

NOT FOR BIDDING

AUGUST 2015

**LEGEND**

- - SETTLEMENT PLATFORMS
- ▲ - SETTLEMENT MONUMENTS
- ⊙ - RWIS PUCK (SEE SIGNING, STRIPING AND CONDUIT PLANS)

**CROSS REFERENCE NOTES:**

- NOTES:**
- NORTHBOUND BRIDGE SHOWN. SOUTHBOUND BRIDGE SIMILAR.
  - THE TYPICAL SECTION OF CONNECTOR RD VARIES BENEATH THE BRIDGE.
- FOR DETAILS AND LOCATIONS OF SETTLEMENT PLATFORMS, SEE DWG. 1-507 DT-2.
  - FOR A TYPICAL SECTION AT THE RWIS PUCK LOCATIONS, SEE DWG. 1-507 RD-3.

**GENERAL NOTES**

**1. DESIGN SPECIFICATIONS:**

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION, 2007, INCLUDING 2008 AND 2009 INTERIM REVISIONS, AND AS SUPPLEMENTED BY DELAWARE DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL, MAY 2005, INCLUDING LATEST REVISIONS.

PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS, AASHTO/AWS D1.5M/D1.5 BRIDGE WELDING CODE, AND CONTRACT SPECIAL PROVISIONS.

LIVE LOAD DISTRIBUTION TO BEAMS IS BASED UPON AASHTO DISTRIBUTION FACTORS.

**2. LOADING:**

UNIT WEIGHTS OF MATERIALS SHALL BE IN ACCORDANCE WITH THE DELAWARE BRIDGE DESIGN MANUAL.

FUTURE OVERLAY ALLOWANCE SHALL BE 25 LBS/SQ FT.

STEEL BRIDGE DECK FORMS WHICH STAY IN PLACE (INCLUDING CONCRETE IN FORM CORRUGATIONS) SHALL BE 15 LBS/SQ FT.

VEHICLE LIVE LOAD SHALL BE AASHTO HL-93 DESIGN VEHICLE, WHICH CONSISTS OF A DESIGN TRUCK OR TANDEM WITH DYNAMIC LOAD ALLOWANCE AND A LANE LOAD. RATINGS SHALL USE ALL DELAWARE LEGAL LOADS SPECIFIED IN THE BRIDGE DESIGN MANUAL.

BARRIER HAS BEEN DESIGNED FOR TEST LEVEL FOUR (TL-4).

FATIGUE DESIGN IS BASED ON THE FOLLOWING:  
ADTT 3,045 (2030 ONE-DIRECTIONAL)

FOR THERMAL LOADS, CONSIDER THE MODERATE TEMPERATURE RANGE AS STIPULATED IN THE AASHTO LRFD DESIGN SPECIFICATION. THE NORMAL TEMPERATURE SHALL BE CONSIDERED TO BE 68°F.

FOR SEISMIC LOADS, THE BRIDGE IS IN SEISMIC PERFORMANCE ZONE 1, WITH A SITE CLASS = D AND IMPORTANCE CATEGORY - ESSENTIAL.

SEISMIC FORCES ACCELERATION COEFFICIENT IS 0.08.

**3. PORTLAND CEMENT CONCRETE:**

PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE ELEMENTS SHALL BE AS FOLLOWS: (28 DAY COMPRESSIVE STRENGTH)  
ITEM NO. 602004 (CLASS B,  $f'c=3000$  PSI) - ABUTMENT FOOTING  
ITEM NO. 602013 (CLASS D,  $f'c=4500$  PSI) - DECK AND DIAPHRAGMS  
ITEM NO. 602014 (CLASS D,  $f'c=4500$  PSI) - APPROACH SLAB  
ITEM NO. 602017 (CLASS A,  $f'c=4500$  PSI) - BARRIER

RAKE FINISH ALL HORIZONTAL CONSTRUCTION JOINTS, EXCEPT AS INDICATED.

CONSTRUCT DECK SLAB TRANSVERSE CONSTRUCTION JOINTS PARALLEL TO BRIDGE CENTERLINE OF BEARING.

DECK SLAB THICKNESS INCLUDES 1/2" INTEGRAL WEARING SURFACE.

MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4" X 3/4" MILLED CHAMFER STRIPS UNLESS NOTED OTHERWISE, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE NOTATION ON THE PLANS, "DO NOT CHAMFER".

NO SLIP-FORMING OF BARRIERS IS PERMITTED, UNLESS NOTED OTHERWISE.

**4. BAR REINFORCEMENT:**

REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60.

PROVIDE 2" CONCRETE COVER ON REINFORCEMENT BARS, EXCEPT AS NOTED.

FUSION-BONDED EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963), AND SHALL BE DENOTED WITH A SUFFIX "E" IN THE BAR MARKS.

DO NOT WELD GRADE 60 REINFORCING STEEL, UNLESS NOTED OTHERWISE.

**5. PRESTRESSED CONCRETE DESIGN:**

THE PRECAST CONCRETE GIRDERS ARE DESIGNED AS NONCOMPOSITE FOR ALL DEAD LOADS EXCEPT THE BARRIERS AND FUTURE WEARING SURFACE. THE PRECAST GIRDERS ARE DESIGNED AS COMPOSITE FOR LIVE LOADS AS WELL AS THE BARRIER AND FUTURE WEARING SURFACE DEAD LOADS.

**PRESTRESSED CONCRETE:**

THE MINIMUM COMPRESSIVE STRENGTH FOR PRESTRESSED CONCRETE AT THE AGE OF 28 DAYS SHALL BE  $f'c = 8,000$  PSI. THE MINIMUM COMPRESSIVE STRENGTH AT THE TRANSFER OF PRESTRESS SHALL BE  $f'ci = 6,400$  PSI.

**PRESTRESSED STEEL:**

PRETENSIONING STEEL FOR BEAMS SHALL CONSIST OF HIGH STRENGTH 7-WIRE LOW RELAXATION STRANDS, WITH NOMINAL 0.60 INCH DIAMETER, CONFORMING TO THE REQUIREMENTS OF AASHTO M203 (ASTM A416) GRADE 270. EACH 0.60 INCH DIAMETER STRAND SHALL BE PRETENSIONED TO 43,942 LBS. (0.75 Fpu).

AFTER ESTIMATED LOSSES OF 24,970 PSI, THE FINAL EFFECTIVE PRESTRESS FORCE PER STRAND IS 38,524 LBS.

CONTRACTOR TO CHECK FOR STABILITY DURING ERECTION.

**6. SERVICEABILITY:**

LIVE LOAD DEFLECTION SHALL BE LIMITED TO  $L/800$ .

FOR REINFORCEMENT DISTRIBUTION REQUIREMENTS, CONSIDER CLASS 2 EXPOSURE CRITERIA FOR DECKS.

**7. CONSTRUCTION JOINTS:**

KEYED CONSTRUCTION JOINTS SHALL BE 2" X 4" OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A 3/4" V-NOTCH, UNLESS NOTED OTHERWISE.

**8. STRUCTURAL EXCAVATIONS:**

EXCAVATION REQUIRED TO ATTAIN THE GRADE FOR INSTALLATION OF THE MSE WALLS SHALL BE INCIDENTAL TO ITEM NO. 602553 MECHANICALLY STABILIZED EARTH WALLS.

**9. STRUCTURAL BACKFILL:**

MSE WALL BACKFILL SHALL BE AS SPECIFIED ON THE PLANS.

**10. ROADWAY CLEARANCES:**

A MINIMUM OF 16'-6" VERTICAL CLEARANCE SHALL BE MAINTAINED ABOVE CONNECTOR RD. A MINIMUM OF 2'-0" HORIZONTAL CLEARANCE SHALL BE MAINTAINED FROM THE OUTSIDE EDGE OF SHOULDER OFFSET (FACE OF CURB) TO THE FACE OF ANY OBSTRUCTION. THESE CLEARANCES APPLY AT ALL TIMES INCLUDING DURING CONSTRUCTION.

**11. UTILITIES:**

COORDINATE ALL WORK RELATED TO PUBLIC AND PRIVATE UTILITIES IN ACCORDANCE WITH SECTION 107.04 OF THE STANDARD SPECIFICATIONS.

VERIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO STARTING WORK. CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED AND ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE TO UTILITIES DURING CONSTRUCTION. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISION, OR LIABILITY FOR ACCURACY OF TYPE, SIZE AND LOCATION OF ANY UTILITY.

**LOAD RATING SUMMARY**

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TONS)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.15	N/A	EXTERIOR BEAM	105	LONG. REINF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TANDEM (INVENTORY)	1.35	N/A	EXTERIOR BEAM	105	LONG. REINF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TRUCK TRAIN (INVENTORY)	N/A	N/A	N/A	N/A	N/A
HS-20 (INVENTORY)	1.51	54.29	EXTERIOR BEAM	106	LONG. REINF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TRUCK (OPERATING)	1.48	N/A	EXTERIOR BEAM	104	LONG. REINF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TANDEM (OPERATING)	1.73	N/A	EXTERIOR BEAM	105	LONG. REINF. MAX. EFFECTS MAX. MOMENT W/ CONCURRENT SHEAR
HL-93 TRUCK TRAIN (OPERATING)	N/A	N/A	N/A	N/A	N/A
HS-20 (OPERATING)	1.93	69.36	EXTERIOR BEAM	106	LONG. REINF. MIN. EFFECTS MAX. SHEAR W/ CONCURRENT MOMENT
DE S220 (LEGAL)	2.32	46.41	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECTS DL+PS+LL BOT. OF BEAM
DE S335 (LEGAL)	1.30	45.64	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECTS DL+PS+LL BOT. OF BEAM
DE S437 (LEGAL)	1.24	45.50	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECTS DL+PS+LL BOT. OF BEAM
DE T330 (LEGAL)	1.71	51.44	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECTS DL+PS+LL BOT. OF BEAM
DE T435 (LEGAL)	1.49	52.18	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECTS DL+PS+LL BOT. OF BEAM
DE T540 (LEGAL)	1.32	52.62	EXTERIOR BEAM	105	CONC. STRESS MAX. EFFECTS DL+PS+LL BOT. OF BEAM

NOTE: LOAD RATING DOES INCLUDE FUTURE WEARING SURFACE AS NOTED IN THE PLANS.

**INDEX OF DRAWINGS**

SHEET NO.	DRAWING NO.	TITLE
632	1-507 PE-1	GENERAL PLAN AND ELEVATION
633	1-507 GN-1	GENERAL NOTES AND INDEX OF DRAWINGS
634	1-507 TS-1	TYPICAL SECTION AND QUANTITIES
635	1-507 FT-1	GEOMETRIC LAYOUT
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637	1-507 FT-3	PILE DRIVING NOTES
638	1-507 AB-1	ABUTMENT 1 PLAN AND ELEVATION
639	1-507 AB-2	ABUTMENT 2 PLAN AND ELEVATION
640	1-507 AB-3	ABUTMENT SECTIONS
641	1-507 AB-4	ABUTMENT 1 NB REINFORCING
642	1-507 AB-5	ABUTMENT 2 NB REINFORCING
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644	1-507 AB-7	ABUTMENT 2 SB REINFORCING
645	1-507 AB-8	ABUTMENT REINFORCING
646	1-507 WW-1	WINGWALL ELEVATIONS
647	1-507 WW-2	WINGWALL SECTIONS
648	1-507 BR-1	SUBSTRUCTURE REINFORCEMENT SCHEDULE
649	1-507 FR-1	FRAMING PLAN
650	1-507 BM-1	BEAM ELEVATION AND DETAILS
651	1-507 CT-1	CAMBER AND DIAPHRAGM DETAILS
652	1-507 DK-1	SB SLAB AND BARRIER REINFORCEMENT
653	1-507 DK-2	NB SLAB AND BARRIER REINFORCEMENT
654	1-507 DK-3	DECK AND APPROACH SLAB REINFORCEMENT
655	1-507 DK-4	APPROACH AND MOMENT SLAB REINFORCEMENT
656	1-507 EX-1	EXPANSION JOINT DETAILS
657	1-507 DT-1	DECK POURING SEQUENCE
658	1-507 RD-1	MSE WALL DETAILS - 1
659	1-507 RD-2	MSE WALL DETAILS - 2
660	1-507 RD-3	MSE WALL COPING AND MISCELLANEOUS DETAILS
661	1-507 FD-1	FINISHED DECK ELEVATIONS - 1
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664	1-507 BR-2	SUPERSTRUCTURE REINFORCEMENT SCHEDULE
665	1-507 DT-2	SETTLEMENT PLATFORM DETAILS
666	1-507 BO-1	TEST BORINGS

**ABBREVIATION**

- E. F. = EACH FACE
- F. F. = FRONT FACE
- R. F. = REAR FACE
- T. F. = TOP FACE
- B. F. = BOTTOM FACE

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ADDENDUMS / REVISIONS

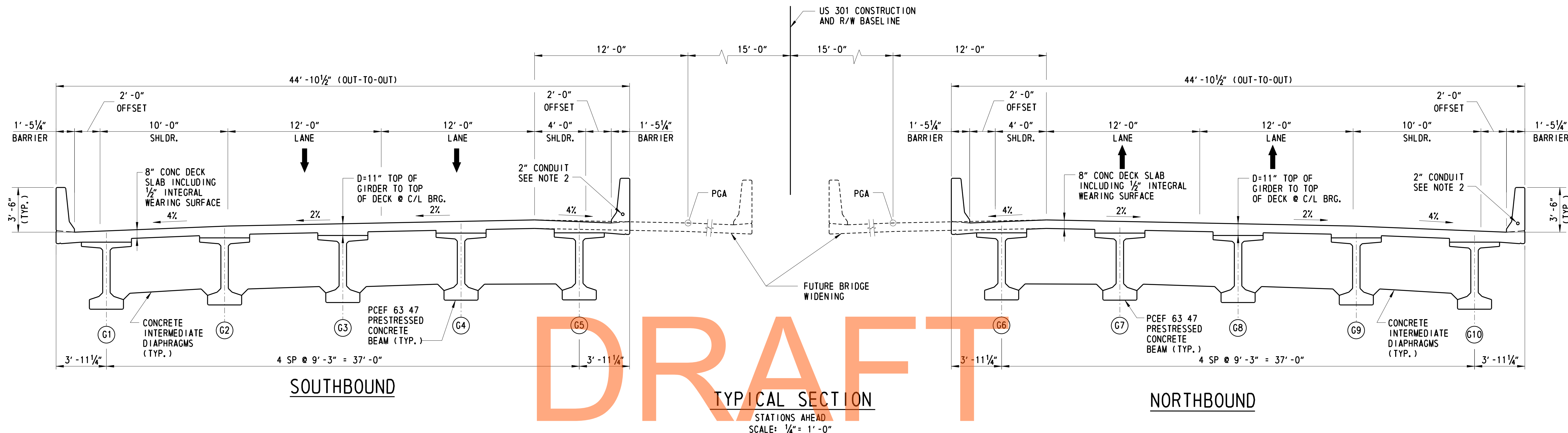
**US 301  
LEVELS ROAD  
TO SUMMIT BRIDGE ROAD**

CONTRACT  
T200911303  
COUNTY  
NEW CASTLE

BRIDGE NO. **1-507N&S**  
DESIGNED BY: LT  
CHECKED BY: ML

**US 301 MAINLINE OVER  
CONNECTOR ROAD  
GENERAL NOTES  
AND INDEX OF DRAWINGS**

1-507 GN-1  
SHEET NO.  
633  
TOTAL SHTS.  
1256



NOT FOR BIDDING

AUGUST 2015

**CROSS REFERENCE NOTES:**

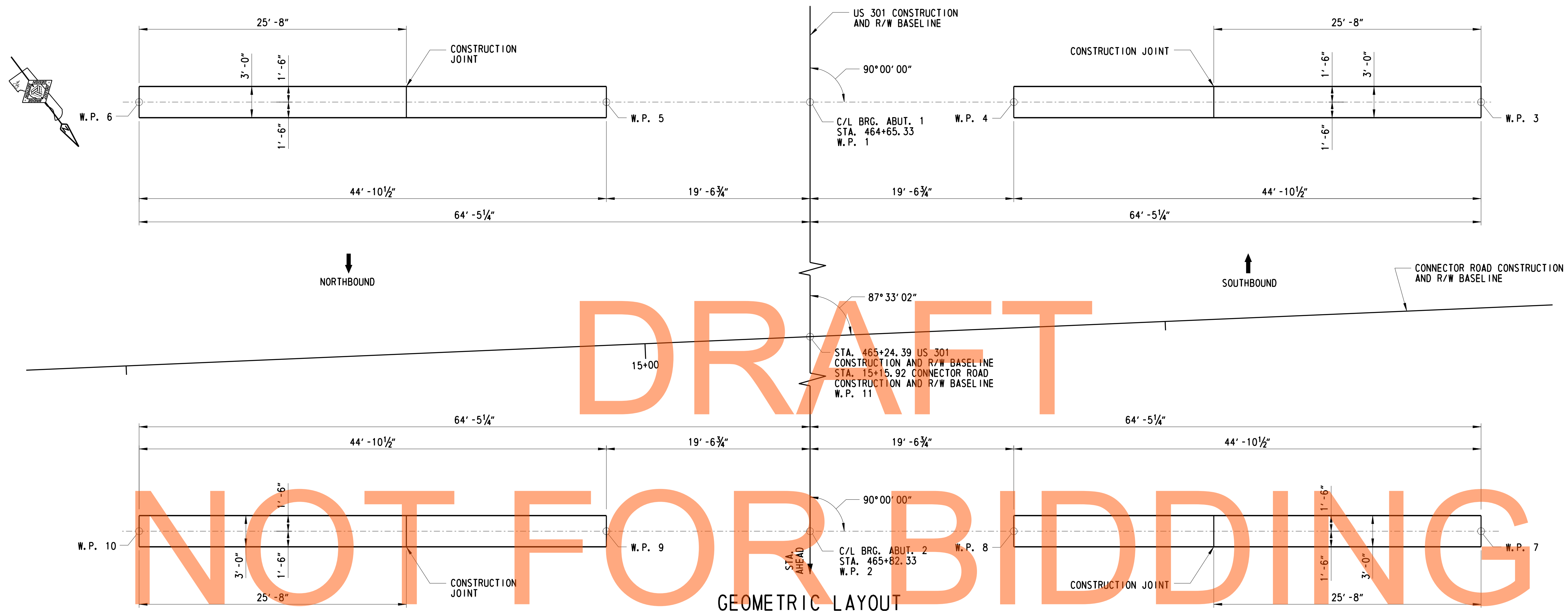
1. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
2. FOR BARRIER DETAILS, SEE DWG. 1-507 DK-3.
3. FOR INTERMEDIATE DIAPHRAGM DETAILS, SEE DWG. 1-507 CT-1.
4. FOR FINISHED DECK ELEVATIONS, SEE DWG. 1-507 FD-1 AND 1-507 FD-2.

**NOTES:**

1. CROSS SLOPE OF FUTURE LANE SLOPES 2% DOWN TO PGA. THE CURRENT HAUNCH FOR FASCIA BEAMS (5) AND (6) WOULD NEED TO BE INCREASED TO ACCOUNT FOR CHANGE IN ELEVATION OF FUTURE DECK SLAB.
2. 2" DIA. CONDUITS SHALL BE INSTALLED IN THE EAST BARRIERS ONLY TO ACCOMMODATE PROPOSED RWIS PUCK. FOR DETAILS REFER TO "SIGNING, STRIPING AND CONDUIT PLANS".

**ESTIMATED BRIDGE QUANTITIES**

ITEM NUMBER	DESCRIPTION	UNIT	NORTHBOUND QUANTITIES	SOUTHBOUND QUANTITIES	TOTAL
202505	SETTLEMENT PLATFORM	EA	2	2	4
202518	SETTLEMENT MONUMENT	EA	2	2	4
602004	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT FOOTING, CLASS B	CY	50	50	100
602013	PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D	CY	224	224	448
602014	PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D	CY	166	166	332
602017	PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A	CY	49	49	98
602772	MECHANICALLY STABILIZED EARTH WALLS	LS	-	-	-
604000	BAR REINFORCEMENT, EPOXY COATED	LB	97,371	97,371	194,742
605512	PREFABRICATED EXPANSION JOINT SYSTEM, 4"	LF	90	90	180
618069	STEEL H PILES, HP12x84	LF	1,367	1,367	2,734
618070	STEEL H TEST PILES, HP12x84	LF	191	191	382
619049	INSTALL STEEL H PILES, HP12x84	LF	1,367	1,367	2,734
619050	INSTALL STEEL H TEST PILES, HP12x84	LF	191	191	382
619501	PRODUCTION PILE RESTRIKE	EA	2	2	4
619502	TEST PILE RESTRIKE	EA DY	2	2	4
619519	DYNAMIC PILE TESTING BY CONTRACTOR	EA	2	2	4
619539	SIGNAL MATCHING ANALYSIS BY CONTRACTOR	EA	2	2	4
623003	PRESTRESSED REINFORCED CONCRETE MEMBERS: BULB TBEAM	LS	-	-	-

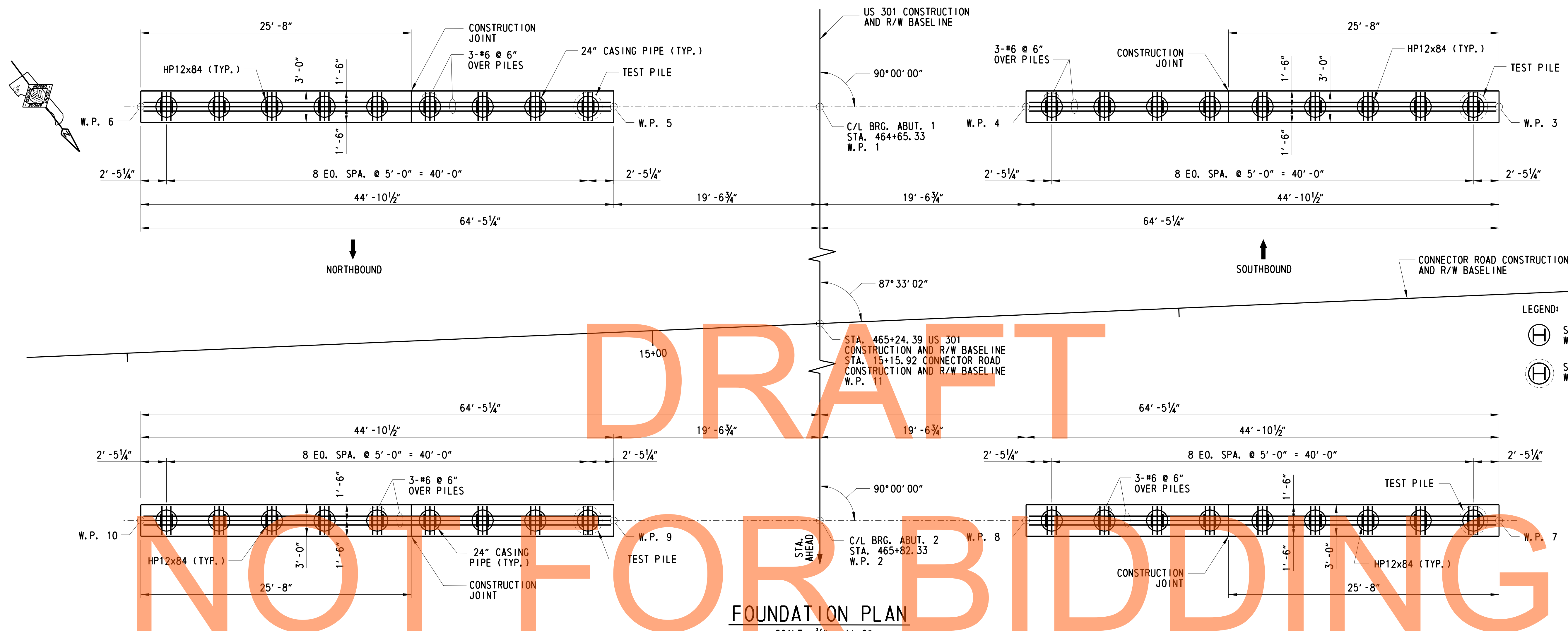


GEOMETRIC LAYOUT  
SCALE: 3/16" = 1' - 0"

CROSS REFERENCE NOTES:

1. FOR ABUTMENT PLAN AND ELEVATIONS, SEE DWG. 1-507 AB-1 AND 1-507 AB-2.
2. FOR PILE LAYOUT, SEE DWG. 1-507 FT-2.

WORKING POINT DATA				
POINT NO.	STATION	OFFSET	NORTHING	EASTING
W.P. 1	464+65.33	0.00'	540654.4059	569995.6591
W.P. 2	465+82.33	0.00'	540759.7901	570046.4841
W.P. 3	464+65.33	64.44' LT	540682.3977	569937.6190
W.P. 4	464+65.33	19.56' LT	540662.9039	569978.0388
W.P. 5	464+65.33	19.56' RT	540645.9080	570013.2795
W.P. 6	464+65.33	64.44' RT	540626.4142	570053.6992
W.P. 7	465+82.33	64.44' LT	540787.7818	569988.4440
W.P. 8	465+82.33	19.56' LT	540768.2881	570028.8638
W.P. 9	465+82.33	19.56' RT	540751.2921	570064.1044
W.P. 10	465+82.33	64.44' RT	540731.7983	570104.5242
W.P. 11	465+24.39	0.00'	540707.6024	570021.3149



- LEGEND:
- STEEL HP 12X84 PRODUCTION PILE WITH 24IN CASING PIPE
  - STEEL HP 12X84 TEST PILE WITH 24IN CASING PIPE

FOUNDATION PLAN  
SCALE: 1/8" = 1'-0"

DRAFT  
NOT FOR BIDDING

SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA	
	NOMINAL PILE DRIVING RESISTANCE (KIP)	ESTIMATED TIP ELEVATION (FT)	AVERAGE MIN. TIP ELEVATION (FT)	AVERAGE MAX. TIP ELEVATION (FT)
ABUTMENT 1	334	1.0		
ABUTMENT 2	334	1.0		

- CROSS REFERENCE NOTES:
- FOR ABUTMENT PLAN AND ELEVATIONS, SEE DWG. 1-507 AB-1 AND 1-507 AB-2.
  - SEE DWG. 1-507 AB-3 FOR PIPE CASING DETAIL.

	PILE DRIVING INFORMATION FOR ABUT. 1	
	1-507 N	1-507 S
PILE SIZE AND TYPE:		
ACTUAL BEARING OBTAINED:		
HAMMER TYPE:		
AVERAGE ACTUAL BLOWS/FT.:		
PILE HAMMER ENERGY:		
SPECIAL DRIVING CONDITIONS AND COMMENTS:		

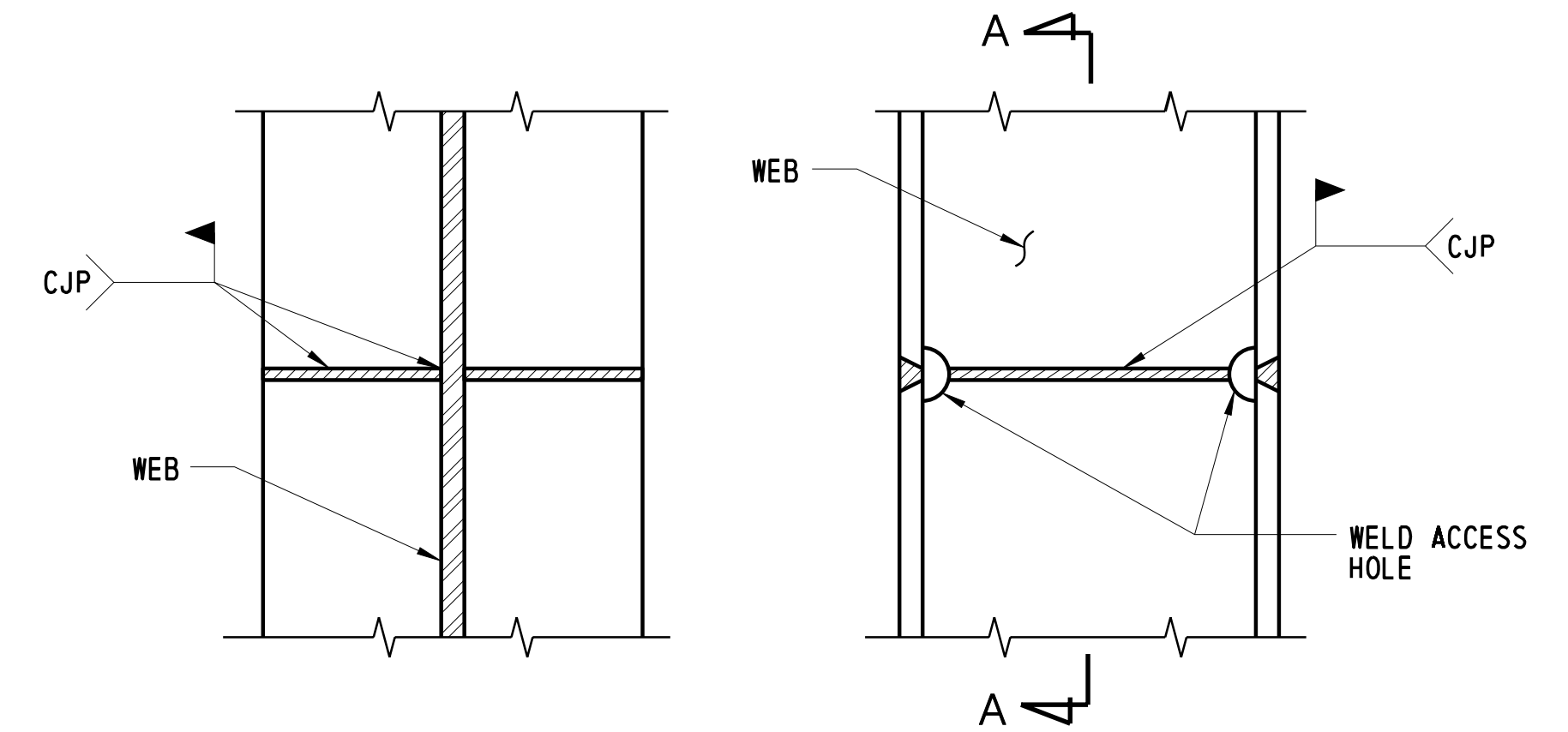
	PILE DRIVING INFORMATION FOR ABUT. 2	
	1-507 N	1-507 S
PILE SIZE AND TYPE:		
ACTUAL BEARING OBTAINED:		
HAMMER TYPE:		
AVERAGE ACTUAL BLOWS/FT.:		
PILE HAMMER ENERGY:		
SPECIAL DRIVING CONDITIONS AND COMMENTS:		

**PILE CONSTRUCTION SEQUENCE NOTES:**

1. INSTALL 24-INCH I.D. CORRUGATED, GALVANIZED PIPES (CMP) AT THE PROPOSED PILE LOCATIONS PRIOR TO THE PLACEMENT OF THE MSE WALL. THE COST OF THE CMP SHALL BE INCIDENTAL TO PAY ITEMS 619049 AND 619050. REFER TO SECTION 614.02(a) OF THE STANDARD SPECIFICATIONS FOR CORRUGATED PIPE.
2. INSTALL ONE SETTLEMENT PLATFORM AT EACH ABUTMENT AND TAKE BASELINE READING PRIOR TO THE PLACEMENT OF THE FILL. INSTALL ONE SETTLEMENT MONUMENT AFTER THE PLACEMENT OF THE FILL.
3. UPON COMPLETION OF THE MSE WALL AND APPROACH EMBANKMENT, MONITOR SETTLEMENT PLATFORMS UNTIL SUFFICIENT SETTLEMENT HAS BEEN ACHIEVED AS DEFINED BY LESS THAN 0.1 INCHES OF MOVEMENT IN TWO SUCCESSIVE WEEKLY SETTLEMENT PLATFORM READINGS. THE TIME FOR SETTLEMENT MONITORING COULD NOT BE LESS THAN 30 DAYS (QUARANTINE PERIOD FOR PILE DRIVING).
4. UPON COMPLETION OF MSE WALL SETTLEMENT, AS INDICATED FROM SETTLEMENT PLATFORM READINGS, DRIVE TEST PILES THROUGH THE GALVANIZED PIPES AND PERFORM DYNAMIC PILE TESTING.
5. BASED ON TEST RESULTS, DRIVE PRODUCTION PILES THROUGH THE GALVANIZED PIPES TO THE REQUIRED BLOW COUNTS.
6. FILL THE ANNULAR SPACES BETWEEN PILES AND GALVANIZED PIPES WITH FINE AGGREGATE AS PER DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, SECTION 804. THE COST OF THE FILL MATERIAL SHALL BE INCIDENTAL TO PAY ITEMS 619049 AND 619050.

**PILE DRIVING NOTES:**

1. ALL PILES SHALL BE TYPE HP12X84 PILES (ASTM A572), GRADE 50. PILES SHALL NOT BE COATED.
2. ALL TEST PILES SHALL BE 10-FT LONGER THAN INDICATED ON PILE INSTALLATION DATA TABLE.
3. ALL PILES SHALL BE DRIVEN TO THE NOMINAL PILE DRIVING RESISTANCE LISTED IN THE PILE INSTALLATION DATA TABLE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE WAVE EQUATION AND HIGH-STRAIN DYNAMIC PILE TESTING MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. UPON COMPLETION OF THE HIGH-STRAIN DYNAMIC PILE TESTING, THE CONTRACTOR SHALL SUBMIT A SIGNAL MATCHING ANALYSIS TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
6. A MINIMUM QUARANTINE PERIOD OF 30-DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE FILL AT THE ABUTMENTS IS ACHIEVED.
7. PILES MAY NOT BE DRIVEN UNTIL AFTER COMPLETION OF THE QUARANTINE PERIOD.
8. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE QUARANTINE PERIOD, BASED ON RESULTS OF INSTRUMENTATION.
9. TEST PILES MAY BE DRIVEN PRIOR TO PLACING MSE WALL BACKFILL. RESTRIKES OF THESE TEST PILES SHALL BE PERFORMED PRIOR TO PLACING ANY EMBANKMENT IN ACCORDANCE WITH ITEM NO. 619502 - TEST PILE RESTRIKE. TEST PILES BEHIND MSE WALLS SHALL THEN BE CASED PRIOR TO PLACING EMBANKMENT. AFTER THE SETTLEMENT HAS BEEN ACHIEVED AND THE SUBSTRUCTURE HAS BEEN RELEASED BY THE ENGINEER, PRODUCTION PILES MAY BE INSTALLED. AT THIS POINT, THE TEST PILE SHALL BE ACTING AS A PRODUCTION PILE AND IT SHALL BE RE-STRUCK AS DIRECTED BY THE ENGINEER PRIOR TO PLACING ANY OTHER PRODUCTION PILES WITH PAYMENT UNDER ITEM NO. 619501 - PRODUCTION PILE RESTRIKE.
10. SEE THE SPECIAL PROVISIONS 202505 AND 202518 FOR SETTLEMENT MONITORING REQUIREMENTS.
11. DELDOT STANDARD SPECIFICATION 619.11(a)(6) SHALL BE MODIFIED BY REFERENCE TO SPECIAL PROVISIONS 619519 AND 619539.
12. PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE (1) PILE PER SUBSTRUCTURE, AS SHOWN ON THE PLANS, SHALL BE DYNAMICALLY TESTED WITH SIGNAL MATCHING ANALYSIS BY THE CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISION 619519 AND 619539. TEST AND PRODUCTION PILE RESTRIKES WILL BE PAID AS FOLLOWS:
  - a. ALL TEST PILE(S) WILL BE RESTRUCK AFTER A WAITING PERIOD OF AT LEAST 48 HOURS. TEST PILE RESTRIKES SHALL BE INCIDENTAL TO THE INITIAL INSTALLATION OF THE PILE PROVIDED THEY ARE REQUESTED WITHIN FIVE WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE. IF TEST PILE RESTRIKES ARE REQUESTED AFTER THE FIVE WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE, THEN THE TEST PILE RESTRIKE SHALL BE PAID AS NOTED IN SPECIAL PROVISION 619502.
  - b. IF DIRECTED BY THE ENGINEER TO RESTRIKE A PRODUCTION PILE, THE RESTRIKE OF THE PRODUCTION PILE SHALL BE PAID SEPARATELY UNDER ITEM NO. 619501.
13. THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.



**SECTION A-A**

**ELEVATION**

**NOTES:**

1. ALL WELDS SHALL BE COMPLETE PENETRATION AND SHALL CONFORM TO THE ANSI/AASHTO/AWS BRIDGE WELDING CODE, D1.5.
2. WELDING PROCEDURE SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER PRIOR TO WELDING.
3. WHENEVER POSSIBLE, ALL PILES SHALL BE SPLICED ON THE GROUND IN THE FLAT POSITION.
4. WEB SHALL BE COPE TO ALLOW FOR COMPLETE PENETRATION WELDING OF FLANGES.
5. WELDED MECHANICAL PILE SPLICERS MAY BE USED PROVIDED THAT COMPLETE DETAILS AND WELDING PROCEDURES HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER.
6. ALL SPLICES SHOULD BE LOCATED AT MORE THAN 20 FT BELOW THE BOTTOM OF THE PILE CAP.

**H-PILE SPLICE DETAILS**

NOT TO SCALE

NOT FOR BIDDING

AUGUST 2015

**CROSS REFERENCE NOTE:**

FOR FILL PLACEMENT DURING QUARANTINE PERIOD DETAIL, SEE DWG. 1-507 RD-1.

ADDENDUMS / REVISIONS

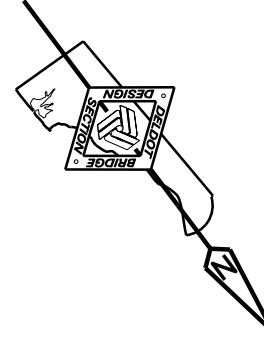


**US 301  
LEVELS ROAD  
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	ML
NEW CASTLE		

**US 301 MAINLINE OVER  
CONNECTOR ROAD  
PILE DRIVING NOTES**

1-507 FT-3
SHEET NO.
637
TOTAL SHTS.
1256

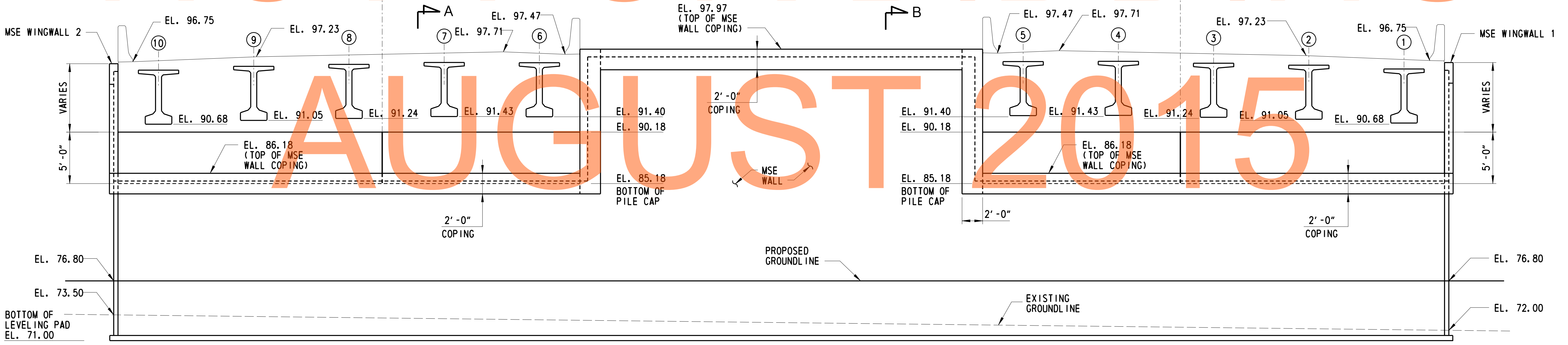
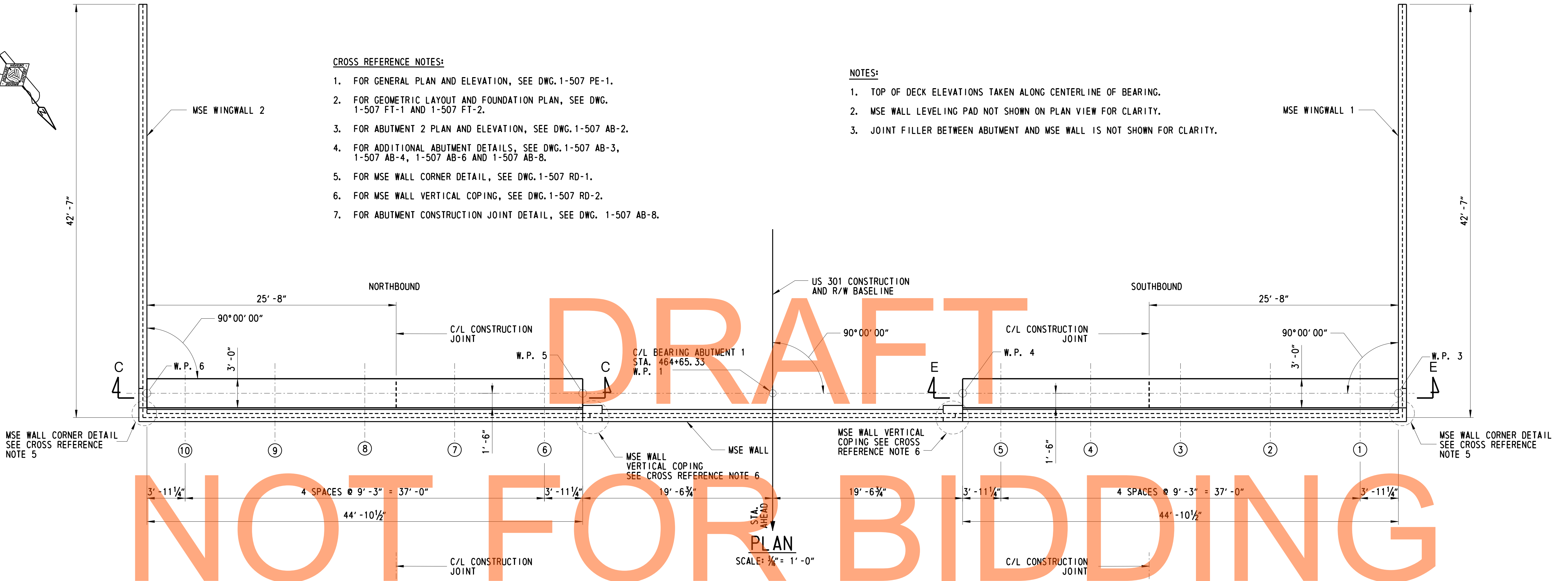


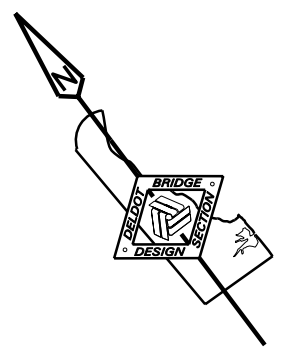
**CROSS REFERENCE NOTES:**

1. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
2. FOR GEOMETRIC LAYOUT AND FOUNDATION PLAN, SEE DWG. 1-507 FT-1 AND 1-507 FT-2.
3. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-507 AB-2.
4. FOR ADDITIONAL ABUTMENT DETAILS, SEE DWG. 1-507 AB-3, 1-507 AB-4, 1-507 AB-6 AND 1-507 AB-8.
5. FOR MSE WALL CORNER DETAIL, SEE DWG. 1-507 RD-1.
6. FOR MSE WALL VERTICAL COPING, SEE DWG. 1-507 RD-2.
7. FOR ABUTMENT CONSTRUCTION JOINT DETAIL, SEE DWG. 1-507 AB-8.

**NOTES:**

1. TOP OF DECK ELEVATIONS TAKEN ALONG CENTERLINE OF BEARING.
2. MSE WALL LEVELING PAD NOT SHOWN ON PLAN VIEW FOR CLARITY.
3. JOINT FILLER BETWEEN ABUTMENT AND MSE WALL IS NOT SHOWN FOR CLARITY.



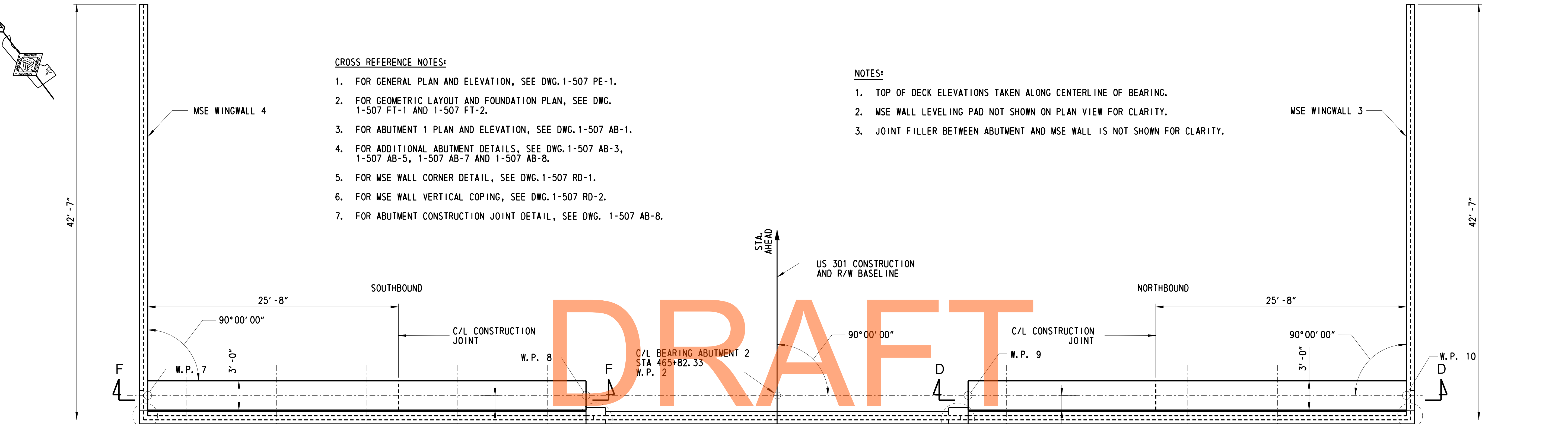


**CROSS REFERENCE NOTES:**

1. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
2. FOR GEOMETRIC LAYOUT AND FOUNDATION PLAN, SEE DWG. 1-507 FT-1 AND 1-507 FT-2.
3. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-507 AB-1.
4. FOR ADDITIONAL ABUTMENT DETAILS, SEE DWG. 1-507 AB-3, 1-507 AB-5, 1-507 AB-7 AND 1-507 AB-8.
5. FOR MSE WALL CORNER DETAIL, SEE DWG. 1-507 RD-1.
6. FOR MSE WALL VERTICAL COPING, SEE DWG. 1-507 RD-2.
7. FOR ABUTMENT CONSTRUCTION JOINT DETAIL, SEE DWG. 1-507 AB-8.

**NOTES:**

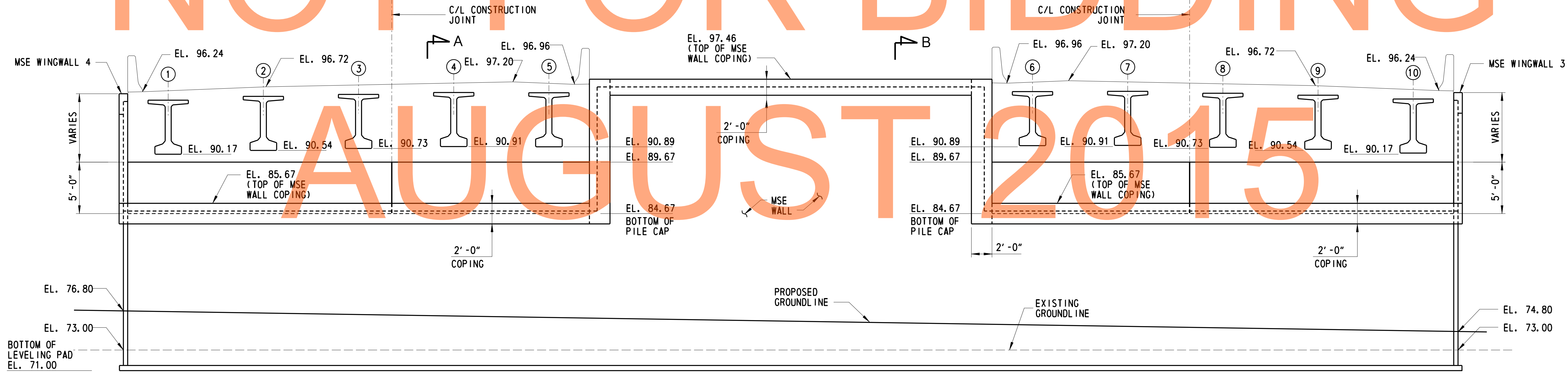
1. TOP OF DECK ELEVATIONS TAKEN ALONG CENTERLINE OF BEARING.
2. MSE WALL LEVELING PAD NOT SHOWN ON PLAN VIEW FOR CLARITY.
3. JOINT FILLER BETWEEN ABUTMENT AND MSE WALL IS NOT SHOWN FOR CLARITY.



**NOT FOR BIDDING**

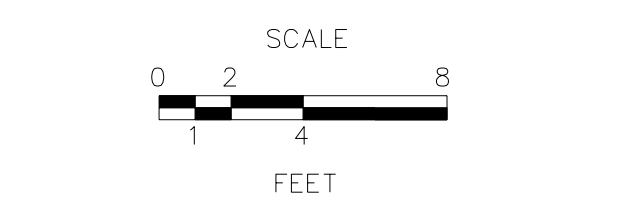
**AUGUST 2015**

**PLAN**  
SCALE: 1/4" = 1' - 0"



**ELEVATION**  
SCALE: 1/4" = 1' - 0"

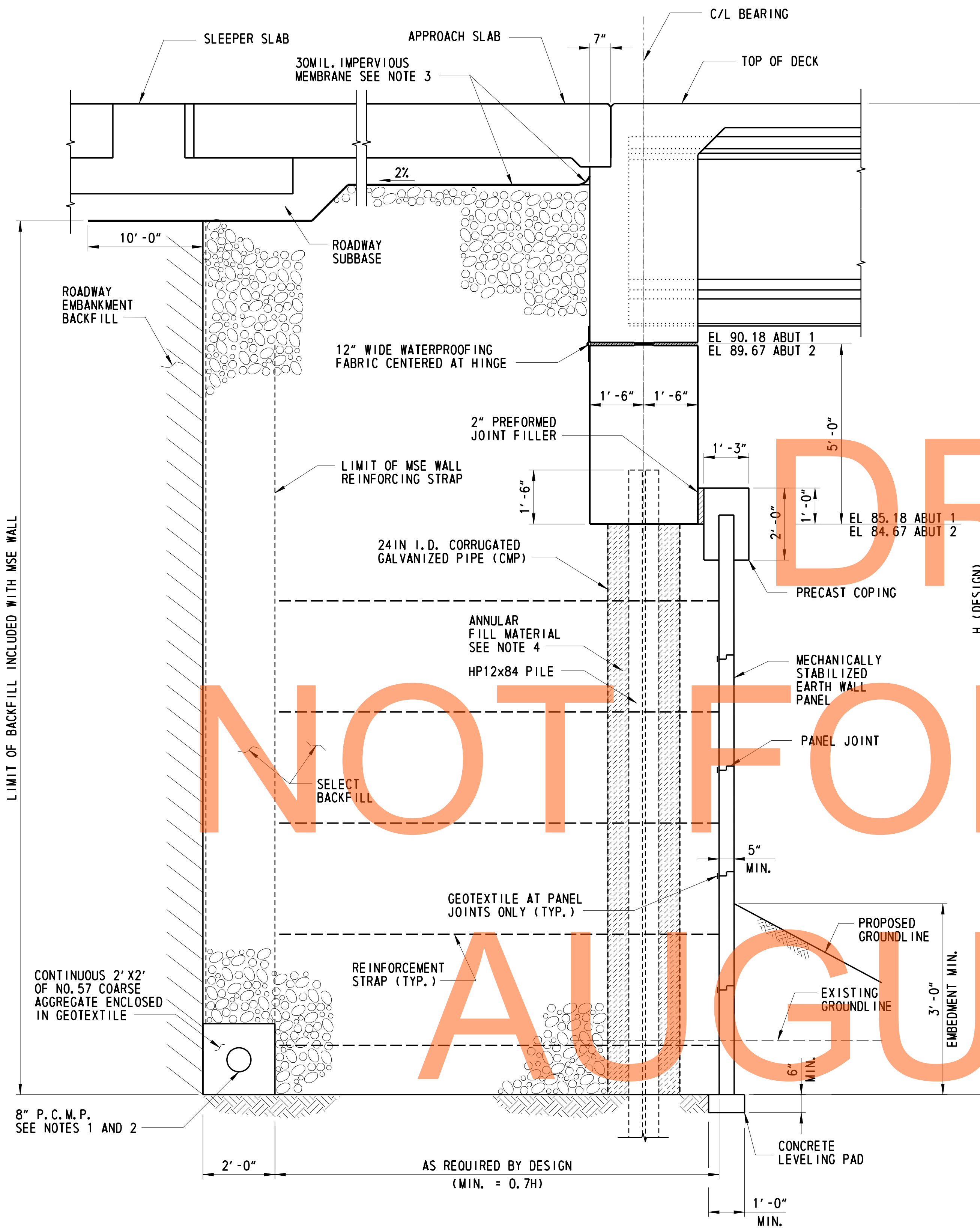
ADDENDUMS / REVISIONS



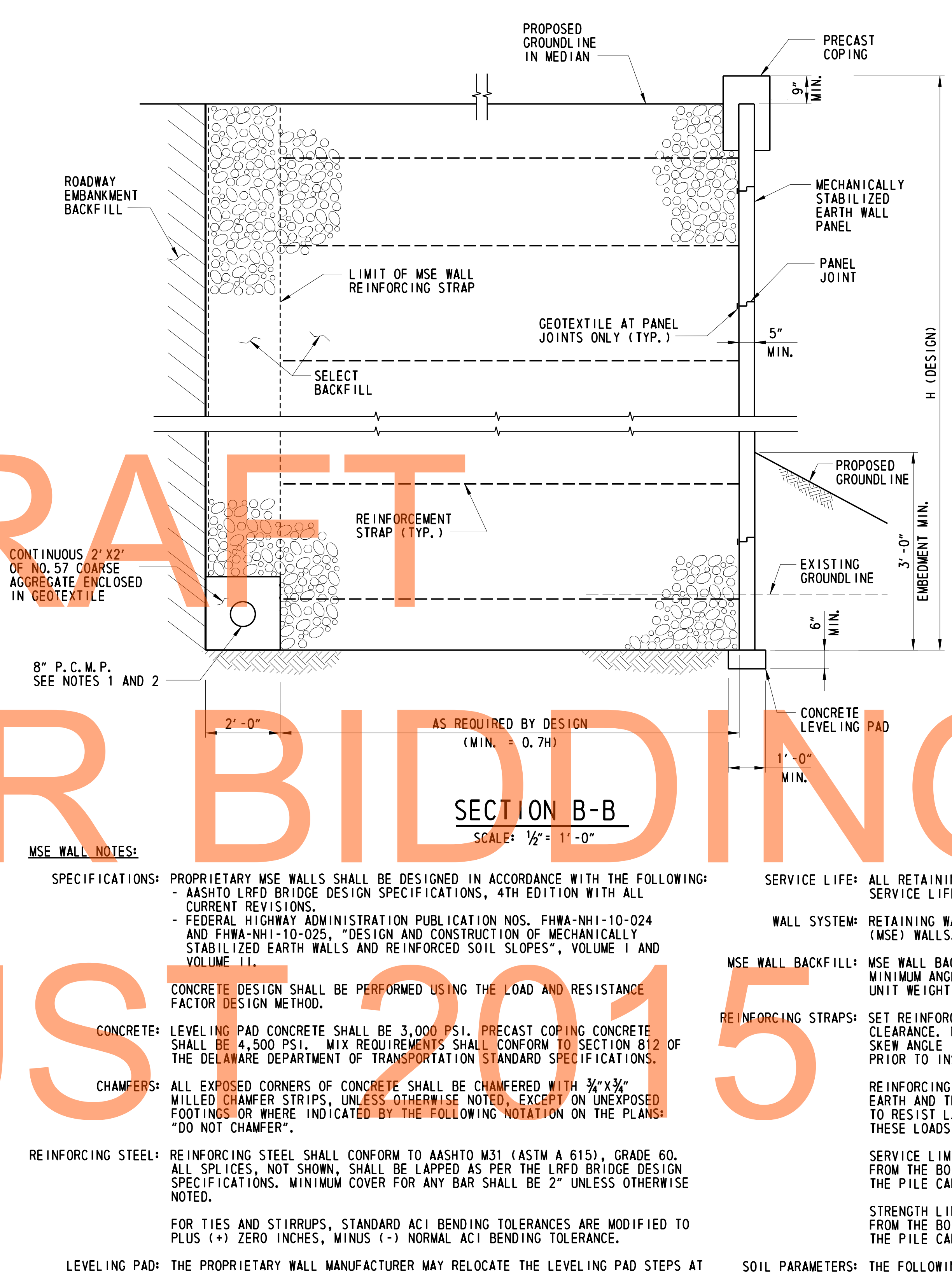
CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	ML
NEW CASTLE		

1-507 AB-2
SHEET NO.
639
TOTAL SHTS.
1256





**SECTION A-A**  
SCALE: 1/2" = 1'-0"



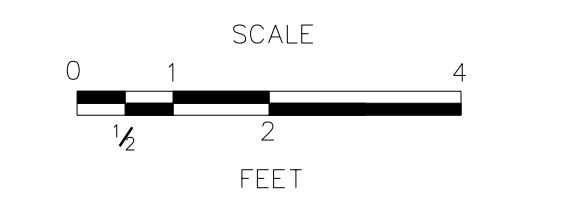
**SECTION B-B**  
SCALE: 1/2" = 1'-0"

- CROSS REFERENCE NOTES:**
- FOR WINGWALL ELEVATIONS, SEE DWG. 1-507 WW-1.
  - FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
  - FOR FOUNDATION PLAN, SEE DWG. 1-507 FT-2.
  - FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-507 AB-1 AND 1-507 AB-2.
  - FOR APPROACH SLAB DETAILS, SEE DWG. 1-507 DK-3 AND 1-507 DK-4.
- NOTES:**
- DRAIN PERFORATED CORRUGATED METAL PIPE (P.C.M.P.) TO DAYLIGHT. THE COST OF P.C.M.P. SHALL BE INCIDENTAL TO PAY ITEM 602553.
  - SURROUND P.C.M.P. WITH A CONTINUOUS 2' X 2' OF DELAWARE NO. 57 STONE ENCLOSED IN GEOTEXTILE. THE COST OF DELAWARE NO. 57 STONE AND GEOTEXTILE SHALL BE INCIDENTAL TO PAY ITEM 602553.
  - SLOPE MEMBRANE A MINIMUM OF 2% AWAY FROM THE BACKWALL.
  - FILL THE ANNULAR SPACES BETWEEN PILES AND GALVANIZED PIPES WITH FINE AGGREGATE AS PER DELDOT STANDARD SPECIFICATION, SECTION 804.

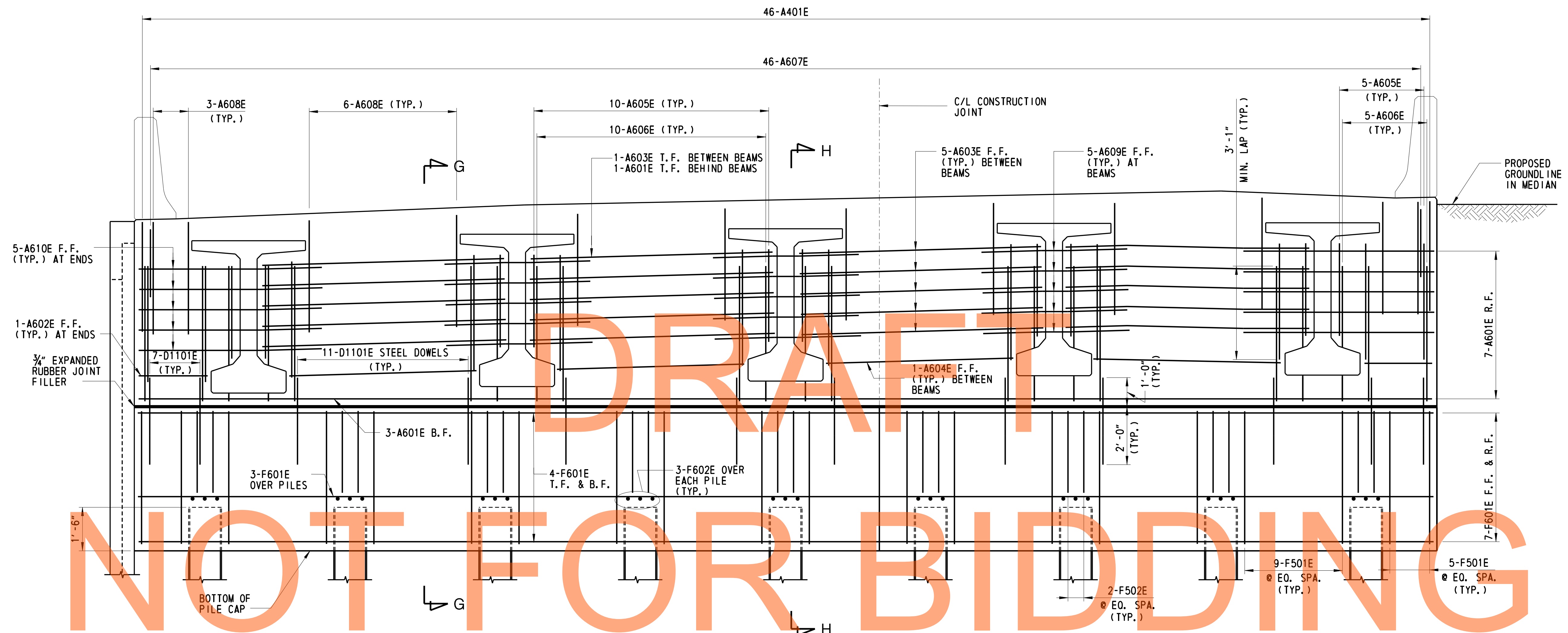
**MSE WALL NOTES:**

- SPECIFICATIONS:** PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:  
 - AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.  
 - FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NOS. FHWA-NHI-10-024 AND FHWA-NHI-10-025, "DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES", VOLUME 1 AND VOLUME 11.
- CONCRETE:** LEVELING PAD CONCRETE SHALL BE 3,000 PSI. PRECAST COPING CONCRETE SHALL BE 4,500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
- CHAMFERS:** ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4" X 3/4" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".
- REINFORCING STEEL:** REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A 615), GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE LRFD BRIDGE DESIGN SPECIFICATIONS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.
- FOR TIES AND STIRRUPS,** STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCE.
- LEVELING PAD:** THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- ROADWAY LIMITS:** THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCRoACHED UPON.
- COORDINATION:** CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM.
- SERVICE LIFE:** ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.
- WALL SYSTEM:** RETAINING WALL TYPE SHALL BE MECHANICALLY STABILIZED EARTH (MSE) WALLS. NO OTHER WALL TYPE MAY BE SUBSTITUTED.
- MSE WALL BACKFILL:** MSE WALL BACKFILL SHALL BE DELDOT SELECT BACKFILL WITH MINIMUM ANGLE OF INTERNAL FRICTION OF 34 DEGREES AND A MOIST UNIT WEIGHT OF 125 LB/FT<sup>3</sup>.
- REINFORCING STRAPS:** SET REINFORCING STRAPS TO CLEAR PILE CASING, 2" MIN. CLEARANCE. MAXIMUM IN-FIELD SKEW OF 15 DEGREES. IF GREATER SKEW ANGLE IS REQUIRED, CONTACT MSE WALL FIELD REPRESENTATIVE PRIOR TO INSTALLATION.
- REINFORCING STRAPS OF ABUTMENT MSE WALLS:** IN ADDITION TO EARTH AND TRAFFIC SURCHARGE LOADS, MSE STRAPS SHALL BE DESIGNED TO RESIST LATERAL LOADS CAUSED BY THE MOVEMENT OF THE PILES. THESE LOADS ARE AS FOLLOWS:
- SERVICE LIMIT:** 700 PSF APPLIED IN A RECTANGULAR DISTRIBUTION FROM THE BOTTOM OF THE PILE CAP TO 12.0 FT BELOW THE BOTTOM OF THE PILE CAP.
- STRENGTH LIMIT:** 900 PSF APPLIED IN A RECTANGULAR DISTRIBUTION FROM THE BOTTOM OF THE PILE CAP TO 12.0 FT BELOW THE BOTTOM OF THE PILE CAP.
- SOIL PARAMETERS:** THE FOLLOWING ARE RECOMMENDED SOIL PARAMETERS TO BE USED FOR THE DESIGN OF MSE ABUTMENT AND WINGWALLS:  
 - NOMINAL BEARING RESISTANCE = 16.6 KSF  
 - FACTORED BEARING RESISTANCE = 10.8 KSF  
 - MAXIMUM ANTICIPATED SETTLEMENT = 4.5 IN  
 - FOR RETAINED SOIL, MOIST UNIT WEIGHT = 120 LB/FT<sup>3</sup>  
 - FOR RETAINED SOIL, ANGLE OF INTERNAL FRICTION = 30 DEGREES  
 - FOR FOUNDATION SOIL, MOIST UNIT WEIGHT = 120 LB/FT<sup>3</sup>  
 - FOR FOUNDATION SOIL, ANGLE OF INTERNAL FRICTION = 30 DEGREES
- COPING:** FABRICATION AND INSTALLATION OF COPING ALONG MSE WALL SHALL BE INCIDENTAL TO ITEM 602553.

ADDENDUMS / REVISIONS



CONTRACT	T200911303
COUNTY	NEW CASTLE
BRIDGE NO.	1-507N&S
DESIGNED BY:	LT
CHECKED BY:	MHI



NOT FOR BIDDING

AUGUST 2015

**ABUTMENT 1 NORTHBOUND DETAIL SECTION C-C**

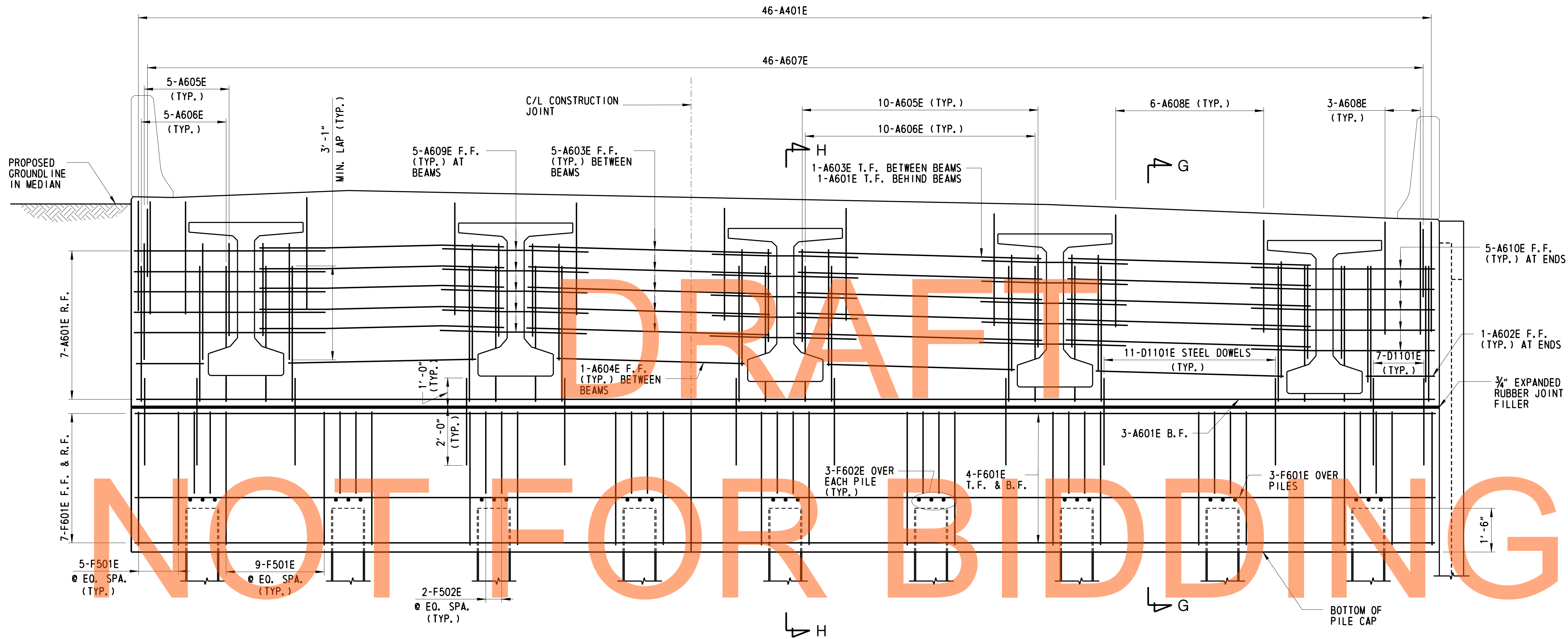
SCALE: 1/2" = 1'-0"

**CROSS REFERENCE NOTES:**

1. PORTION OF THE INTEGRAL CURED ABUTMENT ABOVE THE HINGE SHALL BE PLACED AFTER THE PLACEMENT OF THE DECK CONCRETE. REFER TO THE DECK POURING SEQUENCE DWG. 1-507 DT-1.
2. FOR SECTION G-G AND H-H, SEE DWG. 1-507 AB-8.
3. FOR THE ELEVATIONS AT BEAMS BOTTOMS, SEE DWG. 1-507 AB-1.

**NOTES:**

1. BACKFILL BEHIND INTEGRAL ABUTMENT FOOTING SHALL NOT BE PLACED UNTIL CONCRETE IN THE UPPER PORTION OF THE INTEGRAL ABUTMENT ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. THE REMAINDER OF THE BACKFILL BEHIND BOTH BRIDGE ABUTMENTS SHALL BE PLACED SUCH THAT THE DIFFERENTIAL IN THE HEIGHT OF FILL AT EACH ABUTMENT SHALL NOT EXCEED 6".
2. THE INTEGRAL BACKWALL SHALL BE CAST WHEN THE LEAST THERMAL MOVEMENT OF THE SUPERSTRUCTURE CAN BE EXPECTED DURING THE PERIOD OF INITIAL SET OF THE CONCRETE IN THE BACKWALL: FOR INSTANCE 1) AT DUSK OR 2) DURING AN EXPECTED UNIFORMLY CLOUDY DAY.
3. BEAMS SHALL BE HELD IN PLACE AND REST ON TEMPORARY SUPPORTS (BY OTHERS) UNTIL INTEGRAL ABUTMENT CONCRETE GAINS A MINIMUM STRENGTH OF 3000 PSI. THE CONTRACTOR SHALL SUBMIT THE TEMPORARY BEAM SUPPORT METHOD TO THE ENGINEER FOR APPROVAL. COST OF TEMPORARY SUPPORT SHALL BE INCLUDED IN THE PRICE OF THE PRESTRESSED CONCRETE BEAM.
4. GALVANIZED SLEEVE PIPES NOT SHOWN FOR CLARITY.



NOT FOR BIDDING

AUGUST 2015

**ABUTMENT 2 NORTHBOUND DETAIL SECTION D-D**

SCALE: 1/2" = 1'-0"

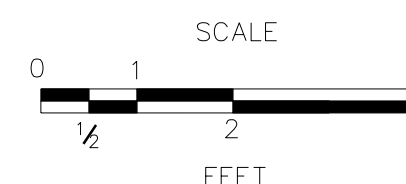
**CROSS REFERENCE NOTES:**

1. PORTION OF THE INTEGRAL CURED ABUTMENT ABOVE THE HINGE SHALL BE PLACED AFTER THE PLACEMENT OF THE DECK CONCRETE. REFER TO THE DECK POURING SEQUENCE DWG. 1-507 DT-1.
2. FOR SECTION G-G AND H-H, SEE DWG. 1-507 AB-8.
3. FOR THE ELEVATIONS AT BEAMS BOTTOMS, SEE DWG. 1-507 AB-2.

**NOTES:**

1. BACKFILL BEHIND INTEGRAL ABUTMENT FOOTING SHALL NOT BE PLACED UNTIL CONCRETE IN THE UPPER PORTION OF THE INTEGRAL ABUTMENT ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. THE REMAINDER OF THE BACKFILL BEHIND BOTH BRIDGE ABUTMENTS SHALL BE PLACED SUCH THAT THE DIFFERENTIAL IN THE HEIGHT OF FILL AT EACH ABUTMENT SHALL NOT EXCEED 6".
2. THE INTEGRAL BACKWALL SHALL BE CAST WHEN THE LEAST THERMAL MOVEMENT OF THE SUPERSTRUCTURE CAN BE EXPECTED DURING THE PERIOD OF INITIAL SET OF THE CONCRETE IN THE BACKWALL: FOR INSTANCE 1) AT DUSK OR 2) DURING AN EXPECTED UNIFORMLY CLOUDY DAY.
3. BEAMS SHALL BE HELD IN PLACE AND REST ON TEMPORARY SUPPORTS (BY OTHERS) UNTIL INTEGRAL ABUTMENT CONCRETE GAINS A MINIMUM STRENGTH OF 3000 PSI. THE CONTRACTOR SHALL SUBMIT THE TEMPORARY BEAM SUPPORT METHOD TO THE ENGINEER FOR APPROVAL. COST OF TEMPORARY SUPPORT SHALL BE INCLUDED IN THE PRICE OF THE PRESTRESSED CONCRETE BEAM.
4. GALVANIZED SLEEVE PIPES NOT SHOWN FOR CLARITY.

ADDENDUMS / REVISIONS



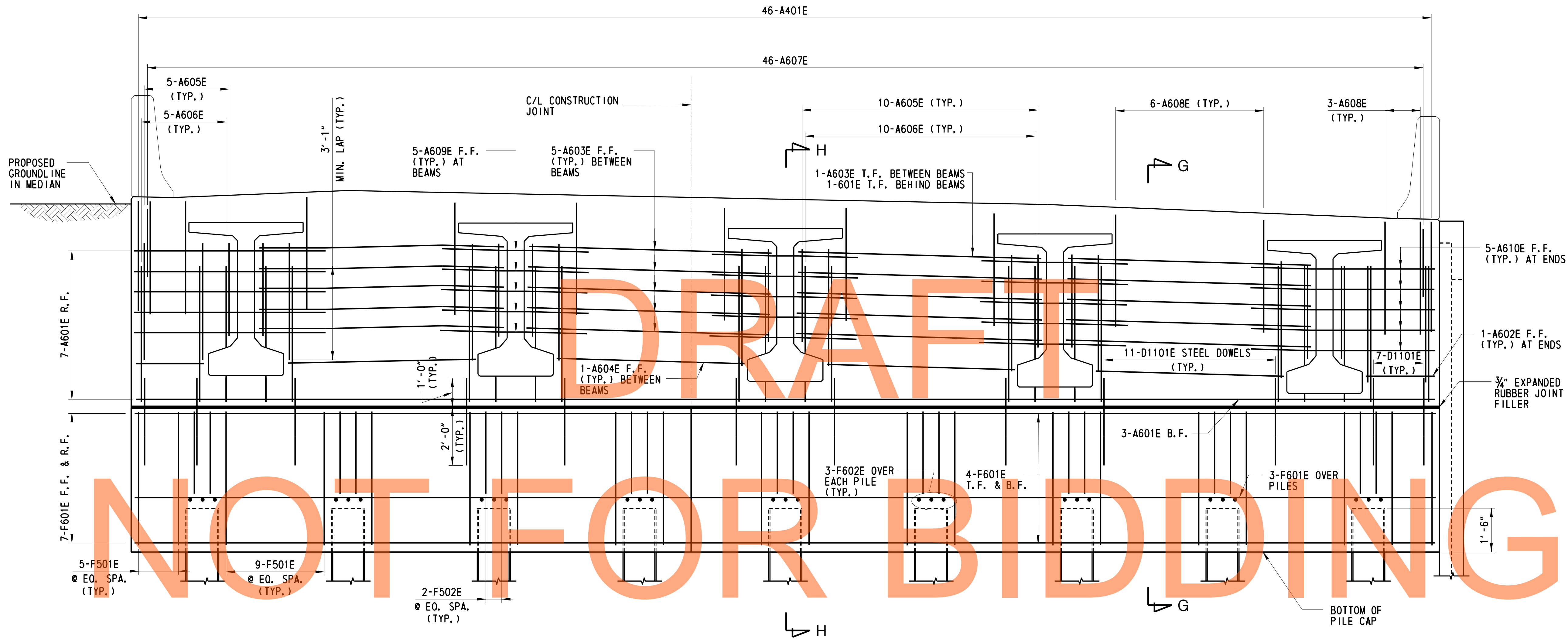
**US 301  
LEVELS ROAD  
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	PRH
COUNTY	CHECKED BY:	MHI
NEW CASTLE		

**US 301 MAINLINE OVER  
CONNECTOR ROAD  
ABUTMENT 2 NB  
REINFORCING**



1-507 AB-5
SHEET NO.
642
TOTAL SHTS.
1256



NOT FOR BIDDING

AUGUST 2015

**ABUTMENT 1 SOUTHBOUND DETAIL SECTION E-E**

SCALE: 1/2" = 1'-0"

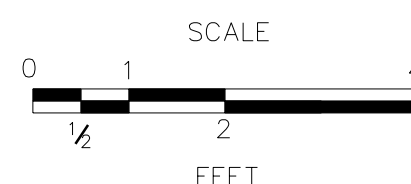
**CROSS REFERENCE NOTES:**

1. PORTION OF THE INTEGRAL CURED ABUTMENT ABOVE THE HINGE SHALL BE PLACED AFTER THE PLACEMENT OF THE DECK CONCRETE. REFER TO THE DECK POURING SEQUENCE DWG. 1-507 DT-1.
2. FOR SECTION G-G AND H-H, SEE DWG. 1-507 AB-8.
3. FOR THE ELEVATIONS AT BEAMS BOTTOMS, SEE DWG. 1-507 AB-1.

**NOTES:**

1. BACKFILL BEHIND INTEGRAL ABUTMENT FOOTING SHALL NOT BE PLACED UNTIL CONCRETE IN THE UPPER PORTION OF THE INTEGRAL ABUTMENT ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. THE REMAINDER OF THE BACKFILL BEHIND BOTH BRIDGE ABUTMENTS SHALL BE PLACED SUCH THAT THE DIFFERENTIAL IN THE HEIGHT OF FILL AT EACH ABUTMENT SHALL NOT EXCEED 6".
2. THE INTEGRAL BACKWALL SHALL BE CAST WHEN THE LEAST THERMAL MOVEMENT OF THE SUPERSTRUCTURE CAN BE EXPECTED DURING THE PERIOD OF INITIAL SET OF THE CONCRETE IN THE BACKWALL: FOR INSTANCE 1) AT DUSK OR 2) DURING AN EXPECTED UNIFORMLY CLOUDY DAY.
3. BEAMS SHALL BE HELD IN PLACE AND REST ON TEMPORARY SUPPORTS (BY OTHERS) UNTIL INTEGRAL ABUTMENT CONCRETE GAINS A MINIMUM STRENGTH OF 3000 PSI. THE CONTRACTOR SHALL SUBMIT THE TEMPORARY BEAM SUPPORT METHOD TO THE ENGINEER FOR APPROVAL. COST OF TEMPORARY SUPPORT SHALL BE INCLUDED IN THE PRICE OF THE PRESTRESSED CONCRETE BEAM.
4. GALVANIZED SLEEVE PIPES NOT SHOWN FOR CLARITY.

ADDENDUMS / REVISIONS



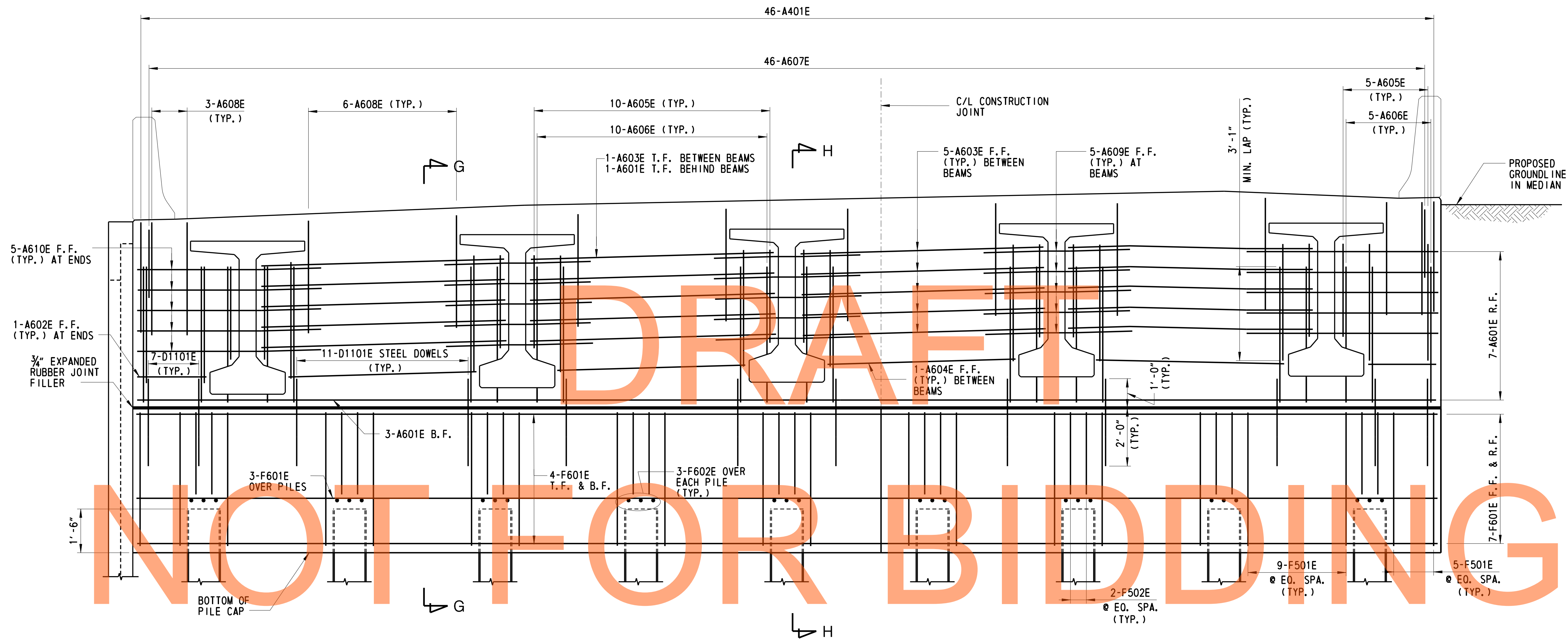
**US 301  
LEVELS ROAD  
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	PRH
COUNTY	CHECKED BY:	MHI
NEW CASTLE		

**US 301 MAINLINE OVER  
CONNECTOR ROAD  
ABUTMENT 1 SB  
REINFORCING**



1-507 AB-6
SHEET NO.
643
TOTAL SHTS.
1256



NOT FOR BIDDING

# AUGUST 2015

## ABUTMENT 2 SOUTHBOUND DETAIL SECTION F-F

SCALE: 1/2" = 1'-0"

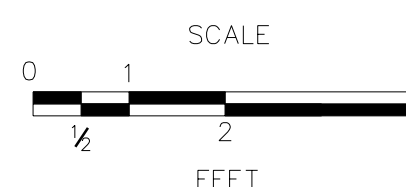
**CROSS REFERENCE NOTES:**

1. PORTION OF THE INTEGRAL CURED ABUTMENT ABOVE THE HINGE SHALL BE PLACED AFTER THE PLACEMENT OF THE DECK CONCRETE. REFER TO THE DECK POURING SEQUENCE DWG. 1-507 DT-1.
2. FOR SECTION G-G AND H-H, SEE DWG. 1-507 AB-8.
3. FOR THE ELEVATIONS AT BEAMS BOTTOMS, SEE DWG. 1-507 AB-2.

**NOTES:**

1. BACKFILL BEHIND INTEGRAL ABUTMENT FOOTING SHALL NOT BE PLACED UNTIL CONCRETE IN THE UPPER PORTION OF THE INTEGRAL ABUTMENT ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. THE REMAINDER OF THE BACKFILL BEHIND BOTH BRIDGE ABUTMENTS SHALL BE PLACED SUCH THAT THE DIFFERENTIAL IN THE HEIGHT OF FILL AT EACH ABUTMENT SHALL NOT EXCEED 6".
2. THE INTEGRAL BACKWALL SHALL BE CAST WHEN THE LEAST THERMAL MOVEMENT OF THE SUPERSTRUCTURE CAN BE EXPECTED DURING THE PERIOD OF INITIAL SET OF THE CONCRETE IN THE BACKWALL. FOR INSTANCE 1) AT DUSK OR 2) DURING AN EXPECTED UNIFORMLY CLOUDY DAY.
3. BEAMS SHALL BE HELD IN PLACE AND REST ON TEMPORARY SUPPORTS (BY OTHERS) UNTIL INTEGRAL ABUTMENT CONCRETE GAINS A MINIMUM STRENGTH OF 3000 PSI. THE CONTRACTOR SHALL SUBMIT THE TEMPORARY BEAM SUPPORT METHOD TO THE ENGINEER FOR APPROVAL. COST OF TEMPORARY SUPPORT SHALL BE INCLUDED IN THE PRICE OF THE PRESTRESSED CONCRETE BEAM.
4. GALVANIZED SLEEVE PIPES NOT SHOWN FOR CLARITY.

ADDENDUMS / REVISIONS

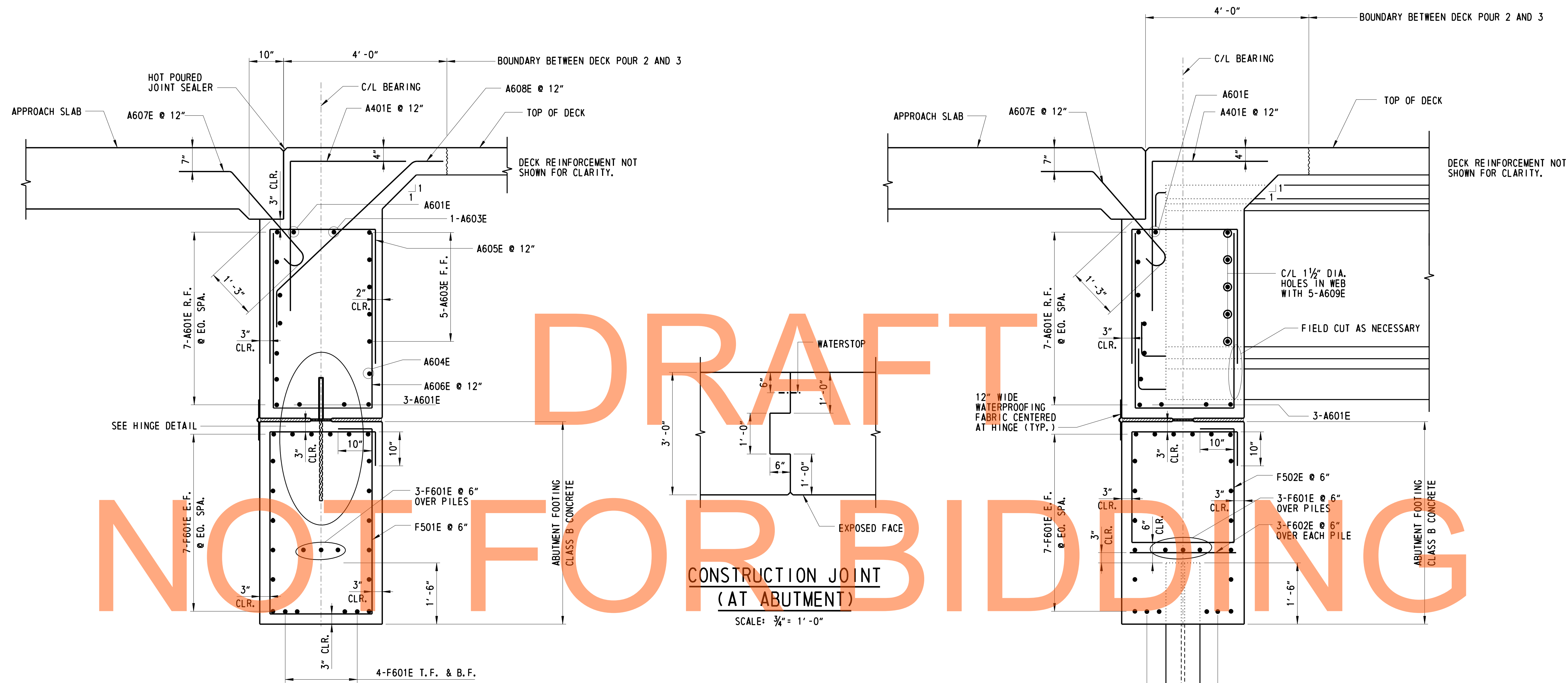


**US 301  
LEVELS ROAD  
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	PRH
COUNTY	CHECKED BY:	MHI
NEW CASTLE		

**US 301 MAINLINE OVER  
CONNECTOR ROAD  
ABUTMENT 2 SB  
REINFORCING**

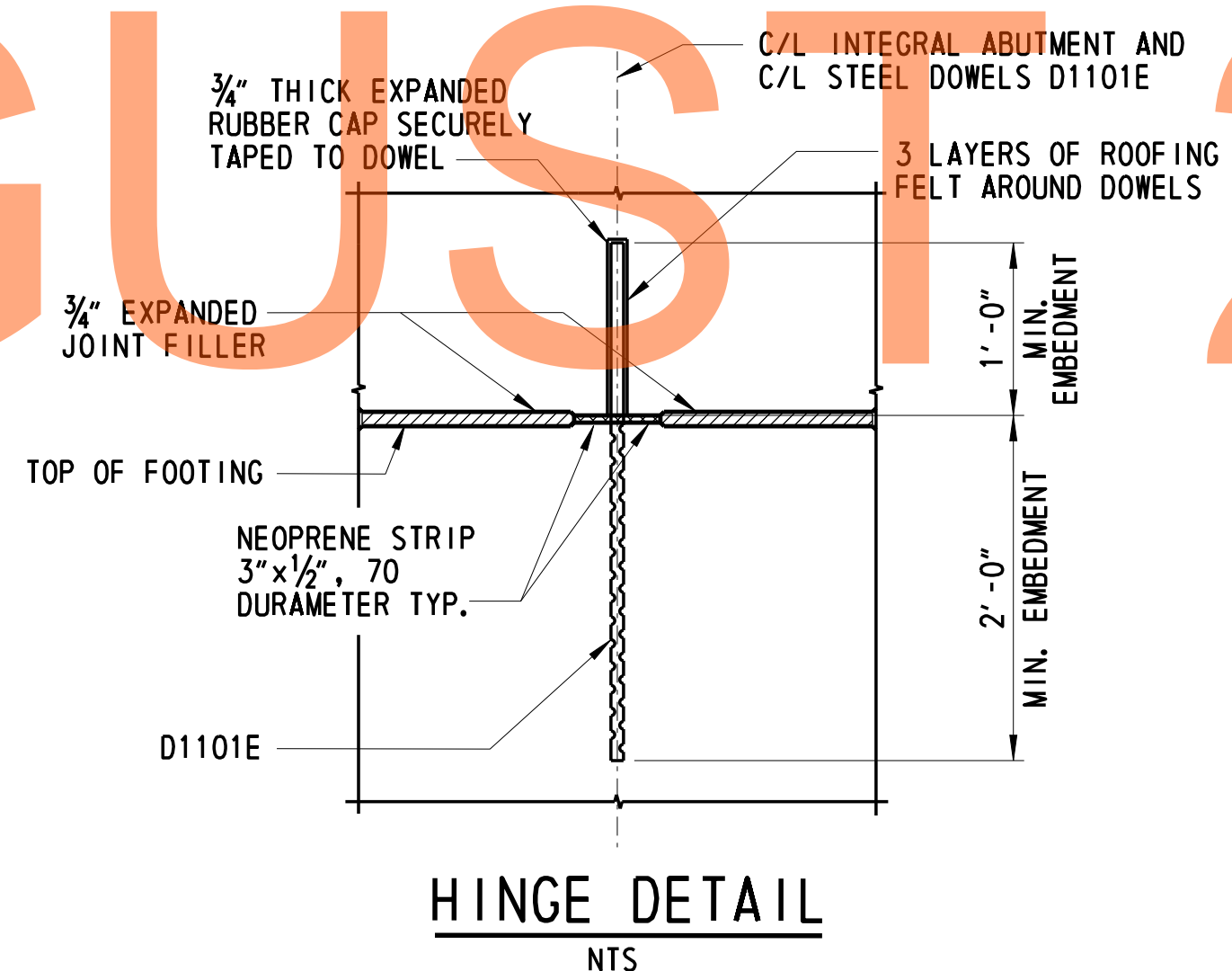
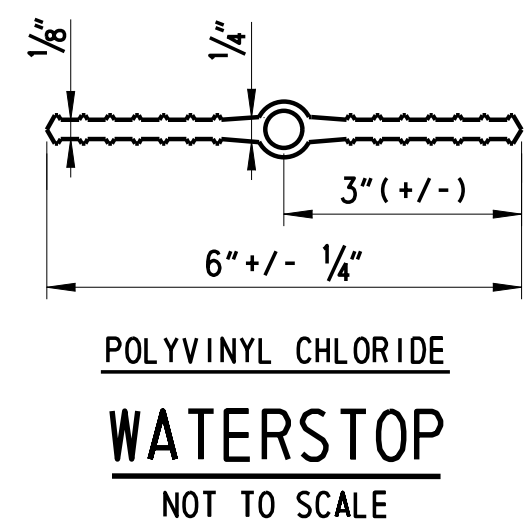
1-507 AB-7
SHEET NO.
644
TOTAL SHTS.
1256



DRAFT  
NOT FOR BIDDING  
AUGUST 2015

**SECTION G-G  
(BETWEEN GIRDERS)  
(BETWEEN PILES)**  
SCALE: 3/4" = 1'-0"

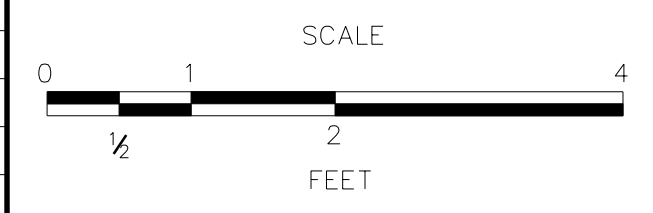
**SECTION H-H  
(AT GIRDER)  
(AT PILE)**  
SCALE: 3/4" = 1'-0"



- NOTES:**
1. PROVIDE HOLES OR SLOTS IN WATERSTOP, AS REQUIRED, WHEN NECESSARY TO ACCOMMODATE REINFORCEMENT BARS, BUT DO NOT COMPROMISE SEAL.
  2. STOP WATERSTOP 9" FROM TOP OF WALL.

- CROSS REFERENCE NOTES:**
1. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
  2. FOR GEOMETRIC LAYOUT AND FOUNDATION PLAN, SEE DWG. 1-507 FT-1 AND 1-507 FT-2.
  3. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-507 AB-1 AND 1-507 AB-2.
  4. FOR LOCATION OF ABUTMENT CONSTRUCTION JOINTS, SEE DWG. 1-507 AB-1 AND 1-507 AB-2.
  5. FOR DECK AND APPROACH SLAB DETAILS, SEE DWG. 1-507 DK-1, 1-507 DK-2, 1-507 DK-3, AND 1-507 DK-4.
  6. FOR DECK POURING SEQUENCE, SEE DWG. 1-507 DT-1.
- NOTES:**
1. GALVANIZED PIPES NOT SHOWN FOR CLARITY.
  2. WATERPROOFING FABRIC SHALL BE INCIDENTAL TO ITEM 602013.

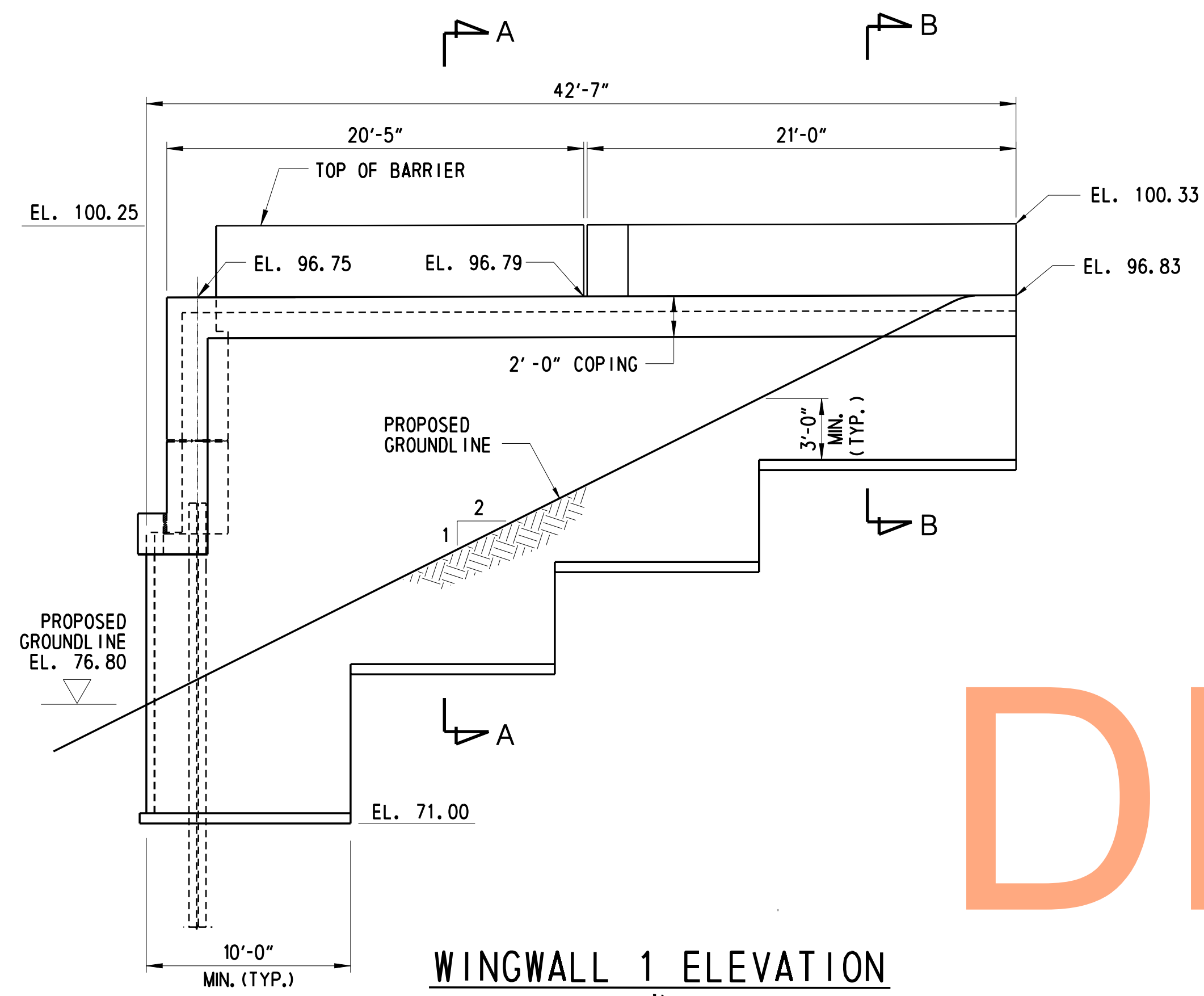
ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	PRH
COUNTY	CHECKED BY:	MHI
NEW CASTLE		

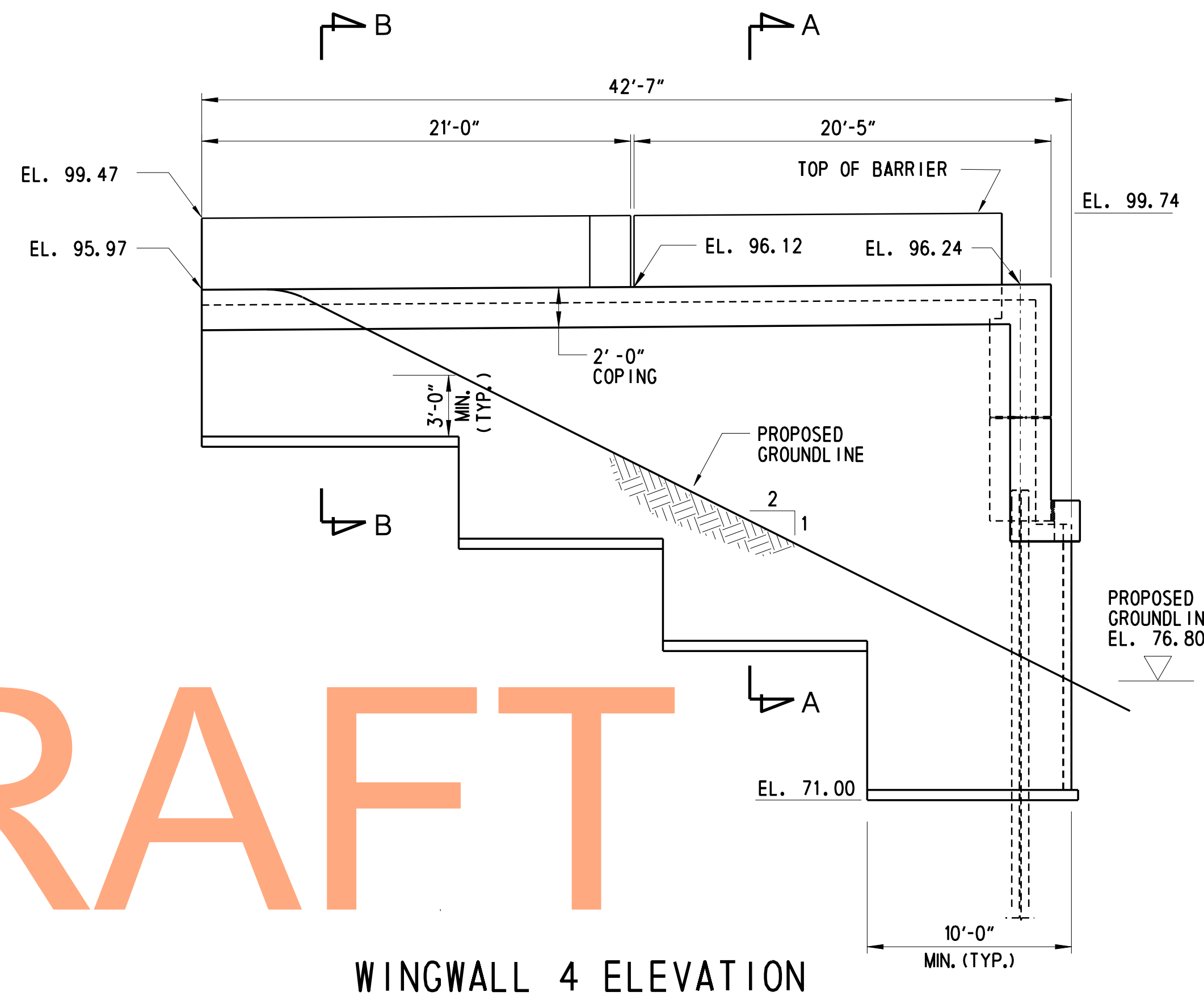
<b>US 301 MAINLINE OVER CONNECTOR ROAD ABUTMENT REINFORCING</b>
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1-507 AB-8
SHEET NO.
645
TOTAL SHTS.
1256



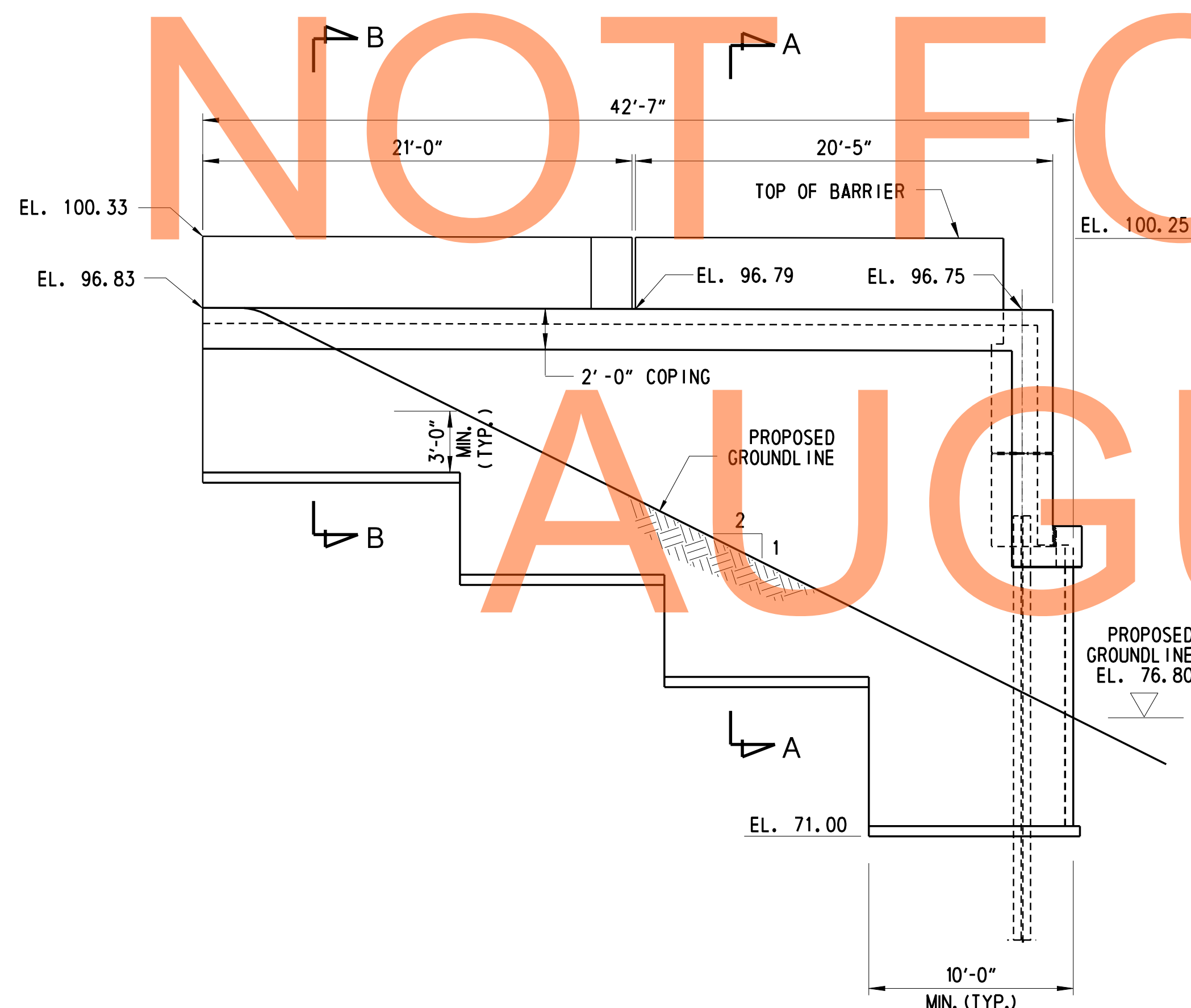
**WINGWALL 1 ELEVATION**

SCALE: 3/16" = 1'-0"



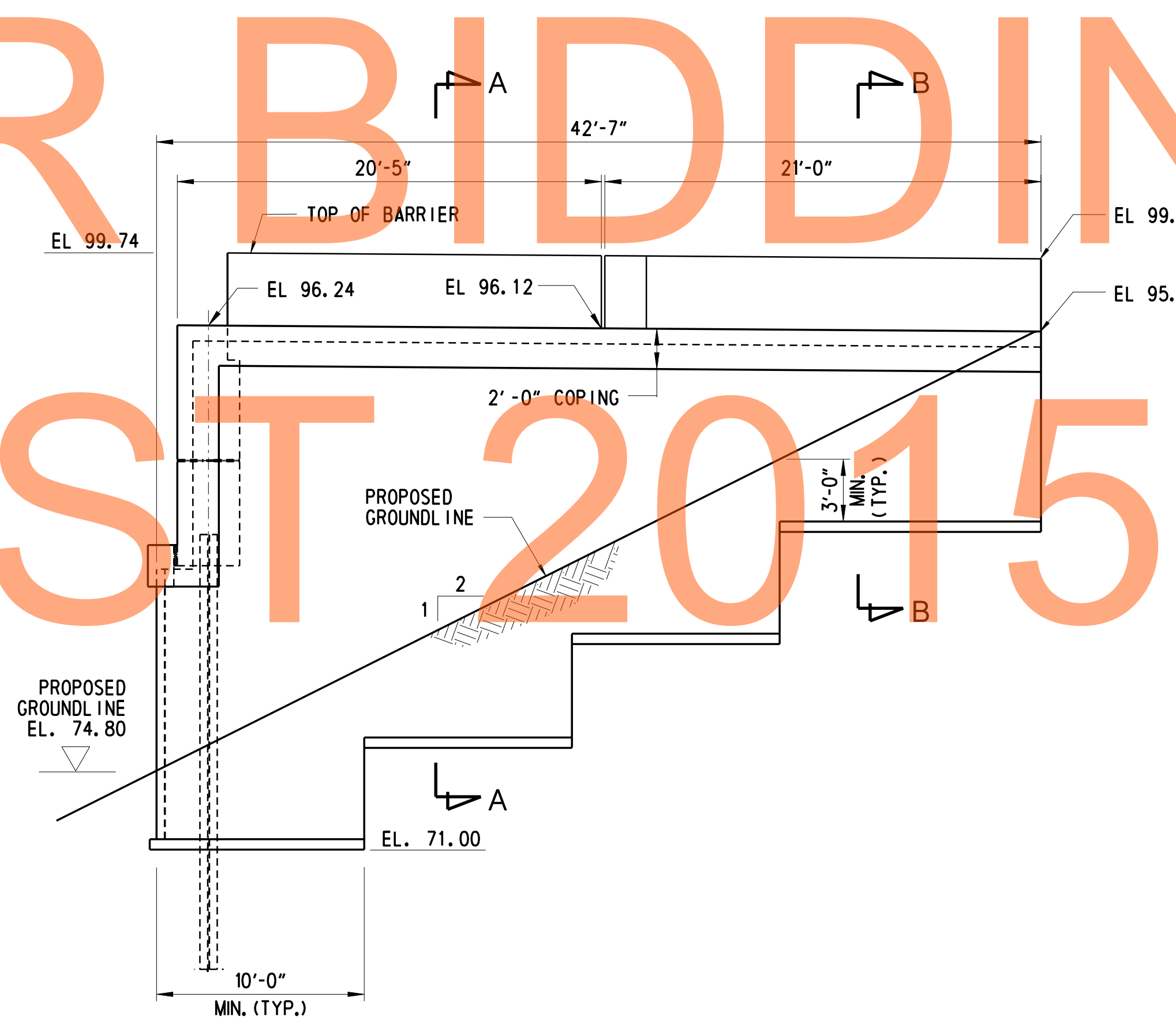
**WINGWALL 4 ELEVATION**

SCALE: 3/16" = 1'-0"



**WINGWALL 2 ELEVATION**

SCALE: 3/16" = 1'-0"



**WINGWALL 3 ELEVATION**

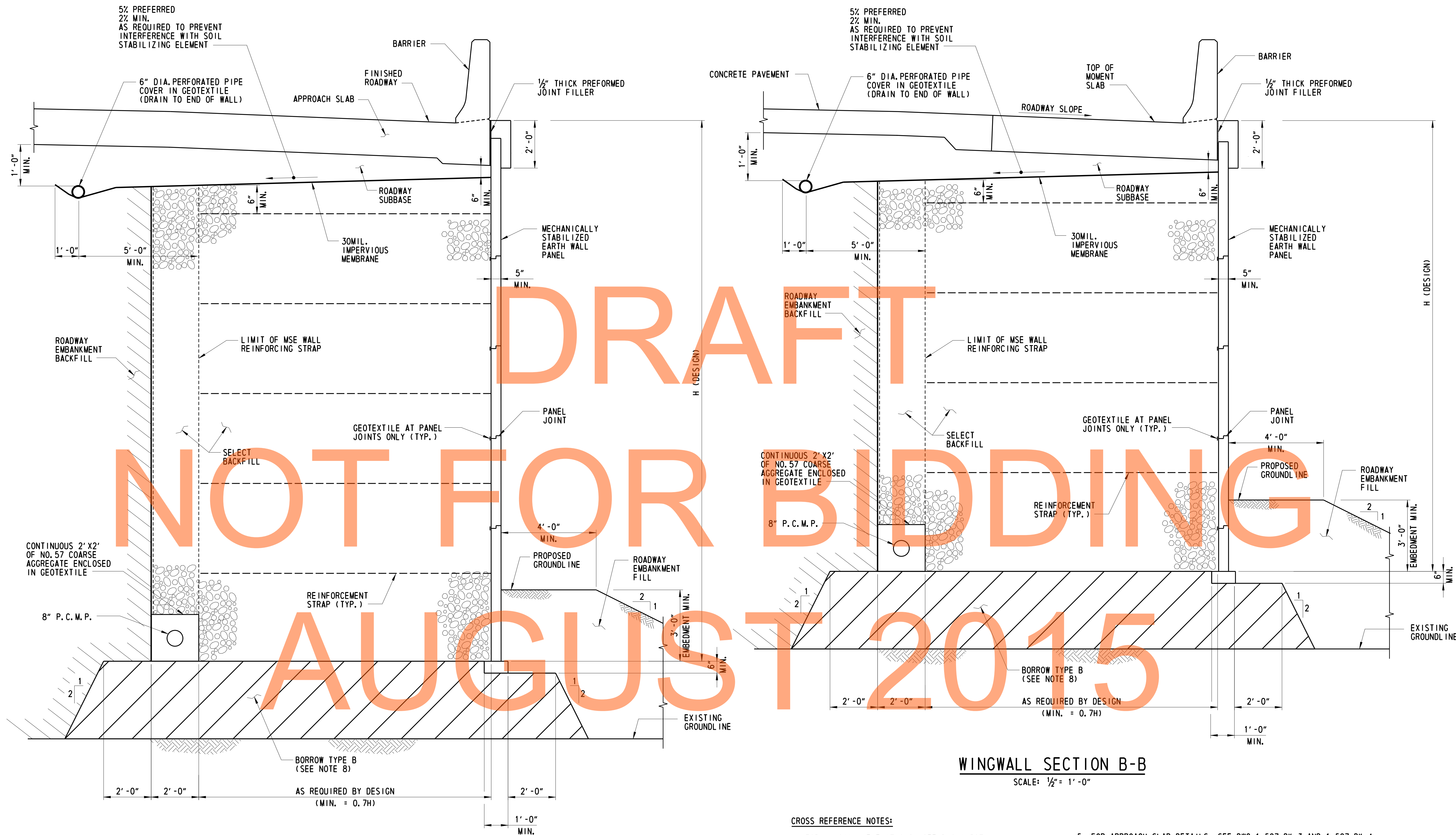
SCALE: 3/16" = 1'-0"

DRAFT

NOT FOR BIDDING  
AUGUST 2015

**CROSS REFERENCE NOTES:**

1. FOR WINGWALL SECTIONS, SEE DWG. 1-507 WW-2.
2. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
3. FOR FOUNDATION PLAN, SEE DWG. 1-507 FT-2.
4. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-507 AB-01 AND 1-507 AB-2.
5. FOR APPROACH SLAB DETAILS, SEE DWG. 1-507 DK-3.

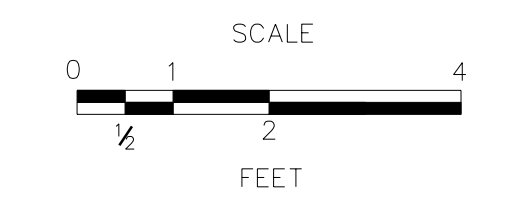


**WINGWALL SECTION A-A**  
SCALE: 1/2" = 1'-0"

**WINGWALL SECTION B-B**  
SCALE: 1/2" = 1'-0"

- CROSS REFERENCE NOTES:**
1. FOR WINGWALL ELEVATIONS, SEE DWG. 1-507 WW-1.
  2. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
  3. FOR FOUNDATION PLAN, SEE DWG. 1-507 FT-2.
  4. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-507 AB-1. AND 1-507 AB-2.
  5. FOR APPROACH SLAB DETAILS, SEE DWG. 1-507 DK-3 AND 1-507 DK-4.
  6. FOR MSE WALL NOTES, SEE DWG. 1-507 AB-3.
  7. SELECT BACKFILL SHALL BE INCIDENTAL TO ITEM 602772 MECHANICALLY STABILIZED EARTH WALLS.
  8. BORROW TYPE B SHALL BE INCIDENTAL TO ITEM 602772.

ADDENDUMS / REVISIONS



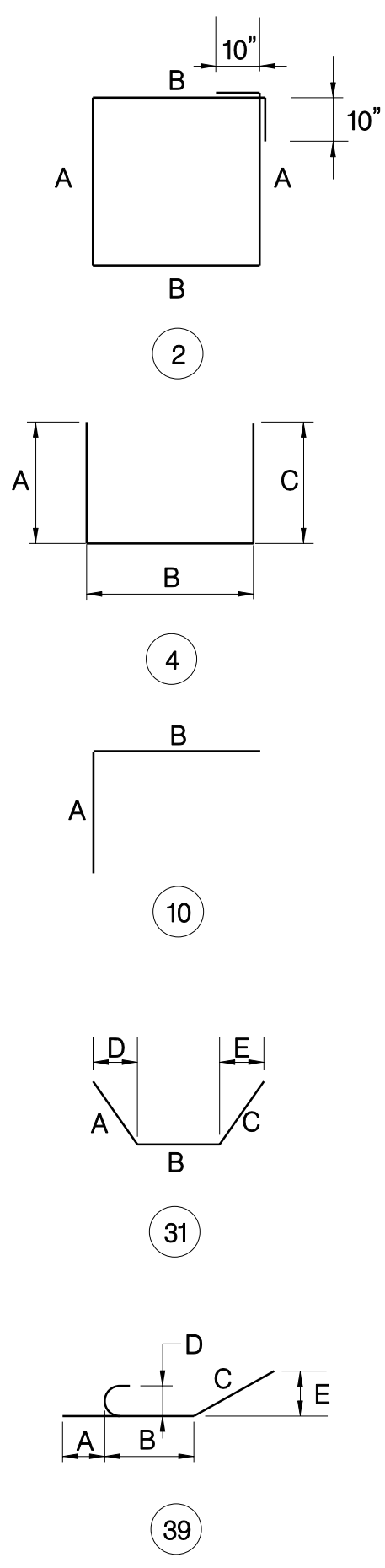
CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	ML
NEW CASTLE		

1-507 WW-2
SHEET NO.
647
TOTAL SHTS.
1256



NORTHBOUND REINFORCING BAR SCHEDULE

ABUTMENT 1 BAR SCHEDULE															ABUTMENT 2 BAR SCHEDULE																	
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS	MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS	
A401E	6'-6"	46	10	3'-8"	2'-10"											A401E	6'-6"	46	10	3'-8"	2'-10"											
A601E	44'-6 1/2"	11	STR.													A601E	44'-6 1/2"	11	STR.													
A602E	2'-3 3/4"	2	STR.													A602E	2'-3 3/4"	2	STR.													
A603E	8'-4"	24	STR.													A603E	8'-4"	24	STR.													
A604E	6'-3"	4	STR.													A604E	6'-3"	4	STR.													
A605E	10'-7"	50	4	4'-0"	2'-7"	4'-0"										A605E	10'-7"	50	4	4'-0"	2'-7"	4'-0"										
A606E	11'-11"	50	4	4'-8"	2'-7"	4'-8"										A606E	11'-11"	50	4	4'-8"	2'-7"	4'-8"										
A607E	4'-6 1/2"	46	39	8"	2'-10 1/2"	1'-0"	6"	8 1/2"								A607E	4'-6 1/2"	46	39	8"	2'-10 1/2"	1'-0"	6"	8 1/2"								
A608E	7'-3"	30	31	1'-0"	5'-3"	1'-0"	8 1/2"	8 1/2"								A608E	7'-3"	30	31	1'-0"	5'-3"	1'-0"	8 1/2"	8 1/2"								
A609E	7'-1"	15	STR.													A609E	7'-1"	15	STR.													
A610E	7'-3 3/4"	10	STR.													A610E	7'-3 3/4"	10	STR.													
D1101E	3'-0"	58	STR.													D1101E	3'-0"	58	STR.													
F501E	15'-8"	82	2	4'-6"	2'-6"											F501E	15'-8"	82	2	4'-6"	2'-6"											
F502E	12'-2"	18	2	2'-9"	2'-6"											F502E	12'-2"	18	2	2'-9"	2'-6"											
F601E	44'-4 1/2"	25	STR.													F601E	44'-4 1/2"	25	STR.													
F602E	2'-6"	27	STR.													F602E	2'-6"	27	STR.													

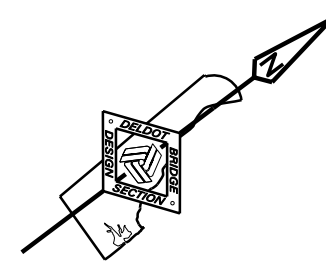


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SOUTHBOUND REINFORCING BAR SCHEDULE

ABUTMENT 1 BAR SCHEDULE															ABUTMENT 2 BAR SCHEDULE																	
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS	MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS	
A401E	6'-6"	46	10	3'-8"	2'-10"											A401E	6'-6"	46	10	3'-8"	2'-10"											
A601E	44'-6 1/2"	11	STR.													A601E	44'-6 1/2"	11	STR.													
A602E	2'-3 3/4"	2	STR.													A602E	2'-3 3/4"	2	STR.													
A603E	8'-4"	24	STR.													A603E	8'-4"	24	STR.													
A604E	6'-3"	4	STR.													A604E	6'-3"	4	STR.													
A605E	10'-7"	50	4	4'-0"	2'-7"	4'-0"										A605E	10'-7"	50	4	4'-0"	2'-7"	4'-0"										
A606E	11'-11"	50	4	4'-8"	2'-7"	4'-8"										A606E	11'-11"	50	4	4'-8"	2'-7"	4'-8"										
A607E	4'-6 1/2"	46	39	8"	2'-10 1/2"	1'-0"	6"	8 1/2"								A607E	4'-6 1/2"	46	39	8"	2'-10 1/2"	1'-0"	6"	8 1/2"								
A608E	7'-3"	30	31	1'-0"	5'-3"	1'-0"	8 1/2"	8 1/2"								A608E	7'-3"	30	31	1'-0"	5'-3"	1'-0"	8 1/2"	8 1/2"								
A609E	7'-1"	15	STR.													A609E	7'-1"	15	STR.													
A610E	7'-3 3/4"	10	STR.													A610E	7'-3 3/4"	10	STR.													
D1101E	3'-0"	58	STR.													D1101E	3'-0"	58	STR.													
F501E	15'-8"	82	2	4'-6"	2'-6"											F501E	15'-8"	82	2	4'-6"	2'-6"											
F502E	12'-2"	18	2	2'-9"	2'-6"											F502E	12'-2"	18	2	2'-9"	2'-6"											
F601E	44'-4 1/2"	25	STR.													F601E	44'-4 1/2"	25	STR.													
F602E	2'-6"	27	STR.													F602E	2'-6"	27	STR.													

NOT FOR BIDDING  
AUGUST 2015



DRAFT

NOT FOR BIDDING

AUGUST 2015

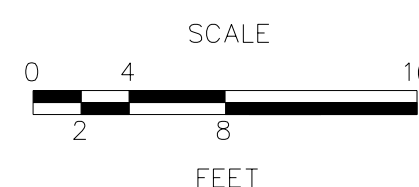
**CROSS REFERENCE NOTES:**

1. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
2. FOR TYPICAL SECTION, SEE DWG. 1-507 TS-1.
3. FOR PRESTRESSED CONCRETE BEAM ELEVATION, SEE DWG. 1-507 BM-1.
4. FOR INTERMEDIATE CONCRETE DIAPHRAGM DETAILS, SEE DWG. 1-507 CT-1.

**FRAMING PLAN**

SCALE: 1/8" = 1'-0"

ADDENDUMS / REVISIONS

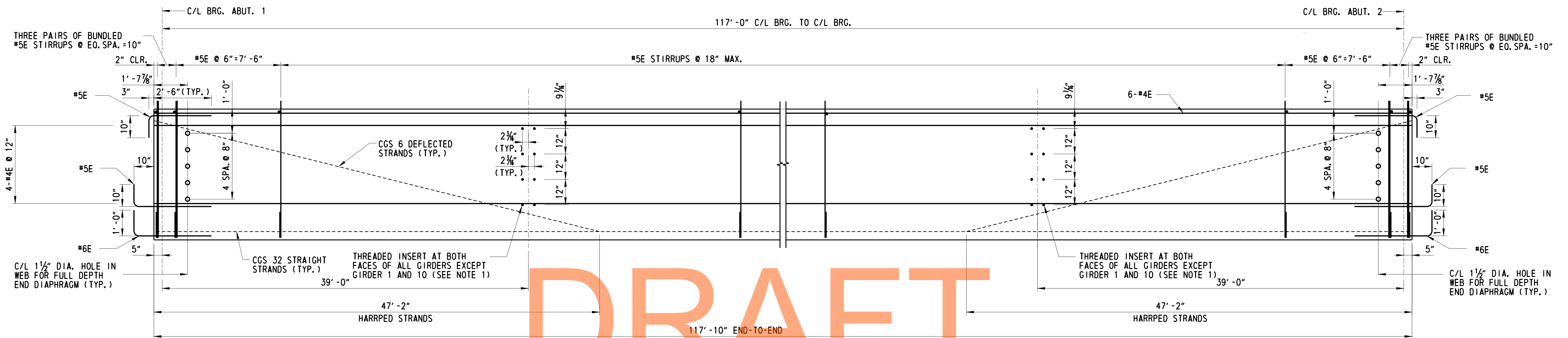


**US 301  
LEVELS ROAD  
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	MHI
NEW CASTLE		

**US 301 MAINLINE OVER  
CONNECTOR ROAD  
FRAMING PLAN**

1-507 FR-1
SHEET NO.
649
TOTAL SHTS.
1256

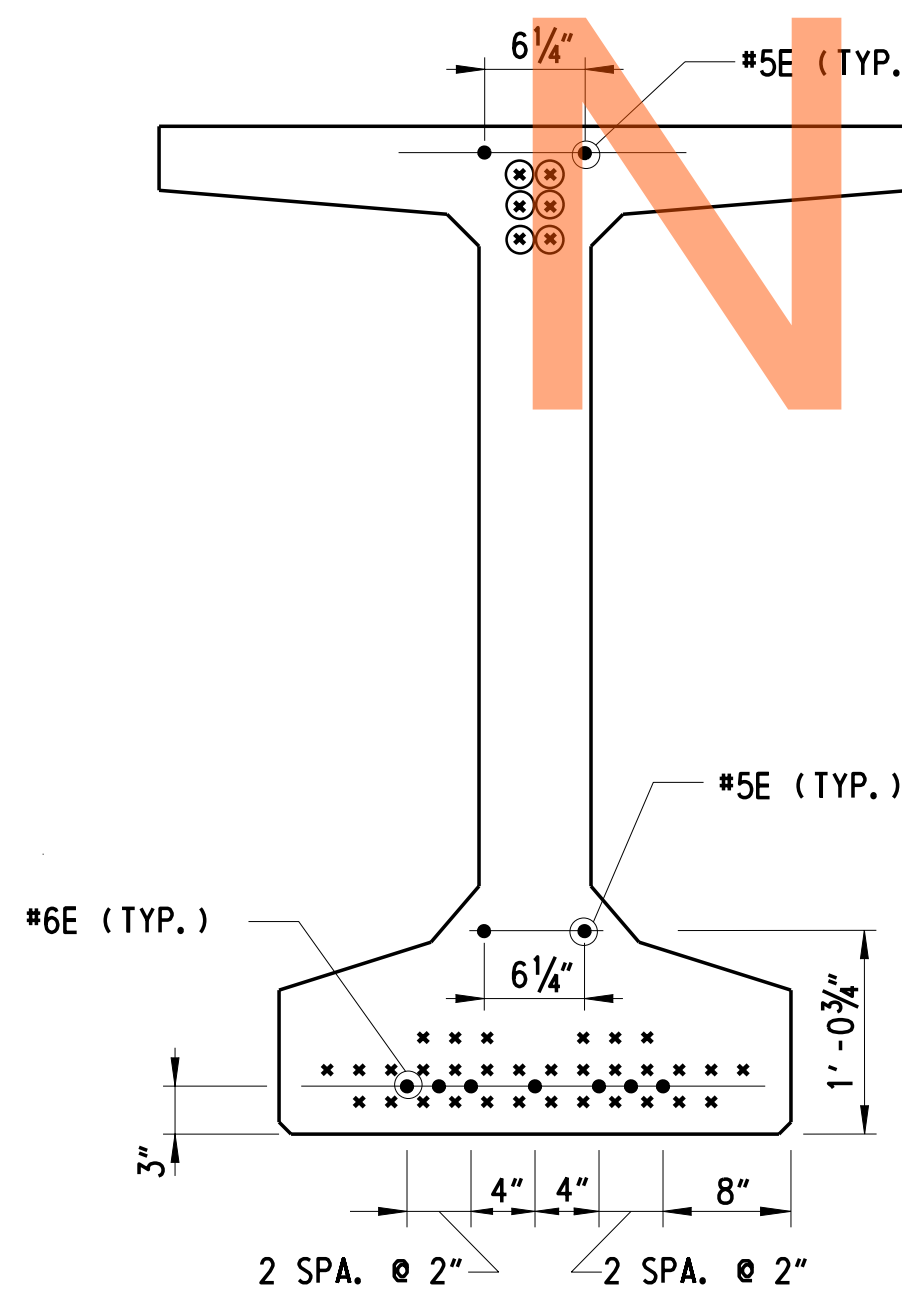


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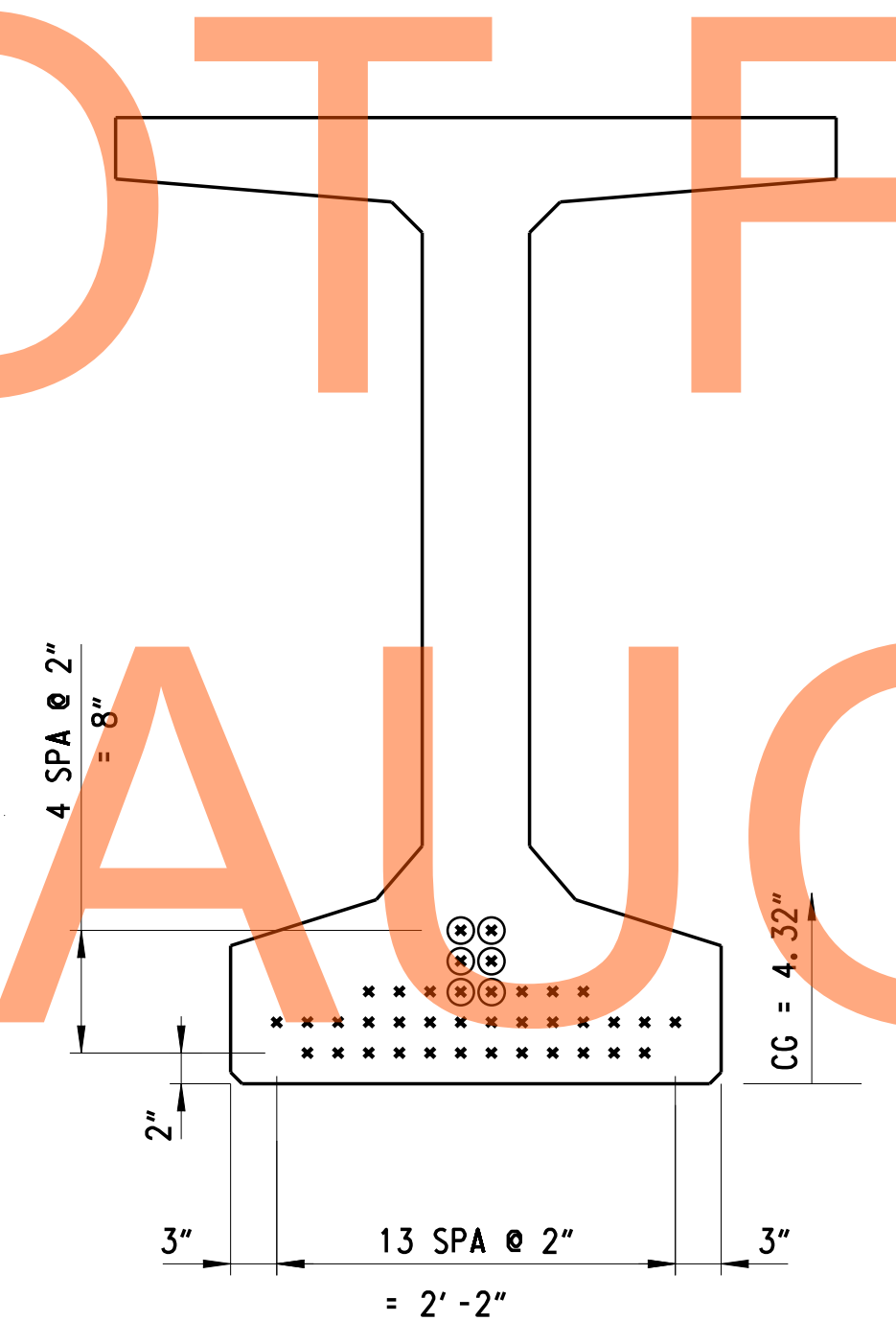
**BEAM ELEVATION**  
NTS

- LEGEND**
- LONGITUDINAL REINFORCEMENT
  - \* 6/10" DIA PRESTRESSED STRAND
  - ⊙ HARPED STRAND

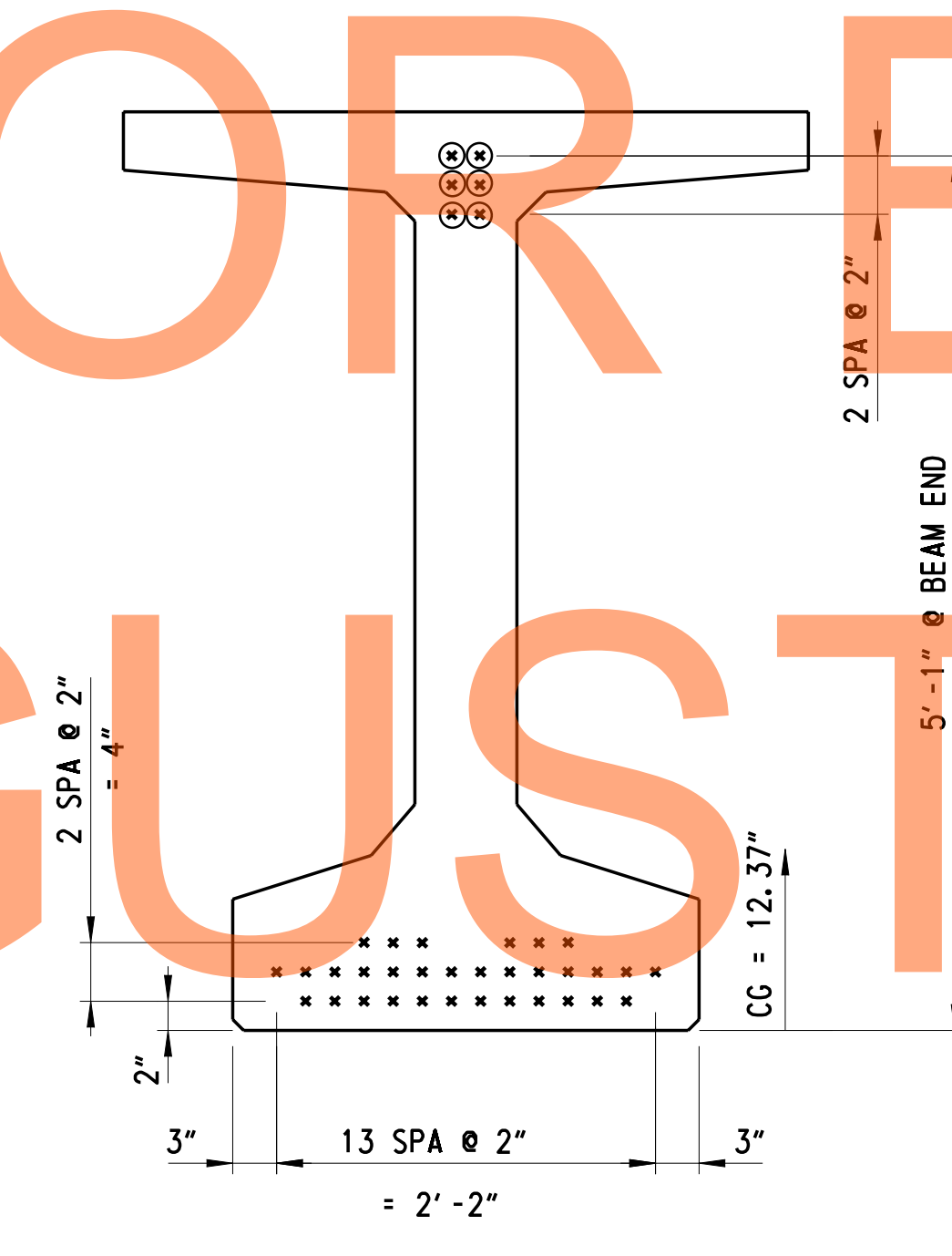
**NOTE:**  
1. TYPICAL COVER 1" CLR. TO STIRRUPS.



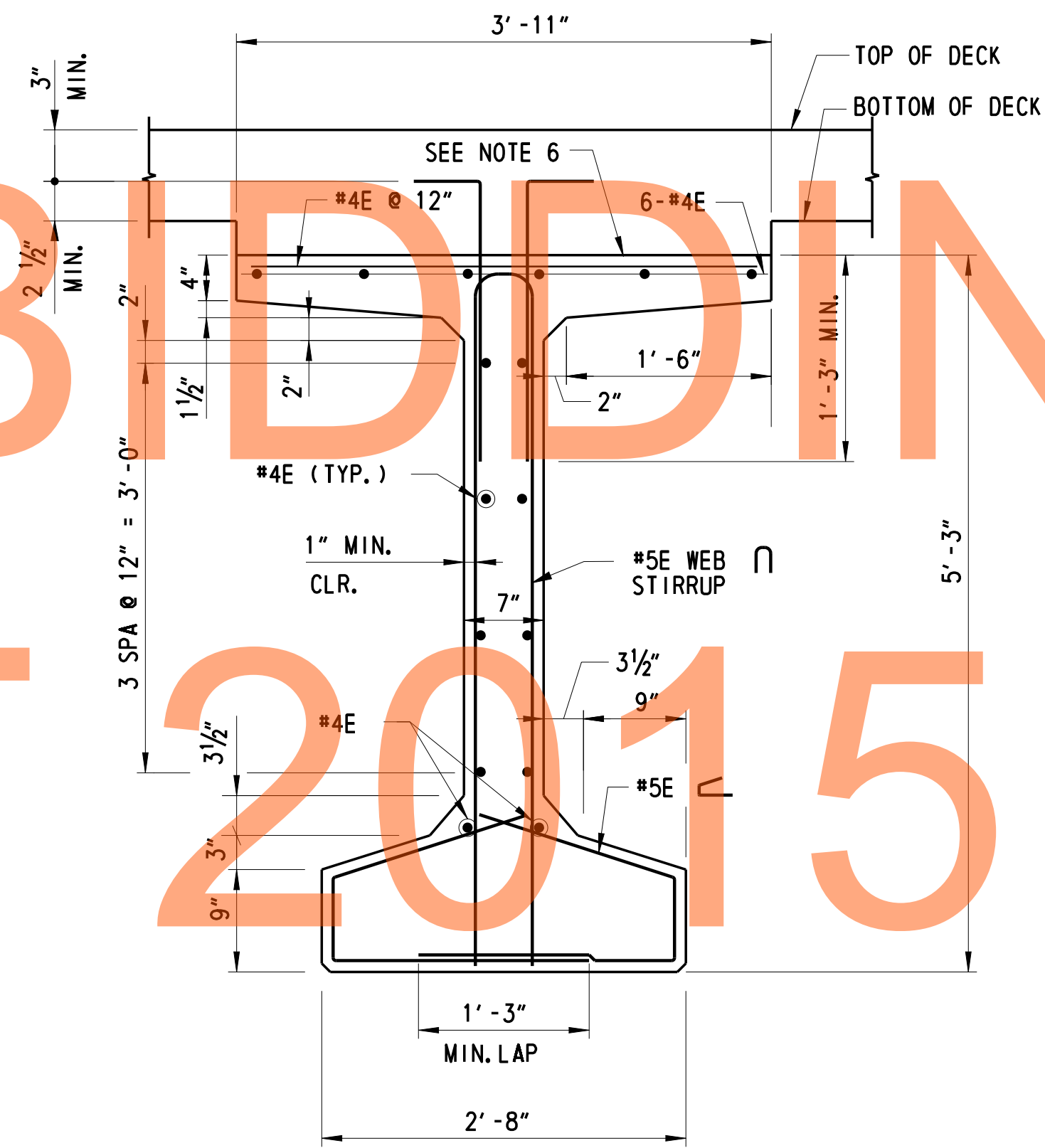
**ADDITIONAL REINFORCEMENT AT GIRDER END**  
SCALE: 1" = 1'-0"



**PRESTRESSING AT MID-SPAN**  
SCALE: 1" = 1'-0"



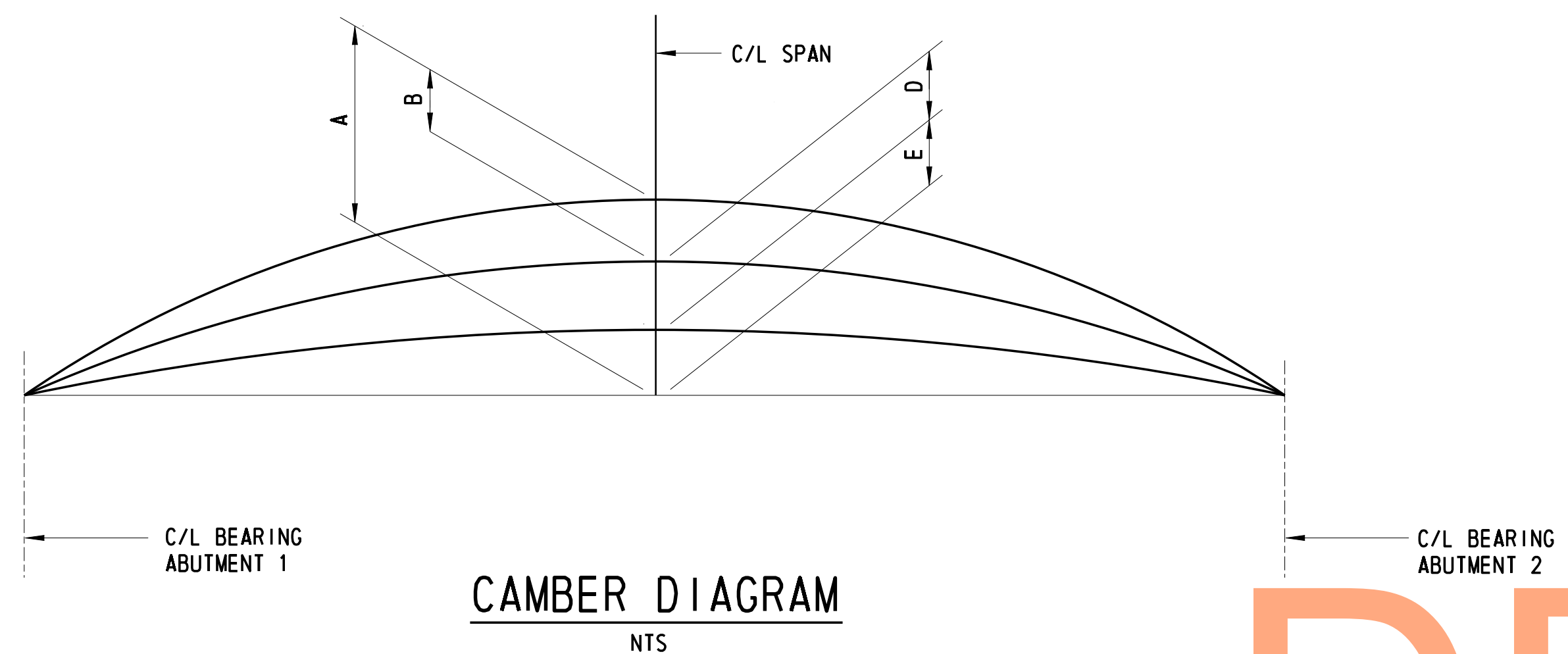
**PRESTRESSING AT GIRDER END**  
SCALE: 1" = 1'-0"



**TYPICAL REINFORCEMENT**  
SCALE: 1" = 1'-0"

- NOTES:**
1. GIRDER 1 AND 10 SHALL HAVE INSERTS ON THE INTERIOR SIDE ONLY.
  2. BEAM LENGTHS SHOWN DO NOT ACCOUNT FOR BEAM ELASTIC SHORTENING AT PRESTRESS RELEASE. CONTRACTOR SHALL COMPENSATE FOR BEAM ELASTIC SHORTENING WHEN CASTING BEAMS.
  3. SECTION IS A PCEF 63 47. NO SUBSTITUTIONS WILL BE ALLOWED.
  4. ALL REINFORCEMENT SHALL BE EPOXY COATED.
  5. THE FABRICATOR SHALL CHECK STABILITY FOR HANDLING AND TRANSPORTING OF THE BEAMS. INCLUDE THIS INFORMATION WITH SHOP DRAWINGS.
  6. TOP SURFACE OF BEAMS SHALL BE ROUGH FINISHED TO A FULL AMPLITUDE OF A 1/4" AND SCRUBBED TRANSVERSELY WITH A COURSE WIRE BRUSH TO REMOVE ALL LAITANCE TO PRODUCE A ROUGHENED SURFACE FOR BONDING.
  7. END ZONE REINFORCEMENT MAY BE INCREASED BY THE FABRICATOR TO REFLECT FABRICATORS EXPERIENCE AND OR TO CONTROL CRACKING.

- CROSS REFERENCE NOTES:**
1. FOR GENERAL PLAN AND ELEVATION, SEE DWG. 1-507 PE-1.
  2. FOR GENERAL NOTES, SEE DWG. 1-507 GN-1.
  3. FOR TYPICAL SECTION, SEE DWG. 1-507 TS-1.
  4. FOR FRAMING PLAN, SEE DWG. 1-507 FR-1.
  5. FOR INTERMEDIATE DIAPHRAGM DETAILS, SEE DWG. 1-507 CT-1.
  6. FOR CAMBER SCHEDULE, SEE DWG. 1-507 CT-1.
  7. FOR BEAM END DETAILS, SEE DWG. 1-507 AB-8.



**CAMBER DIAGRAM**  
NTS

CAMBER/DEFLECTION TABLE (INCHES)					
BEAM NO'S	A	B	C	D	E
1 & 5	6 1/8	-3 1/8	3 5/8	-1 7/8	1 3/4
6 & 10	6 1/8	-3 1/8	3 5/8	-1 7/8	1 3/4
2 - 4	6 1/8	-3 1/8	3 5/8	-2 1/8	1 1/8
7 - 9	6 1/8	-3 1/8	3 5/8	-2 1/8	1 1/8

**LEGEND:**

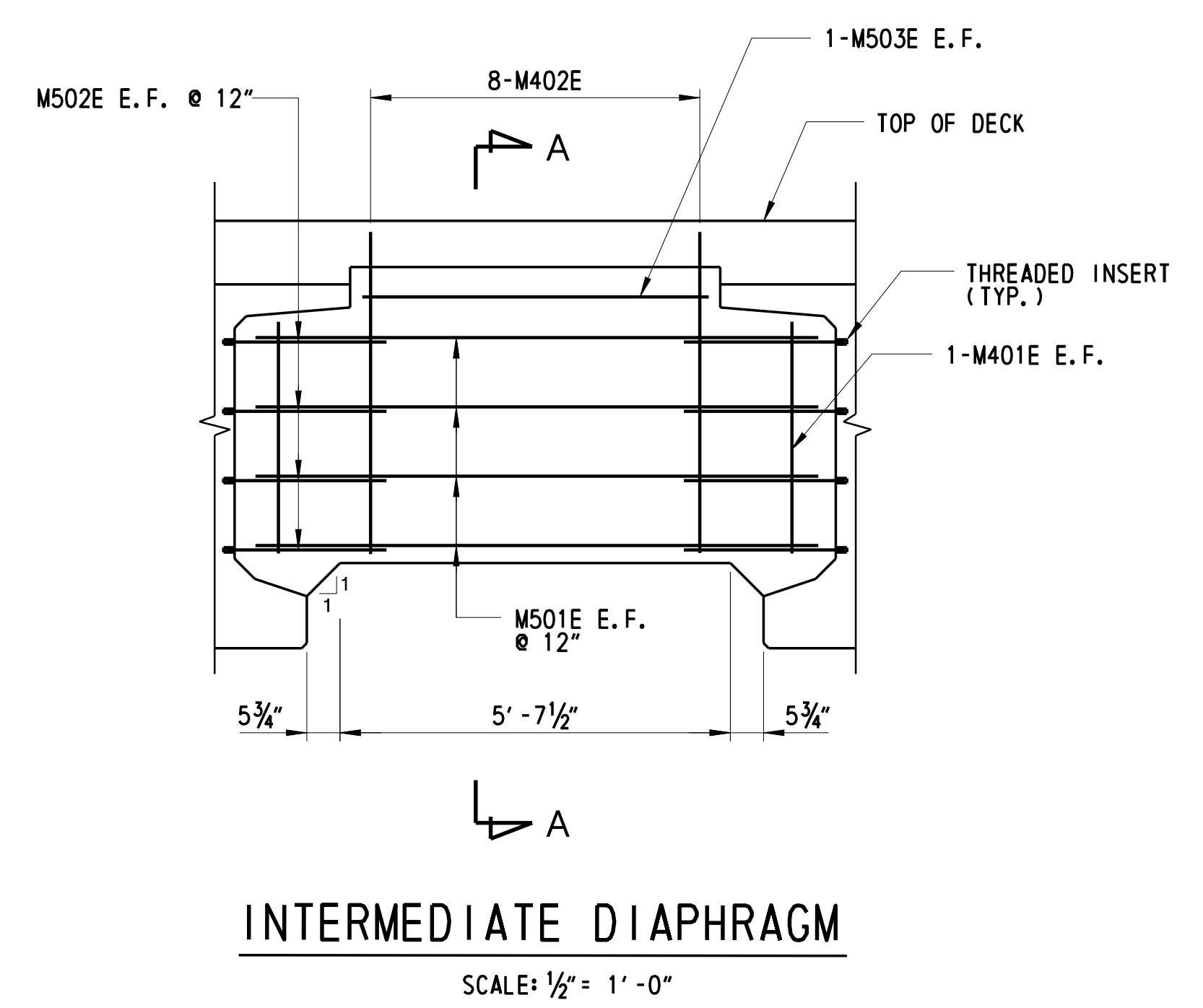
- A = CAMBER DUE TO PRESTRESS AT ERECTION, CREEP MULTIPLIER = 1.8.
- B = DEFLECTION DUE TO GIRDER DEAD LOAD AT ERECTION, CREEP MULTIPLIER = 1.85.
- C = A+B
- D = DEFLECTION DUE TO SLAB, DIAPHRAGMS, SIP FORMS, BARRIERS AND INTEGRAL WEARING SURFACE.
- E = NET CAMBER, C+D.

**CROSS REFERENCE NOTES:**

1. FOR GENERAL PLAN AND ELEVATION SEE DWG. 1-507 PE-1.
2. FOR GENERAL NOTES SEE DWG. 1-507 GN-1.
3. FOR FRAMING PLAN, SEE DWG. 1-507 FR-1.
4. FOR BEAM ELEVATION AND TYPICAL SECTION, SEE DWG. 1-507 BM-1.

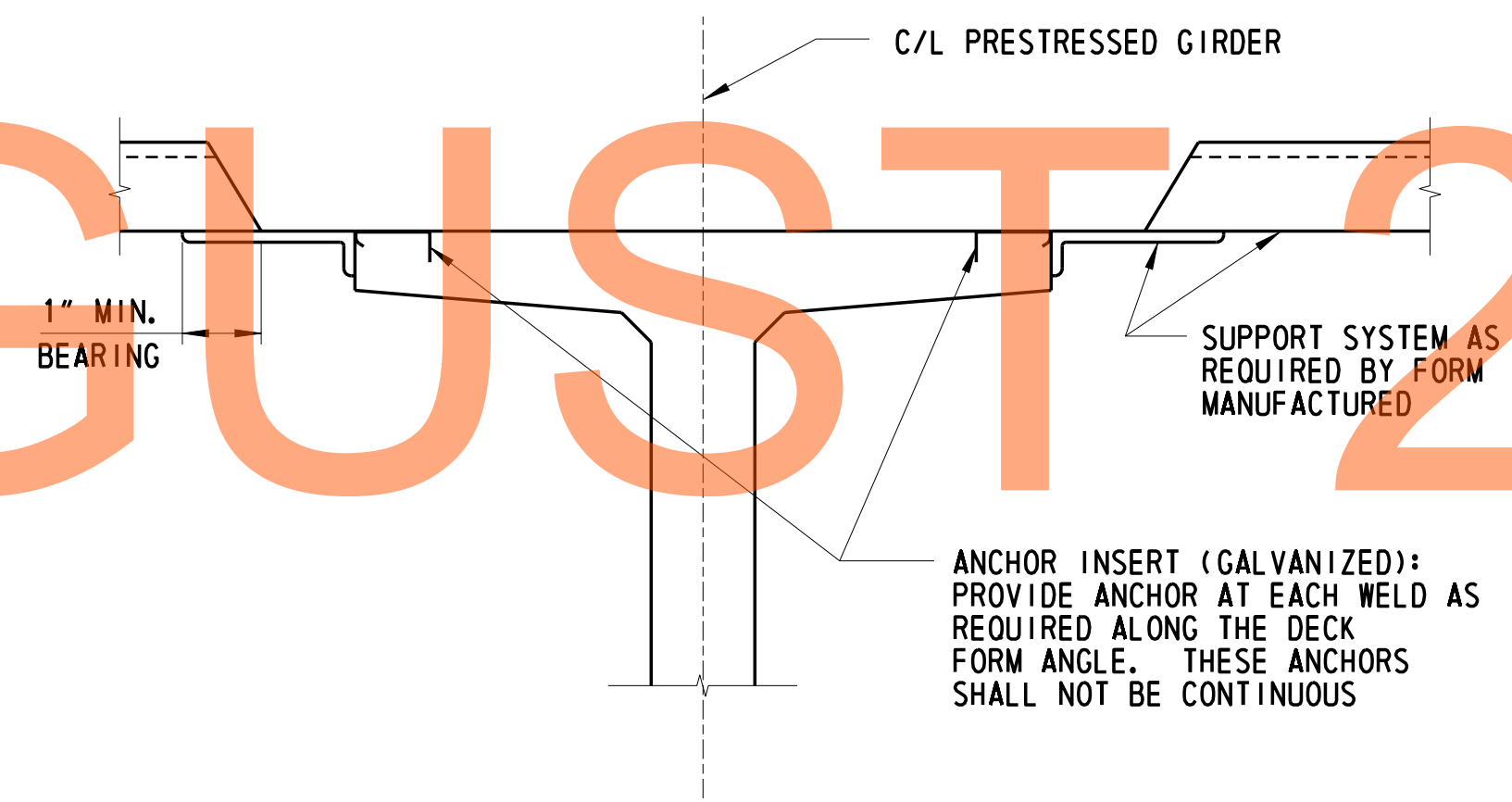
**NOTES:**

1. PERMANENT STEEL DECK FORMS AND SUPPORTS SHALL BE PROVIDED CONFORMING TO THE REQUIREMENTS OF SECTION 602 OF THE DELDOT STANDARD SPECIFICATIONS AND AS SHOWN IN THE BDM.
2. ANY PERMANENTLY EXPOSED FORM METAL WHERE THE GALVANIZED COATING HAS BEEN DAMAGED SHALL BE THOROUGHLY CLEANED, WIRE BRUSHED AND PAINTED WITH TWO COATS OF ZINC DUST-ZINC OXIDE PAINT, NO COLOR ADDED, TO THE SATISFACTION OF THE ENGINEER. MINOR HEAT DISCOLORATION IN AREAS OF WELDS NEED NOT BE TOUCHED UP.
3. THE MAXIMUM CORRUGATION DEPTH AND WIDTH SHALL BE SUCH THAT THE TOTAL DEAD LOAD OF THE FORM AND CONCRETE IN THE FORM DOES NOT EXCEED 15 LBS/FT.
4. VARY THICKNESS OF CONCRETE HAUNCH TO COMPENSATE FOR ANY INACCURACIES IN BEAM CAMBER.
5. CAMBER VALUES ARE THEORETICAL VALUES AND MAY VARY WITH CONCRETE STRENGTH (AGE), VARIOUS PRESTRESSING CONDITIONS, CREEP FACTOR AND PRESTRESS LOSSES. CONTRACTOR TO VERIFY THESE VALUES IN THE FIELD.

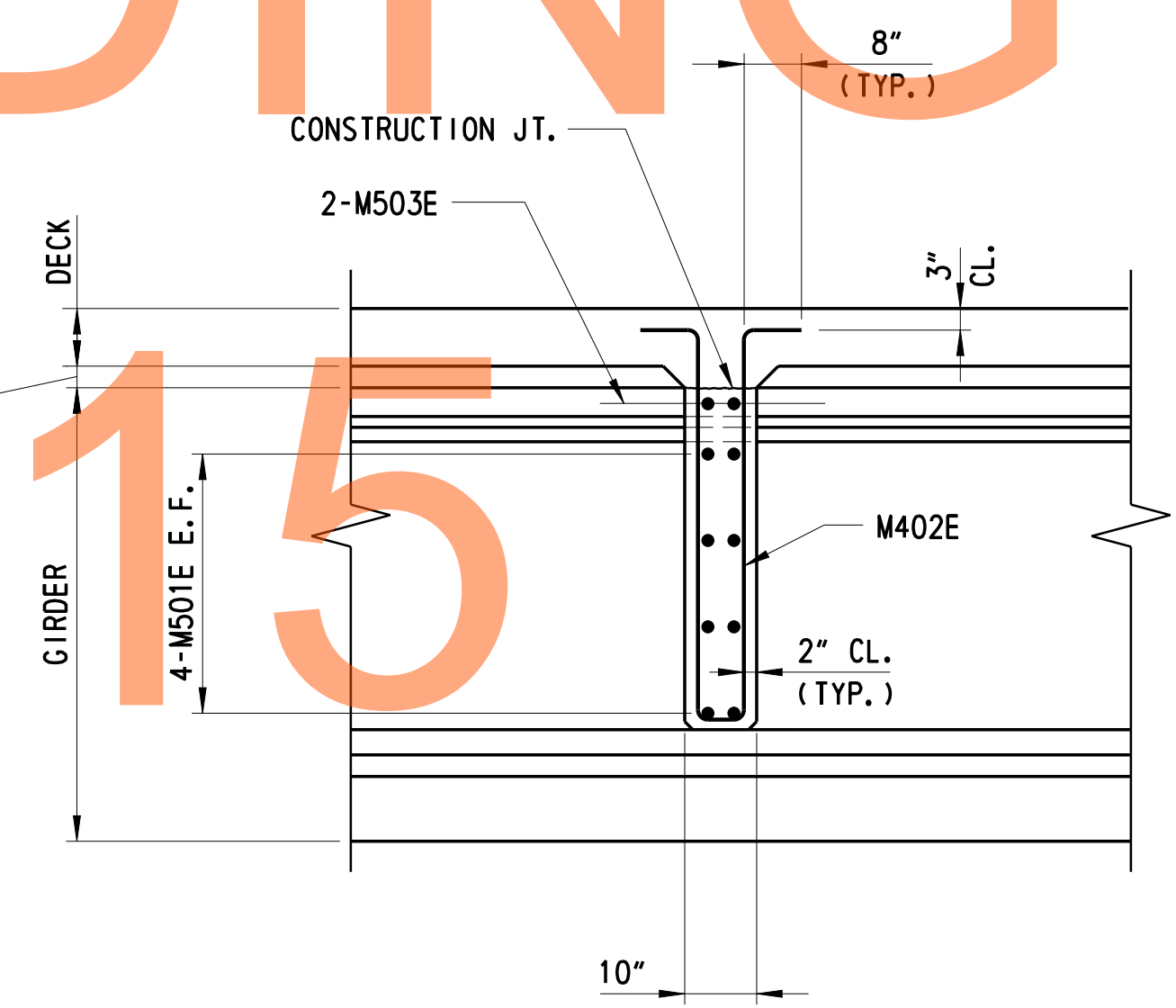


**INTERMEDIATE DIAPHRAGM**  
SCALE: 1/2" = 1'-0"

NOT FOR BIDDING  
AUGUST 2015



**FORM ANCHOR DETAIL**  
SCALE: 1" = 1'-0"



**SECTION A-A**  
SCALE: 1/2" = 1'-0"

# DRAFT

# NOT FOR BIDDING

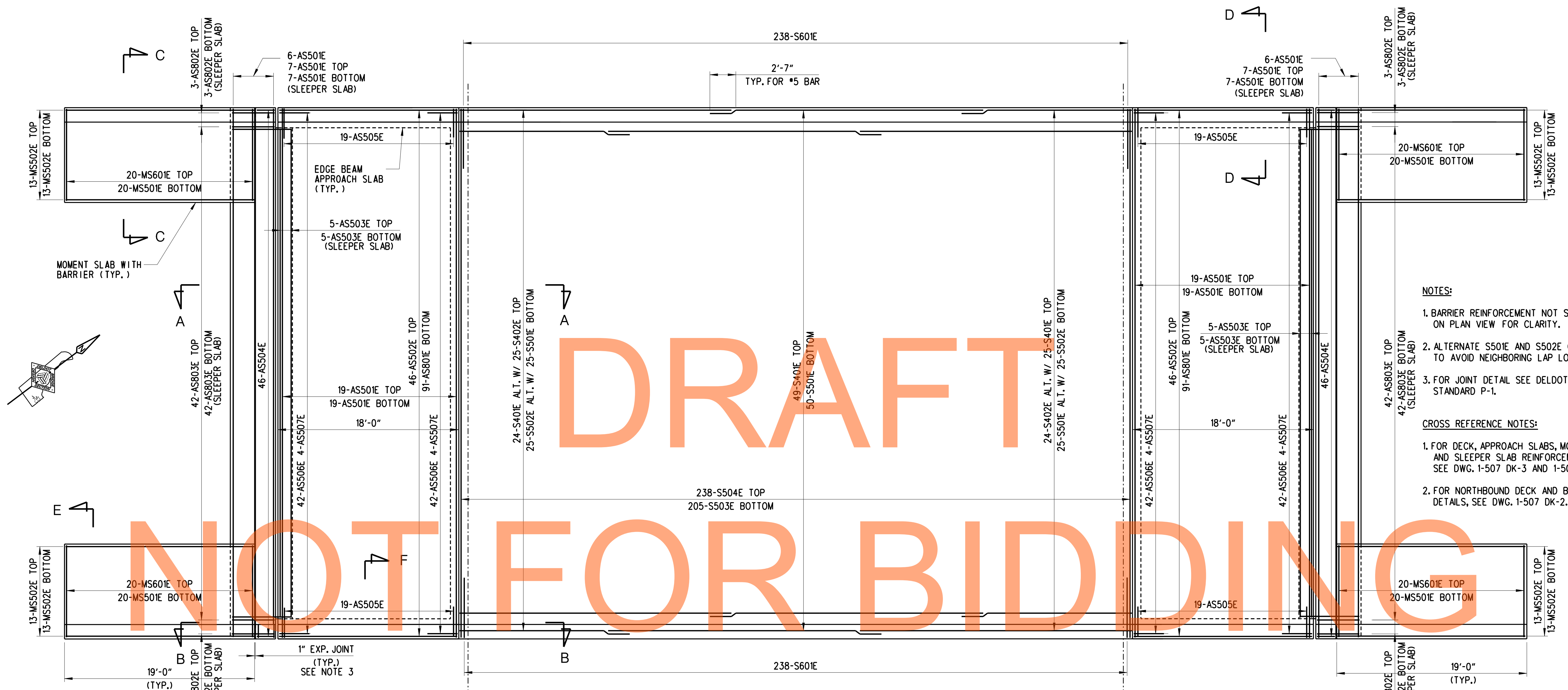
# AUGUST 2015

### BRIDGE DECK REINFORCEMENT PLAN - SOUTHBOUND

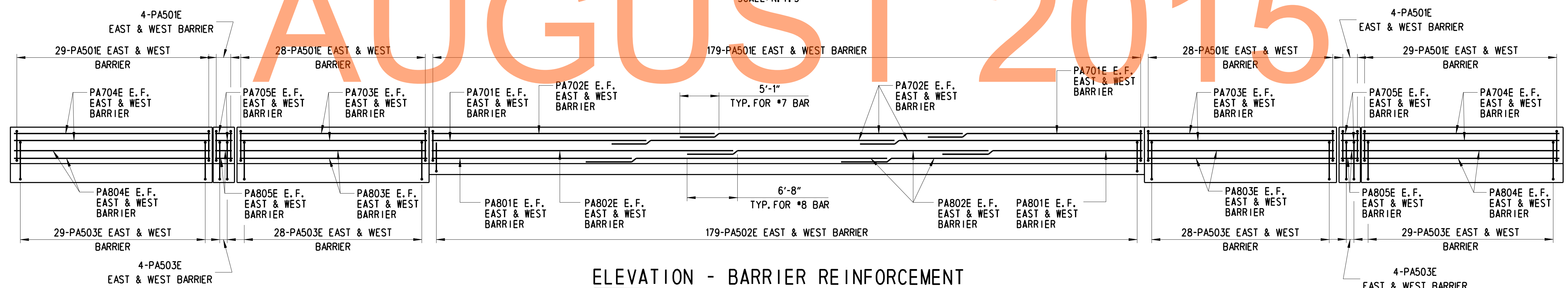
SCALE: N. T. S.

### ELEVATION - BARRIER REINFORCEMENT

SCALE: N. T. S.



- NOTES:**
- BARRIER REINFORCEMENT NOT SHOWN ON PLAN VIEW FOR CLARITY.
  - ALTERNATE S501E AND S502E ON DECK TO AVOID NEIGHBORING LAP LOCATIONS.
  - FOR JOINT DETAIL SEE DELDOT ROADWAY STANDARD P-1.
- CROSS REFERENCE NOTES:**
- FOR DECK, APPROACH SLABS, MOMENT SLABS AND SLEEPER SLAB REINFORCEMENT DETAILS SEE DWG. 1-507 DK-3 AND 1-507 DK-4.
  - FOR NORTHBOUND DECK AND BARRIER REINFORCING DETAILS, SEE DWG. 1-507 DK-2.



<p><b>DELAWARE DEPARTMENT OF TRANSPORTATION</b></p>	ADDENDUMS / REVISIONS	<p><b>US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD</b></p>	CONTRACT	BRIDGE NO.	<p><b>US 301 MAINLINE OVER CONNECTOR ROAD SB SLAB AND BARRIER REINFORCEMENT</b></p>	1-507 DK-1
			T200911303	1-507N&S		SHEET NO.
			COUNTY	DESIGNED BY: LT		652
			NEW CASTLE	CHECKED BY: DW		TOTAL SHTS.
						1256

# DRAFT

# NOT FOR BIDDING

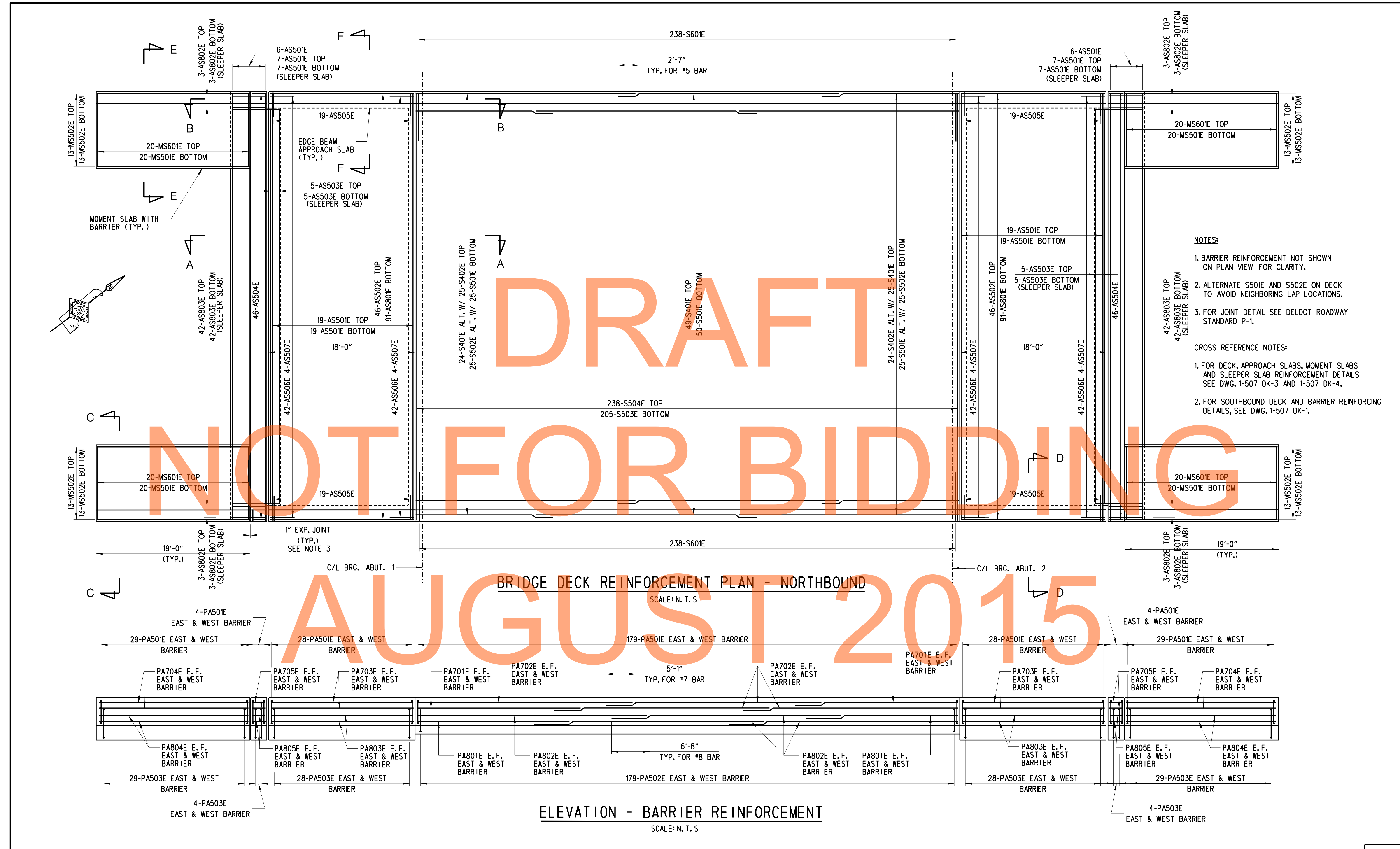
## BRIDGE DECK REINFORCEMENT PLAN - NORTHBOUND

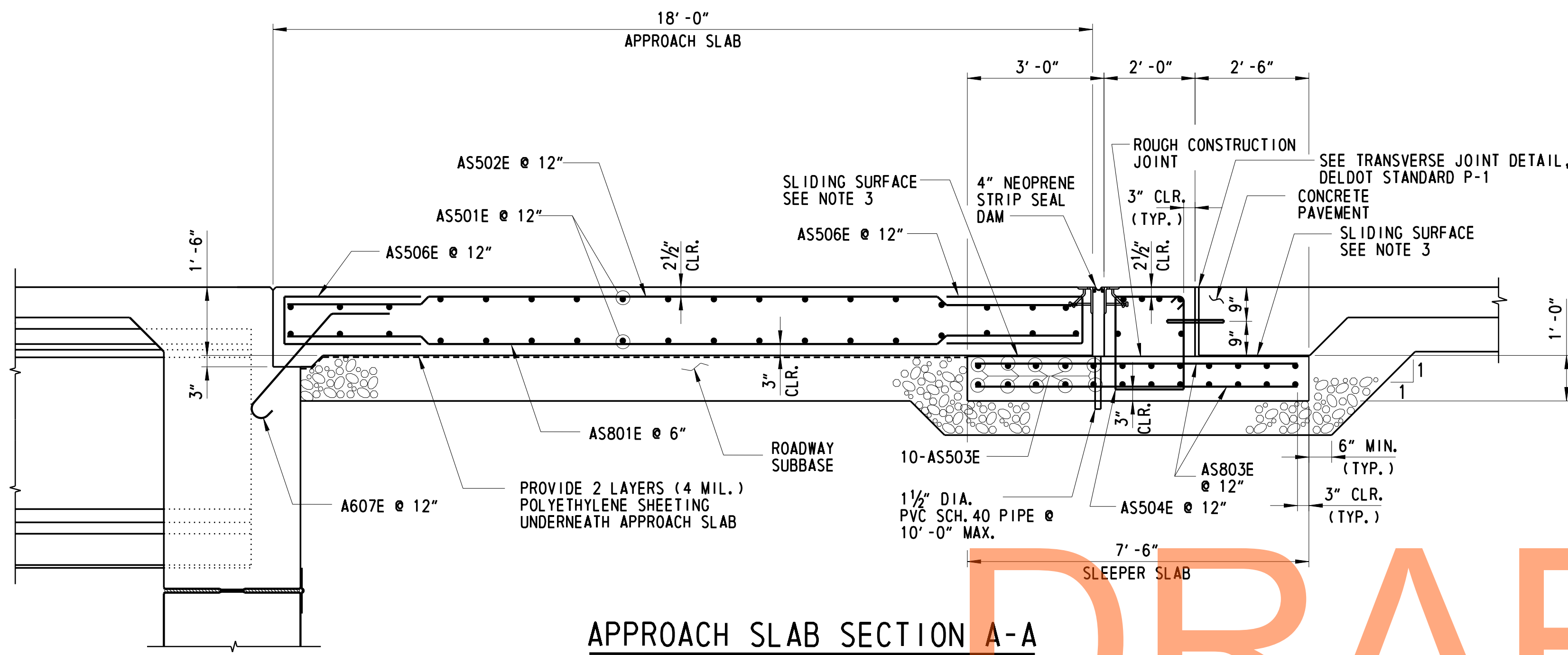
SCALE: N. T. S.

## ELEVATION - BARRIER REINFORCEMENT

SCALE: N. T. S.

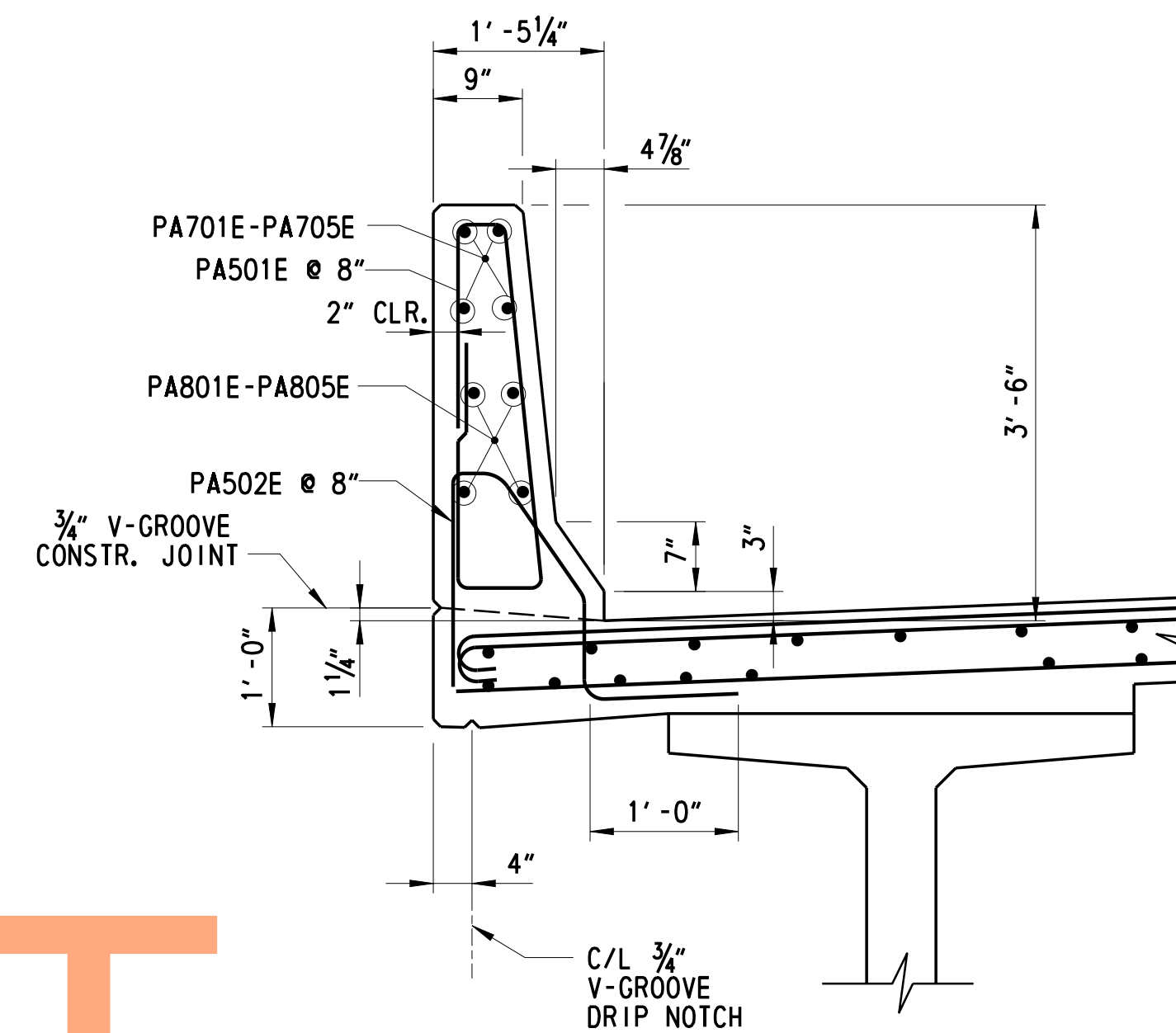
- NOTES:**
1. BARRIER REINFORCEMENT NOT SHOWN ON PLAN VIEW FOR CLARITY.
  2. ALTERNATE S501E AND S502E ON DECK TO AVOID NEIGHBORING LAP LOCATIONS.
  3. FOR JOINT DETAIL SEE DELDOT ROADWAY STANDARD P-1.
- CROSS REFERENCE NOTES:**
1. FOR DECK, APPROACH SLABS, MOMENT SLABS AND SLEEPER SLAB REINFORCEMENT DETAILS SEE DWG. 1-507 DK-3 AND 1-507 DK-4.
  2. FOR SOUTHBOUND DECK AND BARRIER REINFORCING DETAILS, SEE DWG. 1-507 DK-1.





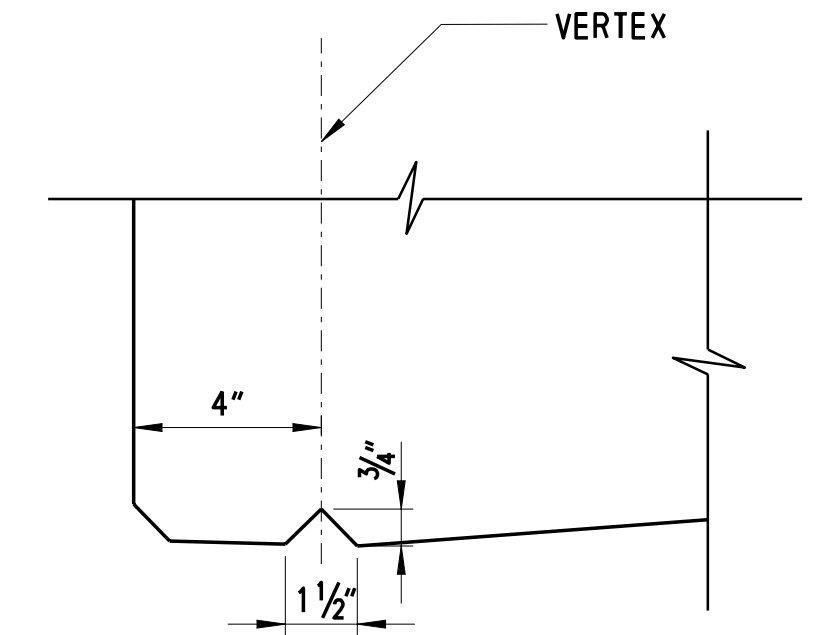
**APPROACH SLAB SECTION A-A**

SCALE: 1/2" = 1'-0"



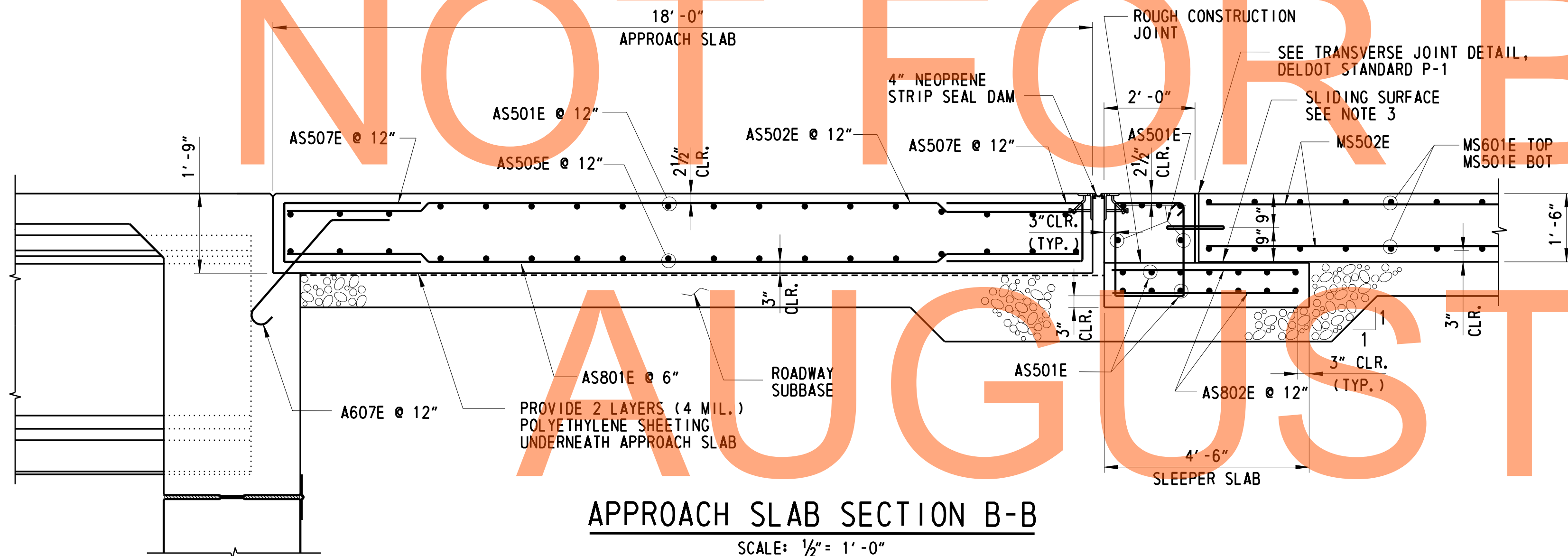
**TYPICAL BARRIER REINFORCEMENT SECTION**

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



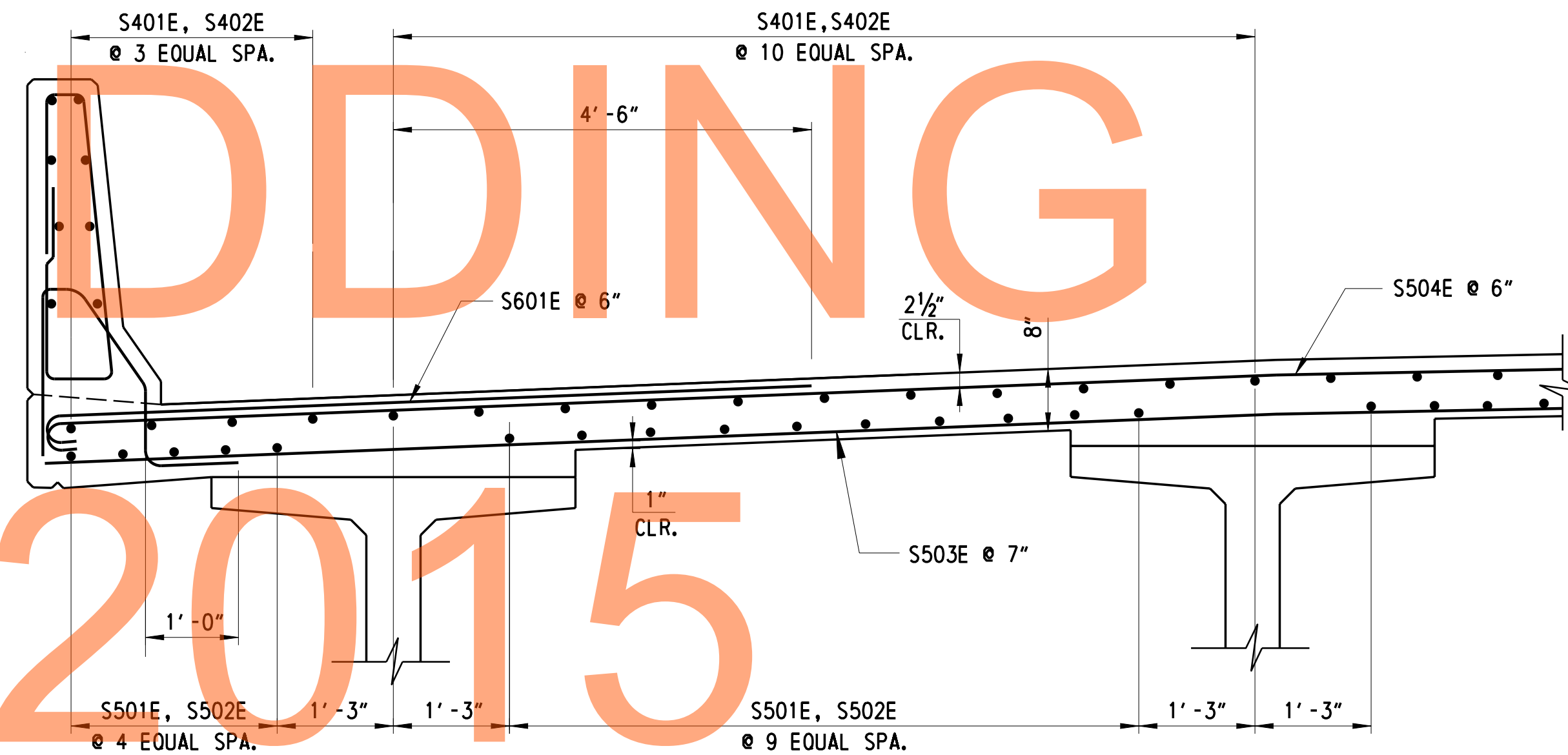
**DRIP NOTCH DETAIL**

SCALE: 3" = 1'-0"



**APPROACH SLAB SECTION B-B**

SCALE: 1/2" = 1'-0"



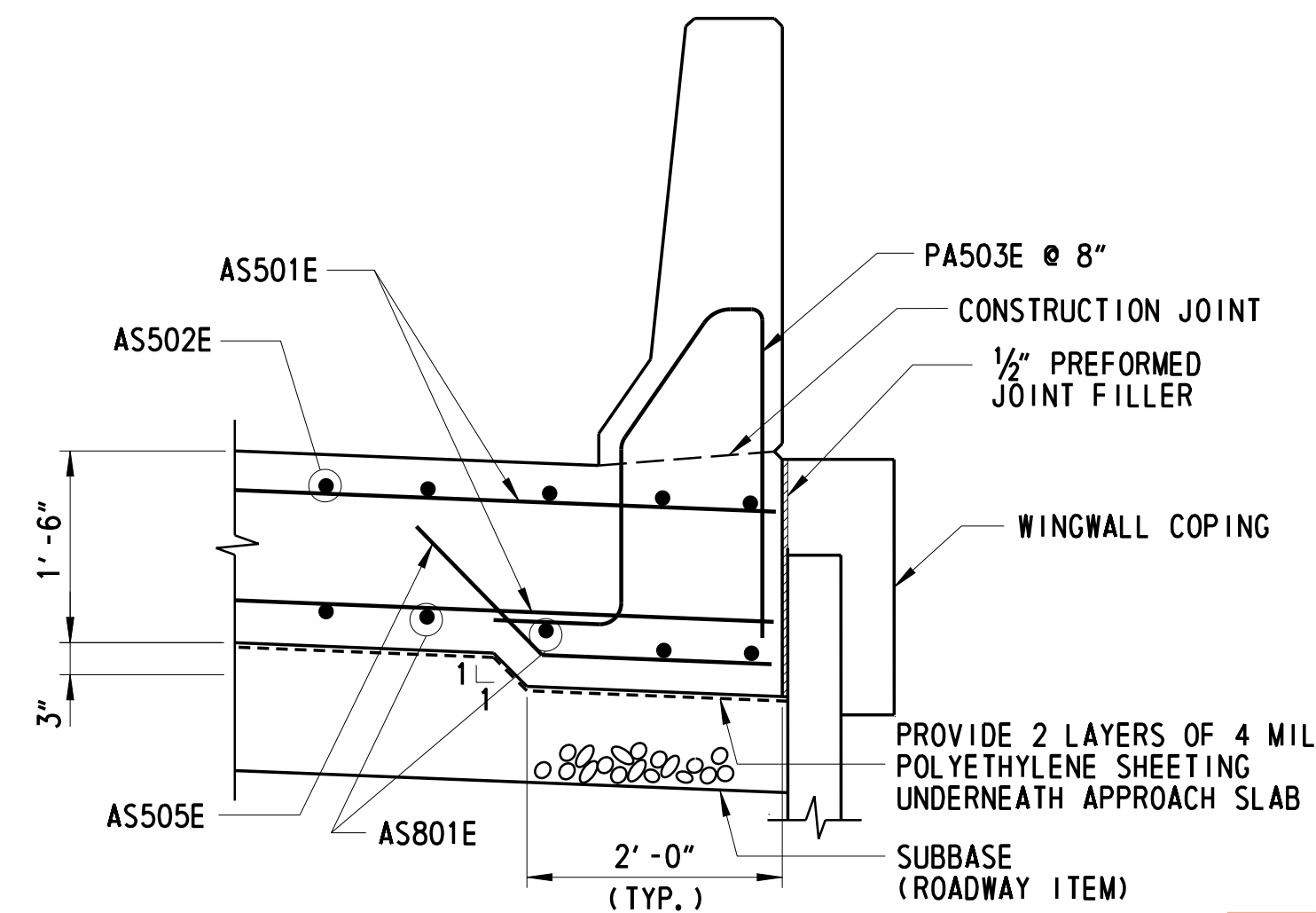
**TYPICAL DECK REINFORCEMENT SECTION**

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

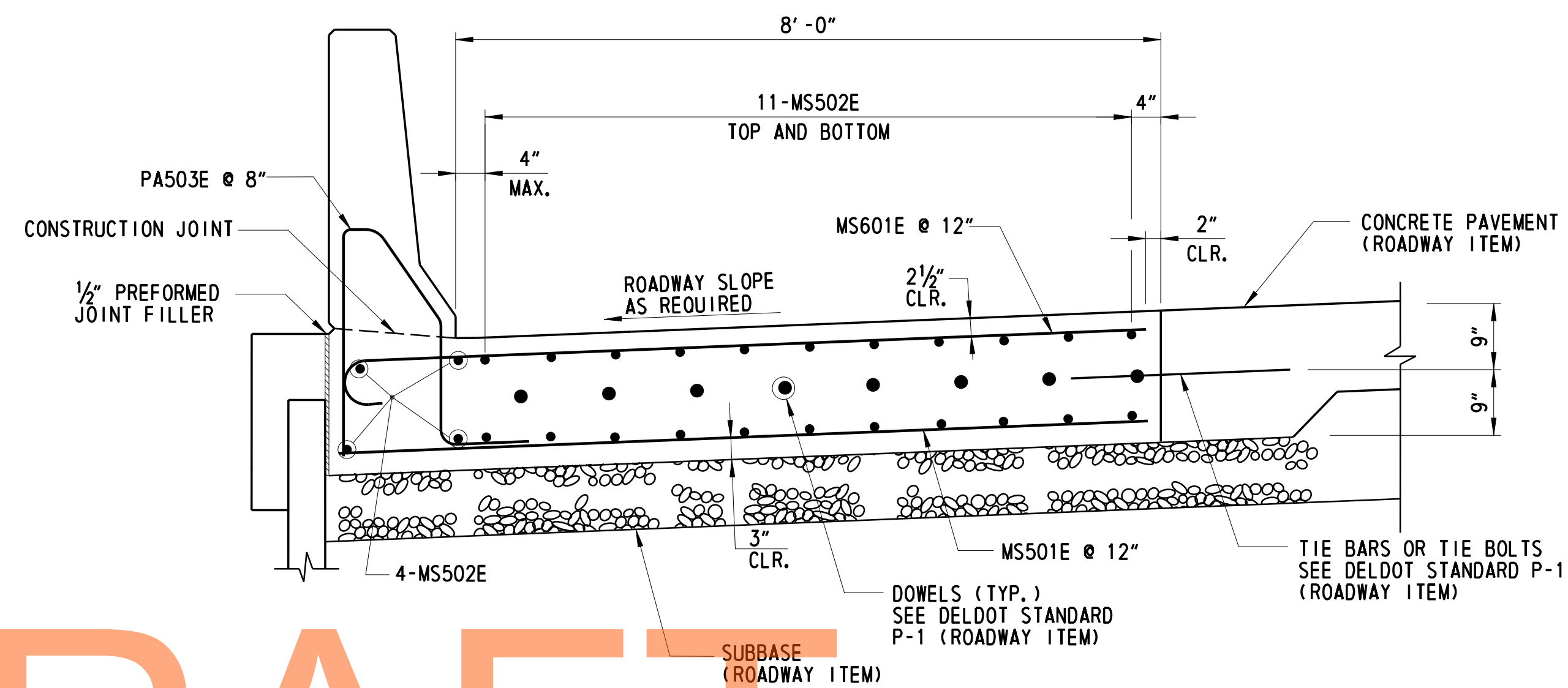
NOT FOR BIDDING  
AUGUST 2015

**CROSS REFERENCE NOTES:**

1. FOR PLAN VIEW OF DECK AND APPROACH SLAB, SEE DWG. 1-507 DK-1 AND 1-507 DK-2.
2. FOR EXPANSION JOINT DETAIL, SEE DWG. 1-507 EX-1.
3. TROWEL SMOOTH AND PLACE 2 LAYERS OF 4 MIL. POLYETHYLENE SHEETING AS BOND BREAKER.

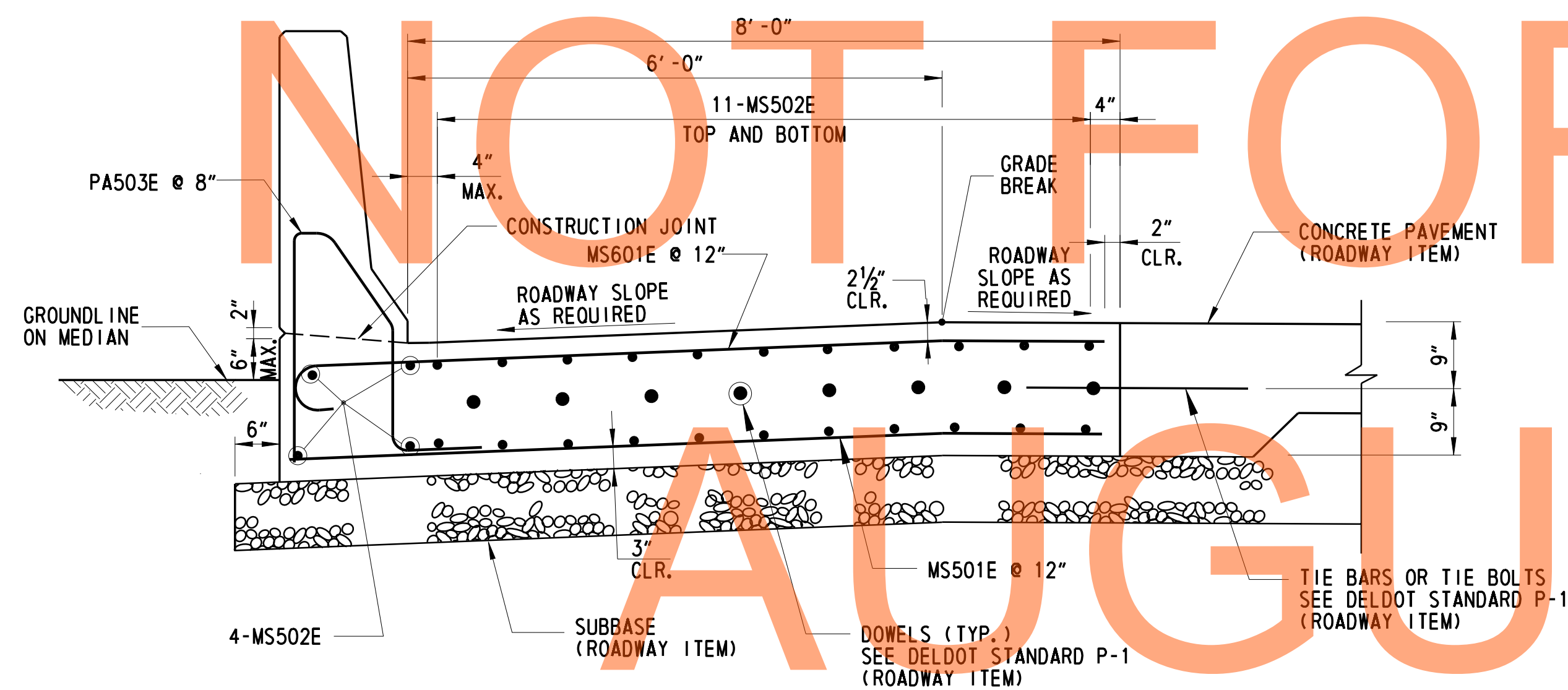


**SECTION D-D**  
**APPROACH SLAB EDGE BEAM**  
 SCALE: 3/4" = 1'-0"

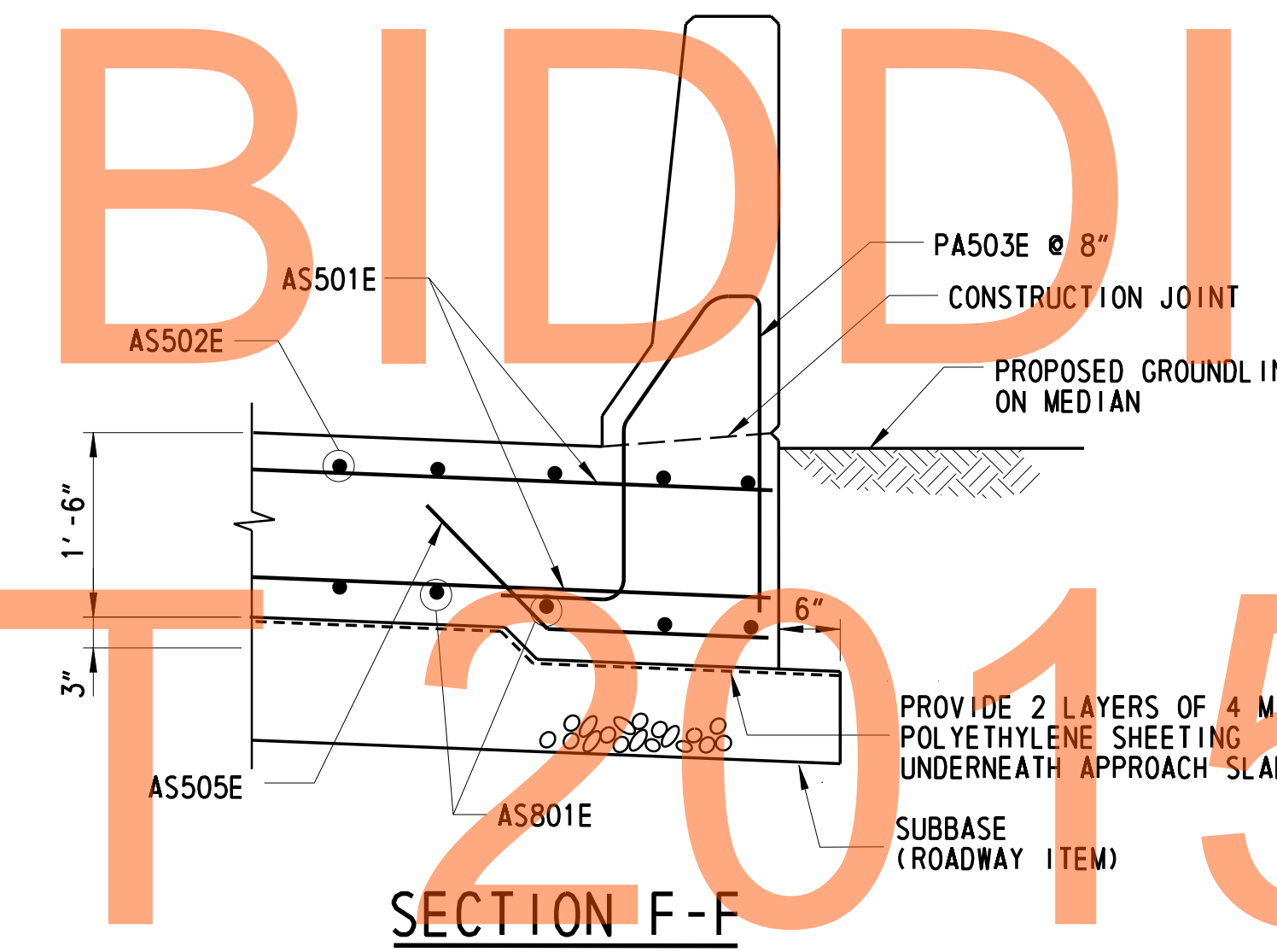


**SECTION C-C**  
 SCALE: 3/4" = 1'-0"

DRAFT



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



**SECTION F-F**  
 SCALE: 3/4" = 1'-0"

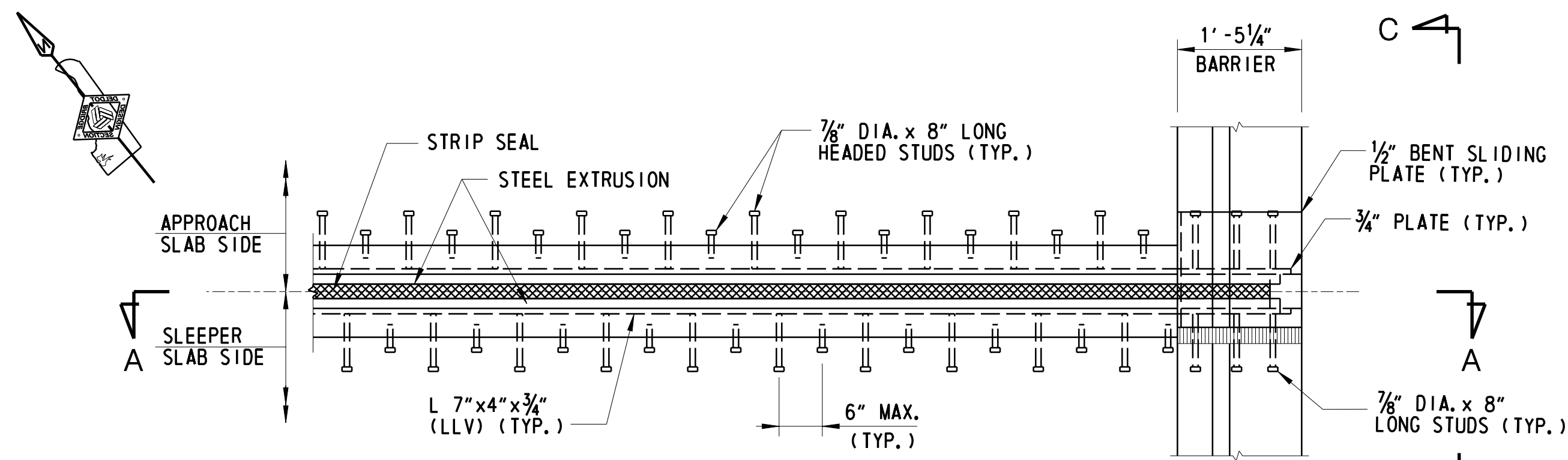
NOT FOR BIDDING

AUGUST 2015

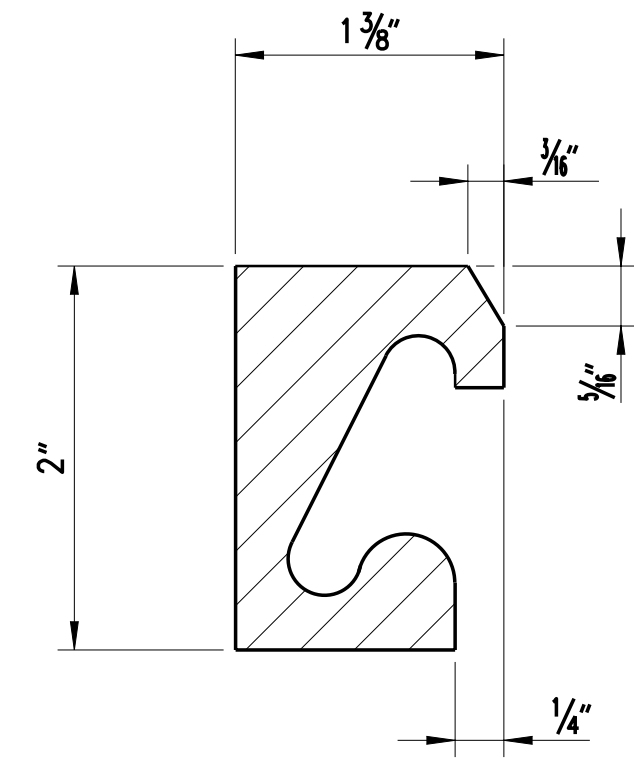
- NOTES:**
- FOR LONGITUDINAL REINFORCEMENT OF MSE WALL COPING IN SECTION C-C, SEE DWG. 1-507 RD-3 FOR ONE-LEG COPING.

- CROSS REFERENCE NOTES:**
- FOR DETAILS OF DECK AND APPROACH SLAB, SEE DWG. 1-507 DK-1, DWG. 1-507 DK-2, AND DWG. 1-507 DK-3.
  - FOR EXPANSION JOINT DETAIL, SEE DWG. 1-507 EX-1.

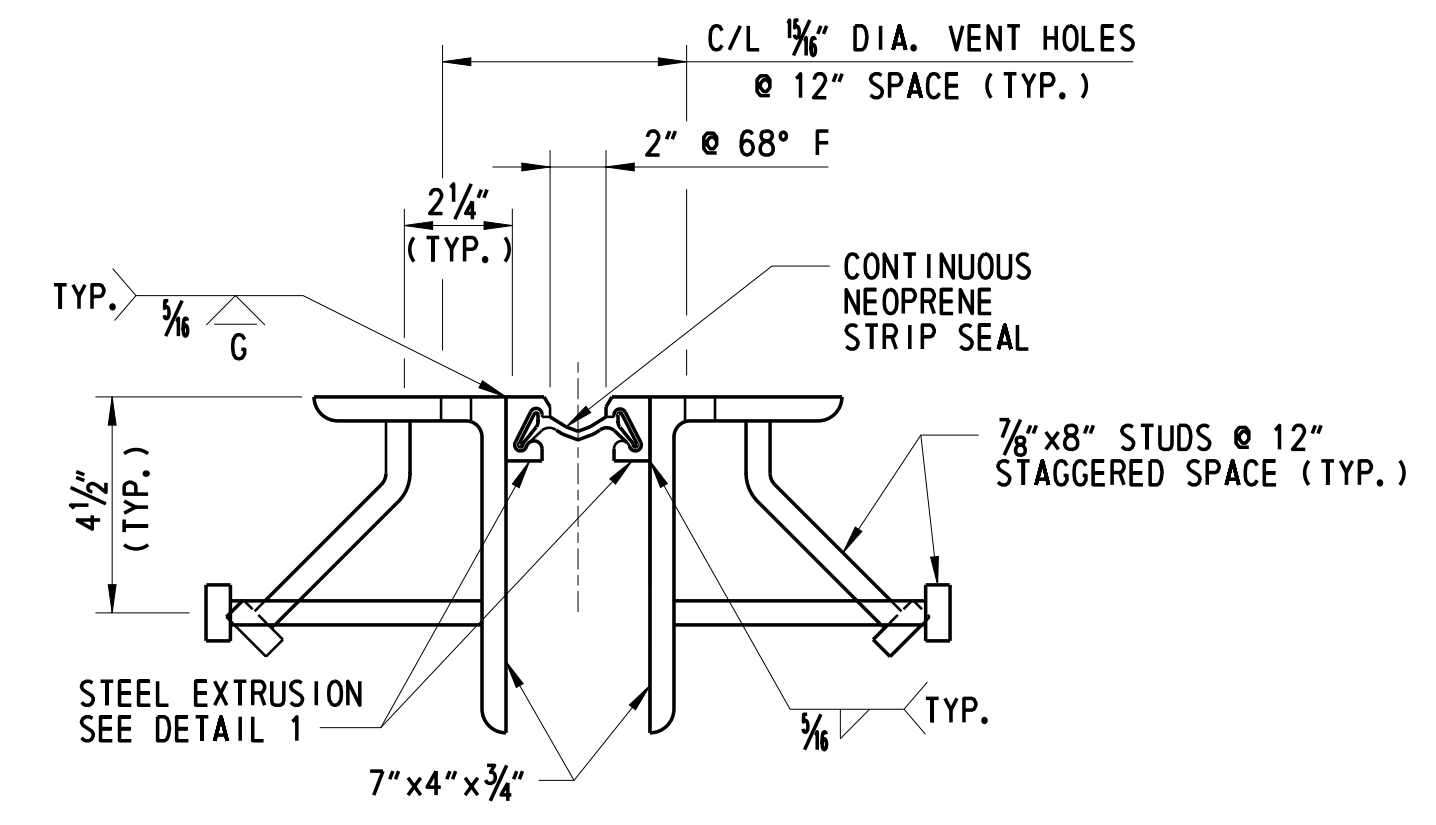




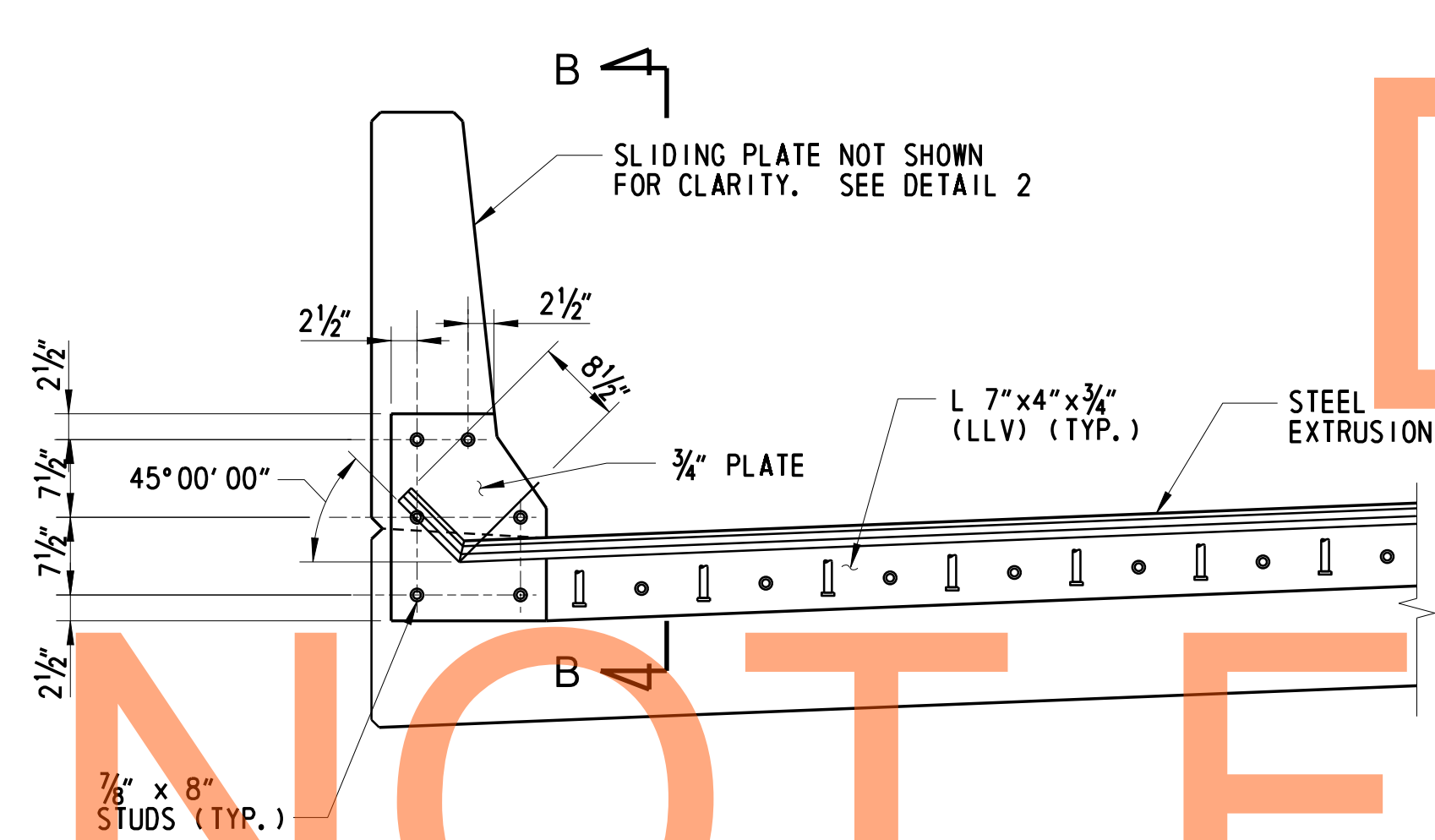
**PLAN**  
SCALE: 3/4" = 1'-0"



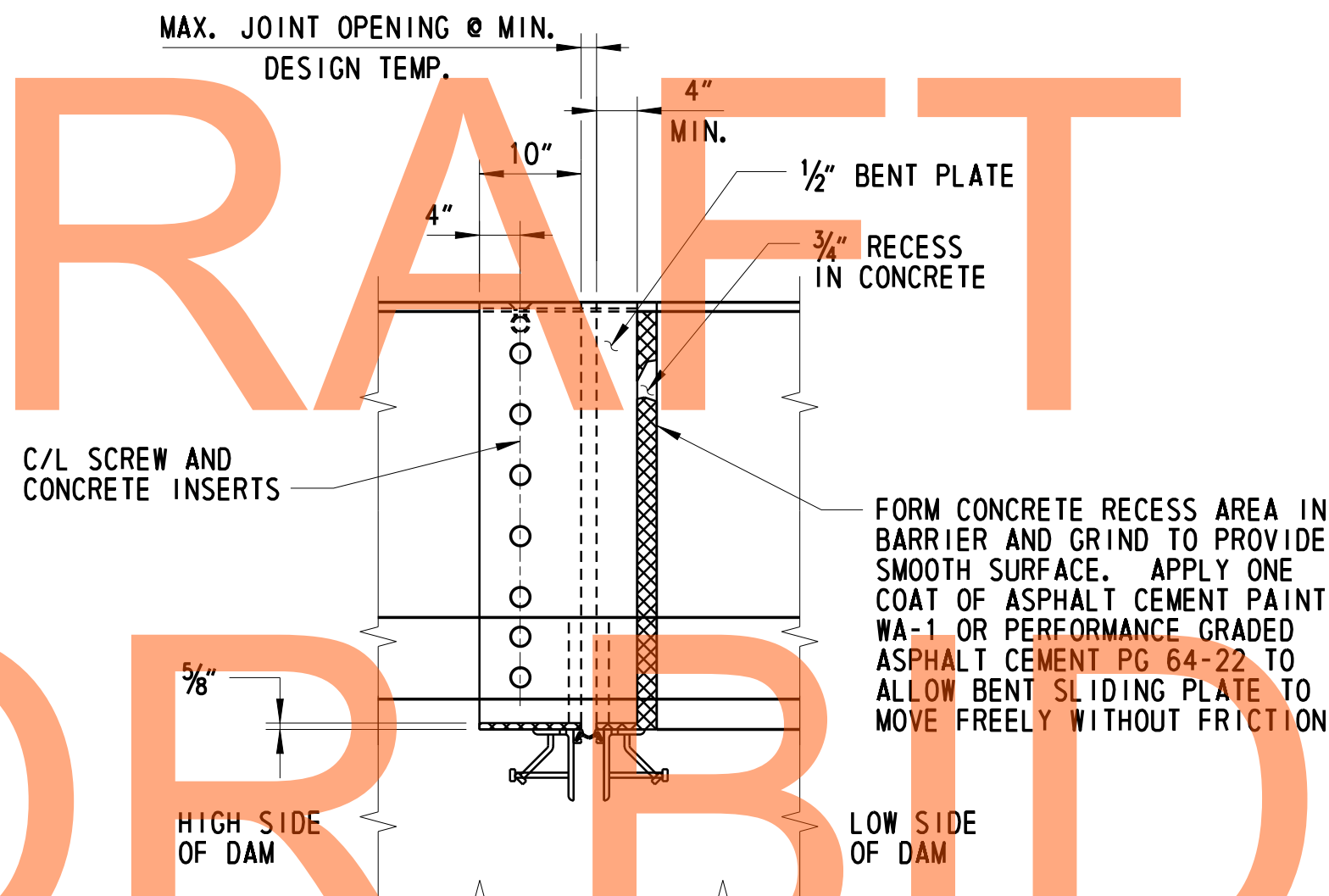
**DETAIL 1**  
NTS



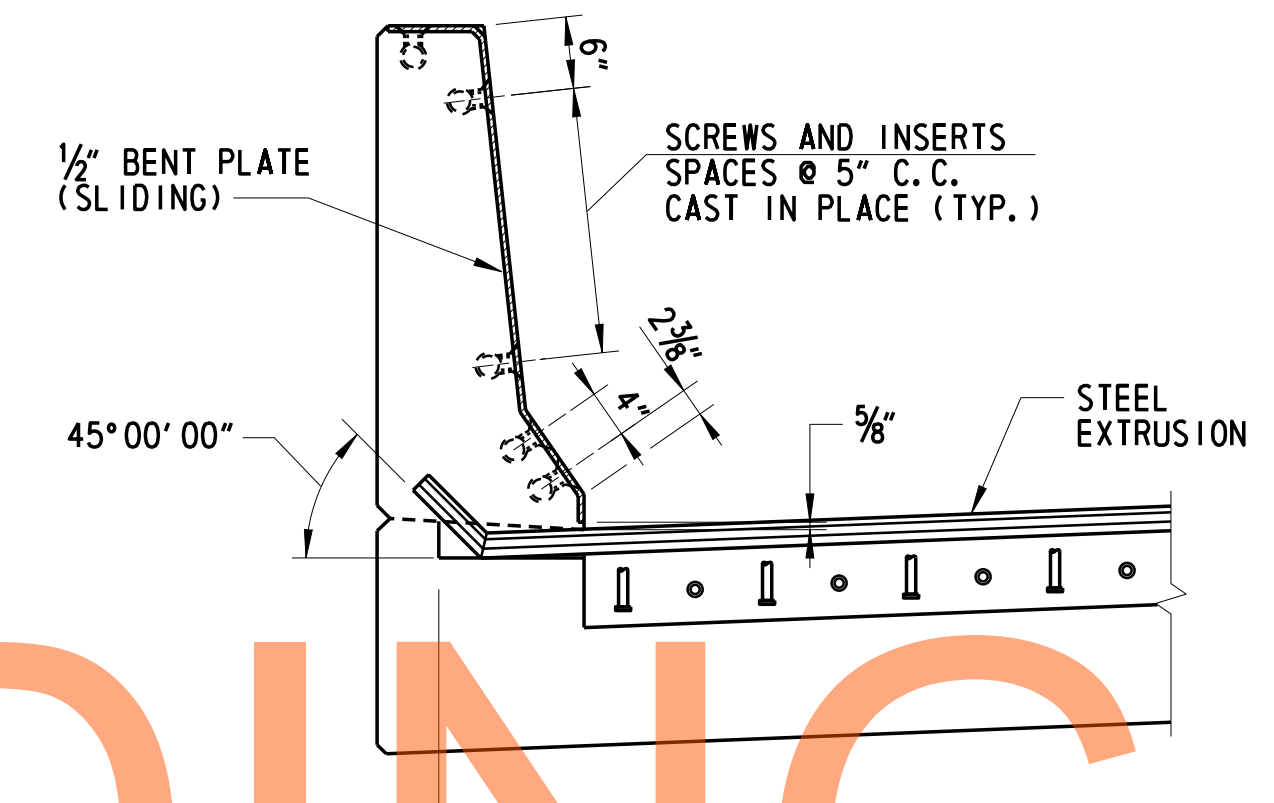
**PREFABRICATED EXPANSION JOINT SYSTEM 4"**  
SCALE: 3" = 1'-0"



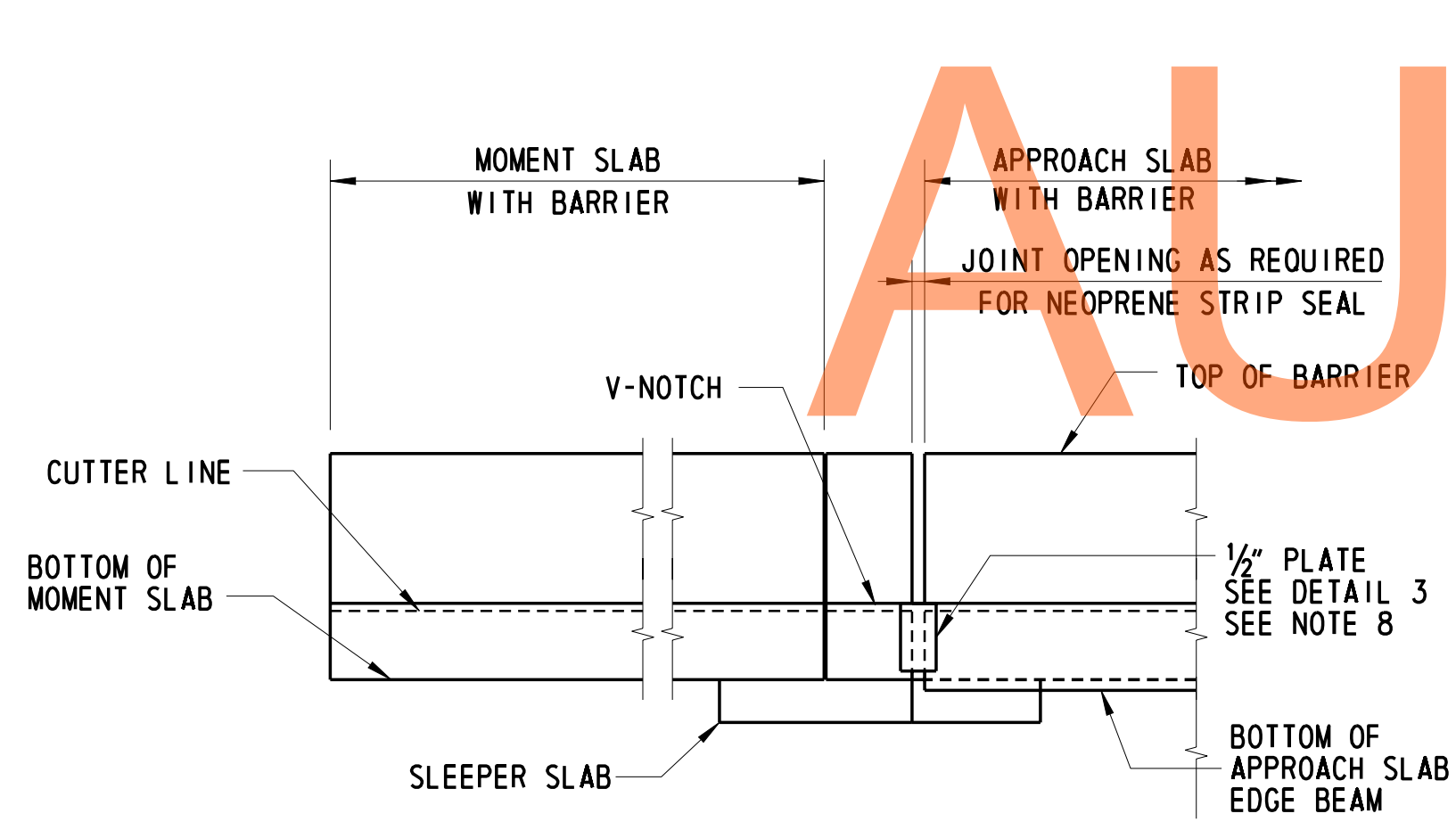
**SECTION A-A**  
SCALE: 3/4" = 1'-0"



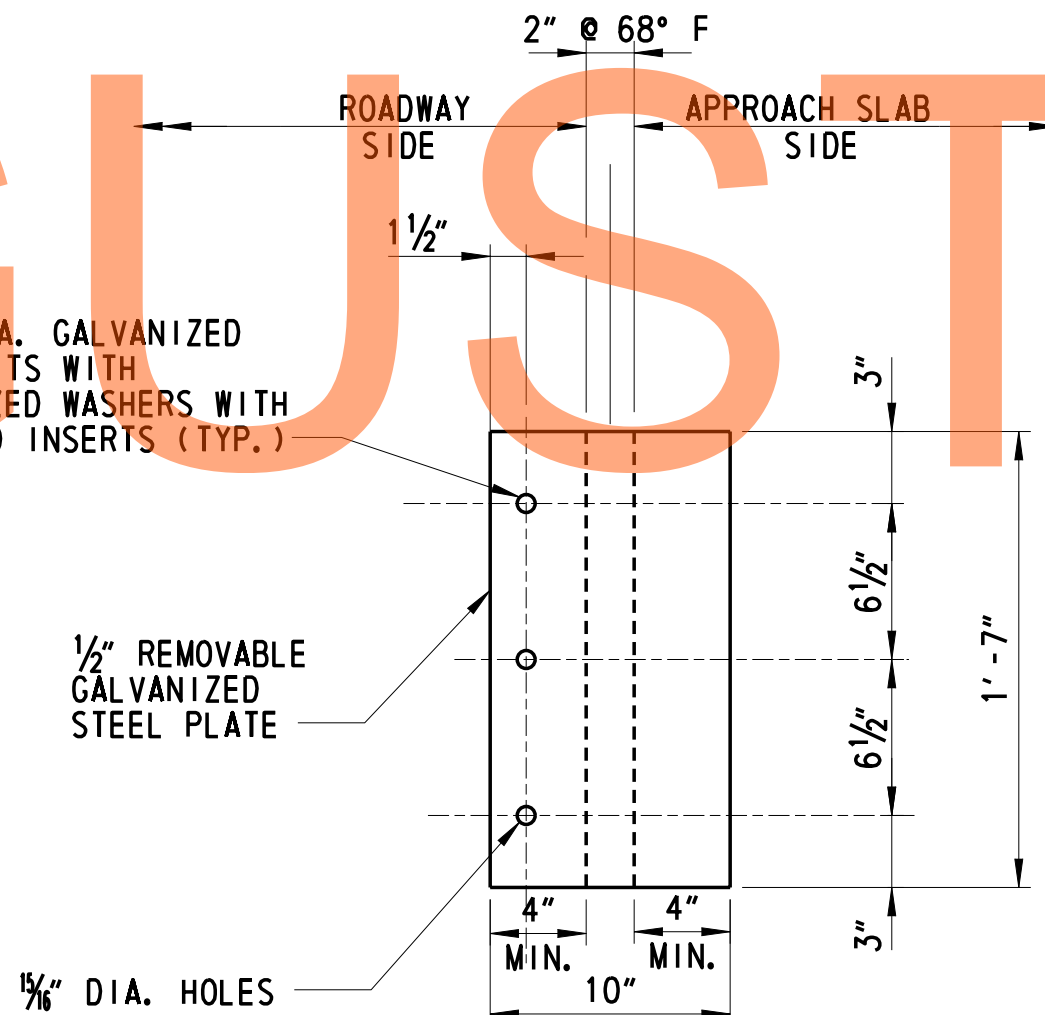
**SECTION B-B**  
SCALE: 3/4" = 1'-0"



**DETAIL 2**  
SCALE: 3/4" = 1'-0"



**SECTION C-C**  
SCALE: 1/4" = 1'-0"

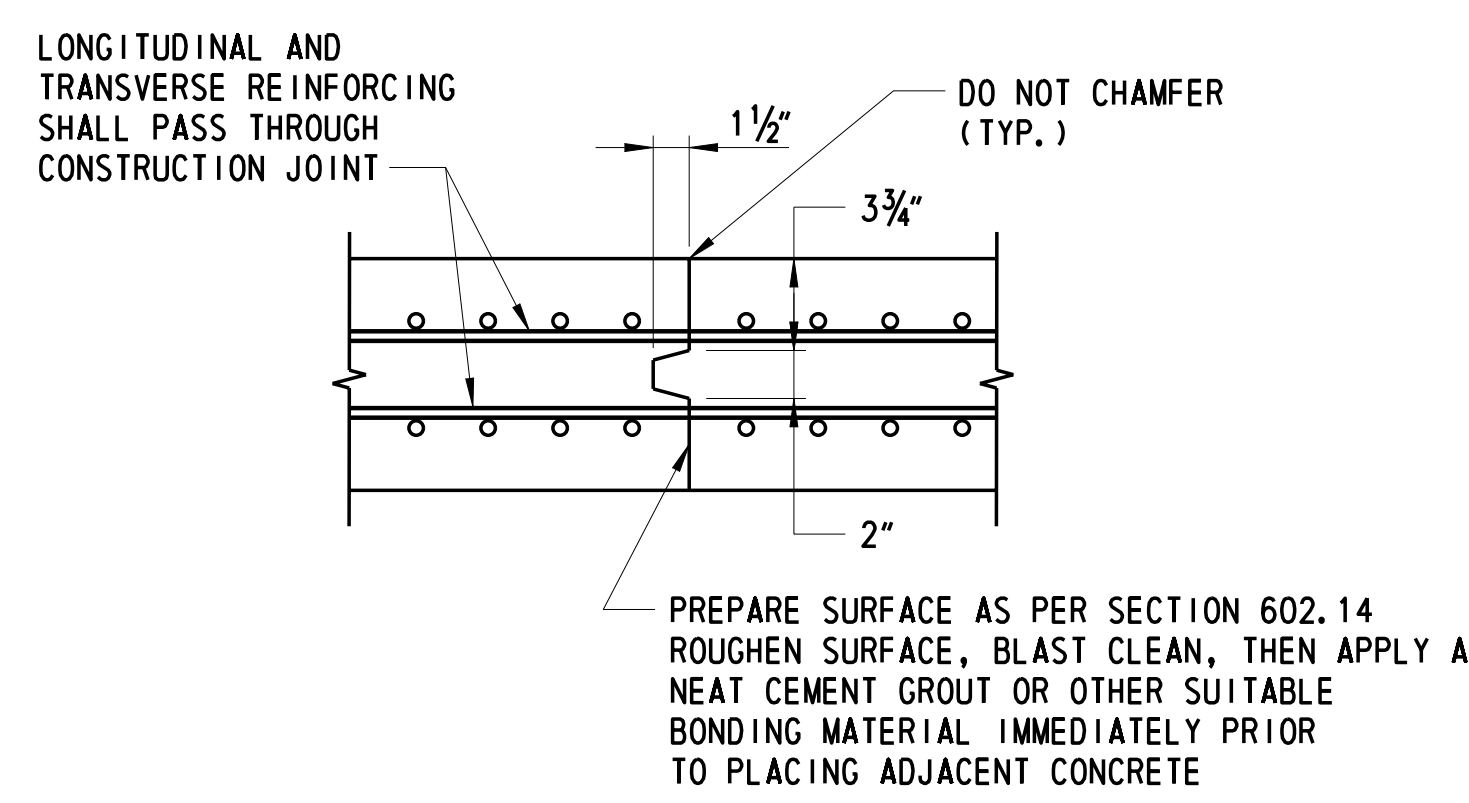
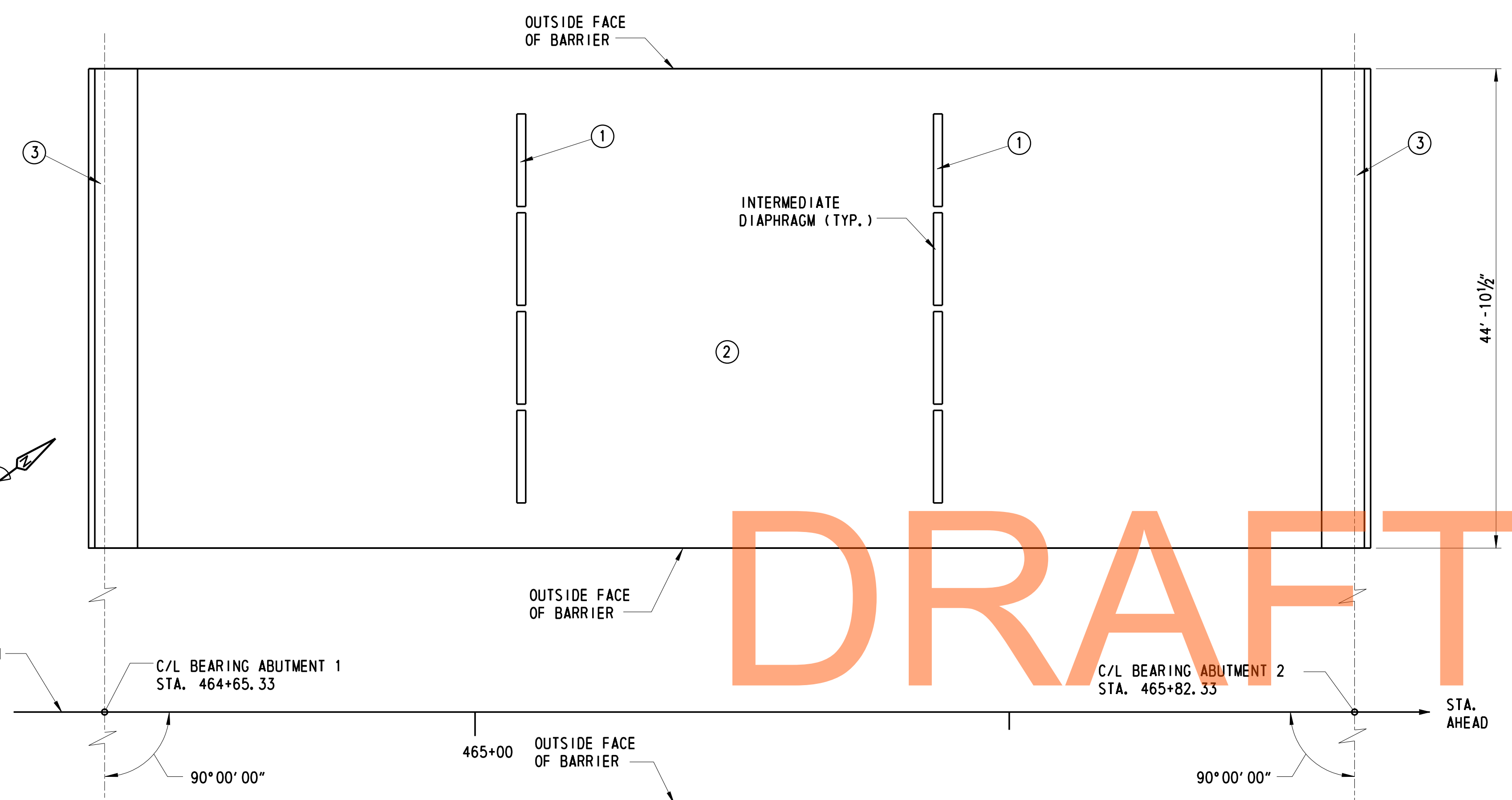
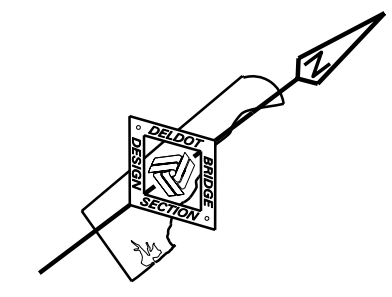


**DETAIL 3**  
SCALE: 1 1/2" = 1'-0"

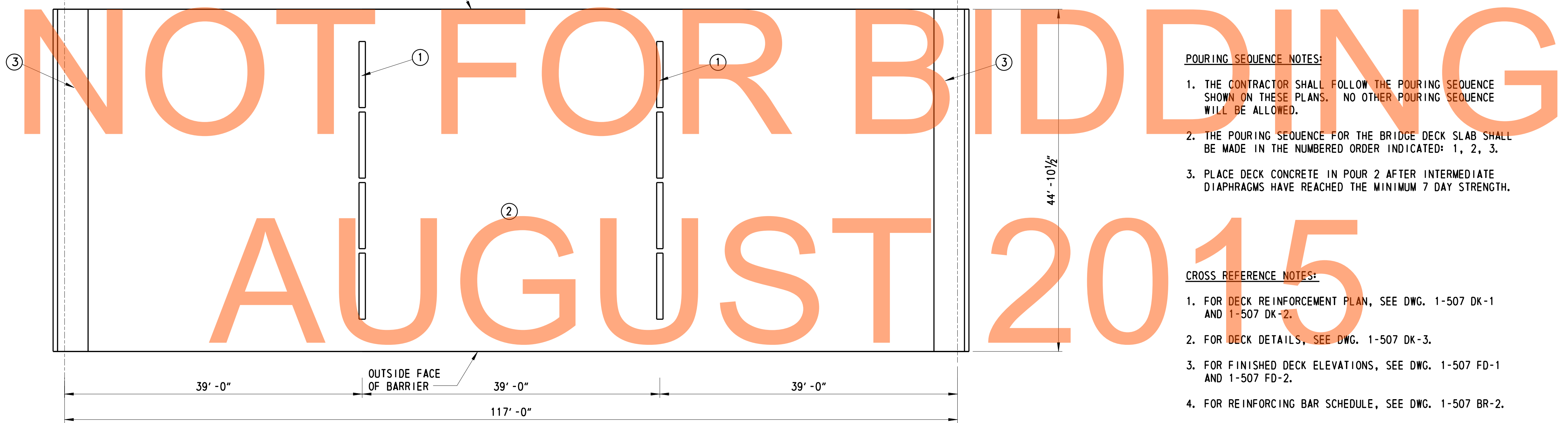
LOCATION	JOINT OPENING (INCH)							
	TEMPERATURE (°F)							
ABUTMENT 1	2 3/8	2 3/8	2 1/4	2 3/8	2 1/8	2 1/8	2	1 5/8
ABUTMENT 2	2 3/8	2 3/8	2 1/4	2 3/8	2 1/8	2 1/8	2	1 5/8

**NOTES:**

- STRUCTURAL STEEL FOR DECK JOINTS SHALL CONFORM TO AASHTO M270, GRADE 36.
- STEEL EXTRUSIONS FOR DECK JOINTS SHALL CONFORM TO AASHTO M270, GRADE 36.
- THE NEOPRENE STRIP SEAL SHALL BE PROVIDED CONTINUOUS THROUGHOUT THE LIMITS OF THE DECK. SPLICING OF THE NEOPRENE STRIP SEAL IS NOT PERMITTED.
- COST FOR MATERIALS, FABRICATION AND INSTALLATION OF STRIP SEAL EXPANSION JOINTS, 4" MOVEMENT CLASSIFICATION, WITH STEEL ELEMENTS INCLUDING STUDS, STEEL EXTRUSIONS, AND SLIDING PLATE, SHALL BE PAID FOR UNDER ITEM 605512.
- CONSTRUCT EXPANSION JOINT TO MATCH ROADWAY GRADE AND CROSS SLOPE.
- GRIND ALL STEEL EDGES EXPOSED TO TRAFFIC TO 3/16" MIN. RADIUS.
- BOND NEOPRENE STRIP SEAL TO EXTRUSION WITH APPROVED ADHESIVE.
- PLATE SHOWN IN DETAIL 3 IS ONLY NEEDED IN THE MEDIAN SIDE.

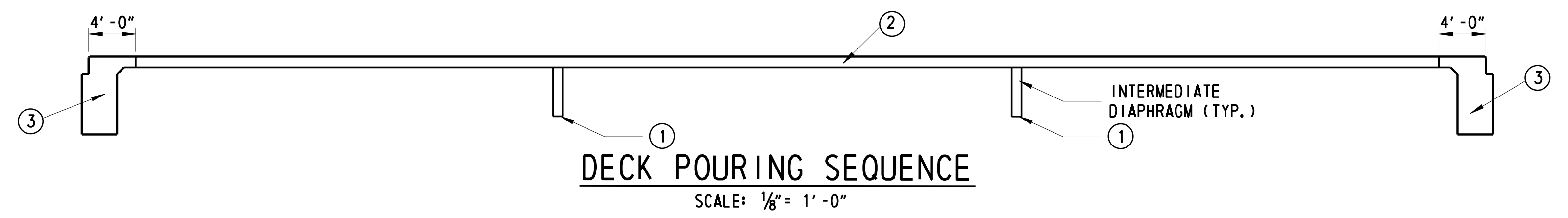


**BRIDGE DECK  
CONSTRUCTION JOINT**  
NTS



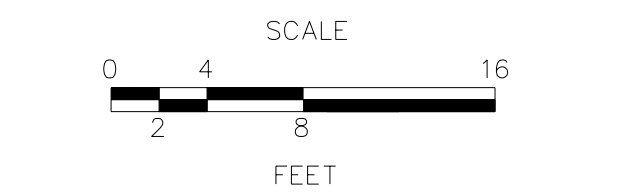
- POURING SEQUENCE NOTES:**
1. THE CONTRACTOR SHALL FOLLOW THE POURING SEQUENCE SHOWN ON THESE PLANS. NO OTHER POURING SEQUENCE WILL BE ALLOWED.
  2. THE POURING SEQUENCE FOR THE BRIDGE DECK SLAB SHALL BE MADE IN THE NUMBERED ORDER INDICATED: 1, 2, 3.
  3. PLACE DECK CONCRETE IN POUR 2 AFTER INTERMEDIATE DIAPHRAGMS HAVE REACHED THE MINIMUM 7 DAY STRENGTH.

- CROSS REFERENCE NOTES:**
1. FOR DECK REINFORCEMENT PLAN, SEE DWG. 1-507 DK-1 AND 1-507 DK-2.
  2. FOR DECK DETAILS, SEE DWG. 1-507 DK-3.
  3. FOR FINISHED DECK ELEVATIONS, SEE DWG. 1-507 FD-1 AND 1-507 FD-2.
  4. FOR REINFORCING BAR SCHEDULE, SEE DWG. 1-507 BR-2.



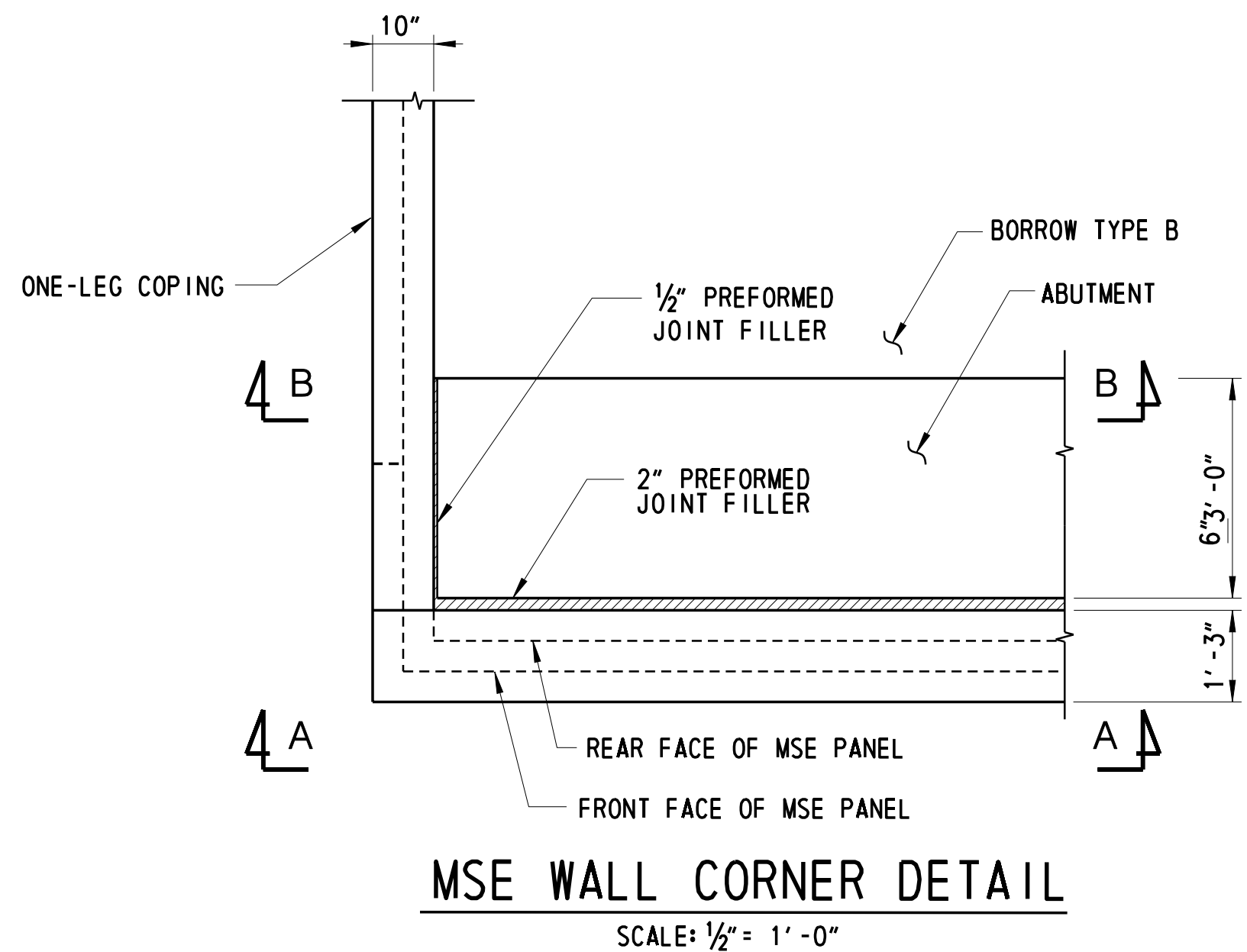
**DECK POURING SEQUENCE**  
SCALE: 1/8" = 1'-0"

ADDENDUMS / REVISIONS

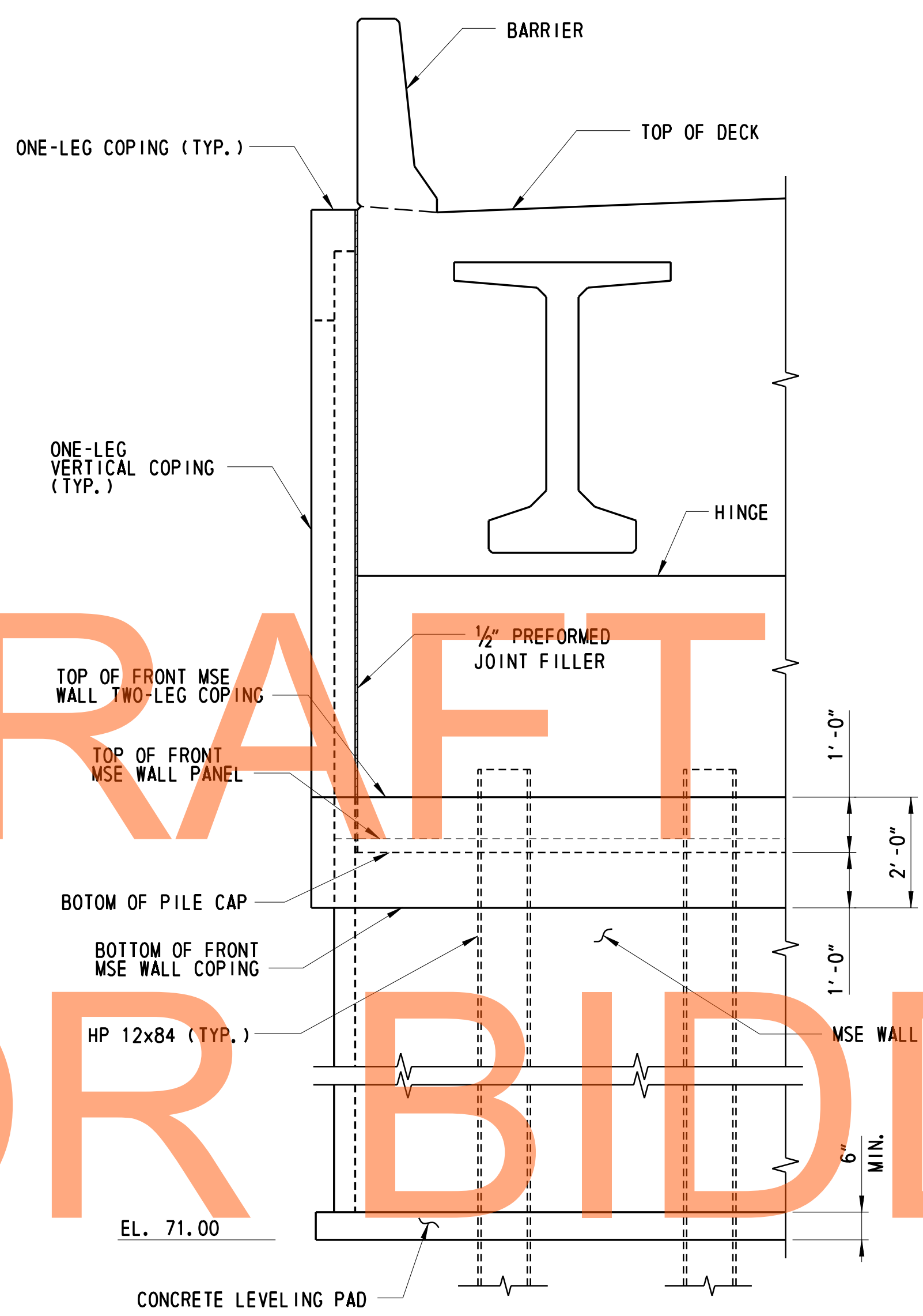


CONTRACT T200911303	BRIDGE NO. 1-507N&S
COUNTY NEW CASTLE	DESIGNED BY: LT CHECKED BY: ML

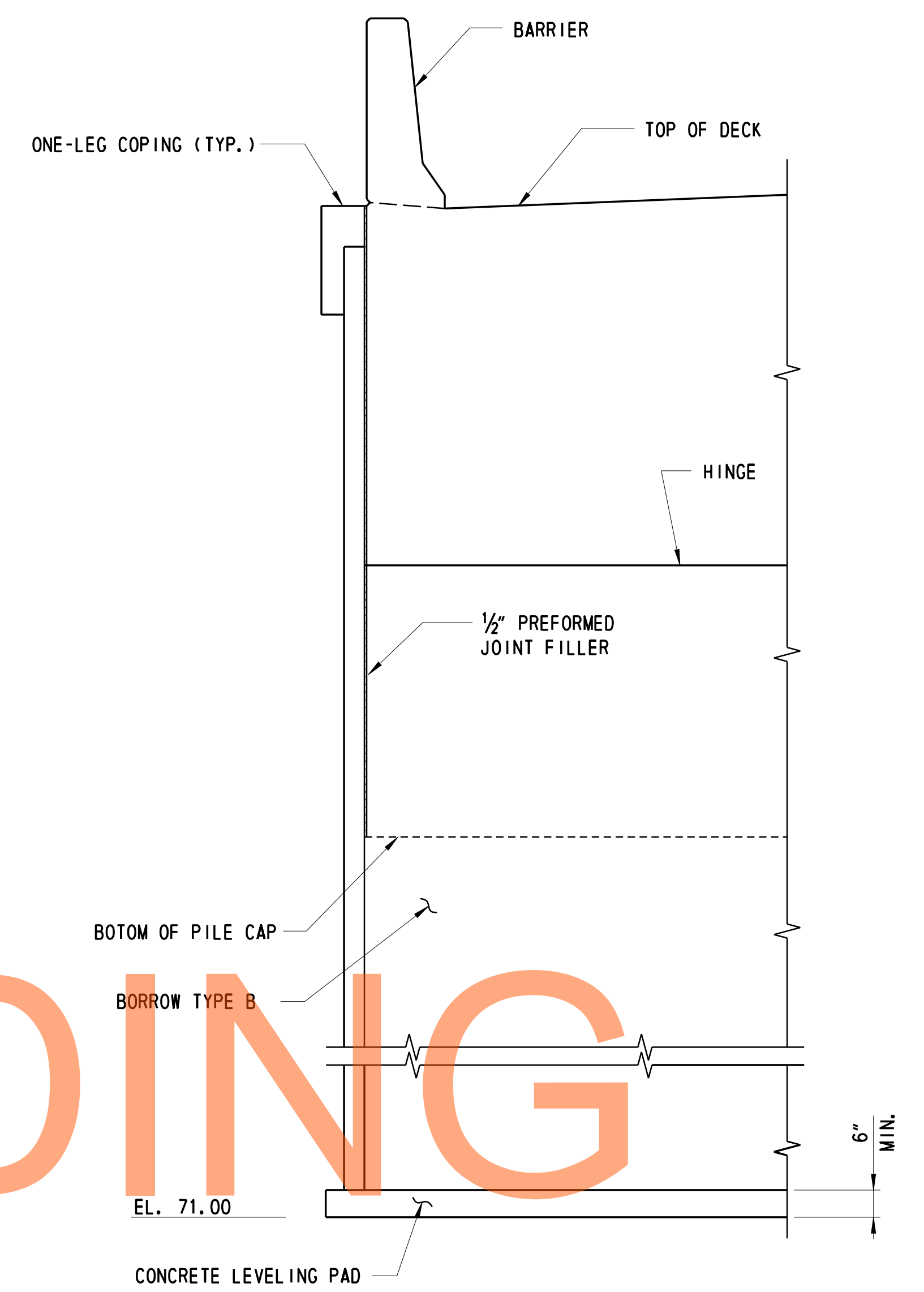
1-507 DT-1
SHEET NO. 657
TOTAL SHTS. 1256



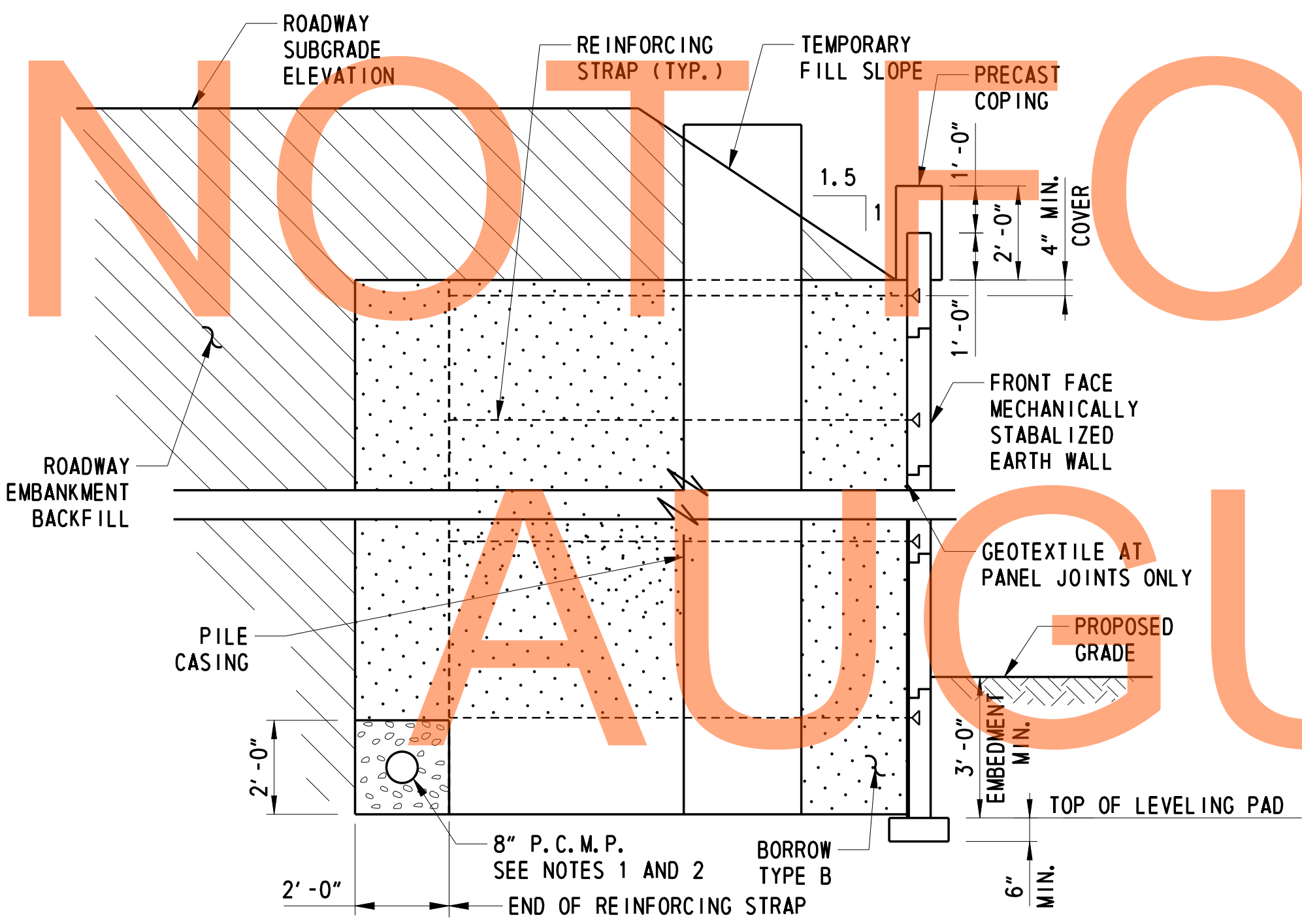
**MSE WALL CORNER DETAIL**  
SCALE: 1/2" = 1'-0"



**SECTION A-A**  
SCALE: 1/2" = 1'-0"



**SECTION B-B**  
SCALE: 1/2" = 1'-0"



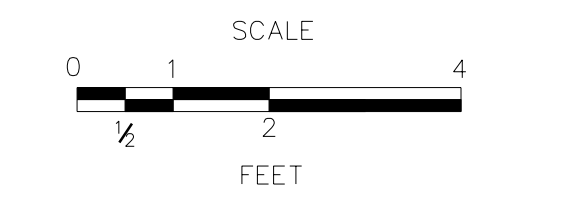
**FILL PLACEMENT DURING QUARANTINE PERIOD**  
SCALE: 3/8" = 1'-0"

- NOTES:**
1. DRAIN PERFORATED CORRUGATED METAL PIPE (P.C.M.P.) TO DAYLIGHT.
  2. SURROUND P.C.M.P. WITH A CONTINUOUS 2'-0" x 2'-0" OF DELAWARE NO. 57 STONE ENCLOSED IN GEOTEXTILE.
  3. CONTRACTOR TO PROVIDE PROTECTION TO THE PILE CASING DURING QUARANTINE PERIOD TO PREVENT MATERIAL FROM ENTERING CASING.

- NOTES:**
1. LEVELING PAD AND BARRIER ARE NOT SHOWN ON PLAN VIEW FOR CLARITY.
  2. PILE CASING DETAILS ARE NOT SHOWN ON ELEVATION FOR CLARITY.

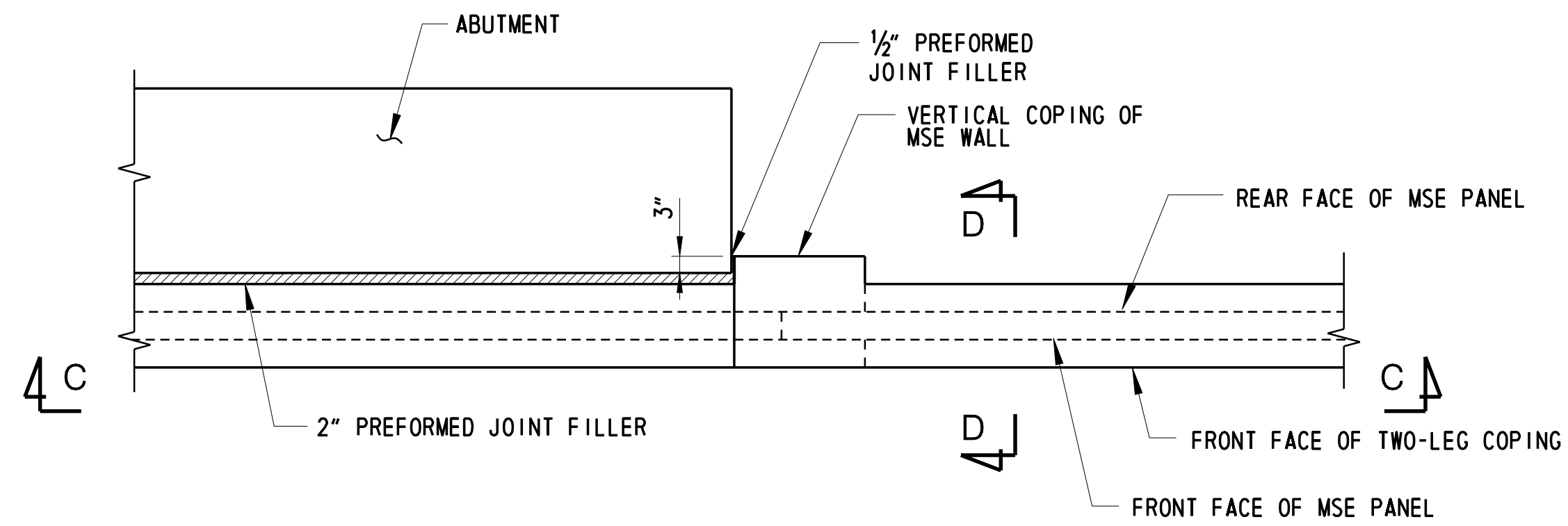
**CROSS REFERENCE NOTE:**  
SEE DWG. 1-507 RD-3 FOR MSE WALL COPING DETAILS.

ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	ML
NEW CASTLE		

1-507 RD-1
SHEET NO.
658
TOTAL SHTS.
1256



**MSE WALL VERTICAL COPING DETAIL**

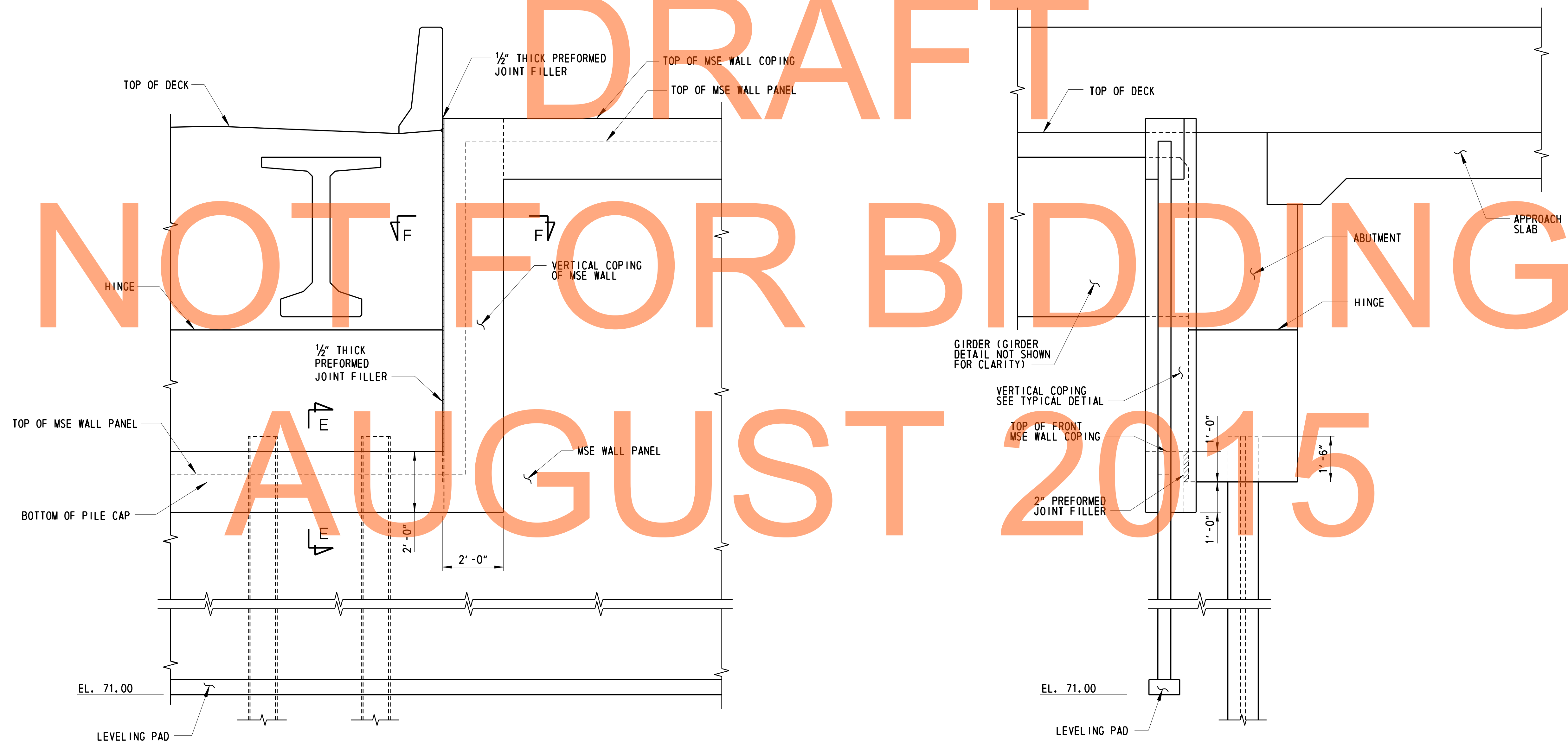
SCALE: 1/2" = 1' - 0"

**NOTES:**

- 1. LEVELING PAD AND BARRIER ARE NOT SHOWN ON PLAN VIEW FOR CLARITY.
- 2. PILE CASING DETAILS ARE NOT SHOWN ON ELEVATION FOR CLARITY.

**CROSS REFERENCE NOTES:**

- 1. SEE DWG. 1-507 RD-3 FOR MSE WALL COPING DETAILS.



**SECTION C-C**

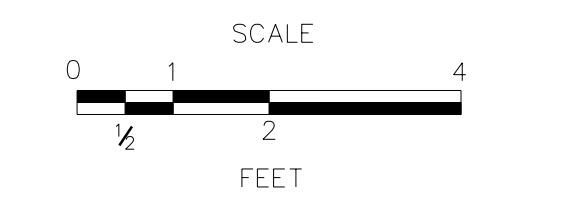
SCALE: 1/2" = 1' - 0"

**SECTION D-D**

SCALE: 1/2" = 1' - 0"

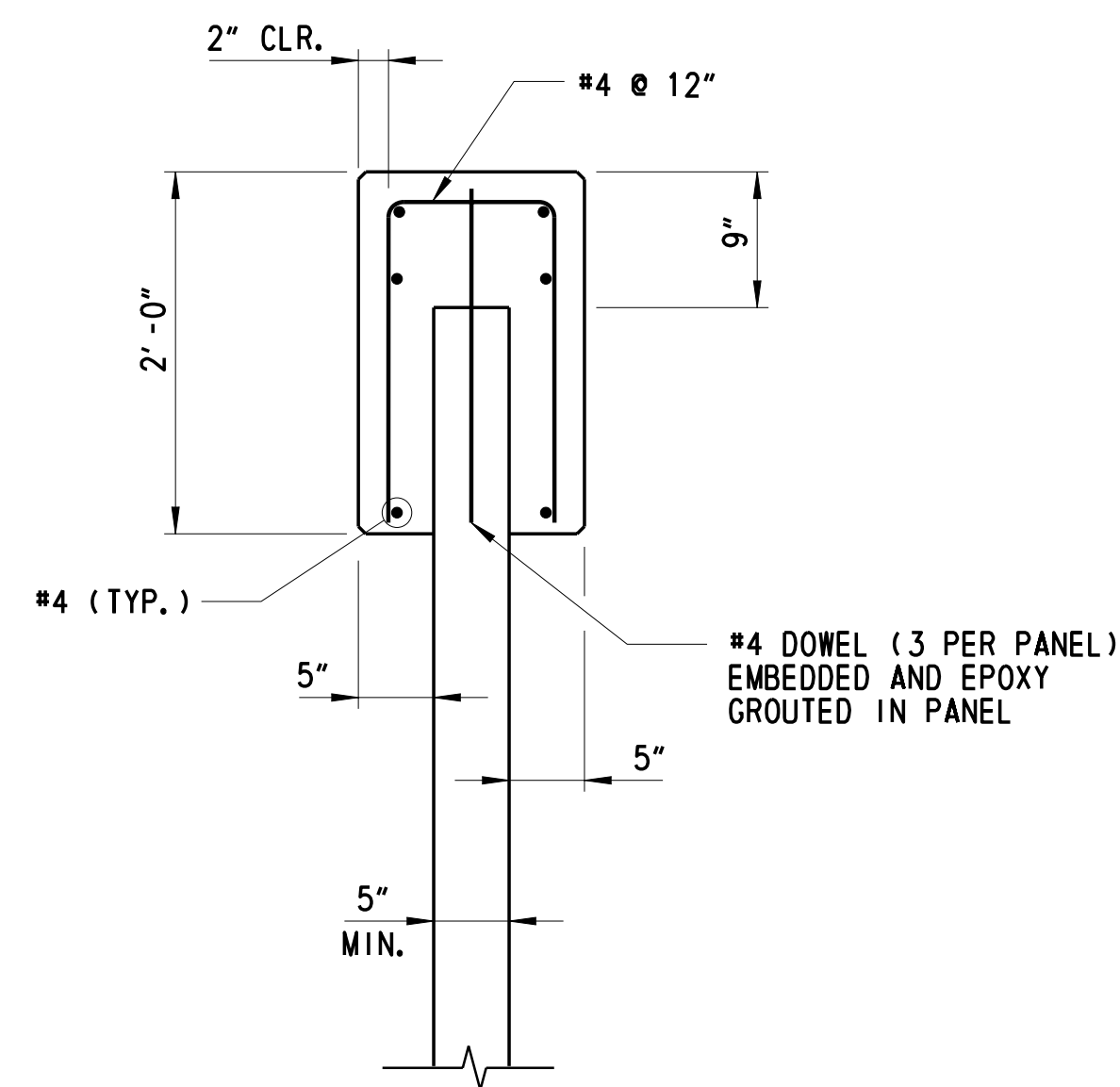
DRAFT  
NOT FOR BIDDING  
AUGUST 2015

ADDENDUMS / REVISIONS

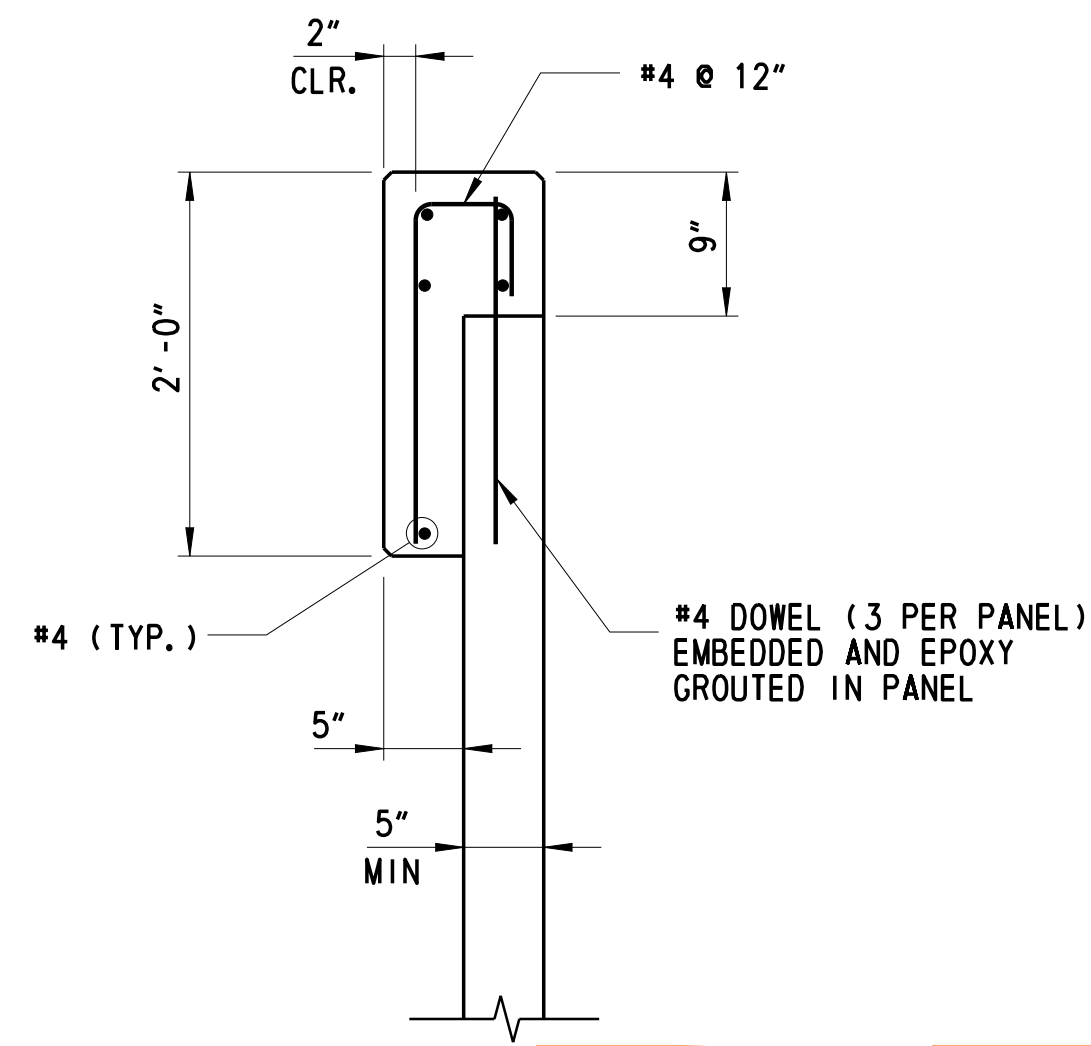


CONTRACT T200911303	BRIDGE NO. <b>1-507N&amp;S</b>
COUNTY NEW CASTLE	DESIGNED BY: LT CHECKED BY: ML

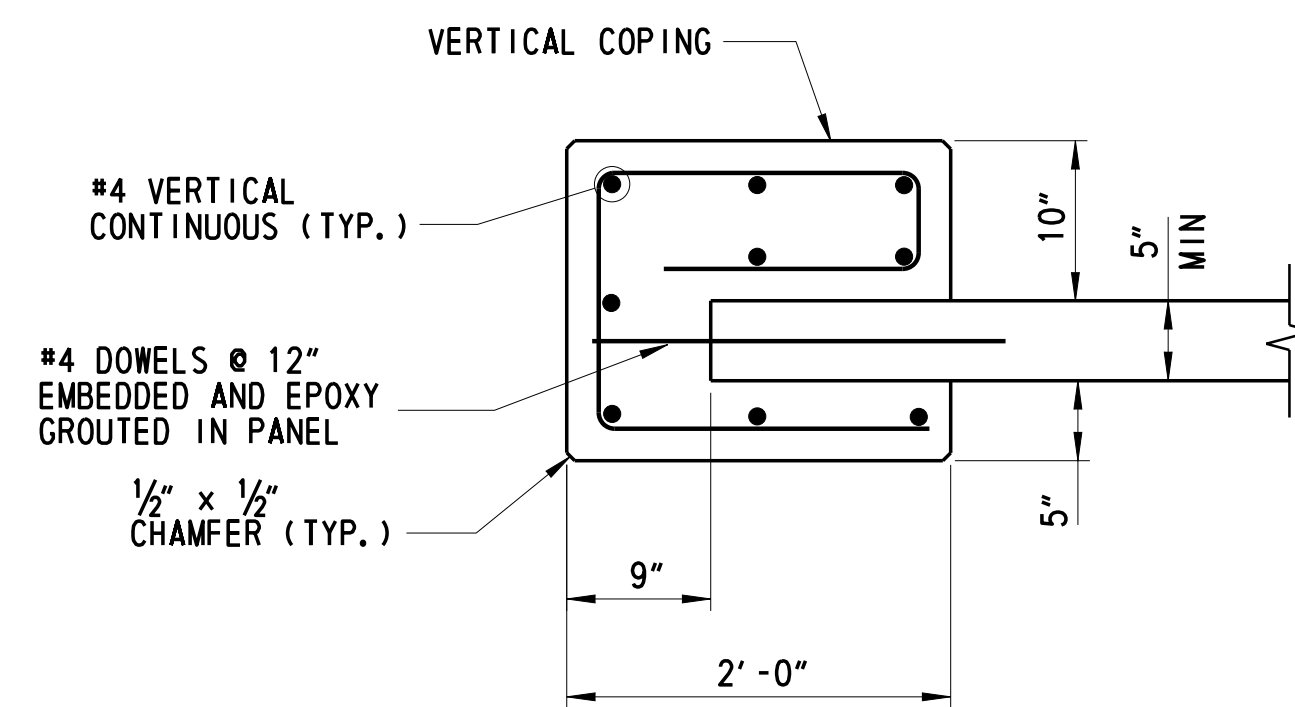
1-507 RD-2
SHEET NO. 659
TOTAL SHTS. 1256



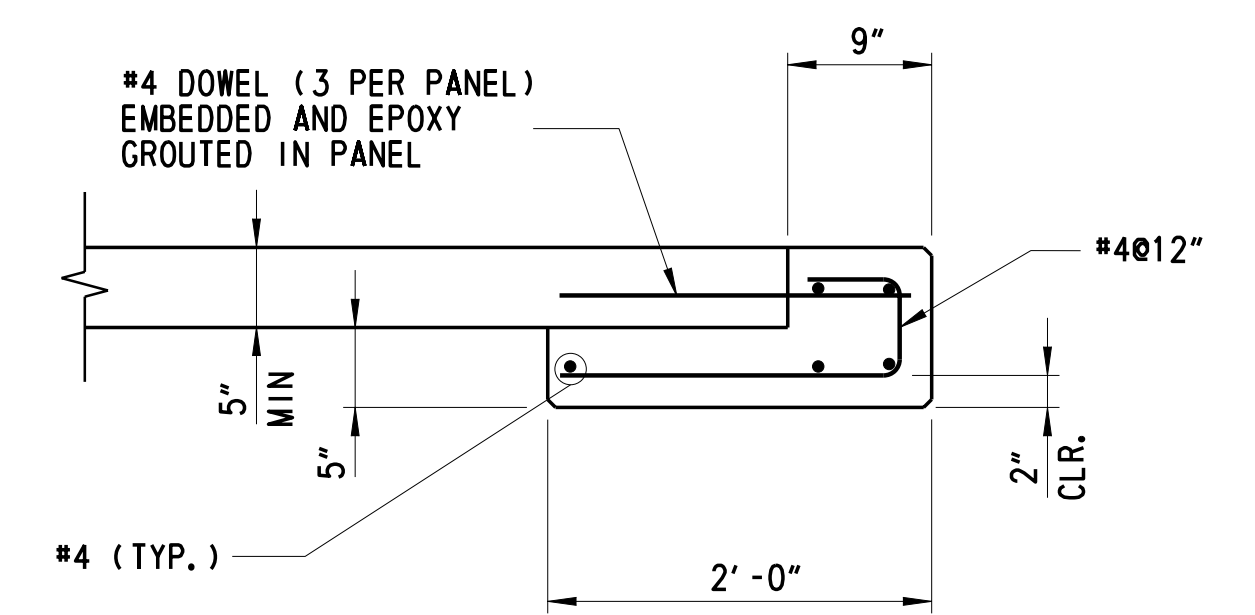
**SECTION E-E**  
**TWO-LEG COPING**  
SCALE: 1" = 1'-0"



**ONE-LEG COPING**  
SCALE: 1" = 1'-0"



**SECTION F-F**  
**TWO-LEG VERTICAL COPING**  
SCALE: 1" = 1'-0"



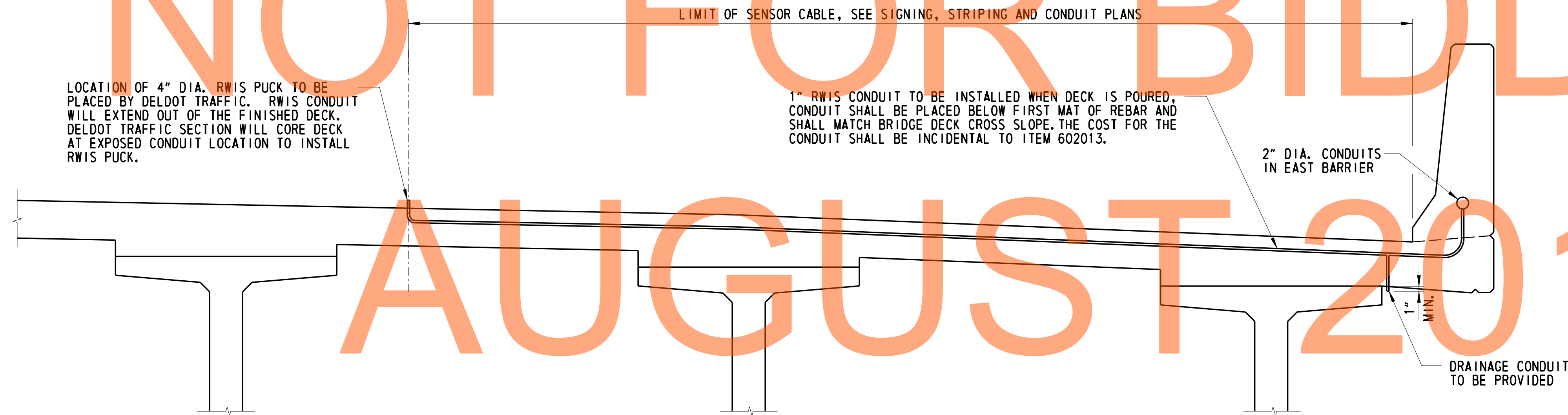
**ONE-LEG VERTICAL COPING**  
SCALE: 1" = 1'-0"

**NOTES:**

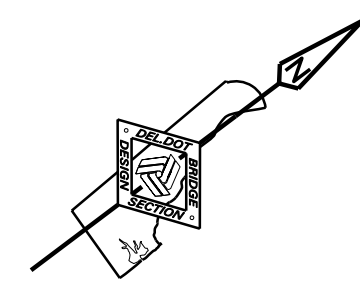
1. ALL COPING TO BE PRECAST CONCRETE.
2. THE COST OF COPING INCLUDING FABRICATION AND INSTALLATION SHALL BE INCIDENTAL TO THE COST FOR MSE WALLS, ITEM 602553.

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**TYPICAL SECTION OF DECK PARAPET AT RWIS**  
SCALE: 3/4" = 1'-0"



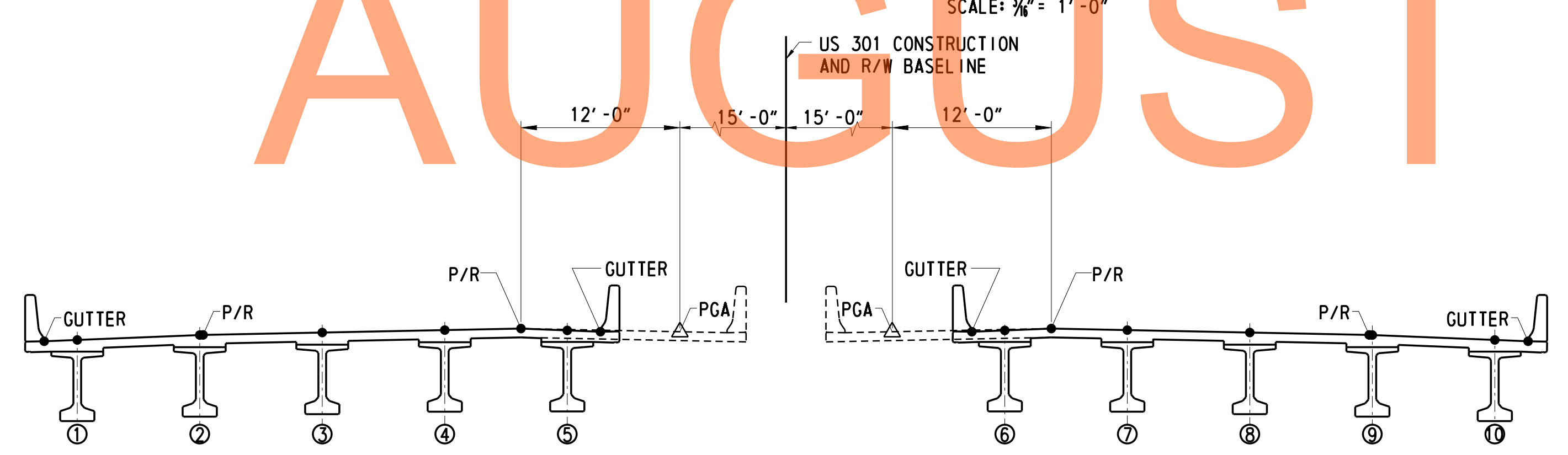
- CROSS REFERENCE NOTES:**
- FOR SUPERSTRUCTURE TYPICAL SECTION, SEE DWG. 1-507 TS-1.
  - FOR VERTICAL CURVE DATA, SEE DWG. 1-507 PE-1

- NOTES:**
- CURBLINES AND BREAK POINTS IN DECK ARE SHOWN SOLID.
  - BEAM LINES ARE SHOWN DASHED.
  - P/R - POINT OF ROTATION

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**FINISHED DECK ELEVATION - SOUTHBOUND**



**SOUTHBOUND**

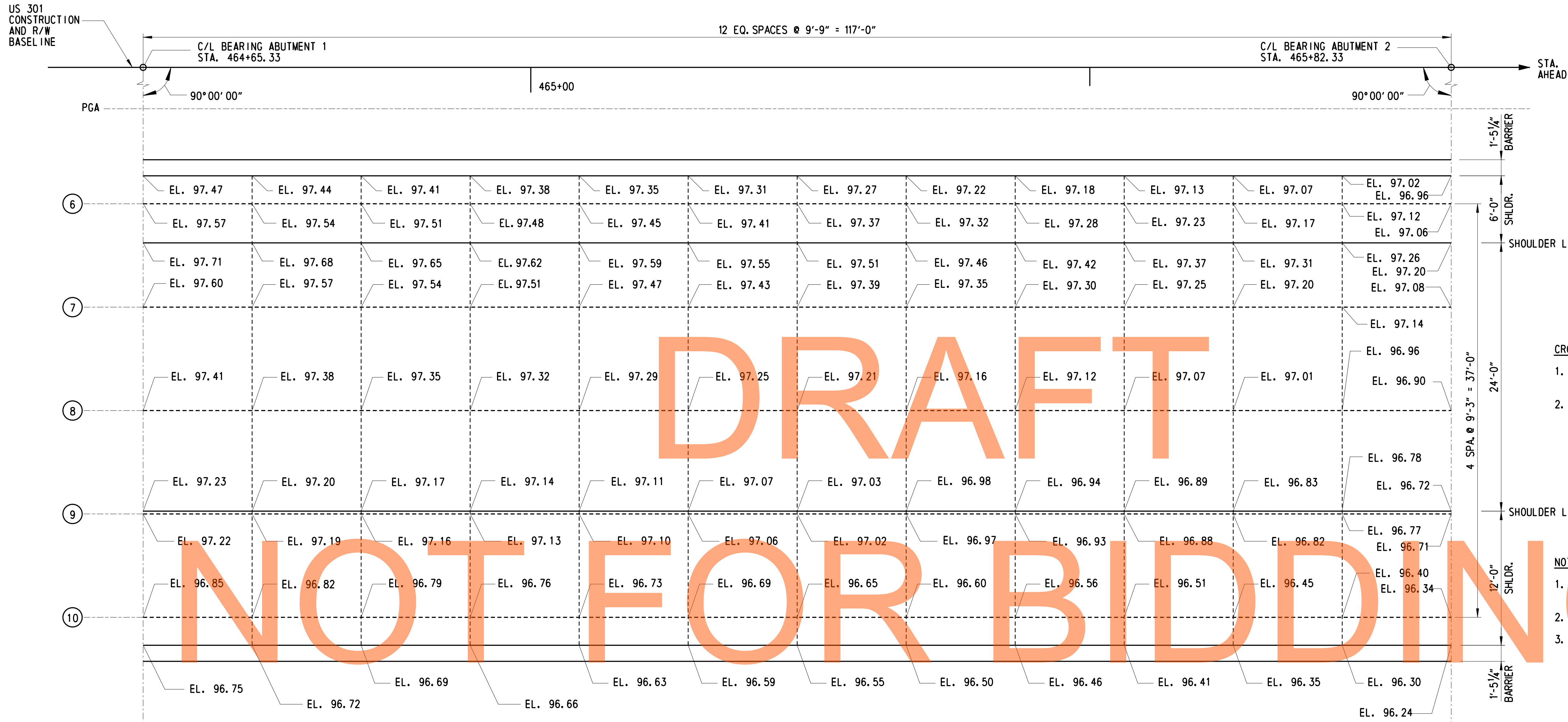
**NORTHBOUND**

**TYPICAL SECTION**  
STATIONS AHEAD  
SCALE: 1/8" = 1'-0"

ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	ML
NEW CASTLE		

1-507 FD-1	
SHEET NO.	661
TOTAL SHTS.	1256

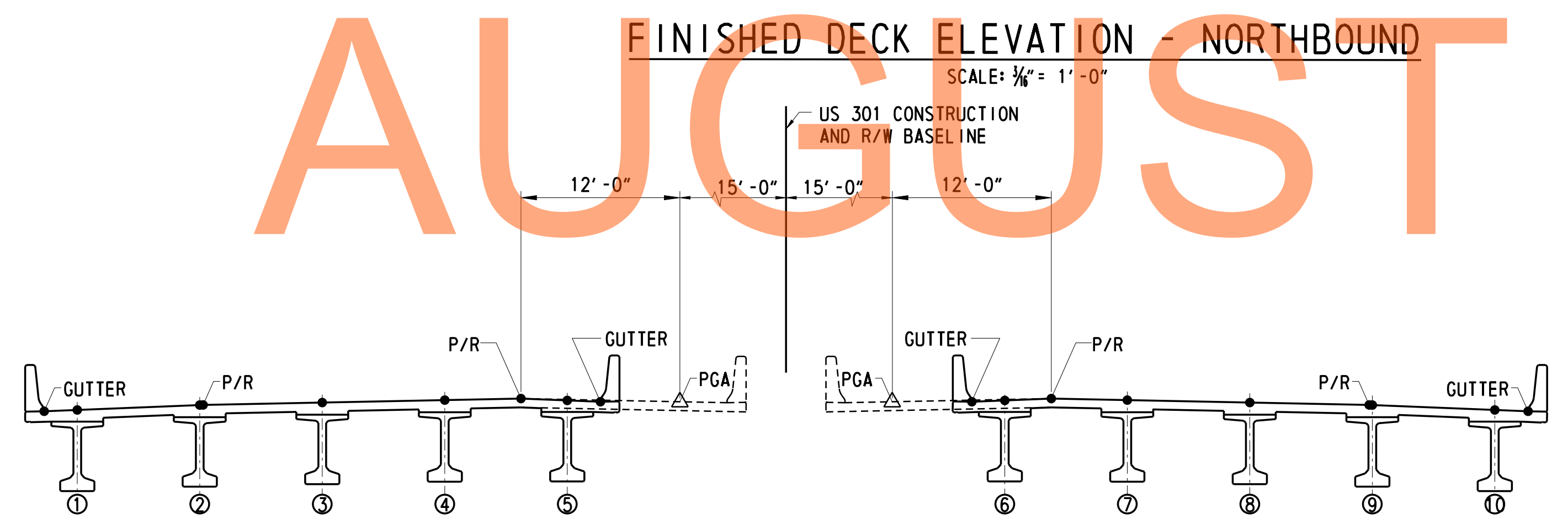


- CROSS REFERENCE NOTES:**
1. FOR SUPERSTRUCTURE TYPICAL SECTION, SEE DWG. 1-507 TS-1.
  2. FOR VERTICAL CURVE DATA, SEE DWG. 1-507 PE-1.

- NOTES:**
1. CURBLINES AND BREAK POINTS IN DECK ARE SHOWN SOLID.
  2. BEAM LINES ARE SHOWN DASHED.
  3. P/R - POINT OF ROTATION

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**FINISHED DECK ELEVATION - NORTHBOUND**  
SCALE: 3/4" = 1'-0"

**SOUTHBOUND**

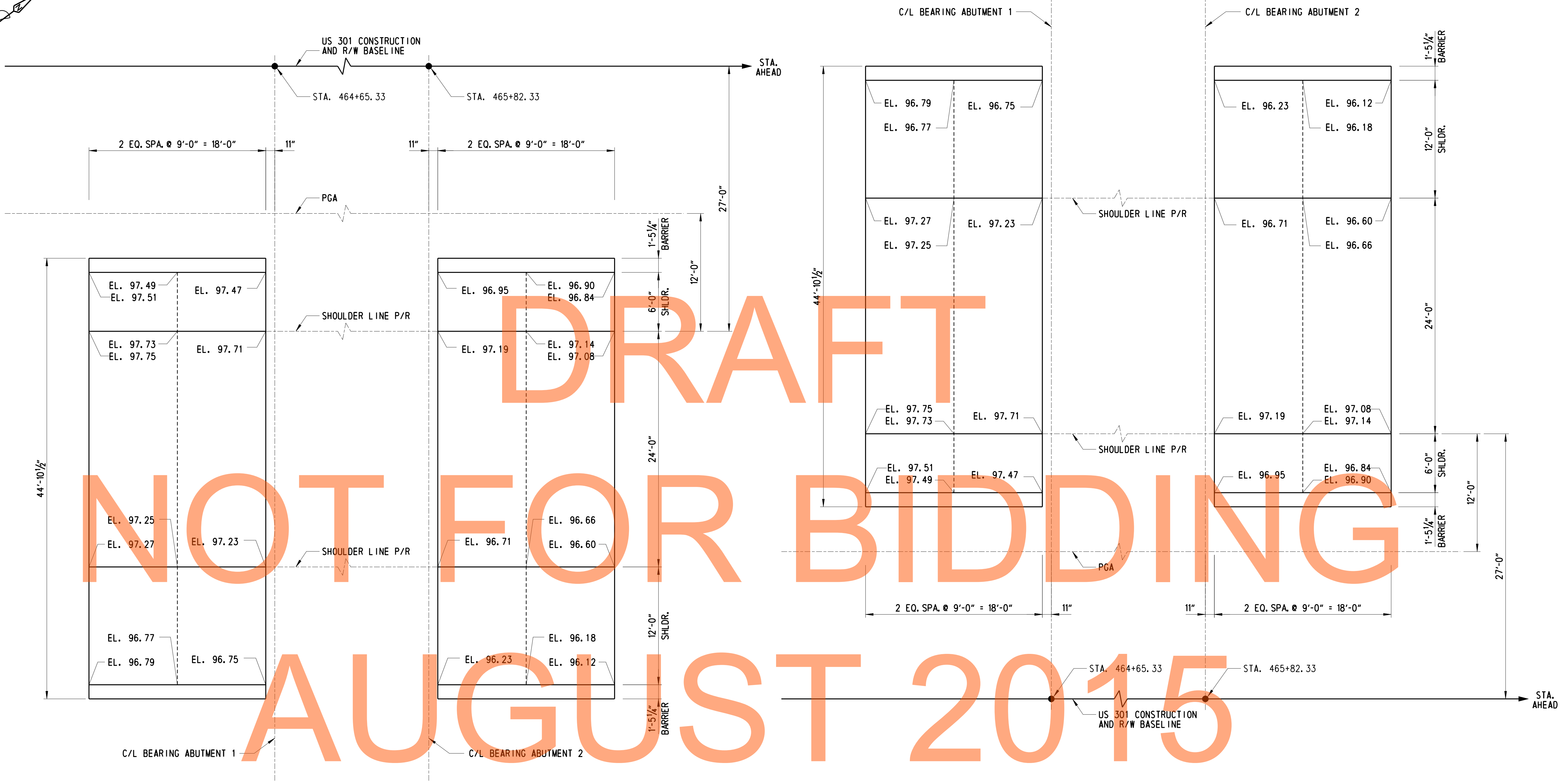
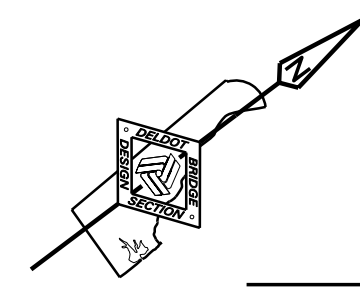
**NORTHBOUND**

**TYPICAL SECTION**  
STATIONS AHEAD  
SCALE: 1/8" = 1'-0"

ADDENDUMS / REVISIONS

CONTRACT T200911303	BRIDGE NO. 1-507N&S
COUNTY NEW CASTLE	DESIGNED BY: LT CHECKED BY: ML

1-507 FD-2
SHEET NO. 662
TOTAL SHTS. 1256



**FINISHED APPROACH SLAB ELEVATION - NORTHBOUND**  
SCALE: 3/8" = 1'-0"

**FINISHED APPROACH SLAB ELEVATION - SOUTHBOUND**  
SCALE: 3/8" = 1'-0"

**CROSS REFERENCE NOTES:**

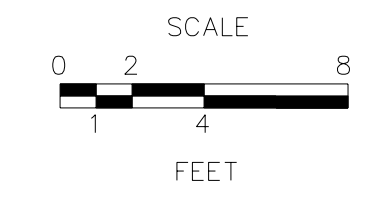
1. FOR FINISHED DECK ELEVATION, SEE DWG. 1-507 FD-1 AND 1-507 FD-2.
2. FOR APPROACH SLAB DETAIL, SEE DWG. 1-507 DK-3 AND 1-507 DK-4.
3. FOR VERTICAL CURVE DATA, SEE DWG. 1-507 PE-1.
4. FOR CROSS SLOPES, SEE DWG. 1-507 TS-1.

**NOTES:**

1. P/R - POINT OF ROTATION



ADDENDUMS / REVISIONS	



**US 301  
LEVELS ROAD  
TO SUMMIT BRIDGE ROAD**

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	ML
NEW CASTLE		

**US 301 MAINLINE OVER  
CONNECTOR ROAD  
FINISHED APPROACH SLAB  
ELEVATIONS**

1-507 FD-3
SHEET NO.
663
TOTAL SHTS.
1256



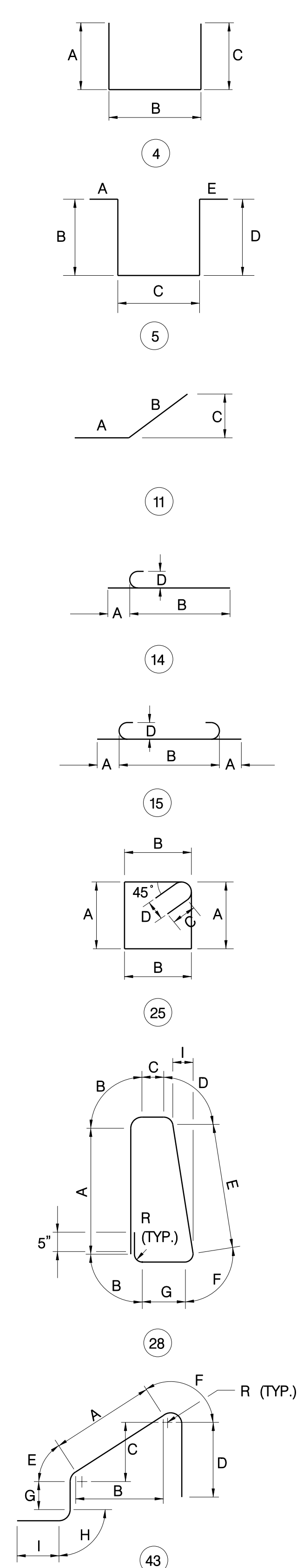
SUPERSTRUCTURE REINFORCING BAR SCHEDULE

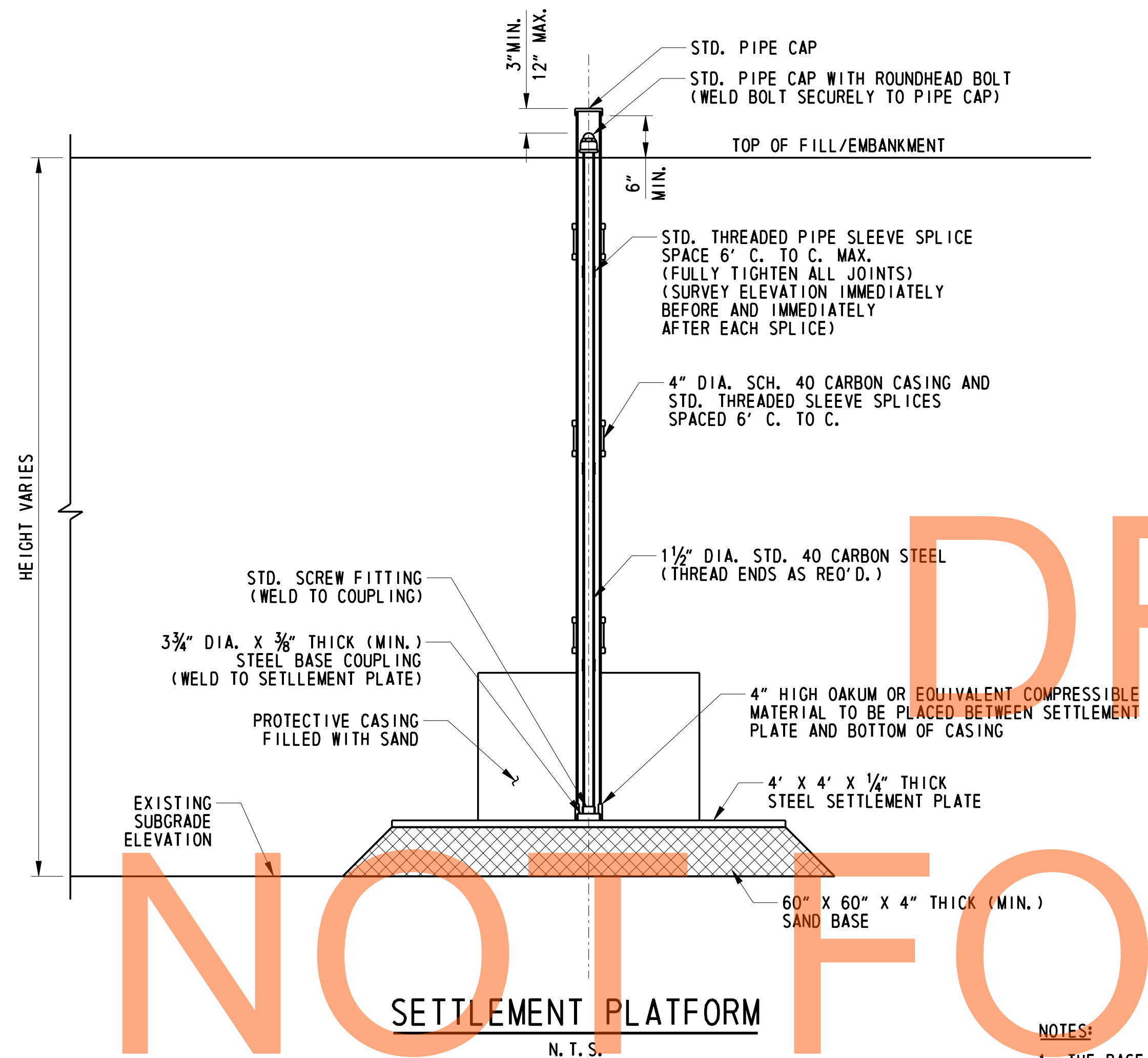
NORTHBOUND SUPERSTRUCTURE BAR SCHEDULE															SOUTHBOUND SUPERSTRUCTURE BAR SCHEDULE																	
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS	MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	I	J	K	REMARKS	
S401E	45'-0"	98	STR.													S401E	45'-0"	98	STR.													
S402E	33'-8"	49	STR.													S402E	33'-8"	49	STR.													
S501E	45'-0"	100	STR.													S501E	45'-0"	100	STR.													
S502E	33'-8"	50	STR.													S502E	33'-8"	50	STR.													
S503E	44'-6"	205	STR.													S503E	44'-6"	205	STR.													
S504E	45'-8"	238	15	7"	44'-6"		5"									S504E	45'-8"	238	15	7"	44'-6"		5"									
S601E	9'-0"	476	14	8"	8'-4"		6"									S601E	9'-0"	476	14	8"	8'-4"		6"									
AS501E	44'-6"	116	STR.													AS501E	44'-6"	116	STR.													
AS502E	17'-8"	92	STR.													AS502E	17'-8"	92	STR.													
AS503E	40'-1"	20	STR.													AS503E	40'-1"	20	STR.													
AS504E	8'-1"	92	25	2'-1"	1'-6"	3 3/4"	2 1/2"									AS504E	8'-1"	92	25	2'-1"	1'-6"	3 3/4"	2 1/2"									
AS505E	3'-1 3/4"	76	11	1'-8 3/4"	1'-5"	1'-0"										AS505E	3'-1 3/4"	76	11	1'-8 3/4"	1'-5"	1'-0"										
AS506E	6'-2 1/2"	168	4		2'-7"	1'-0 1/2"	2'-7"									AS506E	6'-2 1/2"	168	4		2'-7"	1'-0 1/2"	2'-7"									
AS507E	6'-5 1/2"	16	4		2'-7"	1'-3 1/2"	2'-7"									AS507E	6'-5 1/2"	16	4		2'-7"	1'-3 1/2"	2'-7"									
AS801E	17'-8"	182	STR.													AS801E	17'-8"	182	STR.													
AS802E	4'-0"	24	STR.													AS802E	4'-0"	24	STR.													
AS803E	7'-0"	168	STR.													AS803E	7'-0"	168	STR.													
MS501E	9'-1"	80	STR.													MS501E	9'-1"	80	STR.													
MS502E	18'-8"	104	STR.													MS502E	18'-8"	104	STR.													
MS601E	9'-9"	80	14	8"	9'-1"		6"									MS601E	9'-9"	80	14	8"	9'-1"		6"									
PA501E	7'-6 3/8"	602	28	2'-9 1/4"	3"	1 5/8"	2 3/4"	2'-9 1/2"	3 1/8"	5 1/8"		3 1/2"				PA501E	7'-6 3/8"	602	28	2'-9 1/4"	3"	1 5/8"	2 3/4"	2'-9 1/2"	3 1/8"	5 1/8"		3 1/2"				
PA502E	5'-0"	358	43	1'-1/8"	7"	9 1/8"	1'-6"	1"	9"	7"	3"	10"				PA502E	5'-0"	358	43	1'-1/8"	7"	9 1/8"	1'-6"	1"	9"	7"	3"	10"				
PA503E	6'-2 1/8"	244	43	1'-1/8"	7"	9 1/8"	2'-1"	1"	9"	1'-2"	3"	10"				PA503E	6'-2 1/8"	244	43	1'-1/8"	7"	9 1/8"	2'-1"	1"	9"	1'-2"	3"	10"				
PA701E	38'-8"	8	STR.													PA701E	38'-8"	8	STR.													
PA702E	45'-0"	16	STR.													PA702E	45'-0"	16	STR.													
PA703E	17'-8"	16	STR.													PA703E	17'-8"	16	STR.													
PA704E	18'-8"	16	STR.													PA704E	18'-8"	16	STR.													
PA705E	1'-8"	16	STR.													PA705E	1'-8"	16	STR.													
PA801E	31'-10"	8	STR.													PA801E	31'-10"	8	STR.													
PA802E	50'-0"	16	STR.													PA802E	50'-0"	16	STR.													
PA803E	17'-8"	16	STR.													PA803E	17'-8"	16	STR.													
PA804E	18'-8"	16	STR.													PA804E	18'-8"	16	STR.													
PA805E	1'-8"	16	STR.													PA805E	1'-8"	16	STR.													
M401E	7'-2"	16	4	3'-4"	6"	3'-4"										M401E	7'-2"	16	4	3'-4"	6"	3'-4"										
M402E	10'-4"	64	5	8"	4'-3"	6"	4'-3"	8"								M402E	10'-4"	64	5	8"	4'-3"	6"	4'-3"	8"								
M501E	8'-1"	64	STR.													M501E	8'-1"	64	STR.													
M502E	3'-2"	128	STR.													M502E	3'-2"	128	STR.													
M503E	5'-0"	16	STR.													M503E	5'-0"	16	STR.													

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NOT FOR BIDDING

AUGUST 2015





SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-507-1	464+55.41	42.00' LT	SM-1-507-1	464+55.41	47.00' LT
SP-1-507-2	464+55.41	42.00' RT	SM-1-507-2	464+55.41	47.00' RT
SP-1-507-3	465+92.25	42.00' RT	SM-1-507-3	465+92.25	47.00' RT
SP-1-507-4	465+92.25	42.00' LT	SM-1-507-4	465+92.25	47.00' LT

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SETTLEMENT PLATFORM  
N. T. S.

**NOTES:**

1. THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF THE EXISTING GROUND.
2. READINGS ON THE SETTLEMENT PLATFORMS SHALL BE MADE AFTER THE INITIAL INSTALLATION OF THE RISER AND CASING PIPES AND INSTALLATION RECORD SHEETS ARE APPROVED BY THE ENGINEER AND PRIOR TO FILL PLACEMENT. DURING FILL PLACEMENT, READINGS ON ALL SETTLEMENT PLATFORMS SHALL BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL, INSTALL SETTLEMENT MONUMENTS IF INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SUCCESSIVE READINGS OF EACH DEVICE HAS RECORDED LESS THAN OR EQUAL TO 0.1 INCH, THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN 5 FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF THIRTY (30) DAY INTERVALS FOR THE NEXT SIX (6) MONTHS OR AS DIRECTED BY THE ENGINEER.

**CROSS REFERENCE NOTE:**

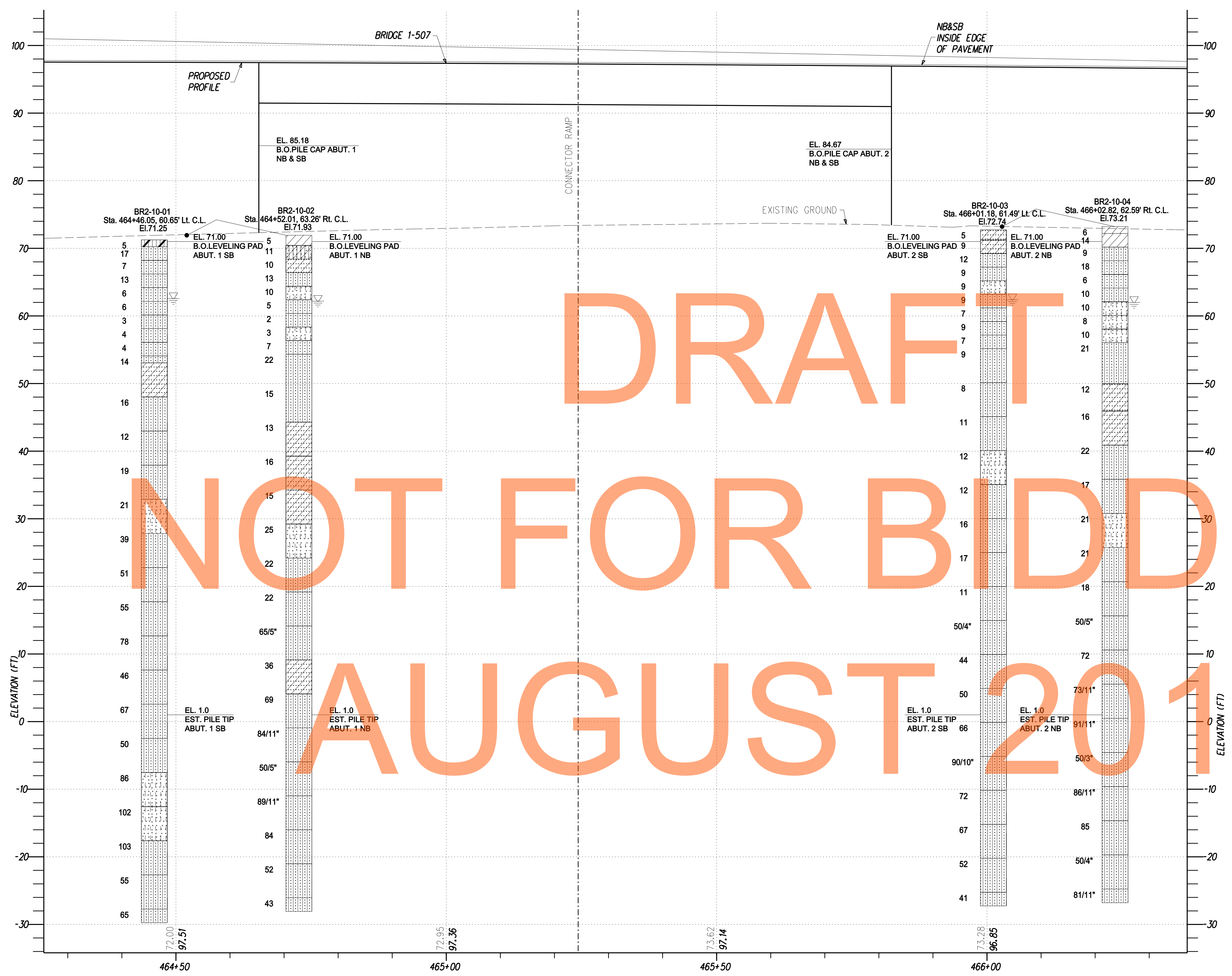
1. FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-507 PE-1.

ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	LT
COUNTY	CHECKED BY:	ML
NEW CASTLE		

1-507 DT-2
SHEET NO.
665
TOTAL SHTS.
1256

J:\BRIDGE\_HIGHWAYS\9040\_DELDOT\_301\STRUCTURE\STR\_SHEETS\BR2-10\_-\_1-507\B00\BR210.DGN



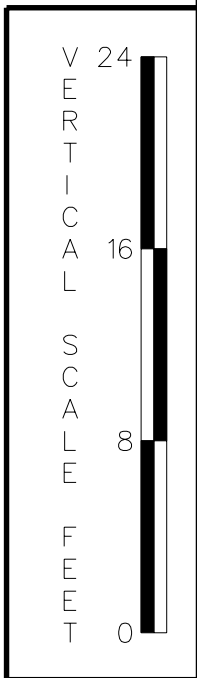
**KEY TO SYMBOLS**

SYMBOL DESCRIPTION	
<b>STRATA SYMBOLS</b>	
	SILTY LOW PLASTICITY CLAY
	SILTY SAND
	CLAYEY SAND
	POORLY GRADED SAND WITH SILT
	LOW PLASTICITY CLAY
	POORLY GRADED CLAYEY SILTY SAND
<b>MISC. SYMBOLS</b>	
	WATER TABLE DURING DRILLING

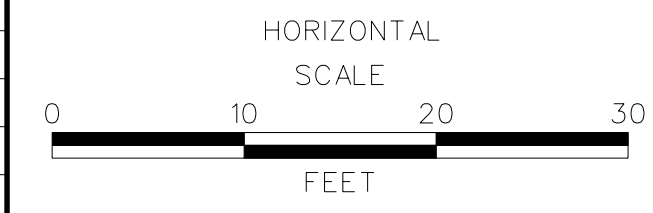
DRAFT

NOT FOR BIDDING

AUGUST 2015



ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	<b>1-507N&amp;S</b>
T200911303	DESIGNED BY:	ZH
COUNTY	CHECKED BY:	RDB
NEW CASTLE		