

BOWIE MILL BIKE TRAIL VERTICAL CURVE DATA

HORIZ. SCALE: 1/2" = 1'-0"VERT. SCALE: 1'' = 1' - 0''

GENERAL NOTES:

SPECIFICATIONS: MDOT SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS,

DATED JULY, 2024.

AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN DESIGN:

BRIDGES, 2ND EDITION WITH 2015 INTERIM REVISIONS. AASHTO LRFD DESIGN OF BRIDGES, 9TH EDITION.

THERE ARE RESTRICTIONS FOR PLACING EQUIPMENT AND MATERIALS ON RESTRICTIONS:

EXISTING AND NEW STRUCTURE(S). REFER TO SECTION TC 6.14.

CONCRETE: CONCRETE COMPRESSION STRENGTH FOR DESIGN SHALL BE:

> f'c = 3000 PSI FOR ELEMENTS USING MIX NO. 3 f'c = 4000 PSI FOR ELEMENTS USING MIX NO. 6

ALL CONCRETE FOR ABUTMENT BACKWALLS, AND DECK SLAB SHALL BE MIX NO. 6 (4500 PSI) CONTAINING SYNTHETIC FIBERS (SEE SECTION 902.15.01).

ALL OTHER CONCRETE SHALL BE MIX NO. 3 (3500 PSI).

REINFORCING STEEL:

LOAD

REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60, WITH

A YIELD STRENGTH FOR DESIGN OF fy = 60000 psi.

ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS.

REINFORCING STEEL SHALL BE EPOXY COATED WHEN NOTED WITH AN EP IN THE PLANS.

MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE NOTED.

LOCATION	CLEAR COVER
BOTTOM OF BRIDGE DECK SLABS.	1 IN.
TOP OF BRIDGE DECK SLABS.	2 1/2 IN.
BOTTOM AND SIDES OF ALL FOOTINGS.	3 IN.

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4"

x 3/4" MILLED CHAMFER STRIPS.

STRUCTURAL STEEL:

CHAMFER:

STRUCTURAL STEEL SHALL CONFORM TO ASTM A 709 GRADE 50 INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF M 270 FOR PRIMARY LOAD CARRYING MEMBERS. REFER TO SECTION 909.01 AND SHALL BE GALVANIZED IN ACCORDANCE WITH A 123, A 153, AND SECTION 465 AND PAINTED. THE COLOR FOR THE FINISH COAT SHALL MATCH

AMS-STD-595A, COLOR NO. 20045 (BROWN).

KEYS: ALL KEYS ARE NOMINAL SIZE.

MEMBERS:

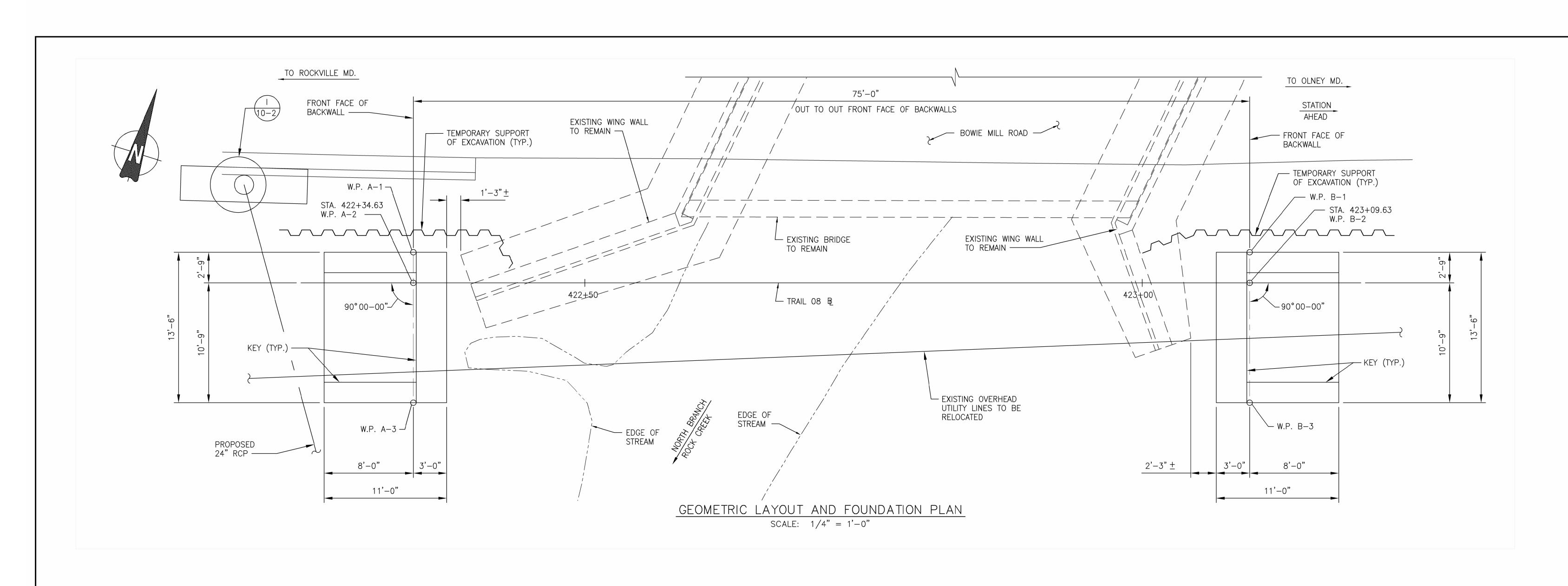
NONREDUNDANT THIS STRUCTURE CONTAINS NON REDUNDANT STEEL MEMBERS, SEE DRAWING NO. BR-12 FOR IDENTIFICATION OF THESE MEMBERS. SEE SPECIAL PROVISIONS FOR REQUIREMENTS FOR THESE MEMBERS.

EXISTING STRUCTURES:

ALL DIMENSIONS AFFECTED BY THE GEOMETRY AND/OR LOCATION OF THE STRUCTURE(S): EXISTING STRUCTURE(S) SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR BEFORE ANY MATÉRIALS IS ORDERED OR FABRICATED

OR CONSTRUCTION BEGINS.

90% DESIGN NOT FOR CONSTRUCTION					MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	7	BR-02 PEDESTRIAN BRIDGE NO. P-XX GENERAL NOTES
Athavale, Lystad					RECOMMENDED FOR APPROVAL Chief, Design Section APPROVED	Date	BOWIE MILL ROAD BIKEWAY M-NCPPC PERMIT NO. MR2023016
& Associates 6720-B Rockledge Drive, Suite 160					Chief, Division of Transportation Engineering	Date	DATE: APRIL 202
Bethesda, MD 20817	NO.	REVISION	DATE	BY	Designed by: <u>MW</u> Drawn by: <u>JE</u> Che	cked by: KA	Project No. :502108 Sheet189 of393



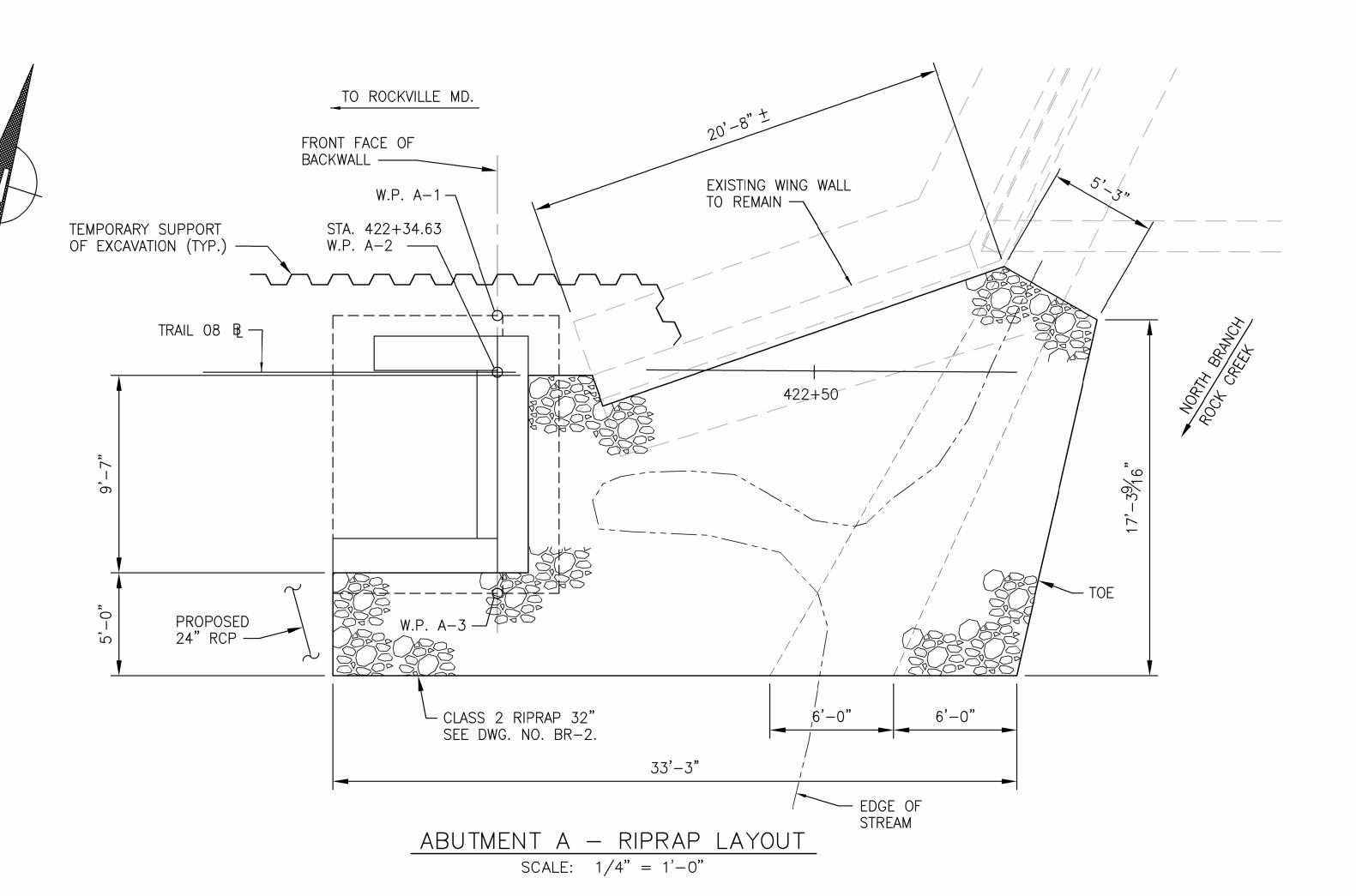
	WO	RK POINT	TABLE	
W D NO	CTATION	OFFOFT	COORE	INATE
W.P. NO.	STATION	OFFSET	EASTING	NORTHING
A-1	422+35.63	2.50'LT.		
A-2	422+35.63	0.00' LT.		
A-3	422+35.63	10.50' RT.		
B-1	423+08.63	2.50'LT.		
B-2	423+08.63	0.00' LT.		
B-3	423+08.63	10.50' RT.		

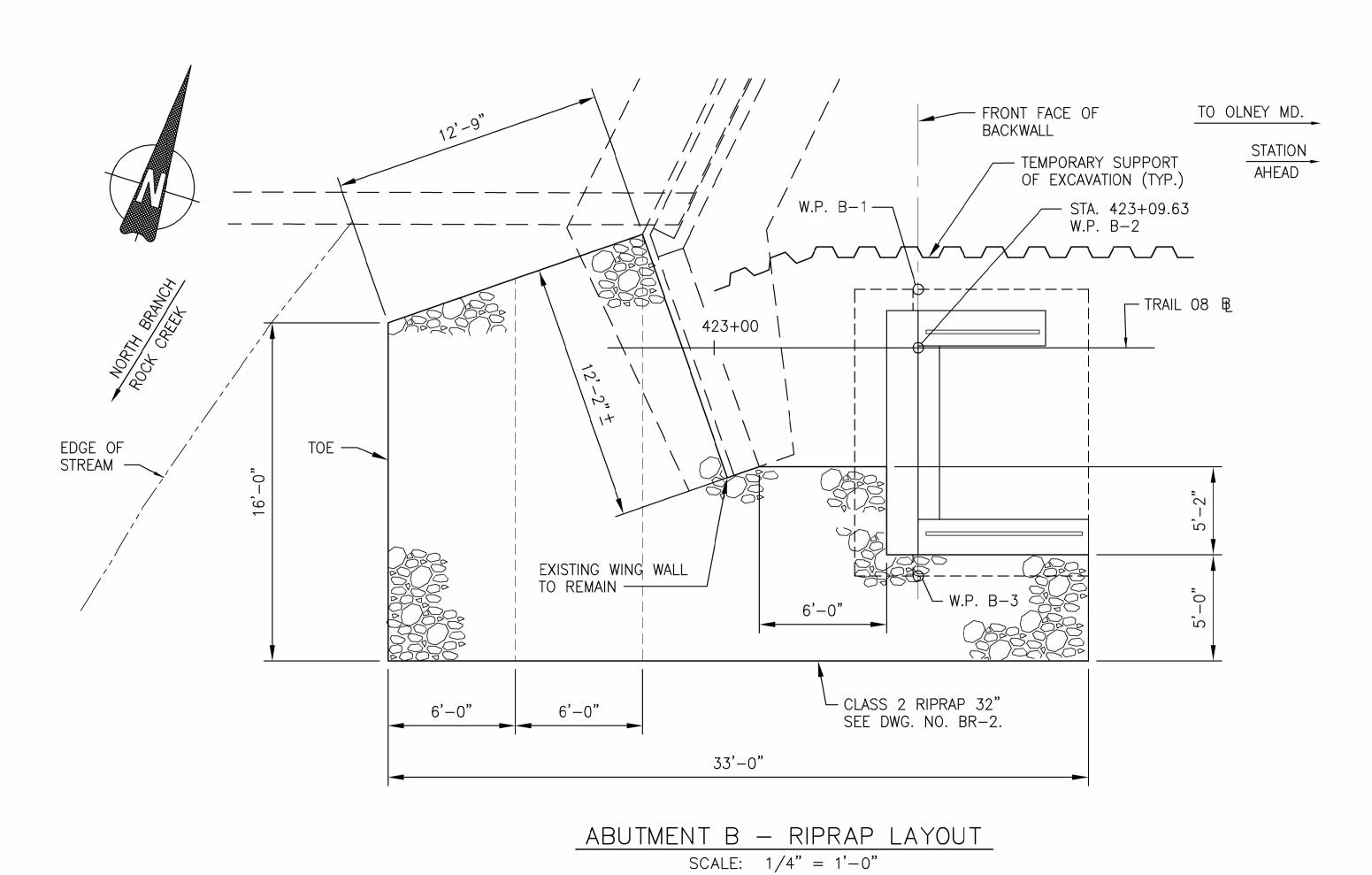
90% DESIGN NOT FOR CONSTRUCTION					MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTA GAITHERSBURG, MARYLAN		PEDES GE
Athavale, Lystad					RECOMMENDED FOR APPROVAL Chief, Design Section APPROVED	Date	BOWIE
& Associates 6720-B Rockledge Drive, Suite 160					Chief, Division of Transportation Engineering	Date	
Bethesda, MD 20817	NO.	REVISION	DATE	BY	Designed by: <u>MW</u> Drawn by: <u>JE</u>	Checked by: KA	Project No. :5

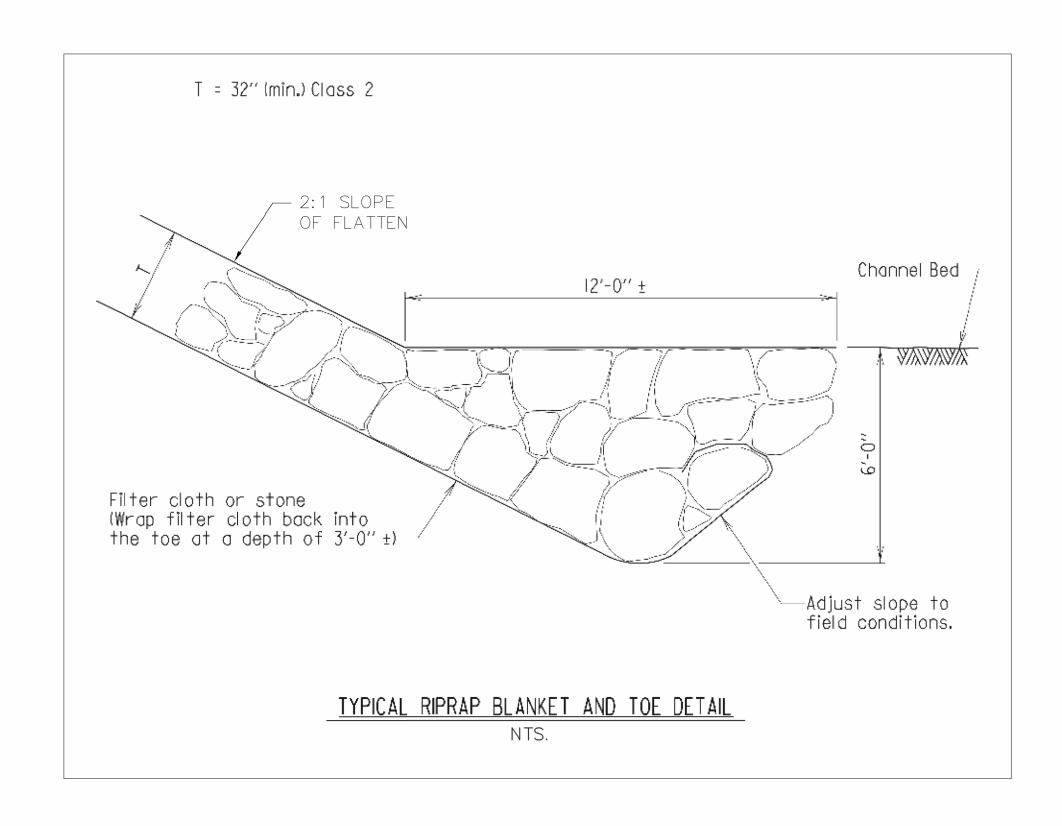
BR-03
PEDESTRIAN BRIDGE NO. P-XX
GEOMETRIC LAYOUT AND
FOUNDATION PLAN

BOWIE MILL ROAD BIKEWAY
M-NCPPC PERMIT NO. MR2023016

DATE: APRIL 2025
Sheet <u>190</u> of <u>393</u>







90% DESIGN NOT FOR CONSTRUCTION					MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATIO GAITHERSBURG, MARYLAND	N	PEDES
ALA					RECOMMENDED FOR APPROVAL Chief, Design Section	Date	RIPRAP
Athavale, Lystad & Associates					APPROVED Chief, Division of Transportation Engineering	Date	BOWIE
6720-B Rockledge Drive, Suite 160 Bethesda, MD 20817	NO.	REVISION	DATE	BY	Designed by: <u>MW</u> Drawn by: <u>JE</u> Ch	ecked by: KA	Project No. : 5

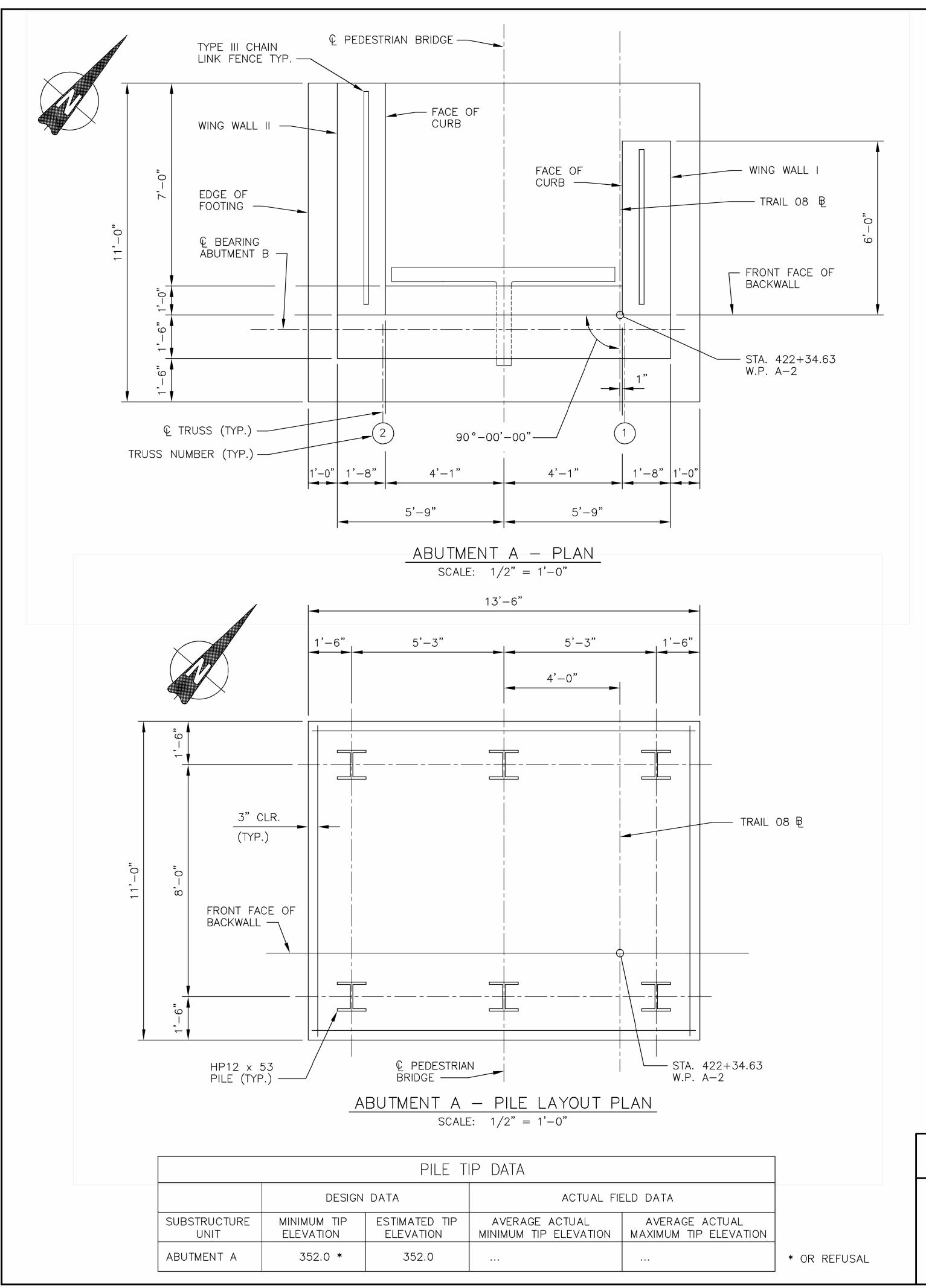
BR-04
PEDESTRIAN BRIDGE NO. P-XX
RIPRAP LAYOUT PLAN AND DETAILS

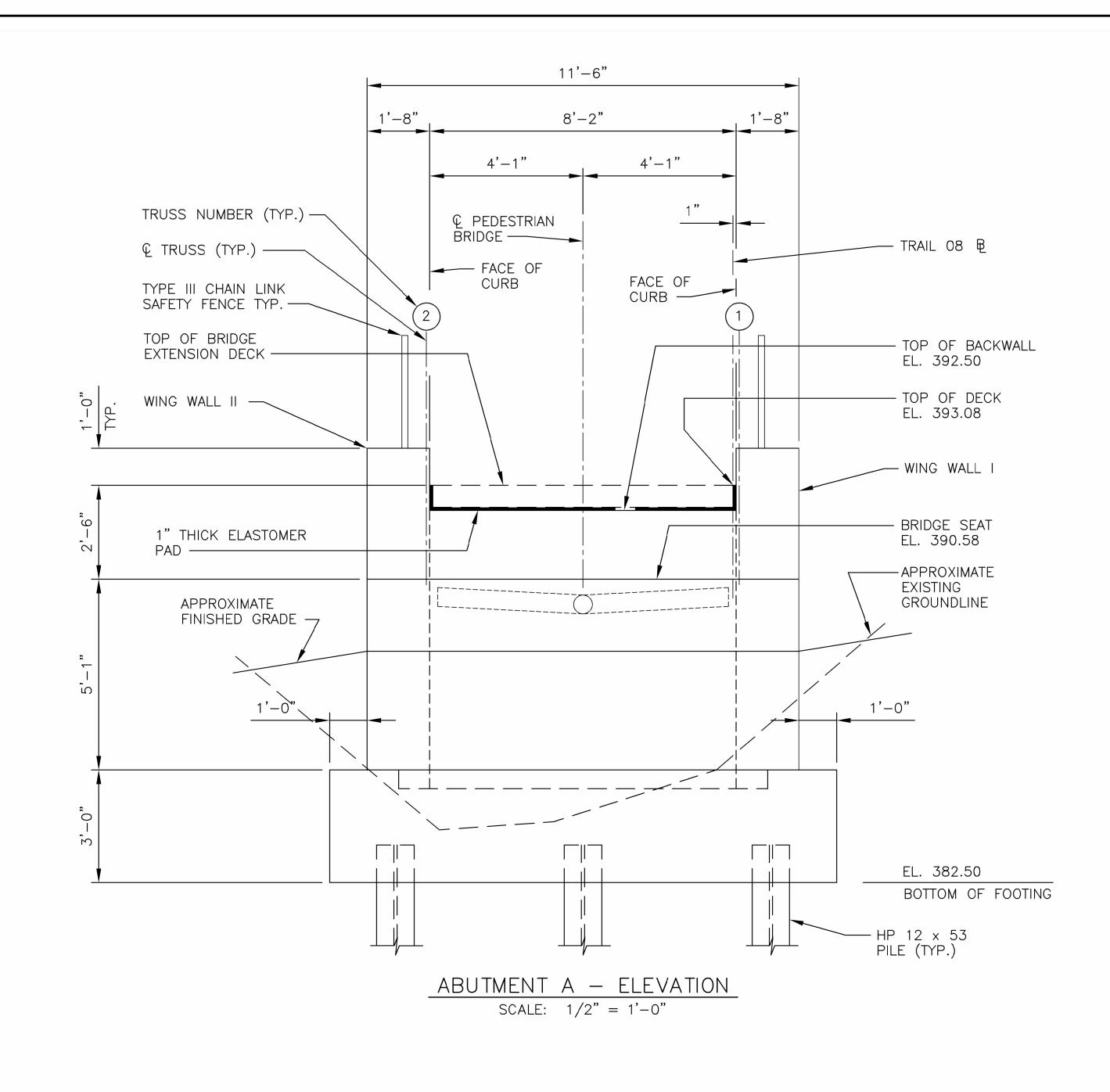
BOWIE MILL ROAD BIKEWAY
M-NCPPC PERMIT NO. MR2023016

M-NCPPC PERMIT NO. <u>MR2023016</u>

DATE: APRIL 2025

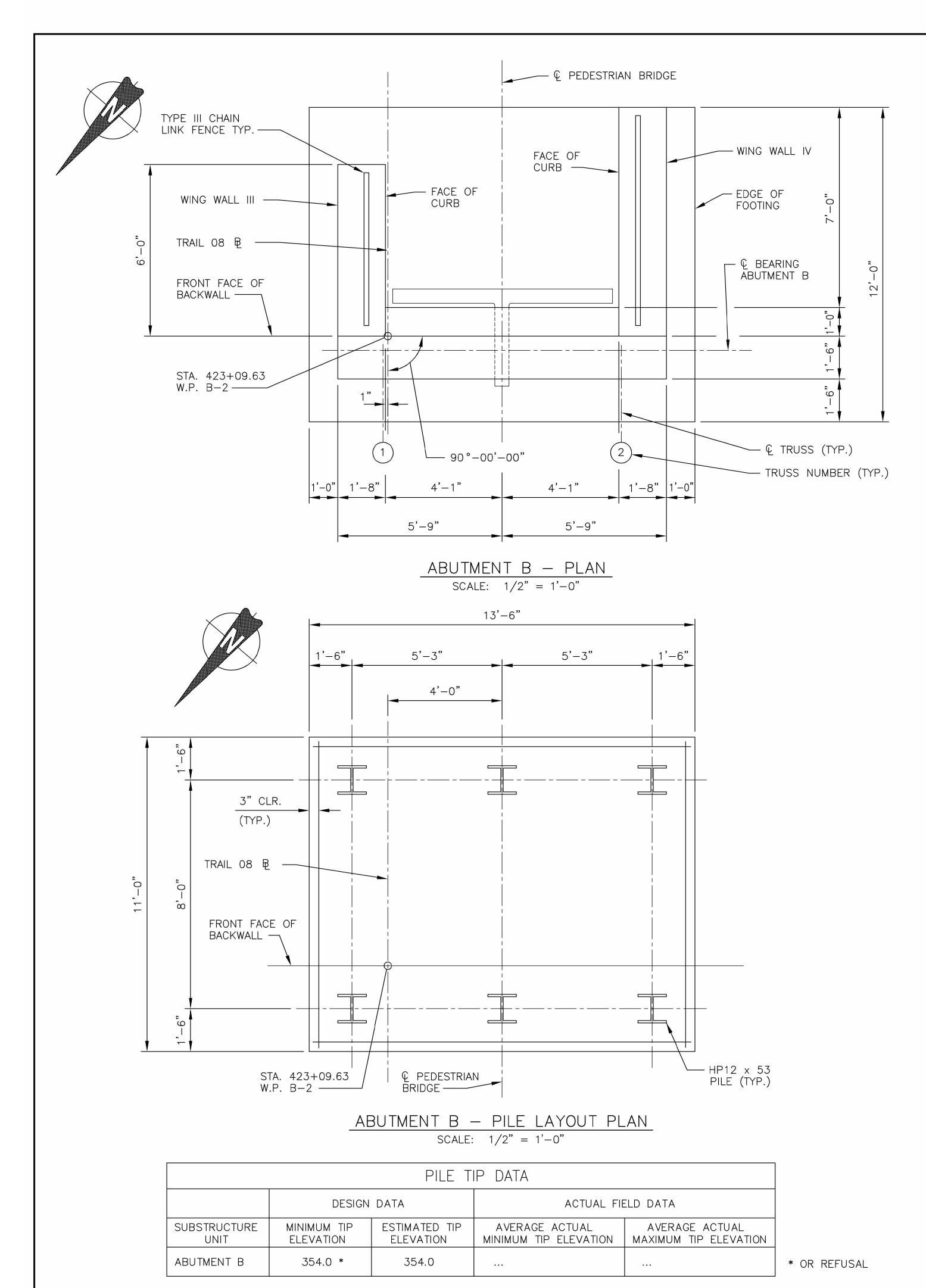
Sheet <u>191</u> of <u>393</u>

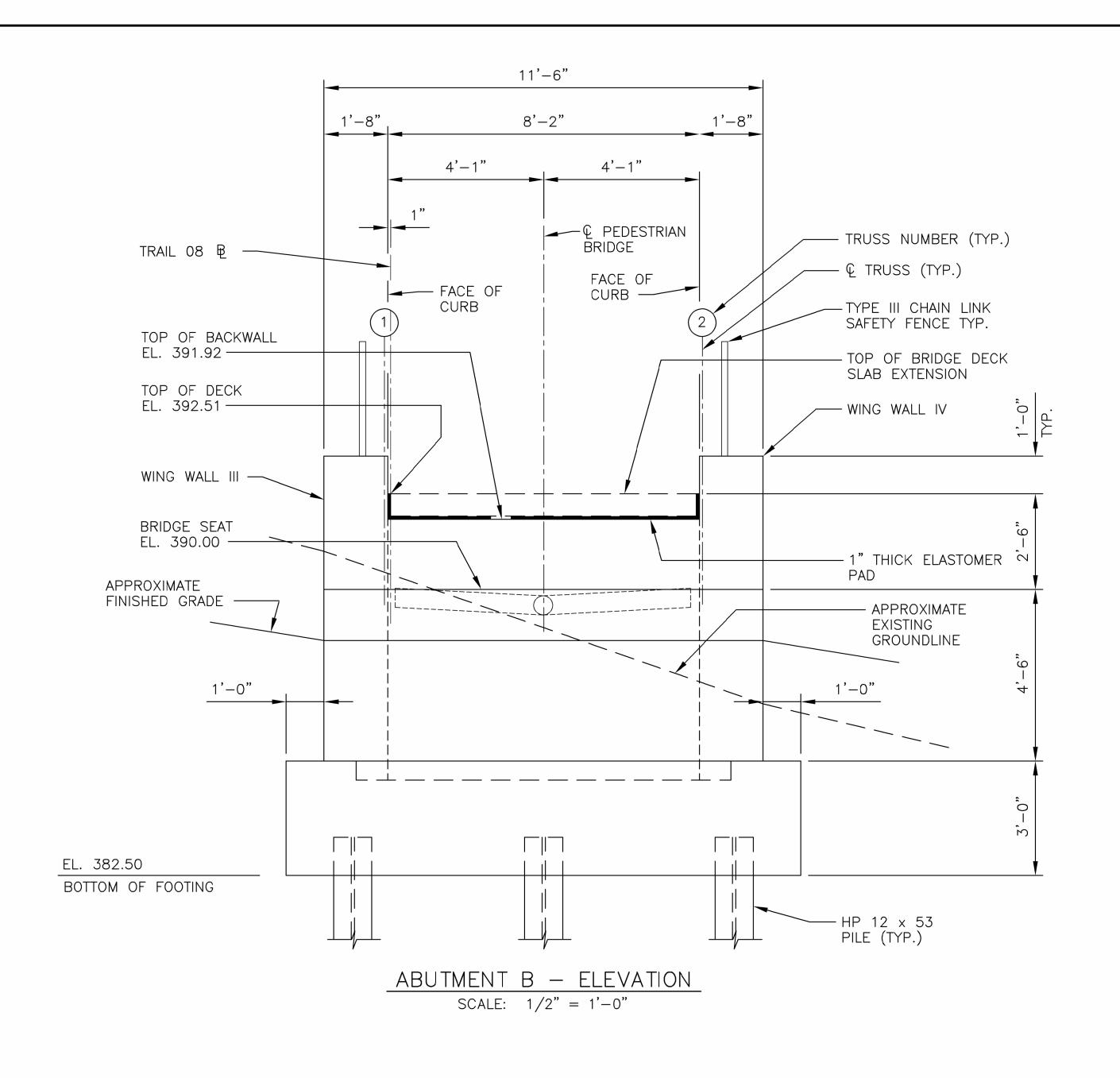




- 1. FOR GENERAL NOTES, SEE DWG. NO. BR-02.
- 2. FOR GEOMETRIC AND FOOTING LAYOUT, SEE DWG. NO. BR-03.
- 3. FOR BORINGS AND DRIVE TESTS, SEE DWG. NO. BR-14.
- 4. ALL PILES TO BE HP 12 \times 53 STEEL PILES ASTM A709 GRADE 50 DRIVEN TO NOMINAL CAPACITY OF 310 KIPS. NOMINAL CAPACITY IS BASED UPON FACTORED (SAFE) CAPACITY OF 200 KIPS AND A RESISTANCE FACTOR OF 0.65.
- 5. THE MINIMUM SAFE BEARING VALUE AND THE MINIMUM TIP ELEVATION SHOWN ON THESE PLANS MUST BE ACHIEVED FOR EACH PILE. IF THE ESTIMATED TIP ELEVATION IS NOT REACHED OR IS EXCEEDED WHILE ACHIEVING THE MINIMUM SAFE BEARING VALUE AND THE MINIMUM TIP ELEVATION, THE PILE WILL BE CONSIDERED SATISFACTORY. IF REFUSAL OCCURS BEFORE REACHING MINIMUM TIP ELEVATION, CONTACT THE ENGINEER.
- 6. THE ESTIMATED TIP ELEVATIONS SHOWN ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL ORDERED PILE LENGTHS SHALL BE DETERMINED AFTER DRIVING TEST PILES.
- 7. SHOP PLANS SHALL SHOW HOW REINFORCING BARS ARE TO BE TIED AS WELL AS HOW THEY WILL BE HELD IN PLACE ABOVE PILING WHILE POUR IS BEING MADE.
- 8. FOR ADDITIONAL PILE DETAILS, SEE MDOT SHA DETAIL NO. FND-PF-202, FND-PF-301 AND FND-PF-304.

90% DESIGN NOT FOR CONSTRUCTION			MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND		BR-05 PEDESTRIAN BRIDGE NO. P-XX ABUTMENT A
Athavale, Lystad			RECOMMENDED FOR APPROVAL Chief, Design Section APPROVED	Date	PLAN, ELEVATION & PILE LAYOUT BOWIE MILL ROAD BIKEWAY
& Associates 6720-B Rockledge Drive, Suite 160 Bethesda, MD 20817	NO. REVISION DAT	ГЕ ВҮ	Chief, Division of Transportation Engineering Designed by: _MW Drawn by: _JE Checke	Date	M-NCPPC PERMIT NO. <u>MR2023016</u> DATE: APRIL 2025 Project No. : <u>502108</u> Sheet <u>192</u> of <u>393</u>





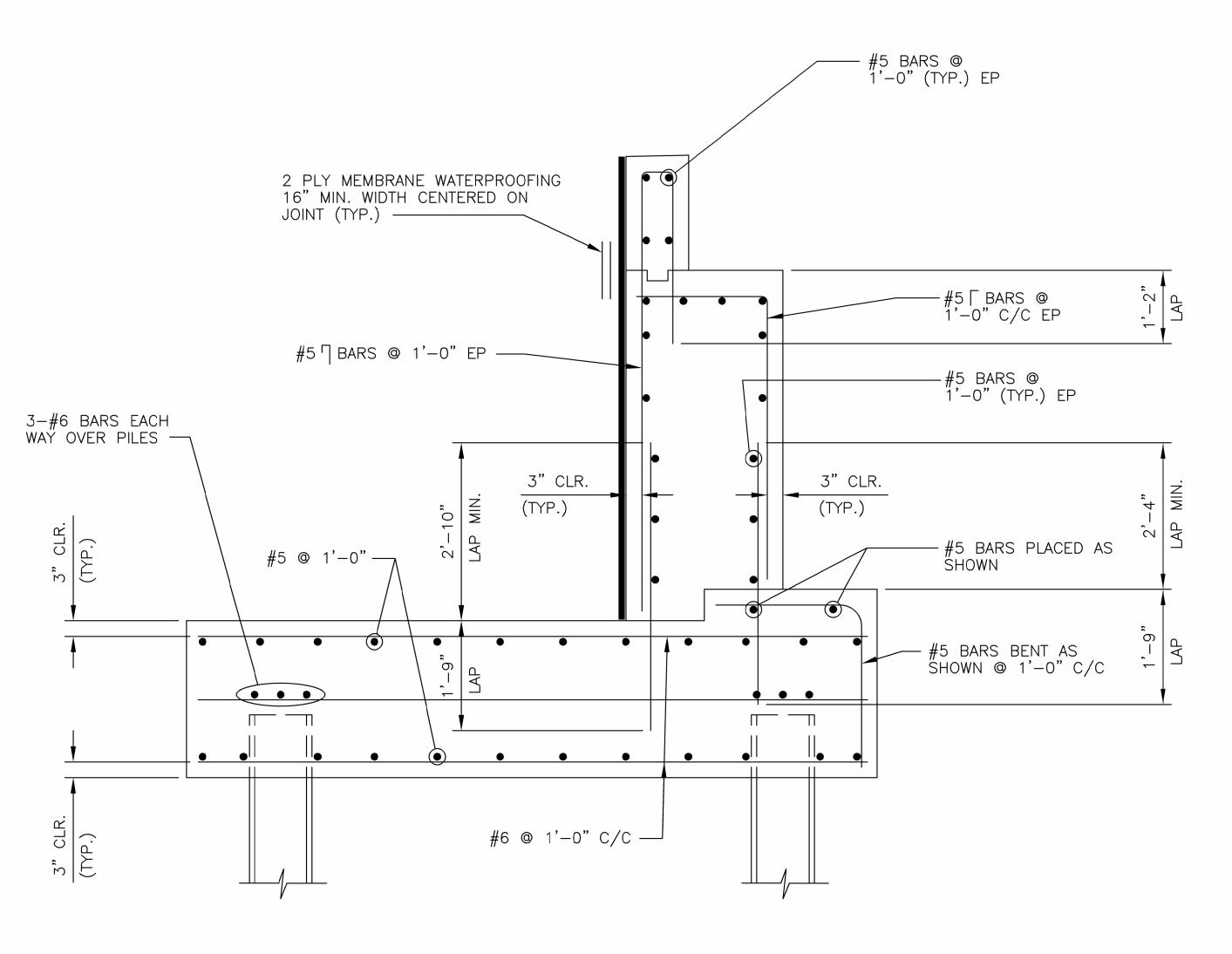
- 1. FOR GENERAL NOTES, SEE DWG. NO. BR-02.
- 2. FOR GEOMETRIC AND FOOTING LAYOUT, SEE DWG. NO. BR-03.
- 3. FOR BORINGS AND DRIVE TESTS, SEE DWG. NO. BR-14.
- 4. ALL PILES TO BE HP 12 x 53 STEEL PILES ASTM A709 GRADE 50 DRIVEN TO NOMINAL CAPACITY OF 310 KIPS. NOMINAL CAPACTIY IS BASED UPON FACTORED (SAFE) CAPACITY OF 200 KIPS AND A RESISTANCE FACTOR OF 0.65.
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- 6. THE ESTIMATED TIP ELEVATIONS SHOWN ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL ORDERED PILE LENGTHS SHALL BE DETERMINED AFTER DRIVING TEST PILES.
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90% DESIGN NOT FOR CONSTRUCTION				MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATIO GAITHERSBURG, MARYLAND	N	BR-06 PEDESTRIAN BRIDGE NO. P-XX ABUTMENT B
ALA				RECOMMENDED FOR APPROVAL Chief, Design Section	 Date	PLAN, ELEVATION & PILE LAYOUT BOWIE MILL ROAD BIKEWAY
Athavale, Lystad & Associates 6720-B Rockledge Drive, Suite 160				APPROVED Chief, Division of Transportation Engineering	 Date	M-NCPPC PERMIT NO. MR2023016 DATE: APRIL 2025
Bethesda, MD 20817	NO.	REVISION	DATE BY	Designed by: MW Drawn by: JE Che	ecked by: KA	Project No. :502108 Sheet193 of393

FOR BRAINAGE DETAILS BEHIND ABUTMENT, SEE SHA STANDARD DETAILS NO. SUB-DR-201.

- 2. FOR TYPE III CHAIN LINK FENCE DETAILS, SEE SHA STANDARD DETAIL NO. SUP-FR(FN)-302.
- 3. FOR TRAIL PAVEMENT SECTION SEE ROADWAY PLANS.



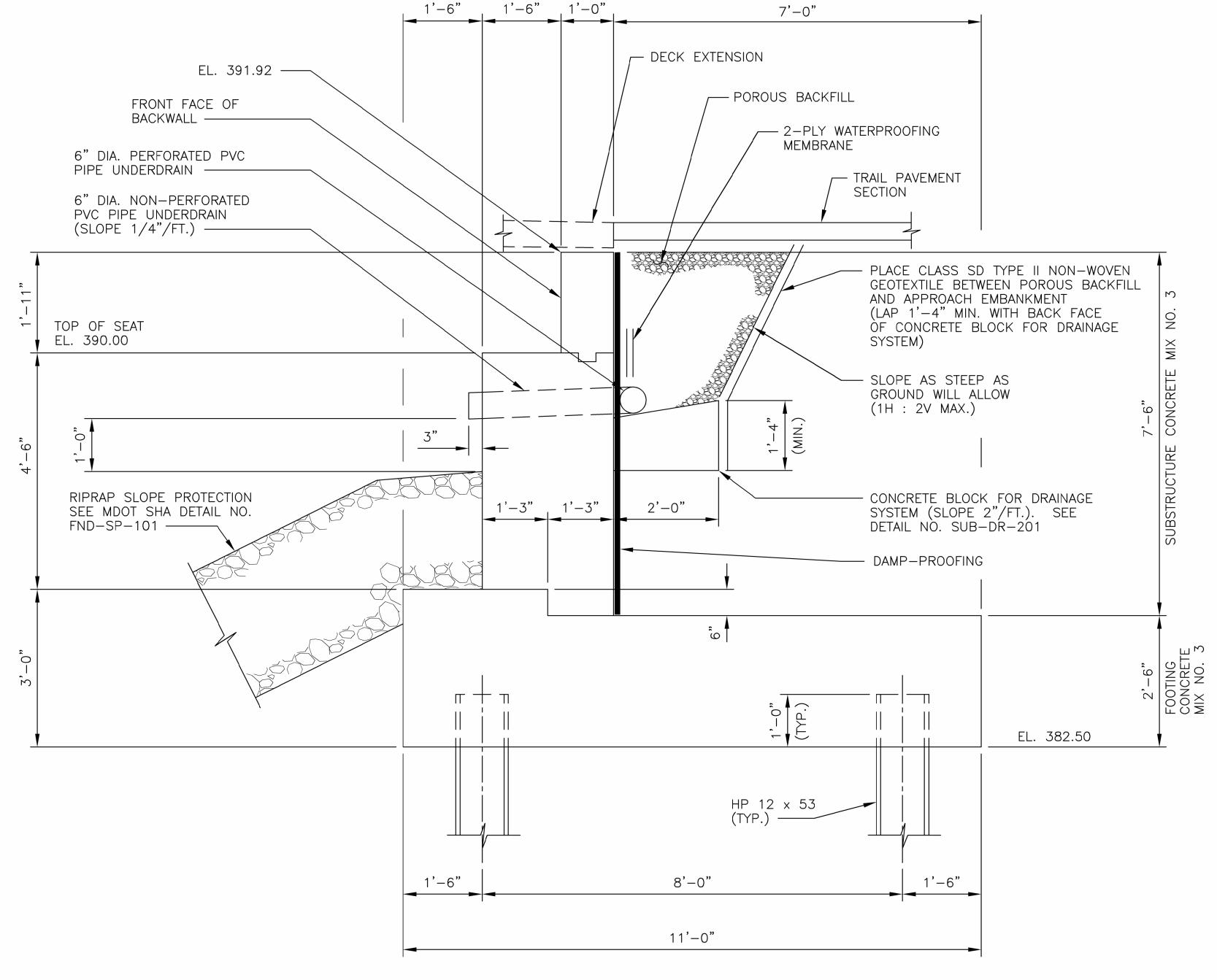


		DECK EXTENSION ——— POROUS BACKFILL — TRAIL PAVEMENT		EL. 392.50	
		SECTION		FRONT FACE OF BACKWALL	
SUBSTRUCTURE CONCRETE MIX NO. 3	SLOPE AS STEEP AS GROUND WILL ALLOW (1H: 2V MAX.) —— PLACE CLASS SD TYPE GEOTEXTILE BETWEEN PO AND APPROACH EMBANK (LAP 1'-4" MIN. WITH E OF CONCRETE BLOCK F SYSTEM) 2-PLY WATERPROOFING MEMBRANE —— CONCRETE BLOCK FOR SYSTEM (SLOPE 2"/FT.) DETAIL NO. SUB-DR-20 DAMP-PROOFING ——	OROUS BACKFILL KMENT BACK FACE OR DRAINAGE DRAINAGE . SEE	-0" 1'-3" 1'-3"	6" DIA. NO PVC PIPE (SLOPE 1)	TOP OF SEAT EL. 390.58 ON-PERFORATED UNDERDRAIN /4"/FT.) OPE PROTECTION SHA DETAIL NO.
FOOTING CONCRETE MIX NO. 3	EL. 382.50		▶	T	

SCALE: 3/4" = 1'-0"

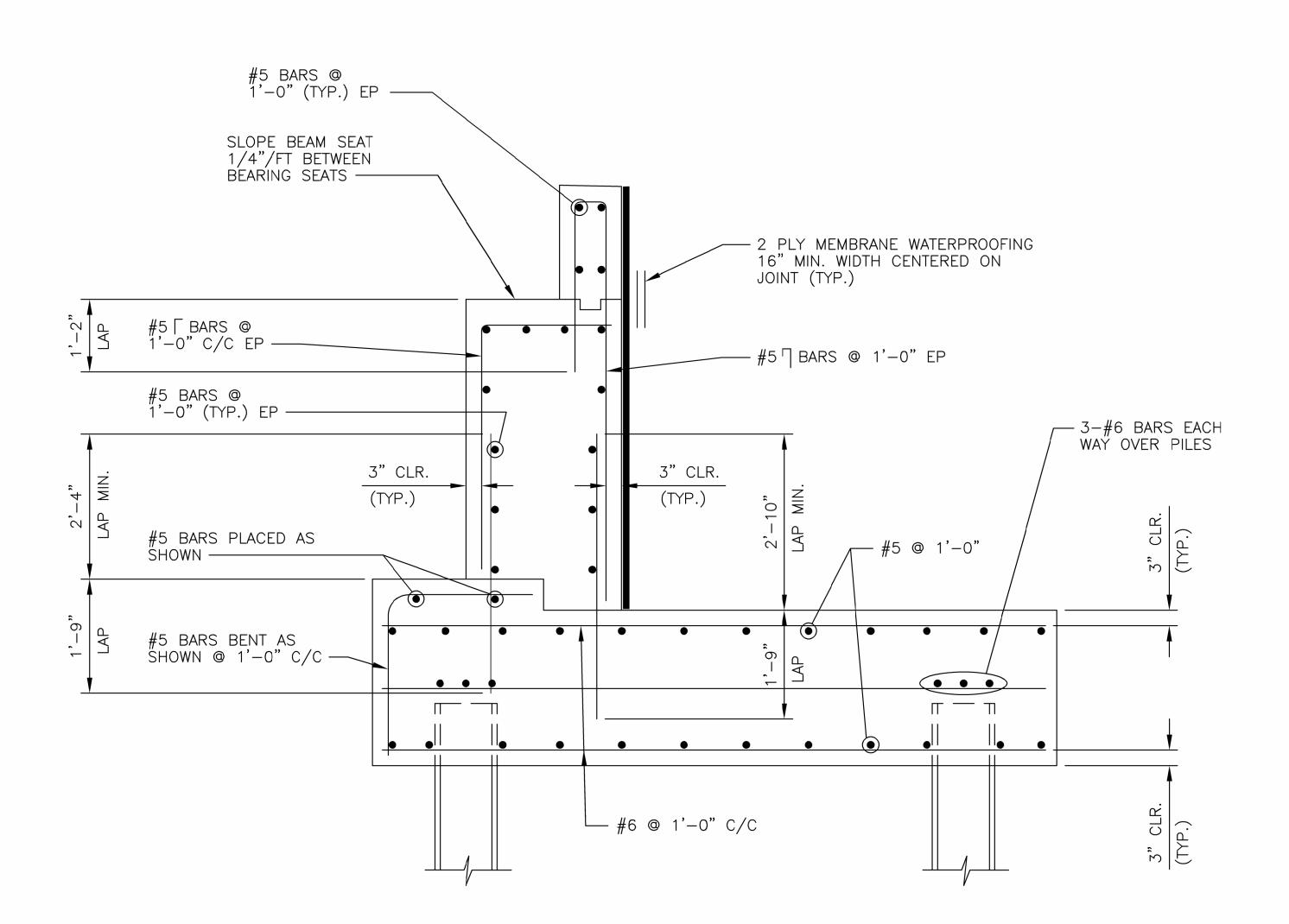
90% DESIGN NOT FOR CONSTRUCTION					MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND		BR-07 PEDESTRIAN BRIDGE - PXX
					RECOMMENDED FOR APPROVAL		ABUTMENT A SECTIONS
Athavale, Lystad					Chief, Design Section APPROVED	Date	BOWIE MILL ROAD BIKEWAY M-NCPPC PERMIT NOMR2023016
& Associates 6720-B Rockledge Drive, Suite 160					Chief, Division of Transportation Engineering	Date	DATE: APRIL 2025
Bethesda, MD 20817	NO.	REVISION	DATE	BY	Designed by: <u>MW</u> Drawn by: <u>JE</u> Checked b	oy: KA	Project No. :502108 Sheet194 of393

- 1. FOR BRAINAGE DETAILS BEHIND ABUTMENT, SEE SHA STANDARD DETAILS NO. SUB-DR-201.
- 2. FOR TYPE III CHAIN LINK FENCE DETAILS, SEE SHA STANDARD DETAIL NO. SUP-FR(FN)-302.
- 3. FOR TRAIL PAVEMENT SECTION SEE ROADWAY PLANS.



ABUTMENT B - SECTION

SCALE: 3/4" = 1'-0"



ABUTMENT B - REINFORCING SECTION

SCALE: 3/4" = 1'-0"

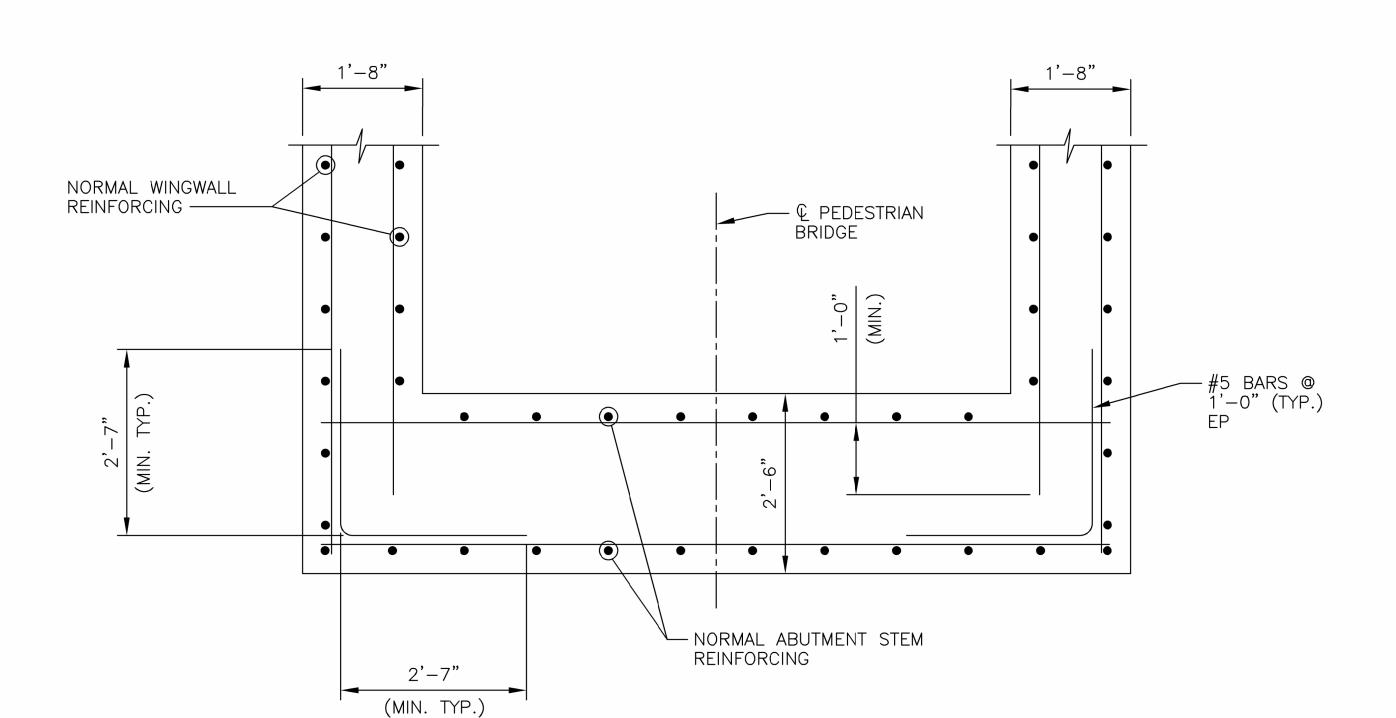
90% DESIGN MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION NOT FOR CONSTRUCTION GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL Chief, Design Section APPROVED Athavale, Lystad & Associates Chief, Division of Transportation Engineering 6720-B Rockledge Drive, Suite 160 Bethesda, MD 20817 Designed by: MW Drawn by: <u>JE</u> Checked by: KA REVISION DATE

BR-08
PEDESTRIAN BRIDGE NO. P-XX
ABUTMENT B
SECTIONS

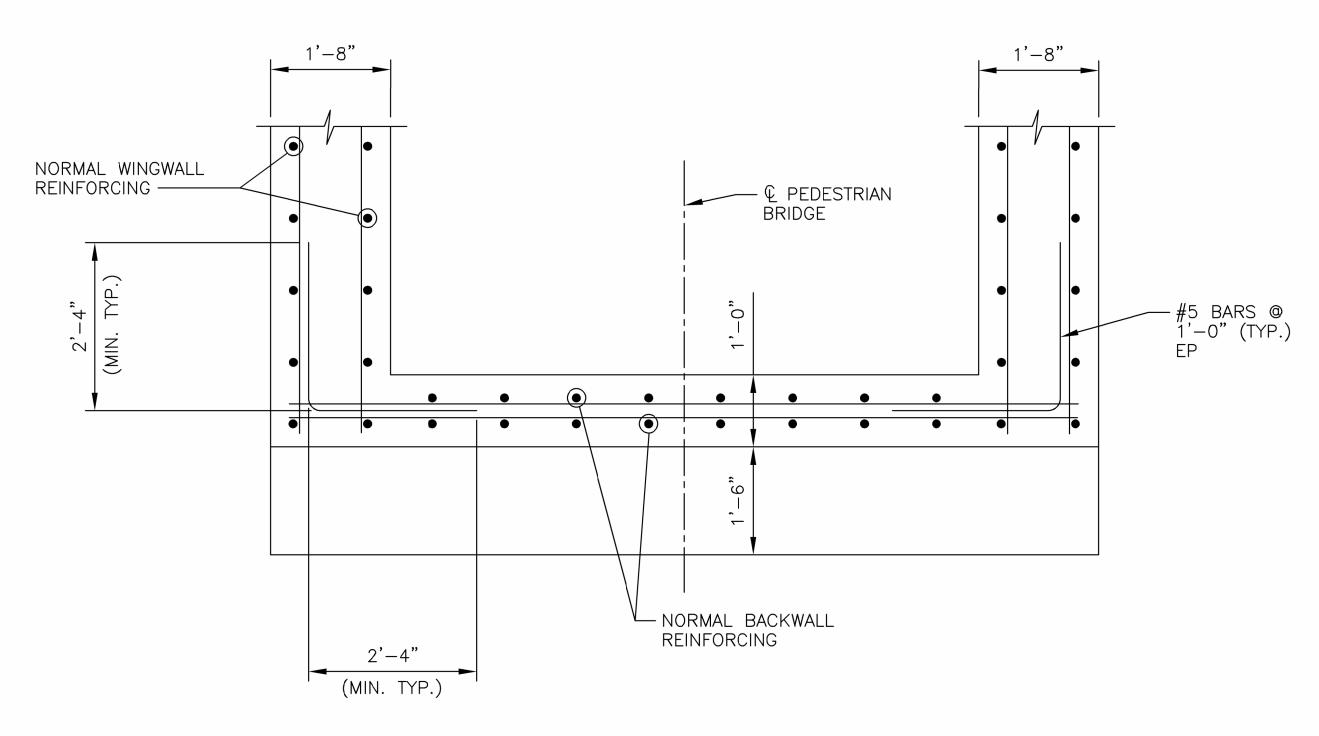
BOWIE MILL ROAD BIKEWAY

M-NCPPC PERMIT NO. MR2023016

Project No. : __502108 ____ Sheet __195 __ of __393 ___



SECTION BELOW BEAM SEAT SCALE: 3/4" = 1'-0"



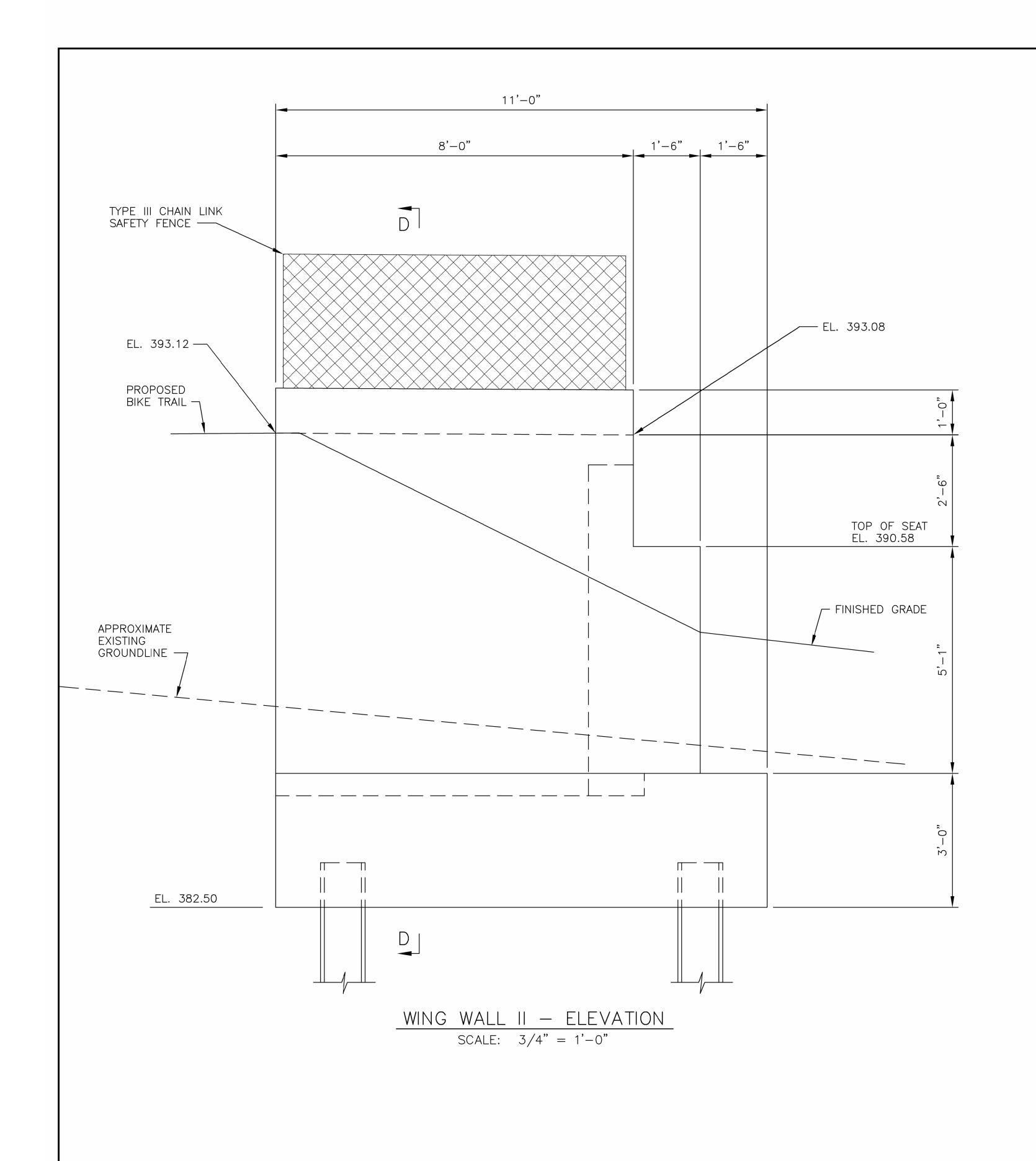
SECTION ABOVE BEAM SEAT

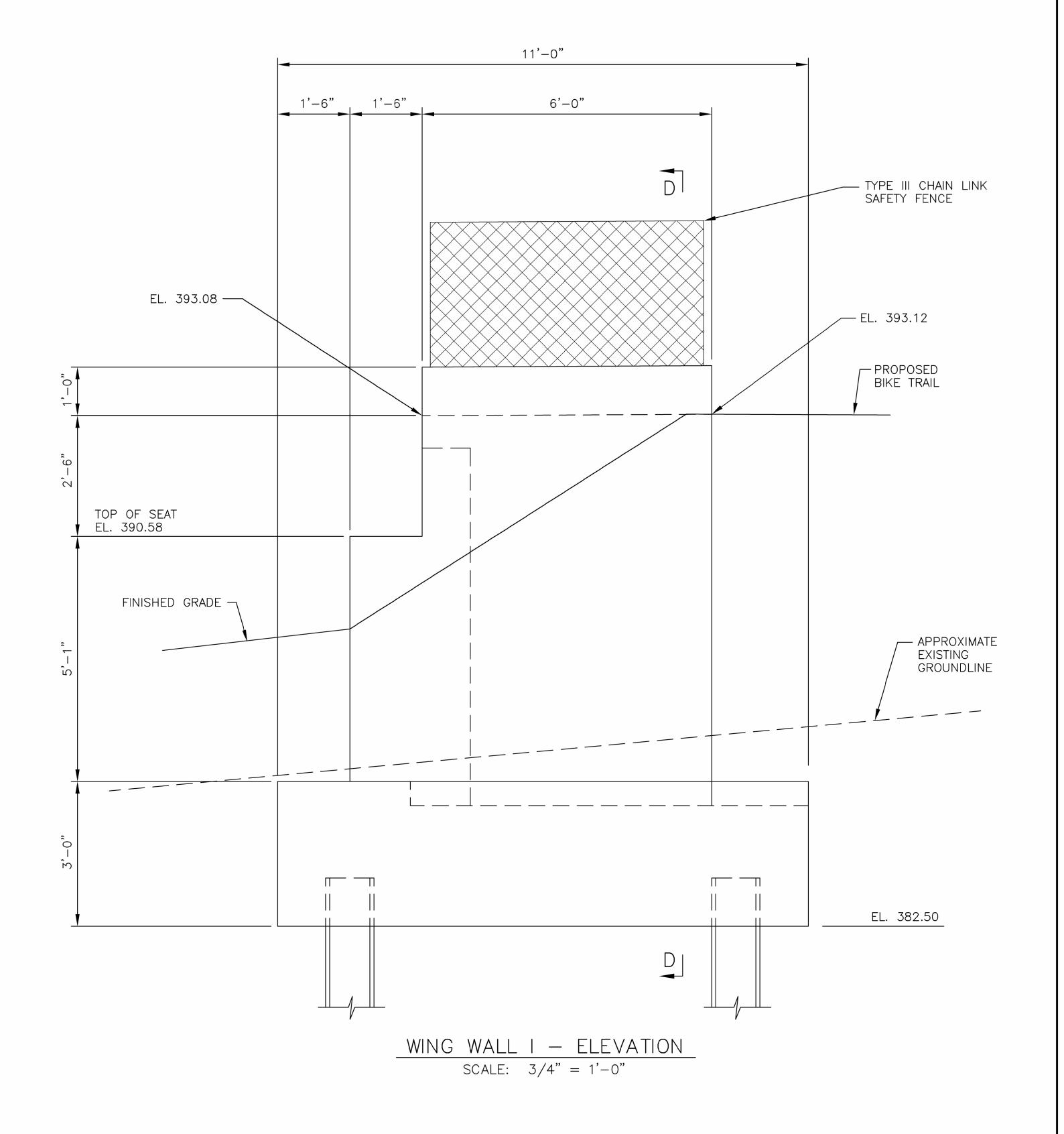
SCALE: 3/4" = 1'-0"

90% DESIGN NOT FOR CONSTRUCTION					MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	BR-09 PEDESTRIAN BRIDGE NO. P-XX ABUTMENT DETAILS
Athavale, Lystad					RECOMMENDED FOR APPROVAL Chief, Design Section Date APPROVED	BOWIE MILL ROAD BIKEWAY M-NCPPC PERMIT NO. MR2023016
& Associates 6720-B Rockledge Drive, Suite 160					Chief, Division of Transportation Engineering Date	DATE: APRIL 2025
Bethesda, MD 20817	NO.	REVISION	DATE E	3Y	Designed by: MW Drawn by: JE Checked by: KA	Project No. :502108 Sheet196 of393

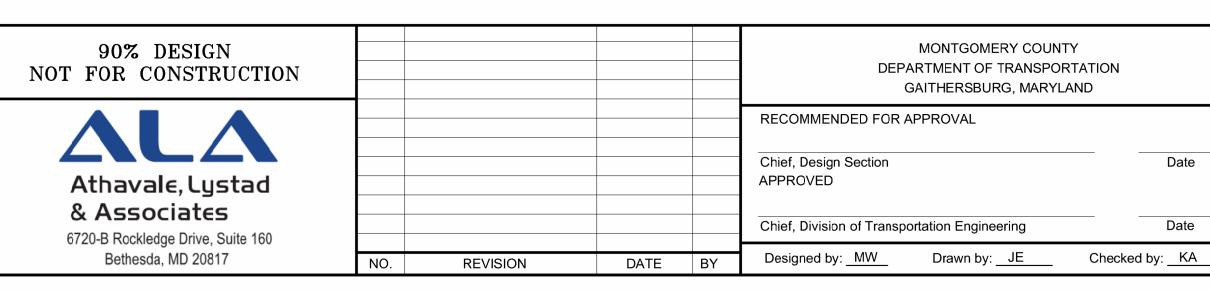
NOTE:

FOR NORMAL ABUTMENT REINFORCING, SEE SHEET NO. BR-07
 ABUTMENT A SECTIONS AND SHEET NO. BR-08 ABUTMENT B
 SECTIONS.





- 1. FOR BRAINAGE DETAILS BEHIND ABUTMENT, SEE SHA STANDARD DETAILS NO. SUB-DR-201.
- 2. FOR TYPE III CHAIN LINK FENCE DETAILS, SEE SHA STANDARD DETAIL NO. SUP-FR(FN)-302.

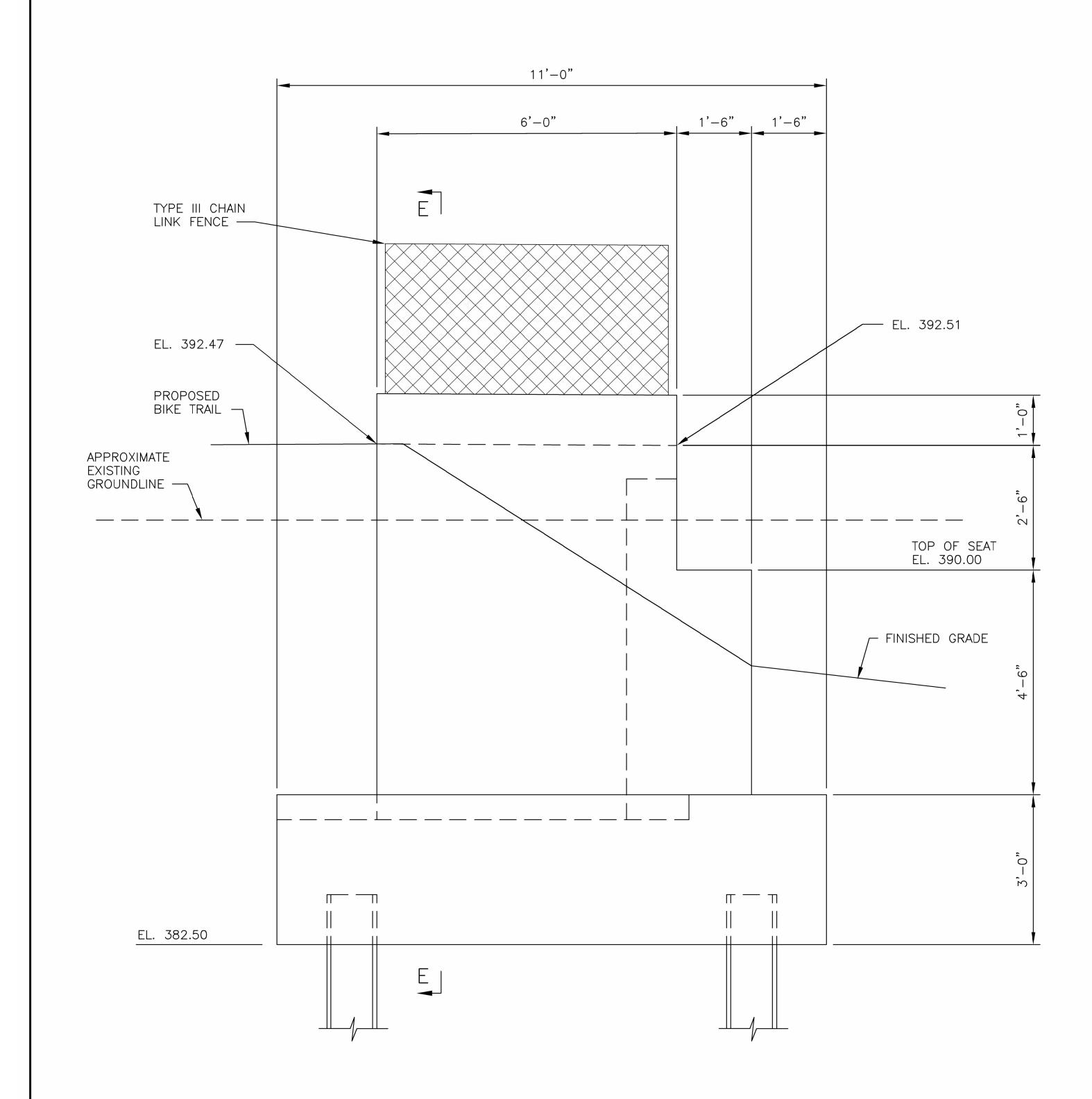


BR-10
PEDESTRIAN BRIDGE NO. P-XX
ABUTMENT A
WING WALL ELEVATIONS
BOWIE MILL ROAD BIKEWAY
M-NCPPC PERMIT NO. MR2023016

Project No. : 502108

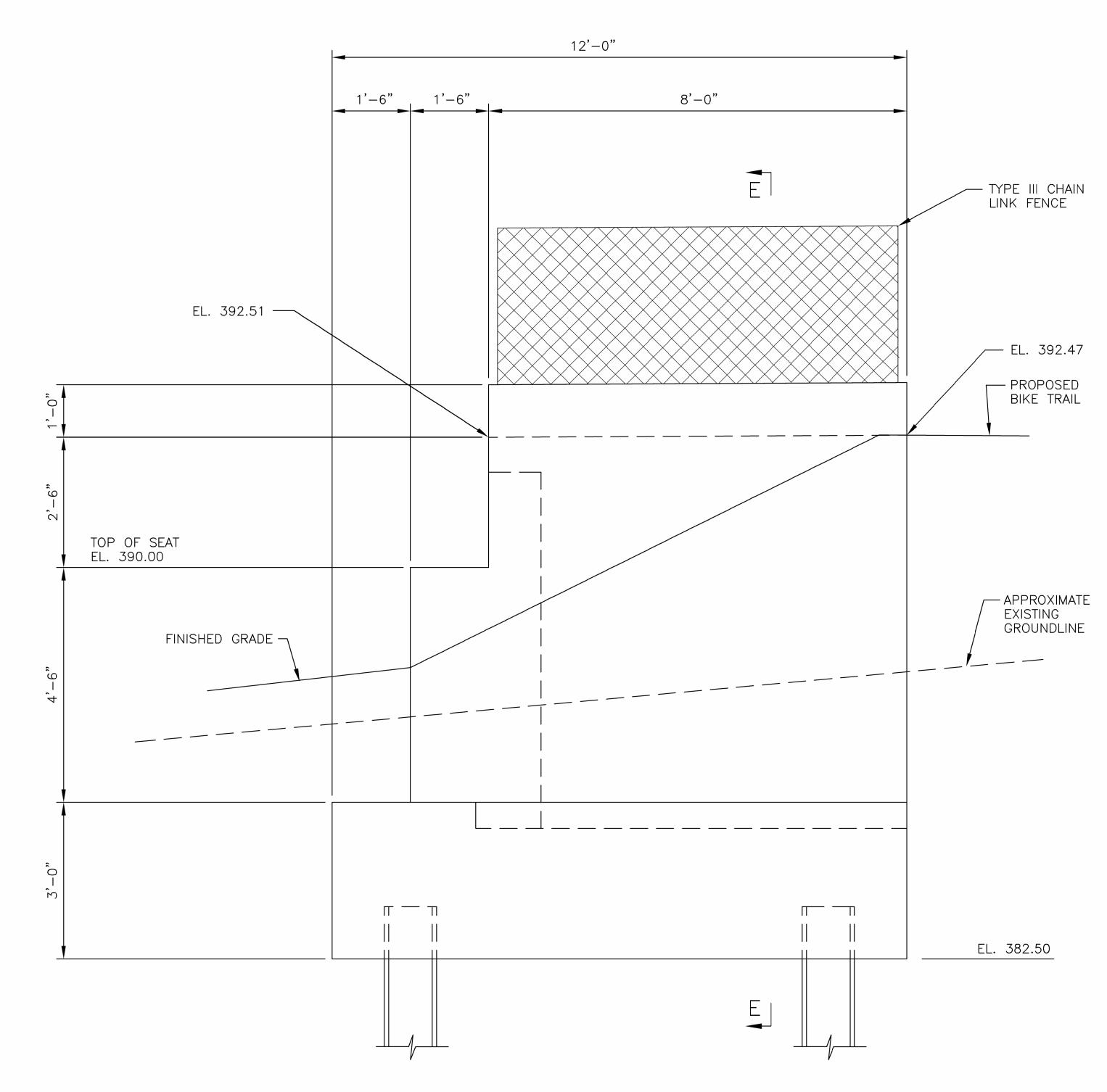
DATE: APRIL 2025

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WING WALL III — ELEVATION

SCALE: 3/4" = 1'-0"



WING WALL IV — ELEVATION

SCALE: 3/4" = 1'-0"

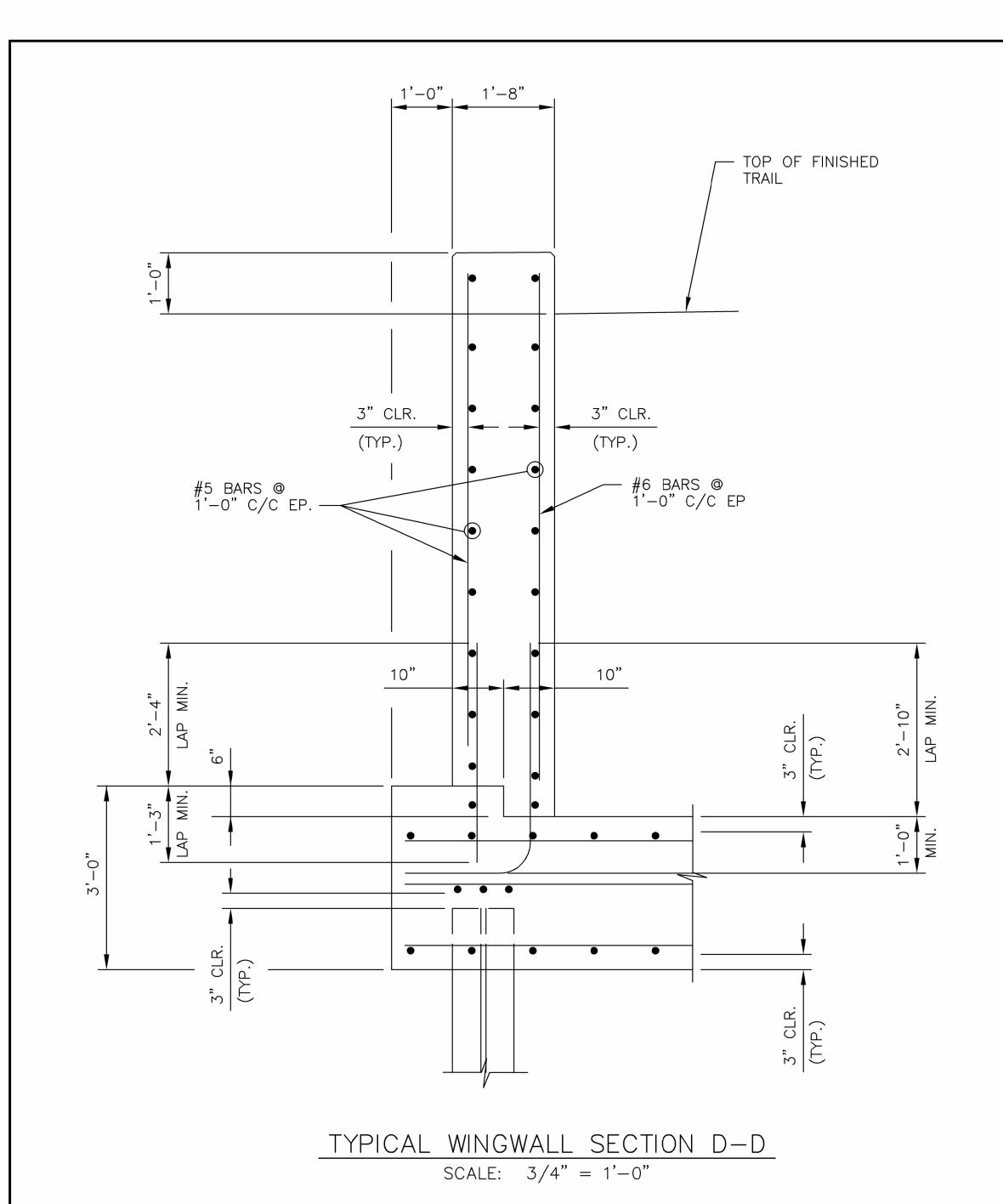
- 1. FOR BRAINAGE DETAILS BEHIND ABUTMENT, SEE SHA STANDARD DETAILS NO. SUB-DR-201.
- 2. FOR TYPE III CHAIN LINK FENCE DETAILS, SEE SHA STANDARD DETAIL NO. SUP-FR(FN)-302.

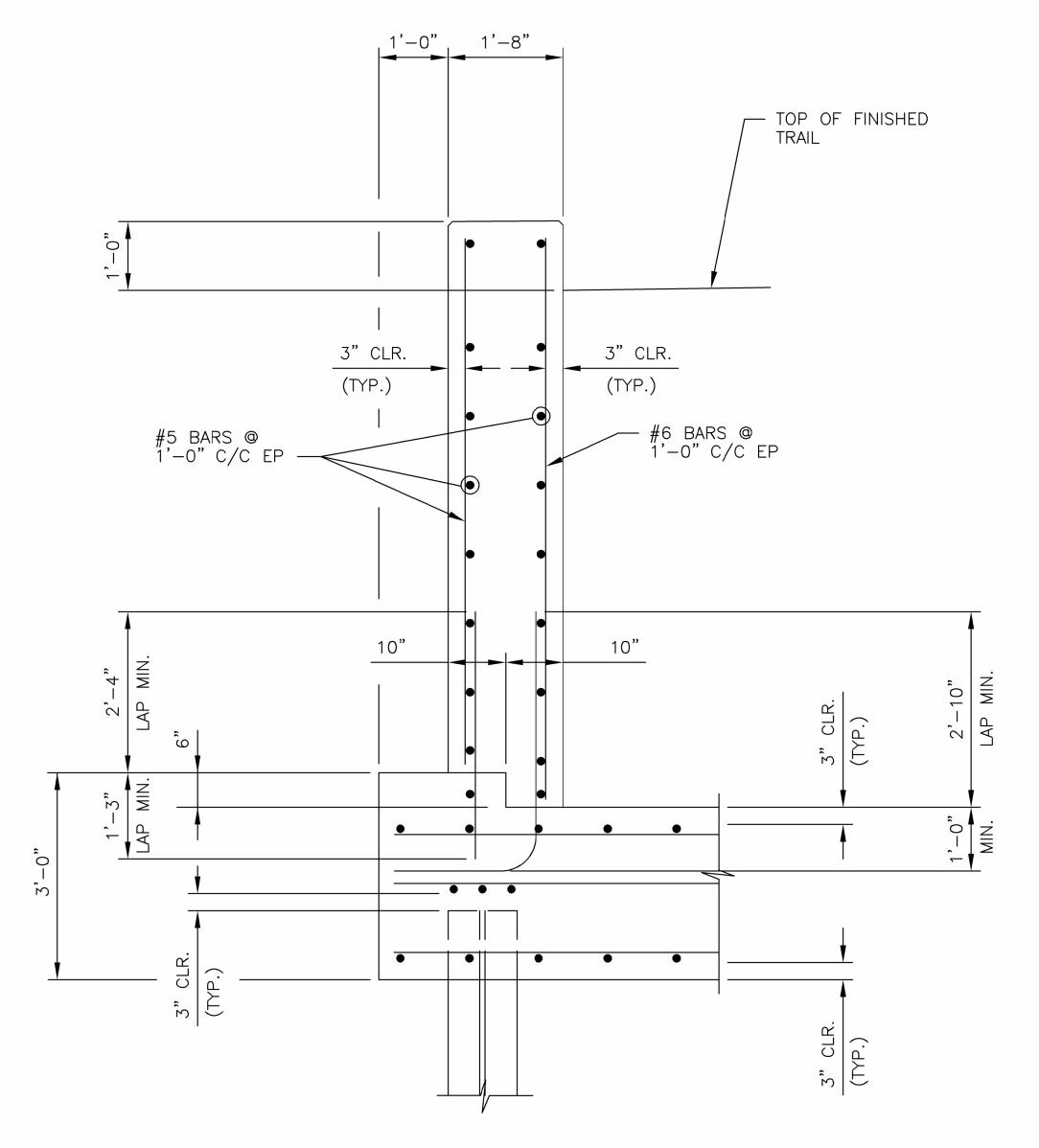
90% DESIGN NOT FOR CONSTRUCTION			MONTGOMERY COUN DEPARTMENT OF TRANSPC GAITHERSBURG, MARY	PRTATION	PEDESTRIA		
Athavale, Lystad					RECOMMENDED FOR APPROVAL Chief, Design Section APPROVED	Date	WING N BOWIE MI
& Associates 6720-B Rockledge Drive, Suite 160					Chief, Division of Transportation Engineering	Date	
Bethesda, MD 20817	NO.	REVISION	DATE	BY	Designed by: <u>MW</u> Drawn by: <u>JE</u>	Checked by: KA	Project No. : <u>502108</u>

BR-11
PEDESTRIAN BRIDGE NO. P-XX
ABUTMENT B
WING WALL ELEVATIONS
BOWIE MILL ROAD BIKEWAY
M-NCPPC PERMIT NO. <u>MR2023016</u>
DATE: APRIL 2025

Sheet <u>198</u> of <u>393</u>

FILE NAME: C:\pwworking\jmt\d0798326\BR-11_2025_Bowie Mill_Pedestrian Bridge — Wing Wall Elevations Abutment B.dwg LAYOUT NAME: 24x36 PLOTTED: Friday, April 04, 2025 — 4:18pm USER: jelliott



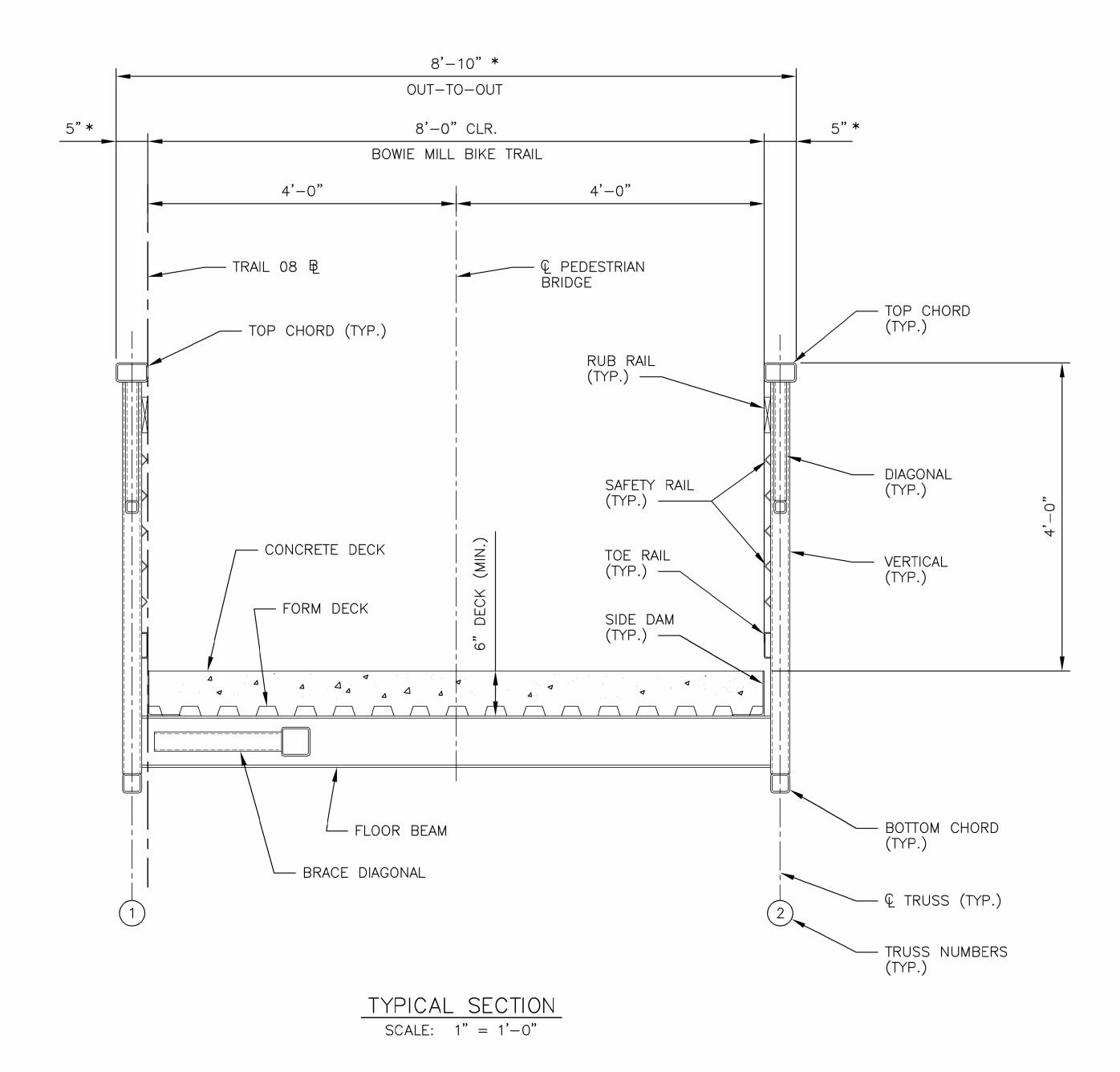


TYPICAL WINGWALL SECTION E-E SCALE: 3/4" = 1'-0"

NOTES:

- 1. FOR BRAINAGE DETAILS BEHIND ABUTMENT, SEE SHA STANDARD DETAILS NO. SUB-DR-201.
- 2. FOR TYPE III CHAIN LINK FENCE DETAILS, SEE SHA STANDARD DETAIL NO. SUP-FR(FN)-302.

90% DESIGN NOT FOR CONSTRUCTION					MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	BR-12 PEDESTRIAN BRIDGE NO. P-XX
Athavale, Lystad & Associates					RECOMMENDED FOR APPROVAL Chief, Design Section Date APPROVED	WING WALL SECTIONS BOWIE MILL ROAD BIKEWAY M-NCPPC PERMIT NO. MR2023016
6720-B Rockledge Drive, Suite 160					Chief, Division of Transportation Engineering Date	DATE: APRIL 2025
Bethesda, MD 20817	NO.	REVISION	DATE	BY	Designed by: <u>MW</u> Drawn by: <u>JE</u> Checked by: <u>KA</u>	Project No. : <u>502108</u> Sheet <u>199</u> of <u>393</u>



* TO BE CONFIRMED BY THE CONTRACTOR BASED ON CHOSEN SUPERSTRUCTURE SUPPLIER.

BR-13 MONTGOMERY COUNTY 90% DESIGN DEPARTMENT OF TRANSPORTATION NOT FOR CONSTRUCTION PEDESTRIAN BRIDGE NO. P-XX GAITHERSBURG, MARYLAND TYPICAL SECTION RECOMMENDED FOR APPROVAL Chief, Design Section BOWIE MILL ROAD BIKEWAY APPROVED Athavale, Lystad M-NCPPC PERMIT NO. MR2023016 & Associates Chief, Division of Transportation Engineering 6720-B Rockledge Drive, Suite 160 Bethesda, MD 20817 Project No. : 502108 Designed by: MW_ Checked by: KA Drawn by: <u>JE</u> REVISION DATE

FILE NAME: C:\Users\jelliott\AppData\Local\Temp\AcPublish_14224\BR-13_2025_Bowie Mill_Pedestrian Bridge - Typical Section.dwg LAYOUT NAME: 24x36 PLOTTED: Friday, April 04, 2025 - 4:18pm USER: jelliott

NOTES:

1. THE SUPERSTRUCTURE (INCLUDING BEARING DEVICES) FOR THE PROPOSED PEDESTRIAN BRIDGE SHALL BE DESIGNED BY ONE OF THE SUPPLIERS NOTED BELOW, OR APPROVED EQUAL.

PRATT AND WARREN TRUSS MANUFACTURER: BRIDGE BROTHERS 57 OLD IVY SQ. ATLANTA, GA. 30342 TEL: 540-266-8473

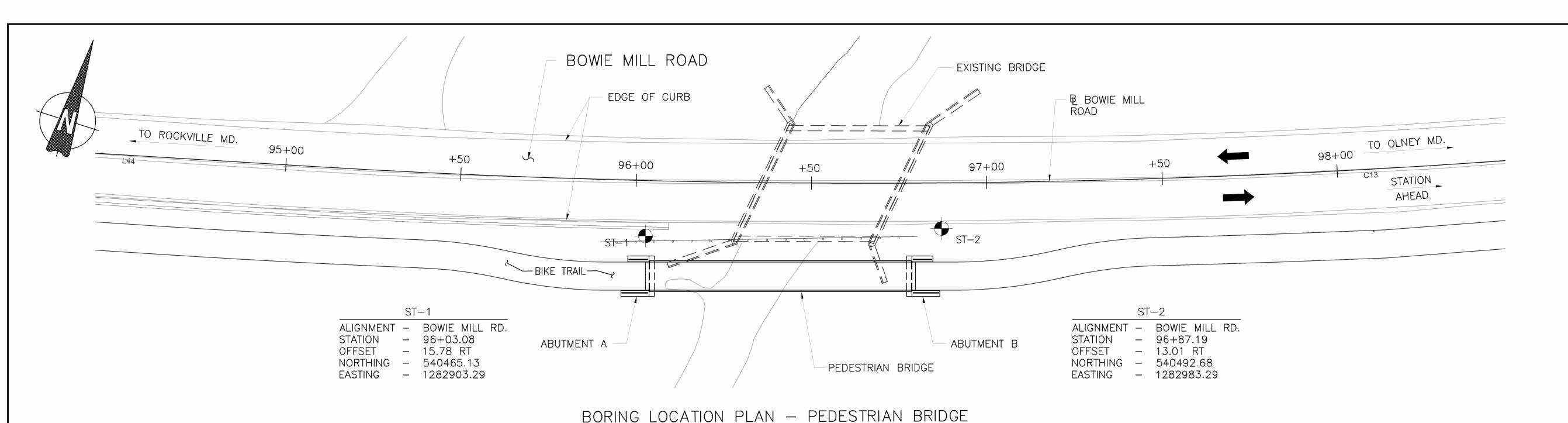
CONNECTOR MANUFACTURER: CONTECH 9205 CENTRE POINT DRIVE WEST CHESTER, OH. 45069 TEL: 770-315-3248

CAMBRIDGE TRUSS MANUFACTURER: US BRIDGE 345 HAEFNER DRIVE WEXFORD, PA. 15090 TEL: 412-445-7661

- 2. THE TRUSS BOTTOM CHORDS ARE FRACTURE—CRITICAL MEMBERS, OTHER MEMBERS AND/OR THE FLOORBEAMS MAY BE CONSIDERED FRACTURE-CRITICAL MEMBERS DEPENDING ON THE DETAILS OF THE CHOSEN SUPERSTRUCTURE SUPPLIER.
- 3. FOR GENERAL PLAN AND ELEVATION AND GENERAL NOTES, SEE DRAWING NO. BR-01.
- 4. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
- 5. ALL REINFORCING STEEL BARS IN DECK SLAB BE EPOXY COATED.

DATE: APRIL 2025

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SCALE: 1/16" = 1'-0"

ELEVATION

ELEVATION

OF ELEVATION PAD

KIM ENGINEERING, INC.
Consulting Geotechnical Engineers
Reltimore Mandand **BORING NUMBER ST-1** Baltimore, Maryland PROJECT NAME Bowie Mill Road Bikeway PROJECT NUMBER G23106 PROJECT LOCATION Olney, MD

GROUND ELEVATION 391 ft HOLE SIZE 6" DATE STARTED 3/14/24 COMPLETED 3/14/24 DRILLING CONTRACTOR Kim Engineering Inc. **GROUND WATER LEVELS:** DRILLING METHOD H.S.A. $\sqrt{2}$ AT TIME OF DRILLING 18.5 ft / Elev 372.5 ft LOGGED BY SE TAT END OF DRILLING 10.0 ft / Elev 381.0 ft CHECKED BY KB NOTES <u>Caved @ 11.3'</u> 24hrs AFTER DRILLING NR ▲ SPT N VALUE ▲ MATERIAL DESCRIPTION ☐ FINES CONTENT (%) ☐

390.67 4-inches of Topsoil Brown, moist, very loose, Silty SAND (SM) S-4: with Gravel SS 100 1-1-1 (2) Brown, orange brown, moist to wet, very soft to very stiff, Sandy SILT with mica (ML) SS 100 2-2-2 (4) SS 7 100 2-3-5 (8) SS 89 3-5-7 (12) SS 100 10-12-15 (27)

SS 88 8-12-50/5"

SS 108 17-35-50/1"

SS 100 50/1"

KIM ENGINEERING, INC.
Consulting Geotechnical Engineers
Baltimore, Maryland **BORING NUMBER ST-2** PROJECT NAME Bowie Mill Road Bikeway PROJECT NUMBER G23106 PROJECT LOCATION Olney, MD DATE STARTED 3/14/24 GROUND ELEVATION 391 ft HOLE SIZE 6" COMPLETED 3/14/24 DRILLING CONTRACTOR Kim Engineering Inc. **GROUND WATER LEVELS:** DRILLING METHOD H.S.A. $\sqrt{}$ AT TIME OF DRILLING 18.5 ft / Elev 372.5 ft LOGGED BY SE TAT END OF DRILLING 9.0 ft / Elev 382.0 ft 24hrs AFTER DRILLING NR NOTES <u>Caved @ 15.2'</u> ▲ SPT N VALUE ▲ MATERIAL DESCRIPTION ☐ FINES CONTENT (%) ☐ 3-inches of Topsoil Brown, moist, Silty Sand, trace Gravel and organics Brown, moist, Sandy Lean Clay, trace Gravel (FILL) 386.00 Brown, gray, moist, soft to medium stiff, Sandy SILT (ML) 381.00 Dark gray, moist, medium dense, Silty SAND (SM) Dark gray, brown, orange brown, dark brown, moist to wet, medium stiff to very stiff, Sandy SILT (ML) SS 89 12-15-13 (28) SS 78 7-8-12 (20) 362.50 Yellowish brown, brown, wet, dense to very dense, Silty SAND (SM) 357.50 DECOMPOSED ROCK classified as yellowish brown, brown, wet, very dense, Silty SAND (SM) SS 100 50/1" Bottom of hole at 36.6 feet. BOTTOM OF WALL/TOP BOTTOM OF CAISSON

NOTES:

- 1. TEST BORINGS WERE DRILLED IN SEPTEMBER 2022 BY KIM ENGINEERING, INC.
- 2. BLOWS = BLOWS ON SPLIT BARREL SAMPLER BY A 140 POUND WEIGHT AND DRIVE WEIGHT ASSEMBLY FREELY FALLING 30 INCHES.
- 3. CASING IS METHOD OF MAINTAINING OPEN BOREHOLE.
- 4. TEST BORINGS WERE DRILLED IN ACCORDANCE WITH AASHTO T206 AND ASTM D1586. ROCK CORING IN ACCORDANCE WITH AASHTO T225 AND ASTM D2113.
- 5. SOLID HAS BEEN IDENTIFIED BY A GEOTECHNICAL INSPECTOR.
- 6. THE BORING LOG SOIL SYMBOLS REFLECT ONLY THE MAJOR SOIL CONSTITUENT; FOR MORE COMPLETE SOIL CHARACTERISTICS REFER TO THE WRITTEN DESCRIPTION AT THE RESPECTIVE ELEVATION.
- 7. THE FIELD BORING LOGS RECORD OBSERVATIONS OF THE DRILLING OPERATIONS. THE LOGS ARE AVAILABLE UPON REQUEST.

90% DESIGN NOT FOR CONSTRUCTION					MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND	
Athavale, Lystad & Associates					RECOMMENDED FOR APPROVAL Chief, Design Section Date APPROVED	
6720-B Rockledge Drive, Suite 160					Chief, Division of Transportation Engineering Date	
Bethesda, MD 20817	NO.	REVISION	DATE	BY	Designed by: MW Drawn by: JE Checked by: KA	

BR-14 PEDESTRIAN BRIDGE NO. P-XX BORING LOGS AND LOCATION PLAN

BOWIE MILL ROAD BIKEWAY M-NCPPC PERMIT NO. MR2023016

Project No. : 502108

DATE: APRIL 2025 Sheet _201_ of _393_

357.50 DECOMPOSED ROCK classified as brown, orange brown, wet, hard, Sandy SILT with mica (ML)

Bottom of hole at 40.8 feet.

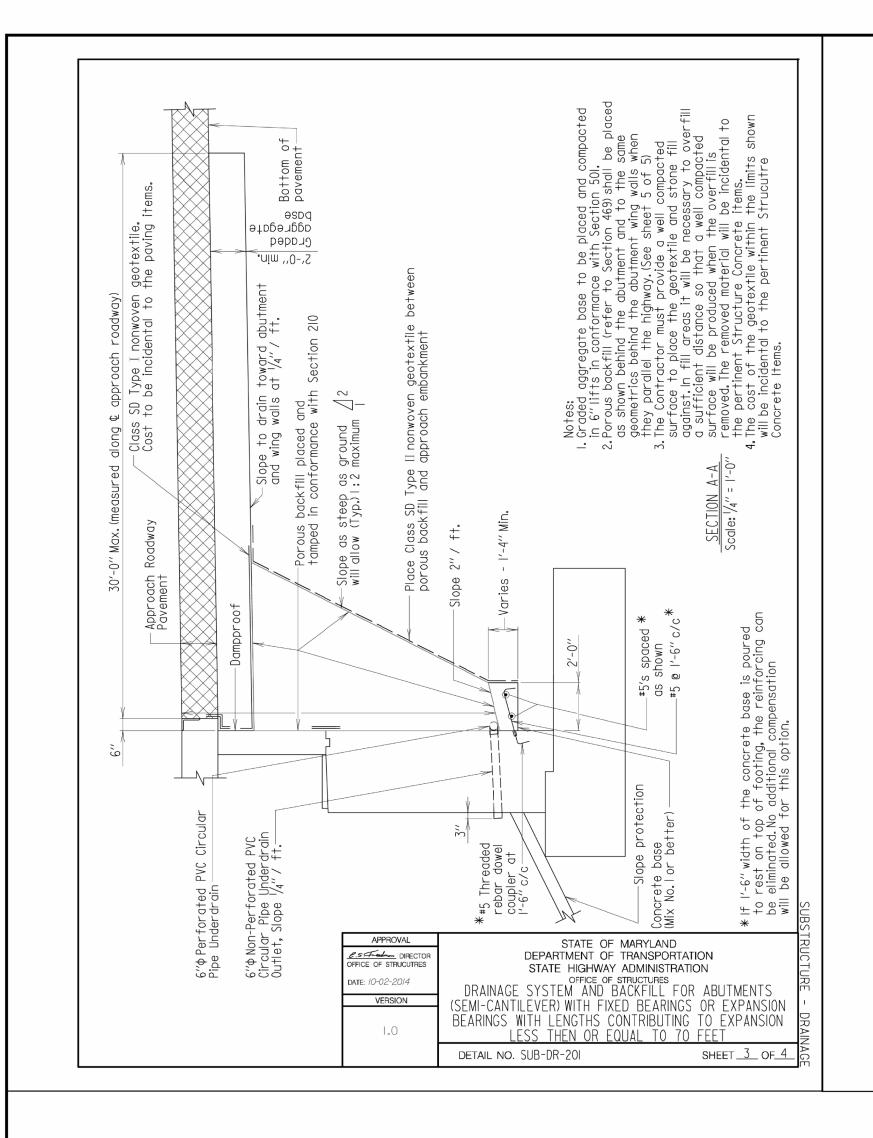
ELEVATION

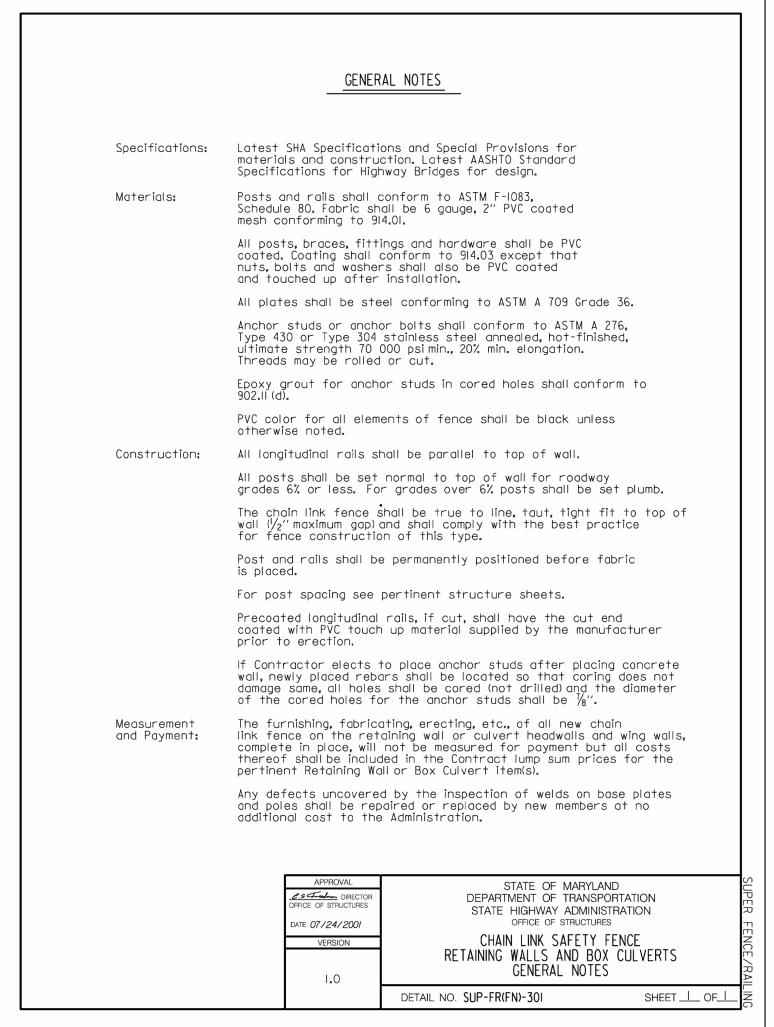
ELEVATION .

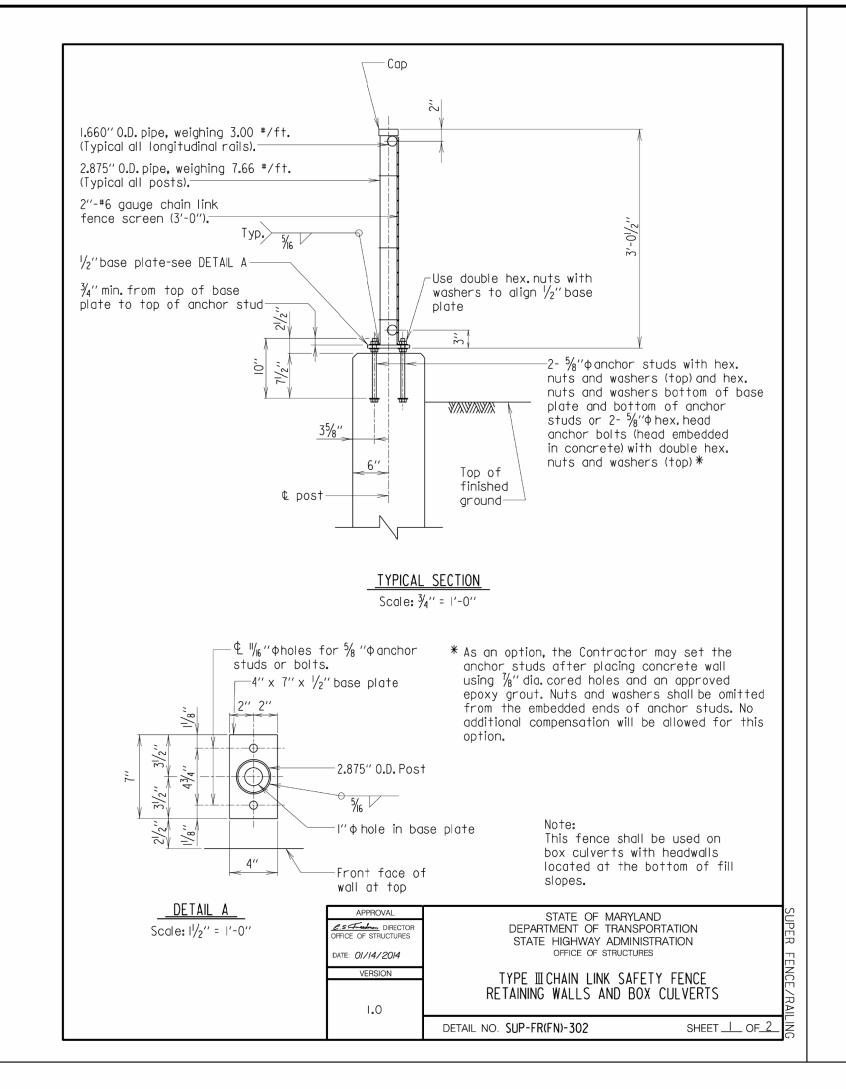
BOTTOM OF WALL/TOP

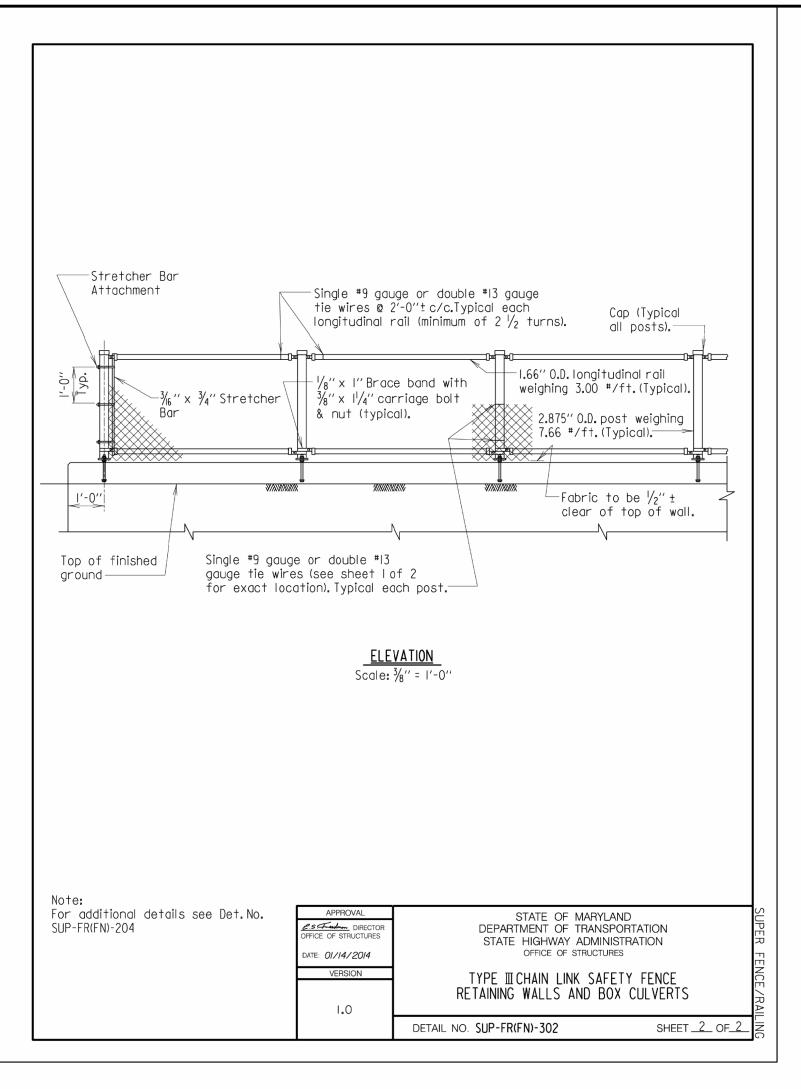
OF ELEVATION PAD

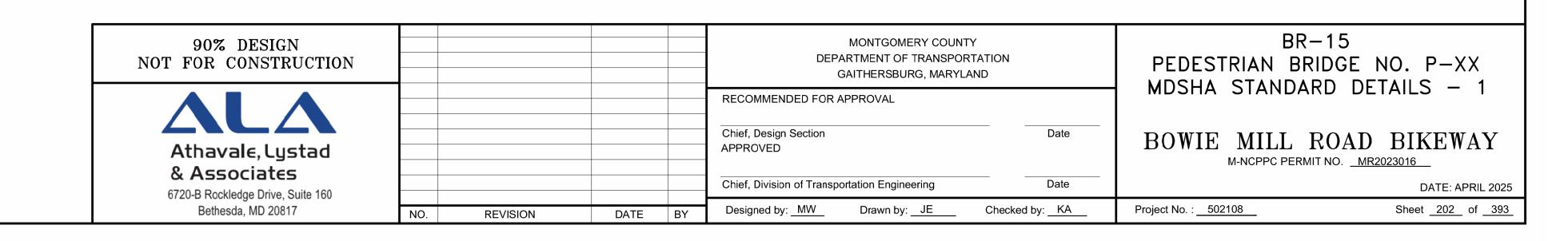
BOTTOM OF CAISSON

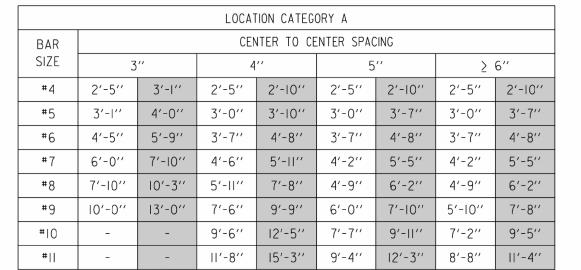












			LOCAT	TION CATEG	ORY B			
BAR								
SIZE	3	"	4′′		5′′		≥ 6′′	
#4	1'-10''	2'-9''	1'-10''	2'-2''	1'-10''	2'-2''	1'-10''	2'-2''
#5	2'-5''	3'-7''	2'-4''	3′-5′′	2'-4''	2'-9''	2'-4''	2'-9''
#6	3′-5′′	5′-1′′	2'-9''	4'-1''	2'-9''	4'-1''	2'-9''	4'-1''
#7	4'-8''	6'-11''	3'-6''	5′-3′′	3'-2''	4'-9''	3'-2"	4'-9''
#8	6'- ''	9'-1''	4'-7''	6′-10′′	3'-8''	5′-5′′	3′-8′′	5′-5′′
#9	7′-8′′	11'-6''	5′-9′′	8'-8''	4'-8''	6'-11''	4'-6''	6'-9''
#10	-	-	7'-4''	10'-11''	5′-10′′	8'-9''	5′-7′′	8'-4''
#	-	-	9'-0''	13'-6''	7'-2''	10'-9''	6′-8′′	10'-0''

Loca



- the Plans, the above dimensions shall be used. ?. These bar laps do not apply when splices are 1.3 times the bar is in lightweight concrete.
- this material. 3. These bar laps only apply where the General Notes indicate Reinforcing Steel Design, fy = 60 ksi, and Concrete Design, f'c =
- 4. These bar laps assume cover of 2". Greater lap lengths will be required for cover less than 2".

BAR	CENTER TO CENTER SPACING							
SIZE	E 3"		4	"	5	"	>	6′′
#4	2'-5''	3'-1''	2′-5′′	2'-10''	2'-5''	2'-10''	2′-5′′	2'-10''
#5	3'-1''	4'-0''	3′-0′′	3′-10′′	3'-0''	3′-7′′	3′-0′′	3'-7''
#6	4'-5''	5′-9′′	3′-7′′	4'-8''	3'-7''	4'-8''	3′-7′′	4'-8''
#7	6′-0′′	7′-10′′	4'-6''	5′-11′′	4'-2''	5′-5′′	4'-2''	5′-5′′
#8	7′-10′′	10'-3''	5′-11′′	7′-8′′	4'-9''	6'-2''	4'-9''	6'-2''
#9	10'-0''	13'-0''	7′-6′′	9'-9''	6'-0''	7′-10′′	5′-10'′	7′-8′′
#10	-	-	9'-6''	12'-5''	7'-7''	9'-11''	7′-2′′	9'-5''
#	-	-	11'-8''	15'-3''	9'-4''	12'-3''	8'-8''	11'-4''
BAR				TION CATEGO NTER TO CE	INTER SPAC			
SIZE	3	"	4′′		5	"	>	6′′
#4	1'-10''	2'-9''	1'-10''	2'-2''	1'-10''	2'-2''	1'-10''	2'-2''
#5	2′-5′′	3'-7''	2'-4''	3′-5′′	2'-4''	2'-9''	2'-4''	2'-9''
#6	3′-5′′	5′-1′′	2'-9''	4'-1''	2'-9''	4'-1''	2'-9''	4'-1''
#7	4'-8''	6′-11′′	3'-6''	5′-3′′	3'-2''	4'-9''	3'-2"	4'-9''
#8	6'- ''	9′-1′′	4'-7''	6′-10′′	3'-8''	5′-5′′	3′-8′′	5′-5′′
	7′-8′′	11'-6''	5′-9′′	8'-8''	4'-8''	6′-11′′	4'-6''	6'-9''
#9			7'-4''	10'-11''	5′-10′′	8'-9''	5′-7′′	8'-4''
#9 #10	-	-	7 -4	10 11				
	7′-8′′	11'-6''						

I. When bar lap is not specified on $\,$ 5. These bar laps are Class B splices $\,$ required by analysis over the based on the development lengths — entire length of the lap splice and (b) one-half or less of the in Det.No.REBAR-DL-101. Class B total reinforcement is spliced within the required lap splice development length. Greater lengths are required for 6. Class A splices may be used when length. Class A splices are 1.0 (a) the area of reinforcement times the development length.

provided is at least twice that STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURE STATE HIGHWAY ADMINISTRATION ATE: 03/21/2017 OFFICE OF STRUCTURES BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO.3 (3500 P.S.I.) CONCRETE

SHEET ____ OF___

DETAIL NO. REBAR-BL-101

LOCATION CATEGORY B CENTER TO CENTER SPACING SIZE > 6′′ |'-7'' | |'-||'' | |'-7'' | |'-||'' #4 | 1'-7'' | 2'-5'' | #5 | 2'-I'' | 3'-I'' | 2'-0'' | 3'-0'' | 2'-0'' | 2'-5'' #6 3'-0'' 4'-5'' 2'-5'' 3'-7'' 2'-5'' 3'-7'' 2'-5'' #7 | 4'-0'' | 6'-0'' | 3'-0'' | 4'-6'' | 2'-9'' | 4'-2'' | 2'-9'' | 4'-2'' #8 | 5'-3'' | 7'-10'' | 3'-11'' | 5'-11'' | 3'-2'' | 4'-9'' | 3'-2'' #9 | 6'-8'' | 10'-0'' | 5'-0'' | 7'-6'' | 4'-0'' | 6'-0'' | 3'-II'' | 5'-10'' 6'-4'' 9'-6'' 5'-1'' 7'-7'' 4'-10'' - 7'-10'' 11'-8'' 6'-3'' 9'-4'' 5'-9'' 8'-8'' Location Category B - All bars not in Location Category A. Epoxy coated Non-epoxy coated . When bar lap is not specified on $\,$ 5. These bar laps are Class B splices $\,$ required by analysis over the based on the development lengths — entire length of the lap splice the Plans, the above dimensions shall be used. in Det. No. REBAR-DL-103. Class B and (b) one-half or less of the These bar laps do not apply when splices are 1.3 times the total reinforcement is spliced bar is in lightweight concrete. development length. within the required lap splice Greater lengths are required for 6. Class A splices may be used when length. Class A splices are 1.0 (a) the area of reinforcement times the development length. this material. . These bar laps only apply where provided is at least twice that the General Notes indicate STATE OF MARYLAND Reinforcing Steel Design, fy = 60 DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES ksi, and Concrete Design, f'c = STATE HIGHWAY ADMINISTRATION TE: 03/21/2017 OFFICE OF STRUCTURES . These bar laps assume cover of BAR LAP DIMENSIONS FOR 2". Greater lap lengths will be GRADE 60 REINFORCING STEEL required for cover less than 2". IN MIX NO.6 (4500 P.S.I.) CONCRETE DETAIL NO. REBAR-BL-103 SHEET ____ OF___

LOCATION CATEGORY A

#4 2'-1'' 2'-8'' 2'-1'' 2'-6'' 2'-1'' 2'-6''

#5 | 2'-8'' | 3'-6'' | 2'-7'' | 3'-4'' | 2'-7'' | 3'-1''

#7 | 5'-3'' | 6'-10'' | 3'-11'' | 5'-1'' | 3'-7'' | 4'-8''

#6 3'-10" 5'-0" 3'-1" 4'-0" 3'-1" 4'-0" 3'-1"

#8 | 6'-10'' | 8'-11'' | 5'-1'' | 6'-8'' | 4'-1'' | 5'-4'' | 4'-1''

*9 | 8'-8'' | II'-3'' | 6'-6'' | 8'-6'' | 5'-2'' | 6'-9'' | 5'-|'' | 6'-7''

Location Category A - Bars in horizontal layers in top of pour with 12" or more

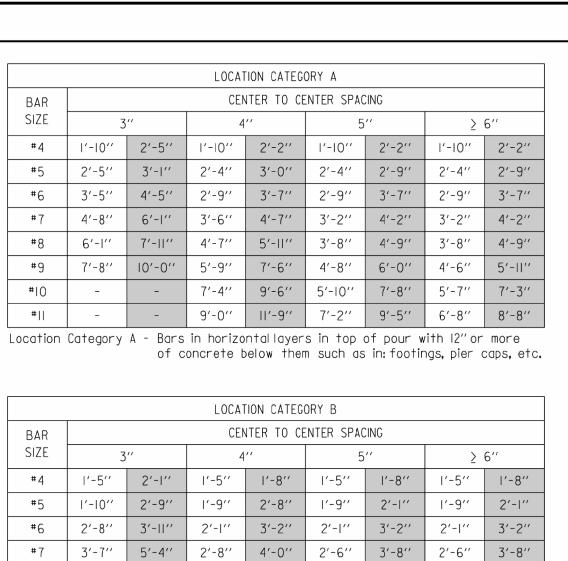
- 8'-3'' 10'-9'' 6'-7'' 8'-7'' 6'-3'' 8'-2''

of concrete below them such as in: footings, pier caps, etc.

10'-1'' | 13'-3'' | 8'-1'' | 10'-7'' | 7'-6'' | 9'-9''

SIZE

CENTER TO CENTER SPACING



#8 | 4'-8'' | 7'-0'' | 3'-6'' | 5'-3'' | 2'-10'' | 4'-2'' 8'-10'' 4'-5'' 6'-8'' 3'-7'' 5'-4'' 3'-6'' 5'-2'' 5'-8'' 8'-5'' 4'-6'' 6'-9'' 4'-3'' 6'-5'' 6'-11'' | 10'-4'' | 5'-7'' | 8'-4'' | 5'-2'' | 7'-8''

Location Category B - All bars not in Location Category A.

Γ	=	Non-epoxy coate	d	Ξ	Ероху	coated	
_							

specified on the Plans, the above was assumed to be 1.0 when dimensions shall be used. . These development lengths do not 6. Atr was assumed to be 0 when

apply when bar is in lightweight concrete. Greater lengths are required for this material. . These development lengths only

apply where the General Notes indicate Reinforcing Steel Design, fy = 60 ksi, and Concrete Design, f'c 3000 psi. . These development lengths assume cover of 2". Greater development

less than 2".

lengths will be required for cover

. When development length is not 5. The Excess Reinforcement Factor 7. If depth of member does not allow bar development length calculating these dimensions. indicated in Location Categories A and B; then hooks shall be added to all bars not conforming, 끊 calculating the Reinforcement Confinement Factor. as per D, E, and F per Det. No.

REBAR-DL-201.

SHEET ___ OF_X

STATE OF MARYLAND OFFICE OF STRUCTURES DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION ATE: 03/21/2017 OFFICE OF STRUCTURES DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO.3 (3500 P.S.I.) CONCRETE

DETAIL NO. REBAR-DL-101

SIZE > 6′′ #4 | 1'-7'' | 2'-1'' 1'-7'' | 1'-11'' | |'-7'' | |'-||'' | |'-7'' | |'-||'' 2'-0'' | 2'-7'' | 2'-0'' | 2'-5'' | 2'-0'' | 2'-5'' #6 | 3'-0'' | 3'-10'' | 2'-5'' | 3'-1'' | 2'-5'' | 3'-1'' | 2'-5'' | 3'-1'' *7 | 4'-0'' | 5'-3'' | 3'-0'' | 3'-II'' | 2'-9'' | 3'-7'' | 2'-9'' | 3'-7'' *8 | 5'-3'' | 6'-10'' | 3'-11'' | 5'-2'' | 3'-2'' | 4'-1'' | 3'-2'' | 4'-1'' *9 | 6'-8'' | 8'-8'' | 5'-0'' | 6'-6'' | 4'-0'' | 5'-3'' | 3'-II'' | 5'-I'' 6'-4'' 8'-3'' 5'-1'' 6'-7'' 4'-10'' 6'-3'' 7'-10'' | 10'-2'' | 6'-3'' | 8'-2'' | 5'-9'' | 7'-6'' Location Category A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in: footings, pier caps, etc.

LOCATION CATEGORY A

CENTER TO CENTER SPACING

LOCATION CATEGORY B								
BAR	CENTER TO CENTER SPACING							
SIZE	3	"	4	"	5′′		>	6''
#4	1'-3''	1'-10''	1'-3''	1'-6''	1'-3''	1'-6''	1'-3''	1'-6''
#5	1'-7''	2'-5''	1'-6''	2'-3''	1'-6''	1'-10''	1'-6''	1'-10''
#6	2'-3''	3′-5′′	1'-10''	2'-9''	1'-10''	2'-9''	1'-10''	2'-9''
#7	3′-1′′	4'-8''	2'-4''	3'-6''	2'-2''	3'-2''	2'-2''	3'-2''
#8	4'-0''	6'-0''	3'-0''	4'-6''	2'-5''	3'-8''	2′-5"	3'-8''
#9	5′-2′′	7′-8′′	3′-10′′	5'-9''	3'-1''	4'-7''	3'-0''	4'-6''
#10	-	-	4'-11''	7'-4''	3'-11''	5′-10′′	3'-9''	5'-7''
#	-	-	6′-0′′	9'-0''	4'-10''	7′-2′′	4'-5''	6′-8′′

Location Category B - All bars not in Location Category A.

Non-epoxy coated = Epoxy coated

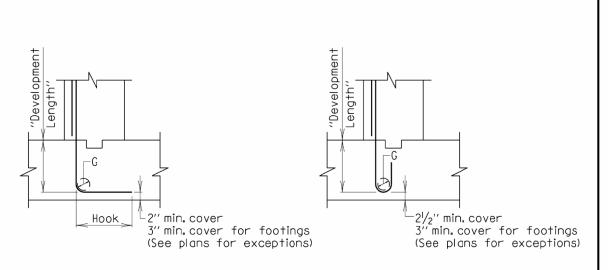
apply when bar is in lightweight

specified on the Plans, the above was assumed to be 1.0 when dimensions shall be used.

. When development length is not 5. The Excess Reinforcement Factor 7. If depth of member does not allow bar development length calculating these dimensions. indicated in Location Categories . These development lengths do not 6. Atr was assumed to be 0 when A and B; then hooks shall be calculating the Reinforcement added to all bars not conforming, Confinement Factor. as per D, E, and F per Det.No.

concrete. Greater lengths are required for this material. REBAR-DL-203. . These development lengths only apply where the General Notes STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION OFFICE OF STRUCTURES indicate Reinforcing Steel Design, fy STATE HIGHWAY ADMINISTRATION DATE: 03/21/2017 OFFICE OF STRUCTURES

= 60 ksi, and Concrete Design, f'c : DEVELOPMENT LENGTH DIMENSIONS FOR 4. These development lengths assume GRADE 60 REINFORCING STEEL cover of 2". Greater development IN MIX NO.6 (4500 P.S.I.) CONCRETE lengths will be required for cover less than 2". DETAIL NO. REBAR-DL-103 SHEET ____ OF__



STANDARD 90° HOOK

STANDARD 180° HOOK

BAR	* LOCA	* LOCATION CATEGORY					
SIZE	D	Е	F				
#4	8′′	11''	9"				
#5	10"	1'-2''	11"				
#6	1'-0''	1'-5''	1'-2''				
#7	1'-2''	1'-8''	1'-4''				
#8	1'-4''	1'-10''	1'-6''				
#9	1'-6''	2'-1''	1'-8''				
#10	1'-8''	2'-4''	'- ''				

For Hook Dimensions and Bends, see Detail No. REBAR-BB-102.

#11 1'-10" 2'-7" 2'-1"

* LOCATION CATEGORY:

strength of concrete.

as per D,E & F.

- D-All bars terminating with a standard 180° hook with side cover (normal to plane of hook) not less than $2\frac{1}{2}$ ", and for 90°deg. hook, cover on bar extension beyond hook not less than 2".
- E- All bars <u>not</u> in Category D. F-All bars with hook enclosed vertically or horizontally within ties or stirrup-ties spaced along the full development length not greater than 3d where d is the diameter of the hooked bar.
- I.When development length is not specified on the Plans, the above dimensions shall be used. 2.These development lengths do not apply when bar is in lightweight concrete or any other

3.These development lengths only apply where the General Notes indicate Reinforcing Steel Design, fy = 60 ksi. and Concrete Design, f'c = 3000 psi. 1.If depth of member does not allow bar development length indicated in Categories A, B, and C: Detail No. REBAR-DL-101; then hook shall be

added to all bars not conforming,

STATE OF MARYLAND OFFICE OF STRUCTURE DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DATE: 05/10/2011 IN MIX NO.3 (3500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING 1.0

DEVELOPMENT LENGTH DIMENSIONS OF HOOKED BARS FOR GRADE 60 REINFORCING STEEL DETAIL NO. REBAR-DL-201 SHEET ____ OF__

90% DESIGN NOT FOR CONSTRUCTION Athavale, Lystad & Associates 6720-B Rockledge Drive, Suite 160 Bethesda, MD 20817

DATE

REVISION

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION GAITHERSBURG, MARYLAND RECOMMENDED FOR APPROVAL Chief, Design Section Date APPROVED Chief, Division of Transportation Engineering Checked by: KA Designed by: MW Drawn by: JE

BR-16 PEDESTRIAN BRIDGE NO. P-XX MDSHA STANDARD DETAILS - 2

BOWIE MILL ROAD BIKEWAY M-NCPPC PERMIT NO. MR2023016

Project No. : 502108

DATE: APRIL 2025

Sheet <u>203</u> of <u>393</u>

