKE  
INTERCHANGE  
RAMP 'A' STA. 115+00.00  
TO I-40 STA. 134+05.90  
DAVIDSON COUNTY  
2022

CORRECT

CT Ted A. Kniagewy  
ENGINEER OF STRUCTURES



(AT BREAK IN WALL ALIGNMENT  
POSTS NO. 7, 8, 26 & 27)



SHOWING REINFORCING



(AT BREAK IN WALL ALIGNMENT  
POSTS 43 & 50)

NO. 4 STIRRUP  
@ 1'-2" C.C.

1' CL.  
(TYP.)

3" CL.  
(TYP.)

3" (TYP.)

NO. 11 BAR  
(TYP.)

3 1/2" 3 SPA. @ 4 1/2" 3 1/2"  
= 1'-2"

POST CROSS SECTION

SHOWING REINFORCING

(AT BREAK IN WALL ALIGNMENT  
POSTS 43 & 50)

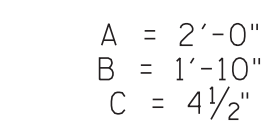


03-02-22

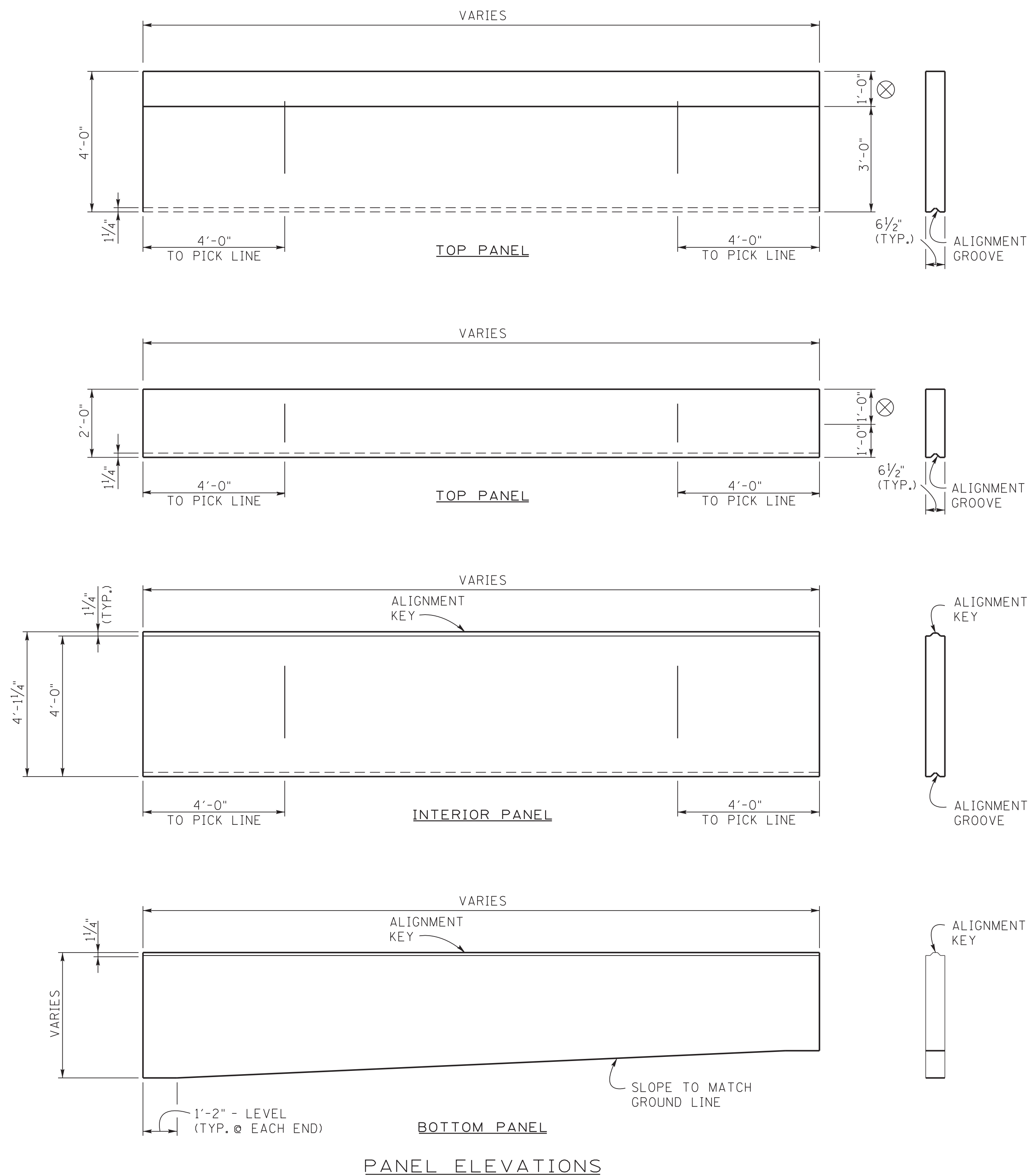
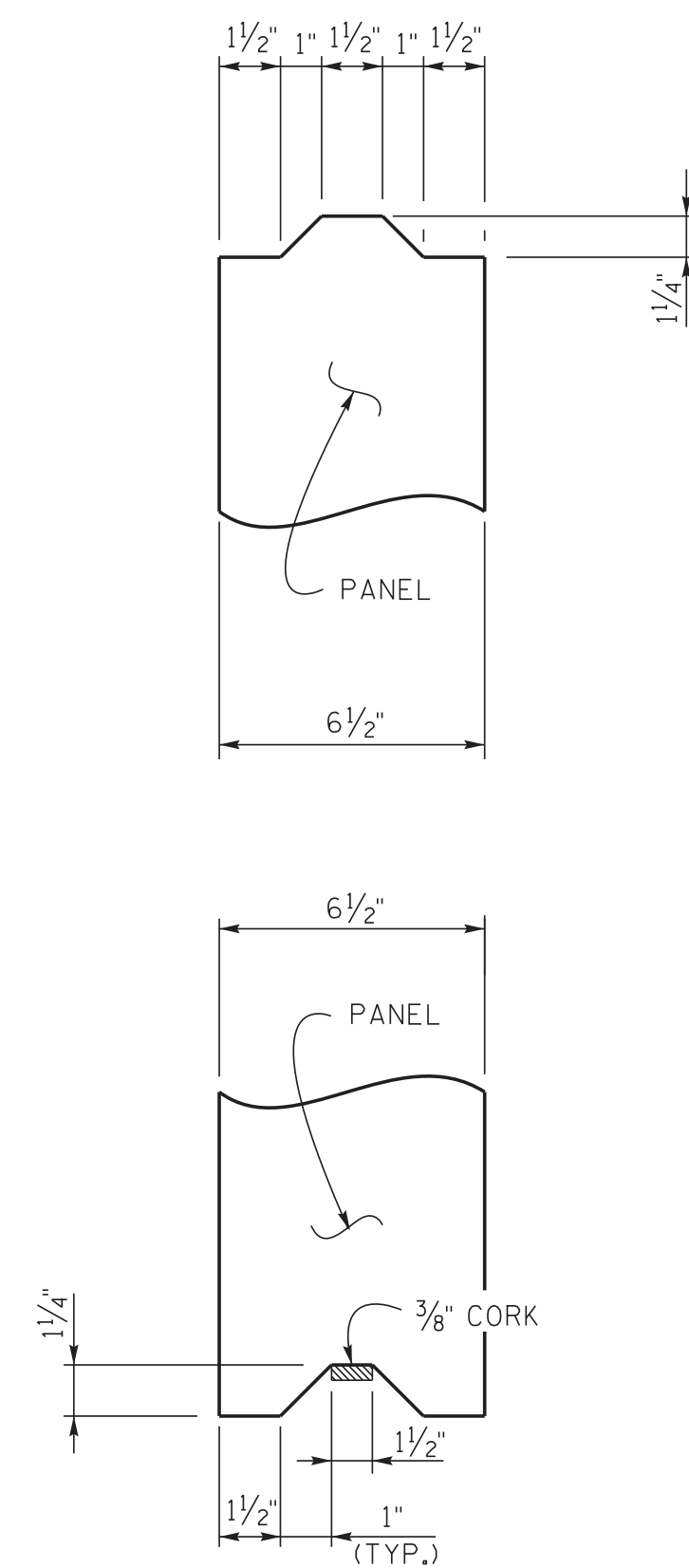
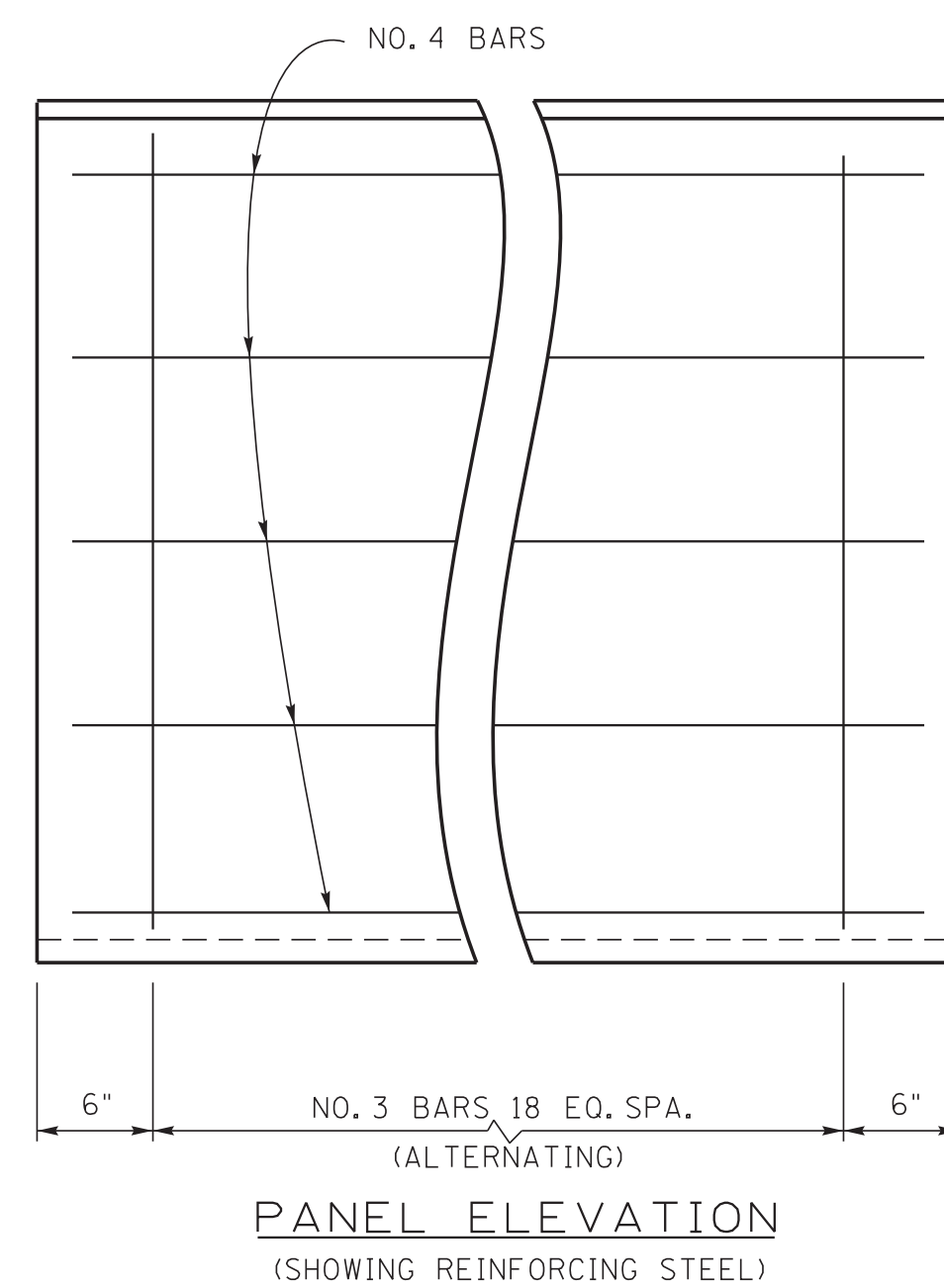
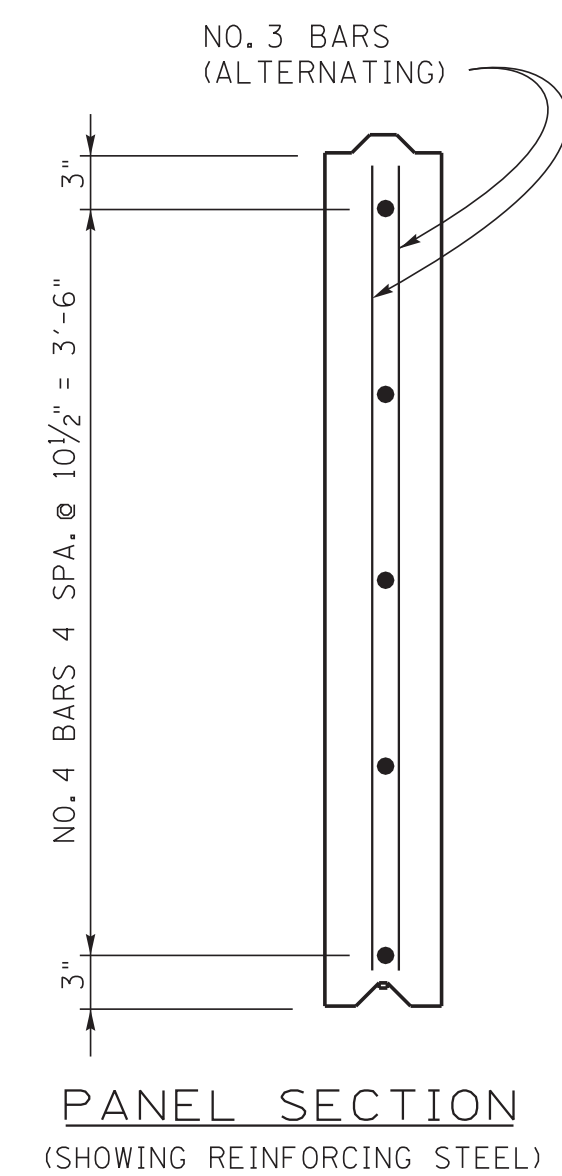
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
POST DETAILS  
I-40/DONELSON PIKE  
INTERCHANGE  
RAMP 'A' STA. 115+00.00  
TO I-40 STA. 134+05.90  
DAVIDSON COUNTY  
2022

CORRECT

T Jed A Krniewyca  
ENGINEER OF STRUCTURES

[illegible]

CT Ted A Kniagewicz  
ENGINEER OF STRUCTURES



⊗ DENOTES: SMOOTH FINISH FOR TOP 1'-0" OF ALL PANELS.

NOTE: FOR SURFACE FINISH OF PANELS AND POSTS  
SEE DWG. NO. U-62-110. COST TO BE INCLUDED IN  
THE UNIT PRICE BID FOR ITEM 718-01.01.

NOTE: ADDITIONAL CONCRETE REQUIRED FOR FORMLINER  
IS NOT SHOWN.

[illegible]

PROJECT NO.	YEAR	SHEET NO.
NH-I-40-5(146)	2022	R46

[illegible]

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
PANEL DETAILS  
I-40/DONELSON PIKE  
INTERCHANGE  
RAMP 'A' STA. 115+00.00  
TO I-40 STA. 134+05.90  
DAVIDSON COUNTY  
2022

CORRECT Jed A Krnawyza  
ENGINEER OF STRUCTURES