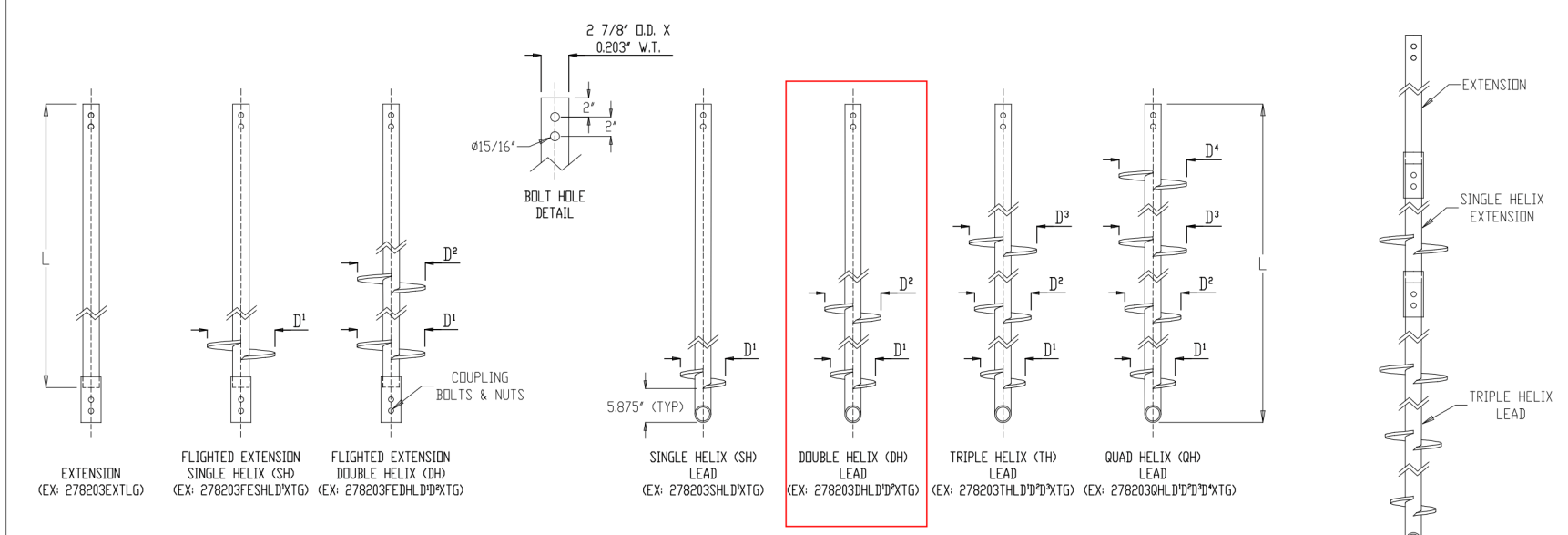
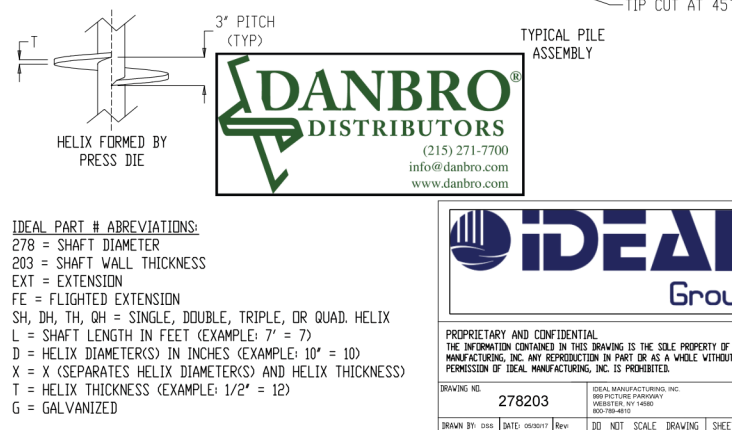


MAXIMUM TORQUE NOT TO EXCEED 8,000 FT-LBS.  
ULTIMATE CAPACITY IS 72 KIPS BASED ON A CAPACITY TO  
TORQUE RATIO OF  $K_t = 9 \text{ FT}^2$ .

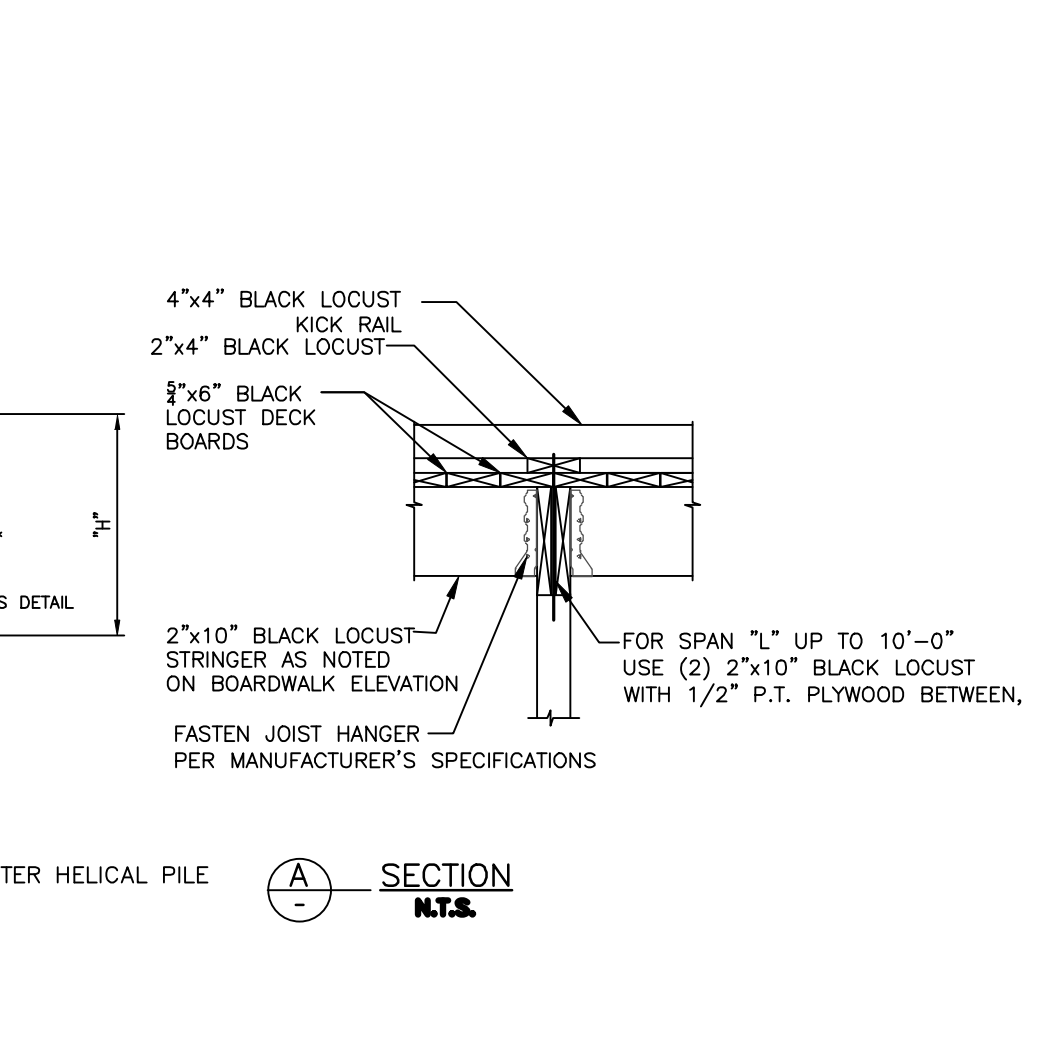
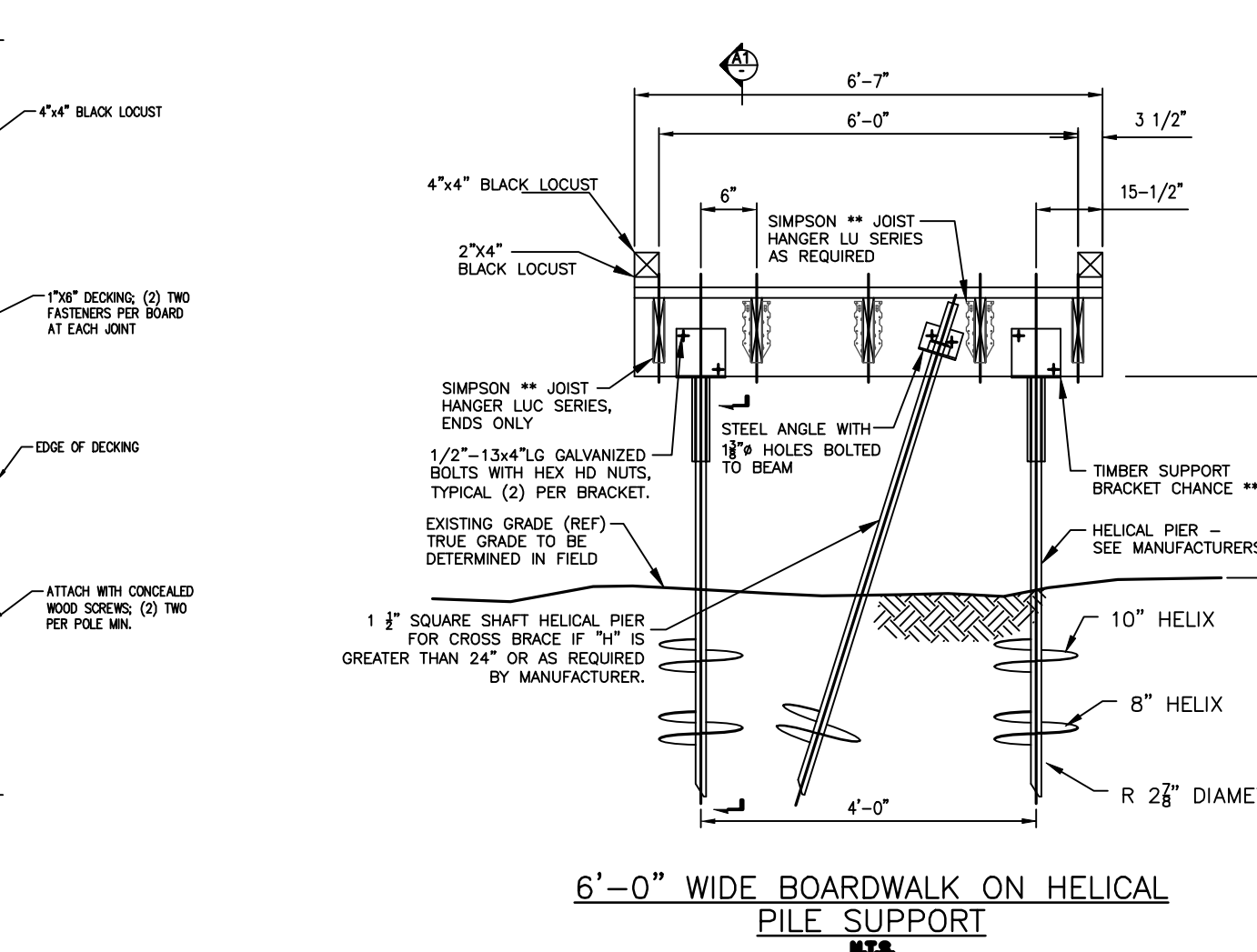
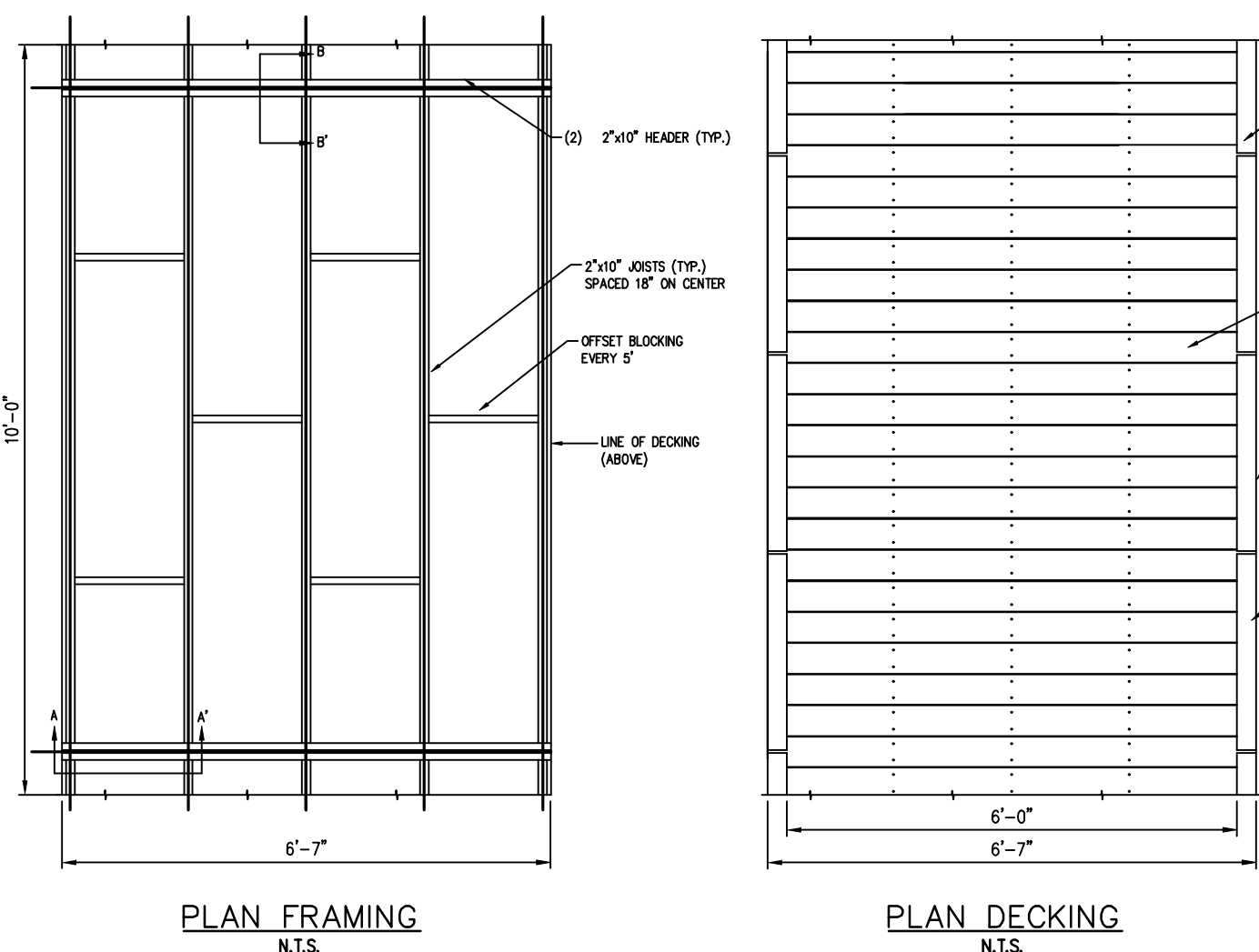
27/8" O.D. X 0.203" W.T. HELICAL LEADS & EXTENSIONS  
ICC-ES AC308 - REPORT #ESR-3750



- NOTES:**
- SHAFT TO MEET OR EXCEED REQUIREMENTS OF ASTM A500, 80 KSI.
  - HELIX TO MEET OR EXCEED REQUIREMENTS OF ASTM A572/A516/A572, 50 KSI.
  - ALL HELICES ARE FORMED BY PRESS DIE. LEADING EDGE OF HELICES ARE TAPERED TO IMPROVE INSTALLATION CAPABILITIES.
  - HELIX SPACING IS THREE (3) TIMES THE DIAMETER OF THE LOWER HELIX. SPACING OF LEADING HELIX ON FLIGHTED EXTENSIONS IS THREE (3) TIMES THE DIAMETER OF THE LAST HELIX ON THE PRECEDING SHAFT.
  - STANDARD HELIX DIAMETERS ARE 6", 8", 10", 12", & 14". STANDARD HELIX THICKNESS IS 3/8" OR 1/2".
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  - (2) 3/4" DIAMETER X 4 1/2" LONG GALVANIZED HEAVY HEX BELT PER ASTM A325 AND (2) 3/4" GALVANIZED HEAVY HEX NUT PER ASTM A304 GRADE 2H.
  - HELICAL PILE ASSEMBLIES MANUFACTURED IN ACCORDANCE WITH ICC-ES AC308 (LOCAL REPORT #ESR-3750) ACCEPTANCE. CRITERIA FOR HELICAL FOUNDATION SYSTEMS AND DEVICES.



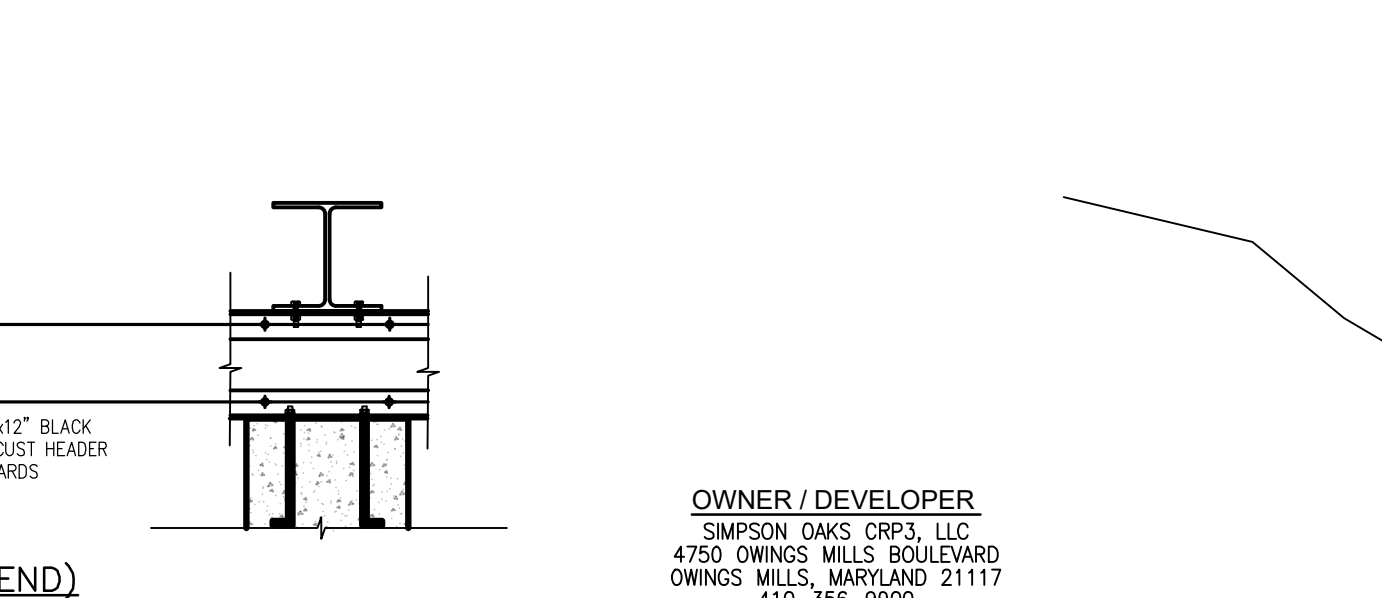
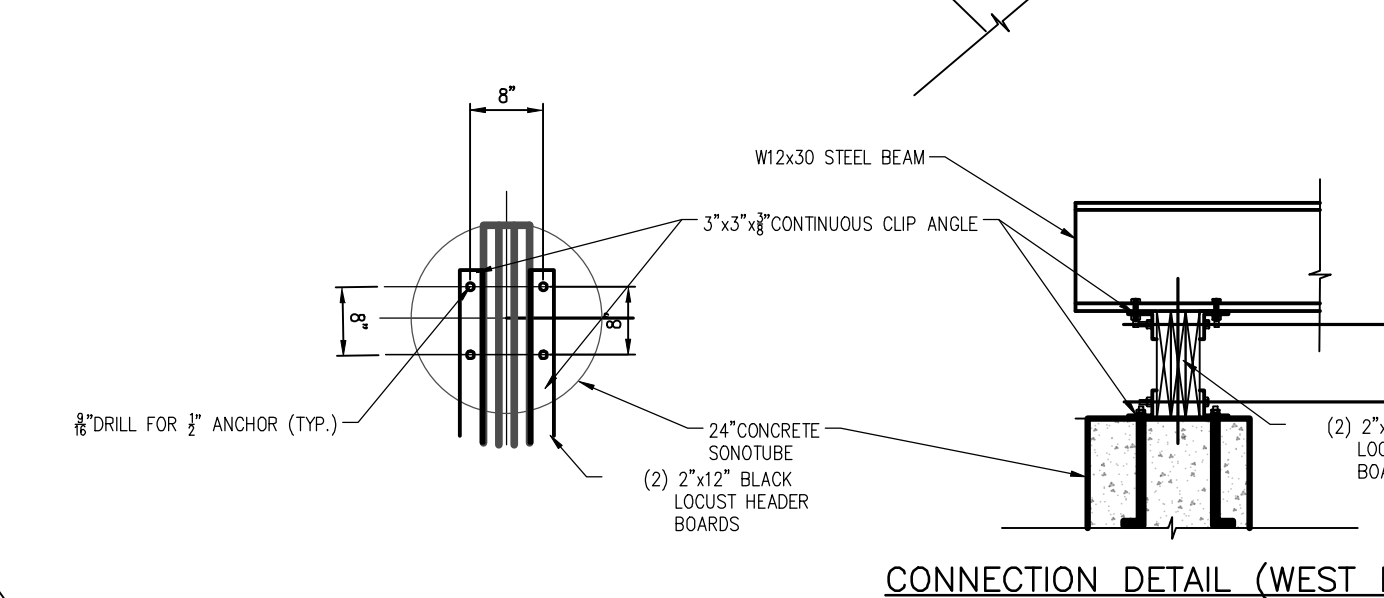
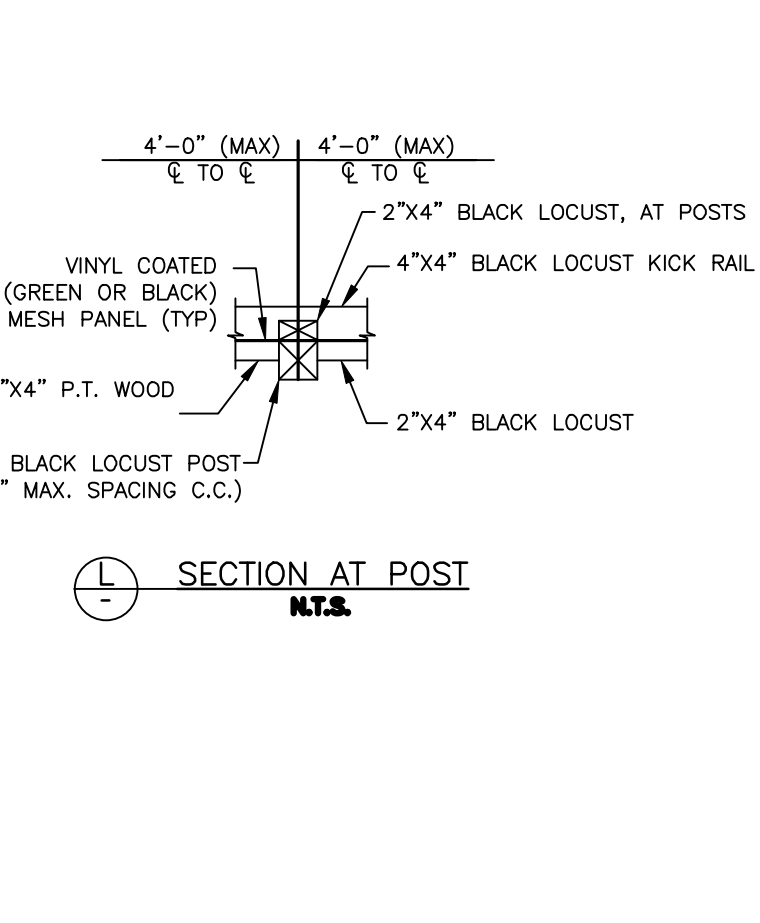
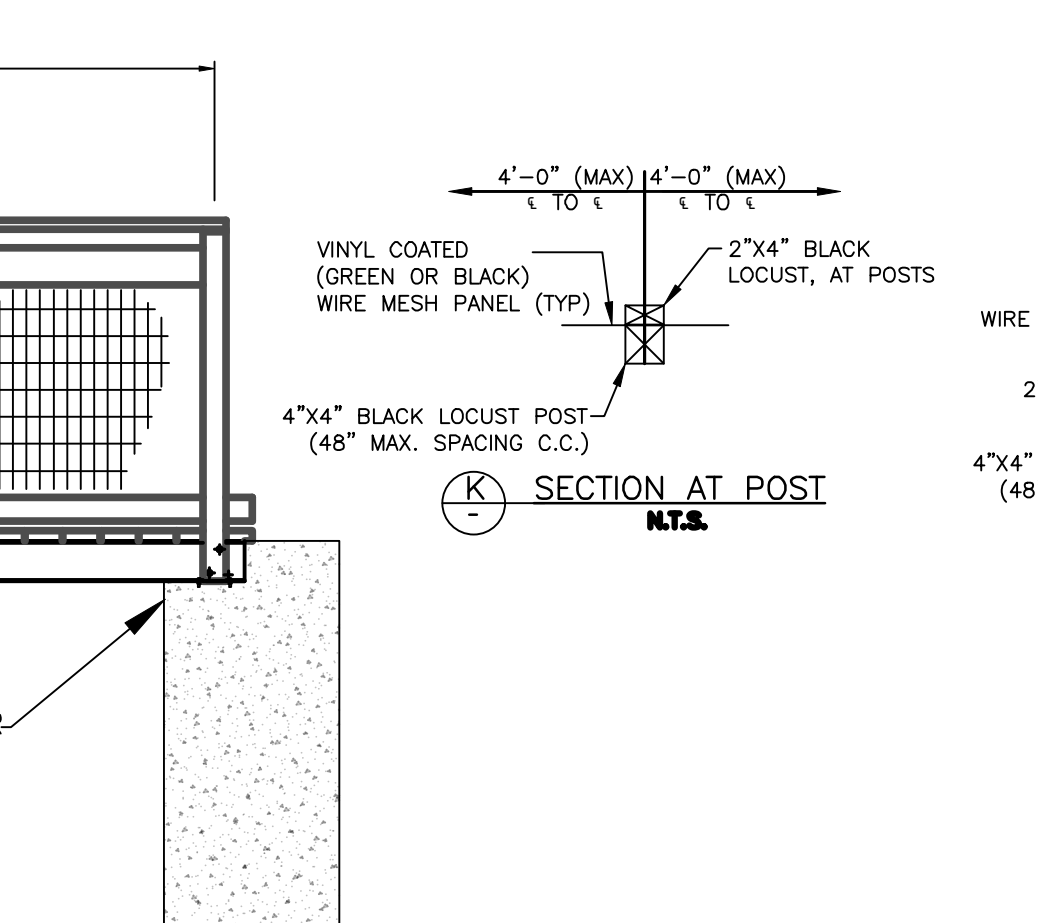
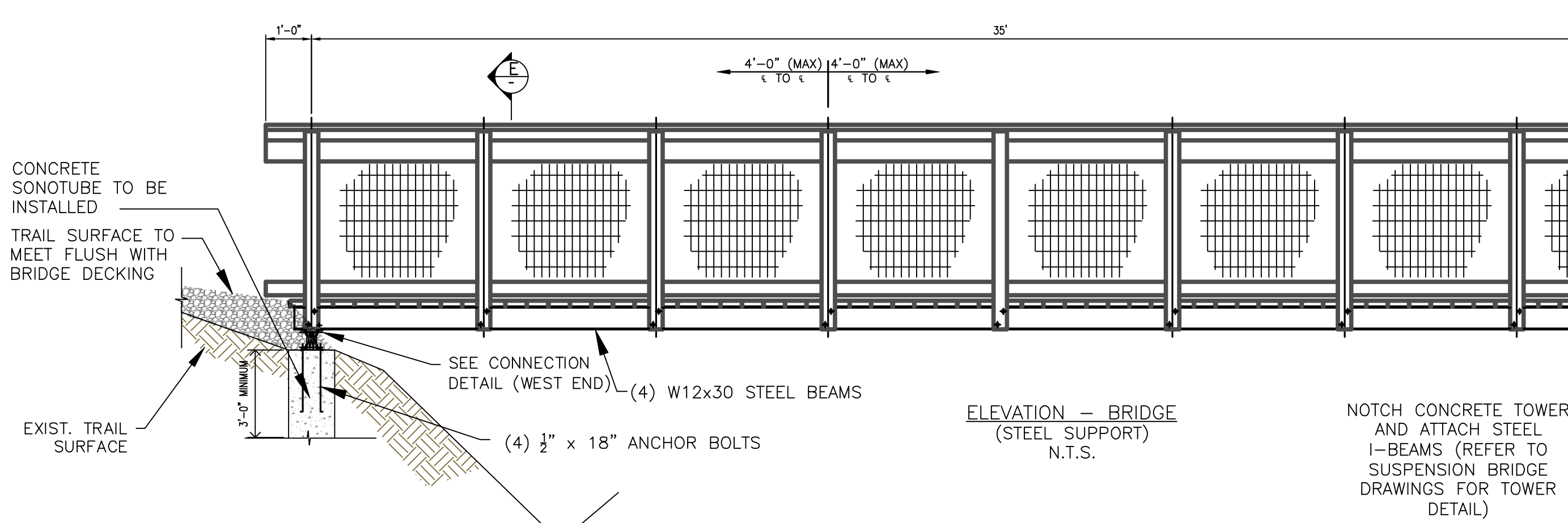
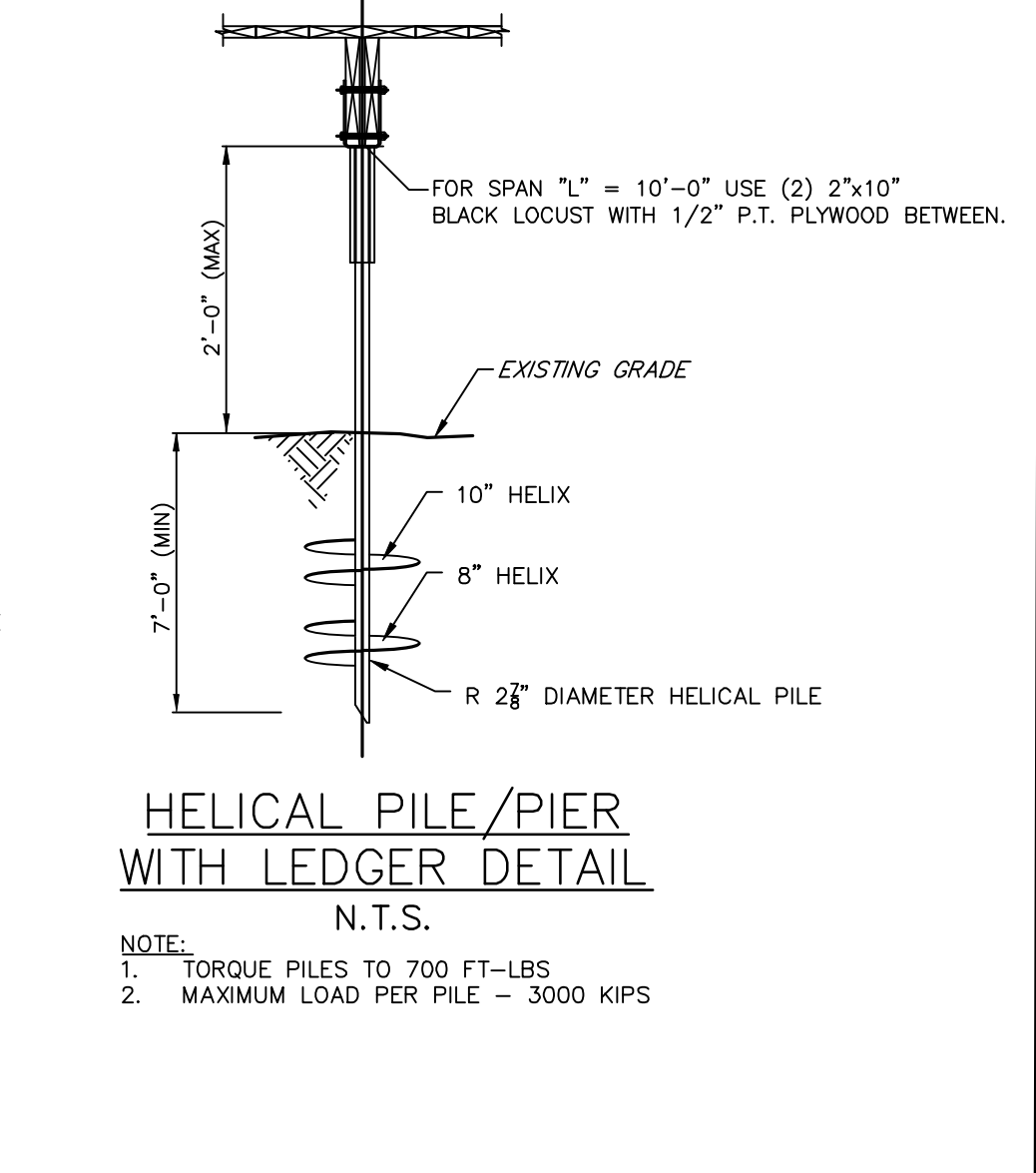
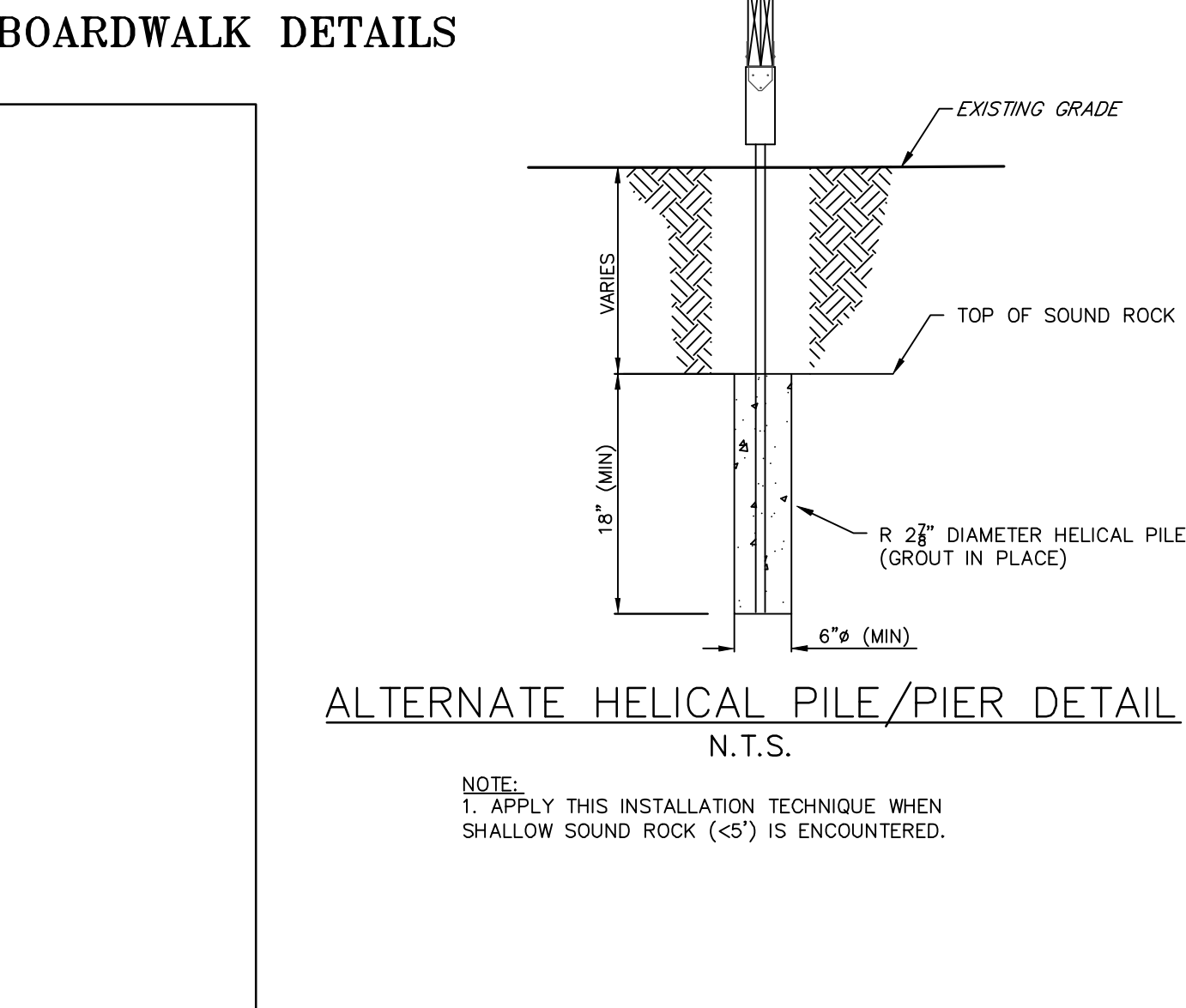
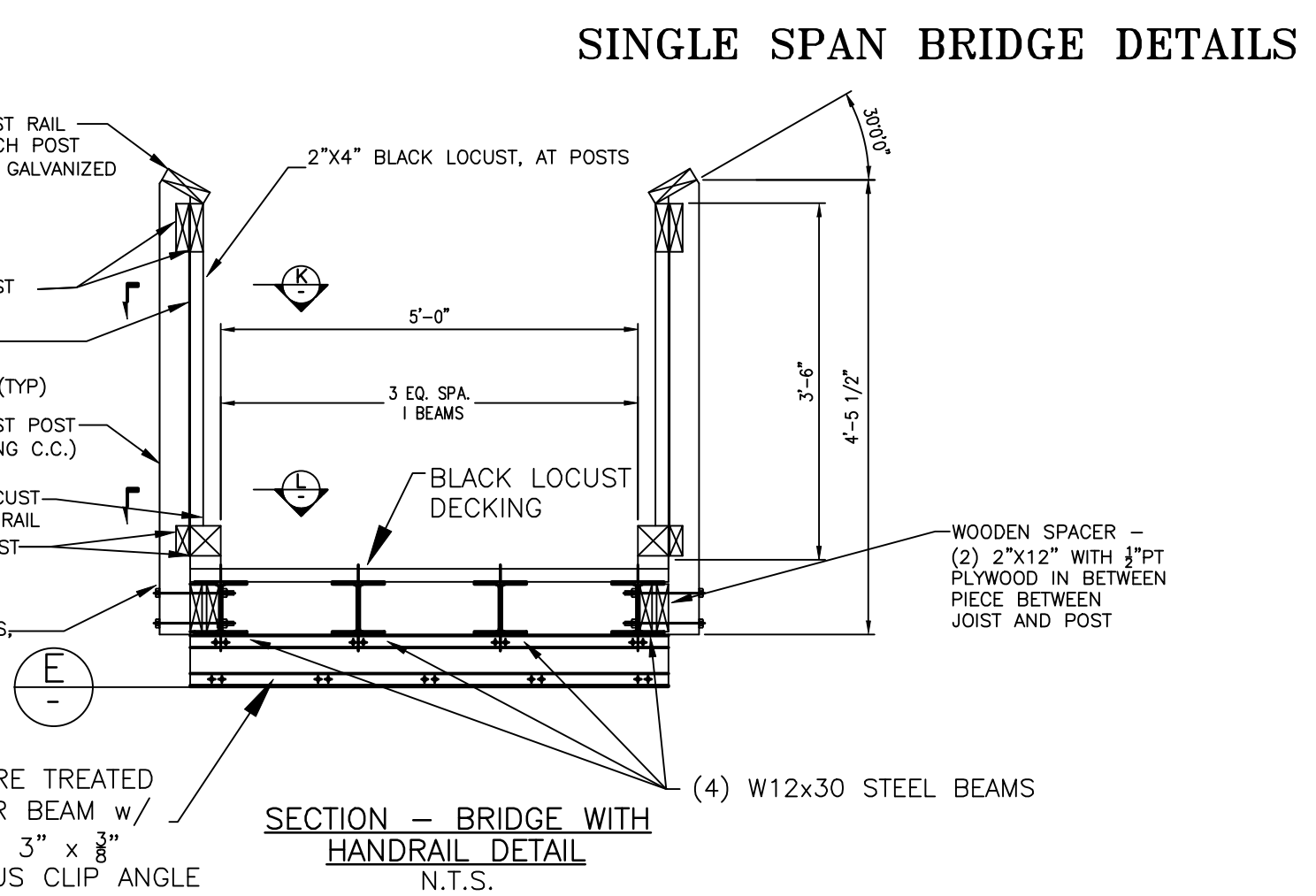
**DANBRO DISTRIBUTORS**  
IDEAL Group



**MANUFACTURERS SPECIFICATIONS  
(SEE DETAILS FOR SPECIFIC  
HELIX REQUIRED)**

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- DESIGN SPECIFICATIONS SHALL CONFORM TO:
  - ASHTO 2009 LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES.
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  - WOOD MEMBERS SHALL HAVE THE GRADE MARK OF A LUMBER GRADING AGENCY CERTIFIED BY THE AMERICAN LUMBER STANDARDS COMMITTEE.
  - ALL WOOD SHALL BE NO.2 SOUTHERN YELLOW PINE WITH MIN. ALLOWABLE BENDING STRESS OF 1200 PSI, UNLESS OTHERWISE NOTED.
  - PLYWOOD SHALL CONFORM TO EXTERIOR GRADE.
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- TIMBER SHALL BE PRESSURE-TREATED NO. 2 SOUTHERN YELLOW PINE.
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- ALL METAL CONNECTORS, FASTENERS, OR HANGERS SHALL BE HOT-DIP GALVANIZED PER ASTM A153.
- HELICAL PILES SHALL CONFORM TO ASTM D1143
- EXPLORATORY SOIL TESTING WAS PERFORMED USING A HELICAL PROBE AND KNEAS BAR TO APPROXIMATE SOIL BEARING CAPACITY. AN EXPERIENCED CONTRACTOR SHALL INSTALL ALL CONCRETE PIERS AND HELICAL PILES. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER UPON ANY UNFORESEEN CONDITIONS DURING SOIL EXCAVATION OR INSTALLATION.
- SPACES AND OPENINGS IN BRIDGE DECK, BETWEEN BOARD SURFACES, SHALL NOT ALLOW THE PASSAGE OF A SPHERE MORE THAN 1/2 INCH (13MM) DIAMETER (ADA 303.3).
- FOR DECKING HEIGHT "H" GREATER THAN 24" USE BATTERED SSS HELICAL PILE SHAFT AT EVERY OTHER BENT IN OPPOSITE DIRECTION.
- CHANGES IN LEVEL OF 1/4 INCH (6.4 MM) HIGH MAXIMUM SHALL BE PERMITTED TO BE VERTICAL (ADA 303.2).
- CHANGES IN LEVEL BETWEEN 1/4 INCH (6.4 MM) HIGH MINIMUM AND 1/2 INCH (13 MM) HIGH MAXIMUM SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2 (ADA 303.2).
- MAXIMUM RUNNING SLOPE OF BRIDGE SHALL NOT EXCEED 1:20 (5 PERCENT) (ADA 403.2).
- MAXIMUM CROSS SLOPE OF BRIDGE SHALL NOT EXCEED 1:50 (2 PERCENT) (ADA 403.3).
- BRIDGE APPROACH (RUNNING GRADE) MUST MEET ONE OR MORE OF THE FOLLOWING CRITERIA:
  - 5% OR LESS FOR ANY DISTANCE
  - UP TO 6.33% FOR 200' MAXIMUM
  - UP TO 10% FOR 30' MAXIMUM
  - UP TO 12.5% FOR 10' MAXIMUM
- RAILING ALONG BOARDWALK/BRIDGE REQUIRED IF "H" (HEIGHT ABOVE GRADE) IS GREATER THAN 28".
- THE CONSTRUCTION MUST BE PERFORMED IN STRICT ACCORDANCE WITH THE PROJECT DRAWINGS. ANY DEVIATION FROM THE DRAWINGS MUST BE APPROVED IN WRITING BY THE ENGINEER. ERRORS AND/OR OMISSIONS FOUND ON THE DRAWING MUST BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.
- THE ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK, NOR WILL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS IN THE FIELD BEFORE ORDERING ANY MATERIALS, OR STARTING ANY WORK. CONFLICTS BETWEEN FIELD CONDITIONS AND CONTRACT DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION \_\_\_\_\_ DATE \_\_\_\_\_

CHIEF, DIVISION OF LAND DEVELOPMENT \_\_\_\_\_ DATE \_\_\_\_\_

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

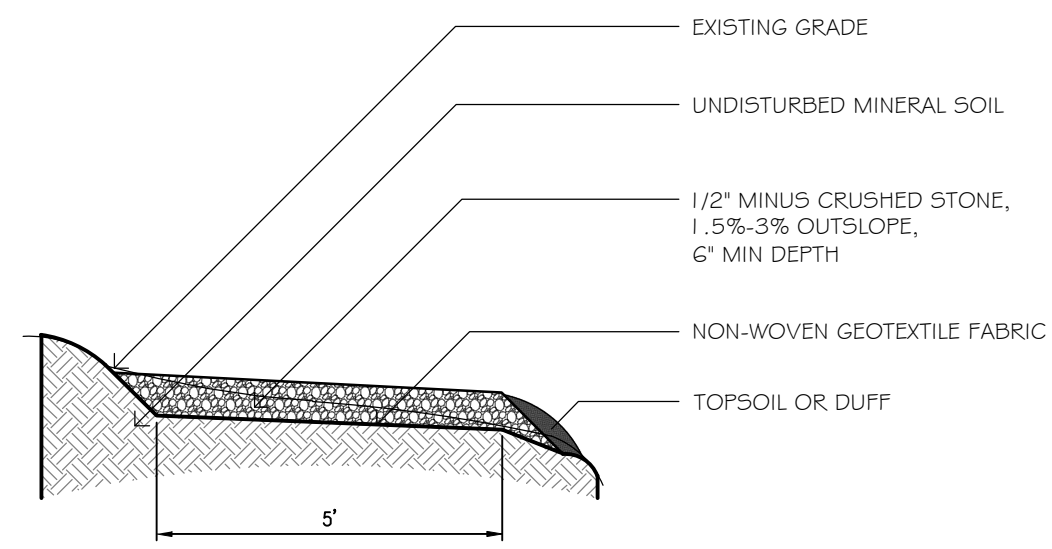


OWNER / DEVELOPER SIMPSON OAKS CRP3, LLC 4750 OWINGS MILLS BOULEVARD OWINGS MILLS, MARYLAND 21117 410-356-9900	PLAN TITLE: <b>SITE DEVELOPMENT PLAN</b>	NO.	REVISIONS	DATE	DRAWN BY: JDC	CHECKED BY: JER
	PROJECT TITLE: <b>CEDAR CREEK</b>				SCALE: AS NOTED	DATE: DEC 2019
	1. LANDLOCKED PARCEL "A" - VILLAGE OF HICKORY RIDGE, PLAT MDR NO. 1364D. 2. IMPROVEMENTS TO INCLUDE CONSTRUCTION OF ENVIRONMENTAL TRAIL AND PEDESTRIAN SUSPENSION BRIDGE. 3. ELECTION DISTRICT - 5TH 4. TAX MAP - REFER TO SHEET 1 - SITE ANALYSIS ITEM Q	PROJECT NO. <b>SO-718</b>		SHEET NO. <b>15</b>		SHEET NO. <b>28</b>

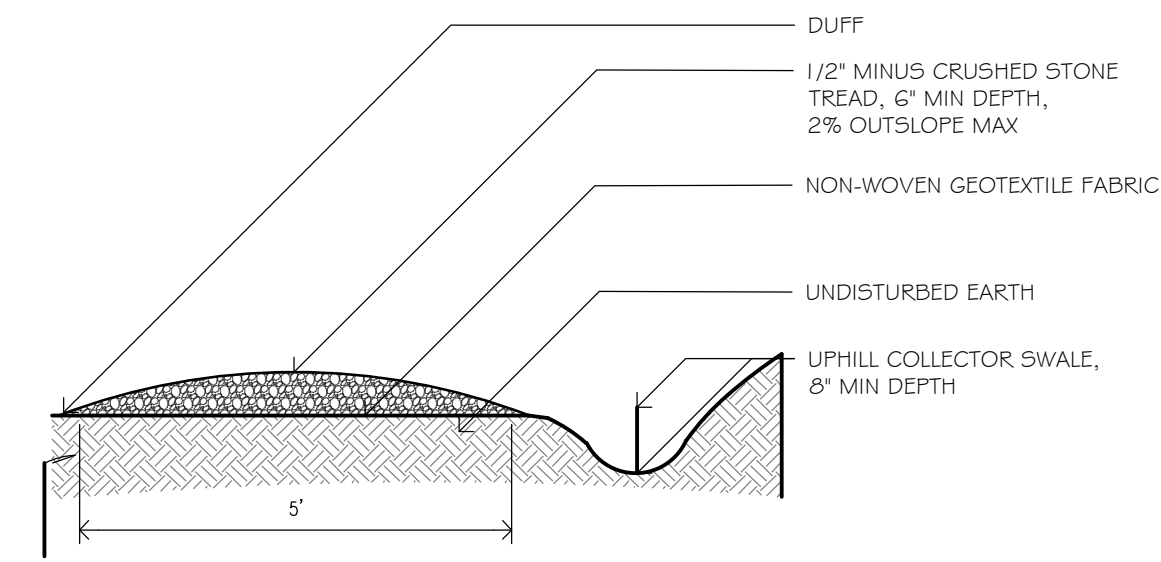
**PROFESSIONAL ENGINEERS CERTIFICATION**

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME OR UNDER MY IMMEDIATE SUPERVISION, AND IS CORRECT IN ITS DETAIL TO MY BEST KNOWLEDGE AND BELIEF.

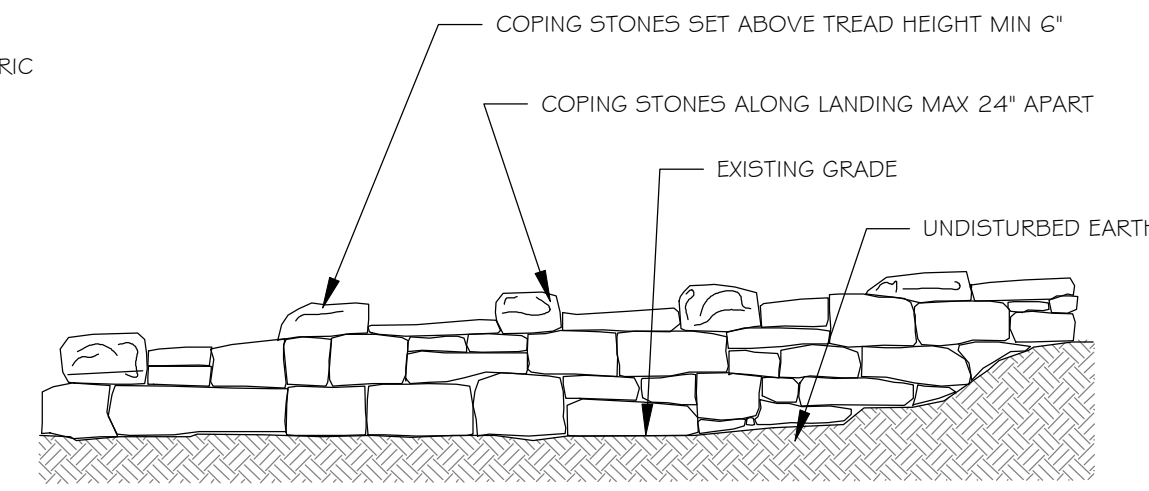
JOSEPH E RENTKO, P.E. MARYLAND LIC# 50806 DATE \_\_\_\_\_



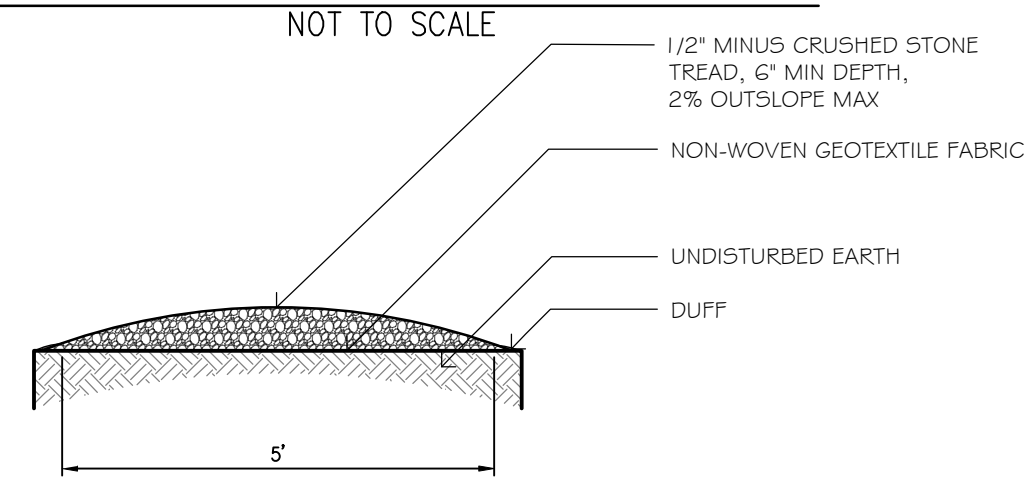
**Full Bench Crushed Stone Trail**



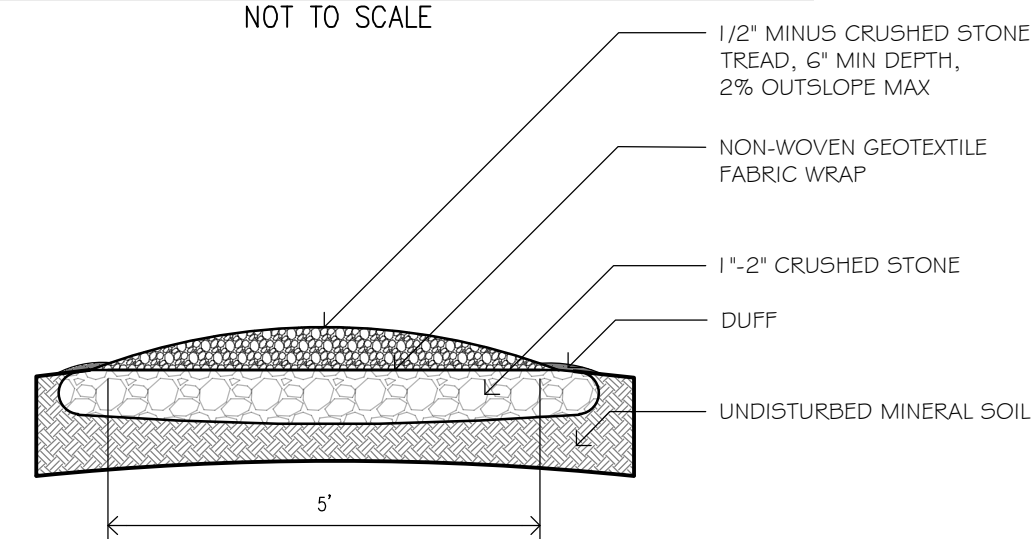
**Crowned Tread w/ Uphill Swale**



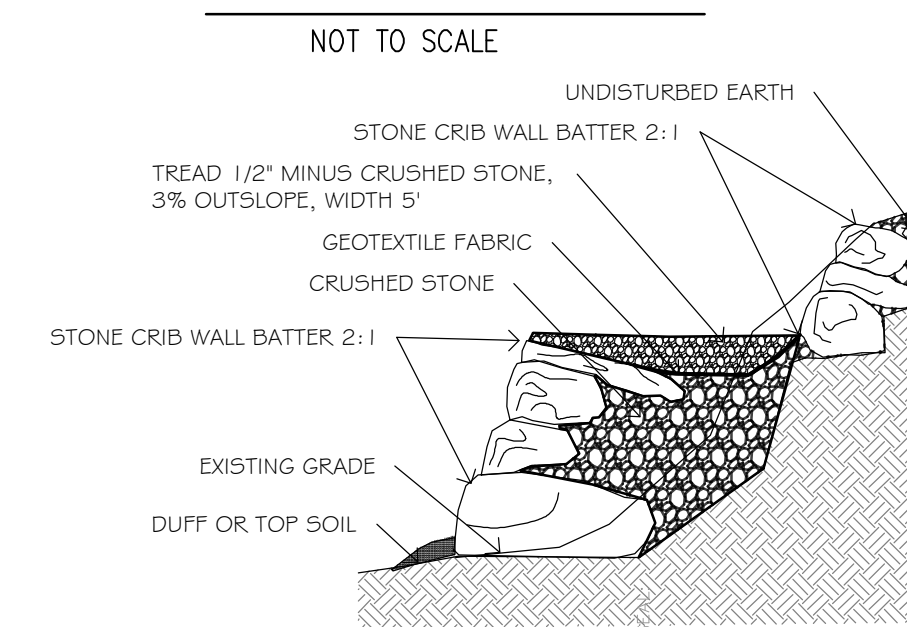
**Crib Wall Elevation**



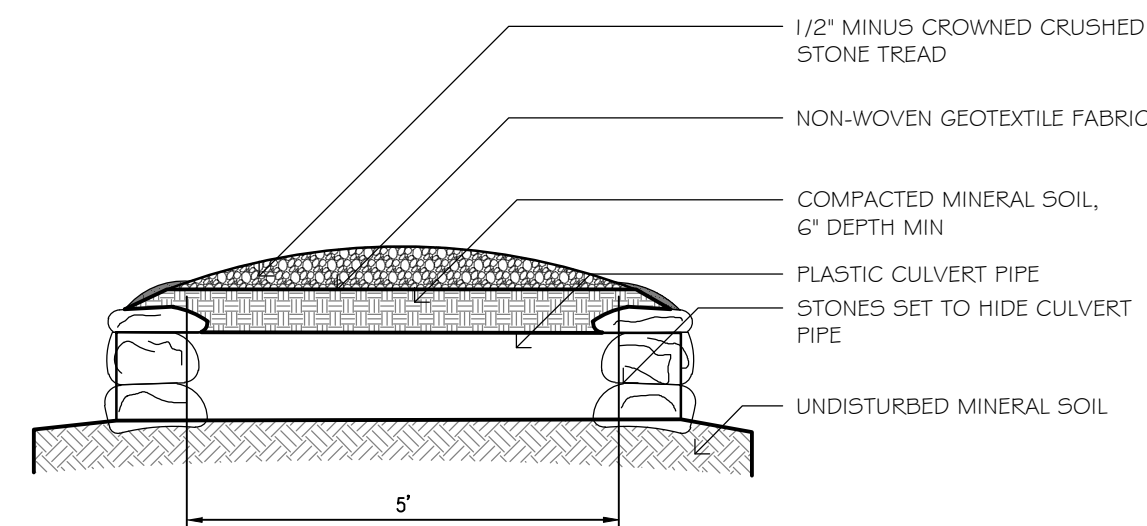
**Crowned Crushed Stone Trail**



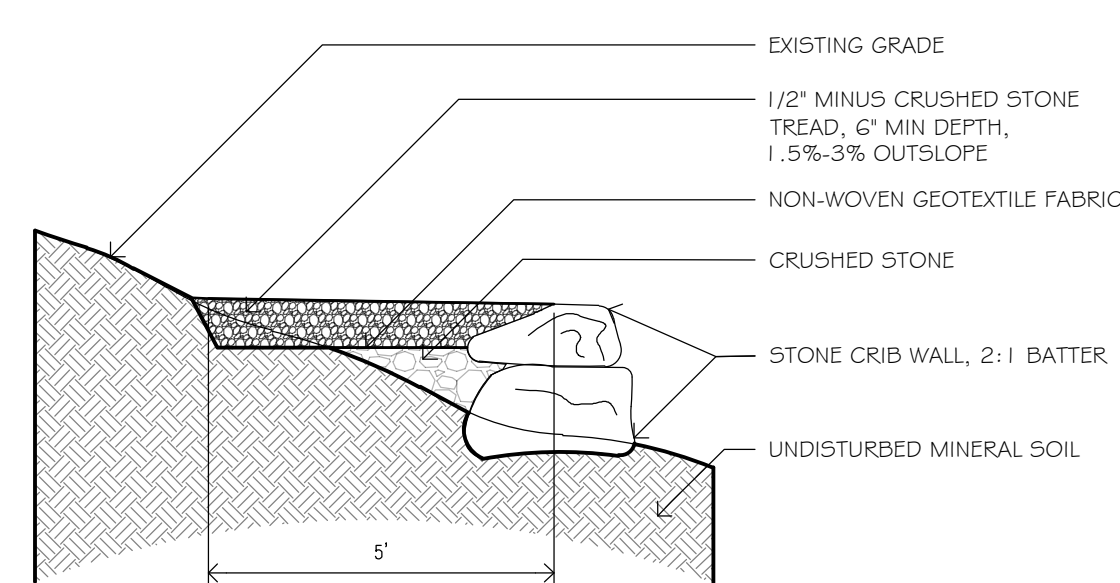
**Crowned Trail w/ Drainage Lense**



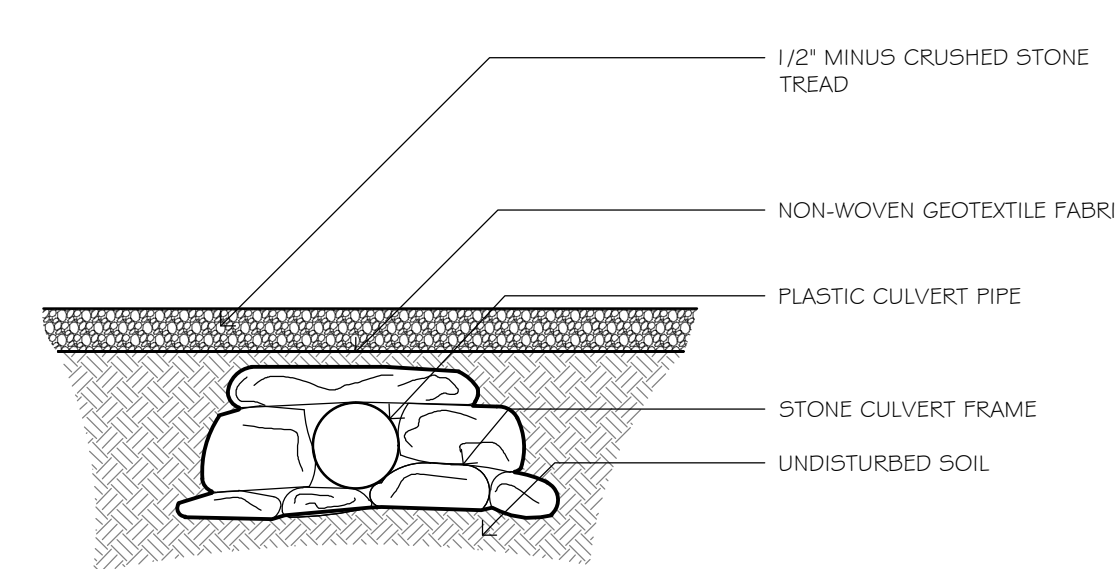
**Uphill and Downhill Stone Crib Wall**



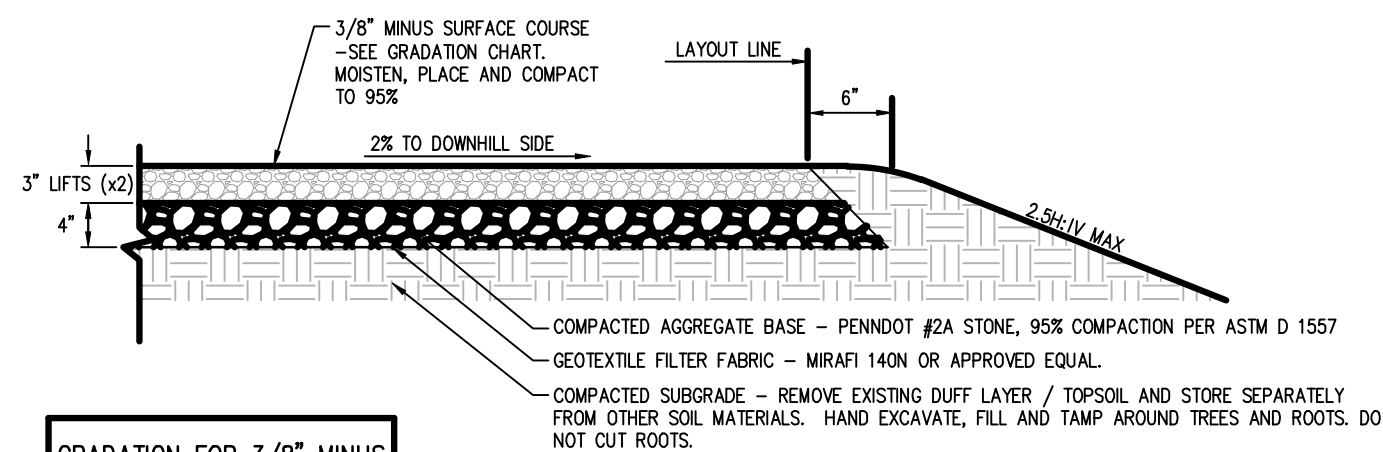
**Culvert Pipe w/ Crowned Tread**



**Crushed Stone Tread w/ Cribwall**



**Culvert Detail Side View**

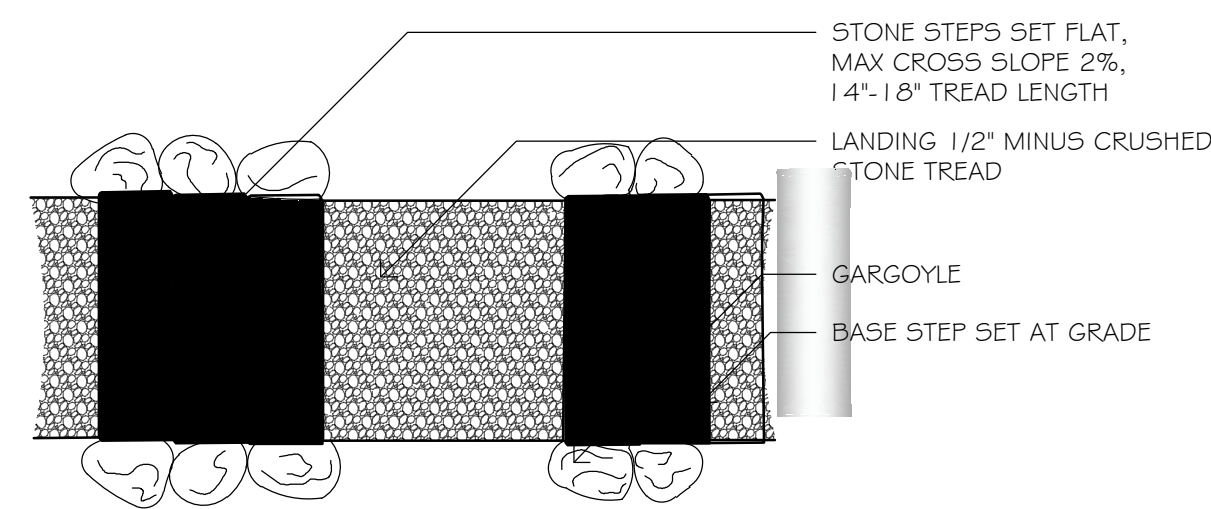


GRADATION FOR 3/8" MINUS	
SIEVE SIZE	PERCENT PASSING
3/8"	100
#4	90-100
#8	55-80
#16	40-70
#30	25-50
#200	6-15

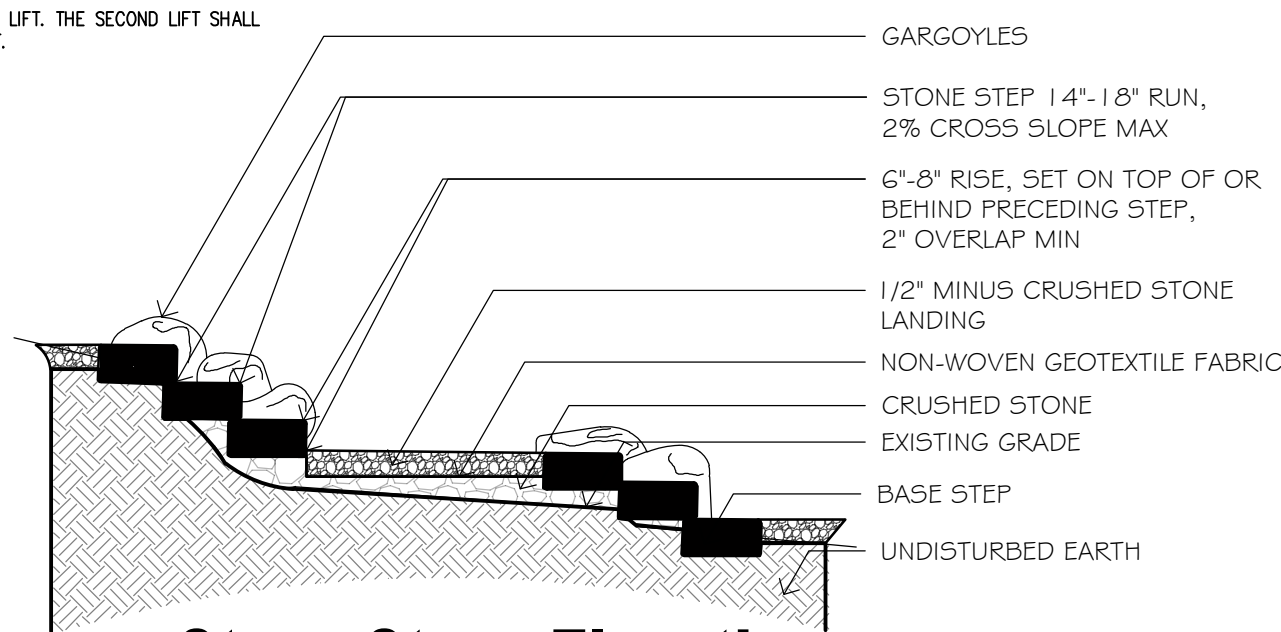
**General Notes:**

1. AGGREGATE SHALL BE MOIST, NOT DRY. DO NOT APPLY OR COMPACT MATERIAL THAT IS WITHOUT MOISTURE
2. DO NOT SOAK THE MATERIAL, OR APPLY MATERIAL THAT IS WET. IF MATERIAL STICKS TO PLATE TAMPER, ALLOW TO DRY ENOUGH SO THAT STICKING DOES NOT OCCUR
3. USE "TAMP AND SPREAD" METHOD TO APPLY LOOSE MATERIAL ON TRAIL
4. DO NOT OVERWORK/OVER-RAKE THE AGGREGATE, WHICH MAY CAUSE SIZE SEGREGATION
5. APPLY TWO (2) 3" LIFTS, COMPACTING THE FIRST LIFT TO 90% BEFORE ADDING THE SECOND LIFT. THE SECOND LIFT SHALL ALSO BE COMPACTED TO 90% USE POWERED STEEL PLATE VIBRATORY TAMPER TO COMPACT.

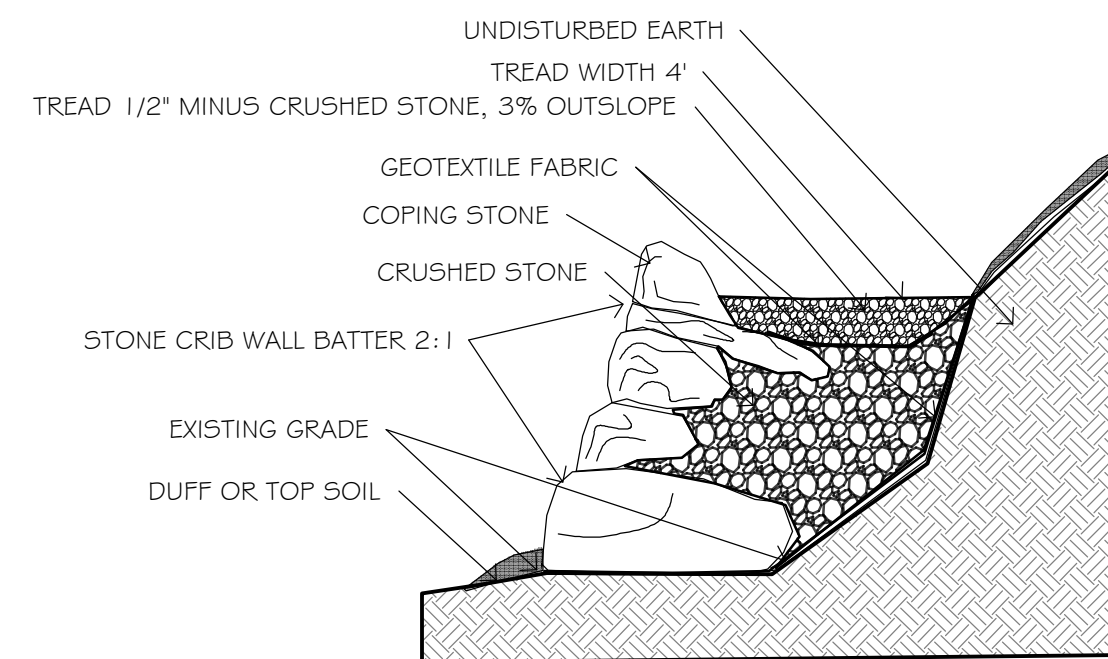
**Trail Bed & Tread**



**Stone Steps**

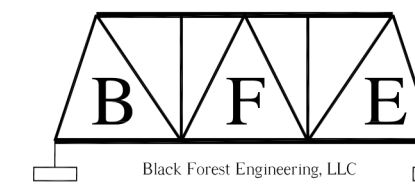


**Stone Steps Elevation**



**Stone Crib Wall**

PLANS PREPARED BY



BLACK FOREST ENGINEERING  
2455 BLACK FOREST DRIVE  
COPLAY PA, 18037  
570.239.4499

**CHASE ENGINEERING, LLC**

CHASE ENGINEERING LLC  
3626 MAGNOLIA DRIVE  
EASTON, PA 18045  
908-295-7732

**PENNTAILS**

PENNTAILS  
9 DOGWOOD DRIVE  
NEWVILLE, PA 17241  
717.486.4455

**TAHAWUS TRAILS LLC**

TAHAWUS TRAILS, LLC  
P.O. BOX 31  
ACCORD, NY 12404  
845.591.1537

PROFESSIONAL ENGINEERS CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME OR UNDER MY IMMEDIATE SUPERVISION, AND IS CORRECT IN ITS DETAIL TO MY BEST KNOWLEDGE AND BELIEF.

JOSEPH E RENTKO, P.E. MARYLAND LIC# 50806 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

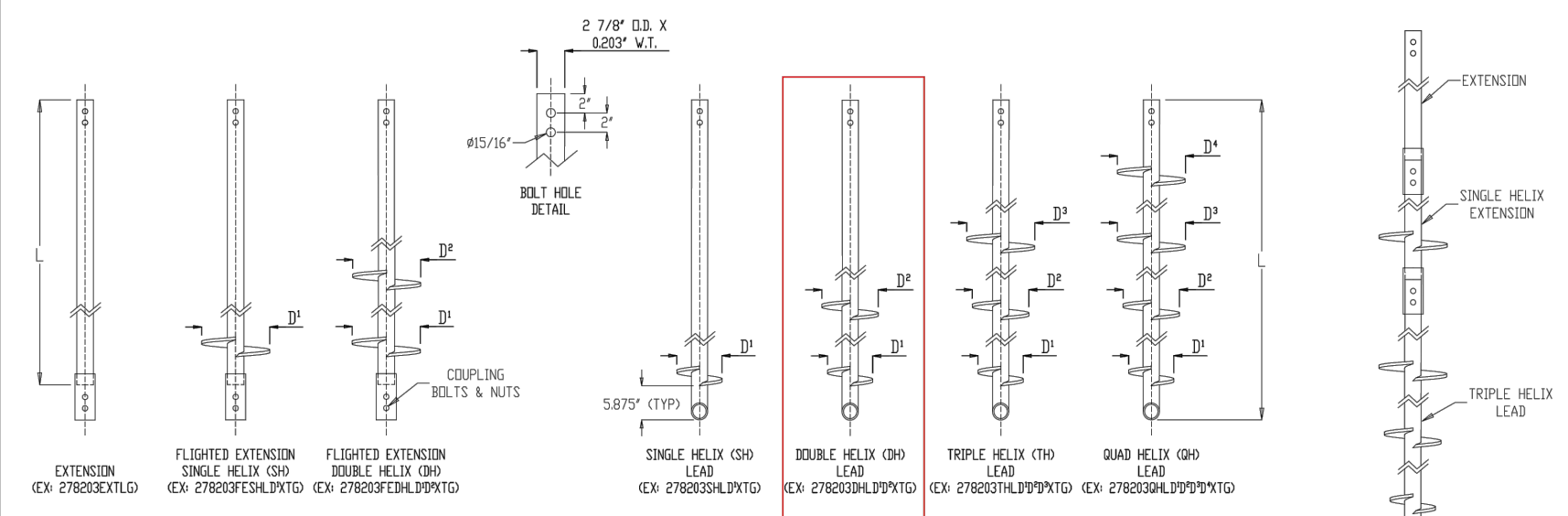
OWNER / DEVELOPER  
SIMPSON OAKS CRPS, LLC  
4750 OWINGS MILLS BOULEVARD  
OWINGS MILLS, MARYLAND 21117  
410-356-9900

**DETAILS**

COLUMBIA HOWARD COUNTY MARYLAND	PLAN TITLE: SITE DEVELOPMENT PLAN	NO.	REVISIONS	DATE	DRAWN BY: JDC	CHECKED BY: JER
	PROJECT TITLE: CEDAR CREEK				SCALE: AS NOTED	DATE: DEC 2019
1. LANDLOCKED PARCEL "A"-VILLAGE OF HICKORY RIDGE, PLAT MDR NO. 13640. 2. IMPROVEMENTS TO INCLUDE CONSTRUCTION OF ENVIRONMENTAL TRAIL AND PEDESTRIAN SUSPENSION BRIDGE. 3. ELECTION DISTRICT - 5TH 4. TAX MAP - REFER TO SHEET 1 - SITE ANALYSIS ITEM Q						PROJECT NO. <b>SO-718</b>
						SHEET NO. 16 28

MAXIMUM TORQUE NOT TO EXCEED 8,000 FT. LBS.  
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27/8" O.D. X 0.203" W.T. HELICAL LEADS & EXTENSIONS  
ICC-ES AC308 - REPORT # ESR-3750



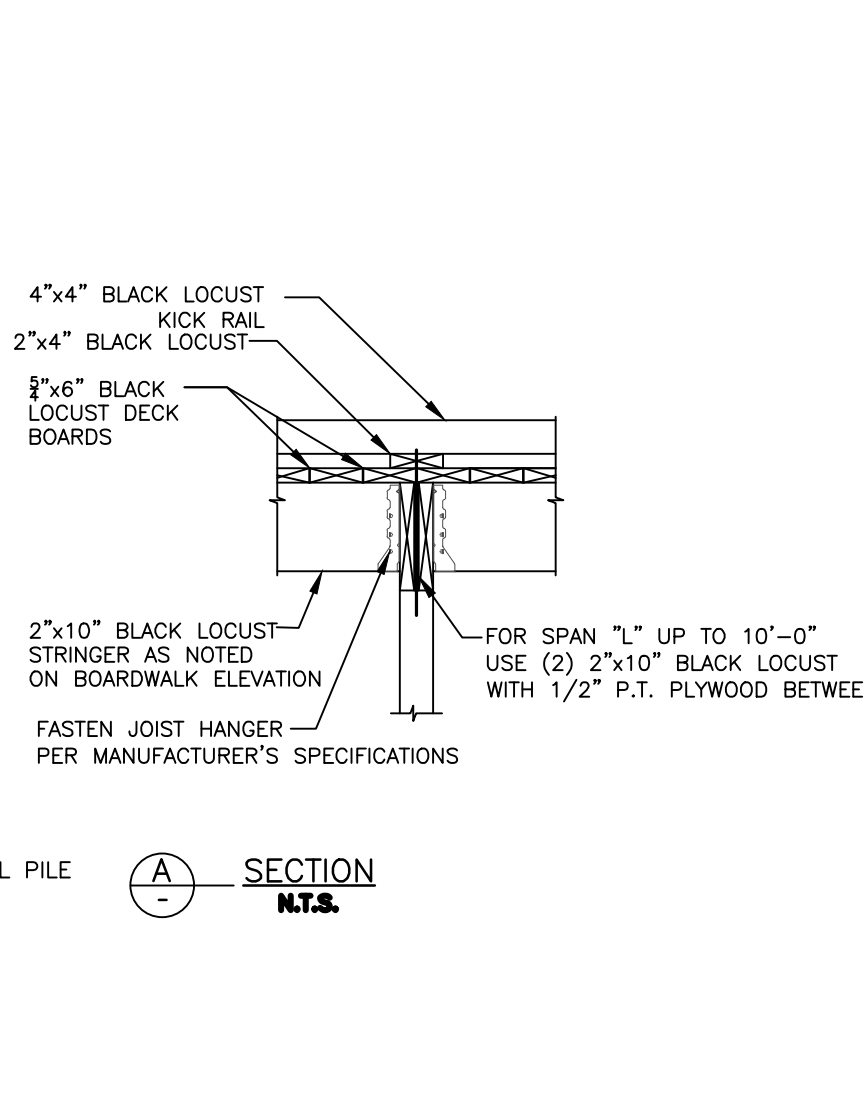
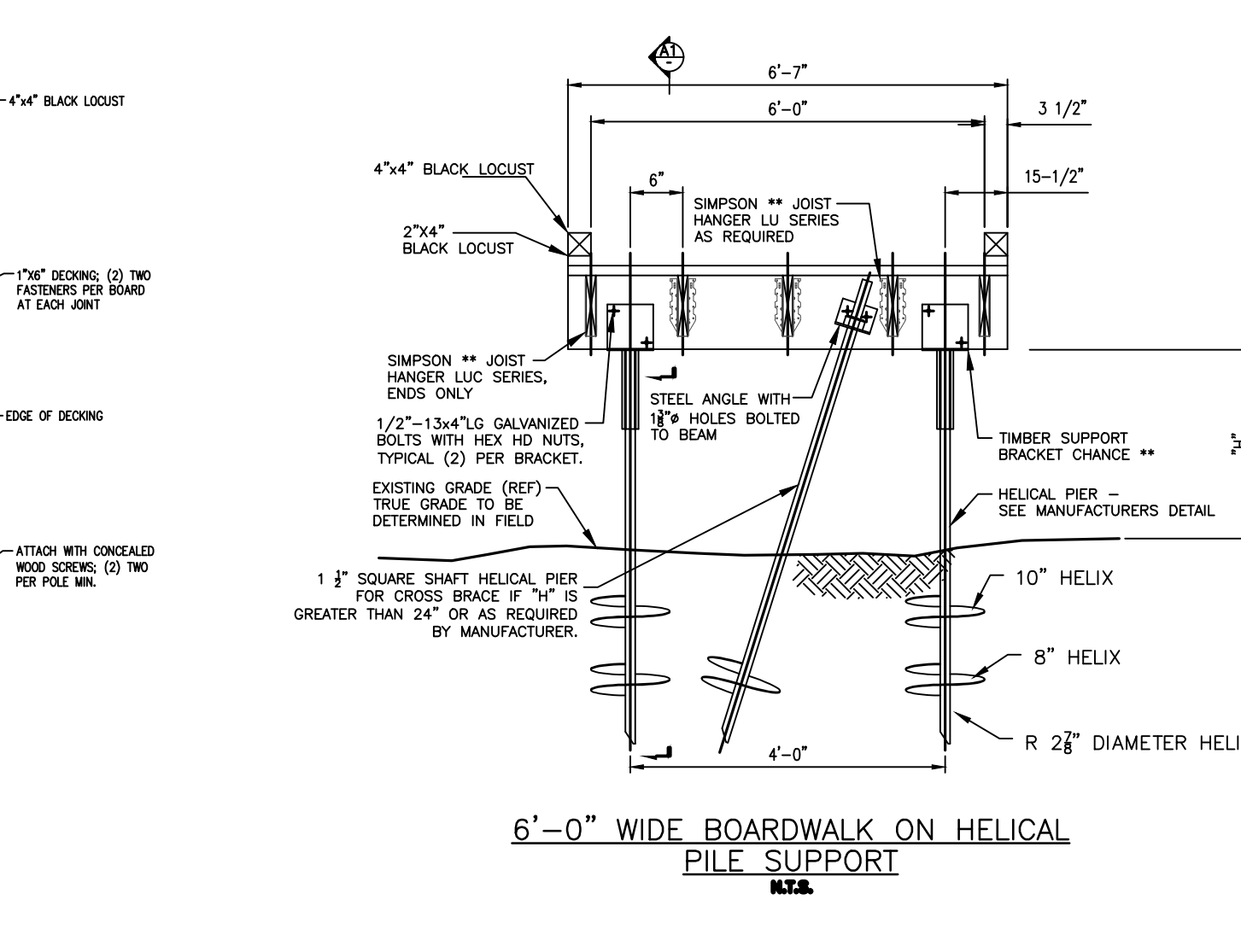
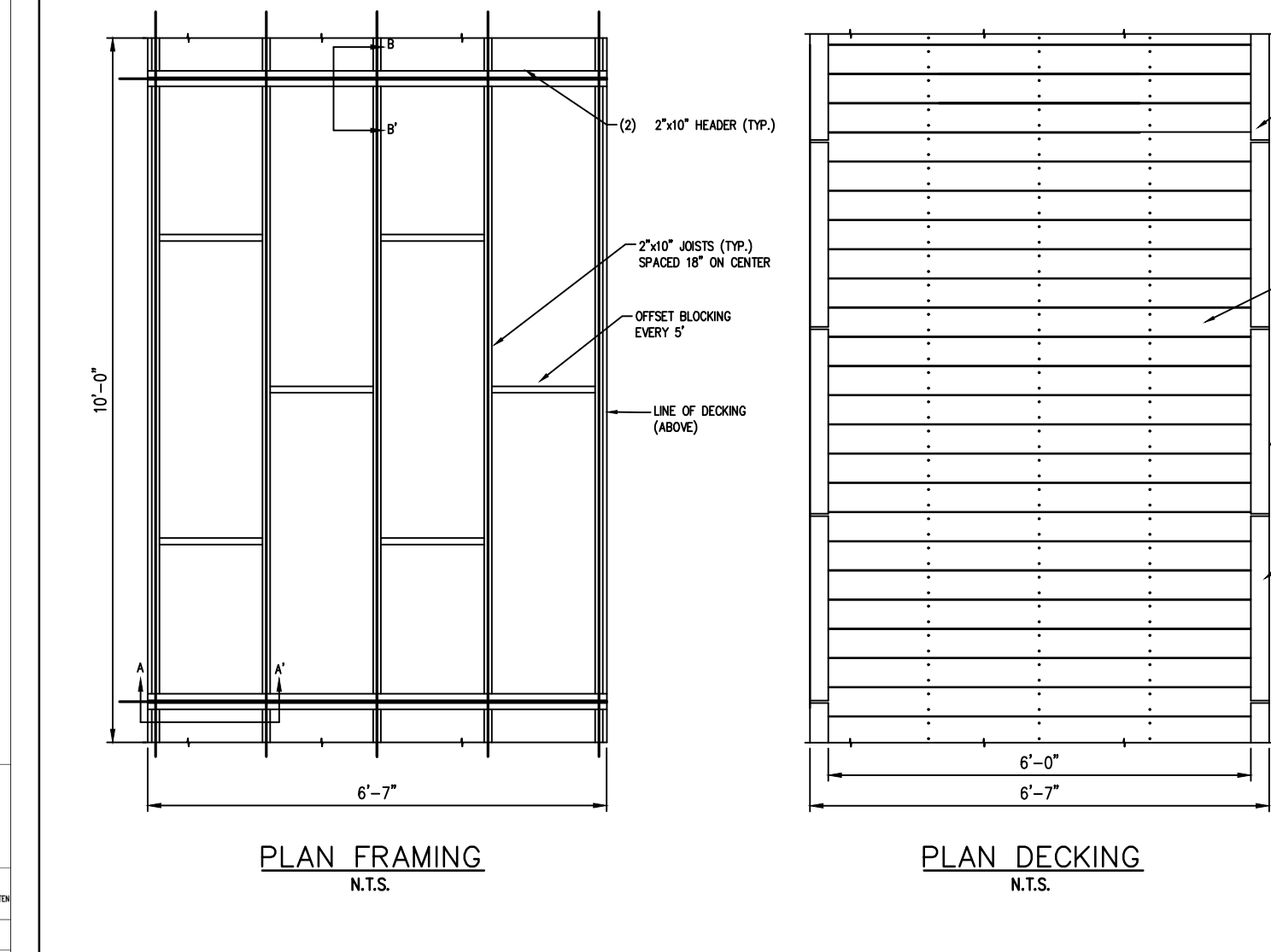
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**IDEAL REPORT # ABBREVIATIONS**

278 = SHAF TAPERED  
280 = SHAF TAPERED  
281 = SHAF WALL THICKNESS  
E1 = EXTENSION  
FE = FLIGHTED EXTENSION  
SA 90, 90, 90 = SINGLE, DOUBLE, TRIPLE OR QUAD HELIX  
L = SHAF LENGTH IN FEET (EXAMPLE: 7' - 7")  
3 = HELIX DIAMETER IN INCHES (EXAMPLE: 9" = 3D)  
X = X SEPARATES HELIX DIAMETERS AND HELIX THICKNESS  
T = HELIX THICKNESS (EXAMPLE: 1/4" = T0)  
G = GALVANIZED

**IDEAL REPORT # ABBREVIATIONS**

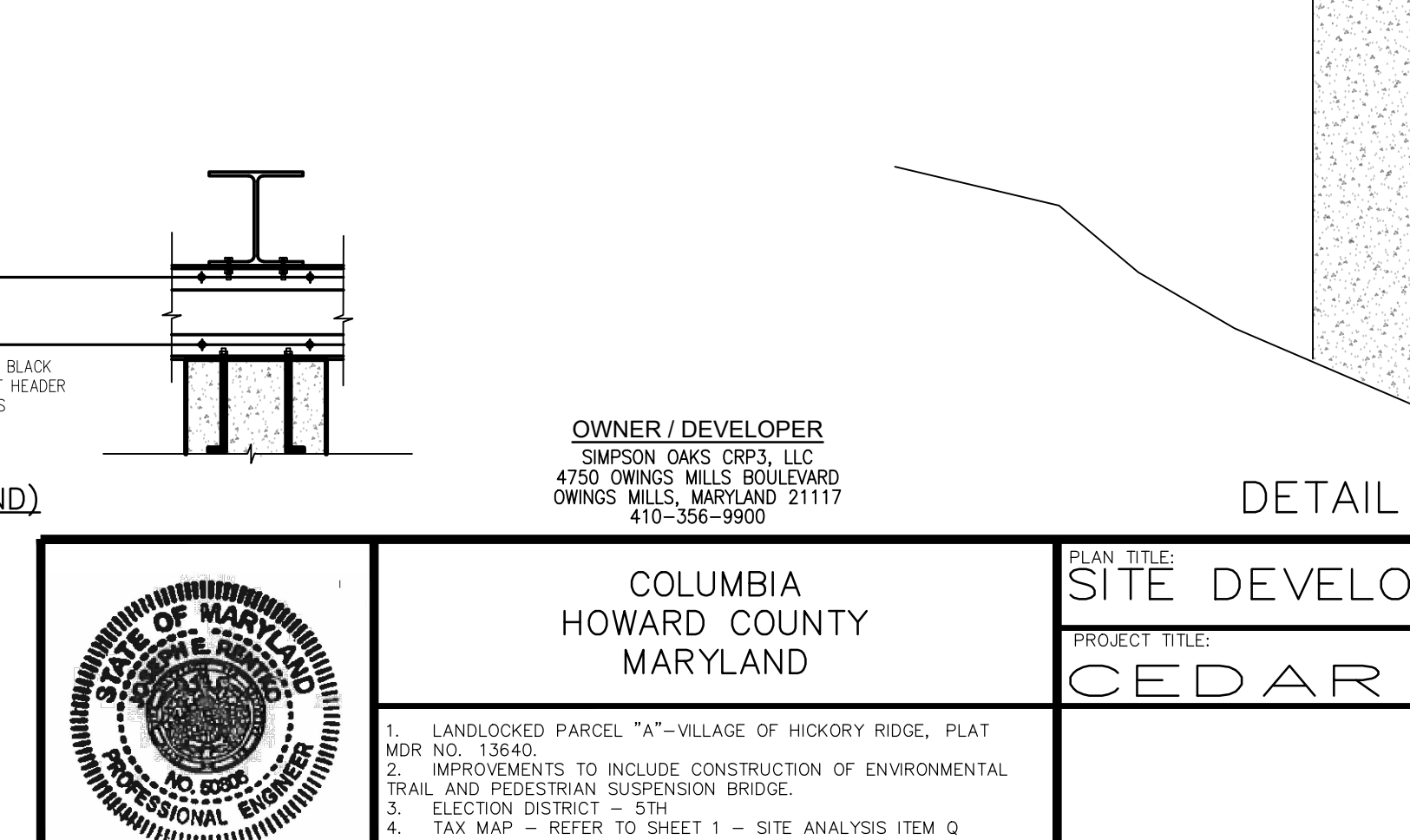
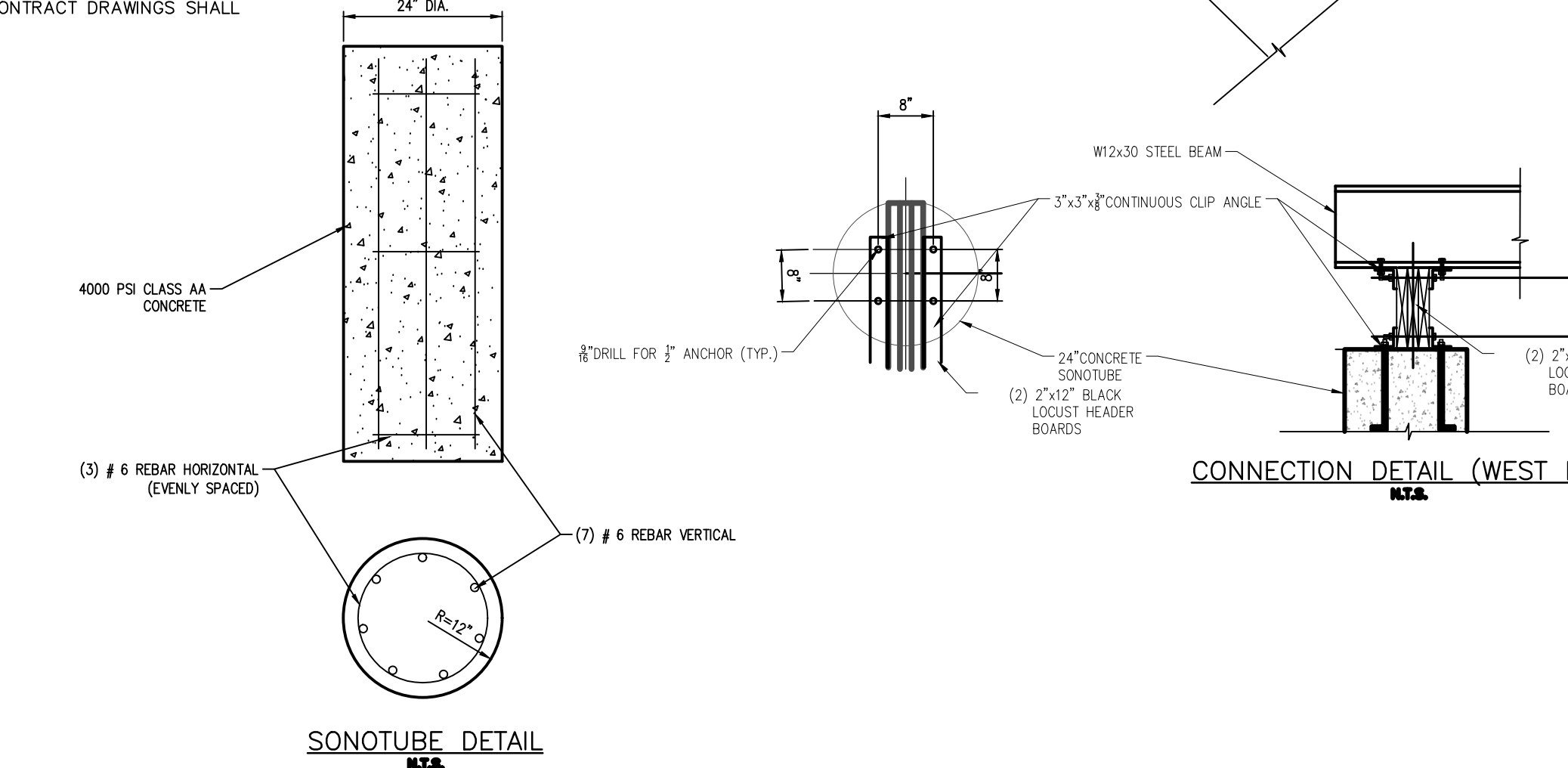
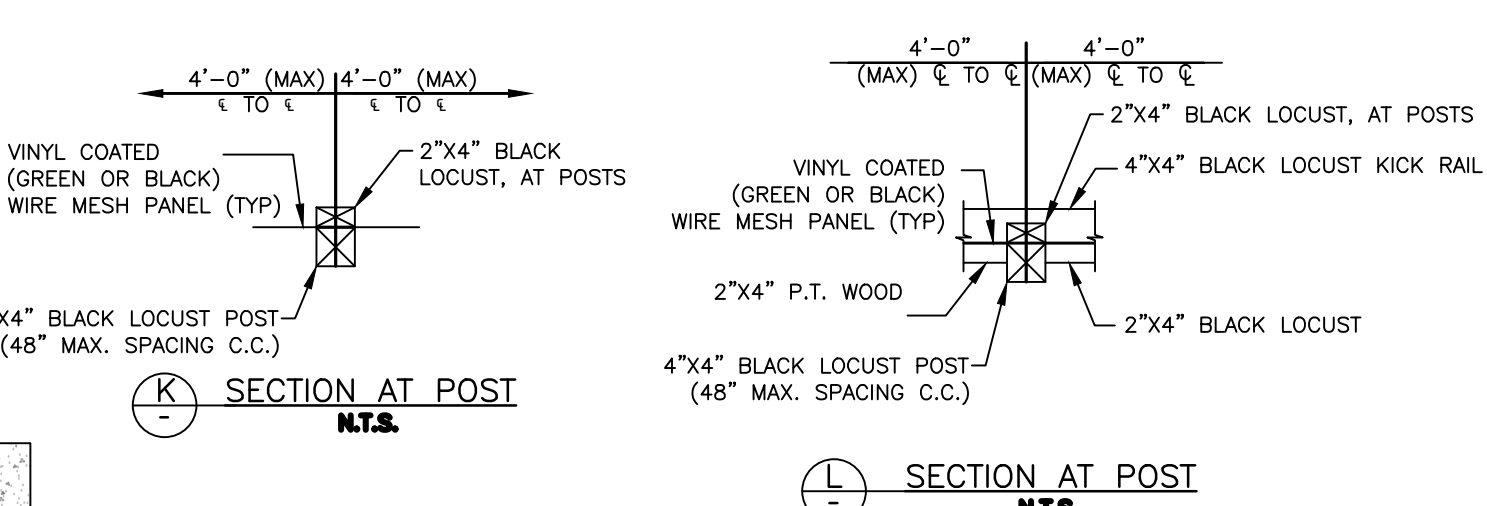
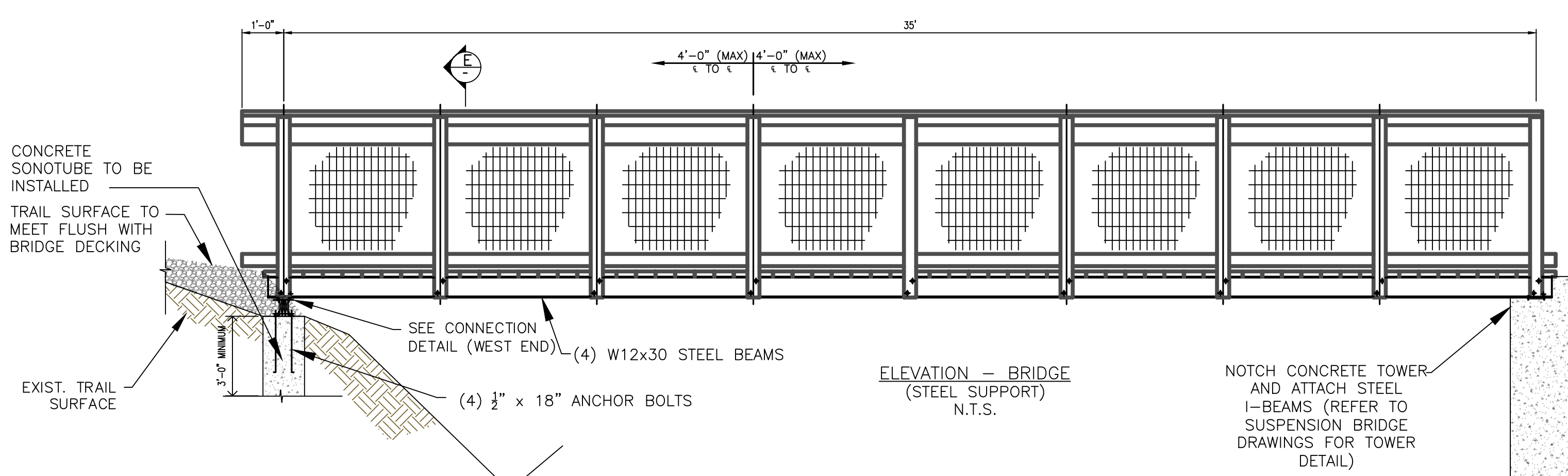
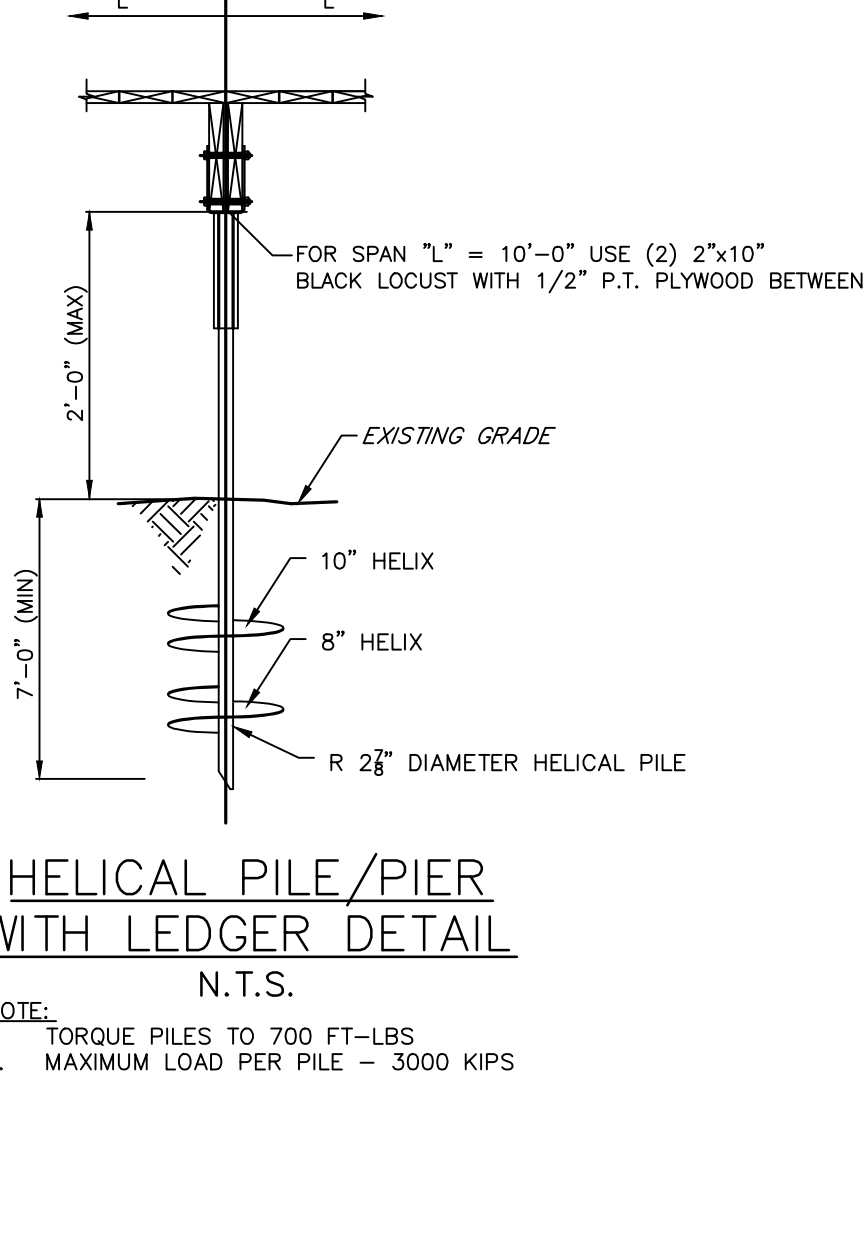
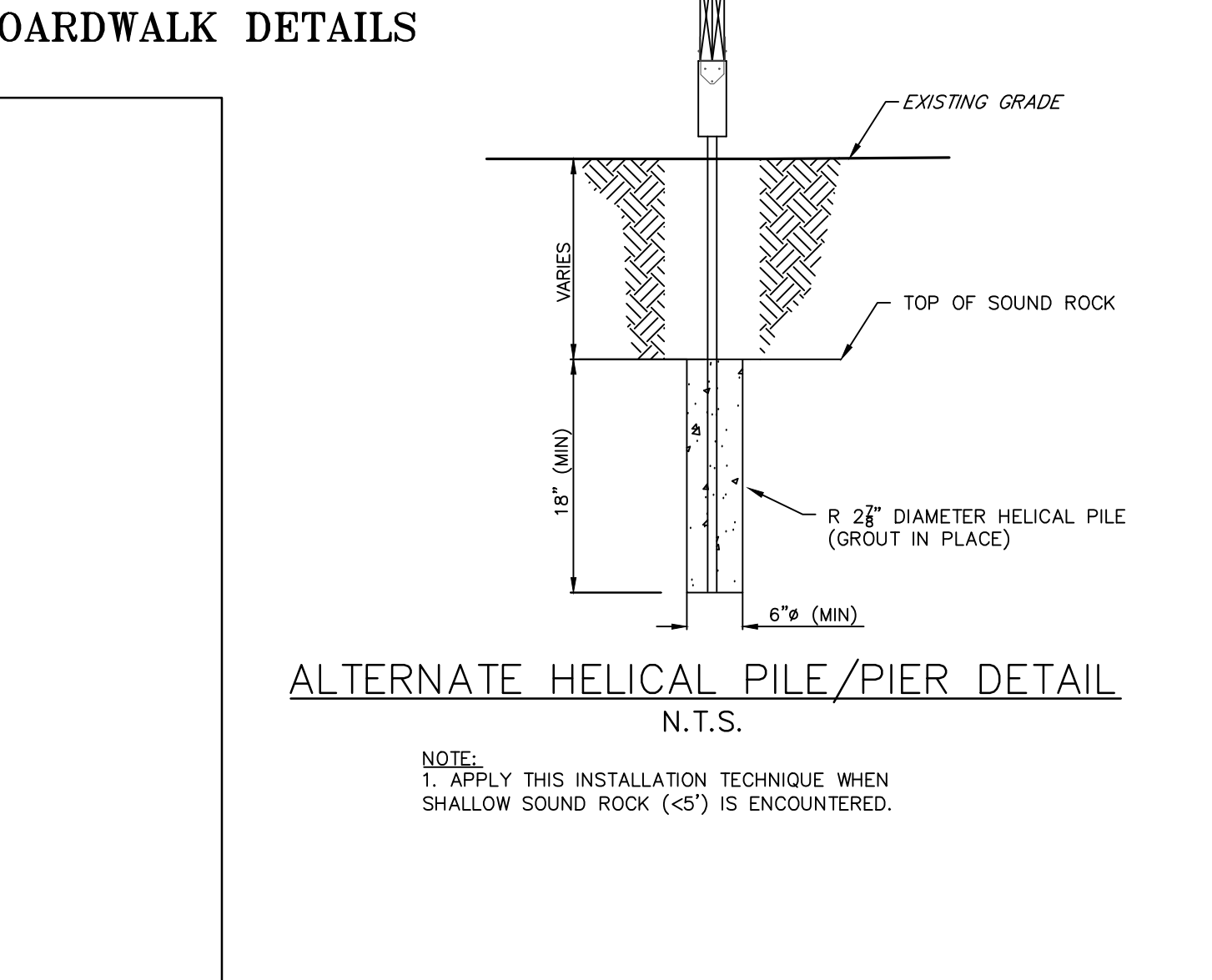
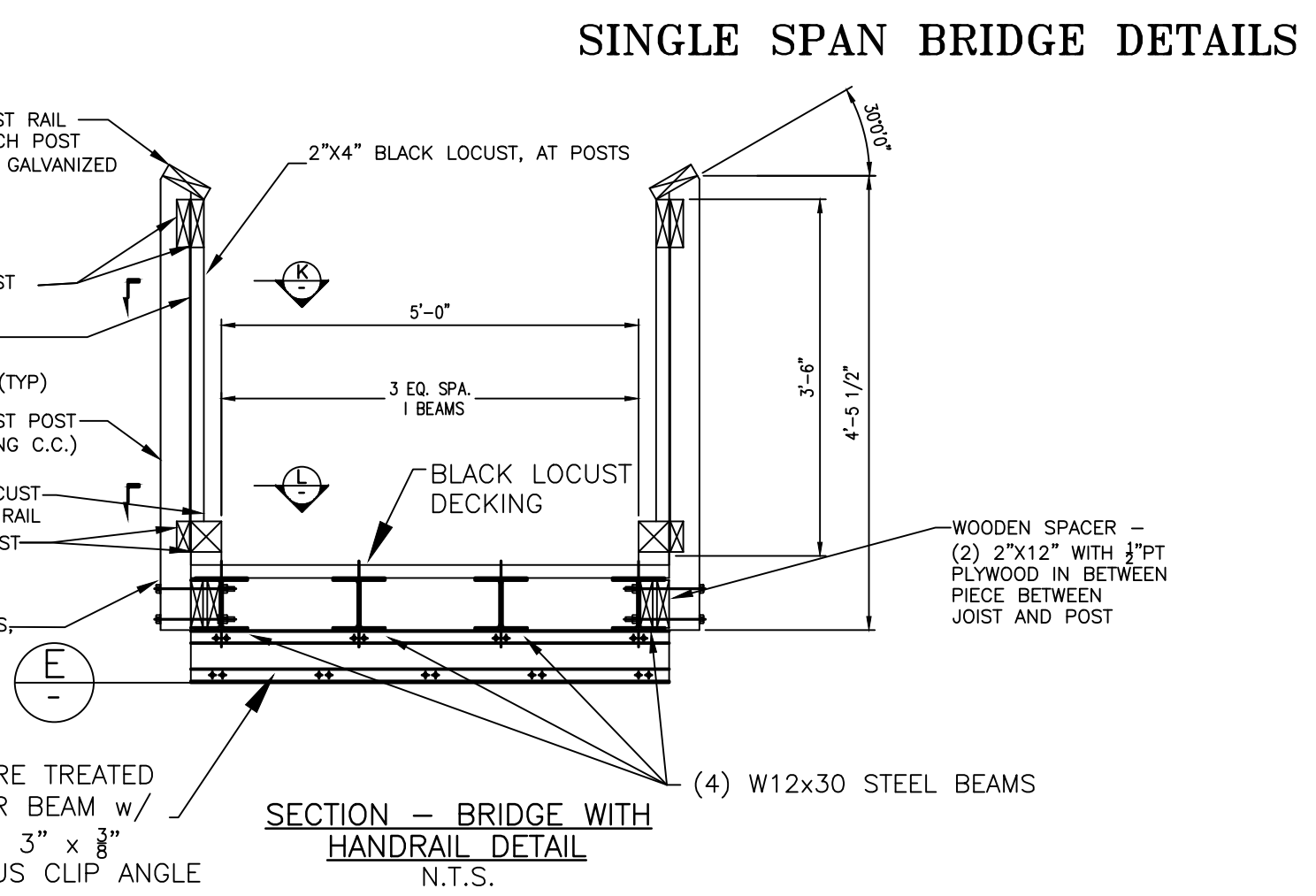
27803 = 278, 03  
278030 = 278, 03, 0  
2780300 = 278, 03, 0, 0



**MANUFACTURERS SPECIFICATIONS  
(SEE DETAILS FOR SPECIFIC  
HELIX REQUIRED)**

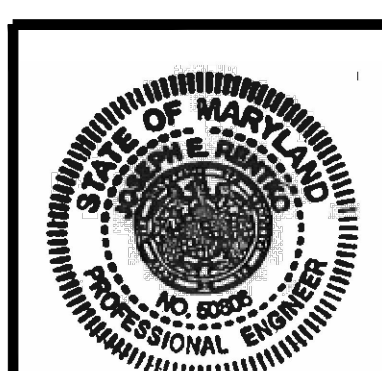
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5. ALL METAL CONNECTORS, FASTENERS, OR HANGERS SHALL BE HOT-DIP GALVANIZED PER ASTM A153.
6. HELICAL PILES SHALL CONFORM TO ASTM D1143
7. EXPLORATORY SOIL TESTING WAS PERFORMED USING A HELICAL PROBE AND KNEAS BAR TO APPROXIMATE SOIL BEARING CAPACITY. AN EXPERIENCED CONTRACTOR SHALL INSTALL ALL CONCRETE PIERS AND HELICAL PILES. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER UPON ANY UNFORESEEN CONDITIONS DURING SOIL EXCAVATION OR INSTALLATION.
8. SPACES AND OPENINGS IN BRIDGE DECK, BETWEEN BOARD SURFACES, SHALL NOT ALLOW THE PASSAGE OF A SPHERE MORE THAN 1/2 INCH (13MM) DIAMETER (ADA 302.3).
9. FOR DECKING HEIGHT "H" GREATER THAN 24" USE BATTERED SSS HELICAL PILE SHAFT AT EVERY OTHER BENT IN OPPOSITE DIRECTION.
10. CHANGES IN LEVEL OF 1/4 INCH (6.4 MM) HIGH MAXIMUM SHALL BE PERMITTED TO BE VERTICAL (ADA 303.2).
11. CHANGES IN LEVEL BETWEEN 1/4 INCH (6.4 MM) HIGH MINIMUM AND 1/2 INCH (13 MM) HIGH MAXIMUM SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2 (ADA 303.2).
12. MAXIMUM RUNNING SLOPE OF BRIDGE SHALL NOT EXCEED 1:20 (5 PERCENT) (ADA 403.2).
13. MAXIMUM CROSS SLOPE OF BRIDGE SHALL NOT EXCEED 1:50 (2 PERCENT) (ADA 403.3).
14. BRIDGE APPROACH (RUNNING GRADE) MUST MEET ONE OR MORE OF THE FOLLOWING CRITERIA:
  - A. 5% OR LESS FOR ANY DISTANCE
  - B. UP TO 8.33% FOR 200' MAXIMUM
  - C. UP TO 10% FOR 30' MAXIMUM
  - D. UP TO 12.5% FOR 10' MAXIMUM
15. RAILING ALONG BOARDWALK/BRIDGE REQUIRED IF "H" (HEIGHT ABOVE GRADE) IS GREATER THAN 28".
16. THE CONSTRUCTION MUST BE PERFORMED IN STRICT ACCORDANCE WITH THE PROJECT DRAWINGS. ANY DEVIATION FROM THE DRAWINGS MUST BE APPROVED IN WRITING BY THE ENGINEER. ERRORS AND/OR OMISSIONS FOUND ON THE DRAWING MUST BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.
17. THE ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK, NOR WILL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
18. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS IN THE FIELD BEFORE ORDERING ANY MATERIALS, OR STARTING ANY WORK. CONFLICTS BETWEEN FIELD CONDITIONS AND CONTRACT DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE



OWNER / DEVELOPER  
SIMPSON OAKS CRP3, LLC  
4750 OWINGS MILLS BOULEVARD  
OWINGS MILLS, MARYLAND 21117  
410-356-9900

PLAN TITLE: <b>SITE DEVELOPMENT PLAN</b>	NO.
PROJECT TITLE: <b>CEDAR CREEK</b>	

REVISIONS	DATE	DRAWN BY:	CHECKED BY:
		JDC	JER

SCALE: AS NOTED DATE: DEC 2019

PROJECT NO.  
**SO-718**

SHEET NO.  
**15** of **28**

**PLANS PREPARED BY**

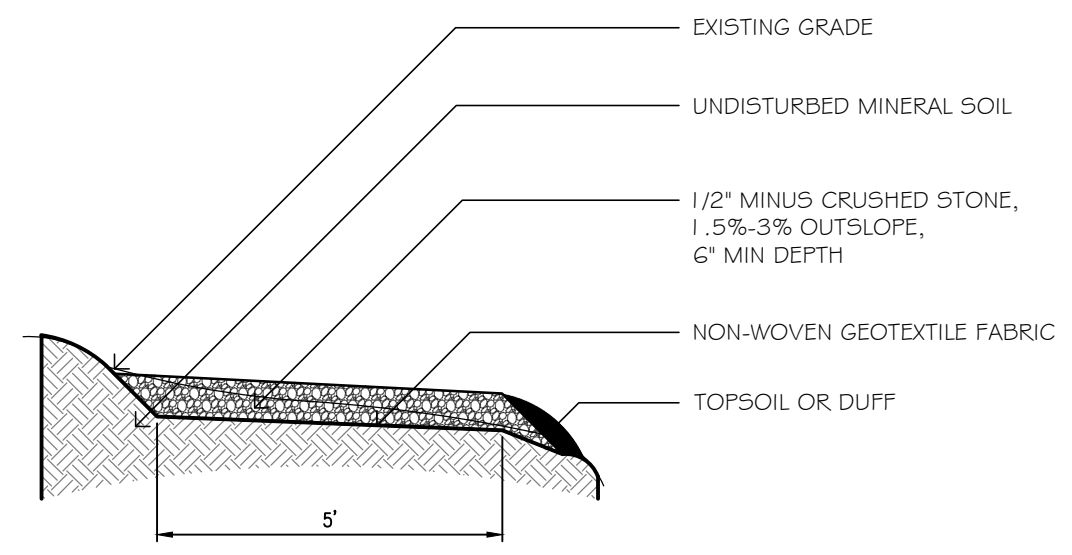
**B F E**  
Black Forest Engineering, LLC  
BLACK FOREST ENGINEERING  
2455 BLACK FOREST DRIVE  
COPLAY PA, 18037  
570.239.4499

**CHASE ENGINEERING, LLC**

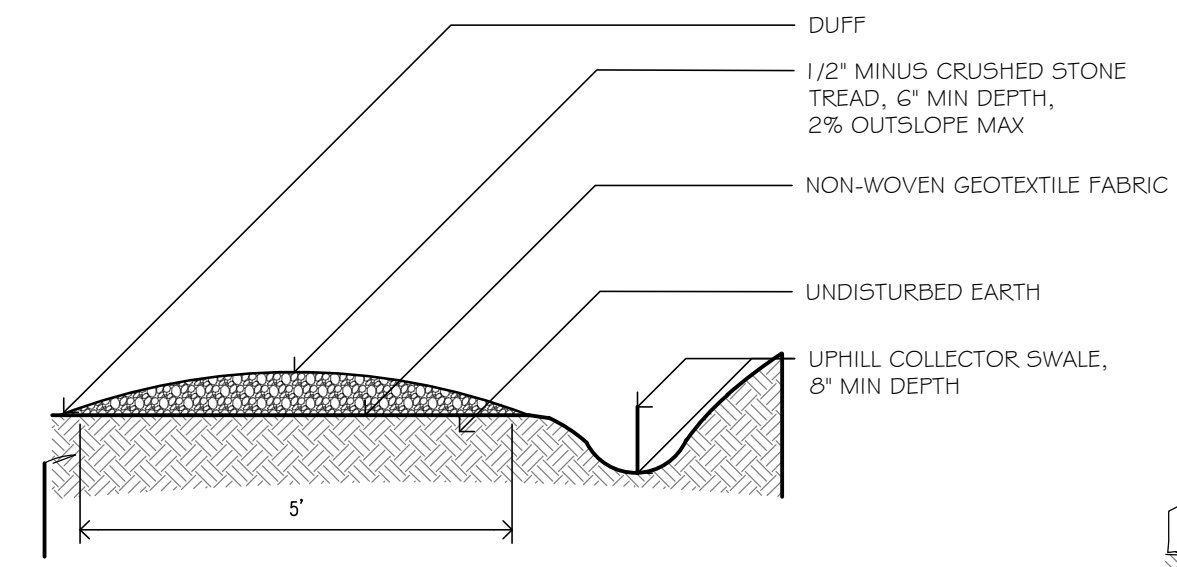
CHASE ENGINEERING LLC  
3626 MAGNOLIA DRIVE  
EASTON, PA 18045  
908-295-7732

**PENNTRAILS**  
PENN TRAILS  
9 DOGWOOD DRIVE  
NEWVILLE, PA 17241  
717.486.4455

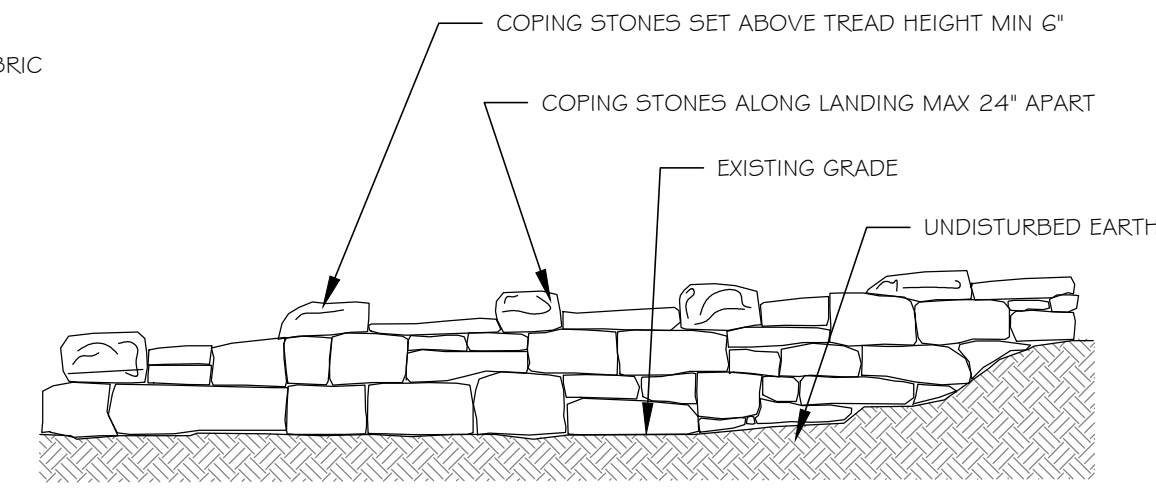
**TAHAWUS TRAILS LLC**  
TAHAWUS TRAILS, LLC  
P.O. BOX 31  
ACCORD, NY 12404  
845.591.1537



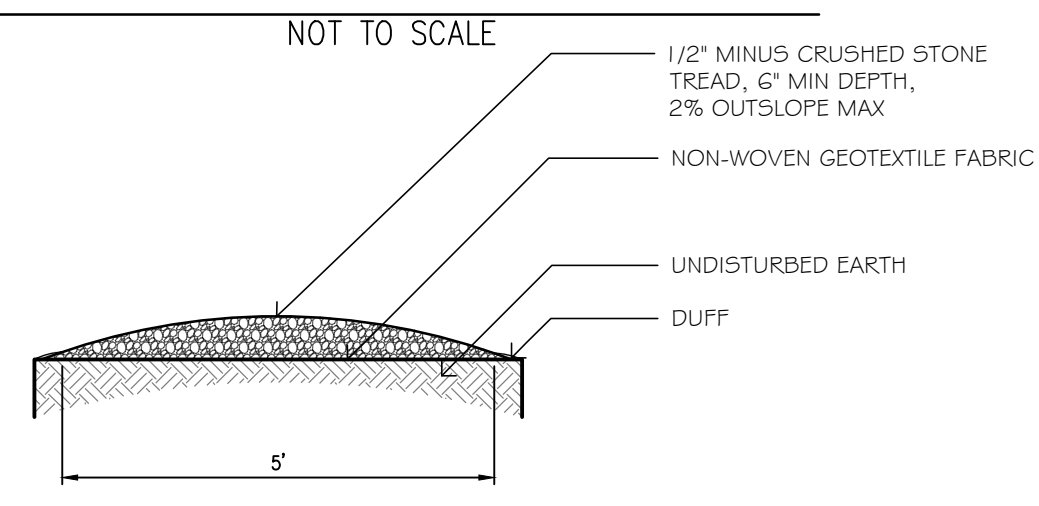
**Full Bench Crushed Stone Trail**



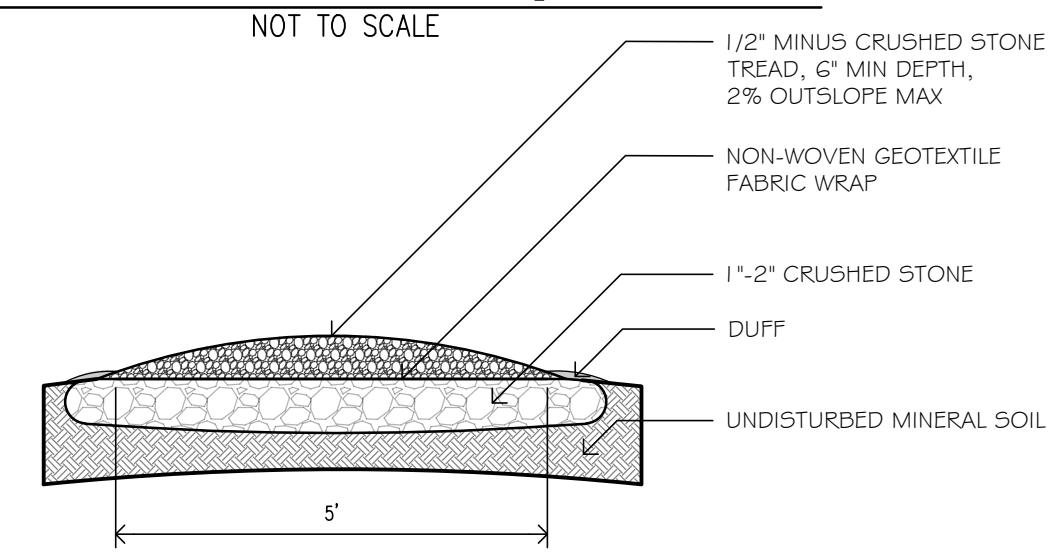
**Crowned Tread w/ Uphill Swale**



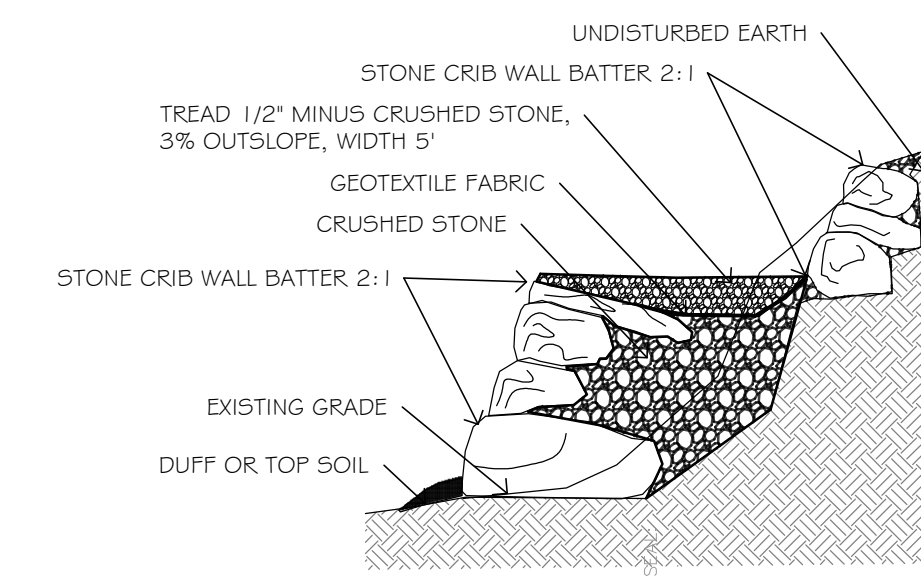
**Crib Wall Elevation**



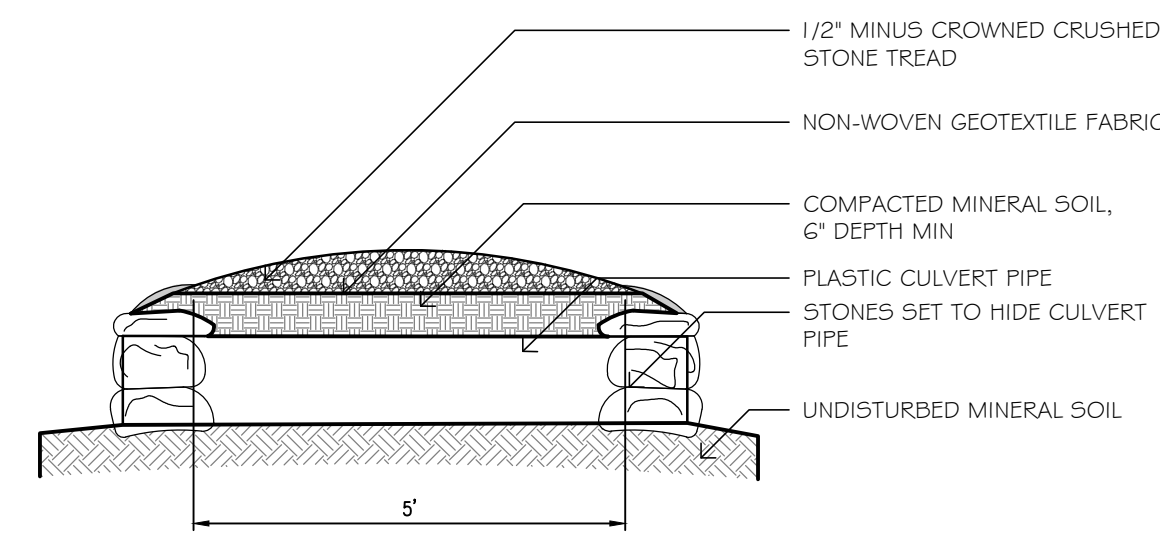
**Crowned Crushed Stone Trail**



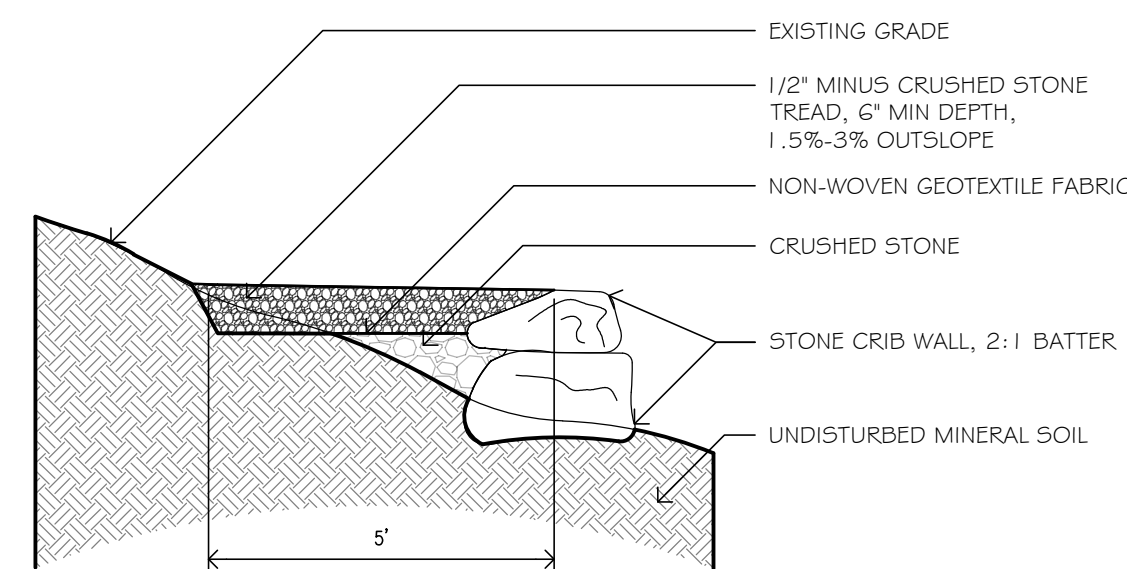
**Crowned Trail w/ Drainage Lense**



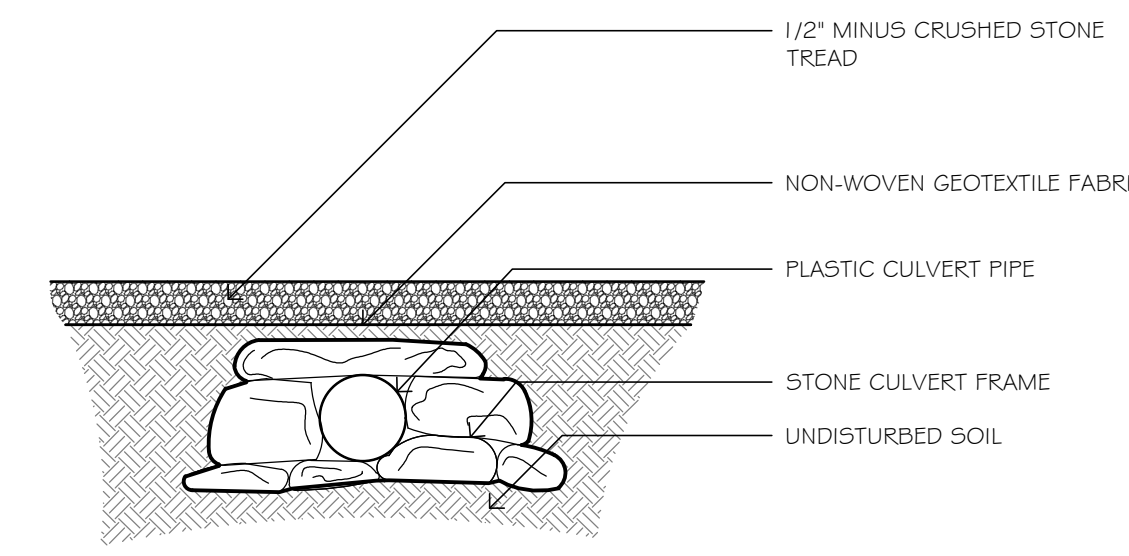
**Uphill and Downhill Stone Crib Wall**



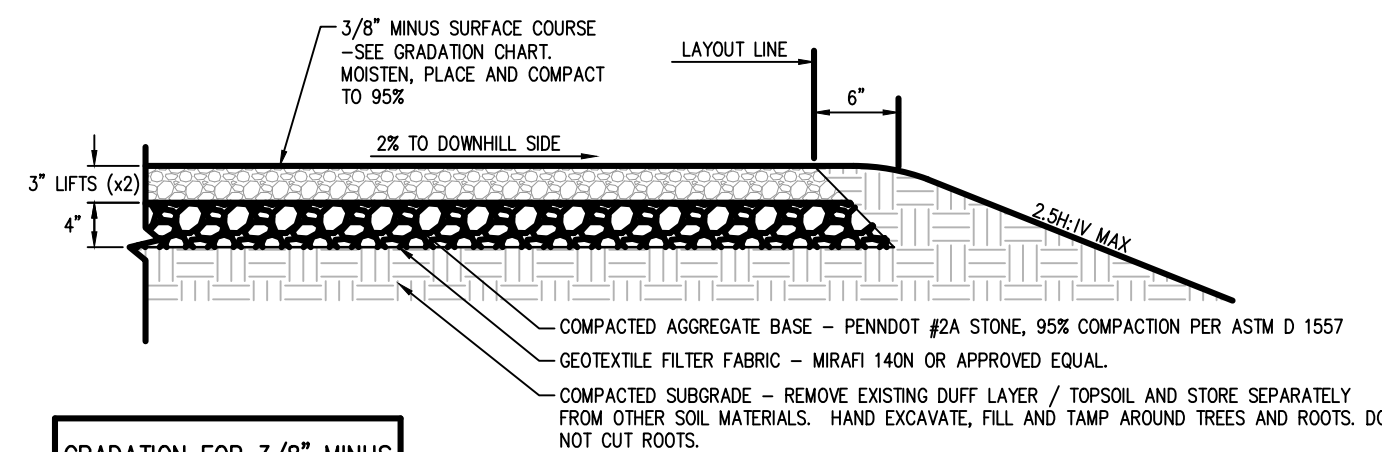
**Culvert Pipe w/ Crowned Tread**



**Crushed Stone Tread w/ Cribwall**



**Culvert Detail Side View**

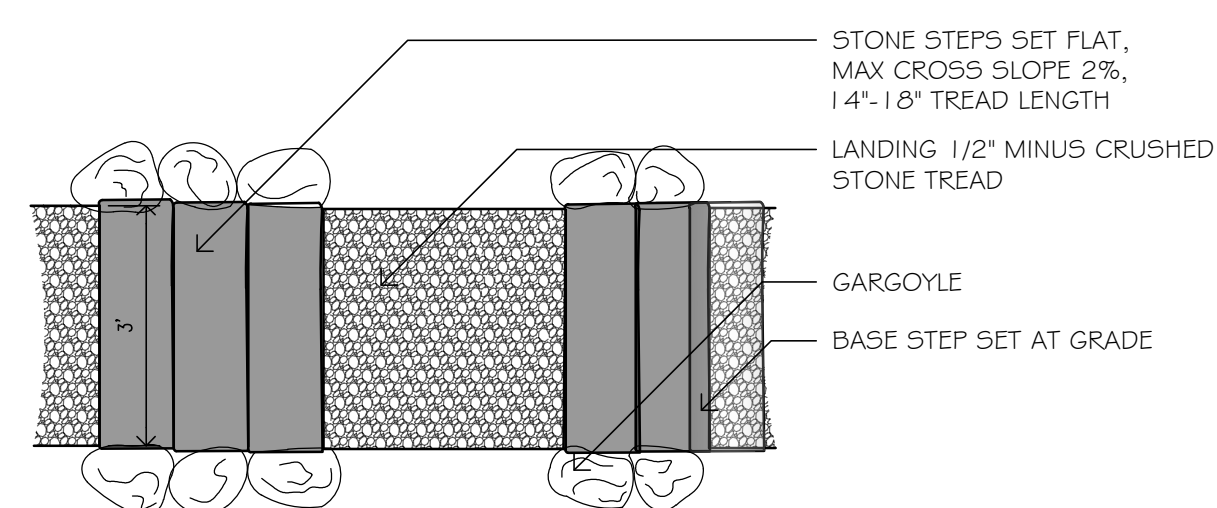


GRADATION FOR 3/8" MINUS	
SIEVE SIZE	PERCENT PASSING
3/8"	100
#4	90-100
#8	55-80
#16	40-70
#30	25-50
#200	6-15

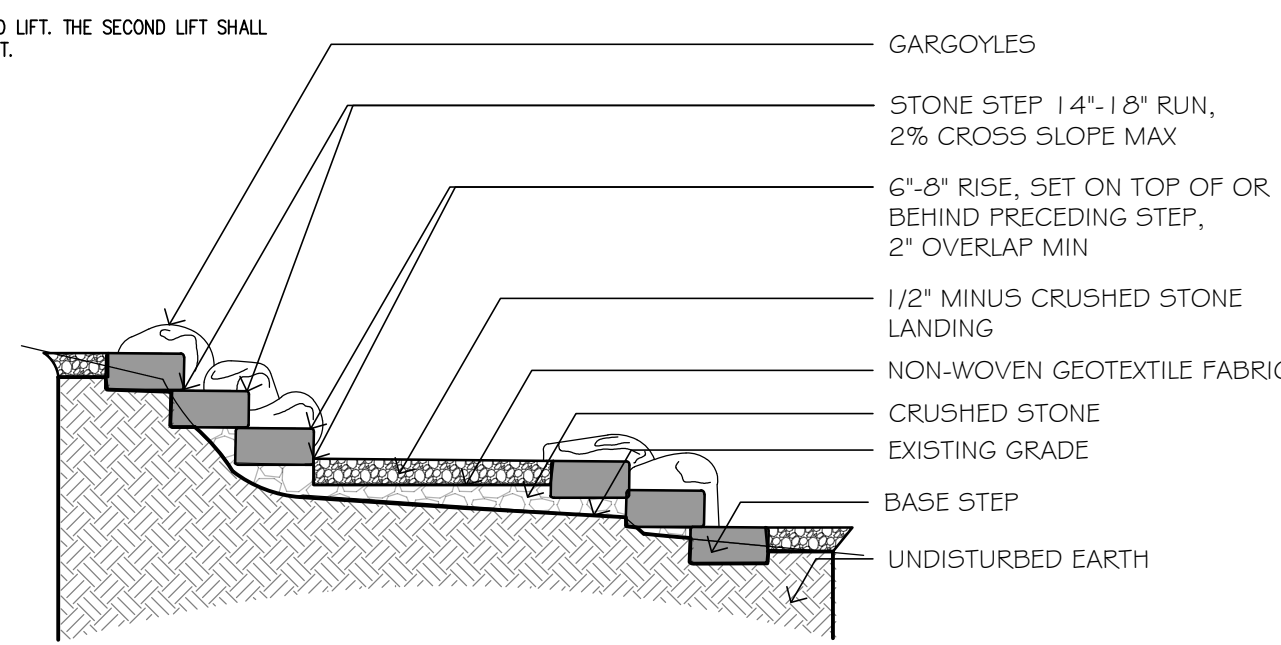
**General Notes:**

1. AGGREGATE SHALL BE MOIST, NOT DRY. DO NOT APPLY OR COMPACT MATERIAL THAT IS WITHOUT MOISTURE ENOUGH SO THAT STROKING DOES NOT OCCUR.
2. DO NOT SOAK THE MATERIAL, OR APPLY MATERIAL THAT IS WET. IF MATERIAL STICKS TO PLATE TAMPER, ALLOW TO DRY.
3. USE "DUMP AND SPREAD" METHOD TO APPLY LOOSE MATERIAL ON TRAIL.
4. DO NOT OVERWORK/OVER-RAKE THE AGGREGATE, WHICH MAY CAUSE SIZE SEGREGATION.
5. APPLY TWO (2) 3" LIFTS, COMPACTING THE FIRST LIFT TO 95% BEFORE ADDING THE SECOND LIFT. THE SECOND LIFT SHALL ALSO BE COMPACTED TO 95%. USE POWERED STEEL PLATE VIBRATORY TAMPER TO COMPACT.

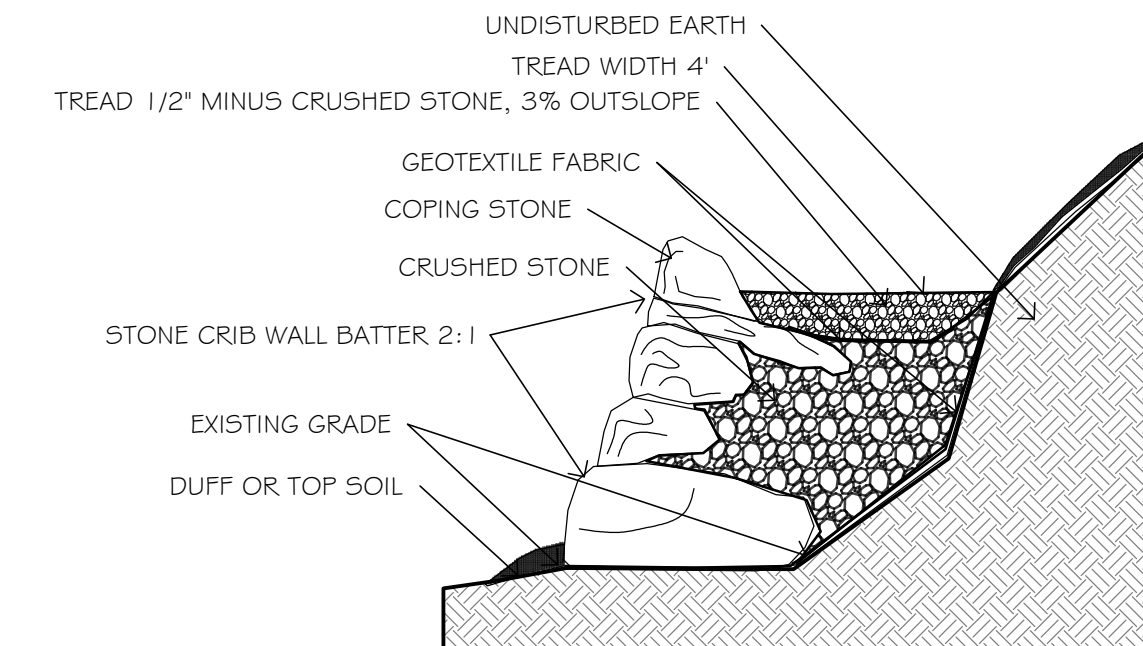
**Trail Bed & Tread**



**Stone Steps**

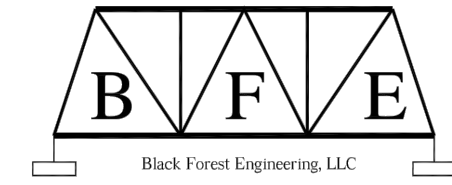


**Stone Steps Elevation**



**Stone Crib Wall**

PLANS PREPARED BY



BLACK FOREST ENGINEERING  
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570.239.4499

**CHASE ENGINEERING, LLC**

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717.486.4455



TAHAWUS TRAILS, LLC  
P.O. BOX 31  
ACCORD, NY 12404  
845.591.1537

**PROFESSIONAL ENGINEERS CERTIFICATION**

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME OR UNDER MY IMMEDIATE SUPERVISION, AND IS CORRECT IN ITS DETAIL TO MY BEST KNOWLEDGE AND BELIEF.

JOSEPH E RENTKO, P.E. MARYLAND LIC# 50806 DATE  
BLACK FOREST ENGINEERING

OWNER / DEVELOPER  
SIMPSON OAKS CRP3, LLC  
4750 OWINGS MILLS BOULEVARD  
OWINGS MILLS, MARYLAND 21117  
410-356-9900

**DETAILS**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE



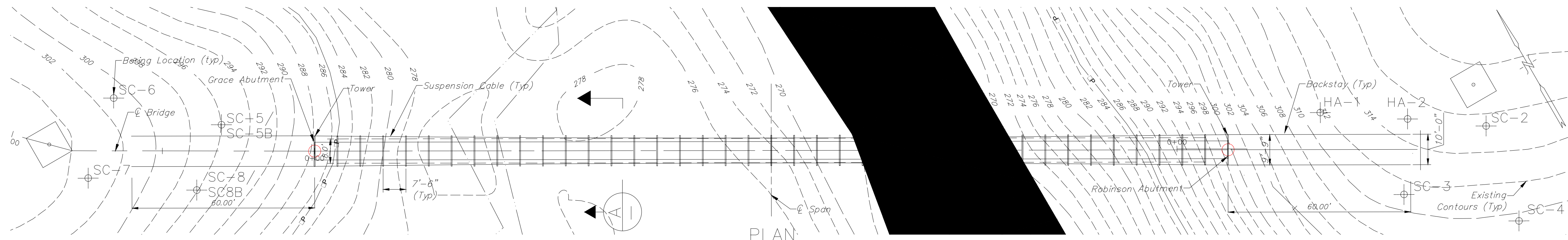
COLUMBIA  
HOWARD COUNTY  
MARYLAND

1. LANDLOCKED PARCEL "A" - VILLAGE OF HICKORY RIDGE, PLAT MDR NO. 13640.  
2. IMPROVEMENTS TO INCLUDE CONSTRUCTION OF ENVIRONMENTAL TRAIL AND PEDESTRIAN SUSPENSION BRIDGE.  
3. ELECTION DISTRICT - 5TH  
4. TAX MAP - REFER TO SHEET 1 - SITE ANALYSIS ITEM Q

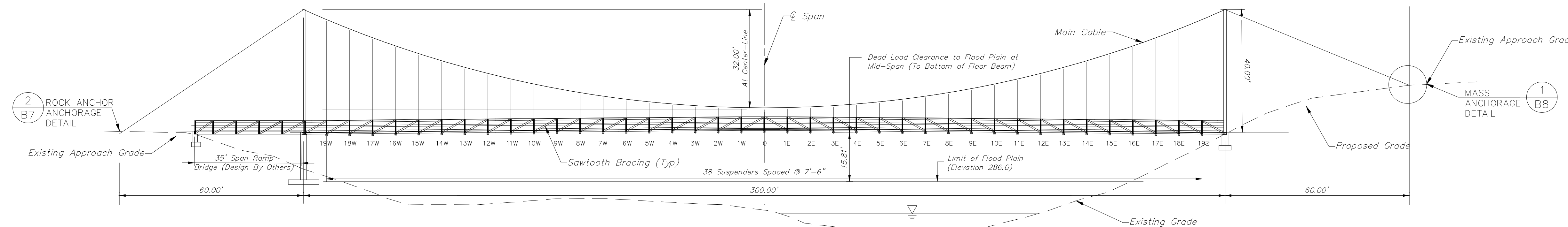
PLAN TITLE: <b>SITE DEVELOPMENT PLAN</b>	NO.
PROJECT TITLE: <b>CEDAR CREEK</b>	

NO.	REVISIONS	DATE	DRAWN BY: JDC	CHECKED BY: JER
	AS NOTED			DEC 2019
PROJECT NO. <b>SO-718</b>				
SHEET NO. <b>16</b> <b>28</b>				

**BRIDGE SHALL BE POSTED FOR MAXIMUM OCCUPANCY OF 550 PERSONS**



PLAN  
SCALE IN FEET  
1" = 20'



ELEVATION  
SCALE IN FEET  
1" = 20'

\* SUSPENDER LENGTHS (See Typical Section, Measured Vertical, Final Erected, Under Full Dead Loads)(C.L. Cable to Top of Floor Beam) (See Note)

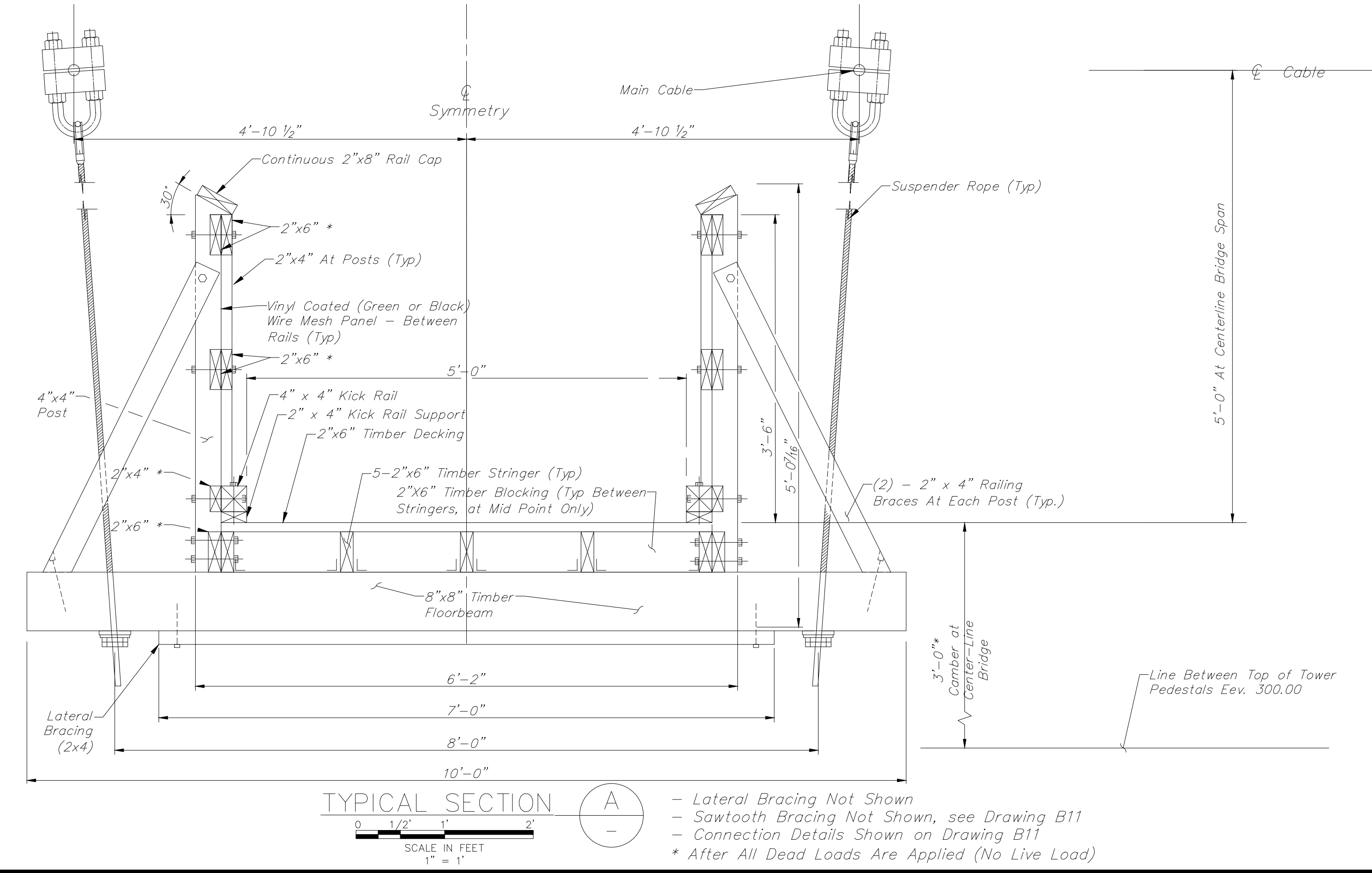
LOCATION	19W	18W	17W	16W	15W	14W	13W	12W	11W	10W	9W	8W	7W	6W	5W	4W	3W	2W	1W	0	1E	2E	3E	4E	5E	6E	7E	8E	9E	10E	11E	12E	13E	14E	15E	16E	17E	18E	19E
LENGTH	37.15'	33.91'	30.85'	27.96'	25.25'	22.71'	20.35'	18.16'	16.15'	14.31'	12.65'	11.16'	9.85'	8.71'	7.75'	6.96'	6.35'	5.91'	5.65'	5.56'	5.65'	5.91'	6.35'	6.96'	7.75'	8.71'	9.85'	11.16'	12.65'	14.31'	16.15'	18.16'	20.35'	22.71'	25.25'	27.96'	30.85'	33.91'	37.15'

- Scope of Work:**
- Bridge Consists Of A Single Span Pedestrian Crossing Intended As Part Of A Proposed Trail System And Crossing Of The Middle Patuxent River.
- 1) SUPERSTRUCTURE:** Lumber Framing and Deck  
Main Span Supported On Suspension System  
Backspans By Others
  - 2) TOWER:** Rolled Steel Members  
Concrete Spread Footing
  - 3) CABLE:** Main Cables And Backstays IWRC Galvanized Wire Rope  
Suspenders IWRC Galvanized Wire Rope  
Sway Cables and Wire Galvanized Wire Rope
  - 4) ANCHORAGE:** Rock Anchor And Mass Masonry

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
B1	GENERAL PLAN, ELEVATION, & SECTION
B2	NOTES
B3	TOWER DETAILS
B4	FOOTING DETAILS – EAST TOWER
B5	FOOTING DETAILS – WEST TOWER
B6	ANCHOR DETAILS 1 – ROCK ANCHORS
B7	ANCHOR DETAILS 2 – MASS ANCHORAGE
B8	ANCHORAGE DETAILS
B9	CABLE DETAILS
B10	FRAMING DETAILS
B11	MISCELLANEOUS DETAILS
B12	SUGGESTED ERECTION DETAILS

**NOTE:**  
THIS PLAN SET, ALTHOUGH DRAWN FROM ACTUAL FIELD MEASUREMENTS, SHALL BE CONSIDERED AS ONLY APPROXIMATE AND SUBJECT TO SUCH MODIFICATIONS OF WHATEVER NATURE AS THE SITE CONDITIONS MAY REQUIRE. THE CONTRACTORS ARE TO SATISFY THEMSELVES BY PERSONAL EXAMINATION OF THE PLANS AND OF THE LOCATION OF THE PROPOSED WORK, AND BY SUCH OTHER MEANS AS THEY PREFER, AS TO THE ACCURACY OF THESE PLANS.

- NOTES:**
- SEE DRAWING B2 FOR GENERAL NOTES.
  - SEE DRAWING B11 FOR SUPERSTRUCTURE CONNECTION DETAILS.
  - FINAL CAMBER AT MIDSPAN TO BE 3'-0" AT 78° F, AFTER APPLICATION OF ALL DEAD LOADS AND PRIOR TO APPLICATION OF ENVIRONMENTAL OR LIVE LOADS.
  - APPROACH DETAILS BY OTHERS.
  - STREAM BANK PROTECTION DETAILS BY OTHERS.
  - GRADING DETAILS BY OTHERS.
  - FOR SWAY CABLES SEE DRAWING B12.
  - FOR BORING LOGS, SEE SPECIFICATIONS.
  - FOR LOCATION OF UTILITIES, WETLANDS AND PROPERTY LINES, SEE SHEET 3.
  - \* SUSPENDER LENGTHS ARE GIVEN FOR ESTIMATION PURPOSES ONLY. FINAL SUSPENDER LENGTHS SHALL BE AS REQUIRED FOR DESIGNATED CAMBER AND SAG.



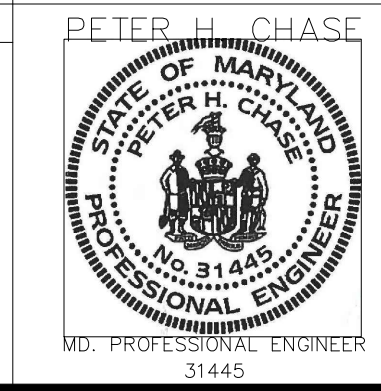
TYPICAL SECTION  
SCALE IN FEET  
1" = 1'

- Lateral Bracing Not Shown
- Sawtooth Bracing Not Shown, see Drawing B11
- Connection Details Shown on Drawing B11
- \* After All Dead Loads Are Applied (No Live Load)

DATE	AUTH.	BY	REVISIONS

**CHASE ENGINEERING, LLC**  
3626 MAGNOLIA DRIVE  
EASTON, PA  
(484) 484-8367

GENERAL PLAN, ELEVATION, & SECTION  
CEDAR CREEK – PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER  
HOWARD COUNTY, MARYLAND



DESIGNED BY: PHC  
DRAWN BY: EAF  
DATE:      SCALE: AS SHOWN  
CHECKED BY:      17/XX

FILE NAME: E:\MD-H-XX-100 BASE\081818.DWG LAYOUT: B1\_GPE WITH BASE\_MBDT DATE: 2/11/2019 7:23:02 AM

GENERAL

- 1. DESIGN SHALL CONFORM TO:
a. AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (17th Edition, 2002).
b. 2013 OUTDOOR DEVELOPED AREAS ACCESSIBILITY GUIDELINES.
c. HOWARD COUNTY DESIGN MANUAL.
2. DETAILS SHOWN AND QUANTITIES GIVEN ARE FOR BRIDGE ONLY.
3. CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF
a. THE 2017 MARYLAND DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.
b. THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC).
c. THE AMERICAN CONCRETE INSTITUTE (ACI).
d. THE AMERICAN INSTITUTE FOR STEEL CONSTRUCTION (AISC).
e. HOWARD COUNTY (HC) STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
f. USDA FOREST SERVICE SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES.
g. THE OCCUPATION SAFETY AND HEALTH ACT (OSHA).
4. DESIGN LIVE LOAD SHALL BE EQUAL TO 65 POUNDS PER SQUARE FOOT FOR OVERALL STRUCTURE. DESIGN LIVE LOAD SHALL BE EQUAL TO 90 POUNDS PER SQUARE FOOT FOR INDIVIDUAL SUPERSTRUCTURE ELEMENT DESIGN.
5. GROUND SNOW LOAD IS ASSUMED TO BE 30 PSF.
6. BASIC WIND SPEED IS ASSUMED TO BE 90 MPH.
7. ALL DIMENSIONS SHOWN ARE LEVEL OR PLUMB UNLESS NOTED OTHERWISE.
8. DIMENSIONS SHOWN ARE ASSUMED TO BE AT 78 DEGREES FAHRENHEIT.
9. FOOTING ELEVATIONS MAY BE RE-DESIGNED FOR ALTERNATE ELEVATIONS AS NECESSARY TO MATCH EXISTING SOILS CONDITIONS FOLLOWING EXCAVATION.
10. THE SITE INFORMATION SHOWN ON THESE DRAWINGS IS BASED ON LIMITED INVESTIGATIONS; THE CONTRACTOR SHALL MAKE HIMSELF COMFORTABLE WITH THE DETAILS SHOWN, AND SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE IF CONDITIONS ARE NOT AS SHOWN.
11. VERTICAL DATUM NGVD 1988.
12. 100-YEAR FLOOD ELEVATION = 286.0.
13. BRIDGE SHALL MAINTAIN A MINIMUM FREEBOARD OF 1'-0" OVER 100-YEAR FLOOD UNDER FULL LIVE LOAD CONDITION.
14. CAMBER AT MID-SPAN AFTER ALL DEAD LOADS ARE APPLIED SHALL BE EQUAL TO 3'-0".
15. TOWERS TO BE PLUMB AFTER ALL DEAD LOADS ARE APPLIED.
16. QUANTITIES ARE TABULATED FOR GENERAL INFORMATION ONLY, AND ARE NOT TO BE USED FOR MATERIAL ORDERING.
17. IN THE EVENT OF FLOODING OR WHEN THE WATER ELEVATION EXCEEDS 275.0 FEET, THE BRIDGE SHALL BE CLOSED TO ALL TRAFFIC BY PHYSICAL BARRIERS AT EACH TOWER AND SHALL NOT BE RE-OPENED UNTIL INSPECTION DETERMINES THAT THE CROSSING IS SOUND.
18. IN THE EVENT OF WIND IN EXCESS OF 45 MPH, THE BRIDGE SHALL BE CLOSED TO ALL TRAFFIC BY PHYSICAL BARRIERS AT EACH TOWER AND SHALL NOT BE RE-OPENED UNTIL INSPECTION DETERMINES THAT THE CROSSING IS SOUND.
19. IN THE EVENT OF EXTREME ENVIRONMENTAL CONDITIONS SUCH AS OR WIND, FLOODING, SNOW OR ICE, THE BRIDGE SHALL BE CLOSED TO ALL TRAFFIC BY PHYSICAL BARRIERS AT EACH TOWER AND SHALL NOT BE RE-OPENED UNTIL INSPECTION DETERMINES THAT THE CROSSING IS SOUND.

CONCRETE

- 20. SHALL CONFORM TO SECTION 420 OF THE MDOT AND HC STANDARD SPECIFICATIONS.
21. PROVIDE MINIMUM COVER ON REINFORCEMENT OF 3 INCHES, UNLESS NOTED OTHERWISE.
22. CONCRETE SHALL BE AIR-ENTRAINED AND SHALL HAVE A DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI, MINIMUM.
23. REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60, AND SHALL CONFORM TO SECTION 421 OF THE MDOT AND HC STANDARD SPECIFICATIONS.
24. ALL REINFORCEMENT BARS SHALL BE EPOXY-COATED.
25. CHAMFER EXPOSED CONCRETE EDGES (ABOVE-GRADE) 1"x1", UNLESS NOTED OTHERWISE.
26. PROVIDE MINIMUM LAP FOR REINFORCEMENT SPLICE OF 30 BAR DIAMETERS, UNLESS NOTED OTHERWISE.

TIMBER

- 27. SHALL CONFORM TO SECTION 462 OF THE MDOT AND HC STANDARD SPECIFICATIONS.
28. TIMBER FOR STRUCTURES SHALL CONFORM TO:
a. 2013 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
b. WOOD MEMBERS SHALL HAVE THE GRADE MARK OF A LUMBER GRADING AGENCY CERTIFIED BY THE AMERICAN LUMBER STANDARDS COMMITTEE.
c. ALL WOOD, EXCEPT FOR FLOOR BEAMS, SHALL BE PRESSURE TREATED NO. 2 SOUTHERN YELLOW PINE, CCA .40, KDAT MC 19% MEETING AWPA STANDARDS WITH A MINIMUM ALLOWABLE BENDING STRESS OF 1200 PSI, UNLESS OTHERWISE NOTED.
d. ALL WOOD FOR FLOORBEAMS SHALL BE PRESSURE TREATED NO. 1 SOUTHERN YELLOW PINE, CCA .40, KDAT MC 19% MEETING AWPA STANDARDS WITH A MINIMUM ALLOWABLE BENDING STRESS OF 1500 PSI, UNLESS OTHERWISE NOTED.
29. ALL TIMBER CONNECTION HARDWARE SHALL BE GALVANIZED OR EQUIVALENT. MINIMUM DISTANCE FROM CENTER OF FASTENER TO EDGE OF CONNECTED MEMBER EQUALS 1.5 INCHES, UNLESS OTHERWISE NOTED. MINIMUM DISTANCE BETWEEN UNCONNECTED WOOD MEMBERS SHALL BE 1", UNLESS NOTED OTHERWISE.
30. PLACE DECKING WITH GROWTH RINGS FACING DOWNWARD TO MINIMIZE 'CUPPING'.
31. ALL STRINGERS AND FLOORBEAMS TO BE INSTALLED WITH NATURAL CAMBER UP.
32. ALL DIMENSION LUMBER SIZES SHOWN ARE NOMINAL.
33. ALL WOOD CONNECTIONS SHALL BE SCREWED OR BOLTED. NAILS SHALL NOT BE USED.
34. ALL CUT, BORED, DRILLED, OR ABRADED SURFACES SHALL BE FIELD-TREATED WITH COPPER NAPHTHENATE PRIOR TO ERECTION.

STEEL

- 35. SHALL CONFORM TO SECTION 430 OF THE MDOT AND HC STANDARD SPECIFICATIONS.
36. STEEL SHAPES, PLATES AND BARS FOR STRUCTURES SHALL CONFORM TO ASTM A709, GRADE 50W, WEATHERING STEEL, WITH A MINIMUM YIELD STRENGTH OF 50 KSI, OR ASTM A500, WEATHERING STEEL FOR SQUARE OR RECTANGULAR TUBING, WITH A MINIMUM YIELD STRENGTH OF 42 KSI. ALL STEEL TO BE GALVANIZED.
37. HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325, TYPE 3 (WEATHERING STEEL).
38. USE MALLEABLE IRON WASHERS AGAINST WOOD.
39. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 105, MINIMUM.
40. PAINTING OF NEW STRUCTURAL STEEL SHALL CONFORM TO SECTION 435 OF THE MDOT AND HC STANDARD SPECIFICATIONS. FINISHED COLOR TO BE FOREST GREEN.
41. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

UTILITIES

- 42. COORDINATE THE REQUIREMENTS FOR PROTECTION AND/OR RELOCATION OF UTILITIES WITH THE UTILITY COMPANY PRIOR TO COMMENCING WORK.
43. VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING WORK. CONDUCT OPERATIONS IN A MANNER WHICH ENSURES UTILITIES WILL NOT BE DISTURBED OR ENDANGERED; AND ASSUME FULL RESPONSIBILITY FOR REPAIR OR REPLACEMENT OF ALL DAMAGED UTILITIES.

HELICAL PILES

- 44. HELICAL PILES SHALL CONFORM TO ASTM D1143.

ROCK ANCHORS

- 45. ROCK ANCHORS SHALL CONFORM TO THE RECOMMENDATIONS OF THE POST-TENSIONING INSTITUTE.

GEOTECHNICAL

- 46. SOILS INFORMATION IS BASED ON LIMITED INVESTIGATION. PRIOR TO ERECTION OF FOUNDATIONS OR ANCHORAGES, EXCAVATED AREA SHALL BE EVALUATED BY A COMPETENT PERSON TO ASSESS GEOTECHNICAL CAPACITY AND SUITABILITY FOR CONSTRUCTION AND LOAD SUPPORT.
47. DESIGN IS BASED ON AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 2500 POUNDS PER SQUARE FOOT.
48. COMPACTION OF ALL FILL MATERIALS SHALL BE 95% MINIMUM OF MODIFIED PROCTOR DENSITY (ASTM D698).
49. THE SUBGRADE BENEATH THE PROPOSED FOUNDATIONS MAY BE ORDERED BY THE ENGINEER TO BE UNDERCUT TO ANY ELEVATION NECESSARY TO PROVIDE A PROPER FOUNDATION.
50. IF HIGHLY WEATHERED TO UNWEATHERED ROCK IS ENCOUNTERED AT FOUNDATION BEARING ELEVATIONS, SUCH MATERIALS SHALL BE REMOVED TO A MINIMUM DEPTH OF 12 INCHES BELOW THE FOOTING BEARING ELEVATION AND REPLACED WITH CONTROLLED, COMPACTED FILL OR NO. 57 STONE TO PROVIDE A "CUSHION" FOR THE PROPOSED FOUNDATIONS.

SUSPENSION SYSTEM

- 51. PRIMARY WIRE ROPE IS 1 7/8" DIAMETER 6 x 25 GALVANIZED IWRC WIRE ROPE, MINIMUM BREAKING STRENGTH = 160.0 TONS.
52. SUSPENDERS ARE 1/2" DIAMETER IWRC 7 x 7 GALVANIZED WIRE ROPE, MINIMUM BREAKING STRENGTH = 5.9 TONS.
53. SUSPENSION MATERIALS AND HARDWARE SHALL CONFORM TO ASTM A603, A1007, OR A1023, AS APPLICABLE, AND SHALL BE PROOF-TESTED.
54. ALL WIRE ROPE SHALL BE PRE-STRETCHED.
55. ALL CABLE HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

CONNECTORS

- 56. ALL CONNECTORS, SCREWS, NAILS, SPIKES, GRIDS, BOLTS, CLIPS, STRINGER HANGERS, AND WIRE ROPE HARDWARE ARE TO BE HOT DIPPED GALVANIZED OR EQUIVALENT MEETING ANSI STANDARDS.

ENVIRONMENTAL

- 57. THE MIDDLE PATUXENT RIVER SHALL NOT BE DISTURBED.
58. TREE AND LIMB REMOVAL SHALL BE AS DIRECTED BY PERSONNEL OF HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS.
59. NOTIFY THE REGIONAL HEADQUARTERS OF THE FISH AND GAME COMMISSION PRIOR TO CONSTRUCTION.
60. THE MIDDLE PATUXENT RIVER IS A HIGH-QUALITY WATERCOURSE.
61. ALL WORK SHALL BE PROTECTED BY APPROVED SOIL EROSION AND SEDIMENT CONTROL MEASURES.
62. TREE REMOVAL SHALL BE LIMITED TO TREES LESS THAN 8 INCH CALIPER. BRANCH REMOVAL SHALL BE LIMITED TO BRANCH DIAMETER OF 1 INCH.

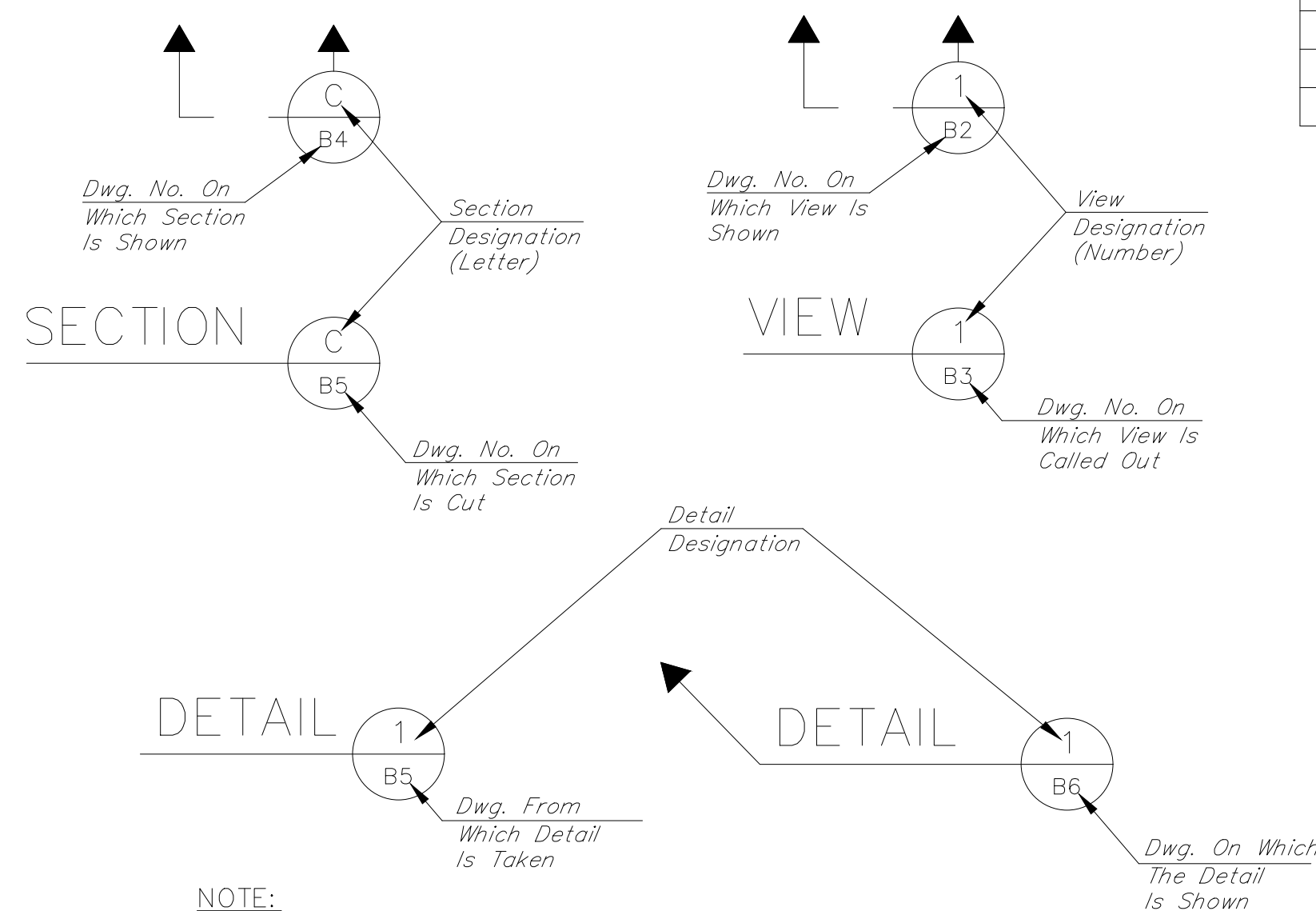
ERECTION

- 63. ERECTION PROCEDURE SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO ORDERING MATERIALS OR BEGINNING WORK.
64. DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOT DROP MATERIAL OR DEBRIS FROM THE BRIDGE. PROTECTIVE SHIELDS OR SAFETY NETS SHALL BE USED TO CATCH FALLING DEBRIS AND SHIELD THE AREA BELOW THE WORK. MATERIALS DROPPED INTO THE RIVER SHALL BE IMMEDIATELY REMOVED.

Table with 7 columns: ITEM NO., DESCRIPTION, UNIT, WEST ANCH., WEST TOWER, SUPER-STRUCT., EAST TOWER, EAST ANCH. Rows include EXCAVATION, CAST-IN PLACE CONCRETE, REINFORCEMENT STEEL, TIMBER FOR STRUCTURE, STRUCTURAL STEEL, CABLE, CABLE FITTINGS, CABLE SADDLES, PRECAST BLOCKS, ROCK ANCHORS, BEARINGS, FOUNDATION STONE, GATES.

\* - Quantities given are for information only and are given for major items of work only.

Table with 7 columns: ITEM NO., DESCRIPTION, UNIT, WEST ANCH., WEST TOWER, SUPER-STRUCT., EAST TOWER, EAST ANCH. Rows include EXCAVATION, CAST-IN PLACE CONCRETE, REINFORCEMENT STEEL, TIMBER FOR STRUCTURE, STRUCTURAL STEEL, CABLE, CABLE FITTINGS, CABLE SADDLES, PRECAST BLOCKS, ROCK ANCHORS, BEARINGS, FOUNDATION STONE, GATES.



NOTE: No Drawing Number Is Given If The Detail, Section, or View Is Taken And Shown On The Same Sheet.

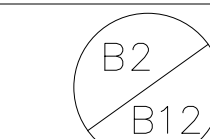
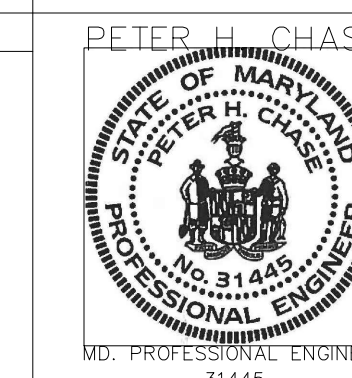
DRAWING REFERENCES

THE CONSTRUCTION MUST BE PERFORMED IN STRICT ACCORDANCE WITH THESE PROJECT DRAWING(S). ERRORS AND/OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. CHASE ENGINEERING WILL NOT HAVE CONTROL OF, NOR BE RESPONSIBLE FOR, THE CONSTRUCTION MEANS, METHODS, PROCEDURES, OR SAFETY PRECAUTIONS IN CONNECTION WITH THE PROPOSED WORK. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, BEFORE ORDERING MATERIALS OR BEGINNING WORK. THESE DOCUMENTS ARE THE PROPERTY OF CHASE ENGINEERING, LLC. ANY USE OF A COPY THAT DOES NOT CONTAIN AN ORIGINAL RED OR CRIMPED SEAL IS STRICTLY PROHIBITED. THESE DOCUMENTS ARE NOT PUBLISHED AND ALL RIGHTS ARE RESERVED BY CHASE ENGINEERING, LLC.

Table with 4 columns: DATE, AUTH., BY, REVISIONS.

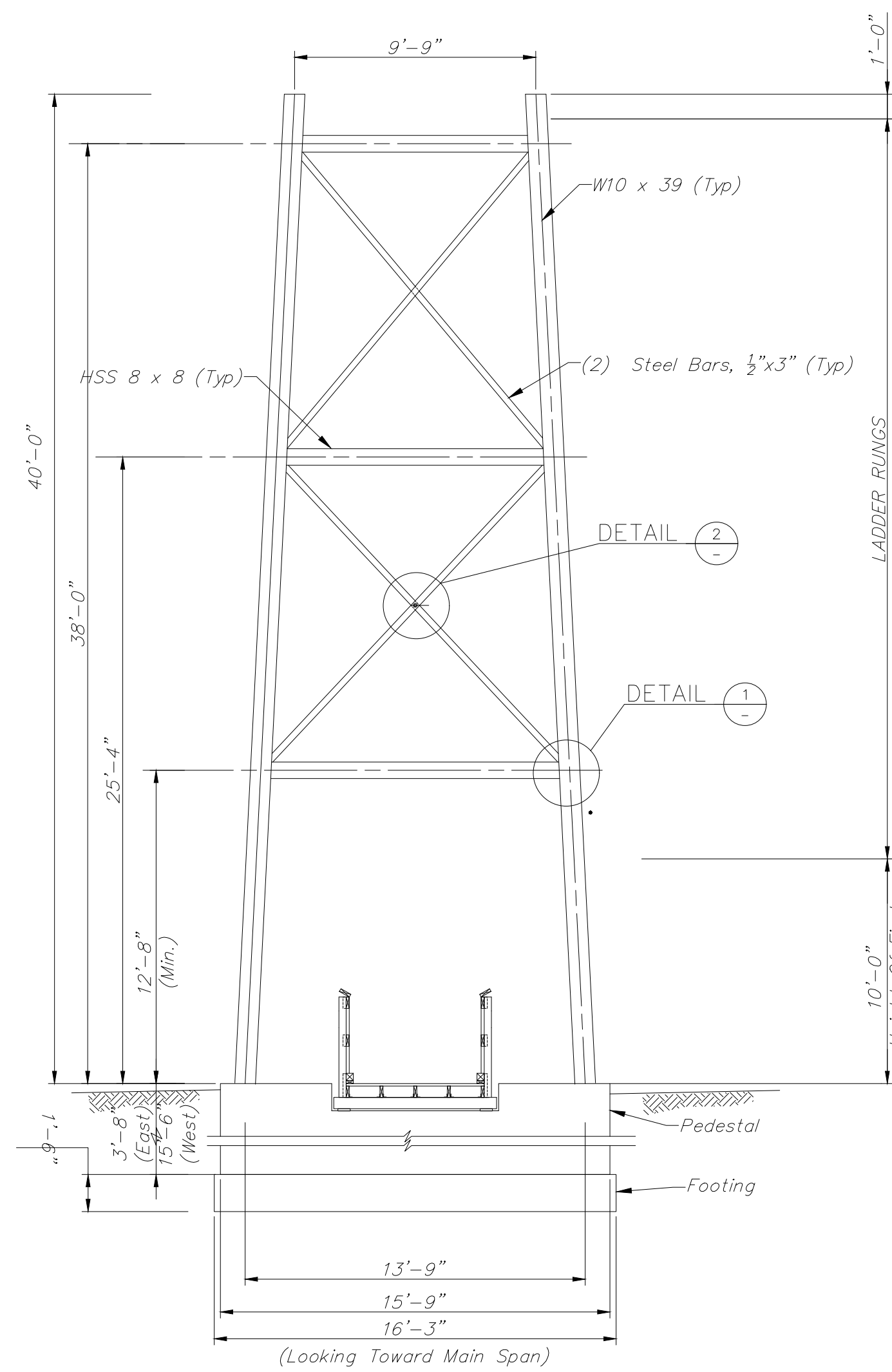
CHASE ENGINEERING, LLC
3626 MAGNOLIA DRIVE
EASTON, PA
NOTICE: (4) 484-8367

CEDAR CREEK - PEDESTRIAN BRIDGE OVER THE MIDDLE PATUXENT RIVER
HOWARD COUNTY, MARYLAND

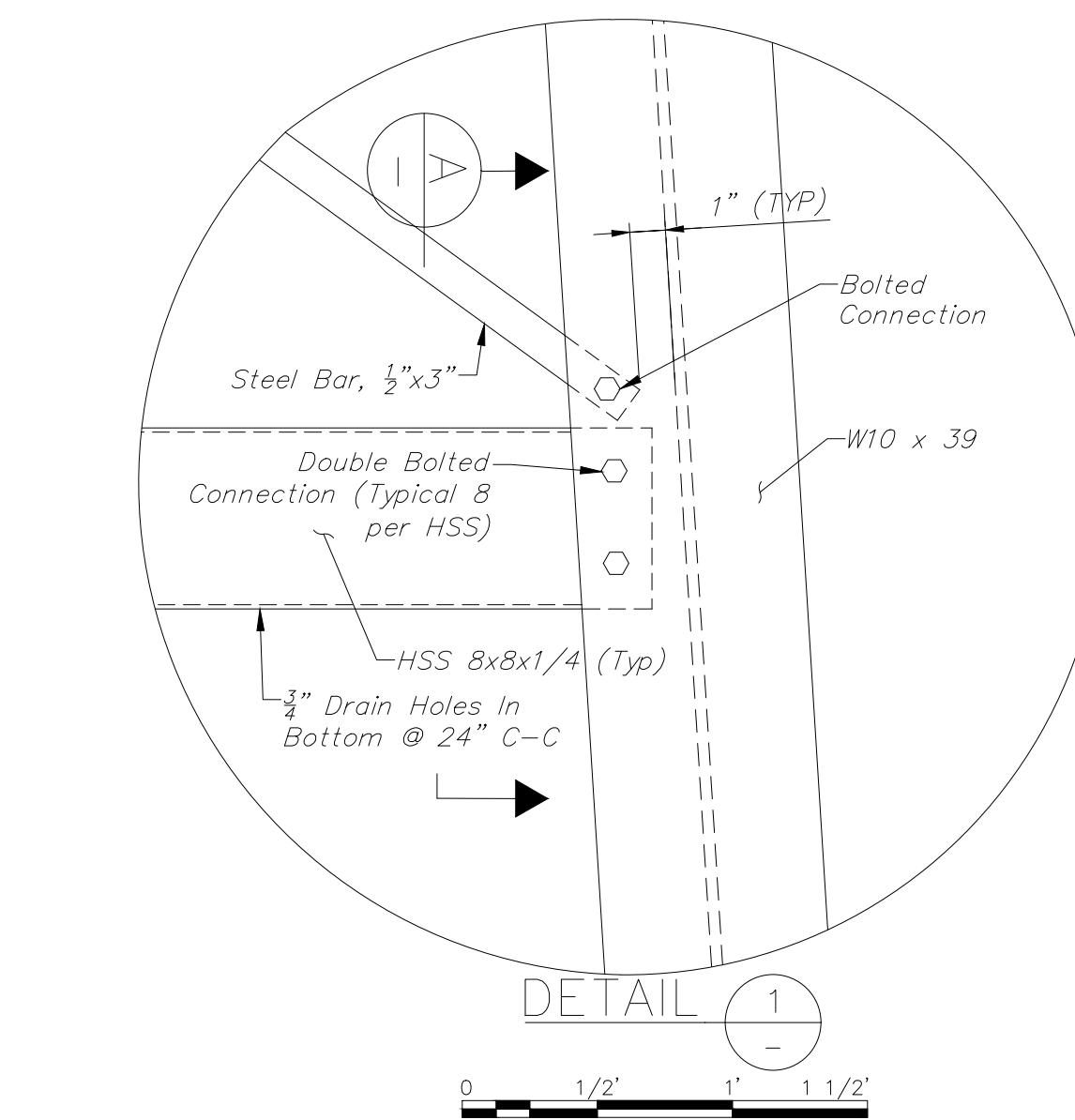
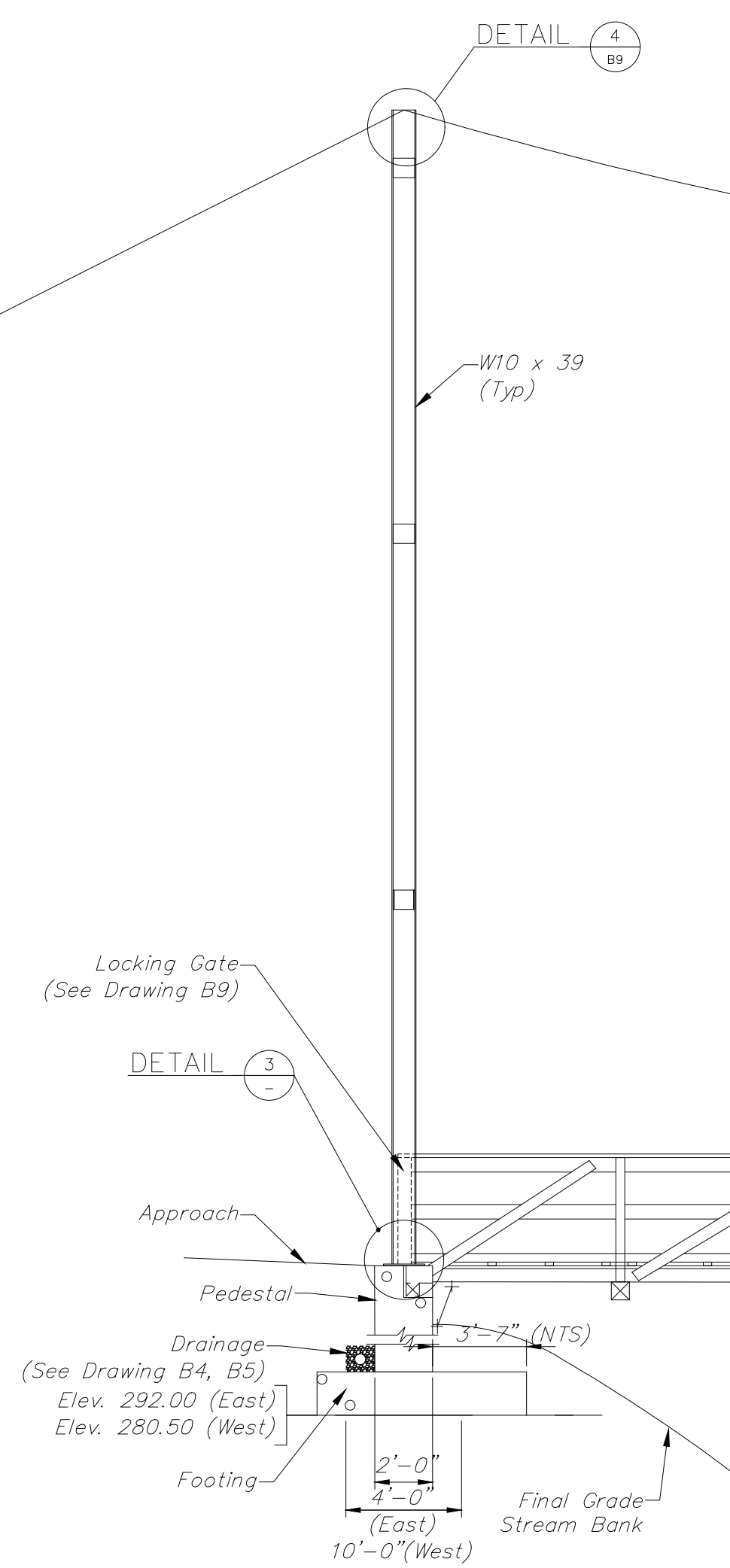


DESIGNED BY: PHC
DRAWN BY: EAF
CHECKED BY:
DATE:
SCALE: AS SHOWN
18/XX

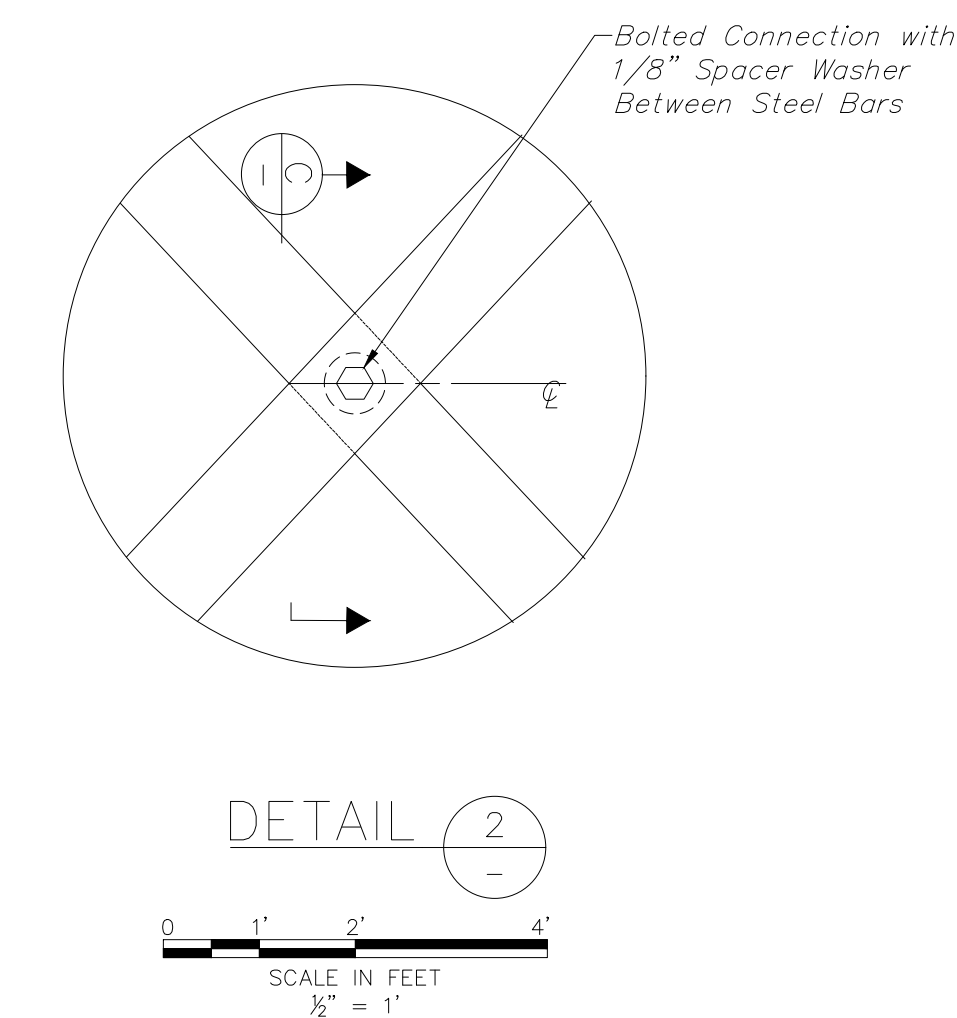
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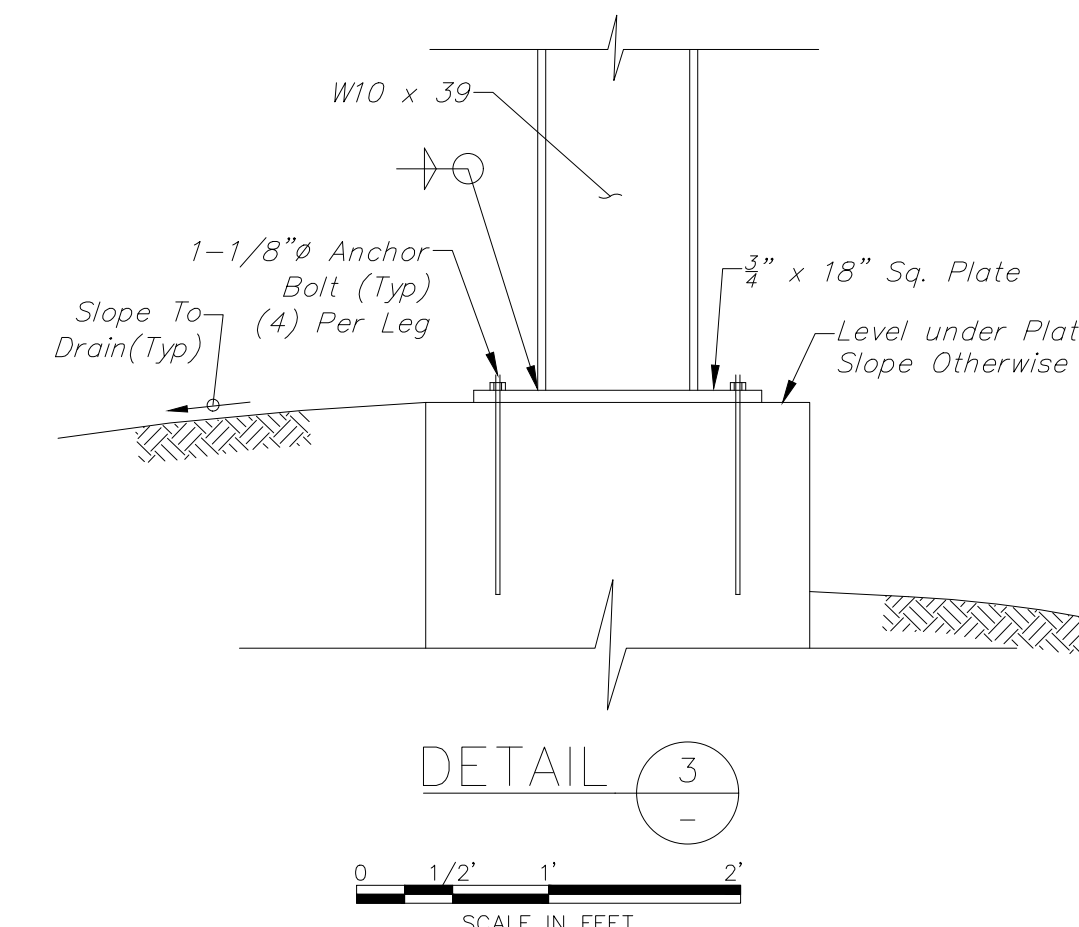
TYPICAL TOWER DETAIL  
SCALE IN FEET  
1" = 5'  
(EAST TOWER SHOWN, WEST TOWER SIMILAR)



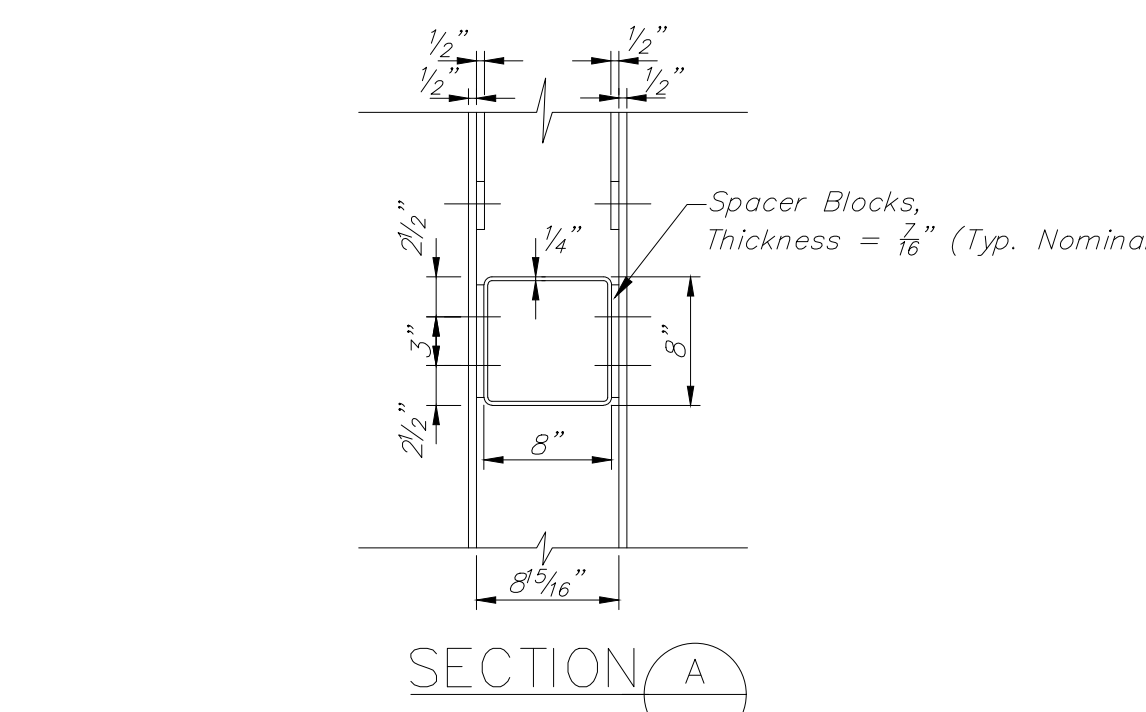
DETAIL 1  
SCALE IN FEET  
1" = 1/2'



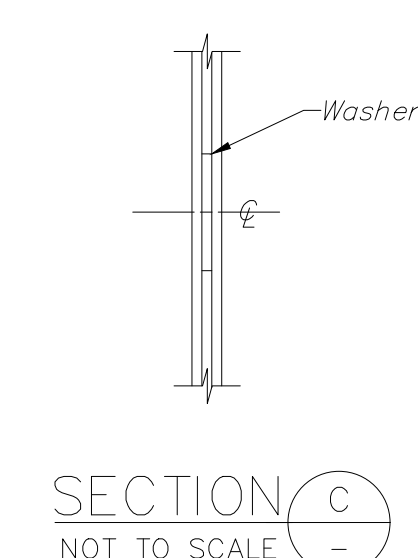
DETAIL 2  
SCALE IN FEET  
1" = 1'



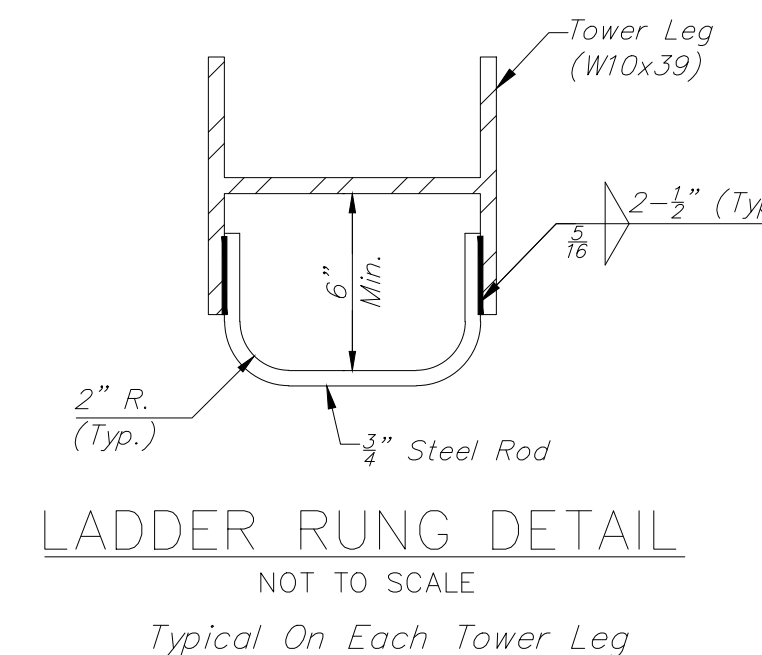
DETAIL 3  
SCALE IN FEET  
1" = 1'  
Suspended Structure Not Shown.



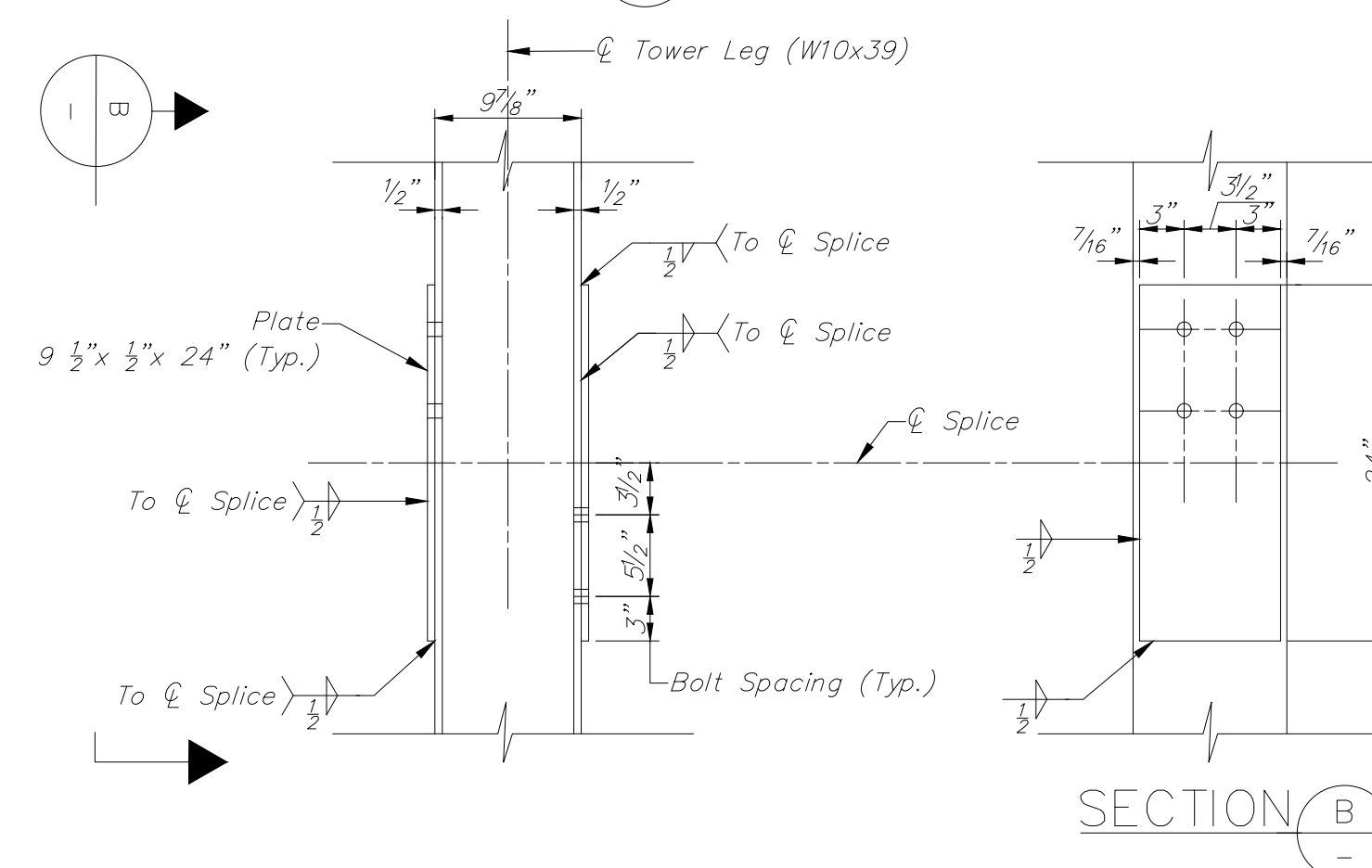
SECTION A  
NOT TO SCALE



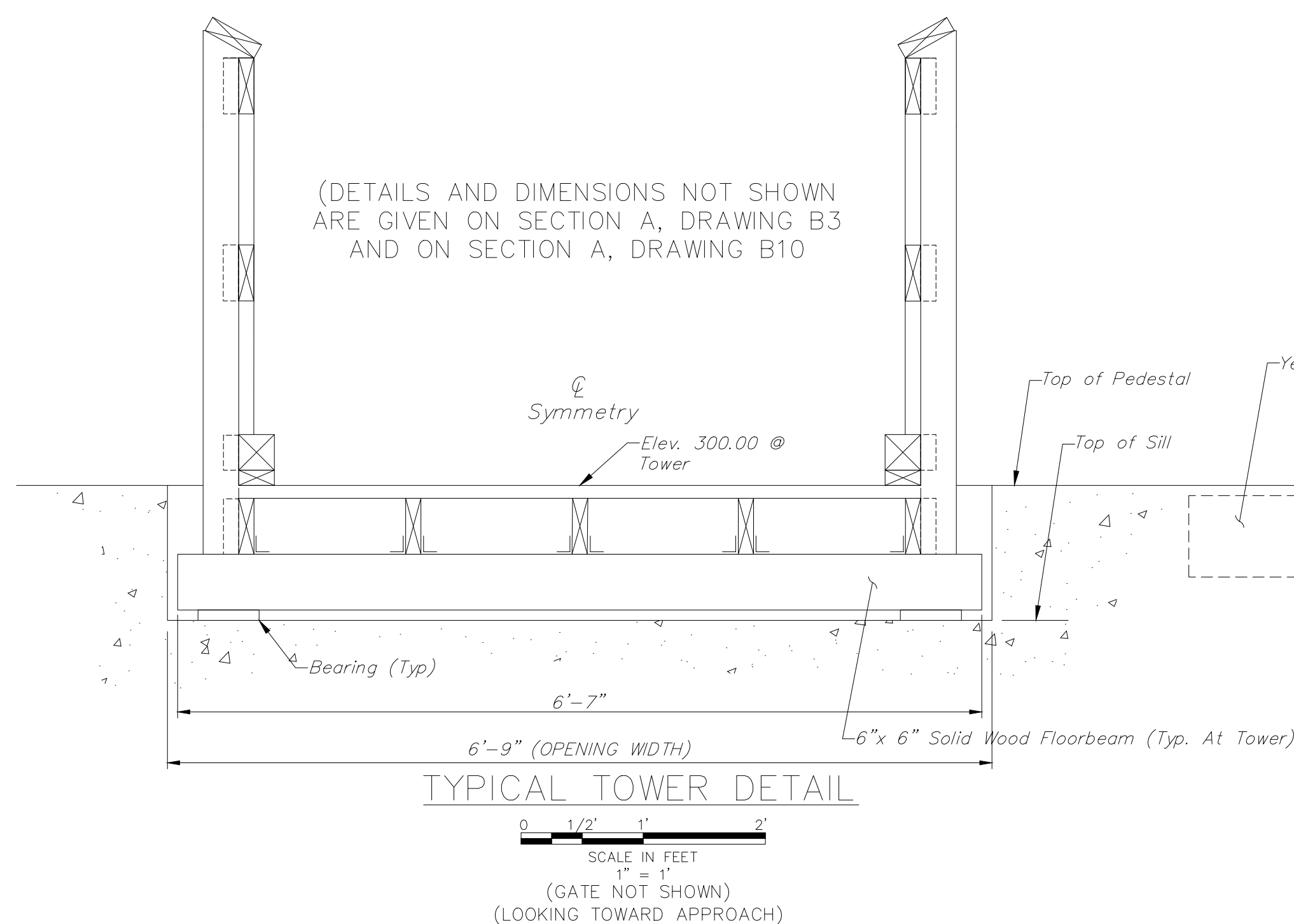
SECTION C  
NOT TO SCALE



LADDER RUNG DETAIL  
NOT TO SCALE  
Typical On Each Tower Leg



FIELD SPLICE DETAILS  
NOT TO SCALE



(DETAILS AND DIMENSIONS NOT SHOWN ARE GIVEN ON SECTION A, DRAWING B3 AND ON SECTION A, DRAWING B10)

TYPICAL TOWER DETAIL  
SCALE IN FEET  
1" = 1'  
(GATE NOT SHOWN)  
(LOOKING TOWARD APPROACH)

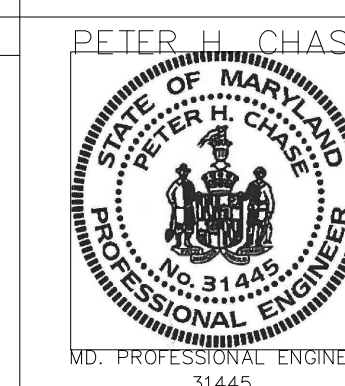
NOTES:

- SEE DRAWING B2 FOR GENERAL NOTES.
- SEE DRAWING B4 & B5 FOR FOOTING DETAILS.
- BOLTED FASTENERS SHALL BE 3/8" DIAMETER HIGH STRENGTH BOLTS CONFORMING TO ASTM A325, TYPE 3, UNLESS OTHERWISE NOTED.
- ANCHOR BOLTS FOR TOWER LEGS SHALL BE 1-1/8" DIAMETER CONFORMING TO ASTM F1554, GRADE 105, AND EMBEDDED 12" MINIMUM INTO CONCRETE PEDESTAL.
- ANCHOR BOLTS SHALL BE INSTALLED FINGER-TIGHT, THEN BACKED OFF 1/4 TURN.
- ANCHOR BOLTS SHALL BE DOUBLE-NUTTED, AND EXPOSED THREADS SHALL BE BURRED OFF.
- LADDER RUNGS TO BE INSTALLED ON OUTSIDE FLANGES OF TOWER LEGS, SPACED AT 12".
- TOWER TO BE PLUMB IN THE FINAL POSITION AT 78° F, AFTER ALL DEAD LOADS ARE APPLIED AND PRIOR TO APPLICATION OF ENVIRONMENTAL OR LIVE LOADS.
- SEE DRAWING B11 FOR GATE DETAIL.
- MODIFY FOOTING ELEVATIONS AS NECESSARY WITH APPROVAL OF OWNERS REPRESENTATIVE.

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DATE	AUTH.	BY	REVISIONS

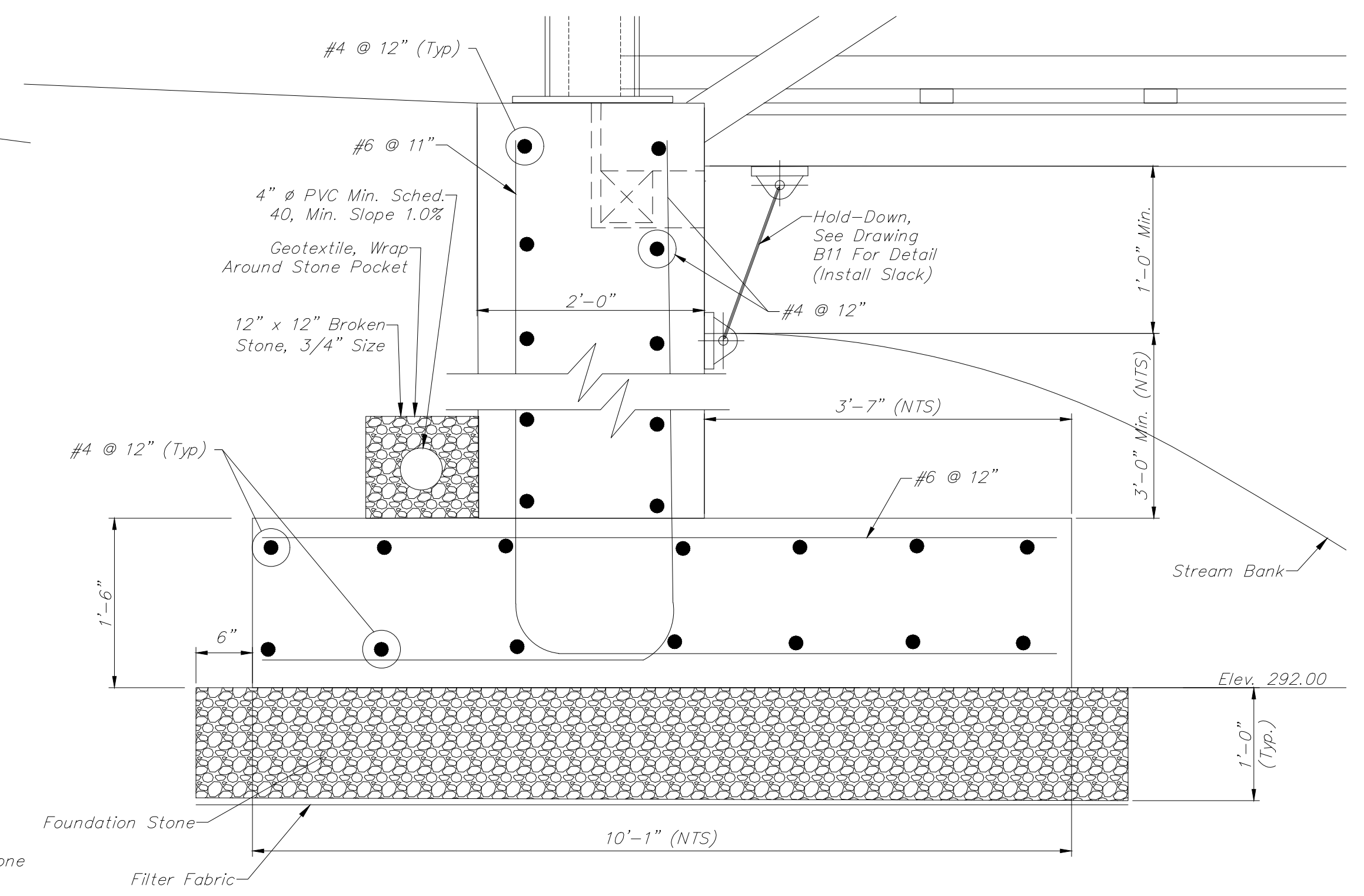
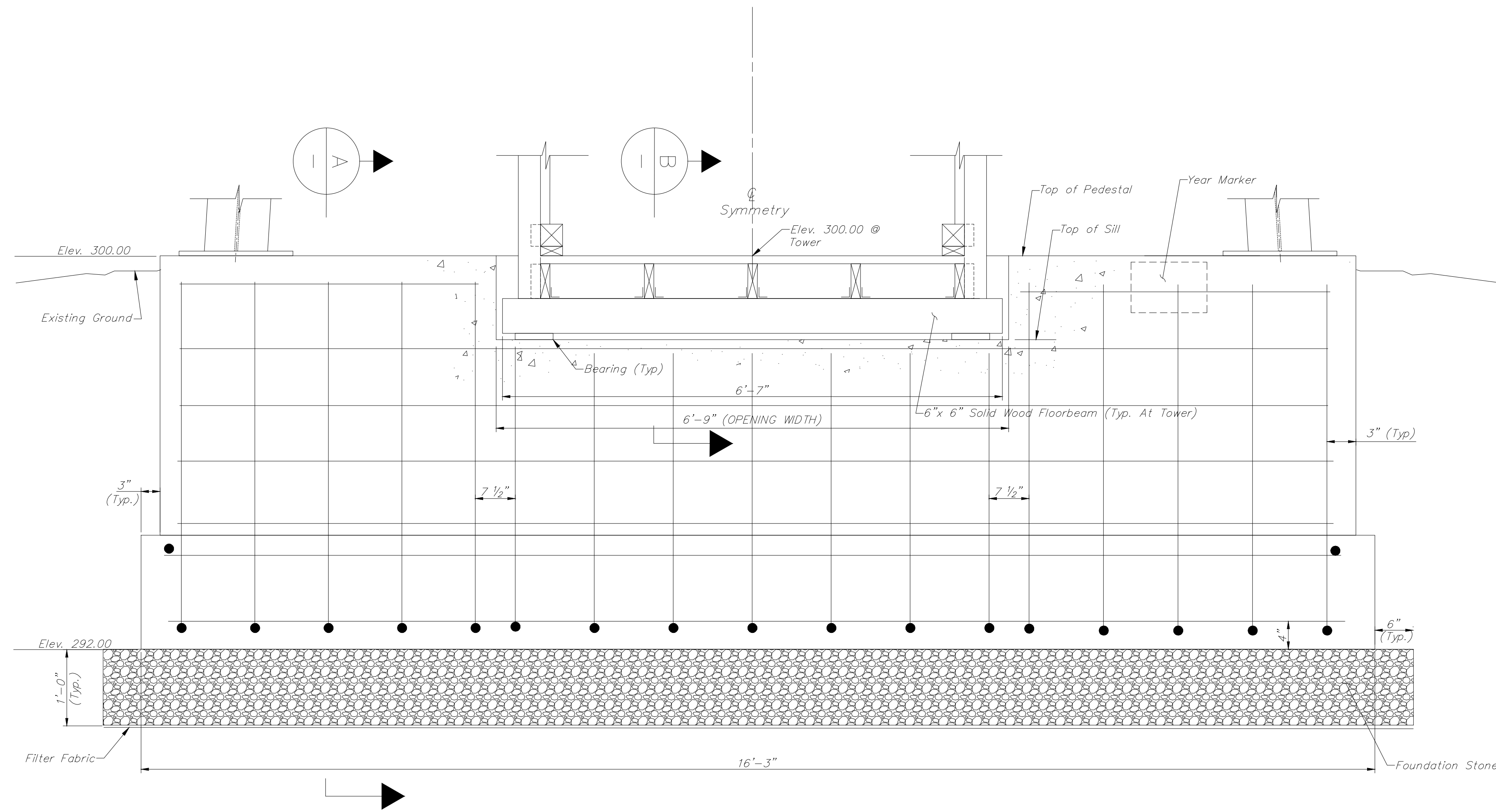
**CHASE ENGINEERING, LLC**  
3626 MAGNOLIA DRIVE  
EASTON, PA  
(484) 484-8367  
TOWER DETAILS  
CEDAR CREEK - PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER  
HOWARD COUNTY, MARYLAND



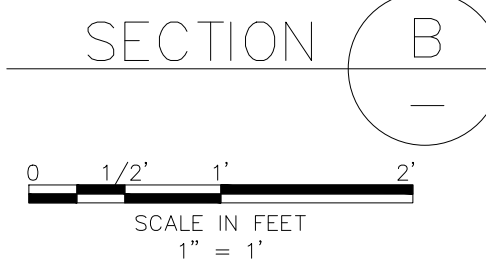
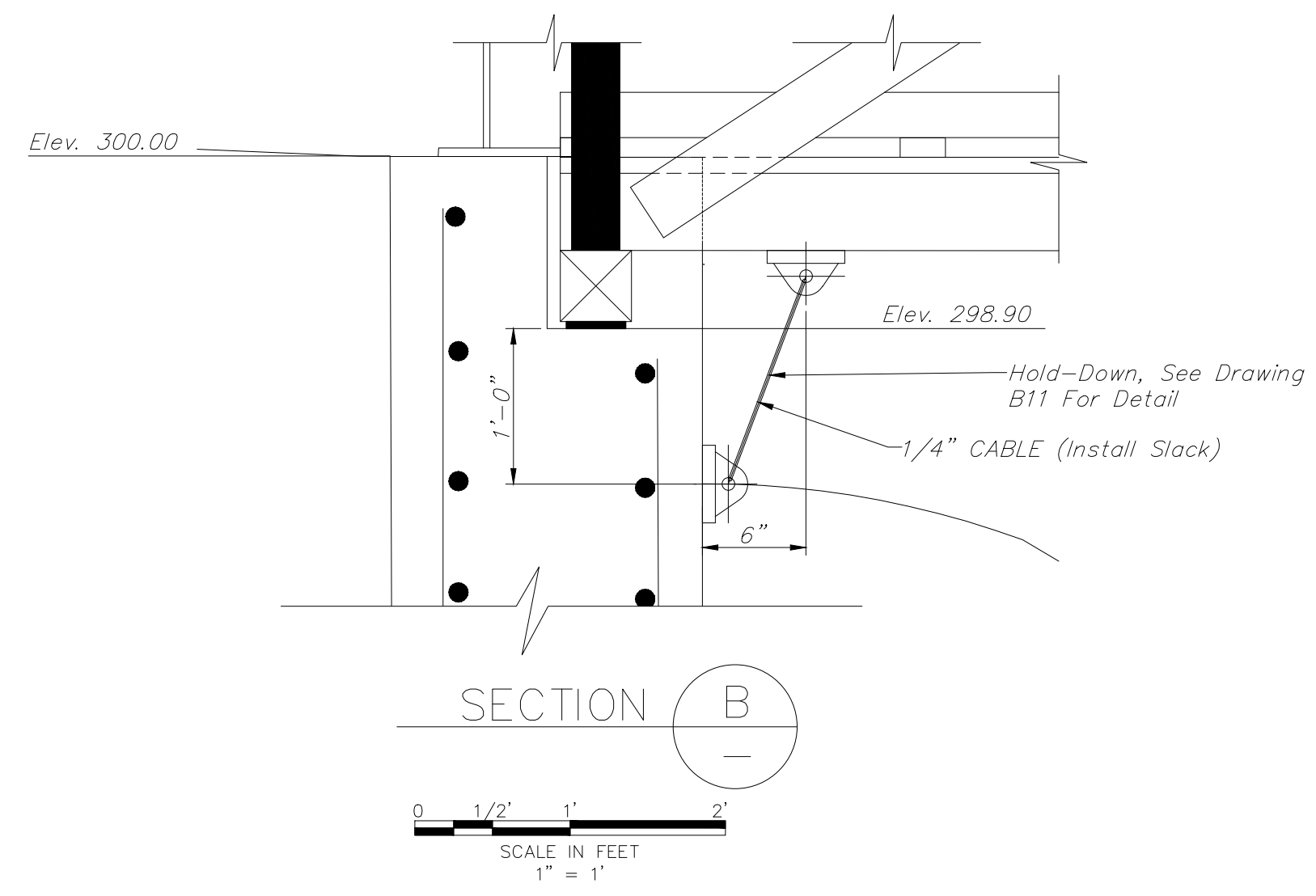
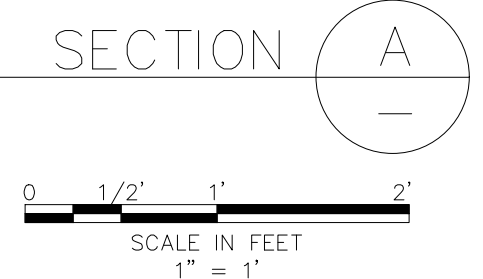
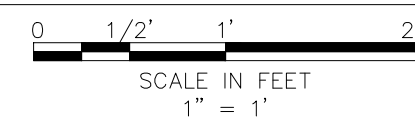
DESIGNED BY: PHC  
DRAWN BY: EAF  
DATE:                      SCALE: AS SHOWN  
CHECKED BY:                      19 XX

**NOTES:**

1. SEE DRAWING B2 FOR GENERAL NOTES.
2. SEE DRAWING B3 FOR OTHER TOWER DETAILS.
3. SEE DRAWING B11 FOR BEARING DETAILS.
4. SEE DRAWING B5 FOR WEST TOWER DETAILS.
5. ALL REINFORCEMENT SHALL BE SIZE #6, SPACED AT 12" MAXIMUM, UNLESS NOTED OTHERWISE.
6. FILTER FABRIC AND GEOTEXTILE SHALL CONFORM TO SECTION 919 OF THE MARYLAND STD. CONSTRUCTION SPECIFICATIONS.
7. FOUNDATION STONE SHALL BE 3/4" STONE CONFORMING TO SECTION 901 OF THE MARYLAND STD. CONSTRUCTION SPECIFICATIONS.
8. FOLLOWING EXCAVATION, THE PROPOSED FOOTING SUBGRADE SHALL BE INSPECTED BY THE OWNER'S REPRESENTATIVE, WHO MAY DETERMINE THAT THE FOUNDATION STONE UNDERLAYMENT MAY NEED TO BE INCREASED IN THICKNESS IN ORDER TO PROVIDE A SUITABLE FOUNDATION, SEE GENERAL NOTES.
9. THE TOP OF DECK AT THE TOWER IS APPROXIMATELY AT THE SAME ELEVATION AS THE TOP OF PEDESTAL.
10. FOR DETAILS OF YEAR MARKER, SEE DRAWING B11.
11. TOWER FOOTING SHALL BE FOUNDED ON FIRM SUBGRADE OR EXTENDED TO ROCK, AS DIRECTED BY THE OWNER'S REPRESENTATIVE.



**EAST TOWER FOOTING AND PEDESTAL ELEVATION**

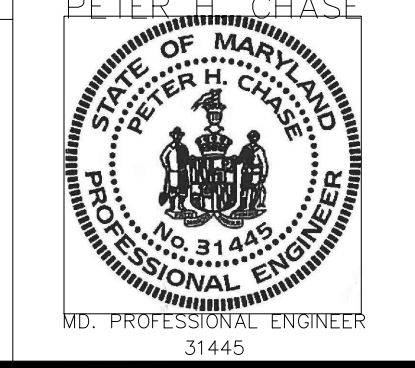


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DATE	AUTH.	BY	REVISIONS

**CHASE ENGINEERING, LLC**  
 3626 MAGNOLIA DRIVE  
 EASTON, PA  
 (484) 484-8367

FOOTING DETAILS – EAST TOWER  
 CEDAR CREEK – PEDESTRIAN  
 BRIDGE OVER THE MIDDLE  
 PATUXENT RIVER  
 HOWARD COUNTY, MARYLAND

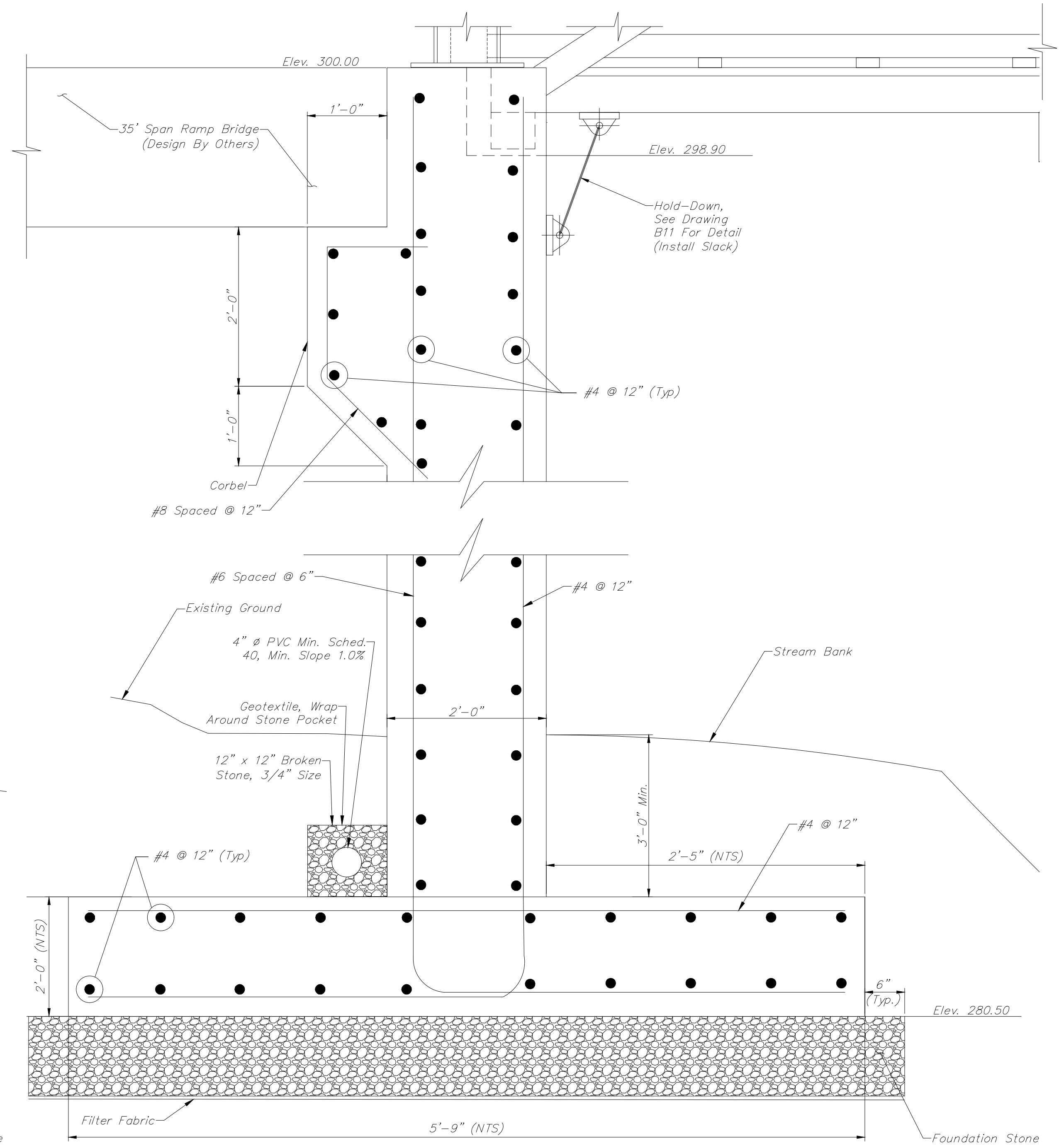
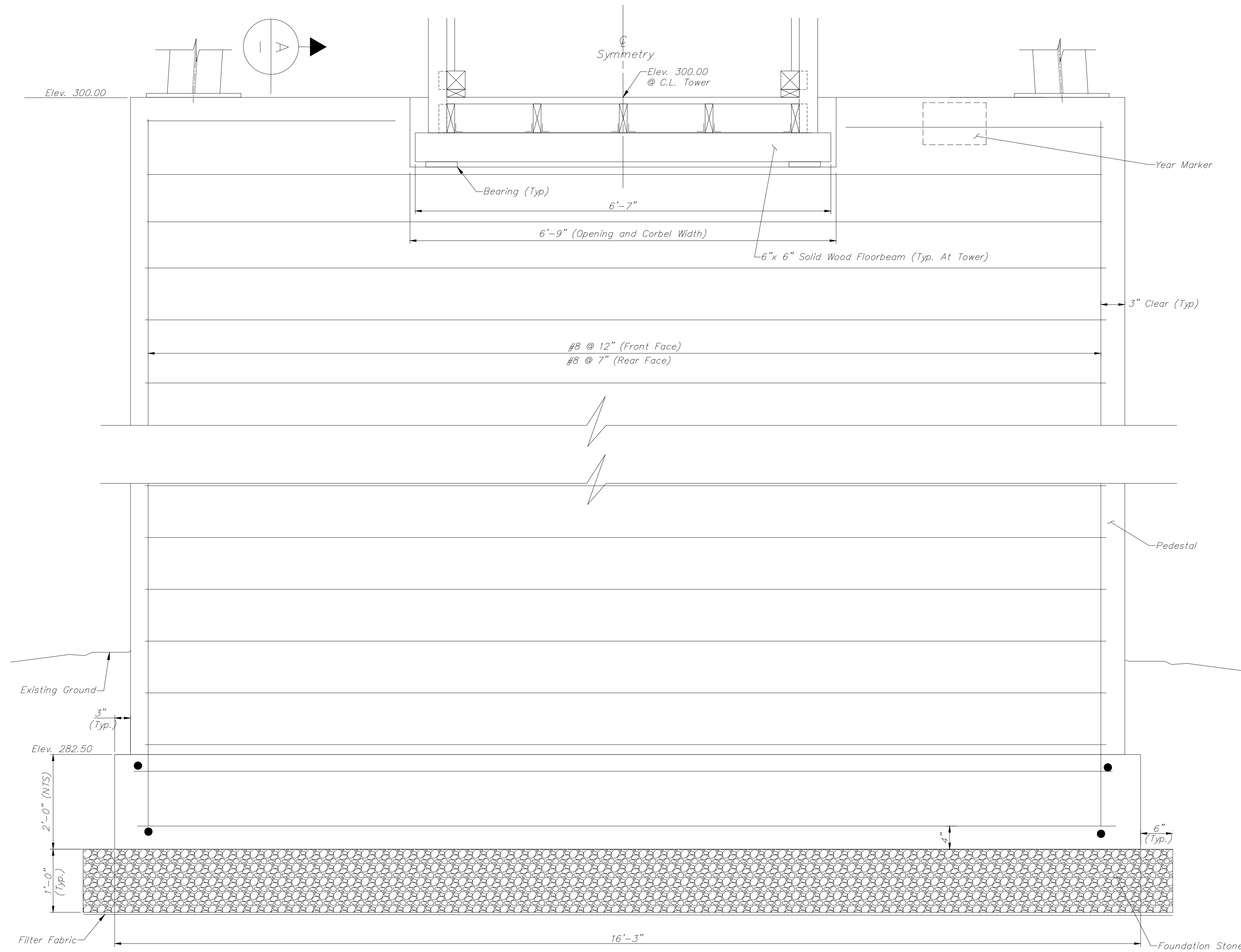


DESIGNED BY: PHC  
 DRAWN BY: EAF

DATE:      SCALE: AS SHOWN      20/XX

SECTION B4/B12 CHECKED BY:

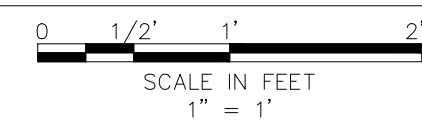
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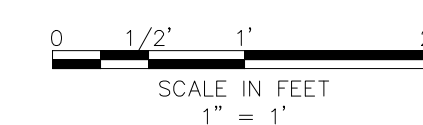
**NOTES:**

1. SEE DRAWING B2 FOR GENERAL NOTES.
2. SEE DRAWING B3 FOR OTHER TOWER DETAILS.
3. SEE DRAWING B4 FOR EAST TOWER DETAILS.
4. SEE DRAWING B11 FOR BEARING DETAILS.
5. ALL MAIN REINFORCEMENT SHALL BE SIZE #8, SPACED AS SHOWN, UNLESS NOTED OTHERWISE.
6. FILTER FABRIC AND GEOTEXTILE SHALL CONFORM TO SECTION 919 OF THE MARYLAND STD. CONSTRUCTION SPECIFICATIONS.
7. FOUNDATION STONE SHALL BE 3/4" STONE CONFORMING TO SECTION 901 OF THE MARYLAND STD. CONSTRUCTION SPECIFICATIONS.
8. FOLLOWING EXCAVATION, THE PROPOSED FOOTING SUBGRADE SHALL BE INSPECTED BY THE OWNER'S REPRESENTATIVE, WHO MAY DETERMINE THAT THE FOUNDATION STONE UNDERLAYMENT MAY NEED TO BE INCREASED IN THICKNESS IN ORDER TO PROVIDE A SUITABLE FOUNDATION, SEE GENERAL NOTES.
9. THE TOP OF DECK AT THE TOWER IS APPROXIMATELY AT THE SAME ELEVATION AS THE TOP OF PEDESTAL.
10. MINIMUM EARTH COVER ON FOOTING = 3'-0\".
11. FOR DETAILS OF YEAR MARKER, SEE DRAWING B11.
12. TOWER FOOTING SHALL BE FOUNDED ON FIRM SUBGRADE OR EXTENDED TO ROCK, AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

**WEST TOWER FOOTING AND  
PEDESTAL ELEVATION**



**SECTION A**

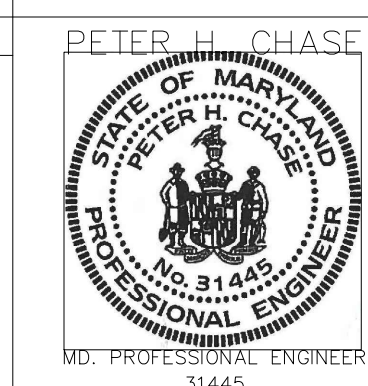


**CHASE ENGINEERING, LLC**

3626 MAGNOLIA DRIVE  
EASTON, PA  
(484) 484-8367

FOOTING DETAILS – WEST TOWER  
CEDAR CREEK – PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER  
HOWARD COUNTY, MARYLAND

DATE	AUTH.	BY	REVISIONS

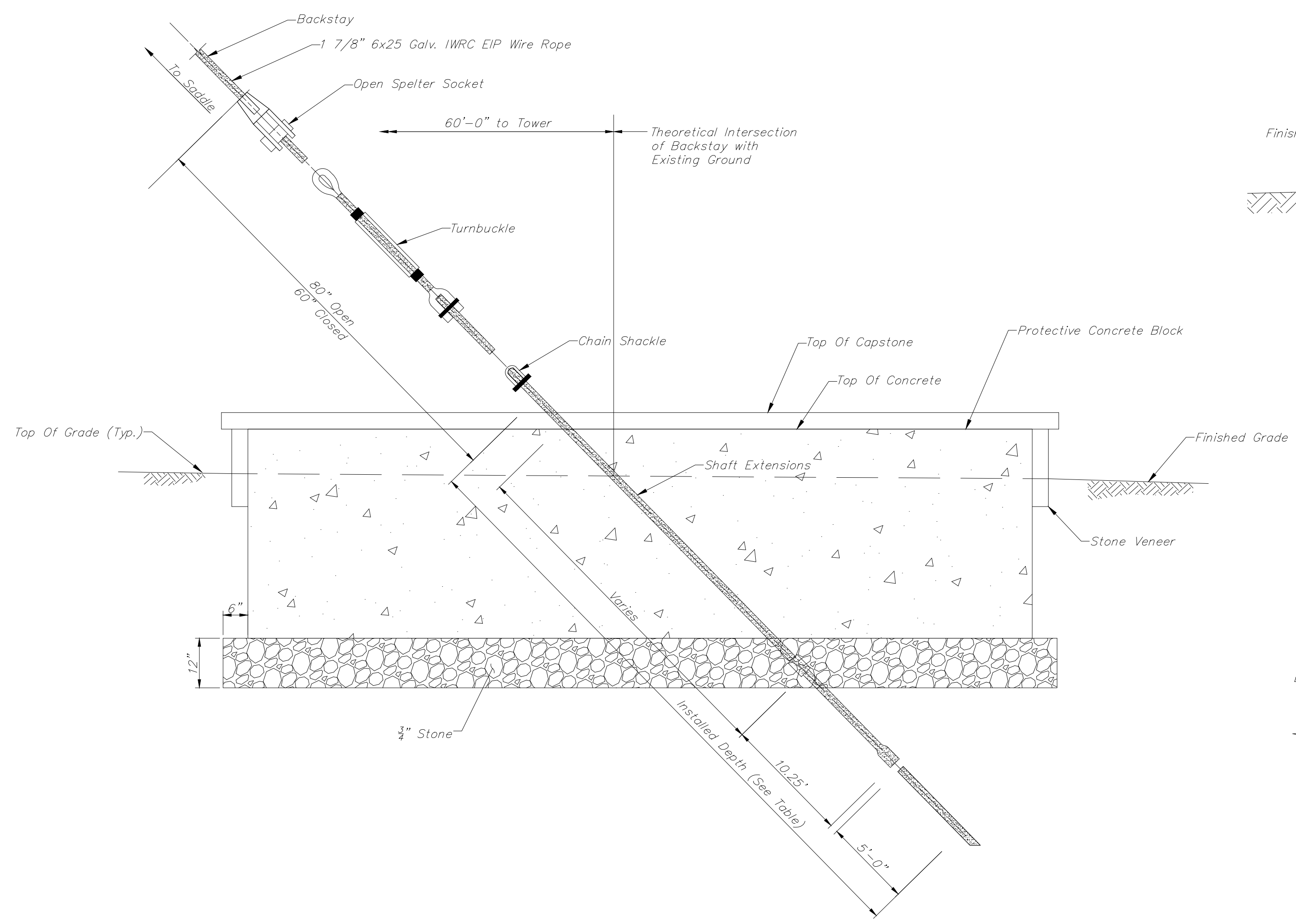


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DRAWN BY: EAF

CHECKED BY:

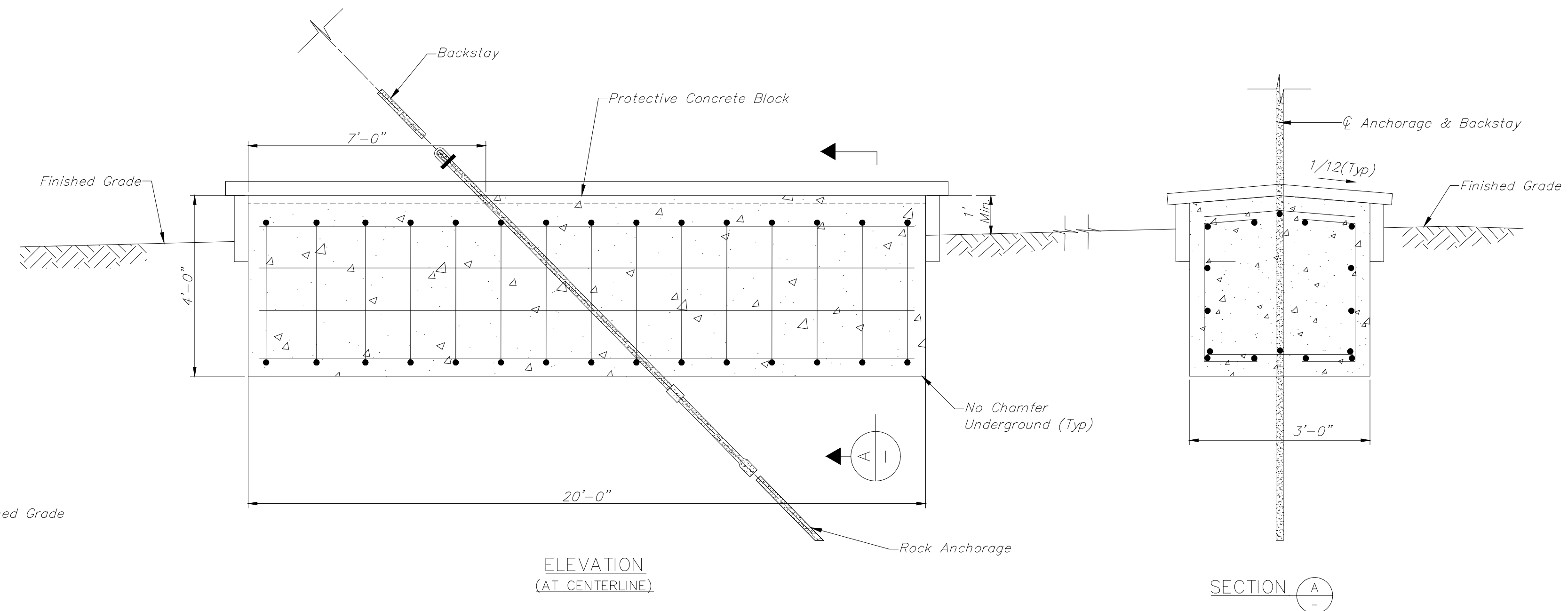
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THE CONSTRUCTION MUST BE PERFORMED IN STRICT ACCORDANCE WITH THESE PROJECT DRAWING(S). ERRORS AND/OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. CHASE ENGINEERING WILL NOT HAVE CONTROL OF, NOR BE RESPONSIBLE FOR, THE CONSTRUCTION MEANS, METHODS, PROCEDURES, OR SAFETY PRECAUTIONS IN CONNECTION WITH THE PROPOSED WORK. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, BEFORE ORDERING MATERIALS OR BEGINNING WORK. THESE DOCUMENTS ARE THE PROPERTY OF CHASE ENGINEERING, LLC. ANY USE OF A COPY THAT DOES NOT CONTAIN AN ORIGINAL RED OR CRIMPED SEAL IS STRICTLY PROHIBITED. THESE DOCUMENTS ARE NOT PUBLISHED AND ALL RIGHTS ARE RESERVED BY CHASE ENGINEERING, LLC.



ROCK ANCHOR BACKSTAY ANCHORAGE  
SUGGESTED DETAILS

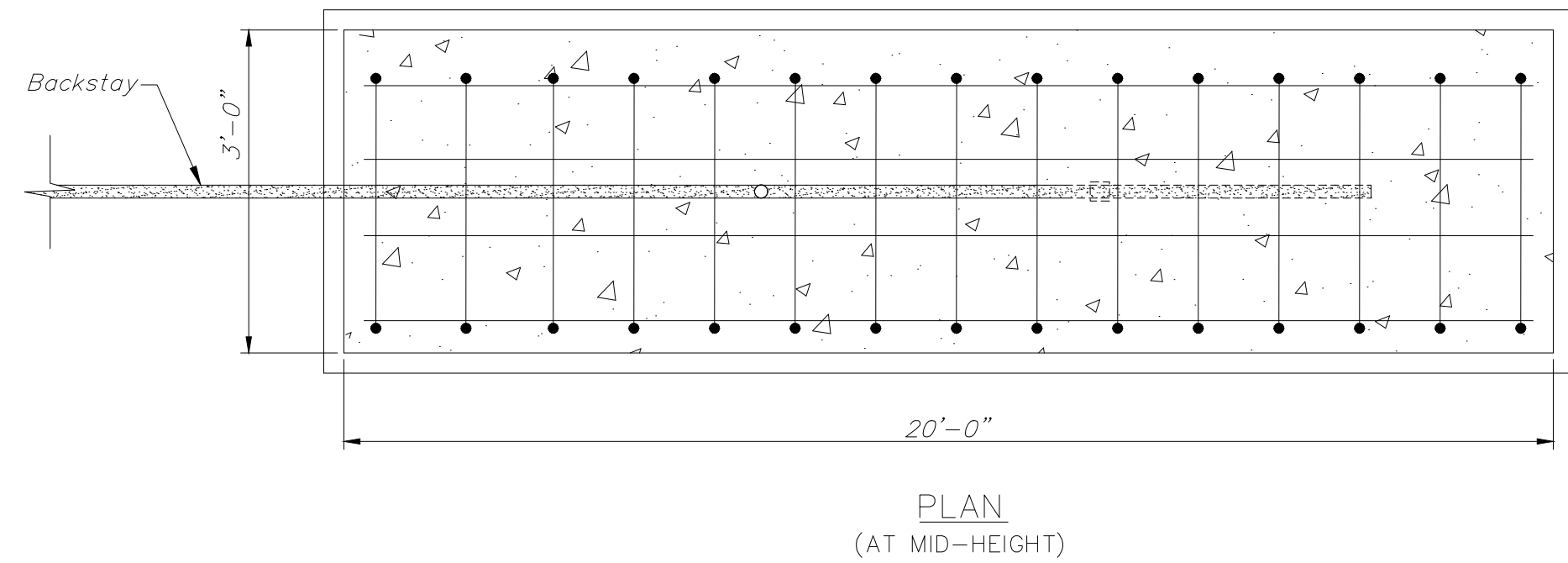
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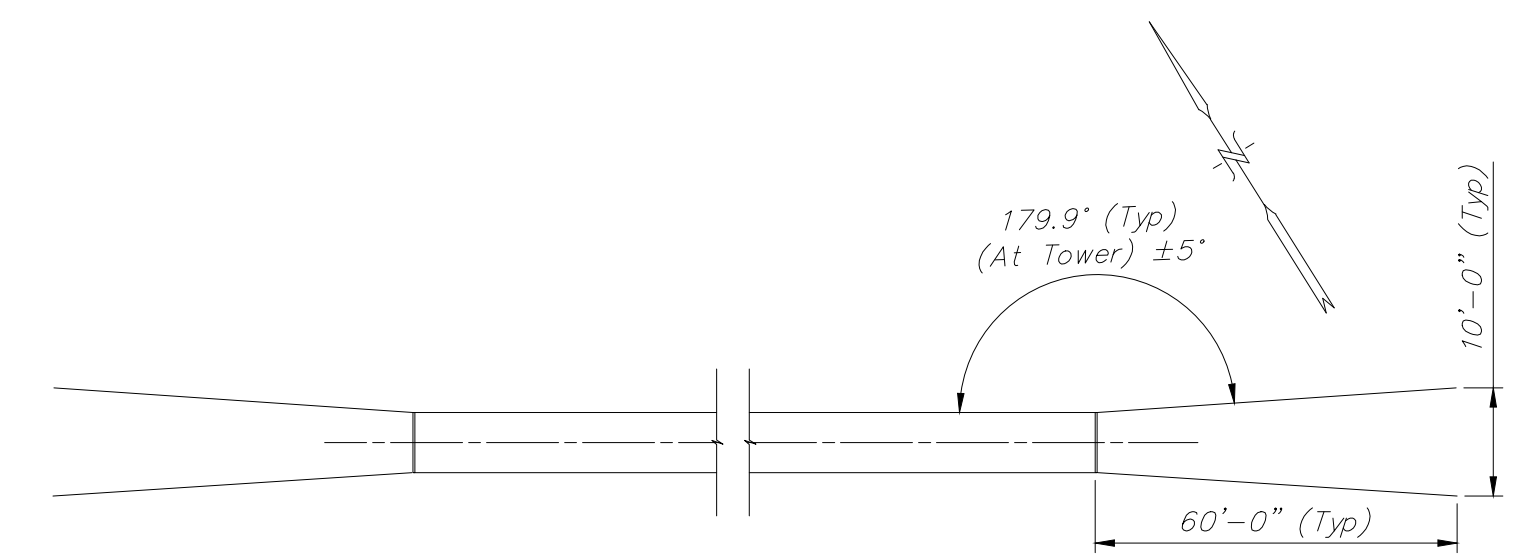
ANCHORAGE REINFORCEMENT DETAILS

NOT TO SCALE

- NOTES:**
- SEE DRAWING B2 FOR GENERAL NOTES.
  - ALL REINFORCEMENT TO BE #5, SPACED AS SHOWN.
  - MINIMUM COVER ON REINFORCEMENT TO BE 4", UNLESS NOTED OTHERWISE.
  - LAP OF REINFORCEMENT TO BE 2'-6" MINIMUM.
  - ELEVATIONS VARY.
  - DETAILS SHOWN ARE APPLICABLE TO ROCK ANCHOR SYSTEM; ALTERNATE SYSTEM MAY BE MODIFIED. SEE SPECIFICATIONS.
  - MINIMUM SPACING BETWEEN ANCHORAGE POINTS EQUALS TEN FEET.
  - EACH ROCK ANCHOR SHALL BE PULLOUT TESTED TO 133% OF NOMINAL CAPACITY, SEE SPECIFICATIONS. TESTING TO BE IN ACCORDANCE WITH ASTM D4435.
  - FOR CAPSTONE AND STONE VENEER DETAILS, SEE DRAWING B8.
  - BACKSTAY LOAD MAXIMUM EQUALS 301,000 LBS. PER BACKSTAY
  - IF MODIFICATION OR RELOCATION OF ANCHOR POINT REQUIRED, CONTRACTOR SHALL SUBMIT A REQUEST IN WRITING TO THE OWNER'S DEPRECIATIVE FOR APPROVAL.



PLAN  
(AT MID-HEIGHT)



PLAN OF ANCHORS

NOT TO SCALE

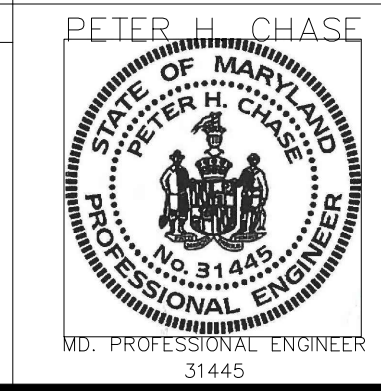
ROCK ANCHOR INSTALLED DEPTH		
	DESIGN	AS-BUILT
WEST BANK	0	0
NORTH ANCHOR	32.69'	
SOUTH ANCHOR	32.69'	

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DATE	AUTH.	BY	REVISIONS

**CHASE ENGINEERING, LLC**  
 3626 MAGNOLIA DRIVE  
 EASTON, PA  
 (484) 484-8367

ANCHOR DETAILS 1 – ROCK ANCHORS  
 CEDAR CREEK – PEDESTRIAN  
 BRIDGE OVER THE MIDDLE  
 PATUXENT RIVER  
 HOWARD COUNTY, MARYLAND



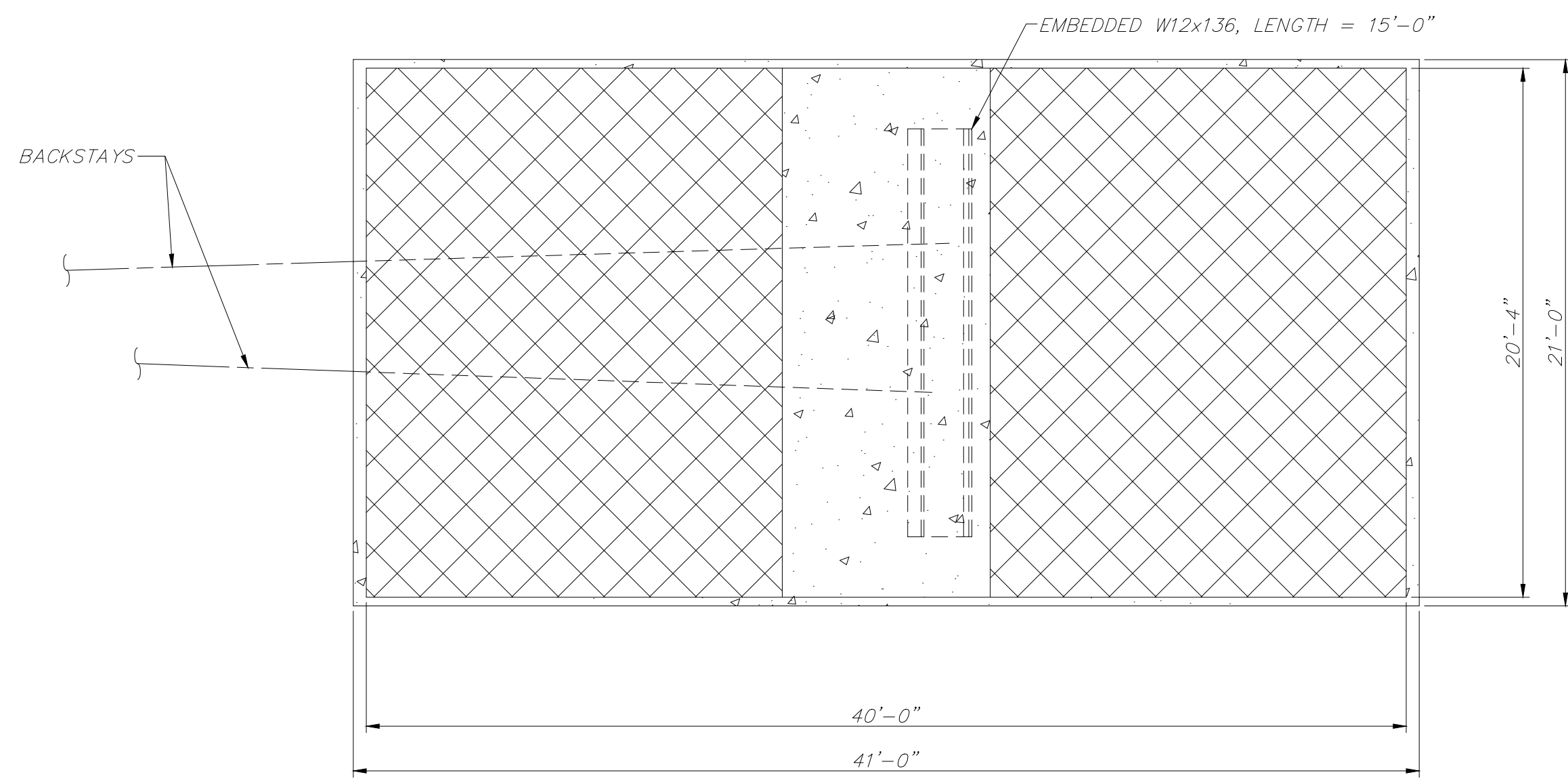
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 DRAWN BY: EAF

DATE: \_\_\_\_\_ SCALE: AS SHOWN

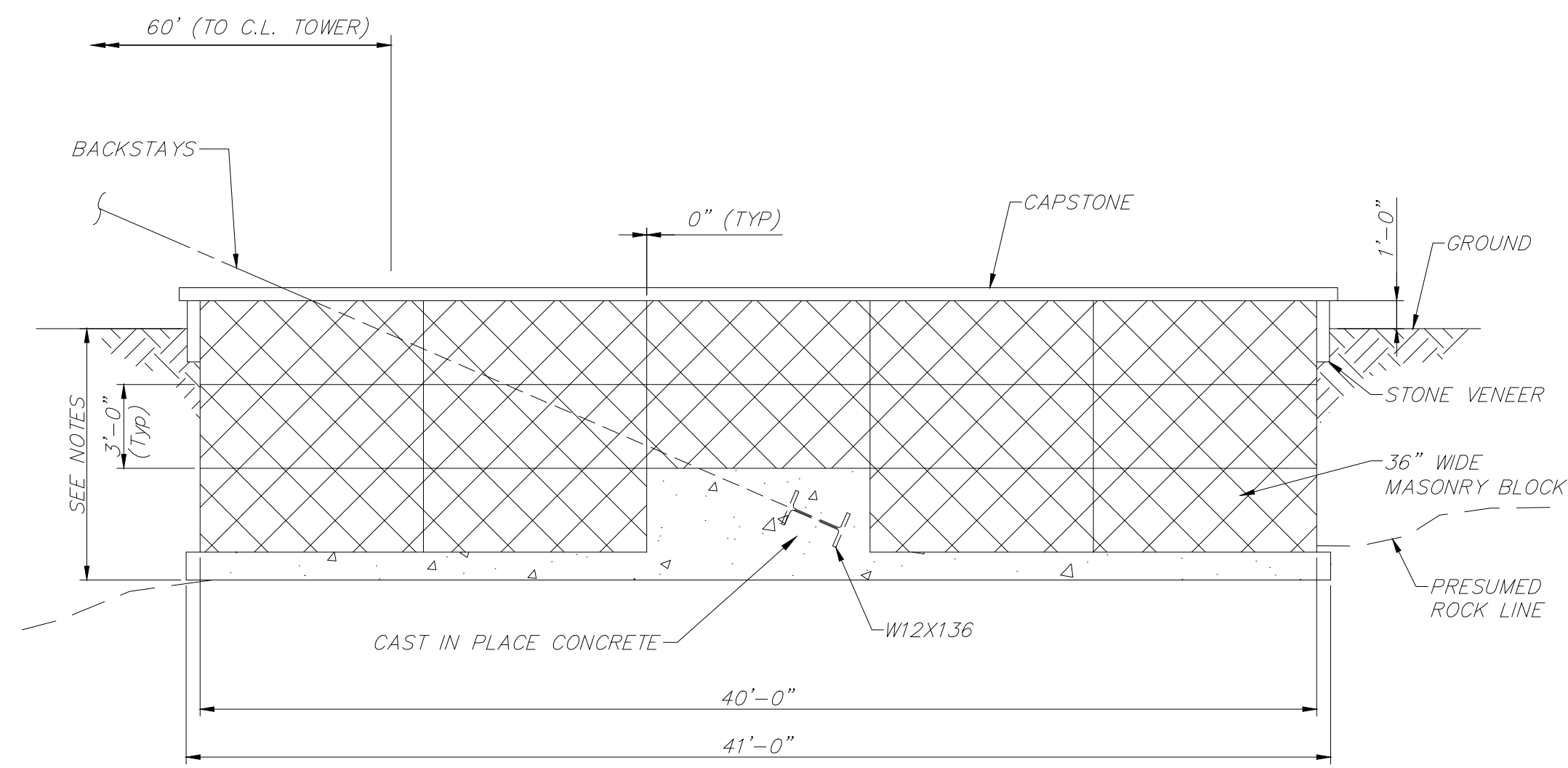
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22/XX

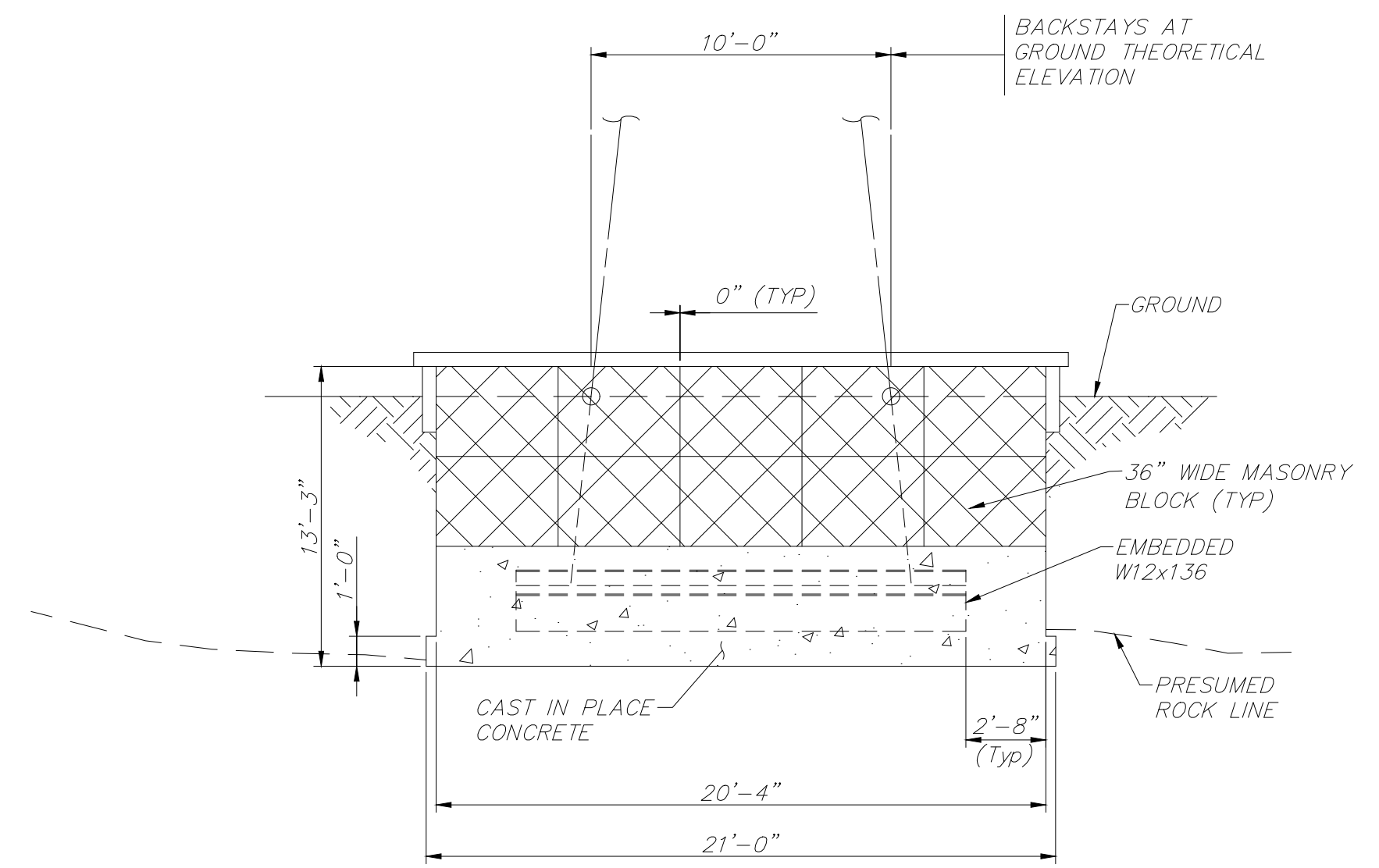
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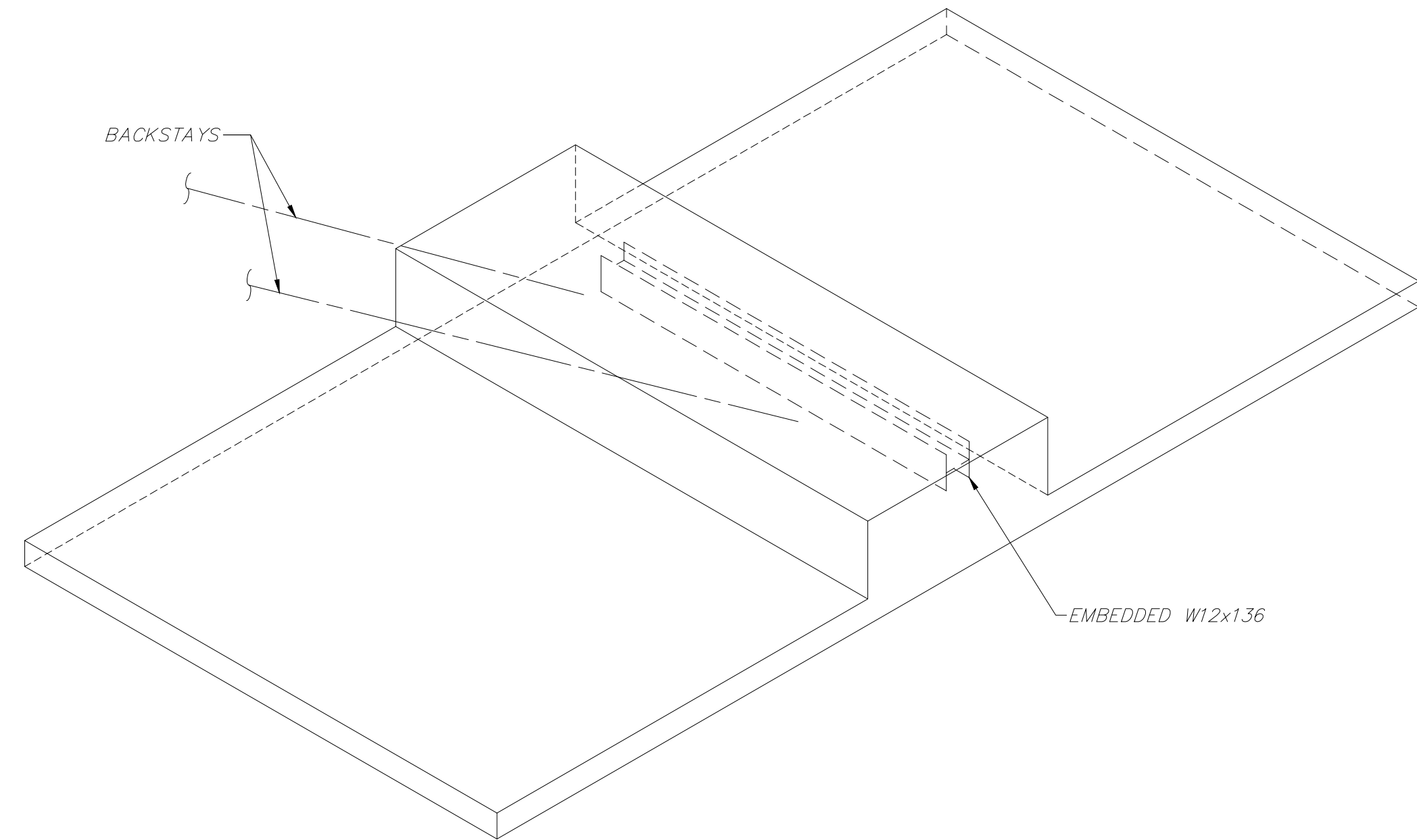
PLAN  
NOT TO SCALE



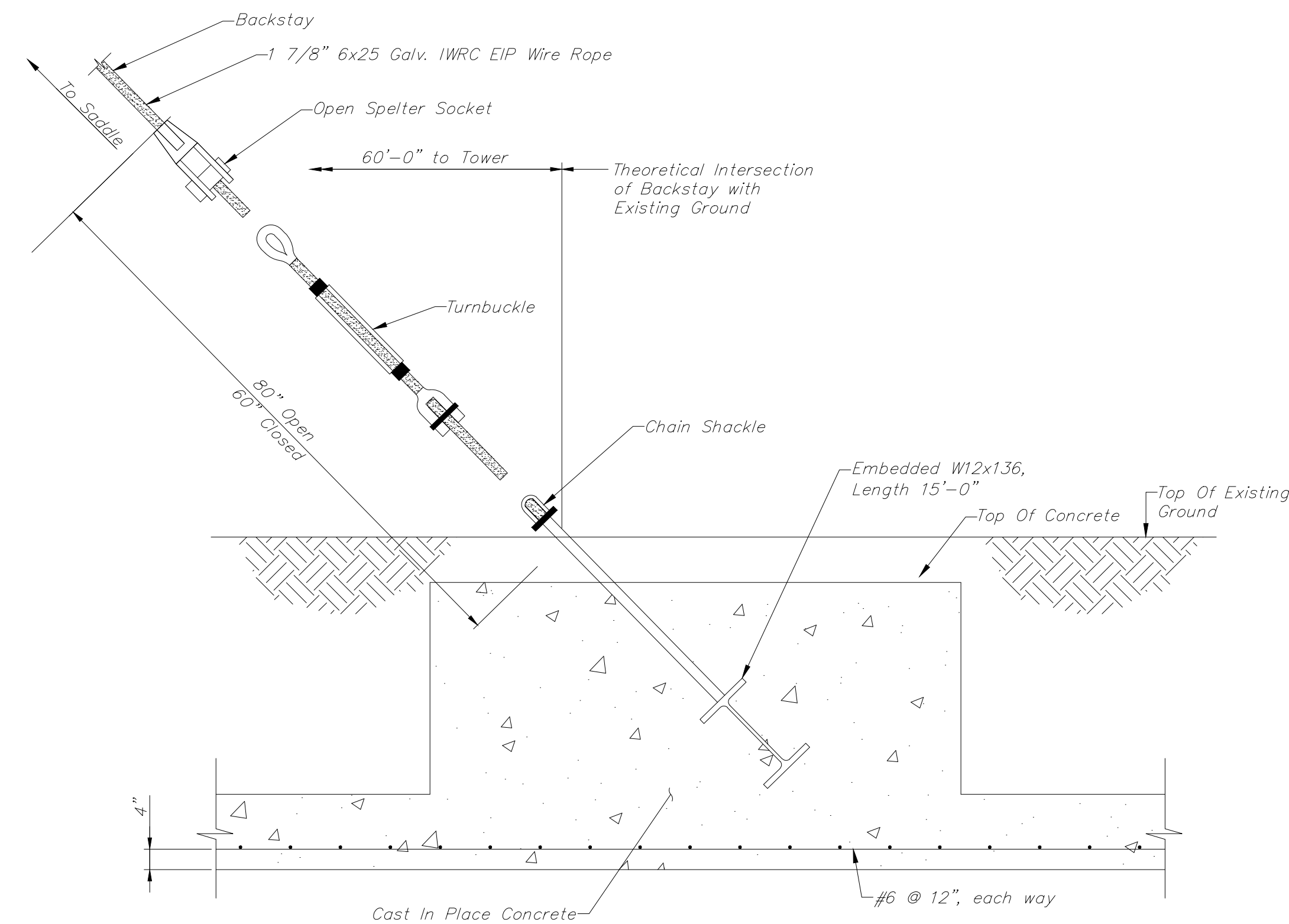
SIDE ELEVATION  
NOT TO SCALE



FRONT ELEVATION  
NOT TO SCALE



CAST IN PLACE CONCRETE SLAB  
(MASONRY BLOCKS AND TOPOGRAPHY NOT SHOWN)  
NOT TO SCALE



MASS CONCRETE BACKSTAY ANCHORAGE  
NOT TO SCALE  
(BLOCKS NOT SHOWN)

STEEL BEAM NOTES:

1. MINIMUM COVER ON EMBEDDED BEAM EQUALS 6".
2. EAST AND WEST SIMILAR.
3. EMBEDDED STEEL BEAM SHALL BE GRADE 50 KSI, GALVANIZED.
4. FOR DETAILS, SEE DRAWING B8.

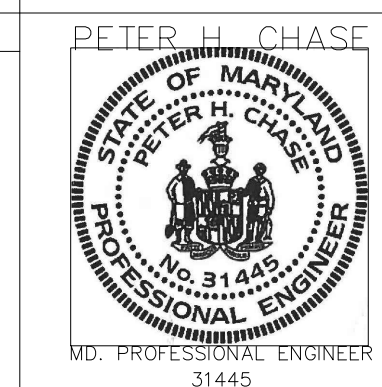
NOTES:

1. SEE DRAWING B2 FOR GENERAL NOTES.
2. MINIMUM COVER ON EMBEDDED BEAM EQUALS 6".
3. EAST AND WEST SIMILAR.
4. EMBEDDED STEEL BEAM SHALL BE GRADE 50 KSI, GALVANIZED.
5. FOR CAPSTONE AND STONE VENEER DETAILS, SEE DRAWING B8.
6. MINIMUM COEFFICIENT OF FRICTION ASSUMED = 0.3
7. REQUIRED MINIMUM EMBEDMENT OF ANCHORAGE = 12.0 FEET.
8. IF MODIFICATION OR RELOCATION OF ANCHOR POINT REQUIRED, CONTRACTOR SHALL SUBMIT A REQUEST IN WRITING TO THE OWNER'S DEPRECIATIVE FOR APPROVAL.
9. BLOCK SIZES SHOWN ARE NOMINAL ONLY.
10. INTERLOCK DETAIL OF ANCHOR BLOCKS SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE FOR APPROVAL.
11. CABLE CONNECTION DETAILS ARE SUGGESTED ONLY, FINAL CABLE CONNECTION DETAIL SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE FOR APPROVAL.

CHASE ENGINEERING, LLC

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ANCHOR DETAILS 2 MASS ANCHORAGE  
CEDAR CREEK - PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER  
HOWARD COUNTY, MARYLAND

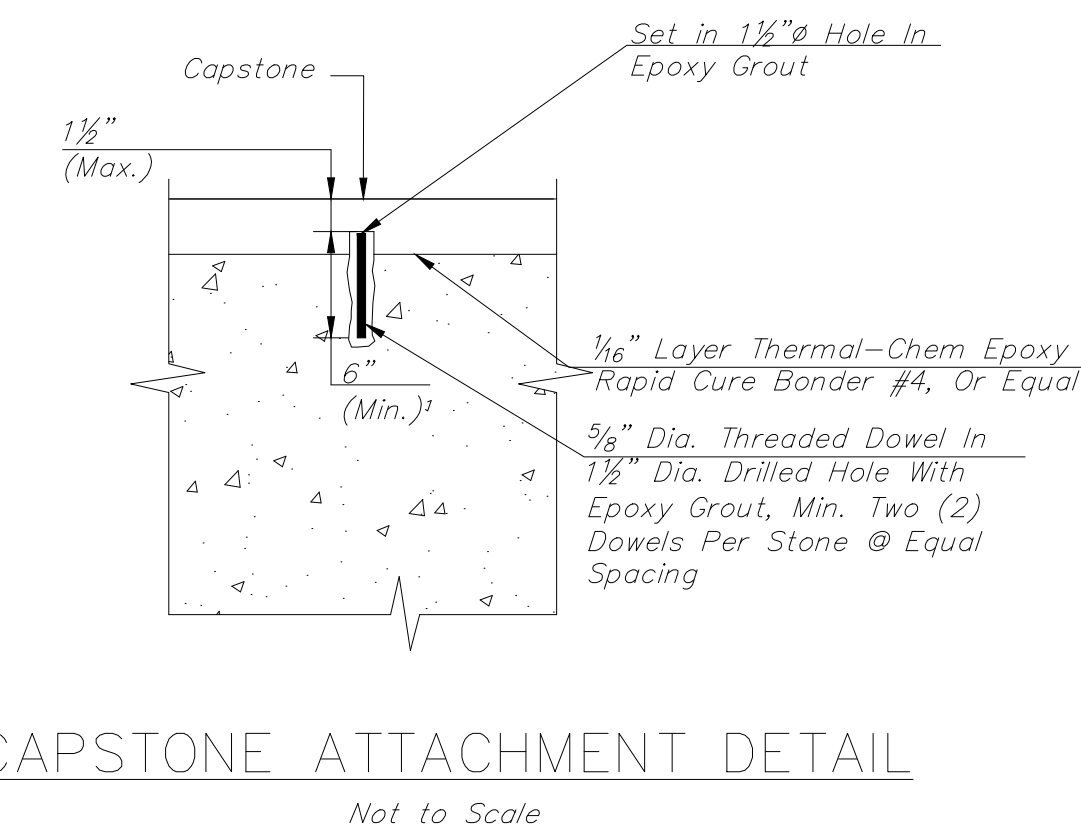
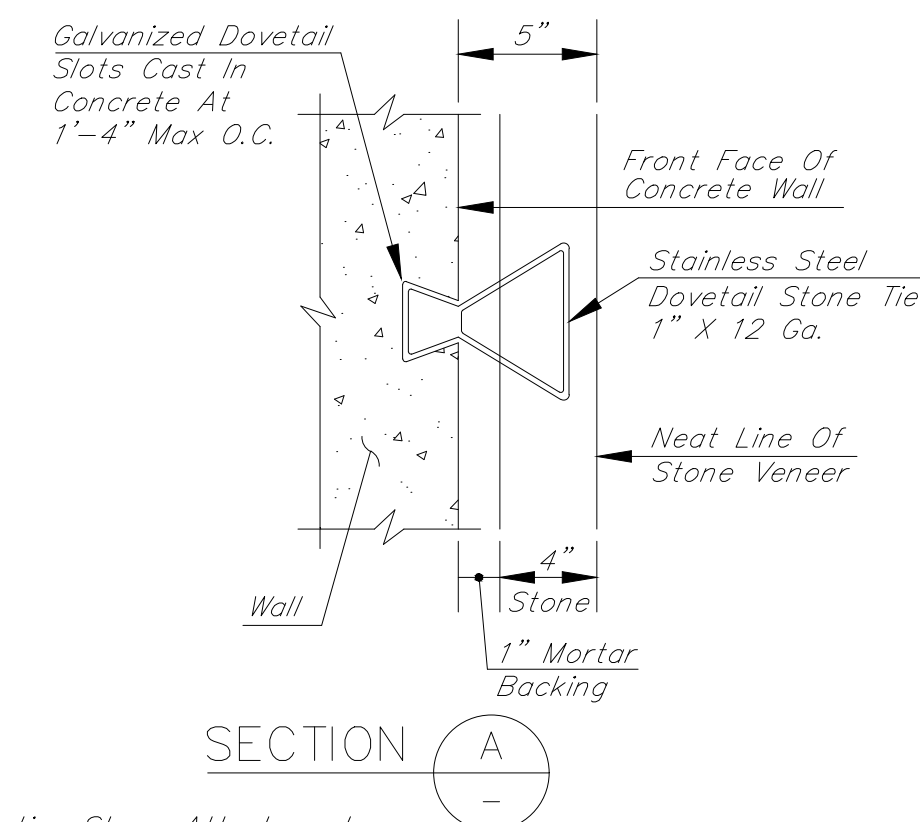
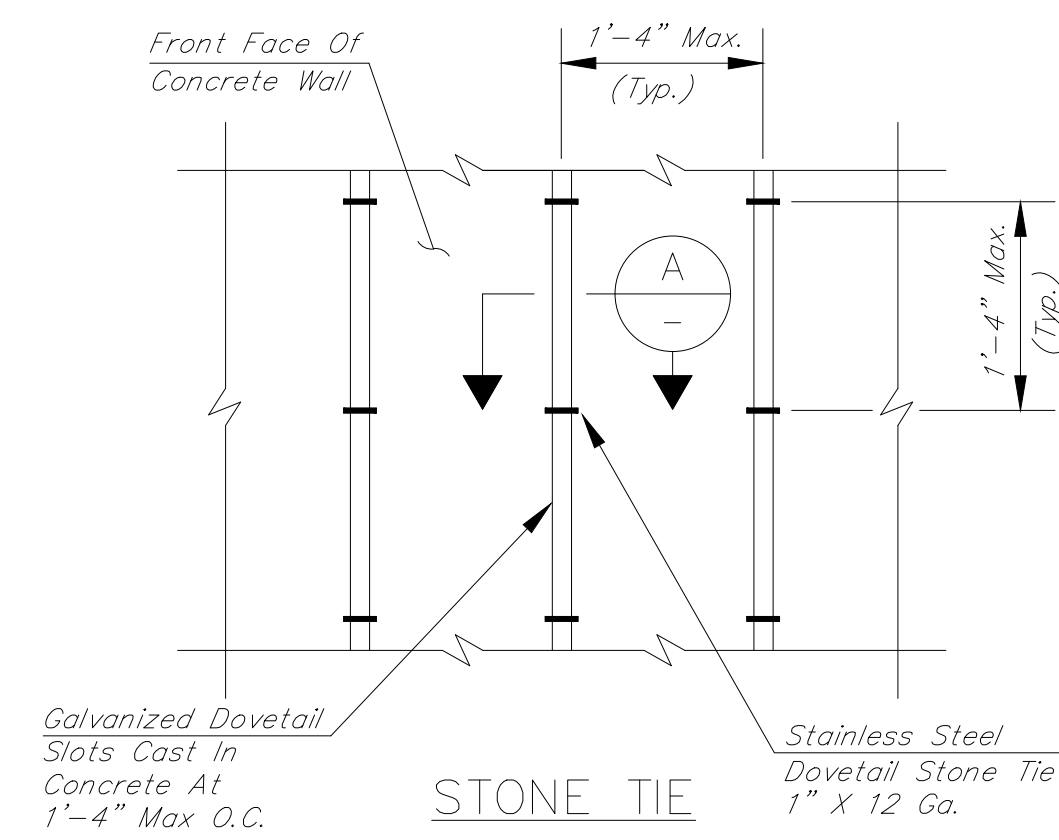


B7  
B12

DESIGNED BY: PHC  
DRAWN BY: EAF  
DATE: SCALE: AS SHOWN  
CHECKED BY: 23/XX

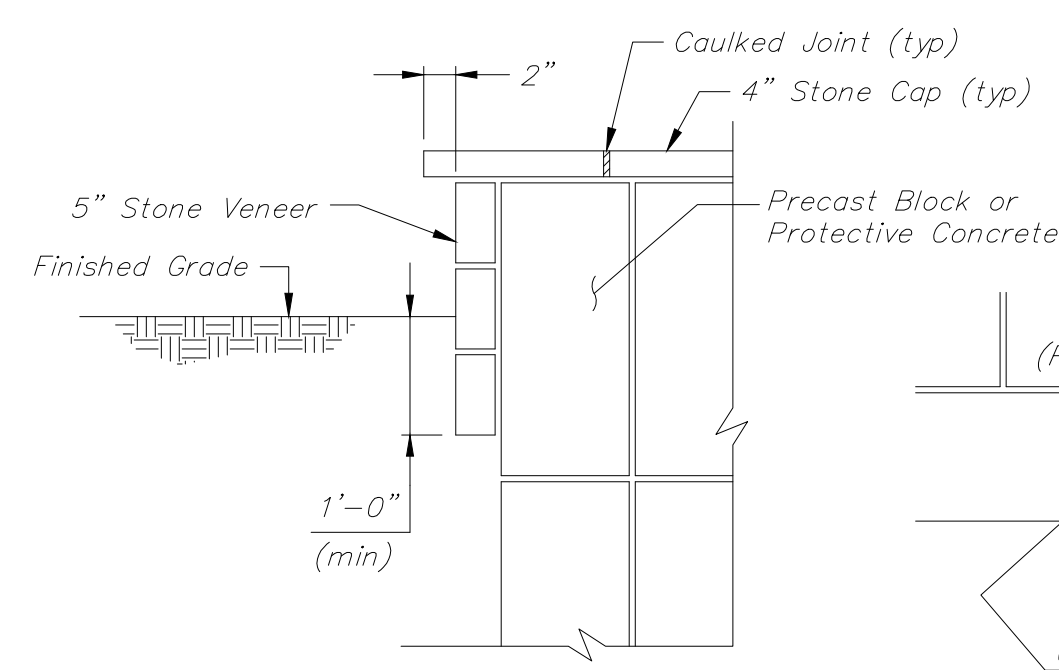
DATE	AUTH.	BY	REVISIONS

THE CONSTRUCTION MUST BE PERFORMED IN STRICT ACCORDANCE WITH THESE PROJECT DRAWING(S). ERRORS AND/OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. CHASE ENGINEERING WILL NOT HAVE CONTROL OF, NOR BE RESPONSIBLE FOR, THE CONSTRUCTION MEANS, METHODS, PROCEDURES, OR SAFETY PRECAUTIONS IN CONNECTION WITH THE PROPOSED WORK. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, BEFORE ORDERING MATERIALS OR BEGINNING WORK. THESE DOCUMENTS ARE THE PROPERTY OF CHASE ENGINEERING, LLC. ANY USE OF A COPY THAT DOES NOT CONTAIN AN ORIGINAL RED OR CRIMPED SEAL IS STRICTLY PROHIBITED. THESE DOCUMENTS ARE NOT PUBLISHED AND ALL RIGHTS ARE RESERVED BY CHASE ENGINEERING, LLC.

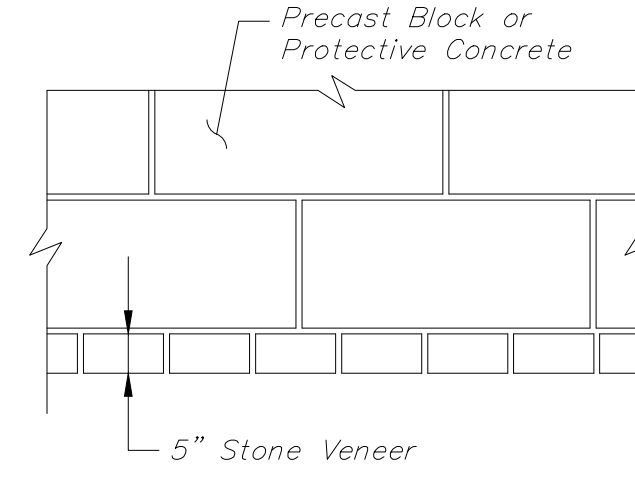
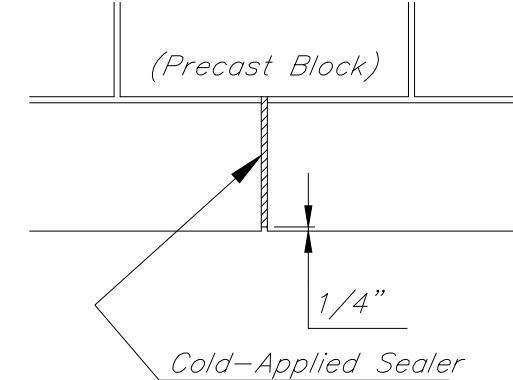


CAPSTONE ATTACHMENT DETAIL  
Not to Scale

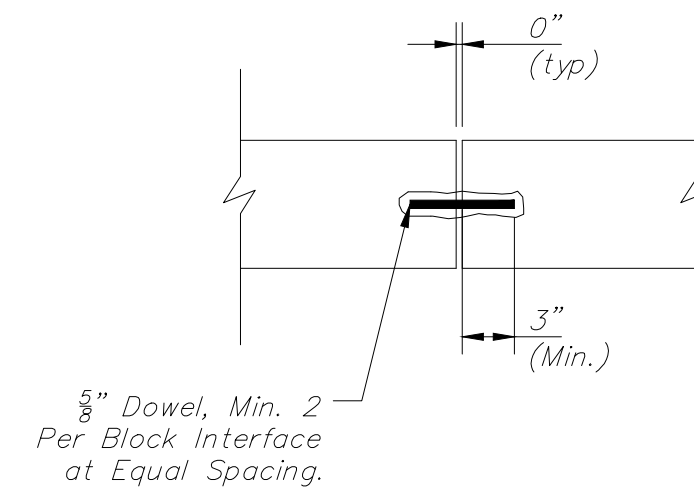
Note: Contractor May Submit Alternative Stone Attachment Detail For Approval By The Owner's Representative.



TYPICAL SECTION  
Not to Scale

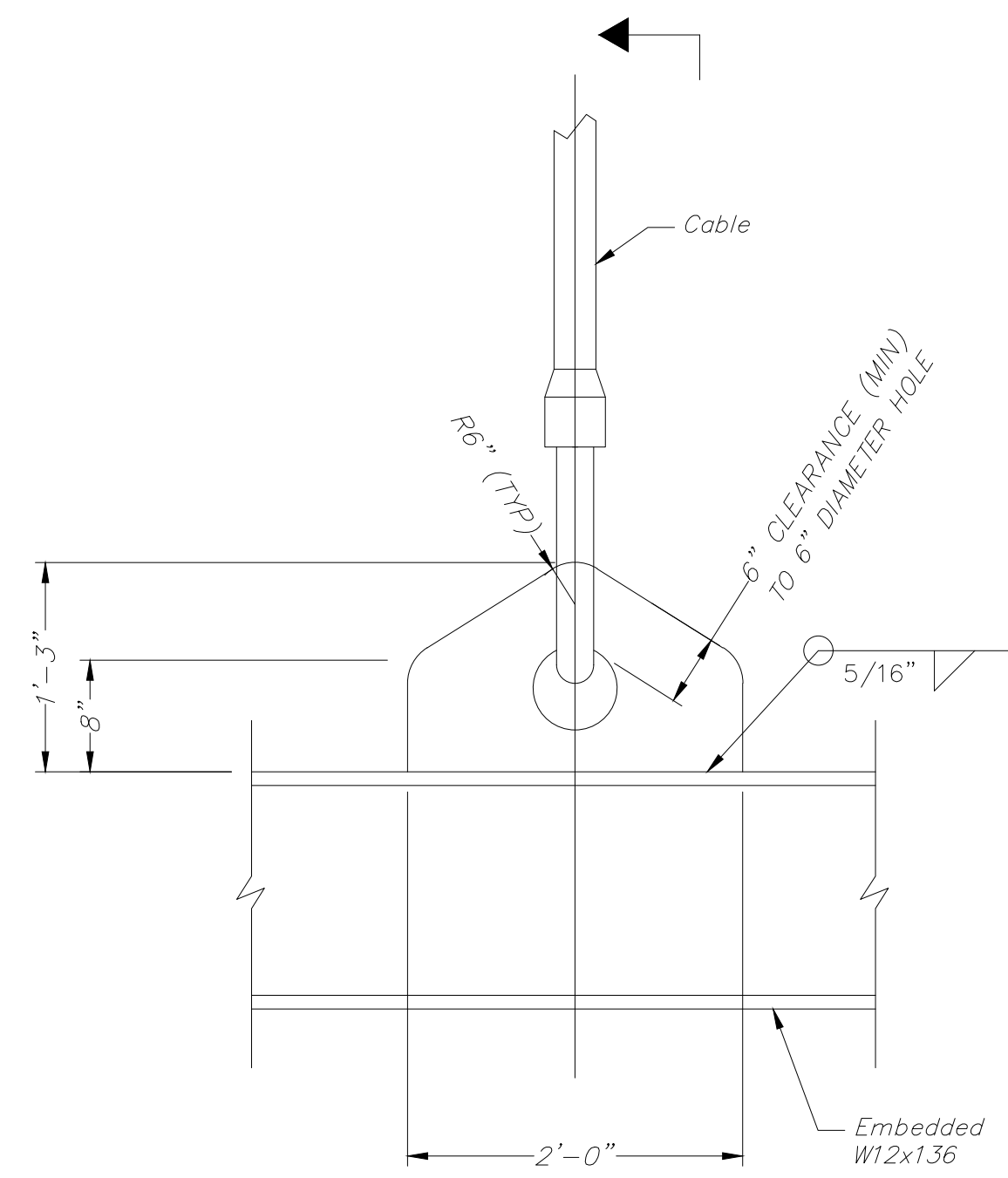


PLAN  
Not to Scale

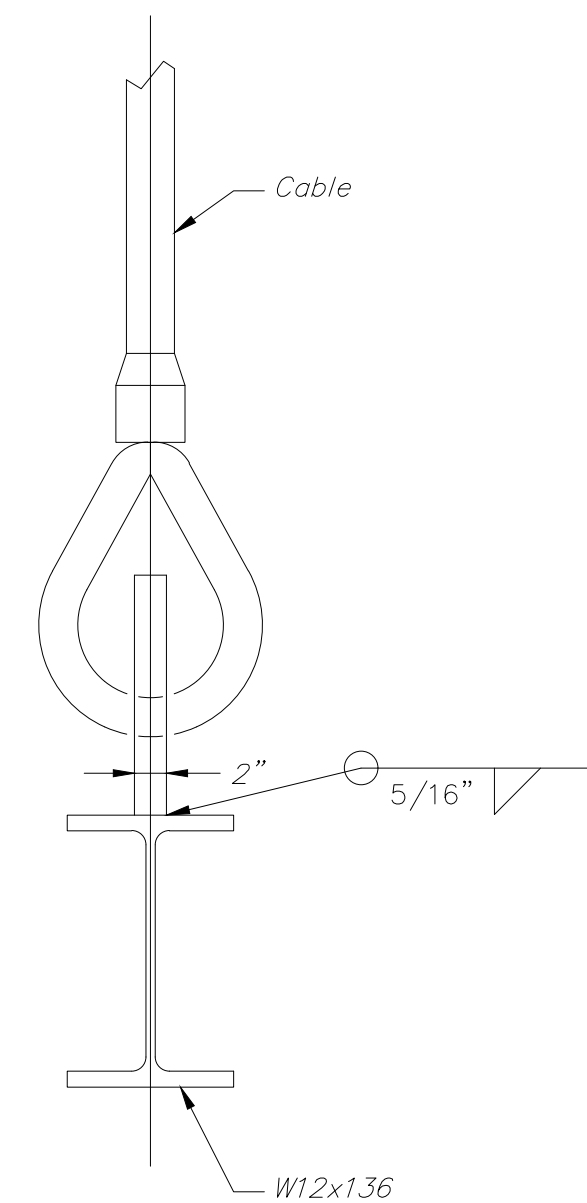


PRECAST BLOCK CONNECTION DETAIL  
Not to Scale

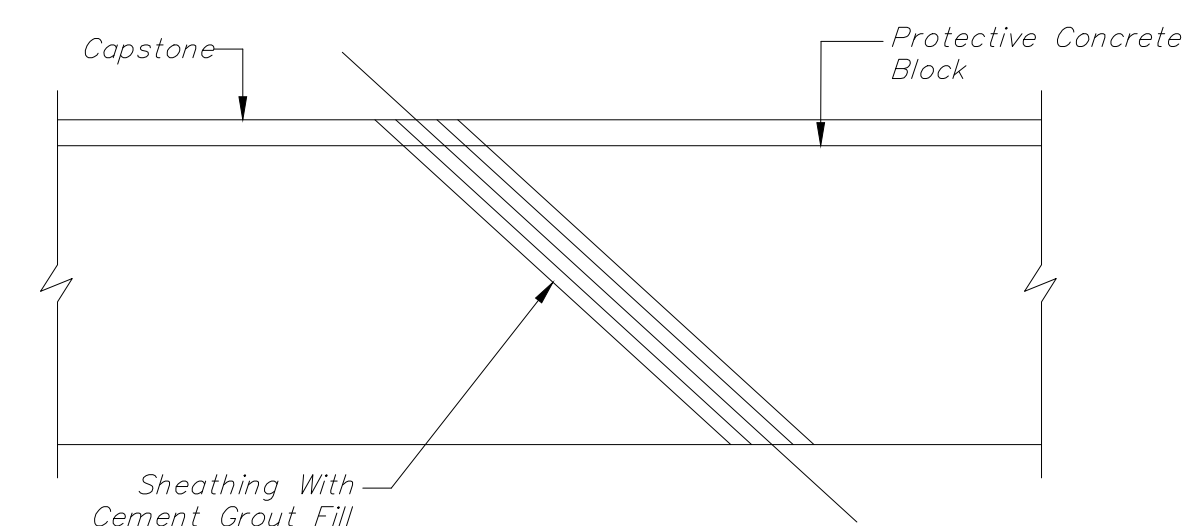
STONE VENEER DETAILS  
Not to Scale



ELEVATION  
Not to Scale



SECTION B  
-



DETAIL FOR ROCK ANCHOR  
Not to Scale  
(Backstay at Precast Block Mass Anchorage Similar)

NOTES:

1. JOINT CAULKING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS.
2. DETAILS NOT SHOWN SHALL BE DEVELOPED DURING CONSTRUCTION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
3. CONNECTION DETAILS SHALL BE MODIFIED AS NEEDED.
4. CAPSTONE AND STONE VENEER SHALL BE IN ACCORDANCE WITH OWNER'S DIRECTION, SEE SECTIONS.

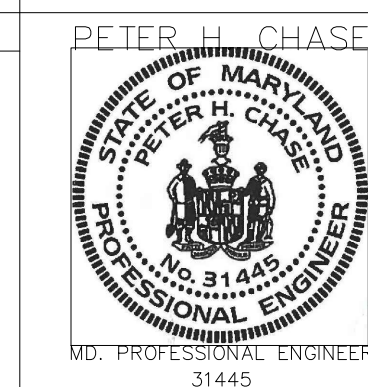
CHASE ENGINEERING, LLC

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EASTON, PA

(484) 484-8367

CABLE DETAILS  
CEDAR CREEK - PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER

HOWARD COUNTY, MARYLAND



B8  
B12

DESIGNED BY: PHC  
DRAWN BY: EAF

CHECKED BY:

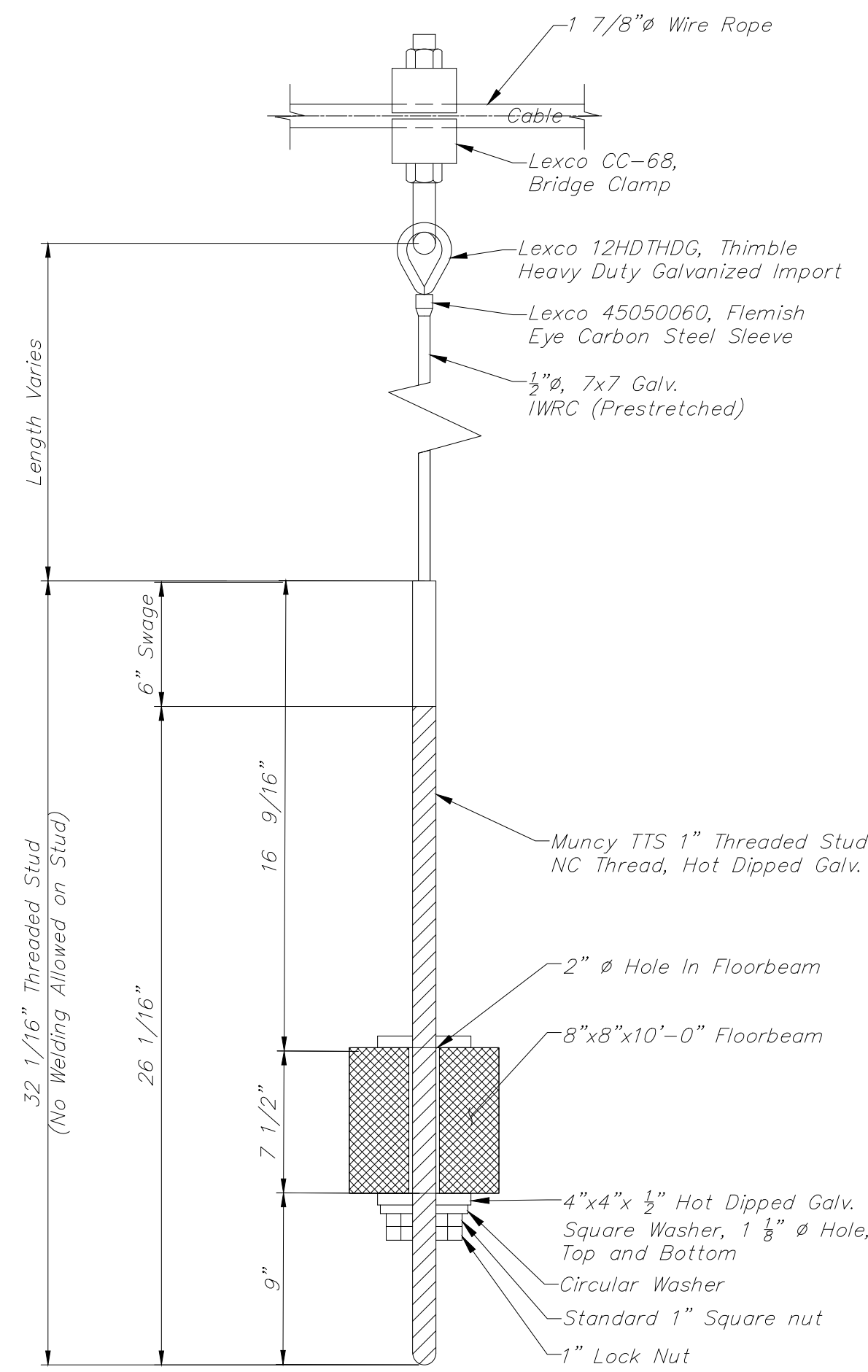
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24  
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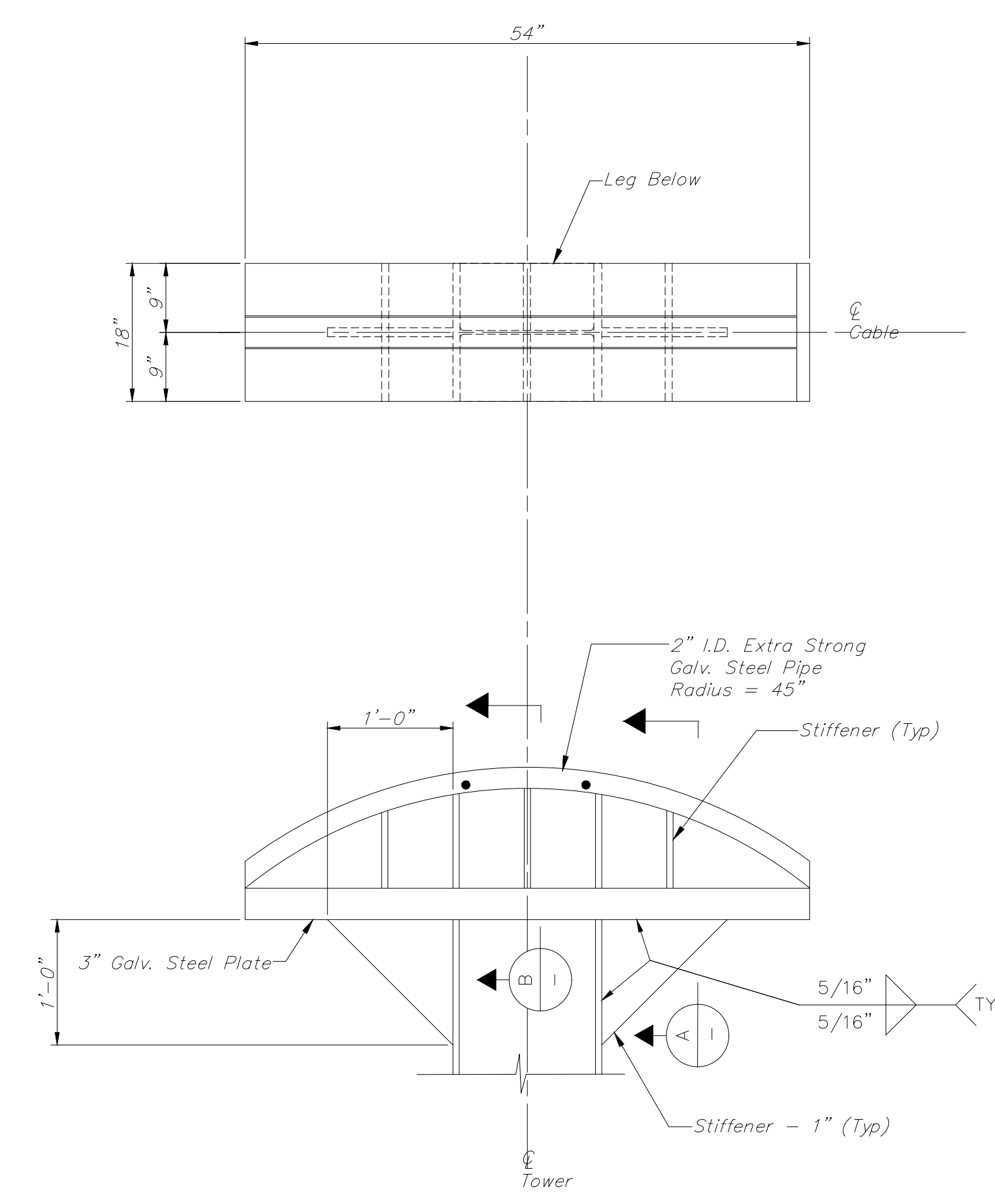
DATE	AUTH.	BY	REVISIONS

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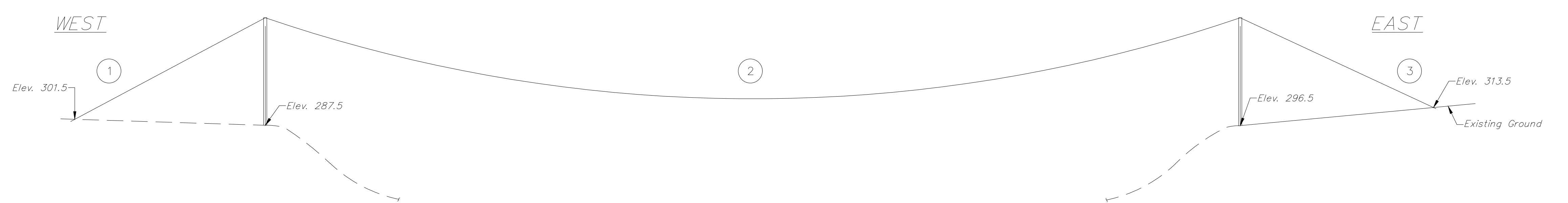
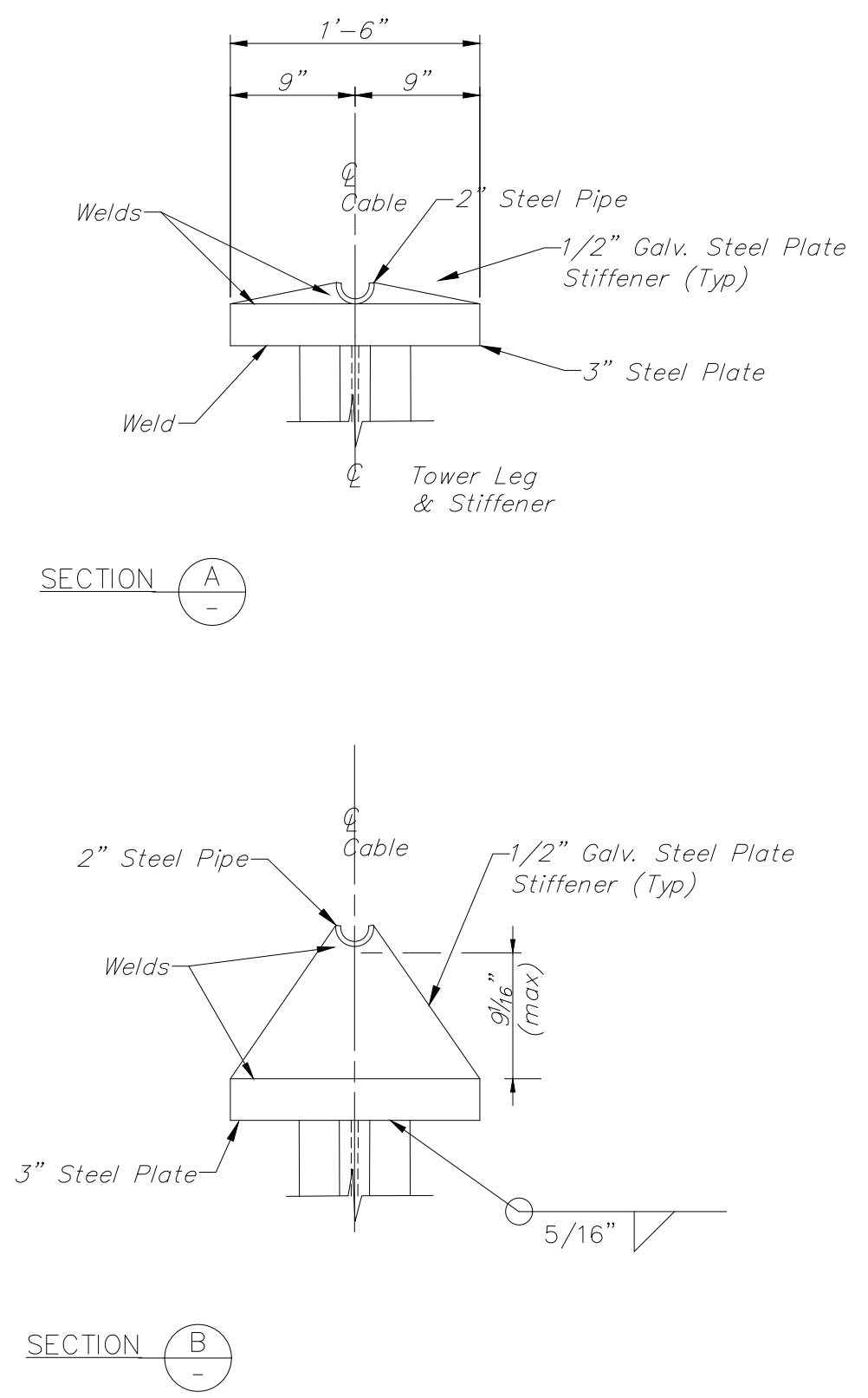


**SUSPENDER DETAIL**  
NOT TO SCALE

Suspender shown Vertical; Inclination Angle Not Shown



**DETAIL 4**  
B3  
**TOWER CABLE SADDLE DETAILS**  
NOT TO SCALE



**UNSTRESSED INSTALLATION LENGTH OF CABLE**

- \* ① 72.04'
- \* ② 308.59'
- \* ③ 72.04'

**FINAL LENGTHS OF CABLE (DEAD LOAD ONLY)**

- TOWERS PLUMB
- ALL DEAD LOADS
- \* ① 72.11'
- \* ② 308.87'
- \* ③ 72.11'

\* SUBJECT TO REVISION OF ANCHOR LOCATION FOR FIELD ADJUSTMENT

\* **MAIN CABLE FORCE – PER EACH**

- FULL DEAD LOAD = 106.2 KIPS
- DEAD LOADS PLUS LIVE LOADS (MAX) = 318.1 KIPS

\* **BACKSTAY FORCE (TIE-BACK) – PER EACH**

- FULL DEAD LOAD = 116.9 KIPS
- DEAD LOADS PLUS LIVE LOADS (MAX) = 349.9 KIPS

\* **INCLUDES SAFETY FACTOR = 3.5**

\* **CABLE SAG – MAIN SPAN**

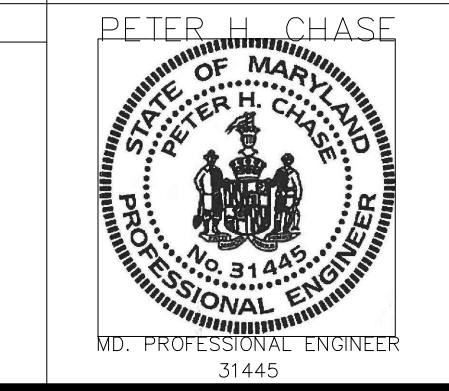
- INSTALLATION: 31.584'
- FULL DEAD LOAD: 32.000'

**NOTES:**

1. SEE DRAWING B2 FOR GENERAL NOTES.
2. SEE DRAWING B1 FOR TABLE OF FINAL SUSPENDER LENGTHS.
3. DETAILS SHOWN ARE SUGGESTED ONLY. SADDLE DIMENSIONS ARE TO BE CONFIRMED WITH CABLE SUPPLIER, SEE SPECIFICATIONS.
4. ALL WELDS TO BE 5/16", UNLESS NOTED OTHERWISE.
5. ALL VALUES GIVEN ARE APPROXIMATE AND MUST BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
6. ELEVATIONS GIVEN ARE THOSE ASSUMED FOR DESIGN. ANY VARIATION DUE TO SITE CONDITIONS ARE TO BE CONFIRMED WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.

**CHASE ENGINEERING, LLC**  
3626 MAGNOLIA DRIVE  
EASTON, PA  
(484) 484-8367

CABLE DETAILS  
CEDAR CREEK – PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER  
HOWARD COUNTY, MARYLAND



DESIGNED BY: PHC  
DRAWN BY: EAF

DATE: \_\_\_\_\_ SCALE: AS SHOWN

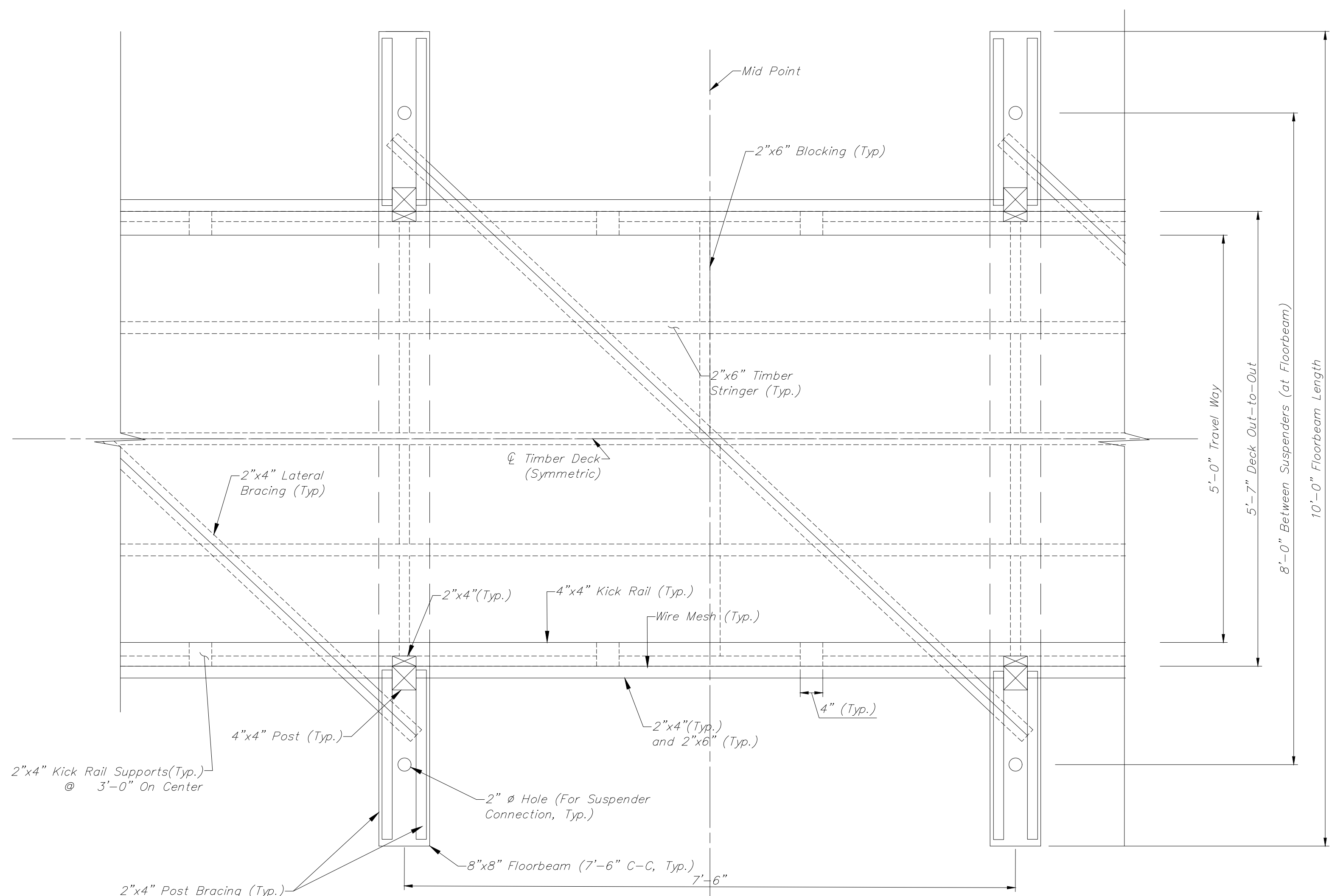
CHECKED BY: \_\_\_\_\_

25/XX

DATE	AUTH.	BY	REVISIONS

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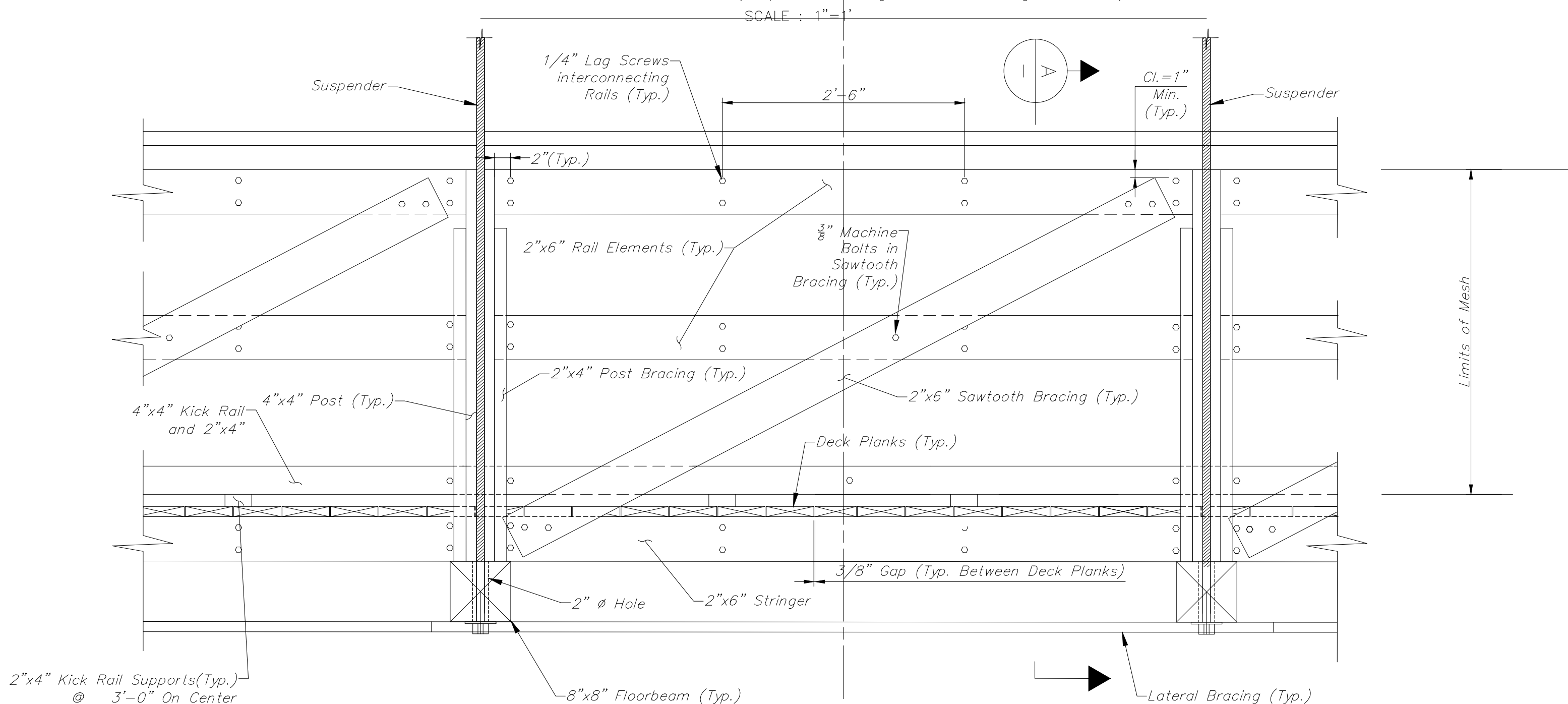
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PLAN (TYPICAL)

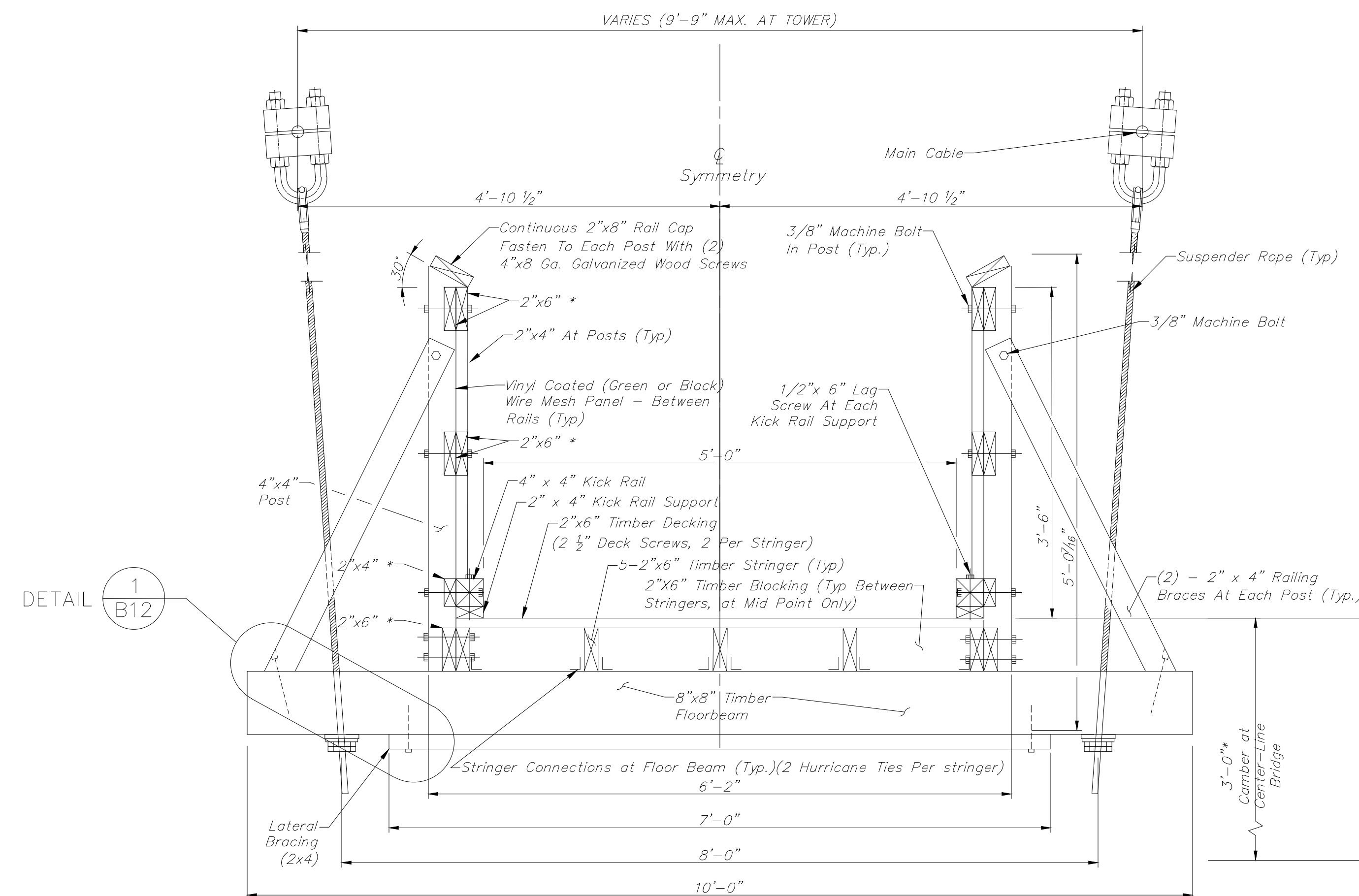
SHOWN AT TOP OF KICK RAIL (Suspenders, Railing, Sawtooth Bracing Not Shown)

SCALE : 1"=1'



ELEVATION (TYPICAL)

SCALE : 1"=1'



TYPICAL SECTION (A)

SCALE IN FEET  
1" = 1'

\* Sawtooth Bracing Not Shown  
Blocking Not Shown

NOTES:

- SEE DRAWING B2 FOR GENERAL NOTES.
- HORIZONTAL RAIL ELEMENTS AND SAWTOOTH BRACING SHALL NOT BE SPLICED BETWEEN POSTS. HORIZONTAL RAIL ELEMENTS SHALL BE A MINIMUM OF 15'-0" LONG.
- MINIMUM STRINGER LENGTH = 15'-0".
- HORIZONTAL RAIL ELEMENTS IN CONTACT SHALL BE CONNECTED WITH 1/4" LAG SCREWS, PLACED IN PAIRS AT 2'-6" (±) CENTERS.
- STRINGERS SHALL BE CONTINUOUS BETWEEN FLOOR BEAMS. ALL STRINGERS SPLICES SHALL BE AT FLOOR BEAM LOCATIONS.
- SEE DRAWING B8 FOR SUSPENDER DETAILS.
- FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE DRAWING B11.
- LATERAL BRACING OMITTED IN END PANELS.
- MESH OPENING 1"X1" (MAXIMUM)
- \* - MEMBER DISCONTINUOUS AT POST. POST NOT TO BE NOTCHED.
- CONNECTIONS SHALL BE MODIFIED AS NEEDED. ALTERNATE FASTENERS MAY INCLUDE THROUGH BOLTS OR "TIMBERLOK".

DATE	AUTH.	BY	REVISIONS

CHASE ENGINEERING, LLC

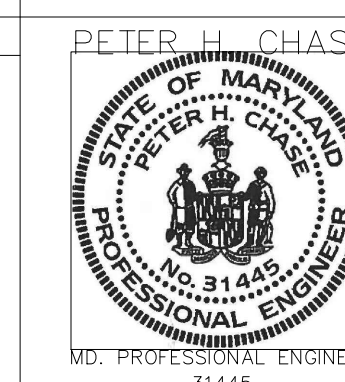
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EASTON, PA

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FRAMING DETAILS

CEDAR CREEK - PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER

HOWARD COUNTY, MARYLAND



B10  
B12

CHECKED BY:

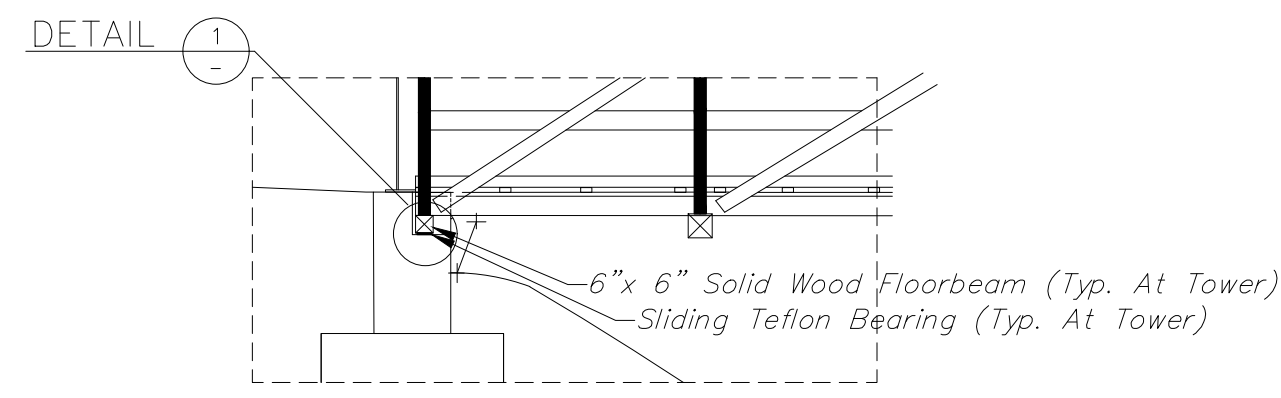
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DRAWN BY: EAF

DATE:

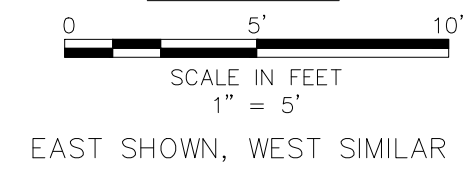
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26  
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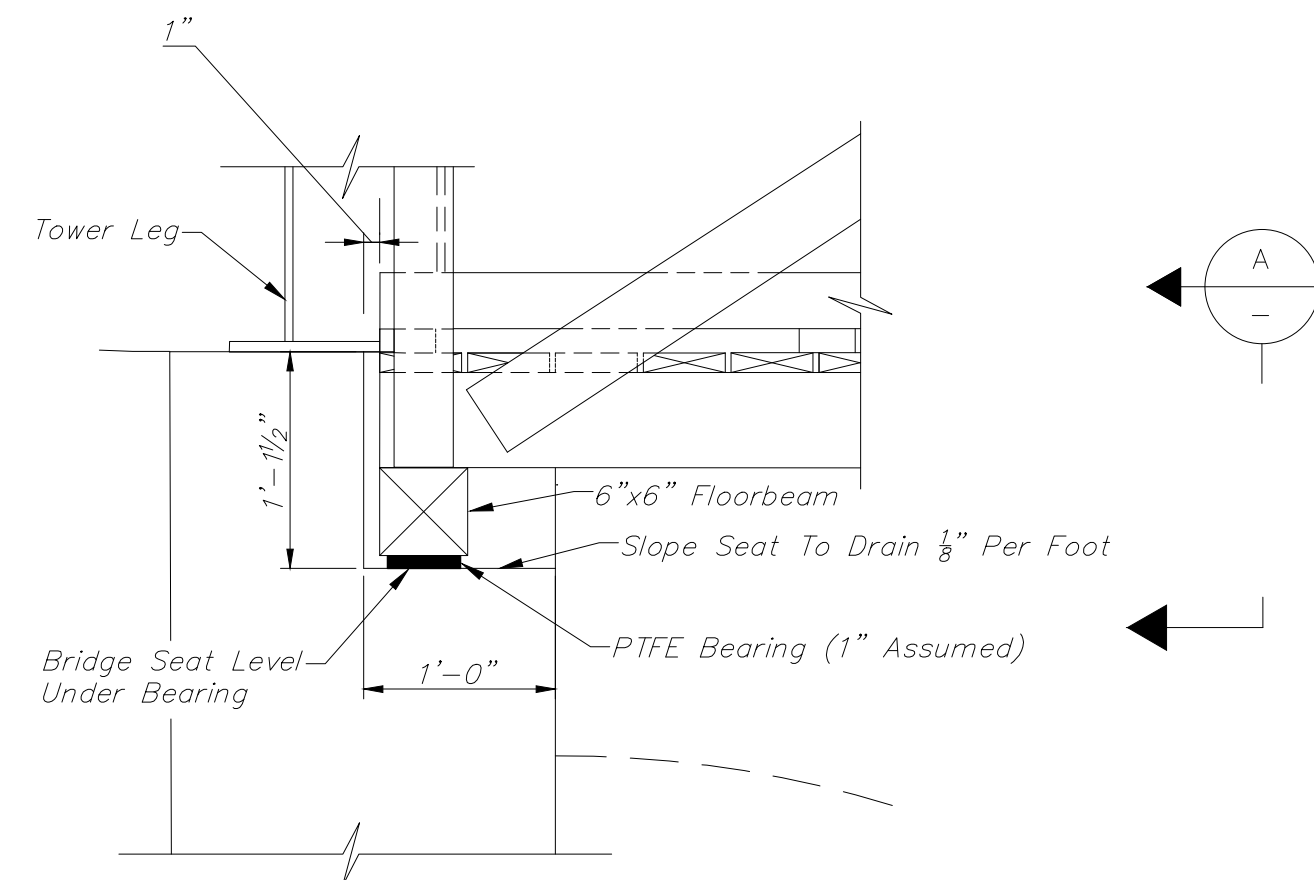
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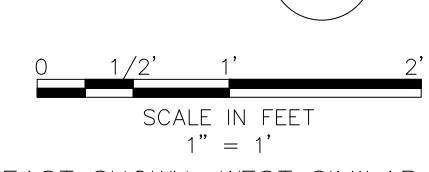
**SUPERSTRUCTURE AT TOWER  
DETAIL**



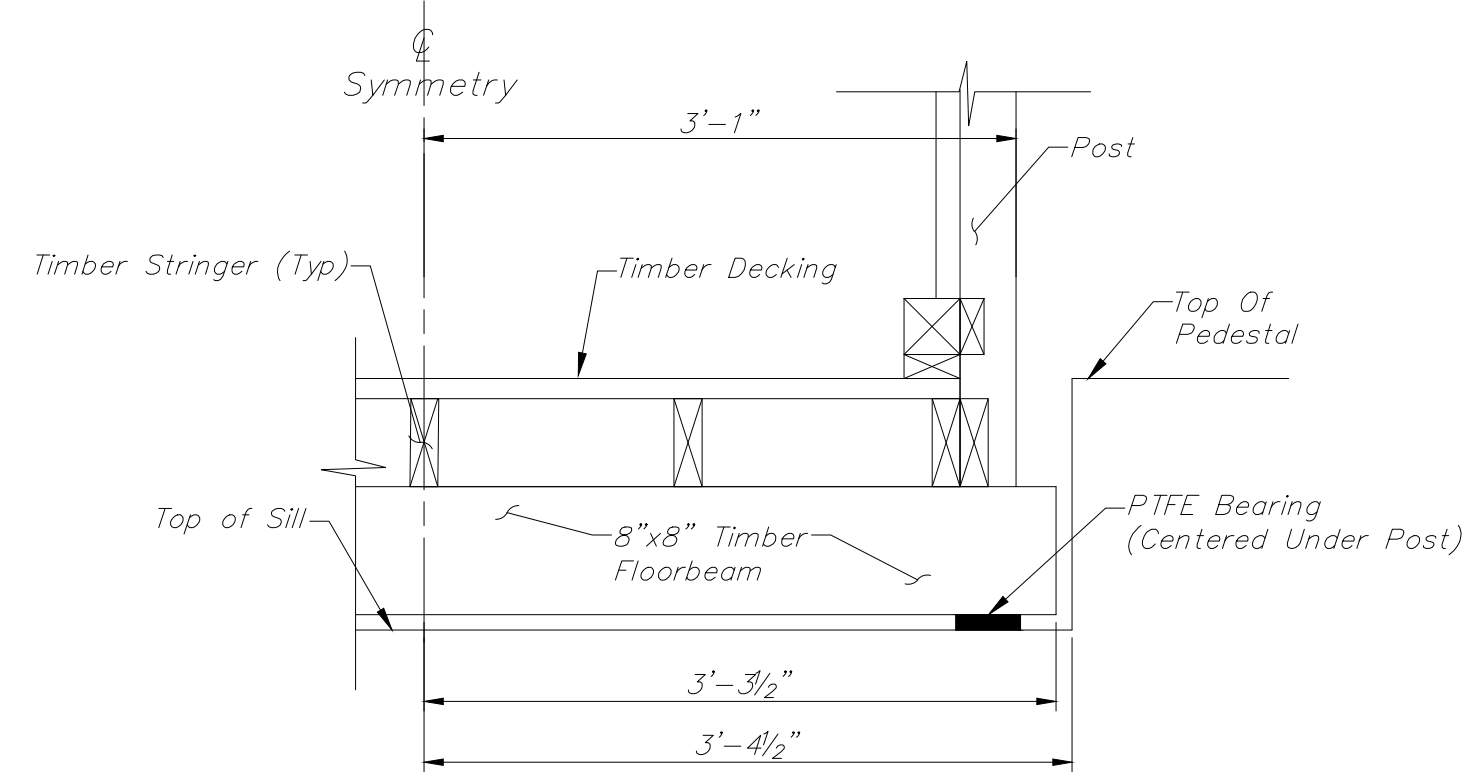
EAST SHOWN, WEST SIMILAR



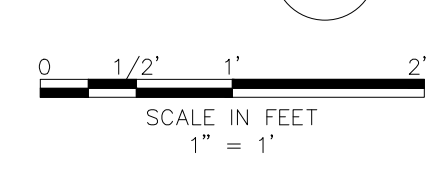
**DETAIL 1**



EAST SHOWN, WEST SIMILAR

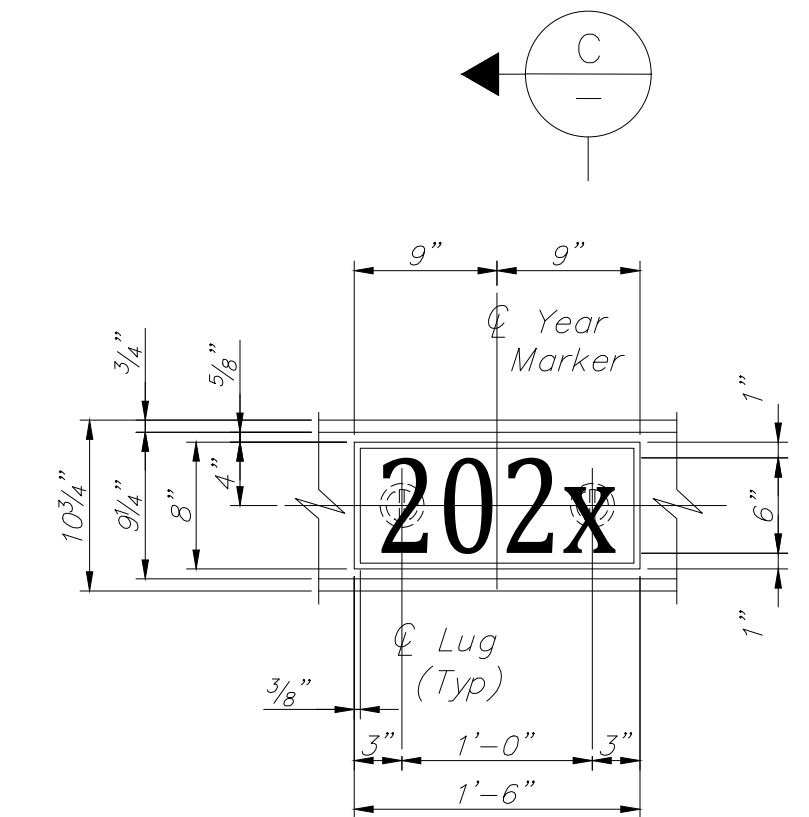


**VIEW A**

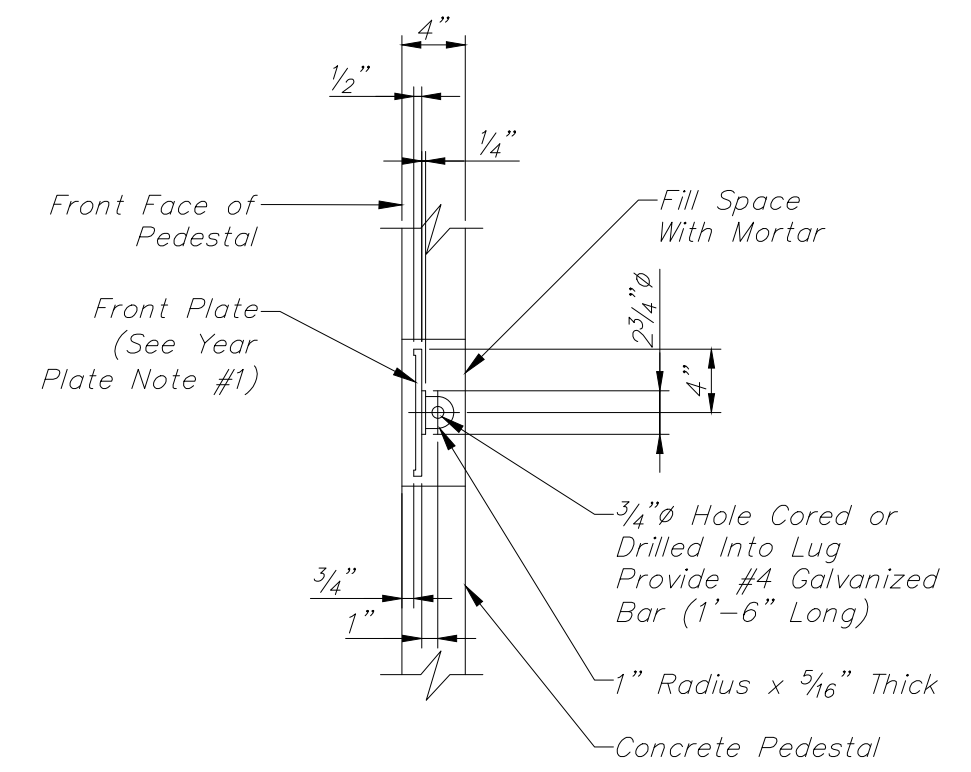
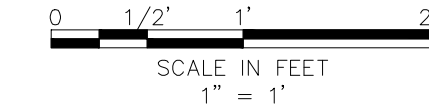


**YEAR MARKER NOTES:**

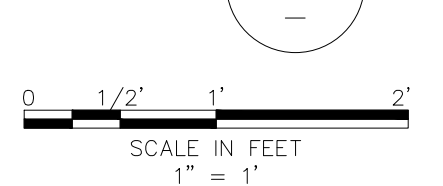
1. YEAR MARKER: FRONT PLATE TO BE CAST IN ONE PIECE OF BRONZE (ASTM B505) AND TO HAVE BACKGROUND OF DARK, OXIDIZED HARD MATTED SURFACE (STIPPLED EFFECT). BORDERS AND TOP OF LETTERS TO HAVE FLAT TOP SMOOTH, BURNISHED FINISH.
2. YEAR MARKER: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
3. YEAR MARKER: DATE SHALL MATCH YEAR OF CONSTRUCTION COMPLETED.
4. SEE DRAWINGS B4 AND B5 FOR LOCATION OF YEAR MARKERS.
5. YEAR MARKERS TO BE INSTALLED ON APPROACH SIDE - ONE PER PEDESTAL.



**YEAR MARKER - ELEVATION**

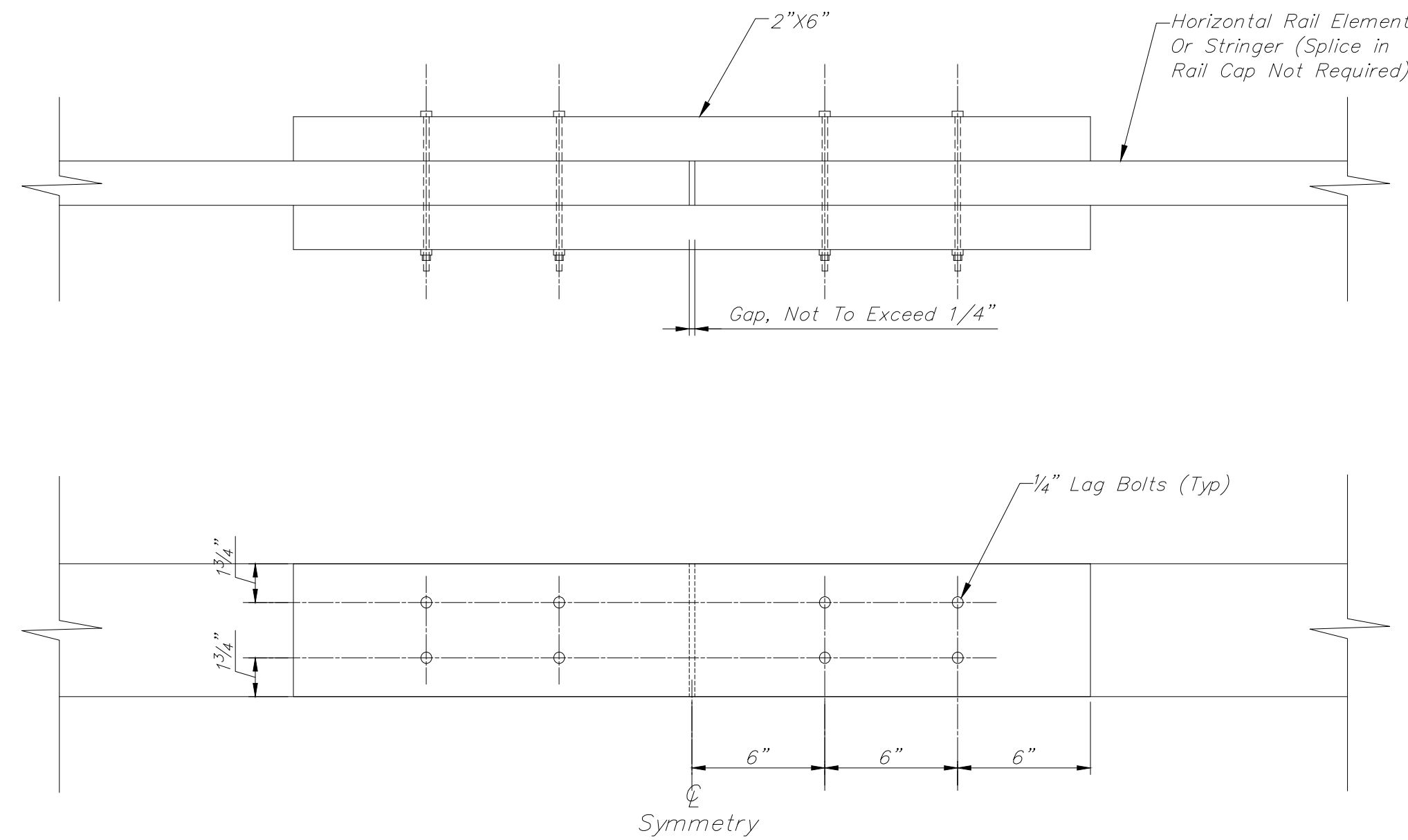


**SECTION C**



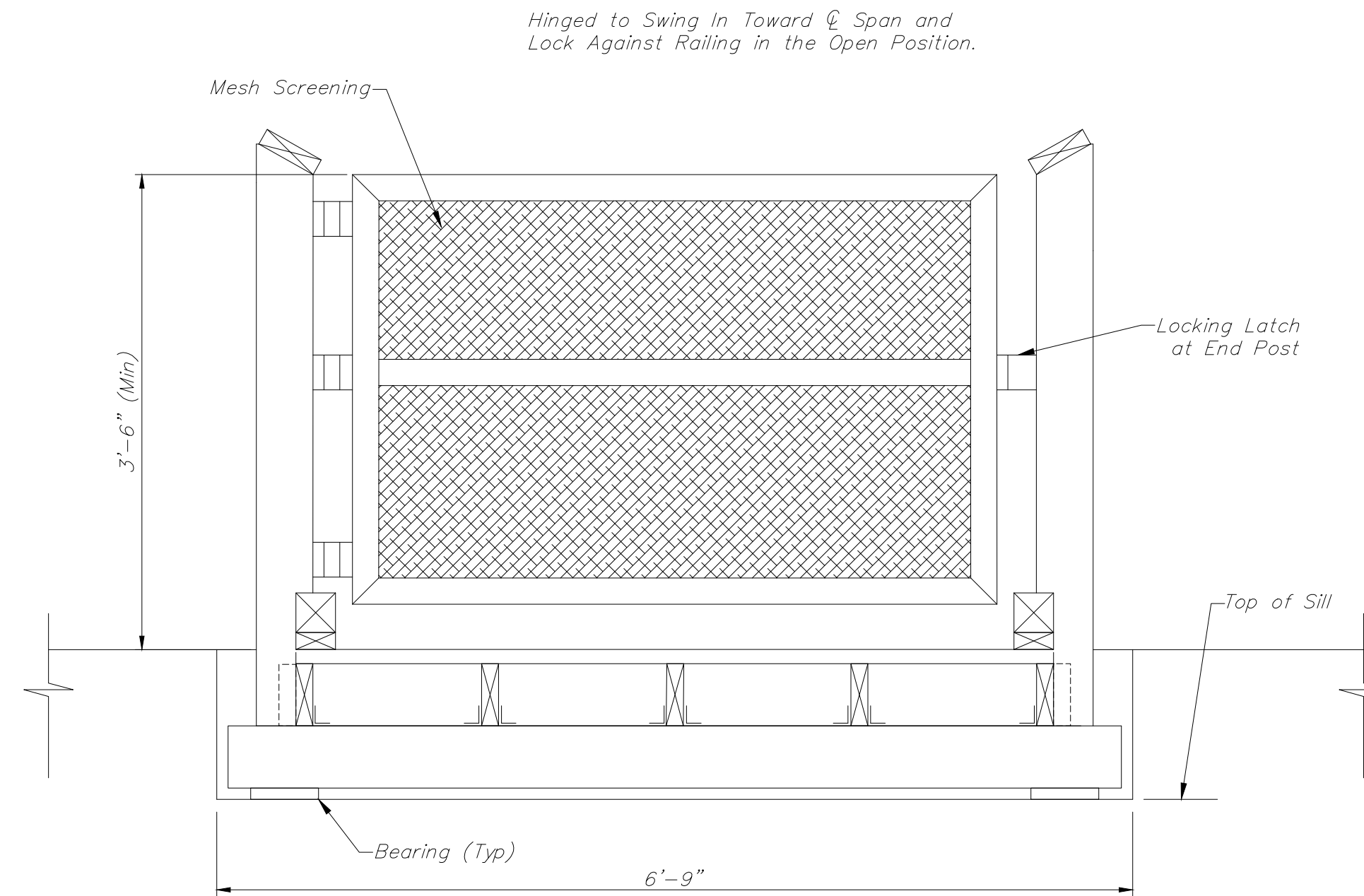
**NOTES:**

1. SEE DRAWING B2 FOR GENERAL NOTES.
2. BEARING NOTES
  - ALL BEARINGS TO PROVIDE SLIDING AND ROTATION CAPACITY (EXPANSION BEARINGS)
  - MAXIMUM BEARING REACTION (DEAD LOAD PLUS LIVE LOAD) = 15.0 KIPS
  - MAXIMUM BEARING ROTATION = 0.0067 RADIAN, ALONG CENTERLINE OF BRIDGE
  - DEAD LOAD REACTION = 5.25 KIPS
  - MAXIMUM MOVEMENT = 1.00 INCH, IN ANY HORIZONTAL DIRECTION (TRANSVERSE OR LONGITUDINAL)
  - MINIMUM COEFFICIENT OF FRICTION = 0.08
3. BEARING, AND ATTACHMENT TO FLOORBEAM AND SEAT, SHALL BE DESIGNED BY CONTRACTOR AND SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
4. DETAILS OF GATE HARDWARE SHALL BE SUBMITTED TO OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. SEE SPECIFICATIONS.
5. HOLD-DOWNS (4) SHALL BE SIZE #6 REINFORCING BAR.
6. FOR DIMENSIONS OF HOLD DOWN NOT SHOWN, SEE DRAWING B4.

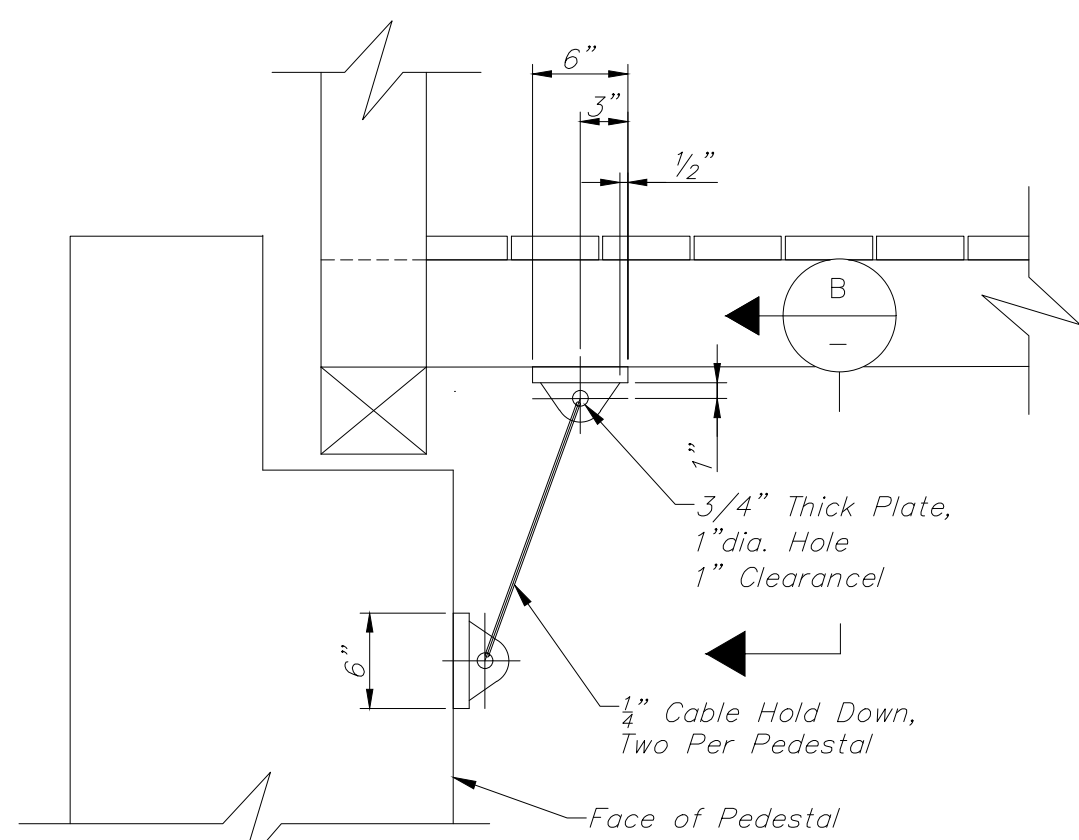


**TYPICAL SPLICE DETAIL**

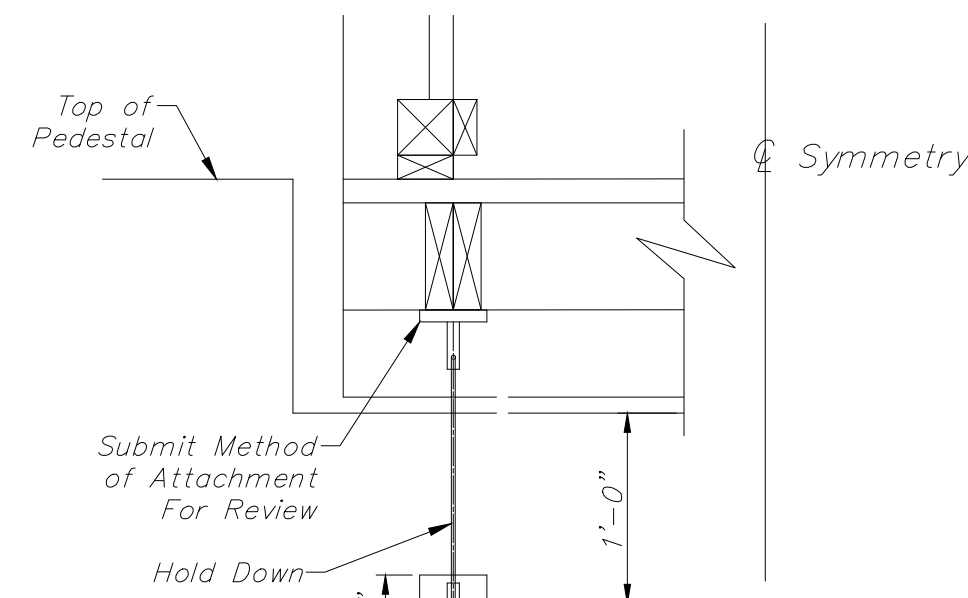
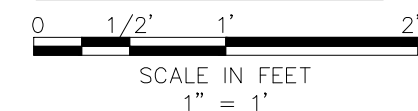
NOT TO SCALE



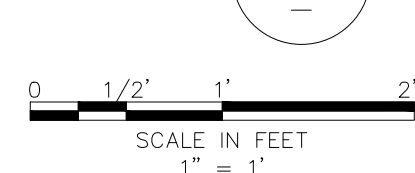
**GATE DETAIL (TYPICAL AT TOWERS)**



**HOLD DOWN**



**VIEW B**



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DATE	AUTH.	BY	REVISIONS

**CHASE ENGINEERING, LLC**  
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MISCELLANEOUS SUPERSTRUCTURE DETAILS  
CEDAR CREEK - PEDESTRIAN  
BRIDGE OVER THE MIDDLE  
PATUXENT RIVER  
HOWARD COUNTY, MARYLAND

PETER H. CHASE  
PROFESSIONAL ENGINEER  
NO. 31445  
MD. PROFESSIONAL ENGINEER  
31445

B11  
B12

CHECKED BY:

DESIGNED BY: PHC  
DRAWN BY: EAF

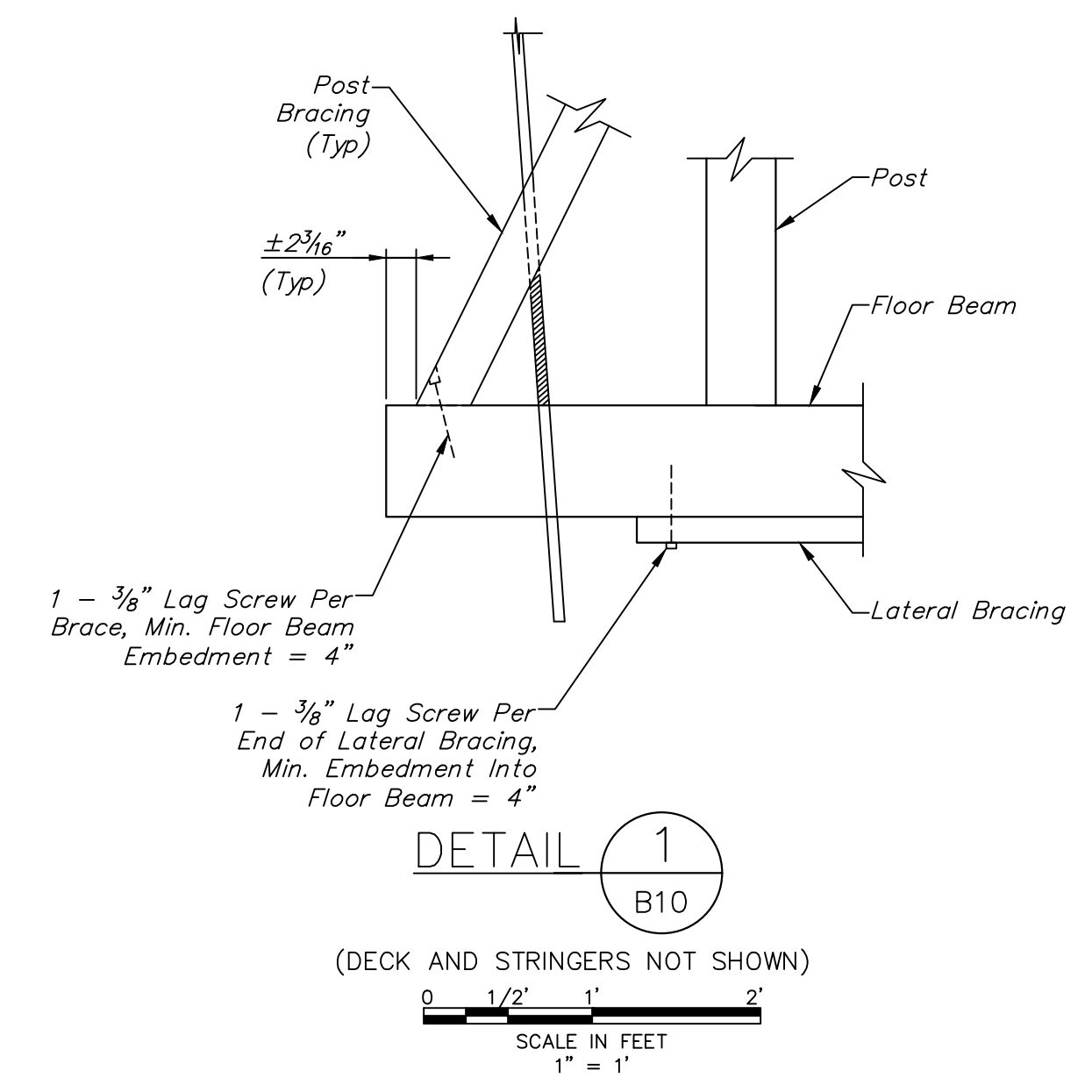
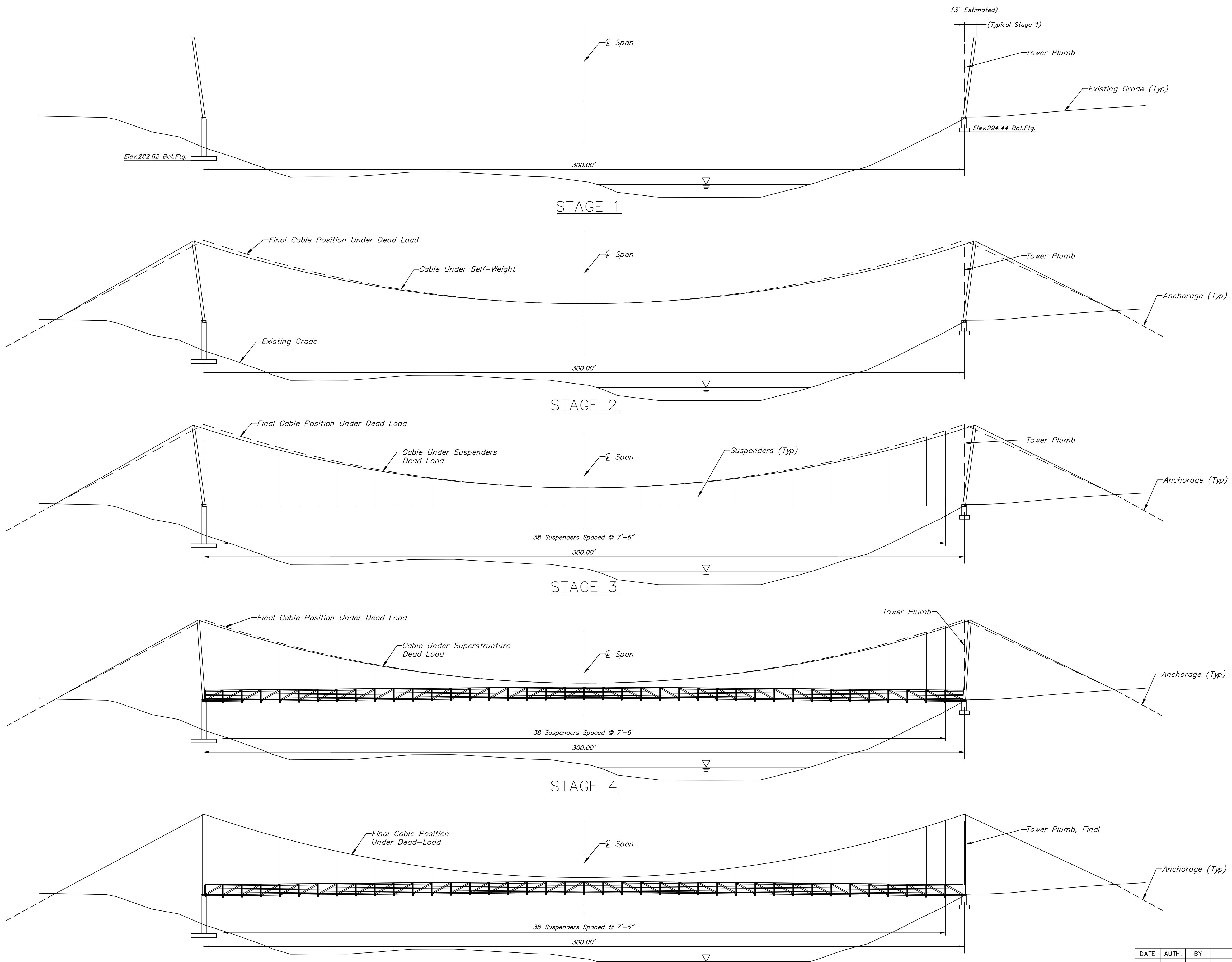
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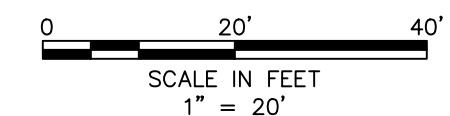
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FILE NAME: E:\WD-H-XX-100 BASE 081818.DWG LAYOUT: B12 ERECTION PLOT DATE: 2/11/2019 6:57:29 AM



- NOTES**
1. DETAILS SHOWN ARE SUGGESTED ONLY.
  2. THE INITIAL POSITION OF THE TOWER LEGS IS SHOWN OUT-OF-PLUMB TO ACCOMMODATE INCREASING DISPLACEMENT AS DEAD LOAD IS APPLIED.
  3. ERECTION PROCEDURE AND SEQUENCE USED FOR ERECTION OF THE BRIDGE SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL PRIOR TO BEGINNING WORK.
- SUGGESTED ERECTION PROCEDURE:**
- STAGE 1:
1. CONSTRUCT CONCRETE TOWER FOUNDATION.
  2. CONSTRUCT STEEL TOWERS (LEAVE NUTS OFF).
- STAGE 2:
3. STRING CABLE AT SELF-WEIGHT POSITION.
  4. CONSTRUCT ANCHORAGE / BACK STAYS.
- STAGE 3:
5. INSTALL SUSPENDERS.
- STAGE 4:
6. CONSTRUCT SUPERSTRUCTURE.
- STAGE 5:
7. FINAL DEAD LOAD CAMBER = 3'-0".
  8. FINAL DEAD LOAD TOWER PLUMB.
  9. INSTALL NUTS ON ANCHOR BOLTS AT TOWERS.
  10. INSTALL SWAY CABLES (NOT SHOWN).

**STAGE 5 – FINAL DEAD LOAD CONDITION**



DETAILS UNDER DEAD LOAD (SELF-WEIGHT) ONLY

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SUGGESTED ERECTION DETAILS  
**CEDAR CREEK – PEDESTRIAN  
 BRIDGE OVER THE MIDDLE  
 PATUXENT RIVER**  
 HOWARD COUNTY, MARYLAND

**PETER H. CHASE**  
 PROFESSIONAL ENGINEER  
 No. 31445  
 M.D. PROFESSIONAL ENGINEER  
 31445

DESIGNED BY: PHC  
 DRAWN BY: EAF  
 DATE:                      SCALE:                      **28**  
 AS SHOWN                      **XX**