

**PROJECT NOTES:**

- LOCATION  
PROPOSED NEW STRUCTURE CARRYING US 301 SOUTH BOUND OVER SCOTT RUN IN NEW CASTLE COUNTY, DELAWARE.
- ELEVATIONS  
VERTICAL DATUM IS REFERENCED TO NAVD 88.
- DESIGN CRITERIA AND SPECIFICATIONS  
2007 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, INCLUDING 2008 AND 2009 INTERIM REVISIONS AND THE 2005 DELDOT BRIDGE DESIGN MANUAL, INCLUDING LATEST REVISIONS.  
  
PROVIDE MATERIAL AND PERFORM WORK IN ACCORDANCE TO THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND CONSTRUCTION DETAILS AND CONTRACT SPECIAL PROVISIONS.
- LOADING  
HL-93 AND DELAWARE LEGAL LOAD FOR LIVE LOAD WITH PROVISIONS FOR FUTURE 2" WEARING SURFACE AND 15 LBS/FT<sup>2</sup> FOR USE OF STEEL BRIDGE DECK FORMS WHICH REMAIN IN PLACE.
- CONCRETE  
ALL CONCRETE PROPERTIES SHALL BE IN ACCORDANCE WITH SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.  
  
CLASS A - ABUTMENTS, STEMS, BACKWALLS, PIERS AND PARAPETS (f'c = 4,500 PSI).  
  
CLASS B - PIER FOOTINGS (f'c = 3,000 PSI).  
  
CLASS D - CONCRETE DECK SLAB, MOMENT SLAB, SLEEPER SLAB AND APPROACH SLAB (f'c = 4,500 PSI).  
  
ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.
- REINFORCING STEEL  
ALL REINFORCING STEEL SHALL BE AASHTO M 31 (ASTM A 615), GRADE 60 AND UNLESS SPECIFIED OTHERWISE ON THE PLANS SHALL BE PROTECTED WITH FUSION BONDED EPOXY CONFORMING TO AASHTO M 284 (ASTM A 775) AND DENOTED WITH A SUFFIX 'E' IN THE BAR MARKS.  
  
MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE:  
  
FOUNDATION ELEMENTS: 3"  
DECK SLABS: 2 1/2" TOP OF SLAB (INCLUDES 1/2" INTEGRAL WEARING SURFACE)  
1" BOTTOM OF SLAB WHEN STAY-IN-PLACE FORMS ARE USED  
COLUMNS: 2" CLEAR TO TIES  
PIER CAPS: 2" TO STIRRUPS  
2" TO MAIN STEEL AT ENDS  
  
ALL REINFORCING STEEL HAS BEEN DETAILED FOR A MAXIMUM LENGTH OF 60 FT. ALL SPLICES NOT SHOWN, SHALL BE LAPPED AS PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- STRUCTURAL STEEL  
ALL STRUCTURAL STEEL SHALL BE AASHTO M 270 (ASTM A 709), GRADE 50W, INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M 270 FOR PRIMARY LOAD CARRYING MEMBERS UNDER TENSILE STRESS.
- ELASTOMERIC BEARINGS  
ELASTOMERIC BEARINGS SHALL CONFORM TO AASHTO M 251. ELASTOMER SHALL BE 60 DUROMETER. SHIMS SHALL BE 11 GAGE MILD STEEL CONFORMING TO ASTM A 36. FOR ADDITIONAL REQUIREMENTS FOR THE ELASTOMERIC BEARINGS, SEE DWG. NOS. BB-01 AND BB-02.
- PRESTRESSED CONCRETE PILES  
ALL PRESTRESSED CONCRETE PILES SHALL CONFORM TO THE REQUIREMENTS OF SECTION 618 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, EXCEPT THAT SEVEN WIRE LOW RELAXATION STRANDS SHALL BE USED.
- STEEL H-PILES  
SEE NOTE 1 ON DWG. NO. PL-02 REGARDING STEEL H-PILE ALTERNATIVE. STEEL H-PILES SHALL BE AASHTO M 270 (ASTM A 709), GRADE 50.
- FOUNDATION REQUIREMENTS  
FOR FOUNDATION REQUIREMENTS, SEE DWG. NO. PL-01. DELDOT STANDARD SPECIFICATION 619.11 (A) (6) SHALL BE MODIFIED BY REFERENCE TO SPECIAL PROVISIONS 619519 & 619539.
- CONSTRUCTION JOINTS  
KEYED CONSTRUCTION JOINTS SHALL BE 2" X 4" UNLESS NOTED OTHERWISE. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A 3/4" V-NOTCH UNLESS NOTED OTHERWISE.
- RIPRAP  
RIPRAP SHALL CONFORM WITH THE REQUIREMENTS OF SECTION 712 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. GEOTEXTILE SHALL CONFORM TO SECTION 713 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. RIPRAP SHALL BE RECESSED, CHOKED, TOPSOILED AND SEEDED IN CONFORMANCE WITH THE ENVIRONMENTAL COMPLIANCE NOTES ON DWG. NO. EC-04.
- MISCELLANEOUS  
ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE GRADED BACK TO THE ORIGINAL EXISTING GRADE, TOPSOILED, SEEDED AND MULCHED. PAYMENT SHALL BE INCIDENTAL TO THE CONTRACT. AS DIRECTED BY THE ENGINEER, ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATION RESULTING FROM UNAUTHORIZED ACTIVITIES OUTSIDE THE LIMIT OF CONSTRUCTION SHALL BE TOPSOILED, SEEDED, AND MULCHED AT THE CONTRACTOR'S EXPENSE.
- STABILIZING STRUCTURAL EXCAVATIONS  
IN LIEU OF A 2:1 SLOPE, THE CONTRACTOR MAY USE SHORING FOR EXCAVATIONS EXCEEDING 5 FEET IN HEIGHT. THE COST OF THE SHORING SHALL BE INCIDENTAL TO ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES.

- HYDRAULIC DATA  
DRAINAGE AREA = 2.15 SQ. MI. (1376 AC.)  
25-YR FLOOD ELEVATION = 28.54  
DESIGN FREQUENCY = 50 YEARS  
DESIGN DISCHARGE (Q50) = 1145 CFS  
DESIGN HEADWATER ELEVATION = 28.89 FT  
DESIGN VELOCITY, CHANNEL = 4.37 FPS  
AVAILABLE FLOW AREA OF PROPOSED OPENING = 6210 SF  
  
NOTE: SEE REPORT TITLED, "HYDROLOGIC AND HYDRAULIC ANALYSES OF SCOTT RUN WATERSHED AND PROPOSED BRIDGES 1-1, 1-2, 1-4 NB & SB, 1-6, AND 1-7 NB & SB FOR US 301 EXTENSION," DATED MAY 2011.
- SCOUR DATA  
THE PROPOSED STRUCTURE HAS BEEN ANALYZED FOR THE EFFECTS OF SCOUR IN ACCORDANCE WITH FHWA HEC-18 - 'EVALUATING SCOUR AT BRIDGES' AND HEC-23 - 'BRIDGE SCOUR AND STREAM INSTABILITY COUNTERMEASURES.' SCOUR COUNTERMEASURES HAVE BEEN DESIGNED FOR THE WORSE CASE OF THE OVERTOPPING FLOOD OR THE 500-YR FLOOD EVENT.  
  
DESIGN STORM EVENT = 100 YEAR FLOOD  
DESIGN STORM DISCHARGE = 1335 CFS  
DESIGN STORM VELOCITY, CHANNEL = 4.69 FPS  
DESIGN STORM MAXIMUM DEPTH OF FLOW = 5.99 FT  
DESIGN STORM HEADWATER ELEVATION = 29.24 FT  
DESIGN STORM SCOUR DEPTH = 2.92 FT  
  
CHECK STORM EVENT = 500 YEAR FLOOD  
CHECK STORM DISCHARGE = 1750 CFS  
CHECK STORM VELOCITY, CHANNEL = 5.35 FPS  
CHECK STORM MAXIMUM DEPTH OF FLOW = 6.60 FT  
CHECK STORM HEADWATER ELEVATION = 29.84 FT  
CHECK STORM SCOUR DEPTH = 3.31 FT
- LOAD RATINGS  
FOR LOAD AND RESISTANCE FACTOR RATING, SEE BRIDGE NO. 1-460S LOAD RATING SUMMARY ON THIS SHEET.
- UTILITIES  
BEFORE BEGINNING WORK, THE CONTRACTOR SHALL GIVE NOTIFICATION BY TELEPHONE BY CALLING "MISS UTILITY" AT 1-800-282-8555 A MINIMUM OF 48 HOURS PRIOR TO START OF WORK. VERIFY AND LOCATE ALL UTILITIES PRIOR TO STARTING WORK.  
  
COORDINATE THE REQUIREMENTS FOR PROTECTION OF ANY UTILITY WITH THE UTILITY OWNER PRIOR TO STARTING WORK.

CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED. ANY DAMAGE INCURRED TO THESE UTILITIES OR ANY OTHER UTILITIES, SHOWN OR NOT SHOWN ON THE PLANS, DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE APPROPRIATE UTILITY COMPANY. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS, OR LIABILITY FOR ACCURACY OF TYPE, SIZE AND LOCATION OF ANY UTILITY.  
  
THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY SUPPORTING, PROTECTING, OR RELOCATING ANY UTILITIES DURING CONSTRUCTION. WHERE NECESSARY, THE COST FOR THIS WORK WILL BE INCIDENTAL TO THE CONTRACT.

**LOAD RATING SUMMARY**

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TON)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.12	N/A	INTERIOR GIRDER	200	SHEAR
HL-93 TANDEM (INVENTORY)	1.33	N/A	INTERIOR GIRDER	200	SHEAR
HL-93 TRUCK TRAIN (INVENTORY)	1.16	N/A	INTERIOR GIRDER	200	FLEXURE
HS-20 (INVENTORY)	2.08	74.82	INTERIOR GIRDER	200	SHEAR
HL-93 TRUCK (OPERATING)	1.46	N/A	INTERIOR GIRDER	200	SHEAR
HL-93 TANDEM (OPERATING)	1.73	N/A	INTERIOR GIRDER	200	SHEAR
HL-93 TRUCK TRAIN (OPERATING)	1.50	N/A	INTERIOR GIRDER	200	FLEXURE
HS-20 (OPERATING)	2.69	96.99	INTERIOR GIRDER	200	SHEAR
DE S220 & LEGAL-LANE (LEGAL)	3.78	75.57	INTERIOR GIRDER	200	SHEAR
DE S335 & LEGAL-LANE (LEGAL)	2.16	75.62	INTERIOR GIRDER	200	SHEAR
DE S437 & LEGAL-LANE (LEGAL)	2.07	75.79	INTERIOR GIRDER	200	SHEAR
DE S330 & LEGAL-LANE (LEGAL)	2.61	78.23	INTERIOR GIRDER	200	SHEAR
DE S435 & LEGAL-LANE (LEGAL)	2.21	77.42	INTERIOR GIRDER	200	SHEAR
DE S540 & LEGAL-LANE (LEGAL)	1.97	78.80	INTERIOR GIRDER	200	SHEAR

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

**BRIDGE NO. 1-460S INDEX OF SHEETS**

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459	AB-14	ABUTMENT A REINFORCEMENT DETAILS - 2
460	AB-15	ABUTMENT A REINFORCEMENT DETAILS - 3
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466	PR-03	PIER REINFORCEMENT DETAILS - 2
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472	BM-02	CROSS FRAME DETAILS
473	BM-03	STIFFENER, SEAT, AND CONNECTION PLATE DETAILS
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476	FR-01	FRAMING PLAN
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494	RB-03	APPROACH SLAB AND MOMENT SLAB REINFORCEMENT LIST
495	BO-01	BORING PROFILE - 1
496	BO-02	BORING PROFILE - 2

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ADDENDUMS / REVISIONS

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**PROJECT NOTES**

**BR1-7S  
PN-01**

SHEET NO.	438
TOTAL SHTS.	875

NOT FOR BIDDING

DRAFT

AUGUST 2015

ITEM NO.	ITEM NAME	UNITS	QUANTITY
202000	Excavation and Embankment	C.Y.	461
202505	Settlement Platform	Each	4
202518	Settlement Monument	Each	4
207000	Excavation and Backfill for Structures	C.Y.	300
302011	Delaware No. 3 Stone	TON	94
302012	Delaware No. 57 Stone	TON	326
602003	Portland Cement Concrete Masonry, Abutment Footing, Class A	C.Y.	75
602006	Portland Cement Concrete Masonry, Pier Footing, Class B	C.Y.	149
602007	Portland Cement Concrete Masonry, Pier Above Footing, Class A	C.Y.	125
602013	Portland Cement Concrete Masonry, Superstructure, Class D	C.Y.	560
602014	Portland Cement Concrete Masonry, Approach Slab, Class D	C.Y.	104
602015	Portland Cement Concrete Masonry, Abutment Above Footing, Class A	C.Y.	40
602017	Portland Cement Concrete Masonry, Parapet, Class A	C.Y.	123
602018	Portland Cement Concrete Masonry, Class D	C.Y.	67
602772	Mechanically Stabilized Earth Walls	L.S.	1
603000	Bar Reinforcement	LBS	41,500
604000	Bar Reinforcement, Epoxy Coated	LBS	212,000
605001	Steel Structures	LBS	854,000
605512	Prefabricated Expansion Joint System, 4"	L.F.	90
605581	Elastomeric Bridge Bearing Pad	Each	5
605639	TFE Stainless Steel Structural Bearings	Each	10
618062	Steel H Piles, HP 14 x 73	L.F.	3,152
618065	Steel H Test Piles, HP 14 x 73	L.F.	558
618081	Furnish Precast Prestressed Concrete Piles, 14" x 14"	L.F.	2,870
618091	Furnish Precast Prestressed Concrete Test Piles, 14" x 14"	L.F.	508
619042	Install Steel H Piles, HP 14 x 73	L.F.	3,152
619045	Install Steel H Test Piles, HP 14 x 73	L.F.	558
619061	Install Precast Prestressed Concrete Piles, 14" x 14"	L.F.	2,870
619067	Install Precast Prestressed Concrete Test Piles, 14" x 14"	L.F.	508
619501	Production Pile Restrike	Each	6
619502	Test Pile Restrike	EA.DY.	1
619519	Dynamic Pile Testing by Contractor	Each	17
619539	Signal Matching Analysis by Contractor	Each	17
712021	Riprap, R-5	TON	565
713003	Geotextiles, Riprap	S.Y.	450
733001	Topsoiling, 4" Depth	S.Y.	700
734531	Streambank Seed Mix	S.Y.	345
735535	Soil Retention Blanket Mulch, Type 5	S.Y.	345
760015	Rumble Strips, Concrete, Shallow Depth	L.F.	955

**NOTES:**

- THE QUANTITY SUMMARY INCLUDES QUANTITIES FOR BRIDGE NO. 1-460S STANDARD ITEMS, PILE ALTERNATIVE 1 (14" SQUARE PRESTRESSED CONCRETE PILES) ITEMS AND PILE ALTERNATIVE 2 (HP 14X73 PILES) ITEMS. ITEM NOS. 618081, 618091, 619061 AND 619067 ARE APPLICABLE TO PILE ALTERNATIVE 1. ITEM NOS. 618062, 618065, 619042 AND 619045 ARE APPLICABLE TO PILE ALTERNATIVE 2. ALL OTHER ITEMS ARE STANDARD ITEMS. SEE PILE NOTE 1 ON DWG. NO. PL-02 FOR ADDITIONAL INFORMATION REGARDING PILE ALTERNATIVES.
- ITEM 202000 IS REPRESENTED AS FOLLOWS:  
ON DRAWING EW-05:  
o 234 CY UNDER TYPE C MATERIAL REQUIRED, "TYPE C BACKFILL FOR STRUCTURES"; AND  
o 74 CY UNDER TYPE F MATERIAL REQUIRED, "PLUS EMBANKMENT FOR STRUCTURES".  
ON DRAWING EW-06:  
o 99 CY UNDER TYPE C MATERIAL REQUIRED, "TYPE C BACKFILL FOR STRUCTURES"; AND  
o 54 CY UNDER TYPE F MATERIAL REQUIRED, "PLUS EMBANKMENT FOR STRUCTURES".
- ITEM 207000 IS REPRESENTED ON DRAWING EW-05 UNDER EXCAVATION AVAILABLE FOR EMBANKMENT, "PLUS EXCAVATION AND BACKFILLING FOR STRUCTURES".

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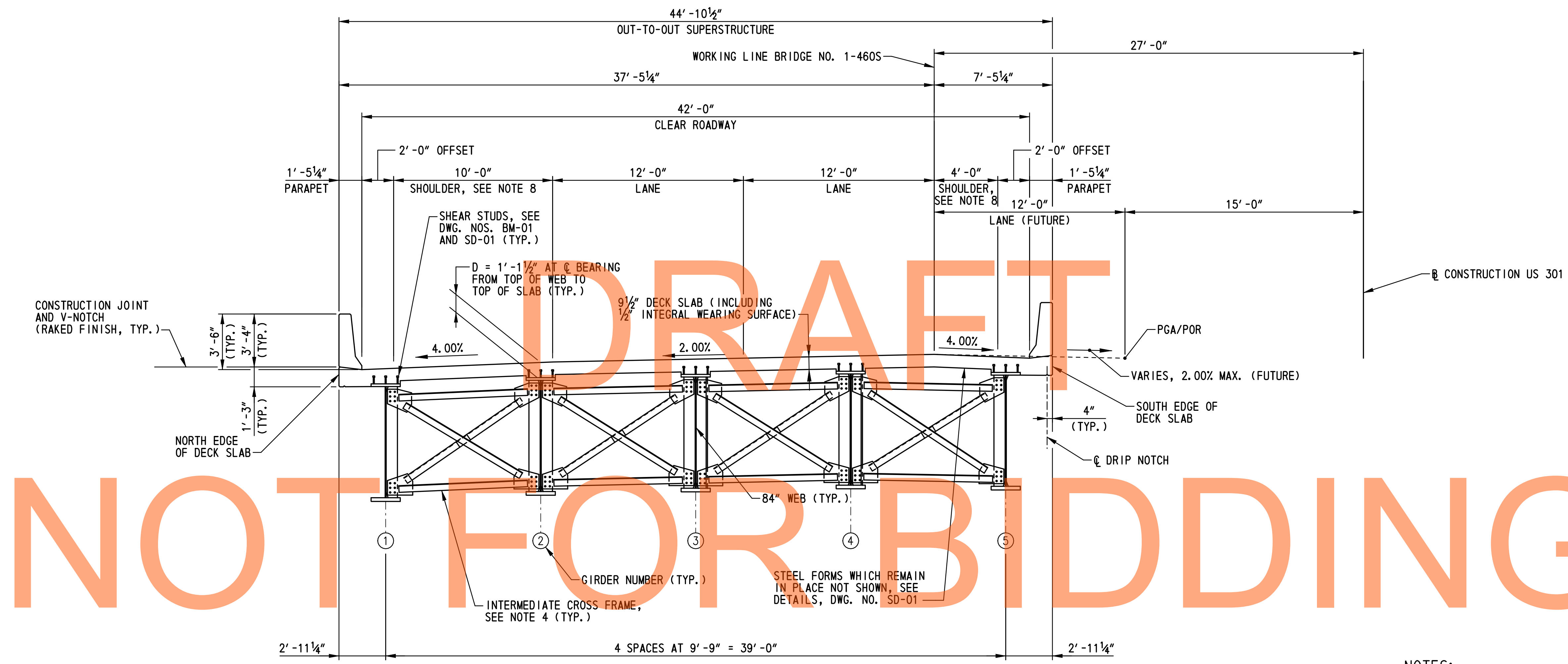
ADDENDUMS / REVISIONS

US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	S.E.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**QUANTITY SUMMARY**

<b>BR1-7S QS-01</b>
SHEET NO.
439
TOTAL SHTS.
875



NOT FOR BIDDING

AUGUST 2015

SUPERSTRUCTURE TYPICAL SECTION  
SCALE: 1/4" = 1'-0"

- NOTES:**
1. TYPICAL SECTION SHOWN LOOKING STATIONS AHEAD.
  2. FOR DECK SLAB AND PARAPET REINFORCEMENT DETAILS, SEE DWG. NOS. DK-01 THRU DK-04.
  3. FOR FRAMING PLAN, SEE DWG. NO. FR-01.
  4. FOR ABUTMENT, PIER AND INTERMEDIATE CROSS FRAME DETAILS, SEE DWG. NO. BM-02.
  5. FOR GIRDER ELEVATION, SEE DWG. NO. BM-01.
  6. FOR STAY-IN-PLACE FORM DETAILS, SEE DWG. NO. SD-01.
  7. PARAPETS SHALL NOT BE SLIP FORMED.
  8. RUMBLE STRIPS SHALL BE LOCATED IN THE DECK SLAB, APPROACH SLABS AND MOMENT SLABS AT EACH SHOULDER FROM STA. 806+07.90 TO STA. 810+86.10. FOR RUMBLE STRIP DETAIL, SEE DWG. NO. DT-01. RUMBLE STRIPS SHALL BE PAID UNDER ITEM 760015, RUMBLE STRIPS, CONCRETE, SHALLOW DEPTH. RUMBLE STRIPS SHALL BE COATED WITH A HIGH MOLECULAR WEIGHT METHACRYLATE SEALER, SEE SPECIAL PROVISION ITEM 602501. THE SEALER SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN A 1'-8" WIDE STRIP, CENTERED ON THE RUMBLE STRIPS, CONTINUOUSLY FROM STA. 806+07.00 TO STA. 810+87.00. COST OF HIGH MOLECULAR WEIGHT METHACRYLATE SEALER SHALL BE INCIDENTAL TO ITEM 760015, RUMBLE STRIPS, CONCRETE, SHALLOW DEPTH.
  9. REFLECTORS SHALL BE INSTALLED ALONG EACH PARAPET (ROADWAY PAY ITEM). SEE DWG. NO. DT-17 FOR DETAILS.

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ADDENDUMS / REVISIONS	

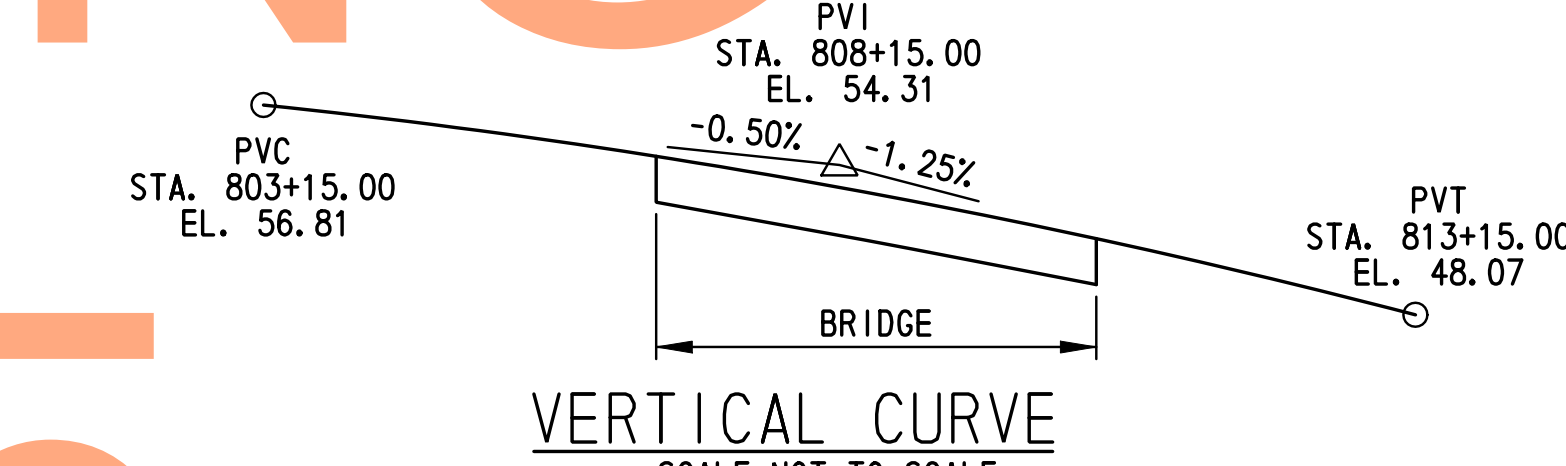
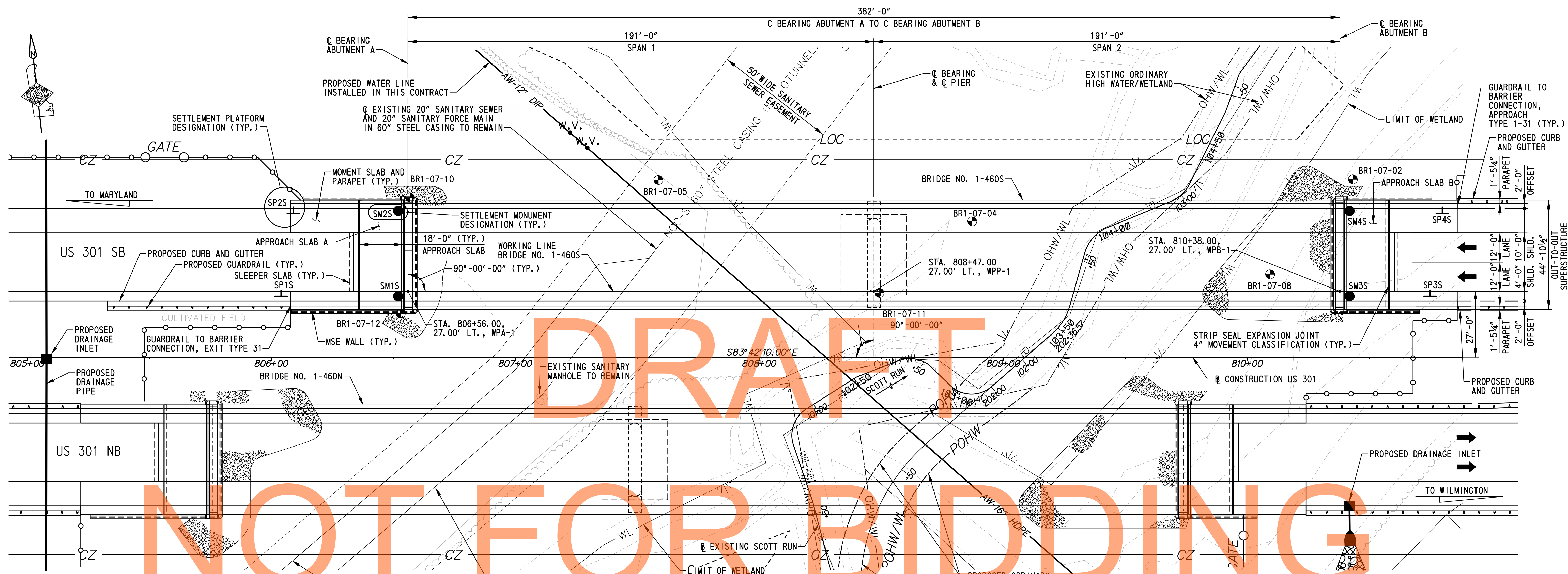
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

<b>SUPERSTRUCTURE TYPICAL SECTION</b>	SHEET NO.	440
	TOTAL SHTS.	875

**BR1-7S  
TS-01**



**NOTE:**  
1. RECESS, CHOKE, TOPSOIL, SEED AND MULCH RIPRAP IN ACCORDANCE WITH THE ENVIRONMENTAL COMPLIANCE NOTES ON DRAWING NO. EC-04.  
2. FOR MAINTENANCE OF STREAMFLOW, SEE DRAWING NOS. MS-07 THRU MS-10.

**TEST BORINGS**

BORING DESIGNATION	STATION	OFFSET
BR1-07-02	810+43.35	72.95' LT.
BR1-07-04	808+87.30	55.73' LT.
BR1-07-05	807+58.66	72.72' LT.
BR1-07-08	810+09.42	33.99' LT.
BR1-07-10	806+56.83	65.51' LT.
BR1-07-11	808+49.29	26.38' LT.
BR1-07-12	806+53.04	17.80' LT.

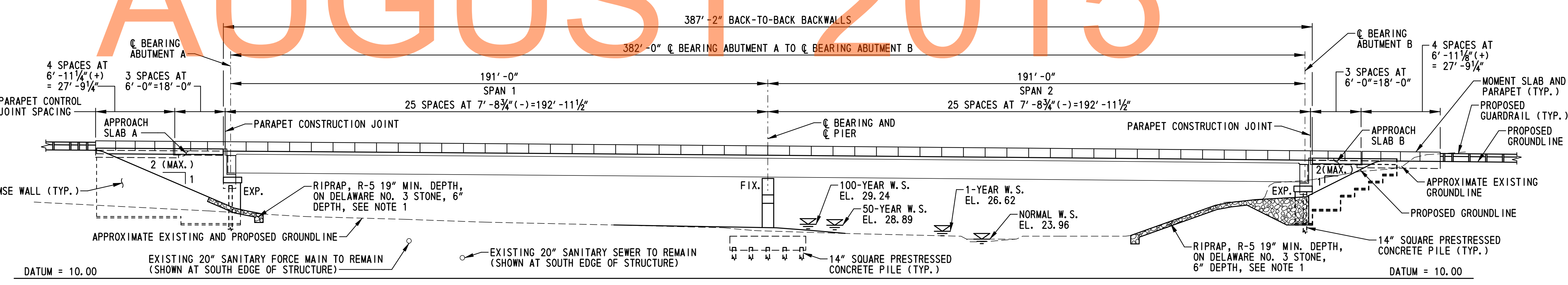
**SETTLEMENT PLATFORMS**

DESIGNATION	STATION	OFFSET
SP1S	806+04.00	25.00' LT.
SP2S	806+09.00	59.00' LT.
SP3S	810+75.00	25.00' LT.
SP4S	810+80.00	59.00' LT.

**SETTLEMENT MONUMENTS**

DESIGNATION	STATION	OFFSET
SM1S	806+52	25.00' LT.
SM2S	806+52	60.00' LT.
SM3S	810+42	25.00' LT.
SM4S	810+42	60.00' LT.

FOR SETTLEMENT MONUMENT AND SETTLEMENT PLATFORM DETAILS, SEE DWG. NO. FT-01.  
FOR SETTLEMENT MONITORING REQUIREMENTS, SEE THE SPECIAL PROVISIONS.



**ADDENDUMS / REVISIONS**

NO.	DESCRIPTION

SCALE: AS NOTED

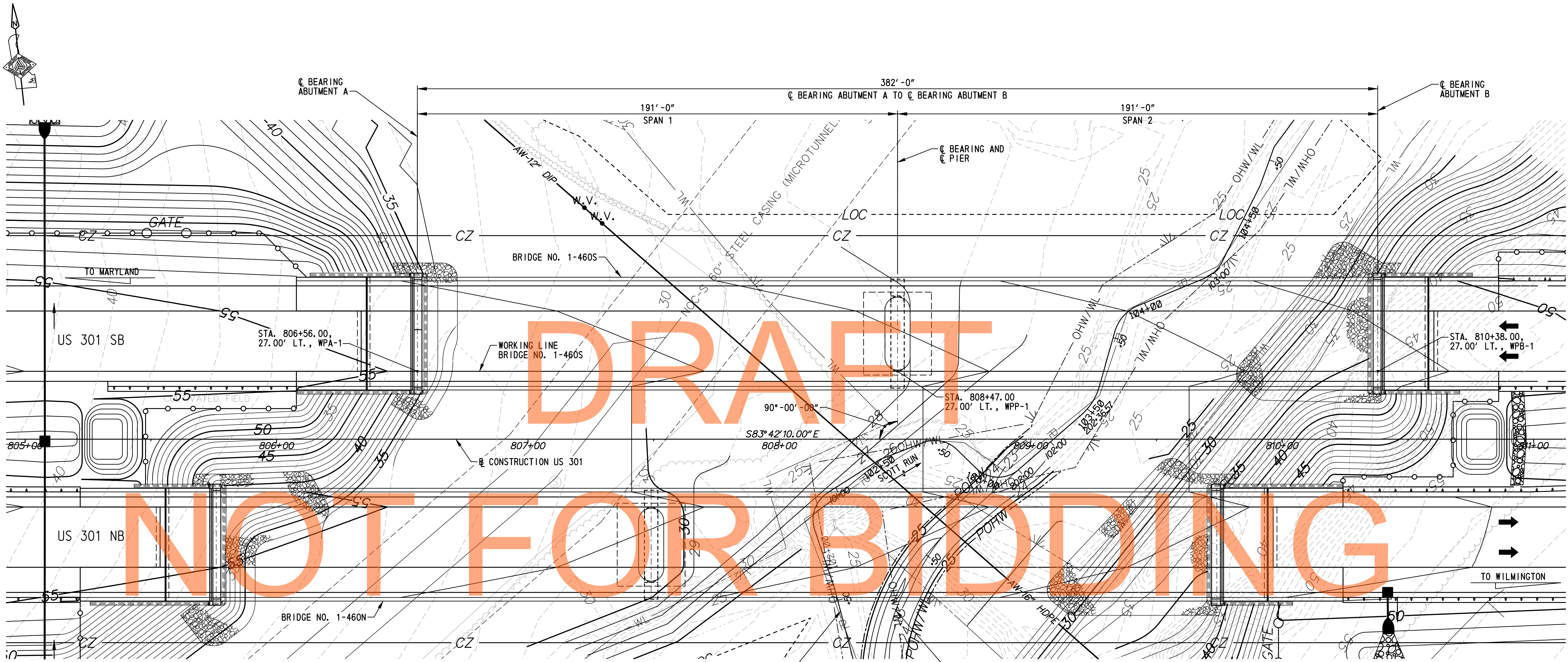
**US 301, SR 896 TO SR 1**

CONTRACT	T200911308
COUNTY	NEW CASTLE
BRIDGE NO.	<b>1-460S</b>
DESIGNED BY:	M.P.U.
CHECKED BY:	P.S.D.

**GENERAL PLAN AND ELEVATION**

SHEET NO.	441
TOTAL SHTS.	875

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DRAFT  
NOT FOR BIDDING  
AUGUST 2015

GRADING PLAN  
SCALE: 1"=20'-0"

**NOTE:**  
FOR ADDITIONAL INFORMATION, SEE DWG. NO. PE-01.

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ADDENDUMS / REVISIONS	

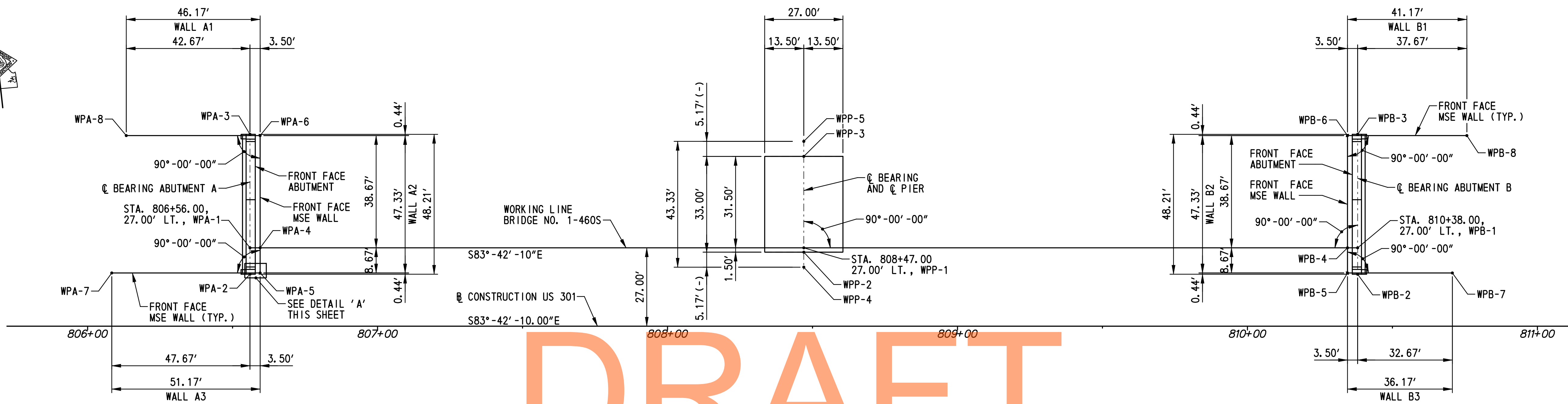
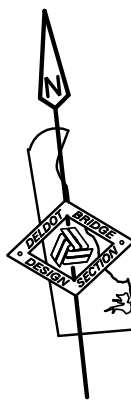
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: A.D.D. CHECKED BY: P.S.D.

<b>GRADING PLAN</b>	SHEET NO. 442
	TOTAL SHTS. 875

<b>BRI-7S GR-01</b>
SHEET NO. 442
TOTAL SHTS. 875

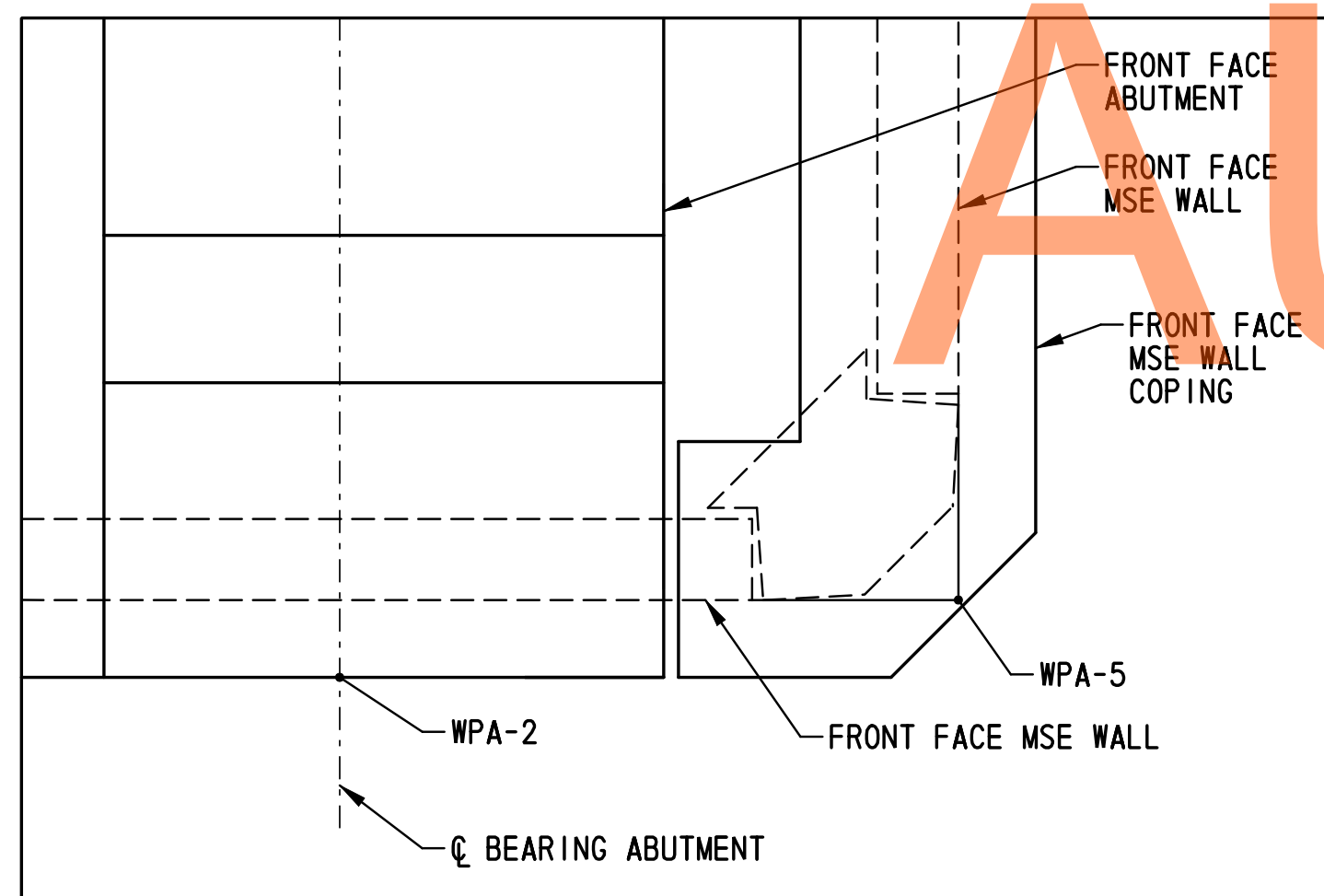
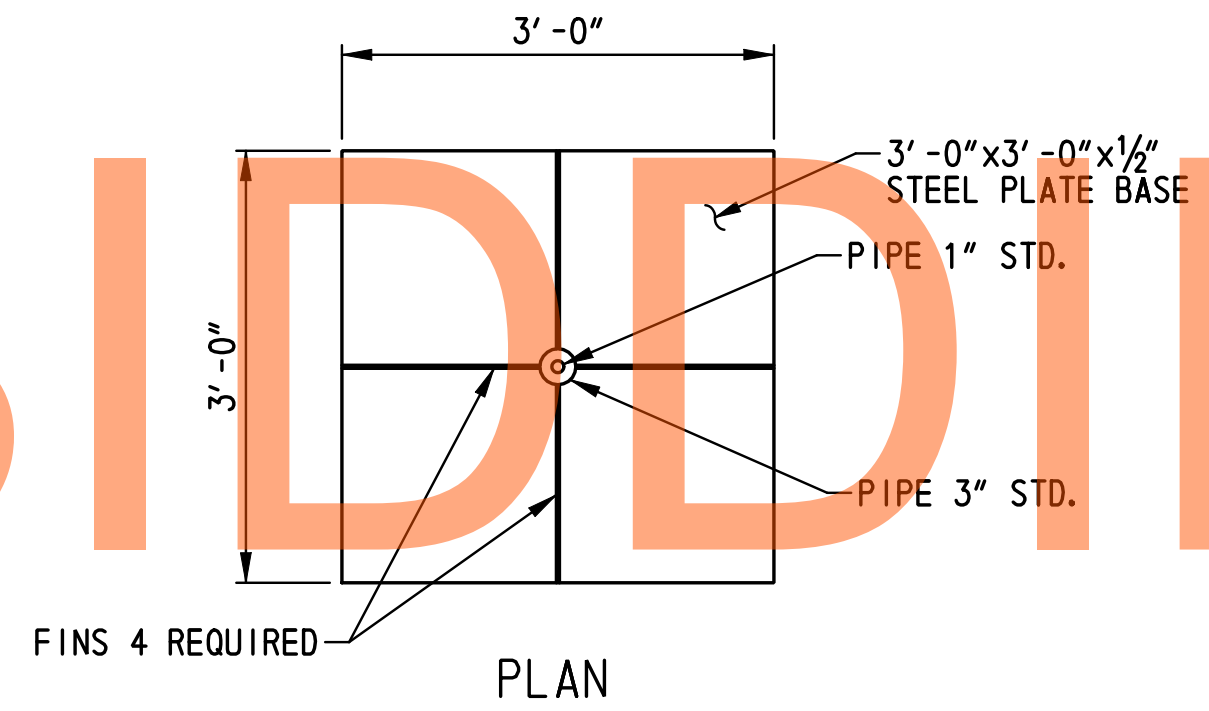


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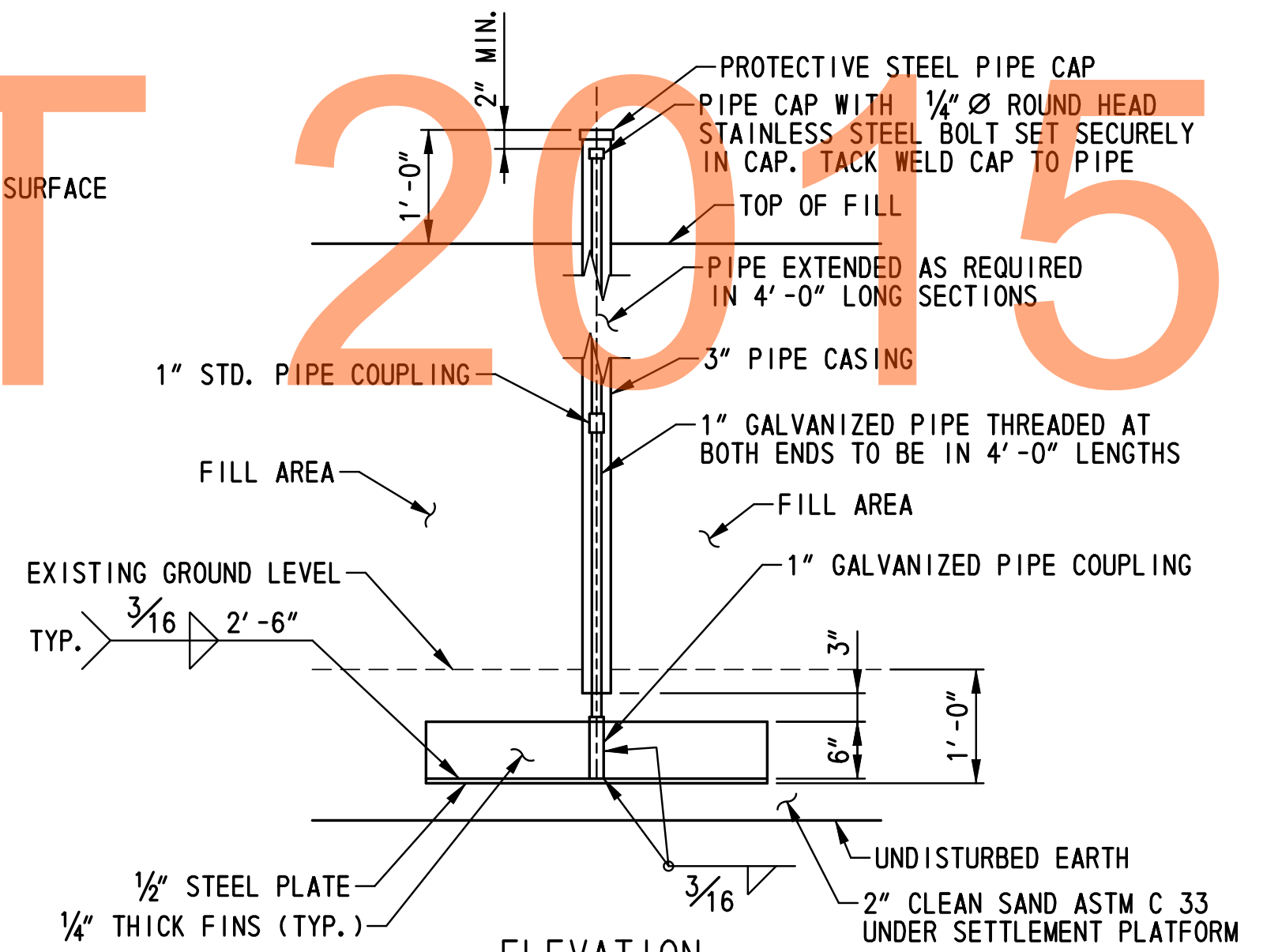
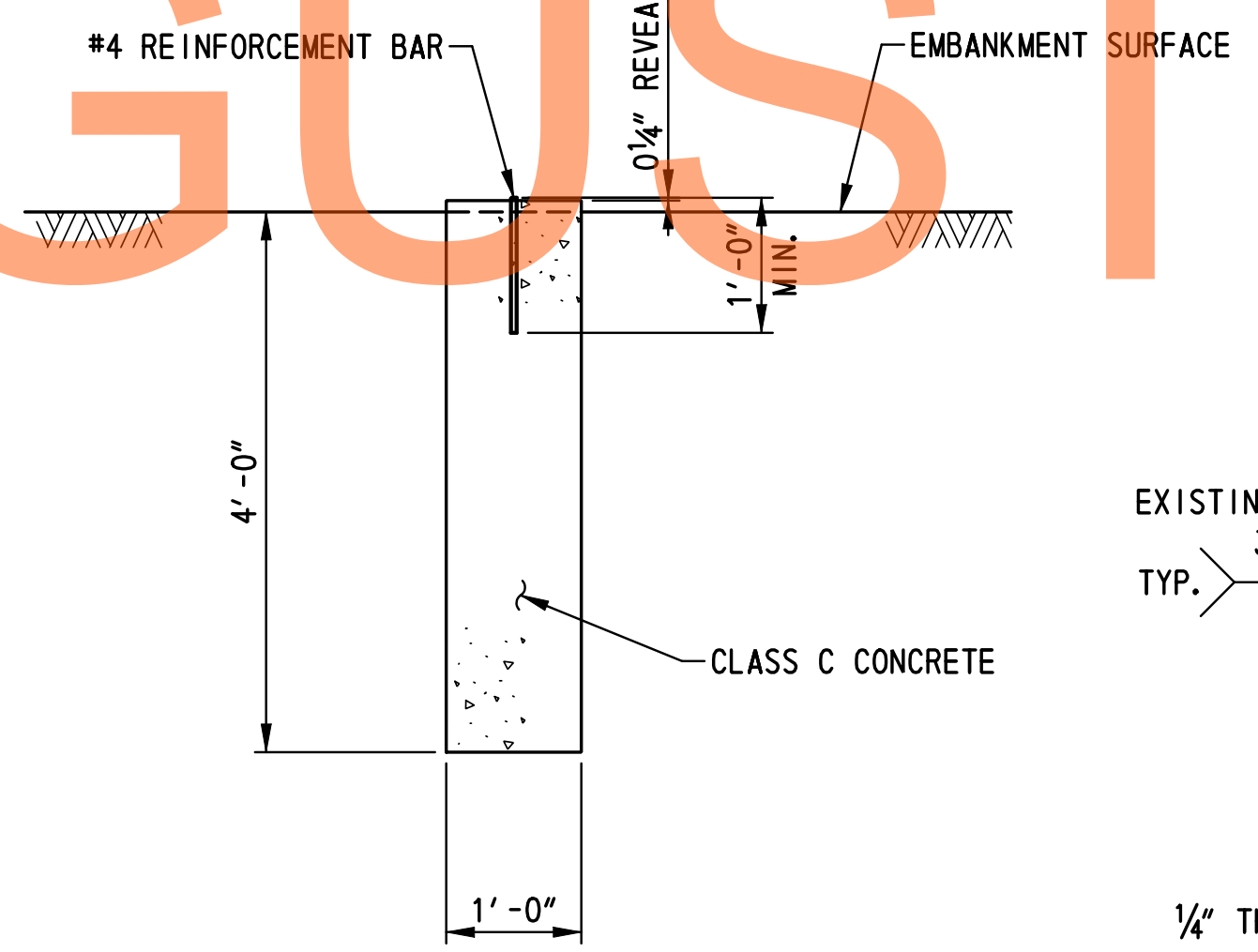
GEOMETRIC AND FOOTING LAYOUT PLAN  
SCALE: 1"=20'-0"

NOT FOR BIDDING

- NOTES:**
- FOR PILE LAYOUT PLANS, SEE DWG. NO. PL-01.
  - FOR SETTLEMENT MONUMENT AND SETTLEMENT PLATFORM LOCATIONS, SEE DWG. NO. PE-01.



- NOTES:**
- WPA-5 SHOWN, WPA-6, WPB-5 AND WPB-6 SIMILAR.



WORKING POINT	COORDINATES	
	NORTHING	EASTING
WPA-1	555389.8179	585644.9479
WPA-2	555380.7686	585643.9493
WPA-3	555428.6860	585649.2371
WPA-4	555389.8179	585644.9479
WPA-5	555380.8196	585647.4762
WPA-6	555427.8672	585652.6680
WPA-7	555386.4318	585596.6183
WPA-8	555432.9311	585606.7799
WPP-1	555368.8679	585834.7955
WPP-2	555367.3768	585834.6310
WPP-3	555400.1777	585838.2506
WPP-4	555362.2413	585834.0643
WPP-5	555405.3132	585838.8173
WPB-1	555347.9179	586024.6431
WPB-2	555338.8685	586023.6445
WPB-3	555386.3510	586028.8842
WPB-4	555347.9179	586024.6431
WPB-5	555339.6873	586020.2136
WPB-6	555386.7349	586025.4054
WPB-7	555335.7203	586056.1620
WPB-8	555382.2195	586066.3237

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ADDENDUMS / REVISIONS	

SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: A.D.D. CHECKED BY: P.S.D.

**GEOMETRIC AND  
FOOTING LAYOUT PLAN**

<b>BRI-7S FT-01</b>
SHEET NO. 443
TOTAL SHTS. 875

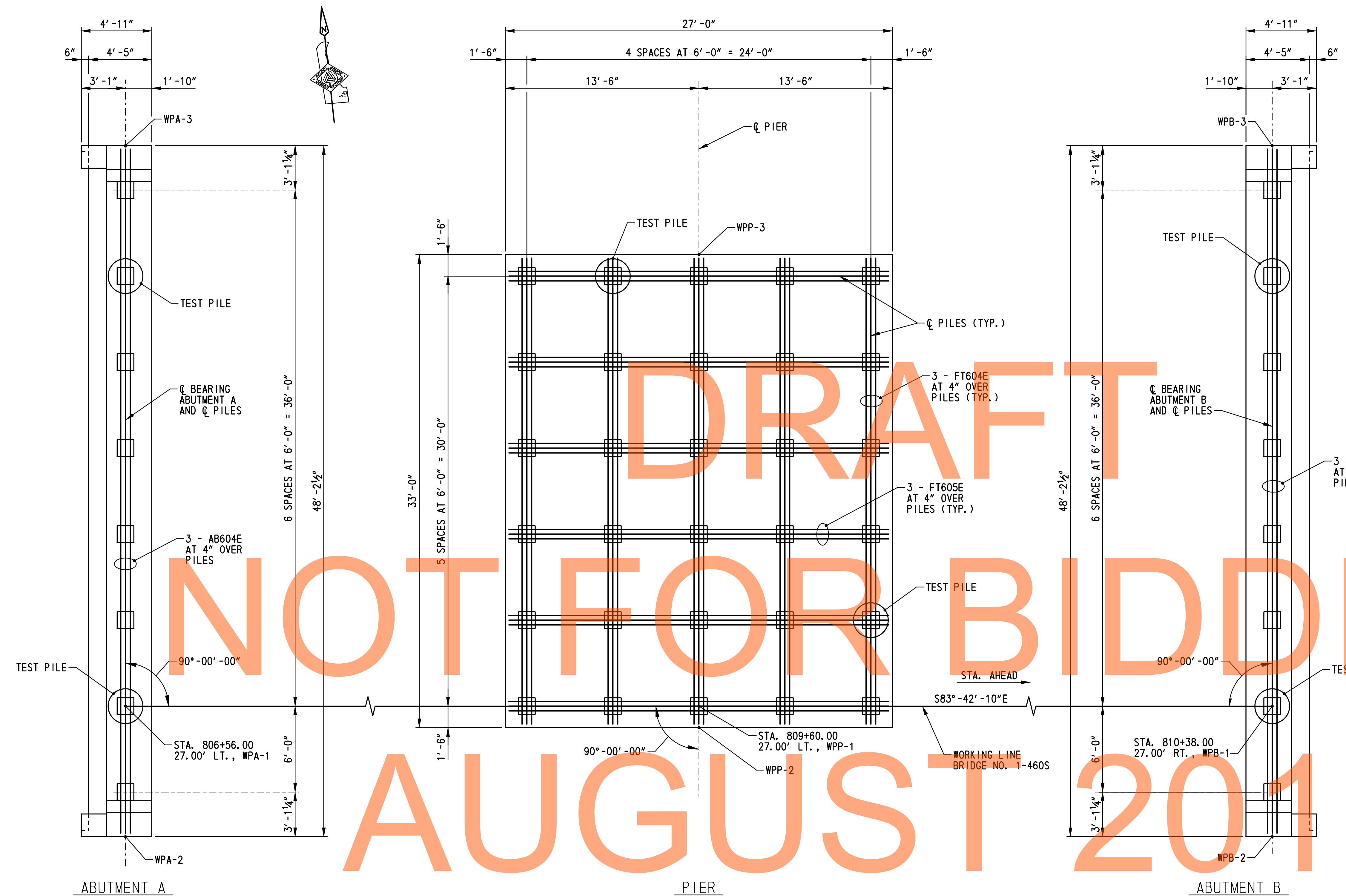
ABUTMENT A PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	14" SQUARE PRESTRESSED CONCRETE OR HP 14x73
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	45,000 LB-FT TO 75,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

PIER PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	14" SQUARE PRESTRESSED CONCRETE OR HP 14x73
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	45,000 LB-FT TO 75,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	

ABUTMENT B PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	14" SQUARE PRESTRESSED CONCRETE OR HP 14x73
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
PILE HAMMER ENERGY:	45,000 LB-FT TO 75,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	



DRAFT

NOT FOR BIDDING

AUGUST 2015

- NOTE:**
- FOR PILE NOTES AND DETAILS, SEE DWG. NO. PL-02.
- PILE INSTALLATION SEQUENCE OF CONSTRUCTION AT ABUTMENTS:**
- PILE CASING SHALL BE INSTALLED DURING INSTALLATION OF THE MSE WALL SELECT BACKFILL AND REINFORCEMENT TO THE BOTTOM ELEVATION OF THE ABUTMENT STEMS.
  - CONSTRUCT MSE WALLS, INCLUDING WIRE FACE MSE WALLS AT REAR FACES OF ABUTMENT STEMS AND BACKWALLS, TO THE REQUIRED ELEVATIONS.
  - AFTER COMPLETION OF THE SETTLEMENT WAITING PERIOD AS DETERMINED BY THE ENGINEER THE PILES SHALL BE SET AND CENTERED IN THE CASINGS. A 60-DAY SETTLEMENT WAITING PERIOD IS ANTICIPATED AT ABUTMENT A AND ABUTMENT B. SETTLEMENT IS CONSIDERED TO BE COMPLETE AFTER TWO CONSECUTIVE SETTLEMENT PLATFORM READINGS THAT ARE WITHIN 0.01 FEET FOR ALL SETTLEMENT PLATFORMS. SEE SPECIAL PROVISIONS FOR SETTLEMENT PLATFORM AND MONUMENT REQUIREMENTS.
  - PILES SHALL BE INSTALLED TO THE MINIMUM TIP ELEVATION AND REQUIRED NOMINAL RESISTANCE SPECIFIED. FOR PILE RESTRIKE REQUIREMENTS SEE SPECIAL PROVISIONS.
  - AFTER PILE INSTALLATION/ DRIVING IS COMPLETE THE CASINGS SHALL BE FILLED WITH SAND.
  - TEST PILES MAY BE DRIVEN PRIOR TO PLACING EMBANKMENT AND SURCHARGE MATERIAL. RESTRIKES OF THESE TEST PILES SHALL BE PERFORMED PRIOR TO PLACING EMBANKMENT IN ACCORDANCE WITH ITEM 619502-TEST PILE RESTRIKE. AFTER THE EMBANKMENT HAS BEEN PLACED, SETTLEMENT HAS BEEN ACHIEVED AND THE SUBSTRUCTURE HAS BEEN RELEASED BY THE ENGINEER, THE TEST PILE SHALL BE ACTING AS A PRODUCTION PILE AND IT SHALL BE RE-STRUCK PRIOR TO PLACING ANY OTHER PRODUCTION PILES WITH PAYMENT UNDER ITEM 619501 - PRODUCTION PILE RESTRIKE. ONCE THE TEST PILE HAS BEEN ACCEPTED, THE REMAINING PRODUCTION PILES MAY BE INSTALLED.

- PILE LEGEND:**
- DENOTES PLUMB 14" SQUARE PRESTRESSED CONCRETE OR HP 14x73 STEEL PILE
  - DENOTES LOCATION OF 14" SQUARE PRESTRESSED CONCRETE OR HP 14x73 STEEL PILE AND DYNAMIC PILE TESTING.

PILE TIP DATA					
SUBSTRUCTURE UNIT	DESIGN DATA			ACTUAL FIELD DATA	
	MINIMUM TIP ELEVATION	14" SQ. PCP ESTIMATED TIP ELEVATION	HP14x73 ESTIMATED TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
ABUTMENT A	-30.0	-34.0	-46.0		
PIER	-40.0	-48.0	-54.0		
ABUTMENT B	-40.0	-41.0	-48.0		

PILE LAYOUT PLAN  
SCALE: 1/4"=1'-0"

ADDENDUMS / REVISIONS

SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D./M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

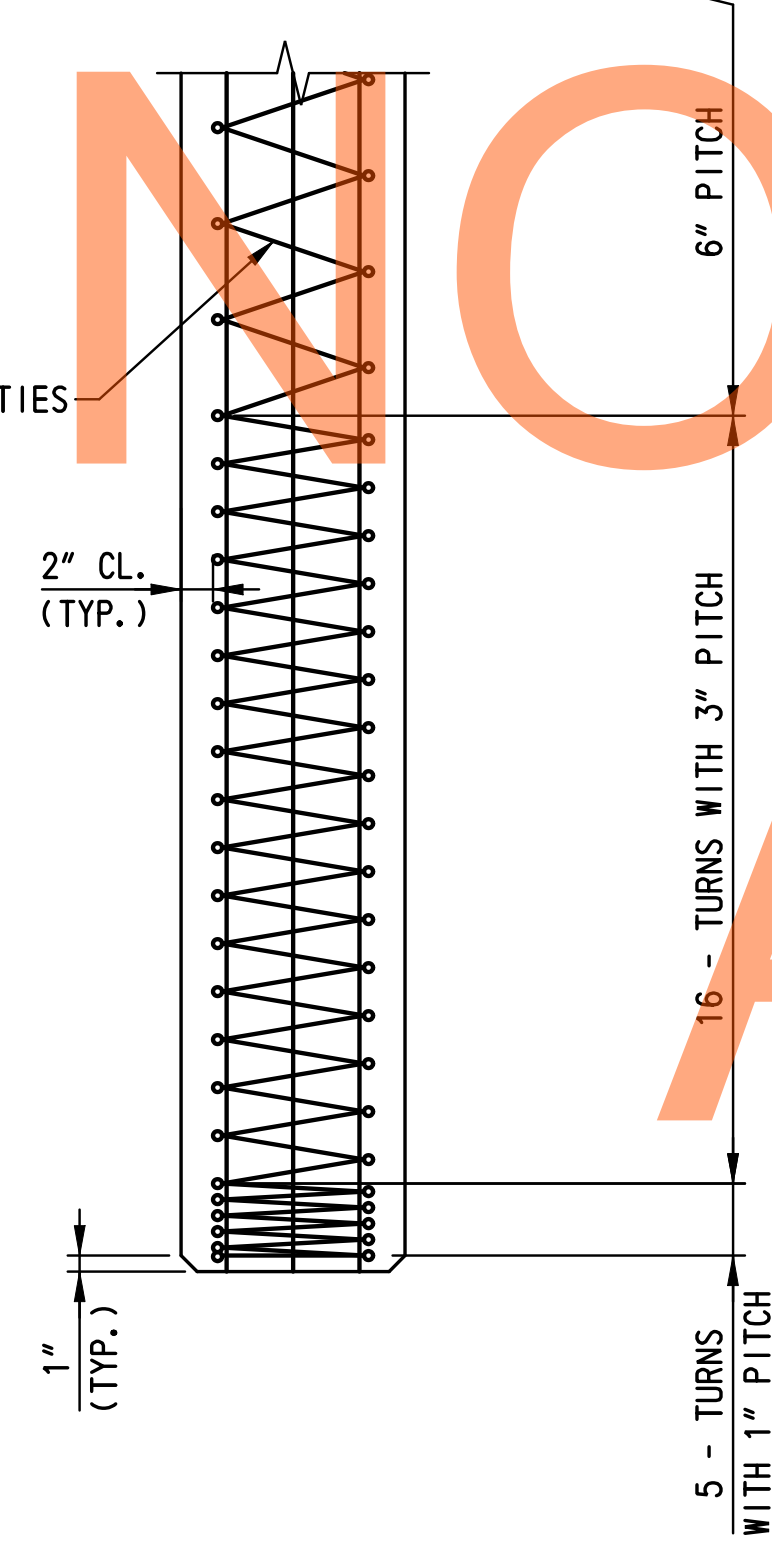
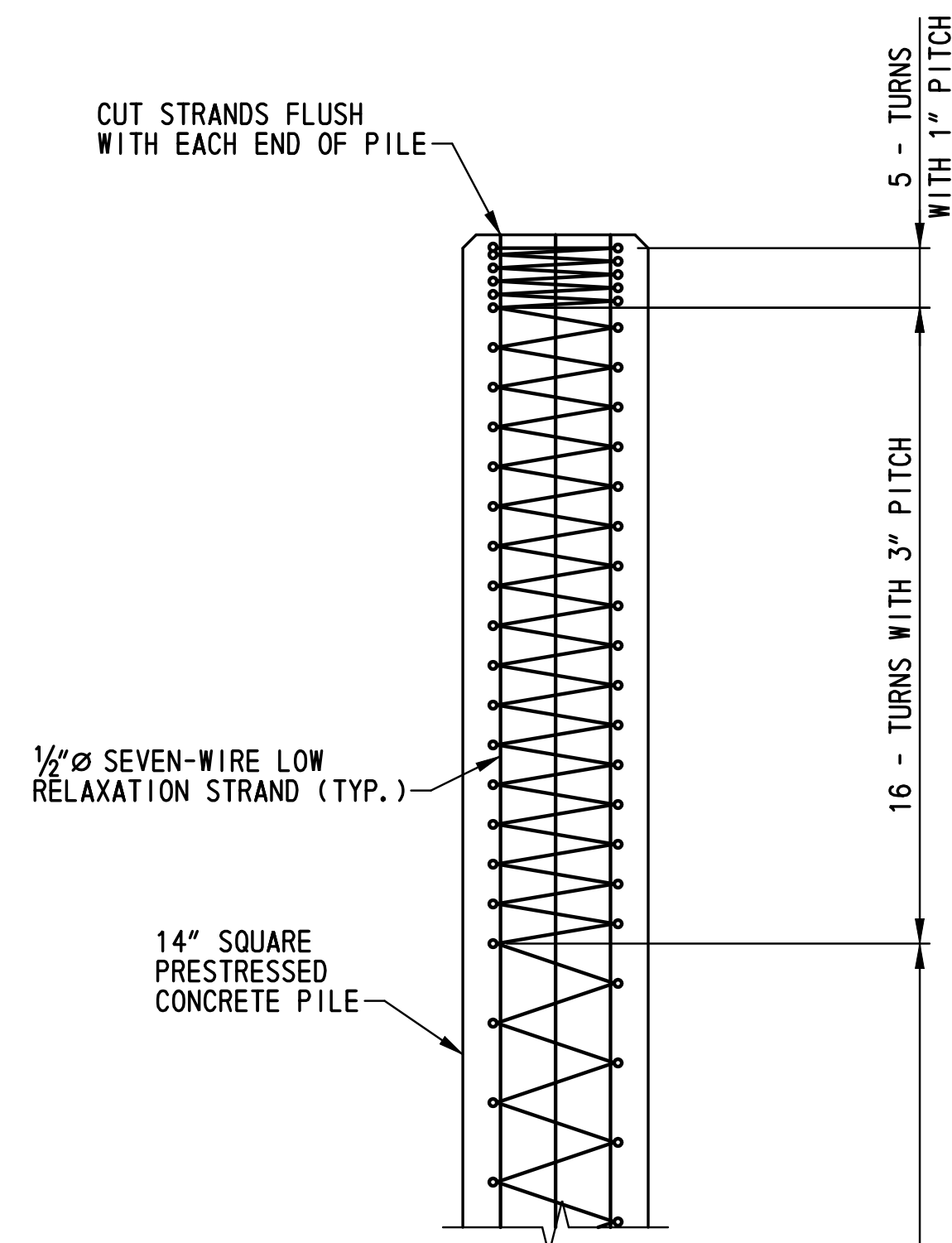
PILE LAYOUT PLAN

<b>BRI-7S PL-01</b>
SHEET NO.
444
TOTAL SHTS.
875

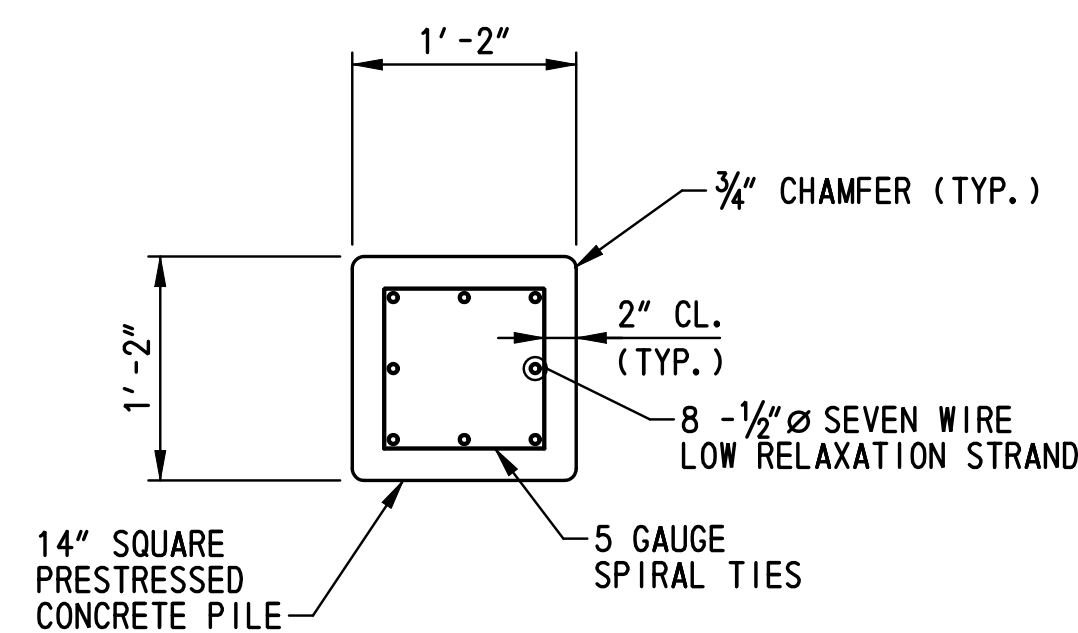
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**PILE NOTES:**

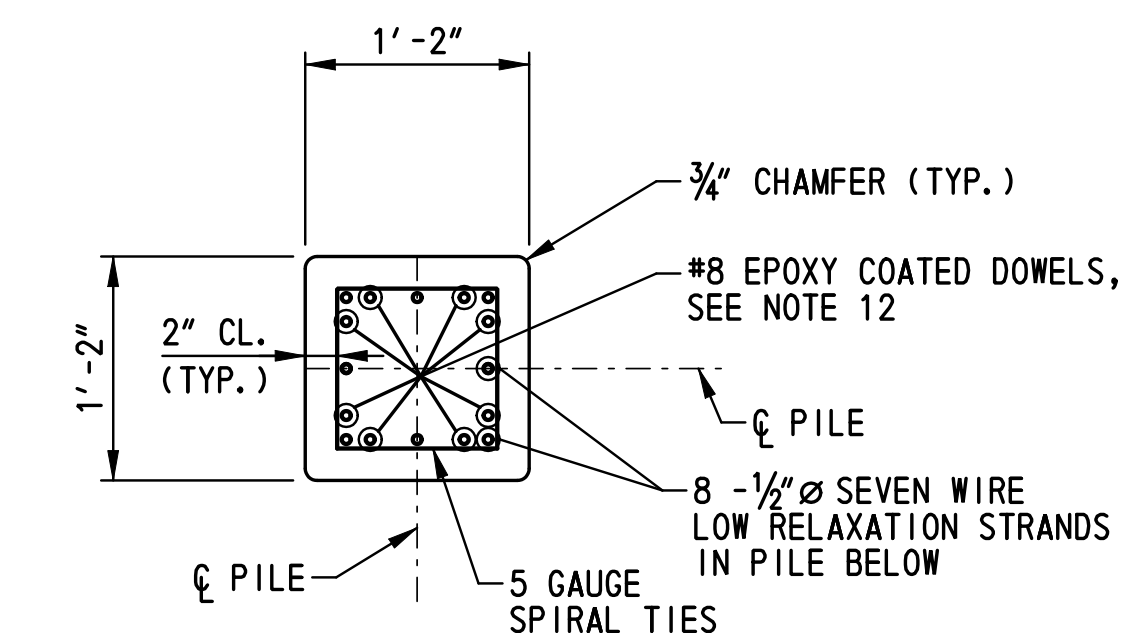
- THE CONTRACTOR HAS THE OPTION TO INSTALL HP 14X73 STEEL PILES (PILE ALTERNATIVE 2) AS AN ALTERNATIVE TO THE 14" SQUARE PRESTRESSED CONCRETE PILES (PILE ALTERNATIVE 1) SHOWN. THE HP 14X73 STEEL PILES SHALL BE INSTALLED AT THE SAME LOCATIONS AS THE 14" SQUARE PRESTRESSED PILES AND ORIENTED AS SHOWN ON DWG. NO. PL-02. ONLY ONE TYPE OF PILING MAY BE USED FOR THIS BRIDGE.
  - THE FACTORED RESISTANCE OF THE 14" SQUARE PRESTRESSED CONCRETE AND HP 14X73 STEEL PILING IS 145 TONS. PILES SHALL BE DRIVEN AND TESTED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR DYNAMIC PILE TESTING TO A NOMINAL RESISTANCE OF 225 TONS.
  - PILES SHALL BE DRIVEN TO THE DRIVING CRITERIA DEVELOPED FROM DYNAMIC PILE TESTING AND AS SPECIFIED BY THE ENGINEER TO ACHIEVE A NOMINAL PILE DRIVING RESISTANCE OF 225 TONS AND TO THE SPECIFIED MINIMUM TIP ELEVATION. PILES MEETING THE AFOREMENTIONED CRITERIA WILL BE CONSIDERED SATISFACTORY.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE WAVE EQUATION ANALYSIS AND DYNAMIC PILE TESTING MUST BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE SPECIAL PROVISIONS. UPON COMPLETION OF THE DYNAMIC PILE TESTING, THE CONTRACTOR SHALL SUBMIT A SIGNAL MATCHING ANALYSIS TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
  - ALL TEST PILES SHALL BE 10 FEET LONGER THAN THE PILE LENGTH COMPUTED FROM THE PILE TIP DATA TABLE. PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY THE TEST PILES. DYNAMIC PILE TESTING AND SIGNAL MATCHING ANALYSIS SHALL BE COMPLETED BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIAL PROVISIONS. TEST AND PRODUCTION PILE RESTRIKES WILL BE PAID FOR AS FOLLOWS:
    - ALL TEST PILES WILL BE RESTRIKED 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 RESTRIKES ARE REQUESTED AFTER FIVE WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE, THEN THE TEST PILE RESTRIKE SHALL BE PAID FOR IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
    - IF DIRECTED BY THE ENGINEER TO RESTRIKE A PRODUCTION PILE, THE RESTRIKE OF THE PRODUCTION PILE SHALL BE PAID SEPARATELY UNDER ITEM NO. 619501 - PRODUCTION PILE RESTRIKE.
  - THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC PILE TESTING OF RESTRIKES.
  - SEE DWG. NO. PE-01 FOR SETTLEMENT PLATFORM AND MONUMENT LOCATIONS. 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 3 CALENDAR DAY INTERVALS. AFTER COMPLETION OF THE FILL AND SURCHARGE PLACEMENT, 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 3 CALENDAR DAY INTERVALS. IF THE SETTLEMENT HAS CEASED ON ALL MONITORED SETTLEMENT MONITORING DEVICES IN THE VICINITY OF THE SUBSTRUCTURE UNIT BY CALENDAR DAY 6, THAT IS THREE READINGS, AFTER THE COMPLETION OF THE FILL, SURCHARGE AND SETTLEMENT MONUMENT PLACEMENT, THE SUBSTRUCTURE WILL BE RELEASED BY THE ENGINEER FOR REMOVAL OF THE SURCHARGE AND INSTALLATION OF PRODUCTION PILES WITHIN THREE WORKING DAYS OF RECEIPT OF SETTLEMENT MONITORING RESULTS. AFTER COMPLETION OF THE ABUTMENT AND MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE ABUTMENT SEAT AND EITHER ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US301. AFTER THE CONCRETE ABUTMENTS HAVE BEEN CONSTRUCTED AND THE MSE WALL PANELS HAVE BEEN PLACED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT 6 MONTHS OR AS DIRECTED BY THE ENGINEER. SEE SPECIAL PROVISIONS FOR ADDITIONAL SETTLEMENT MONITORING REQUIREMENTS.
  - FOR PILE SEQUENCE OF CONSTRUCTION AT ABUTMENTS, SEE DWG. NO. PL-01.
  - PROVIDE 1 1/2" DIAMETER PREFORMED HOLES IN PILE HEAD AT THE DOWEL LOCATIONS. DOWELS SHALL BE GROUTED INTO PLACE WITH AN APPROVED EPOXY GROUT. PRIOR TO THE GROUTING PROCEDURE, PREFORMED HOLES SHALL REMAIN PLUGGED TO ENSURE THAT WATER AND FOREIGN MATERIAL DOES NOT ENTER THE PREFORMED HOLES. HOLES SHALL BE GROUTED WHEN THE PILE BUILD-UP IS NOT NEEDED.
  - MINIMUM COMPRESSIVE STRENGTH OF EPOXY GROUT SHALL BE  $f'c=6,000$  PSI.
  - THE COMPRESSIVE STRENGTH OF THE PILE BUILD-UP SHALL BE  $f'c=6,000$  PSI.
  - DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN A 1" CLEAR DISTANCE FROM ALL PRESTRESSING STRANDS IN THE PILE.
- NOTES:**
- FOR ADDITIONAL PILE INFORMATION, SEE DWG. NO. PL-01.
  - PAYMENT FOR FURNISHING AND INSTALLATION OF CASING AND SAND WILL BE INCIDENTAL TO ITEM NO. 602772 - MECHANICALLY STABILIZED EARTH WALLS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
  - THE CAST-IN-PLACE CONCRETE PILE BUILD-UP SHALL BE USED WHERE PILES MUST BE DRIVEN TO AN ELEVATION WHICH RESULTS IN THE TOP OF PILE BEING LOWER THAN THE BOTTOM OF CAP TO ACHIEVE THE REQUIRED NOMINAL RESISTANCE. PILE BUILD-UP WILL BE MEASURED AND PAID FOR IN CONFORMANCE WITH SECTION 618 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.



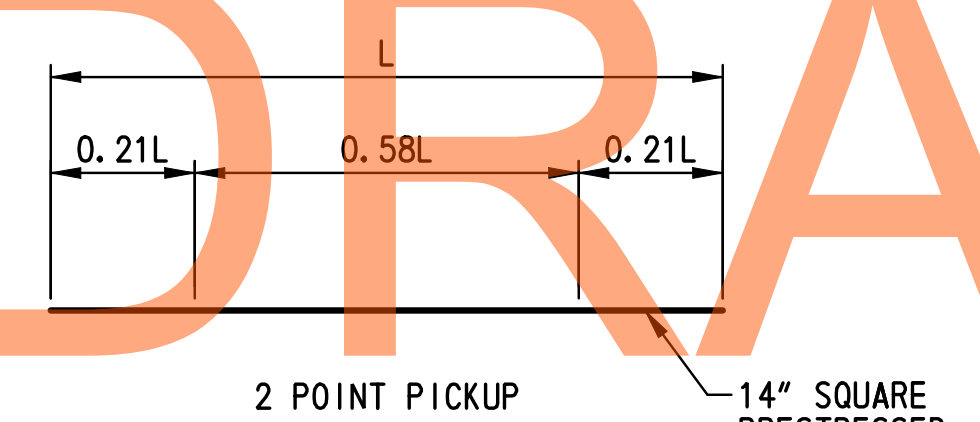
**PILE ELEVATION**  
SCALE: 1"=1'-0"



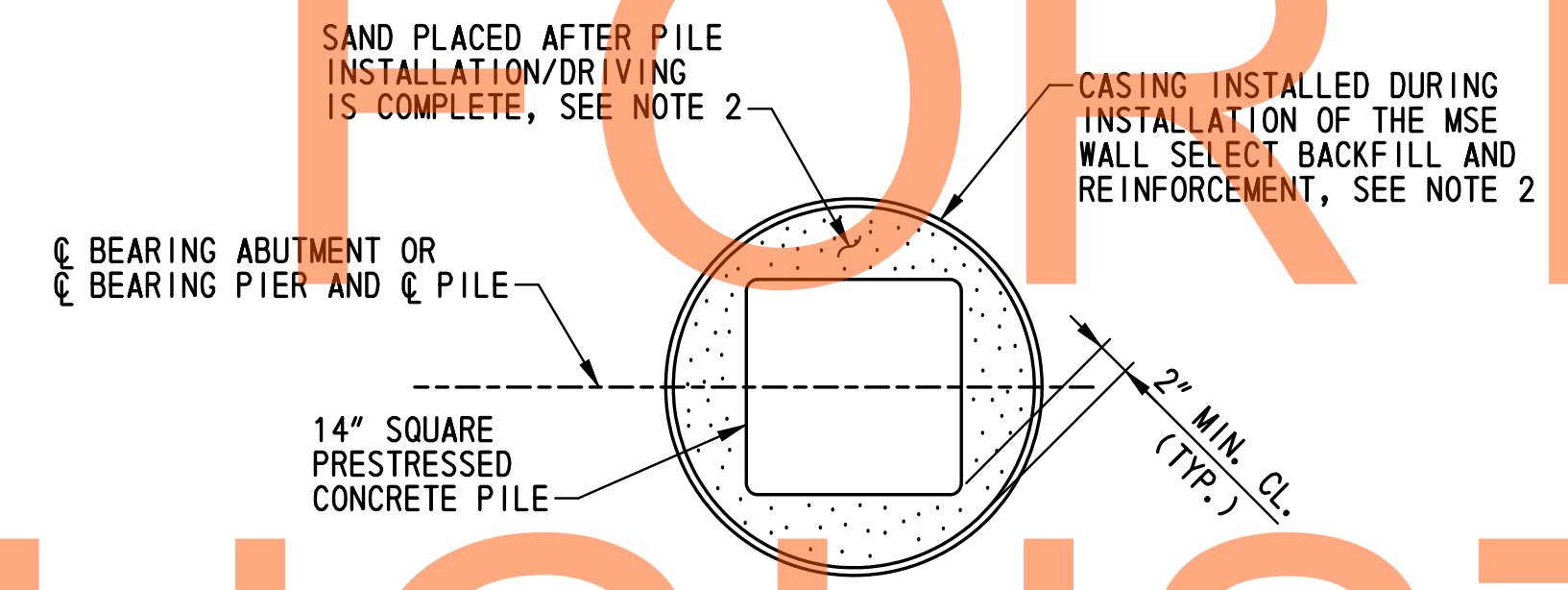
**PILE TYPICAL SECTION**  
SCALE: 1"=1'-0"



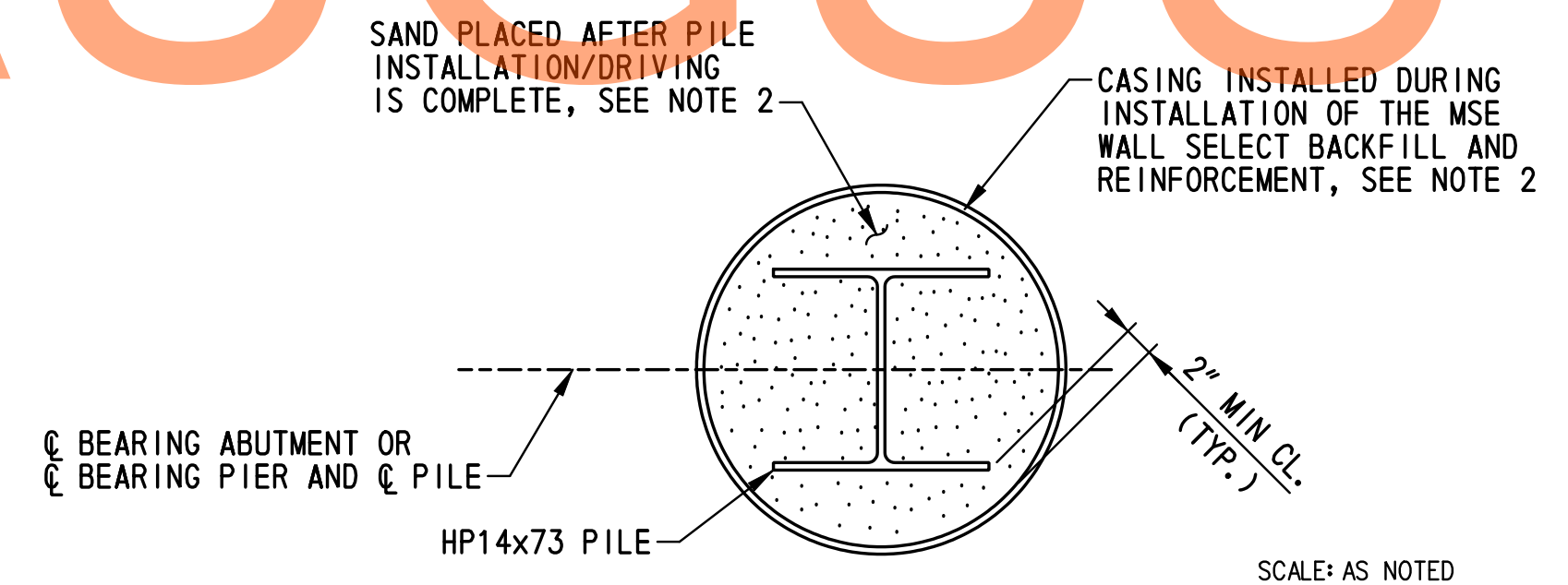
**BUILD-UP TYPICAL SECTION**  
SCALE: 1"=1'-0"



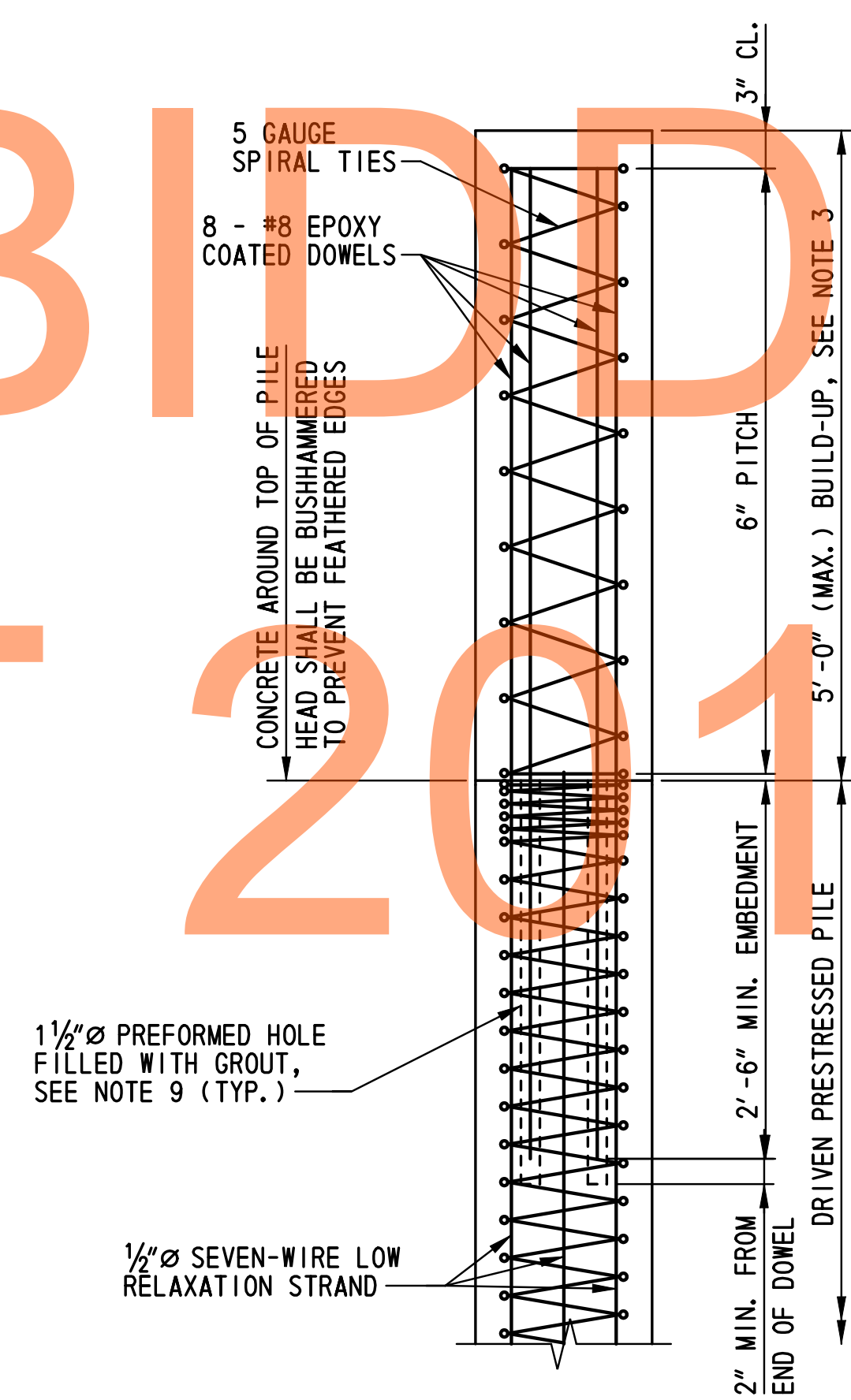
**PILE PICKUP DATA**  
NOT TO SCALE



**PILE CASING DETAIL**  
SCALE: 1"=1'-0"



**STEEL PILE ALTERNATIVE CASING DETAIL**  
SCALE: 1"=1'-0"



**BUILD-UP WITHOUT DRIVING**  
SCALE: 1"=1'-0"

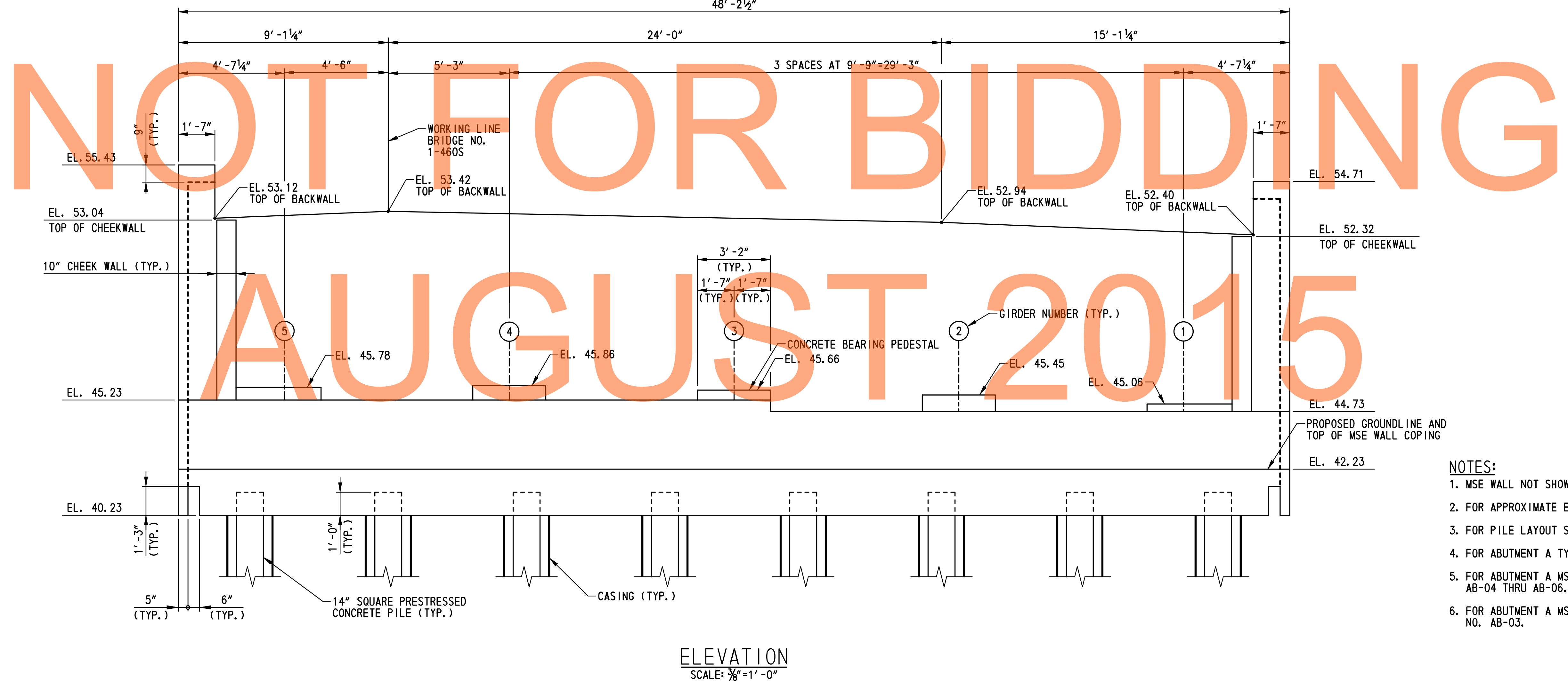
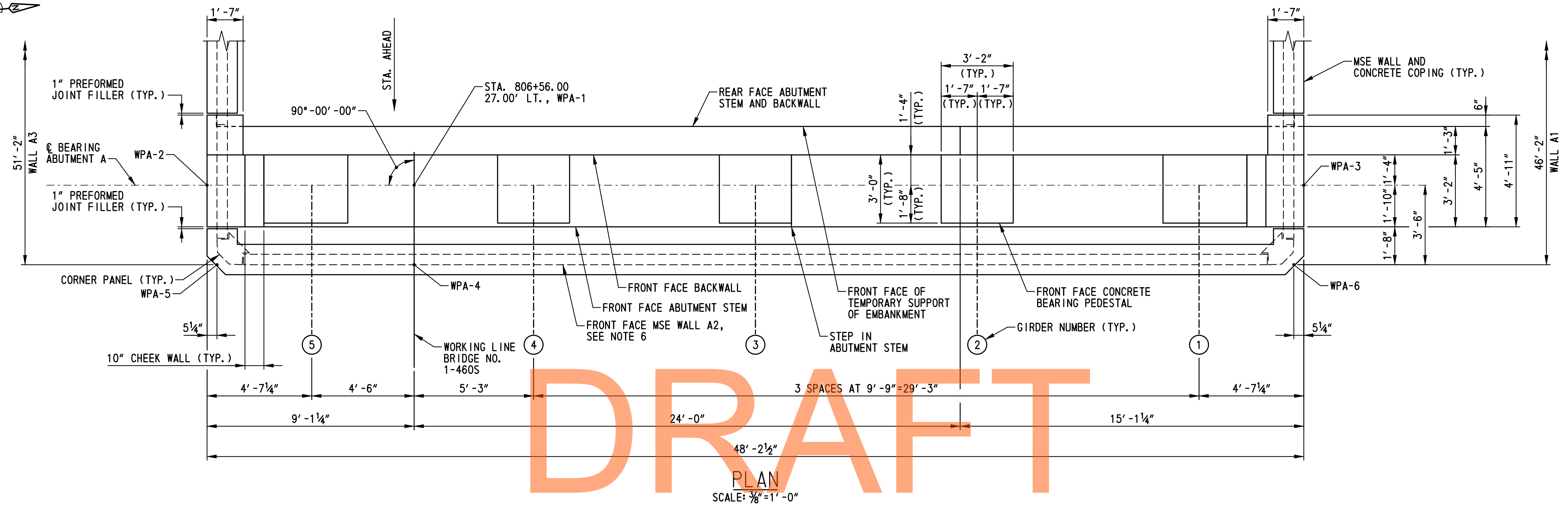
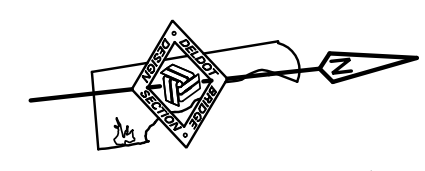
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ADDENDUMS / REVISIONS

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.J.F.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

<b>PILE DETAILS</b>	
SHEET NO.	445
TOTAL SHTS.	875





- NOTES:**
- MSE WALL NOT SHOWN IN ELEVATION FOR CLARITY.
  - FOR APPROXIMATE EXISTING GROUNDLINE SEE DWG. NO. AB-03.
  - FOR PILE LAYOUT SEE DWG. NO. PL-01.
  - FOR ABUTMENT A TYPICAL SECTION SEE DWG. NO. AB-02.
  - FOR ABUTMENT A MSE WALL TYPICAL SECTIONS SEE DWG. NO. AB-04 THRU AB-06.
  - FOR ABUTMENT A MSE WALL ELEVATION AND NOTES, SEE DWG. NO. AB-03.

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ADDENDUMS / REVISIONS	

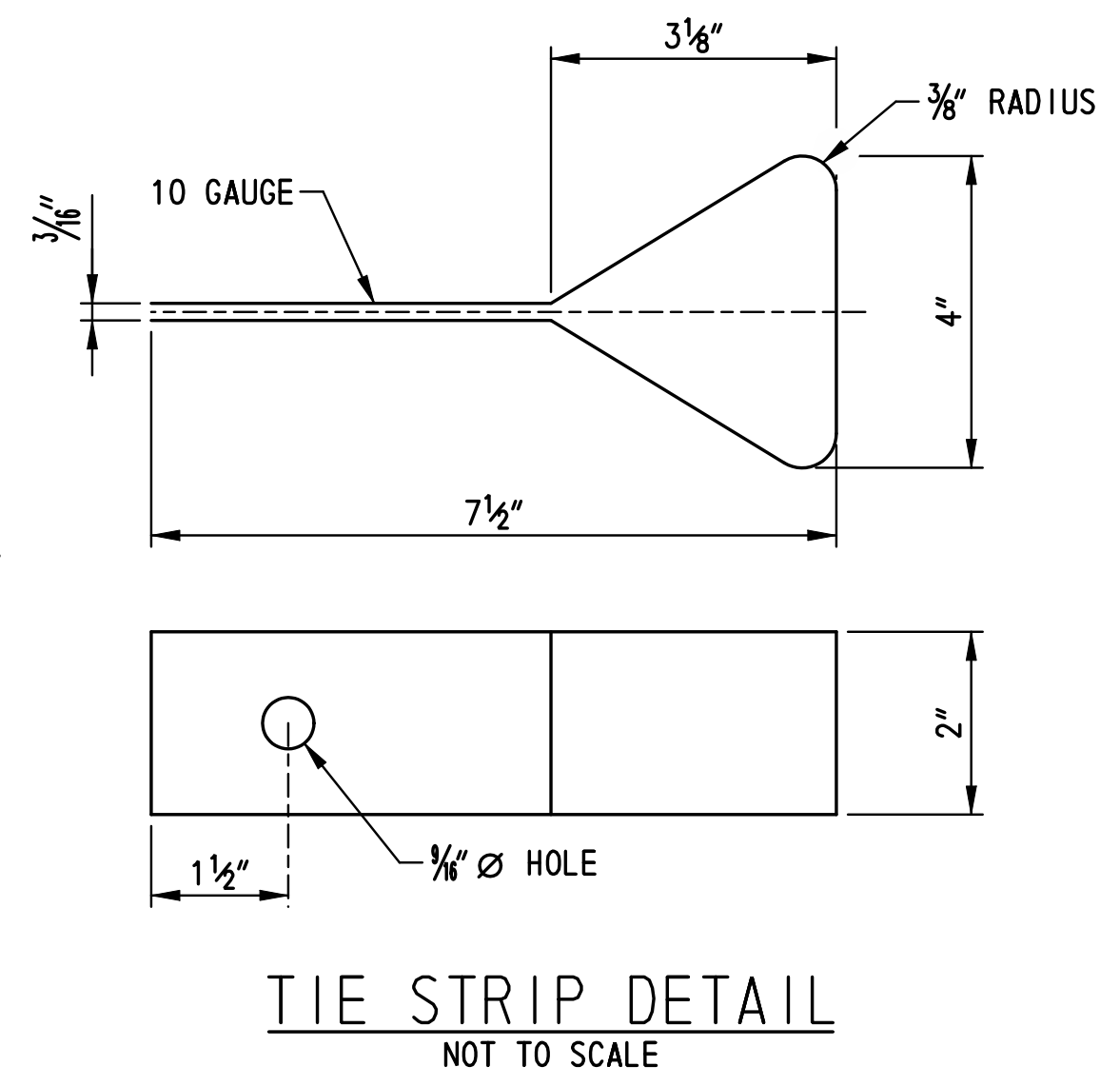
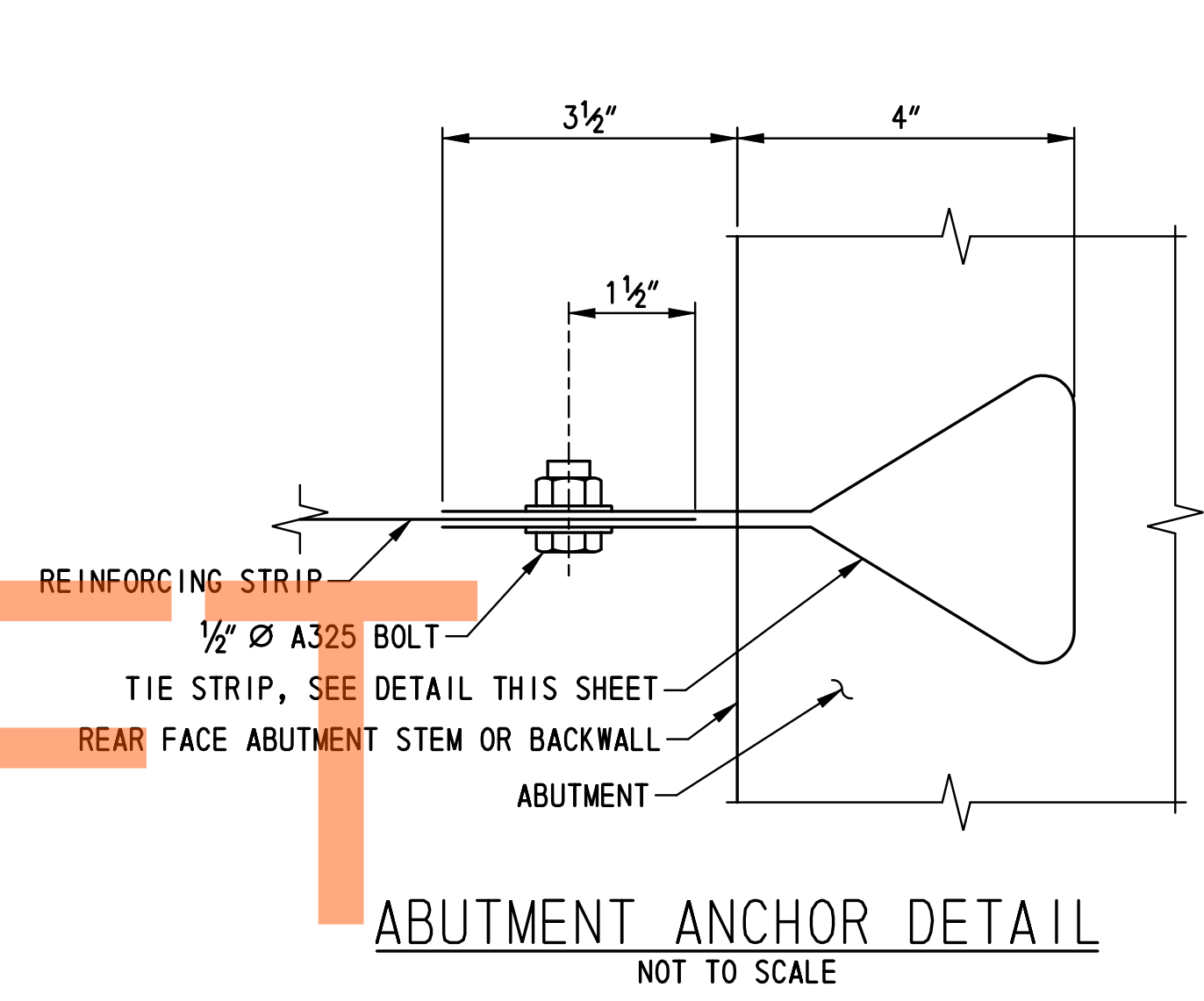
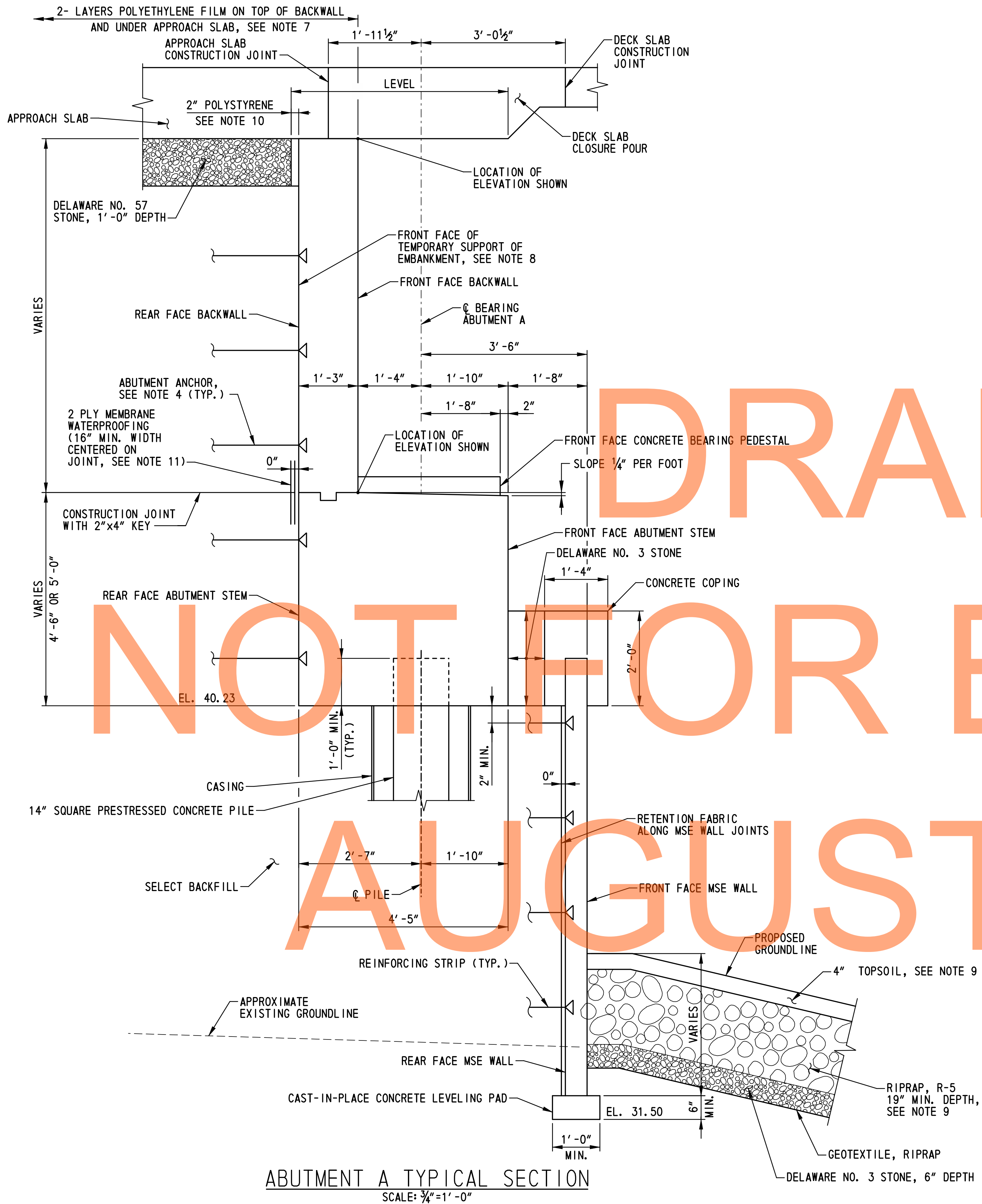
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**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: A.D.D. CHECKED BY: P.S.D.

**ABUTMENT A  
PLAN AND ELEVATION**

<b>BRI-7S AB-01</b>
SHEET NO. 446
TOTAL SHTS. 875



**ABUTMENT ANCHOR NOTES:**

1. THE ABUTMENT ANCHOR SHOWN CONSISTING OF A TIE STRIP ATTACHED TO A REINFORCING STRIP MAY BE MODIFIED PER THE MSE WALL MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES TO THE ABUTMENT ANCHOR DETAIL SHOWN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. THE ATTACHMENT OF THE ABUTMENT ANCHOR TO THE TEMPORARY SUPPORT OF EMBANKMENT LOCATED AT THE REAR FACE OF THE ABUTMENT STEM AND BACKWALL IS NOT SHOWN. THIS ATTACHMENT SHALL BE MADE PER THE MSE WALL MANUFACTURER'S RECOMMENDATIONS AND A DETAIL SUBMITTED TO THE ENGINEER FOR APPROVAL.

**NOTES:**

1. FOR PILE LAYOUT, SEE DWG. NO. PL-01.
2. FOR ABUTMENT A PLAN AND ELEVATION, SEE DWG. NO. AB-01.
3. FOR ABUTMENT A MSE WALL ELEVATIONS AND NOTES, SEE DWG. NO. AB-03.
4. PROVIDE ABUTMENT ANCHORS IN SELECT BACKFILL. SEE ABUTMENT ANCHOR DETAIL THIS SHEET. ABUTMENT ANCHORS SHALL BE DESIGNED FOR A MINIMUM FACTORED HORIZONTAL FORCE OF 2.0 KIPS PER FOOT OF ABUTMENT LENGTH. THE POINT OF APPLICATION OF FORCES SHALL BE AT THE CENTER OF BEARINGS. DESIGN OF ABUTMENT ANCHORS SHALL BE COMPATIBLE WITH THE TEMPORARY SUPPORT OF EMBANKMENT DESIGN. PAYMENT FOR ABUTMENT ANCHORS WILL BE INCIDENTAL TO ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS.
5. PROPRIETARY WALL MANUFACTURER SHALL DESIGN AND CONTRACTOR SHALL CONSTRUCT FINAL WALL AND FACING SUCH THAT THE FINAL WALL FACING IS AT THE REQUIRED ELEVATION AFTER SETTLEMENT HAS TAKEN PLACE.
6. THE ANTICIPATED SETTLEMENT IS 6 INCHES BEHIND THE FACE OF WALL.
7. TOP OF BACKWALL SHALL BE STEEL TROWEL FINISHED. TWO LAYERS OF WHITE POLYETHYLENE FILM SHALL BE PLACED ON TOP OF THE BACKWALLS PRIOR TO PLACEMENT OF THE APPROACH AND DECK SLAB REINFORCEMENT. THE FILM SHALL BE FASTENED TO THE FRONT FACE OF THE BACKWALL AND LAPPED 2'-0" MINIMUM WITH THE FILM PLACED ON THE FINISHED SUBGRADE FOR THE APPROACH SLAB. COST SHALL BE INCIDENTAL TO ITEM 602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D. FOR ADDITIONAL REQUIREMENTS, SEE DWG. NO. AS-07.
8. FOR TEMPORARY SUPPORT OF EMBANKMENT REQUIREMENTS, SEE NOTE 14 ON DWG. NO. AB-03.
9. RECESS, CHOKE, TOPSOIL, SEED AND MULCH RIPRAP IN CONFORMANCE WITH THE ENVIRONMENTAL COMPLIANCE NOTES ON DWG. NO. EC-04.
10. EXPANDED POLYSTYRENE SHALL CONFORM TO ASTM C 578, EXCEPT THAT THE MAXIMUM ALLOWABLE WATER ABSORPTION SHALL BE 2%. COST SHALL BE INCIDENTAL TO ITEM 602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D.
11. MEMBRANE WATERPROOFING SHALL BE INCIDENTAL TO ITEM 602015 - PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A. SEE SPECIAL PROVISION ITEM 602616 - WATERPROOFING P.C.C. MASONRY SURFACES FOR ADDITIONAL REQUIREMENTS.

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

DRAFT  
NOT FOR BIDDING  
AUGUST 2015

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ADDENDUMS / REVISIONS	

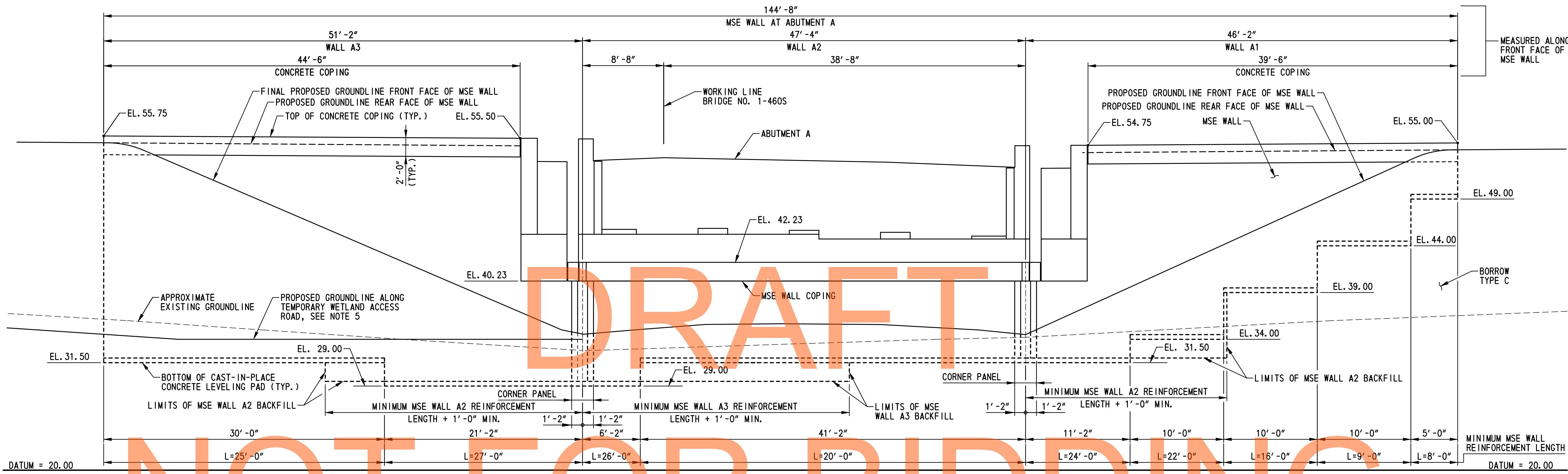
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT A  
TYPICAL SECTION**

<b>BRI-7S AB-02</b>
SHEET NO.
447
TOTAL SHTS.
875



DEVELOPED ELEVATION  
SCALE: 3/8"=1'-0"

**MSE WALL NOTES:**

- DESIGN CRITERIA  
SEE SPECIAL PROVISION FOR ITEM 602772.
- CONCRETE  
ALL CONCRETE PROPERTIES SHALL BE IN ACCORDANCE WITH SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.  
CLASS A - MSE WALL PANELS AND MSE WALL COPING ( $f'c = 4,500$  PSI)  
CLASS B - MSE WALL LEVELING PAD ( $f'c = 3,000$  PSI)  
ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
- REINFORCING STEEL  
ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM A 615), GRADE 60 AND SHALL BE PROTECTED WITH FUSION BONDED EPOXY, CONFORMING TO AASHTO M284 (ASTM A 775).  
MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE 2" UNLESS NOTED OTHERWISE.  
THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATIVE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.
- ARCHITECTURAL FINISH  
THE COMPONENTS OF THE MSE WALL SHALL HAVE THE ARCHITECTURAL TREATMENT AS SPECIFIED IN THE SPECIAL PROVISION FOR ITEM 602772.
- WALL REINFORCEMENT  
WALL REINFORCEMENT SHALL BE LOCATED TO CLEAR THE PILE CASINGS WITH 2" MINIMUM CLEARANCE AND A MAXIMUM 15 DEGREE SKEW.
- COPING  
THE MSE WALL COPING SHALL BE A PRECAST CONCRETE COPING INSTALLED IN CONFORMANCE WITH THE PROPRIETARY WALL MANUFACTURER'S RECOMMENDATIONS. FOR LOCATIONS ALONG THE MSE WALL WHERE A PRECAST CONCRETE COPING CANNOT BE UTILIZED, A CAST-IN-PLACE CONCRETE COPING INSTALLED IN CONFORMANCE WITH THE PROPRIETARY WALL MANUFACTURER'S RECOMMENDATIONS MAY BE UTILIZED.

- LEVELING PAD  
THE LEVELING PAD STEPS MAY BE RELOCATED AT THE DISCRETION OF THE PROPRIETARY WALL MANUFACTURER PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED IN ACCORDANCE WITH THE SPECIFIED DESIGN CRITERIA. ANY CHANGES TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- BACKFILL AND FOUNDATION SOILS  
MSE WALL BACKFILL SHALL CONSIST OF SELECT BACKFILL AND MEET THE REQUIREMENTS PROVIDED IN THE SPECIAL PROVISIONS. MSE WALL BACKFILL AT ABUTMENT B BELOW EL. 31.00 SHALL CONSIST OF DELAWARE NO. 57 STONE. SEE SOIL PROPERTIES TABLE ON THIS SHEET.
- INTERNAL STABILITY  
THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE PROPRIETARY WALL MANUFACTURER USING THE SOIL PROPERTIES PROVIDED AT EACH WALL LOCATION. THE INTERNAL STABILITY CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.
- QUARANTINE PERIOD  
ALLOW A MINIMUM OF 60 DAYS QUARANTINE PERIOD FOR SETTLEMENT MONITORING. BEGIN THE QUARANTINE PERIOD WHEN THE FULL HEIGHT OF THE MSE WALL IS ACHIEVED, THE APPROACH EMBANKMENTS ARE AT THEIR FINAL ROADWAY SUBGRADE ELEVATION AND THE SETTLEMENT PLATFORMS ARE COMPLETELY CONSTRUCTED. THE ENGINEER WILL DETERMINE THE DURATION OF THE QUARANTINE PERIOD BASED ON THE SETTLEMENT READINGS. THE ENGINEER WILL NOTIFY THE CONTRACTOR, IN WRITING, WHEN THE QUARANTINE PERIOD CAN BE LIFTED BASED ON THE RESULTS OF THE SETTLEMENT READINGS.
- SETTLEMENT REQUIREMENTS  
THE PROPRIETARY WALL MANUFACTURER SHALL DESIGN AND THE CONTRACTOR SHALL CONSTRUCT FINAL WALL AND FACING SUCH THAT THE FINAL WALL FACING IS AT THE REQUIRED ELEVATION AFTER SETTLEMENT HAS TAKEN PLACE. THE ANTICIPATED SETTLEMENT IS 6 INCHES BEHIND THE FACE OF WALLS A2 AND B2. SEE SPECIAL PROVISIONS FOR SETTLEMENT MONITORING REQUIREMENTS.
- SERVICE LIFE  
ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.
- WALL SYSTEM  
ONLY ONE MSE WALL MANUFACTURER SYSTEM MAY BE USED ON THIS PROJECT.

- TEMPORARY SUPPORT OF EMBANKMENT  
TEMPORARY SUPPORT OF EMBANKMENT IS REQUIRED AT THE REAR FACE OF BOTH ABUTMENT STEMS AND BACKWALLS TO ALLOW THE UNDERLYING SOILS TO PRECONSOLIDATE UNDER THE FINAL REQUIRED SOIL PRESSURE PRIOR TO PILE INSTALLATION. THE LIMITS OF THE TEMPORARY SUPPORT OF EMBANKMENT SHALL BE THE FULL ABUTMENT HEIGHT OVER THE FULL ABUTMENT LENGTH. THE TEMPORARY SUPPORT OF EMBANKMENT SHALL BE DESIGNED BY THE MSE WALL DESIGNER TO RESIST THE FULL HORIZONTAL EARTH PRESSURE AND HORIZONTAL SOIL PRESSURE DUE TO SURCHARGE OF SOIL AND THE CONTRACTOR'S EQUIPMENT AND MATERIALS. ALL MSE WALL REINFORCING STRIPS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS. THE DESIGN OF THE TEMPORARY SUPPORT OF EMBANKMENT SHALL BE COMPATIBLE WITH THE ABUTMENT ANCHORS SHOWN ON DWG. NOS. AB-02 AND AB-08. PAYMENT FOR CONSTRUCTION OF THE TEMPORARY SUPPORT OF EMBANKMENT WILL BE MADE UNDER ITEM NO. 602772 - MECHANICALLY STABILIZED EARTH WALLS. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

**SOIL PROPERTIES**

SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	UNDRAINED SHEAR (PSF)
SELECT BACKFILL	125	34 MIN.	0
NO. 57 STONE (ABUTMENT B)	105	34 MIN.	0
IN-SITU FOUNDATION SOIL	115	28	0
BORROW, TYPE C	120	32	0
RETAINED FILL	120	30	0

**NOTES:**

- FOR MSE WALL PLAN, SEE GEOMETRIC AND FOOTING LAYOUT PLAN ON DWG. NO. FT-01.
- FOR ABUTMENT A PLAN AND ELEVATION, SEE DWG. NO. AB-01.
- FOR ABUTMENT A TYPICAL SECTION, SEE DWG. NO. AB-02.
- FOR ABUTMENT A MSE WALL TYPICAL SECTIONS, SEE DWG. NOS. AB-04 THRU AB-06.
- FOR TEMPORARY WETLAND ACCESS ROAD DETAILS, SEE SPECIAL PROVISIONS AND MAINTENANCE OF STREAMFLOW PLANS MS-07 THRU MS-10.

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ADDENDUMS / REVISIONS

SCALE: AS NOTED

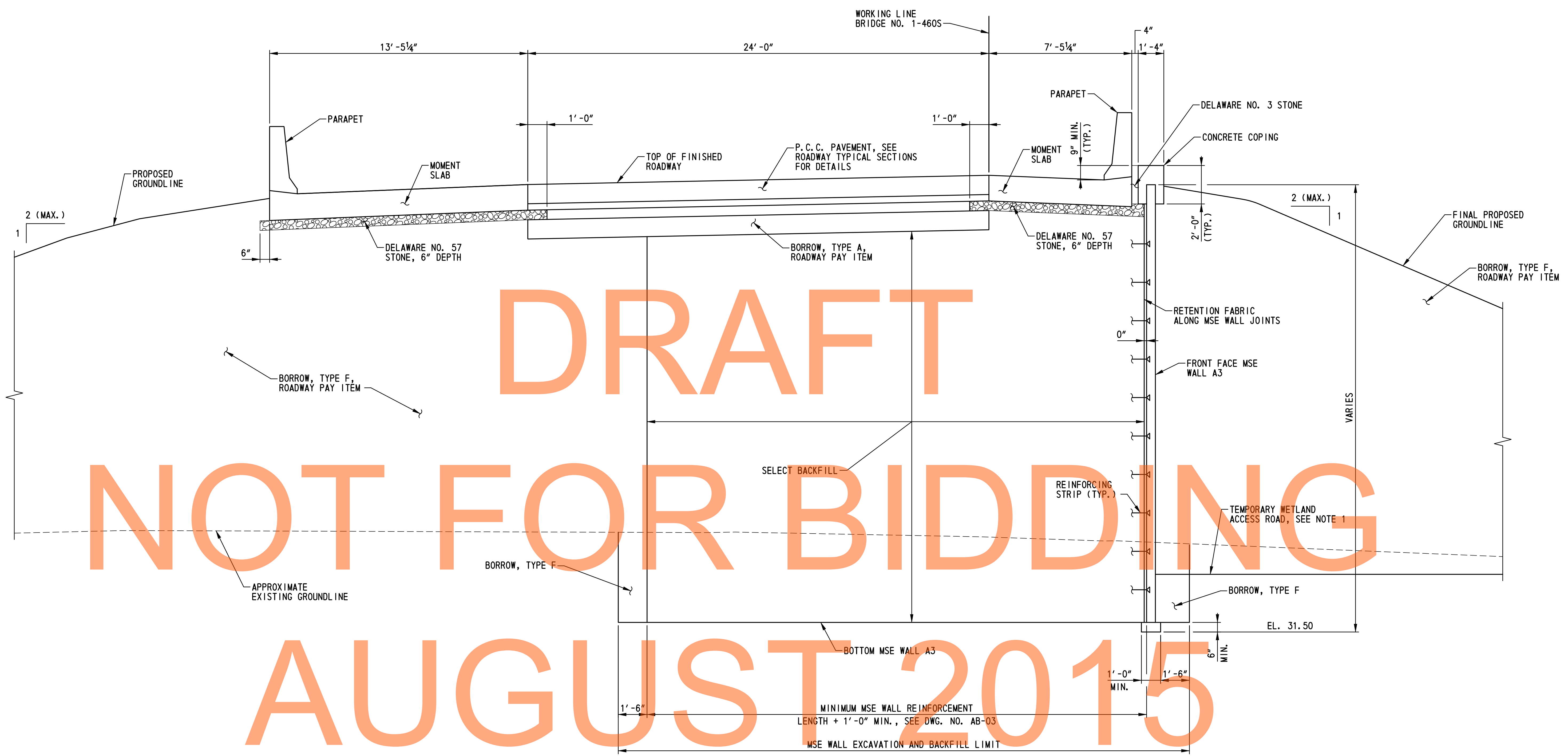
US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**MSE WALL AT  
ABUTMENT A**

<b>BR1-7S AB-03</b>
SHEET NO.
448
TOTAL SHTS.
875

DRAFT  
NOT FOR BIDDING  
AUGUST 2015



TYPICAL SECTION - STA. 806+08.33 TO STA. 806+13.33  
SCALE: 3/8"=1'-0"

- NOTES:**
1. FOR WETLAND ROAD ACCESS ROAD DETAILS, SEE SPECIAL PROVISIONS AND MAINTENANCE OF STREAM FLOW PLANS MS-07 THRU MS-10.
  2. FOR MSE WALL ELEVATION AND NOTES, SEE DWG. NO. AB-03.
  3. FOR MOMENT SLAB DETAILS, SEE DWG. NO. AS-08.

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ADDENDUMS / REVISIONS	

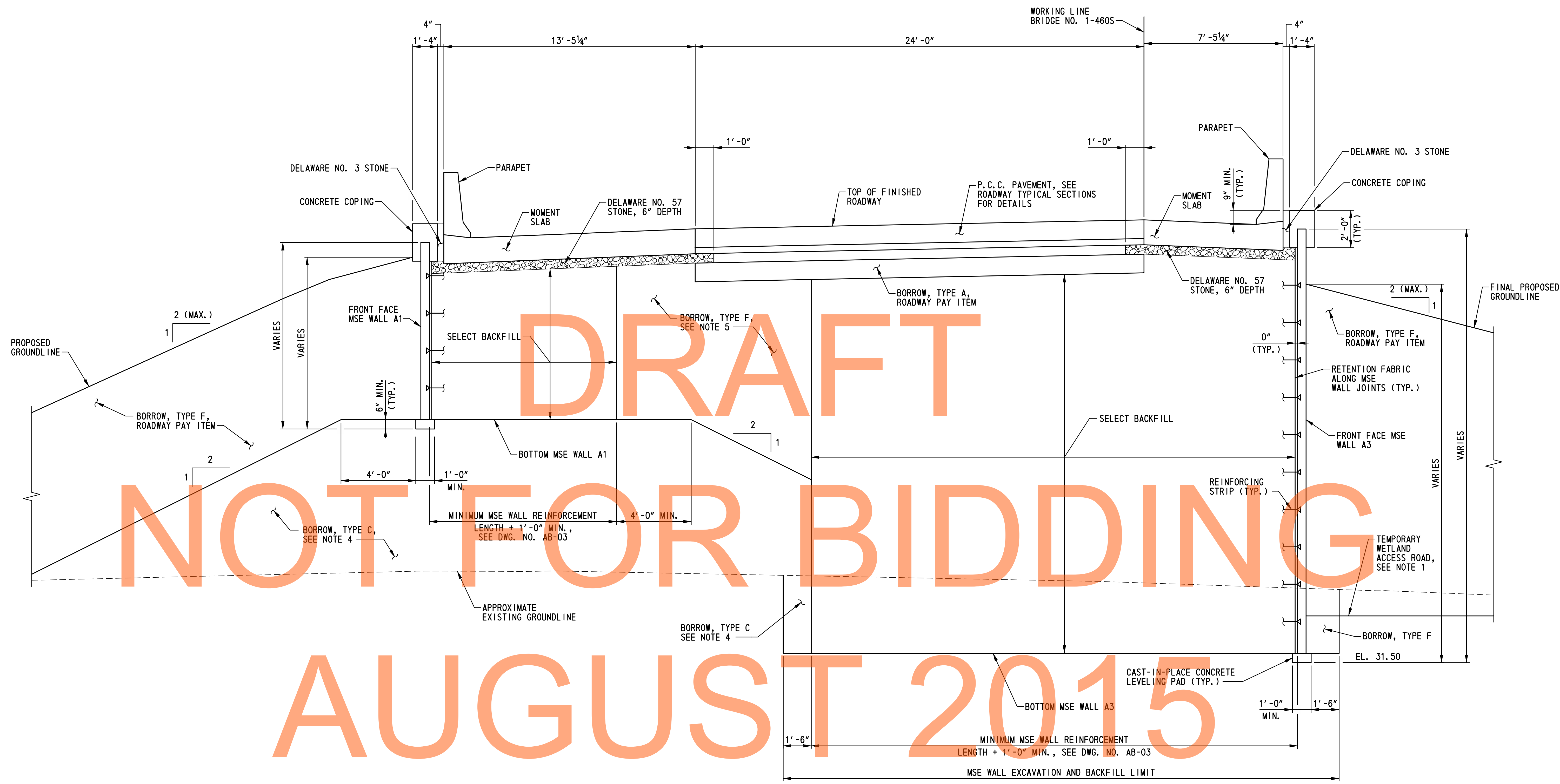
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**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT A  
MSE WALL  
TYPICAL SECTIONS - 1**

<b>BR1-7S AB-04</b>
SHEET NO.
449
TOTAL SHTS.
875



DRAFT  
NOT FOR BIDDING  
AUGUST 2015

TYPICAL SECTION - STA. 806+13.33 TO STA. 806+37.17  
SCALE: 3/8" = 1'-0"

- NOTES:**
1. FOR WETLAND ACCESS ROAD DETAILS, SEE SPECIAL PROVISIONS AND MAINTENANCE OF STREAM FLOW PLANS MS-07 THRU MS-10.
  2. FOR MSE WALL ELEVATIONS AND NOTES, SEE DWG. NO. AB-03.
  3. FOR MOMENT SLAB DETAILS, SEE DWG. NO. AS-08.
  4. BORROW, TYPE C SHALL BE OBTAINED FROM BORROW SOURCES AND PAID UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT.
  5. BORROW, TYPE F SHALL BE PAID UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT.

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ADDENDUMS / REVISIONS	SCALE: AS NOTED

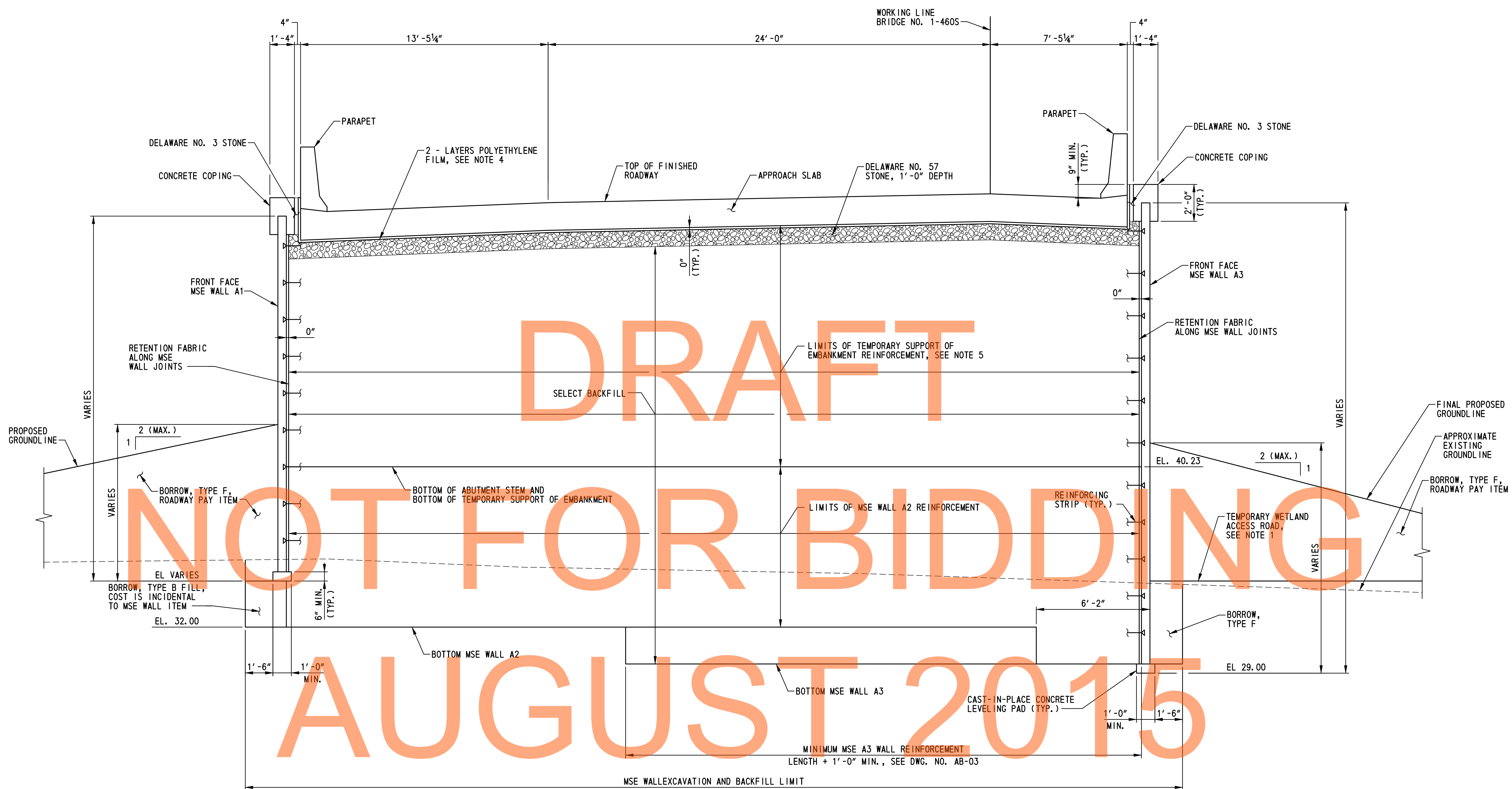
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**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>	DESIGNED BY: A.D.D.
COUNTY NEW CASTLE	CHECKED BY: P.S.D.	

**ABUTMENT A  
MSE WALL  
TYPICAL SECTIONS - 2**

<b>BRI-7S AB-05</b>
SHEET NO. 450
TOTAL SHTS. 875



TYPICAL SECTION - STA. 806+37.17 TO STA. 806+59.50  
SCALE: 3/8"=1'-0"

- NOTES:**
1. FOR WETLAND ACCESS ROAD DETAILS, SEE SPECIAL PROVISIONS AND MAINTENANCE OF STREAM FLOW PLANS MS-07 THRU MS-10.
  2. FOR MSE WALL ELEVATION AND NOTES, SEE DWG. NO. AB-03.
  3. FOR APPROACH SLAB DETAILS, SEE DWG. NO. AS-07.
  4. FOR POLYETHYLENE FILM DETAILS, SEE DWG. NO. AS-07.
  5. FOR TEMPORARY SUPPORT OF EMBANKMENT DETAILS, SEE DWG. NOS. AB-02 AND AB-03.

NO. 21653-000 CONTRACT 14\CADD\Bridges\BR\_No7\BR\_No7S\_VB06\_brl-7S.dgn  
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ADDENDUMS / REVISIONS	

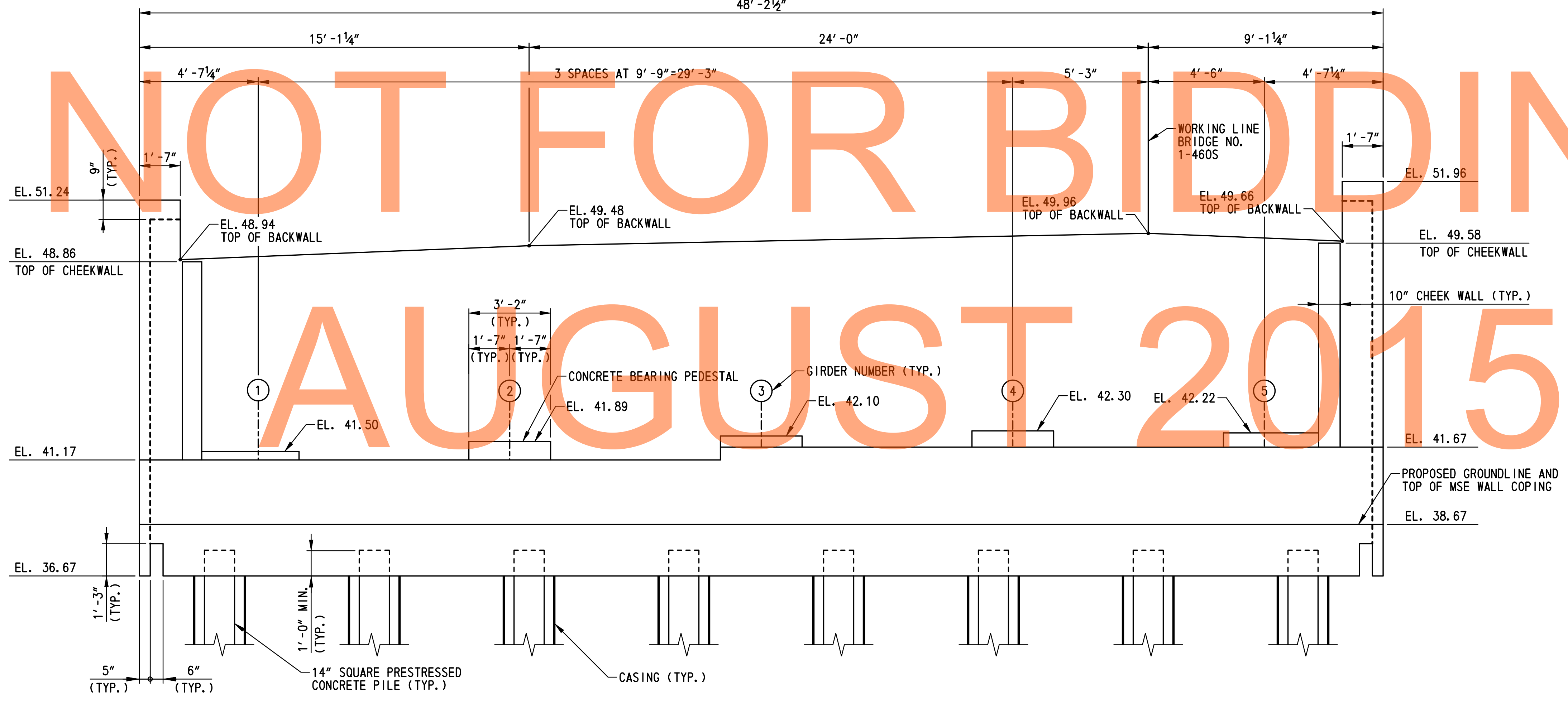
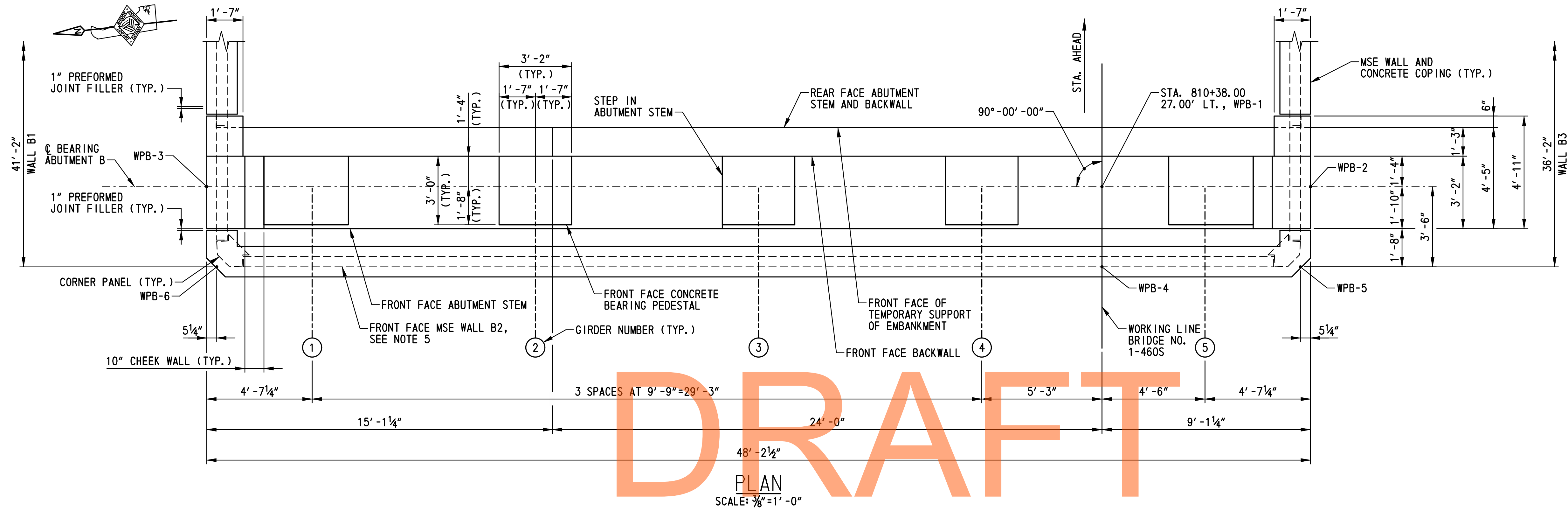
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT A  
MSE WALL  
TYPICAL SECTIONS - 3**

<b>BR1-7S AB-06</b>
SHEET NO.
451
TOTAL SHTS.
875



DRAFT

NOT FOR BIDDING

AUGUST 2015

- NOTES:**
- MSE WALL NOT SHOWN IN ELEVATION FOR CLARITY.
  - FOR APPROXIMATE EXISTING GROUNDLINE SEE DWG. NO. AB-09.
  - FOR PILE LAYOUT SEE DWG. NO. PL-01.
  - FOR ABUTMENT B TYPICAL SECTION SEE DWG. NO. AB-08.
  - FOR ABUTMENT B MSE WALL TYPICAL SECTIONS SEE DWG. NO. AB-10 THRU AB-12.

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ADDENDUMS / REVISIONS	

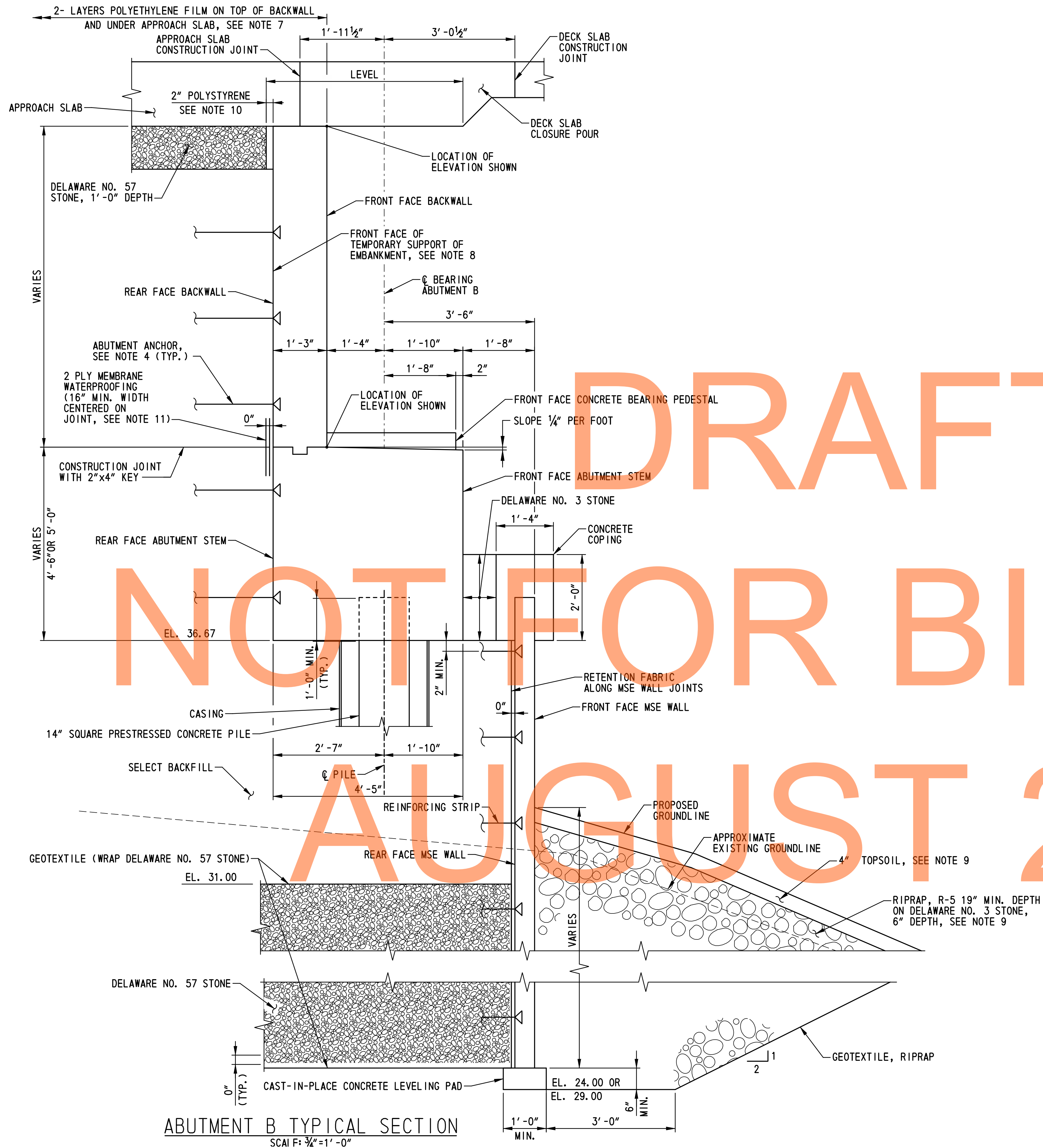
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT B  
PLAN AND ELEVATION**

<b>BR1-7S AB-07</b>
SHEET NO.
452
TOTAL SHTS.
875



DRAFT  
NOT FOR BIDDING  
AUGUST 2015

**NOTES:**

1. FOR PILE LAYOUT, SEE DWG. NO. PL-01.
2. FOR ABUTMENT B PLAN AND ELEVATION, SEE DWG. NO. AB-07.
3. FOR ABUTMENT B MSE WALL ELEVATION, SEE DWG. NO. AB-09.
4. PROVIDE ABUTMENT ANCHORS IN SELECT BACKFILL. SEE ABUTMENT ANCHOR DETAIL ON DWG. NO. AB-02. ABUTMENT ANCHORS SHALL BE DESIGNED FOR A MINIMUM FACTORED HORIZONTAL FORCE OF 2.0 KIPS PER FOOT OF ABUTMENT LENGTH. THE POINT OF APPLICATION OF FORCES SHALL BE AT THE CENTER OF BEARINGS. DESIGN OF ABUTMENT ANCHORS SHALL BE COMPATIBLE WITH THE TEMPORARY SUPPORT OF EMBANKMENT DESIGN. PAYMENT FOR ABUTMENT ANCHORS WILL BE INCIDENTAL TO ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS.
5. PROPRIETARY WALL MANUFACTURER SHALL DESIGN AND CONTRACTOR SHALL CONSTRUCT FINAL WALL AND FACING SUCH THAT THE FINAL WALL FACING IS AT THE REQUIRED ELEVATION AFTER SETTLEMENT HAS TAKEN PLACE.
6. THE ANTICIPATED SETTLEMENT IS 6 INCHES BEHIND THE FACE OF WALL.
7. TOP OF BACKWALL SHALL BE STEEL TROWEL FINISHED. TWO LAYERS OF WHITE POLYETHYLENE FILM SHALL BE PLACED ON TOP OF THE BACKWALLS PRIOR TO PLACEMENT OF THE APPROACH AND DECK SLAB REINFORCEMENT. THE FILM SHALL BE FASTENED TO THE FRONT FACE OF THE BACKWALL AND LAPPED 2'-0" MINIMUM WITH THE FILM PLACED ON THE FINISHED SUBGRADE FOR THE APPROACH SLAB. COST SHALL BE INCIDENTAL TO ITEM 602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D. FOR ADDITIONAL REQUIREMENTS, SEE DWG. NO. AS-07.
8. FOR TEMPORARY SUPPORT OF EMBANKMENT REQUIREMENTS, SEE NOTE 14 ON DWG. NO. AB-03.
9. RECESS, CHOKE, TOPSOIL, SEED AND MULCH RIPRAP IN CONFORMANCE WITH THE ENVIRONMENTAL COMPLIANCE NOTES ON DWG. NO. EC-04.
10. EXPANDED POLYSTYRENE SHALL CONFORM TO ASTM C 578, EXCEPT THAT THE MAXIMUM ALLOWABLE WATER ABSORPTION SHALL BE 2%. COST SHALL BE INCIDENTAL TO ITEM 602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D.
11. MEMBRANE WATERPROOFING SHALL BE INCIDENTAL TO ITEM 602015 - PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A. SEE SPECIAL PROVISION ITEM 602616 - WATERPROOFING P.C.C. MASONRY SURFACES FOR ADDITIONAL REQUIREMENTS.

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

ADDENDUMS / REVISIONS

SCALE: AS NOTED

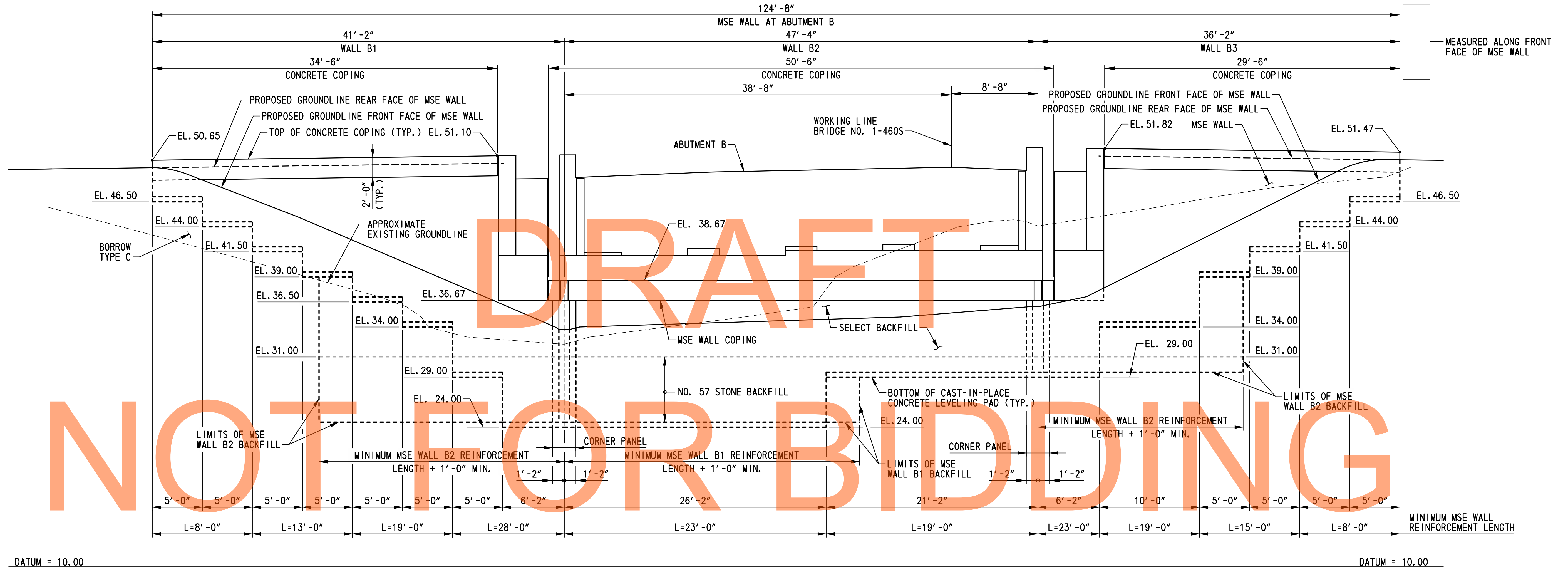
**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT B  
TYPICAL SECTION**

<b>BRI-7S AB-08</b>
SHEET NO.
453
TOTAL SHTS.
875





NOT FOR BIDDING

AUGUST 2015

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

- NOTES:**
1. FOR MSE WALL PLAN, SEE GEOMETRIC AND FOOTING LAYOUT PLAN ON DWG. NO. FT-01.
  2. FOR NOTES AND SOIL PROPERTIES, SEE DWG. NO. AB-03.
  3. FOR ABUTMENT B PLAN AND ELEVATION, SEE DWG. NO. AB-07.
  4. FOR ABUTMENT B TYPICAL SECTION, SEE DWG. NO. AB-08.
  5. FOR ABUTMENT B MSE WALL TYPICAL SECTIONS, SEE DWG. NOS. AB-10 THRU AB-12.

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ADDENDUMS / REVISIONS

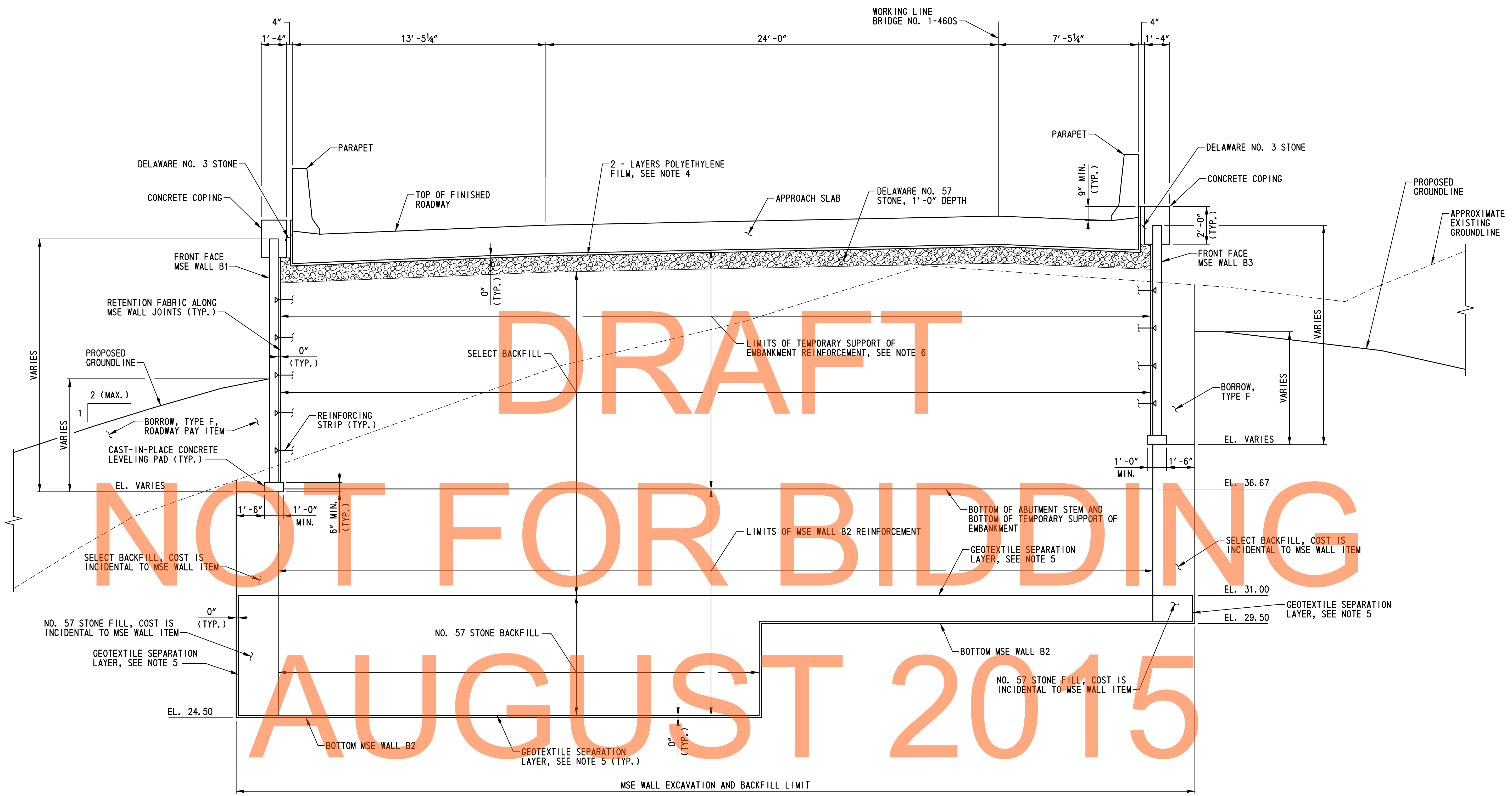
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**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**MSE WALL AT  
ABUTMENT B**

<b>BRI-7S AB-09</b>
SHEET NO.
454
TOTAL SHTS.
875



TYPICAL SECTION - STA. 810+40.58 TO STA. 810+56.83  
 SCALE: 3/8" = 1'-0"

- NOTES:**
1. FOR MSE WALL ELEVATION SEE DWG. NO. AB-09.
  2. FOR MSE WALL NOTES, SEE DWG. NO. AB-03.
  3. FOR APPROACH SLAB DETAILS, SEE DWG. NO. AS-07.
  4. FOR POLYETHYLENE FILM DETAILS, SEE DWG. NO. AS-07.
  5. COST OF GEOTEXTILE SEPARATION LAYER IS INCIDENTAL TO ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS.
  6. FOR TEMPORARY SUPPORT OF EMBANKMENT DETAILS, SEE DWG. NOS. AB-03 AND AB-08.

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ADDENDUMS / REVISIONS	

SCALE: AS NOTED

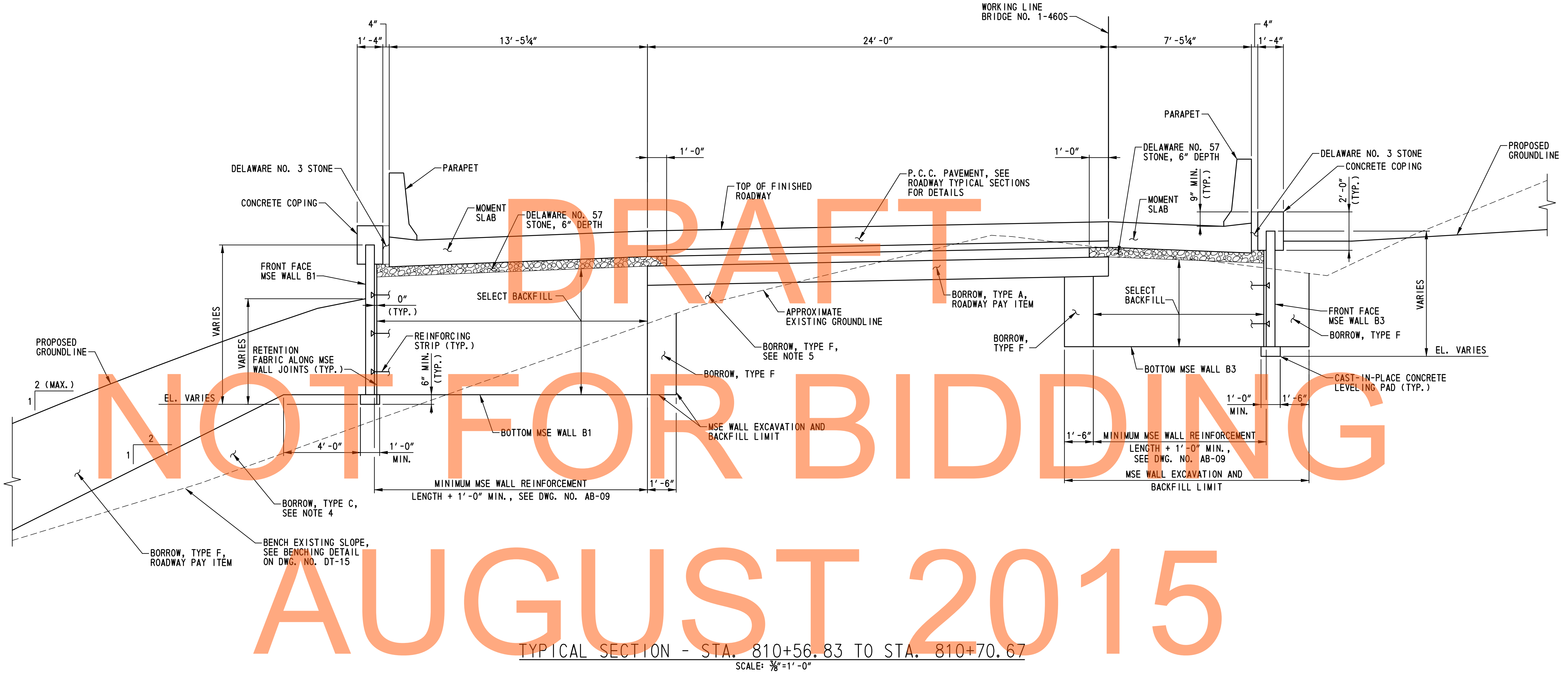
**US 301,  
 SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT B  
 MSE WALL  
 TYPICAL SECTIONS - 1**

<b>BRI-7S    AB-10</b>
SHEET NO.
455
TOTAL SHTS.
875

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- NOTES:**
- FOR MSE WALL ELEVATIONS, SEE DWG. NO. AB-09.
  - FOR MSE WALL NOTES, SEE DWG. NO. AB-03.
  - FOR MOMENT SLAB DETAILS, SEE DWG. NO. AS-08.
  - BORROW, TYPE C SHALL BE OBTAINED FROM BORROW SOURCES AND PAID UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT.
  - BORROW, TYPE F SHALL BE PAID UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT.



ADDENDUMS / REVISIONS	

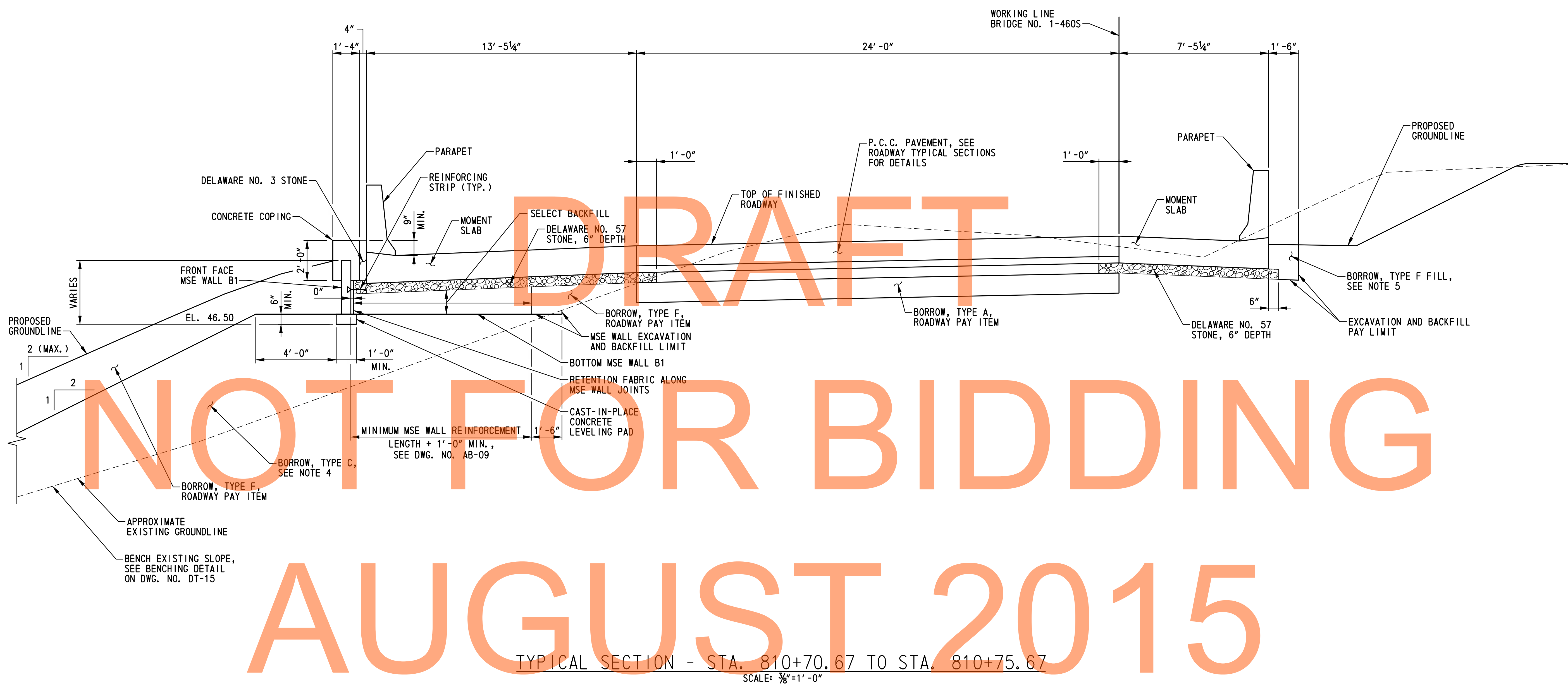
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**US 301,**  
**SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT B**  
**MSE WALL**  
**TYPICAL SECTIONS - 2**

<b>BRI-7S</b> <b>AB-11</b>
SHEET NO.
456
TOTAL SHTS.
875



DRAFT

NOT FOR BIDDING

AUGUST 2015

TYPICAL SECTION - STA. 810+70.67 TO STA. 810+75.67  
SCALE: 3/8"=1'-0"

- NOTES:**
1. FOR MSE WALL ELEVATIONS, SEE DWG. NO. AB-09.
  2. FOR MSE WALL NOTES, SEE DWG. NO. AB-03.
  3. FOR MOMENT SLAB DETAILS, SEE DWG. NO. AS-08.
  4. BORROW, TYPE C SHALL BE OBTAINED FROM BORROW SOURCES AND PAID UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT.
  5. BORROW, TYPE F SHALL BE PAID UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT.

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ADDENDUMS / REVISIONS

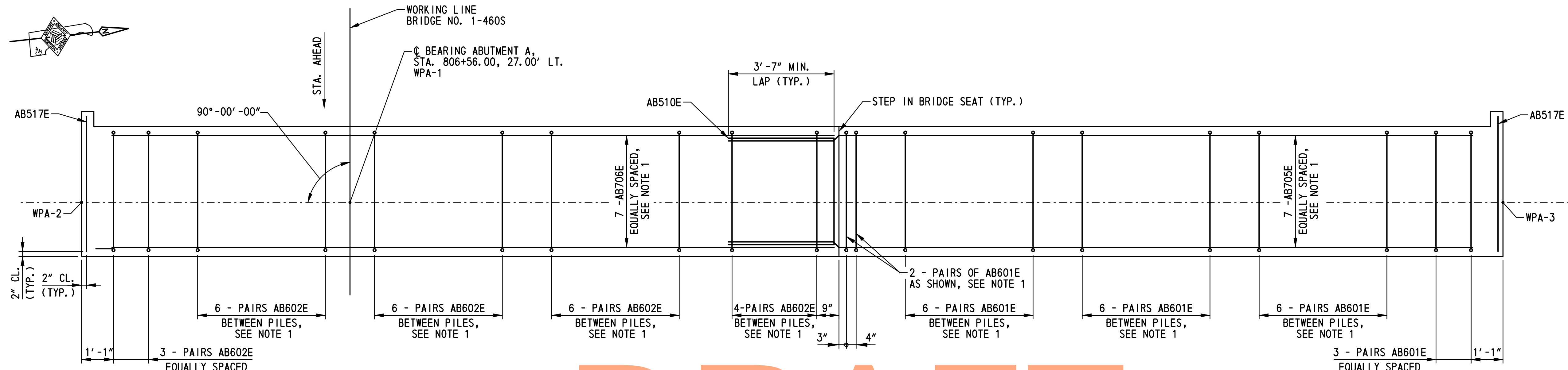
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US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	1-460S
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

ABUTMENT B  
MSE WALL  
TYPICAL SECTIONS - 3

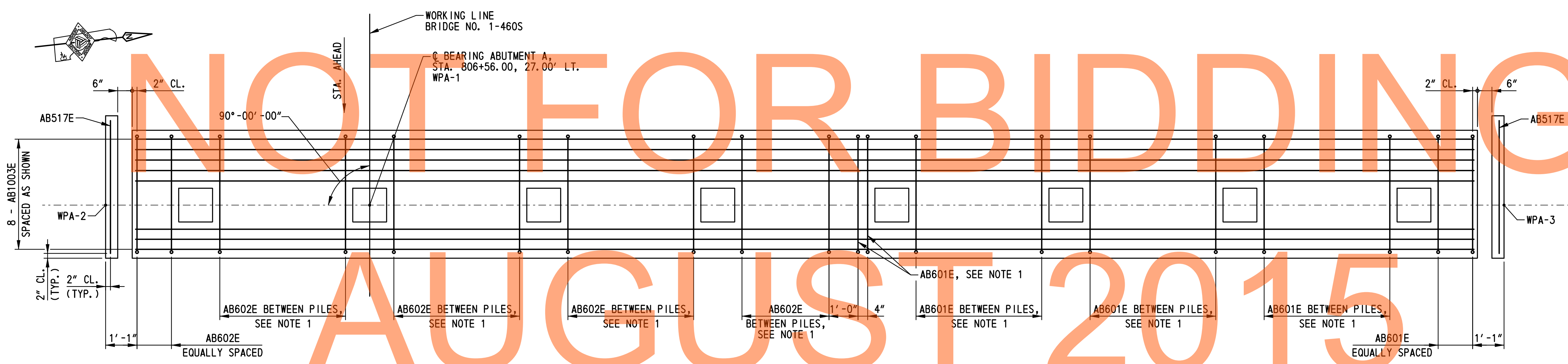
BR1-7S AB-12
SHEET NO.
457
TOTAL SHTS.
875



# DRAFT

## ABUTMENT A TOP MAT REINFORCEMENT PLAN

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



## ABUTMENT A BOTTOM MAT REINFORCEMENT PLAN

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

- NOTES:**
1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS. FOR ADDITIONAL INFORMATION, SEE DWG. NOS. BB-01 AND AB-14.
  2. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-14 AND AB-15.
  3. REINFORCING STEEL OVER PILES NOT SHOWN FOR CLARITY. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PL-01.

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ADDENDUMS / REVISIONS

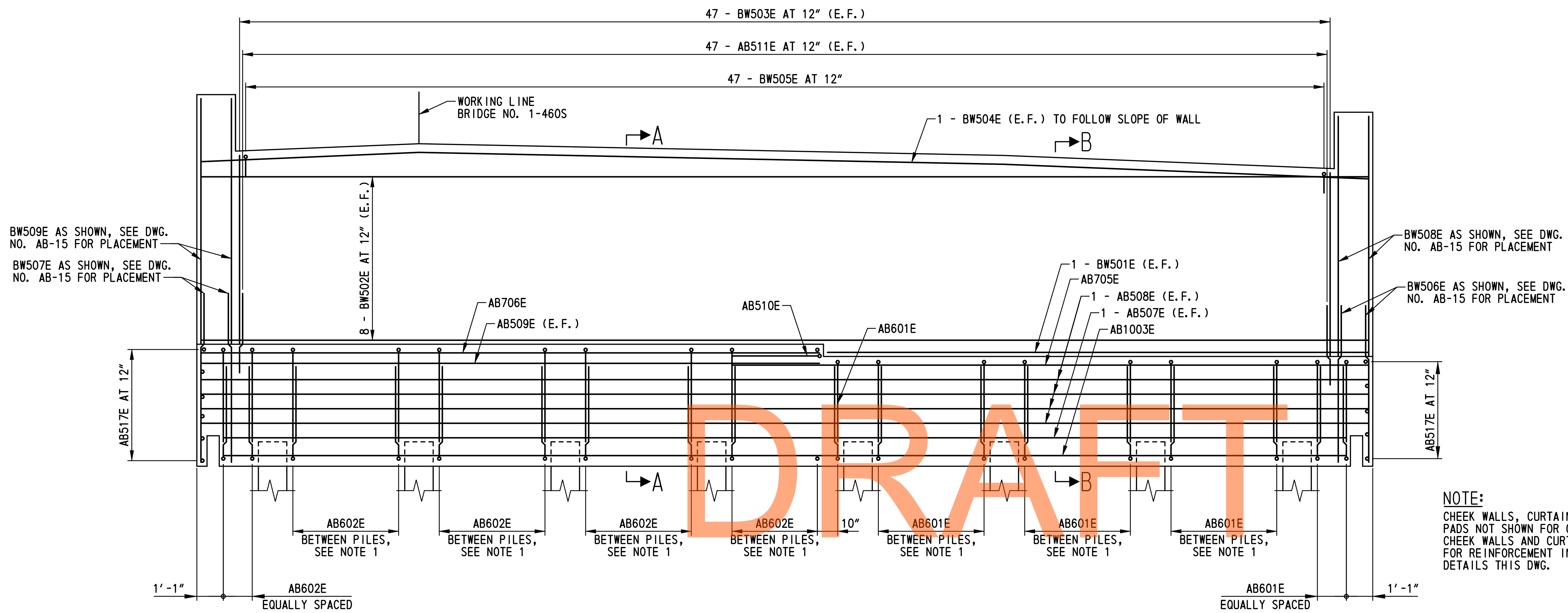
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>	DESIGNED BY: A.D.D.
COUNTY NEW CASTLE	CHECKED BY: P.S.D.	

**ABUTMENT A  
REINFORCEMENT  
DETAILS - 1**

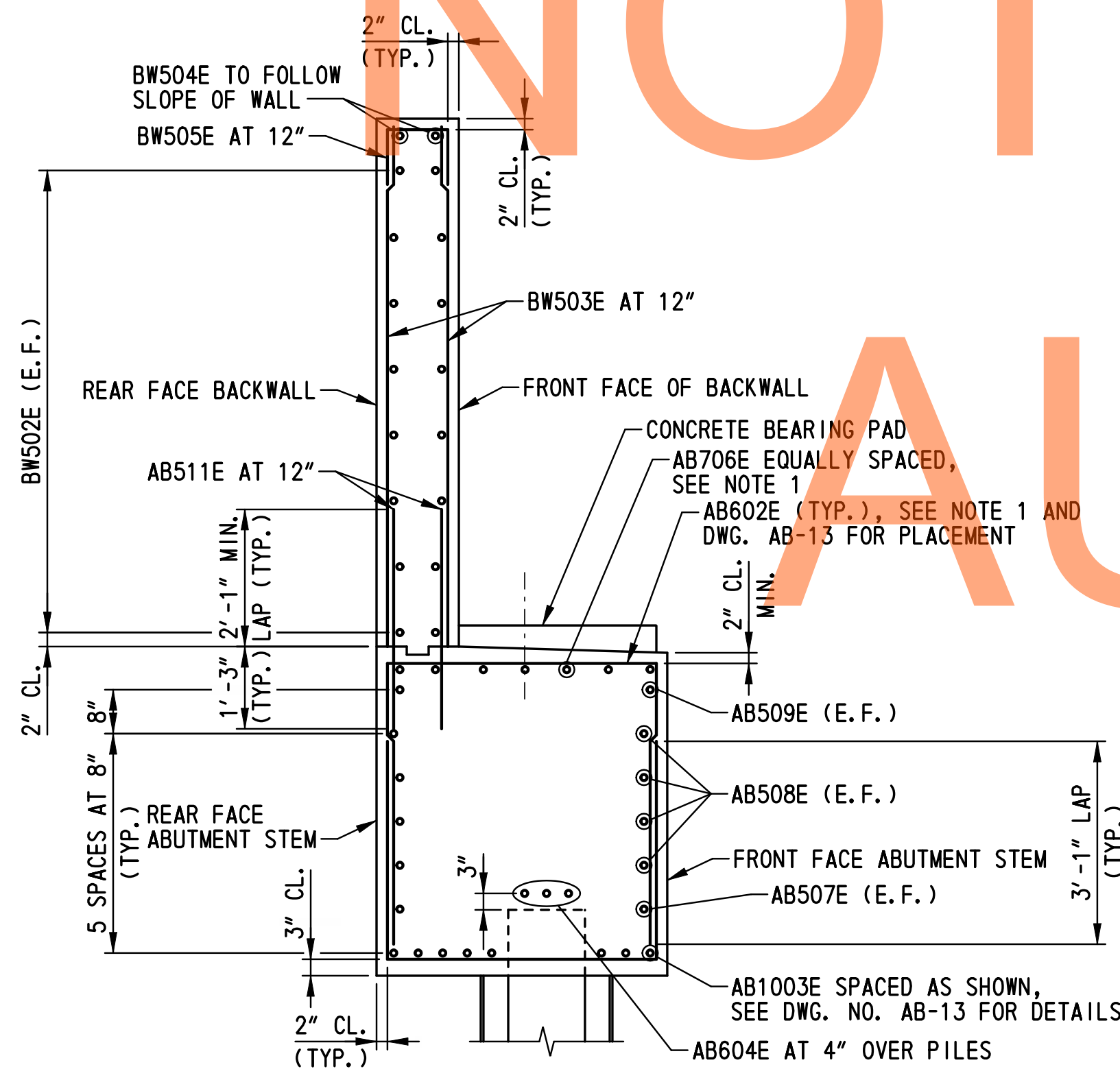
<b>BRI-7S AB-13</b>
SHEET NO. 458
TOTAL SHTS. 875



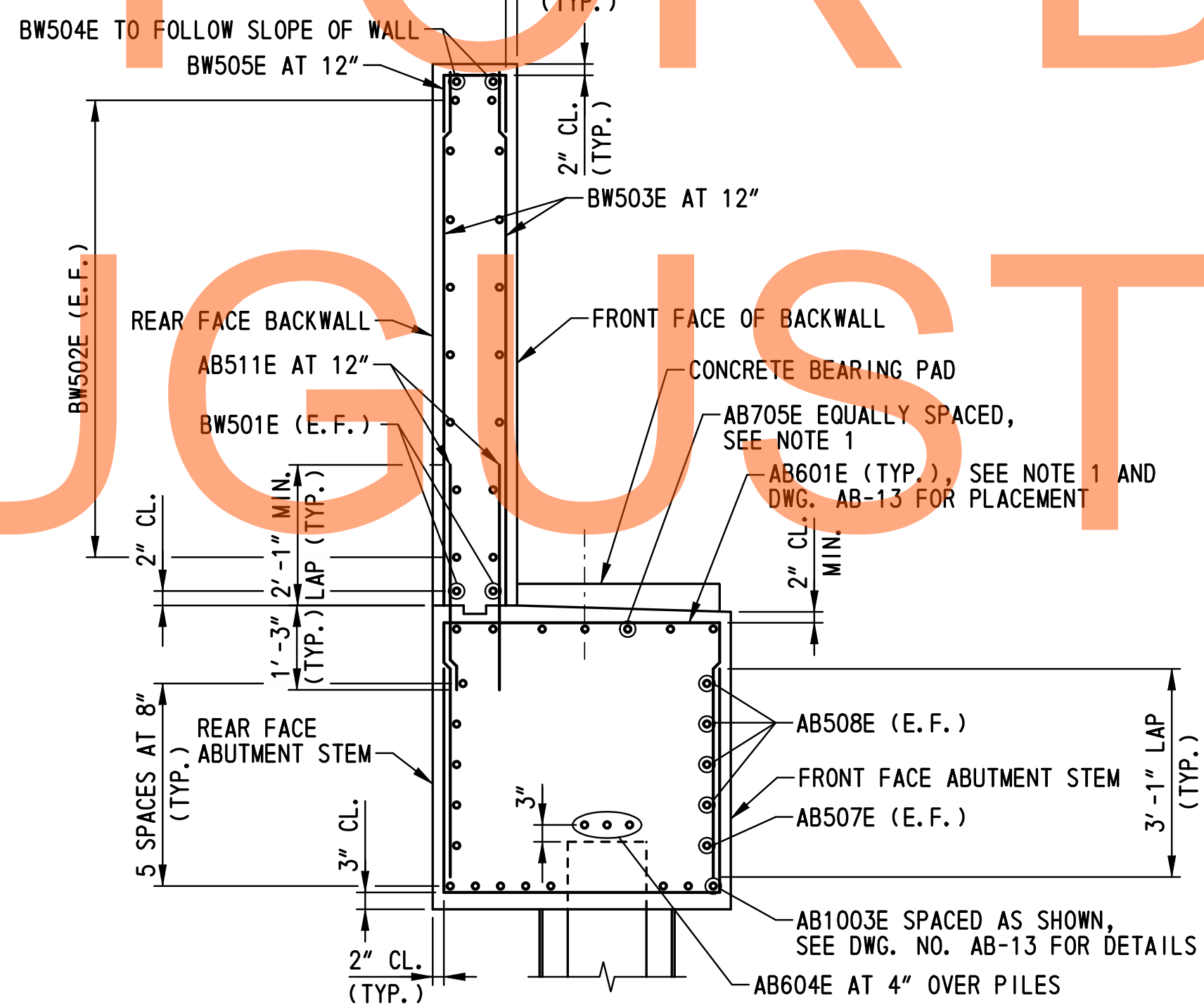
**NOTE:**  
CHEEK WALLS, CURTAIN WALLS, AND CONCRETE BEARING PADS NOT SHOWN FOR CLARITY. FOR REINFORCEMENT IN CHEEK WALLS AND CURTAIN WALLS SEE DWG. NO. AB-15. FOR REINFORCEMENT IN CONCRETE BEARING PAD SEE DETAILS THIS DWG.

**ABUTMENT A REINFORCEMENT**

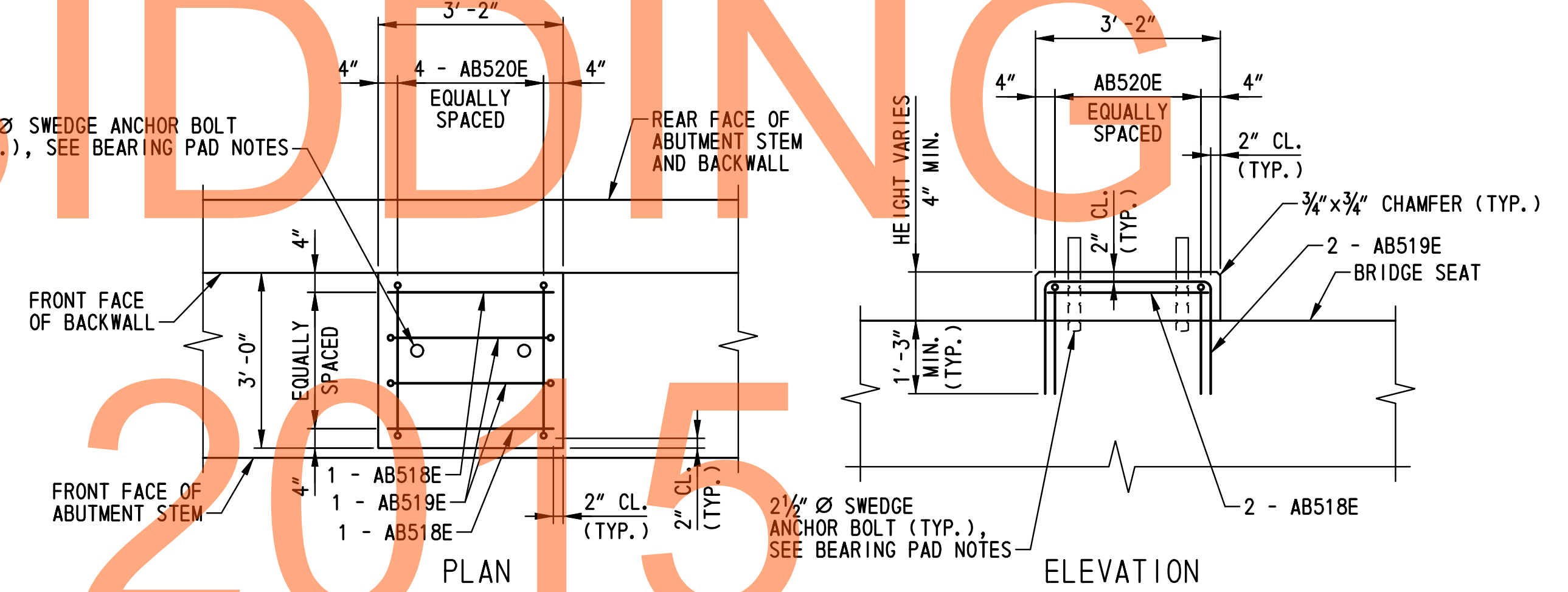
SCALE:  $\frac{3}{8}'' = 1' - 0''$



**SECTION A-A**  
SCALE:  $\frac{1}{2}'' = 1' - 0''$



**SECTION B-B**  
SCALE:  $\frac{1}{2}'' = 1' - 0''$



**ABUTMENT CONCRETE BEARING PAD DETAILS**  
SCALE:  $\frac{1}{2}'' = 1' - 0''$

- BEARING PAD NOTES:**
1. FOR ANCHOR BOLT DIMENSIONS AND LOCATION, SEE DWG. NO. BB-01.
  2. ANCHOR BOLTS SHALL BE CAST IN PLACE. A TEMPORARY CASTING TEMPLATE SHALL BE USED TO ENSURE THE ANCHOR BOLTS ARE PROPERLY ALIGNED AND PLUMB. THE TEMPLATE SHALL BE REMOVED AFTER CONCRETE HAS SET.
  3. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS.

- NOTES:**
1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS. FOR ADDITIONAL INFORMATION, SEE DWG. NOS. BB-01 AND AB-13.
  2. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-13 AND AB-15.
  3. REINFORCING STEEL OVER PILES NOT SHOWN FOR CLARITY. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PL-01.

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 BR-7S-AB-14-101-7S.dgn



ADDENDUMS / REVISIONS	

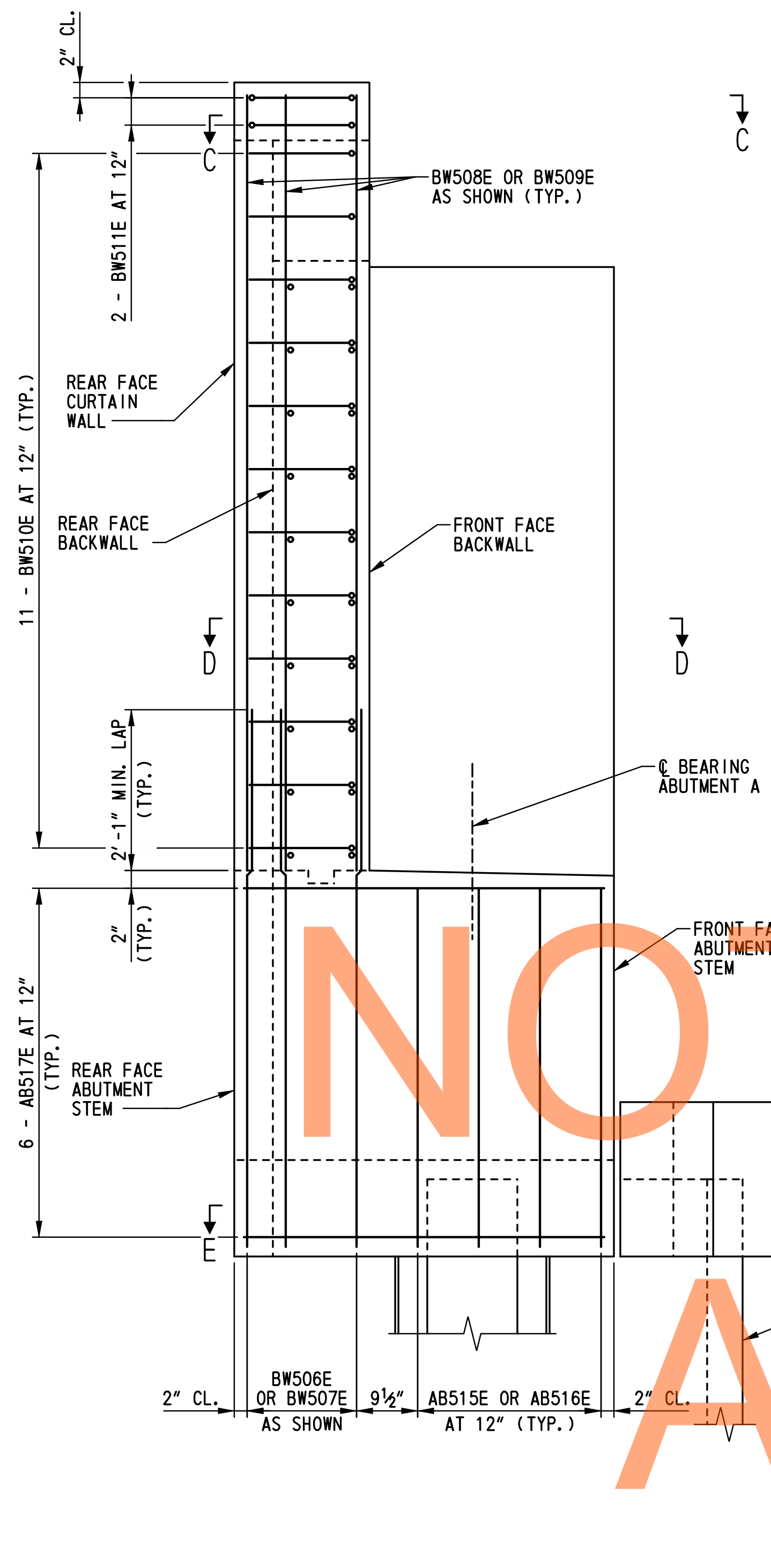
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

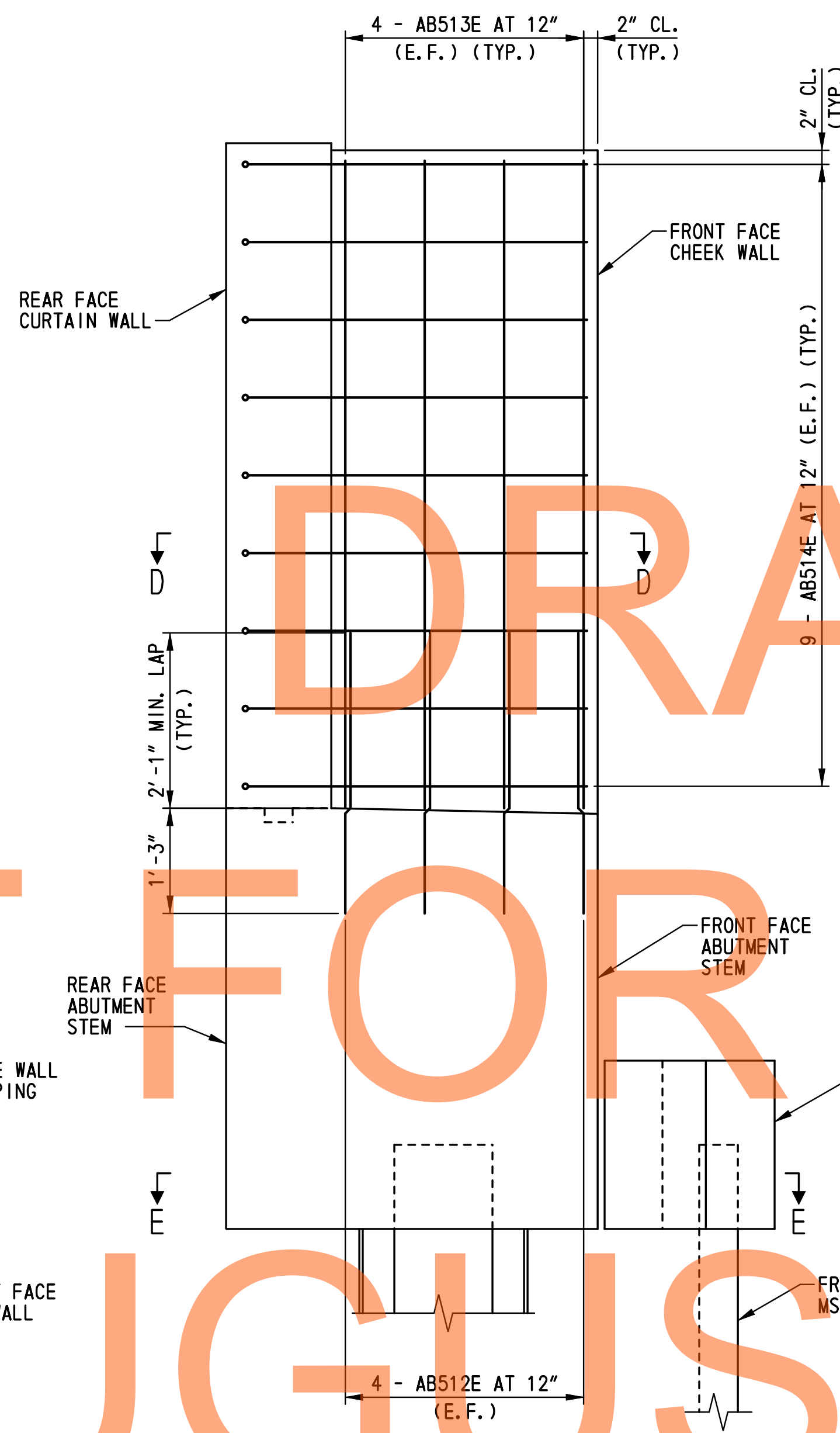
CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT A  
REINFORCEMENT  
DETAILS - 2**

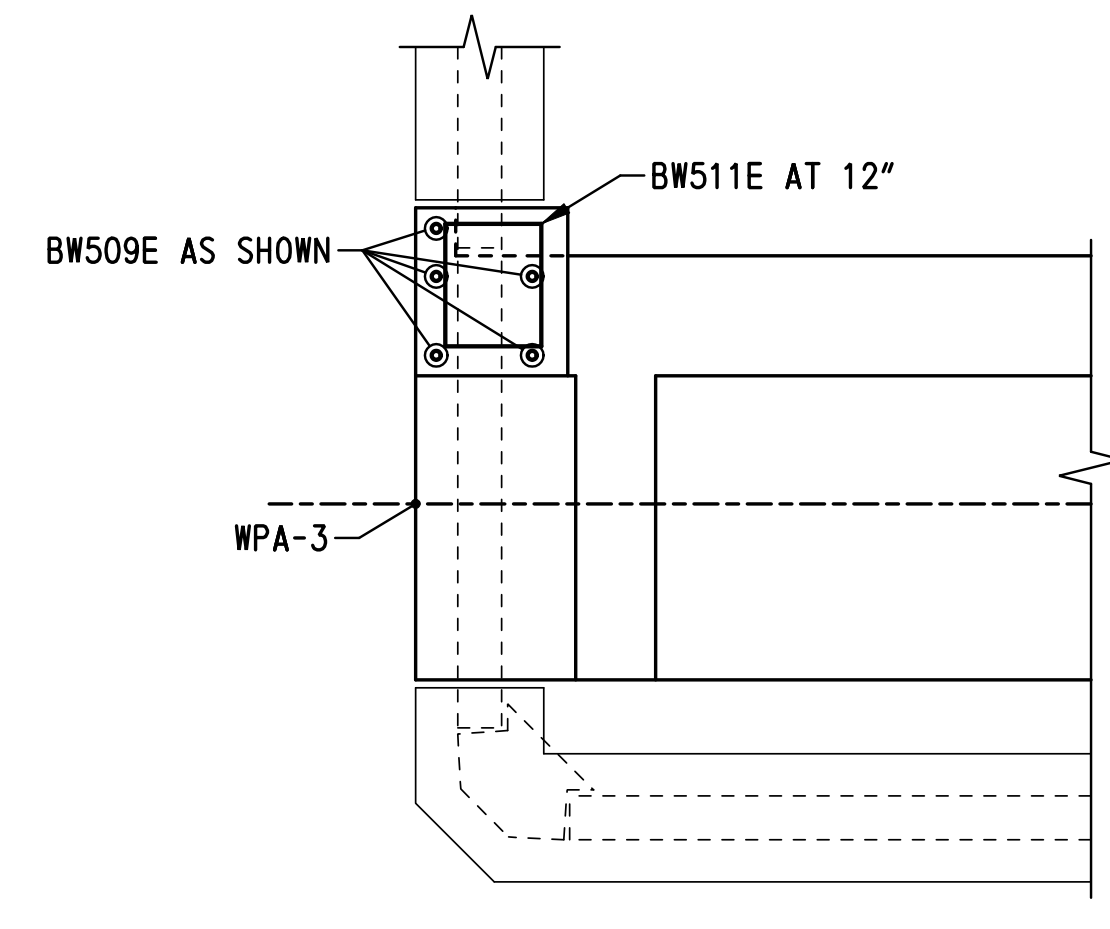
<b>BR-7S AB-14</b>
SHEET NO.
459
TOTAL SHTS.
875



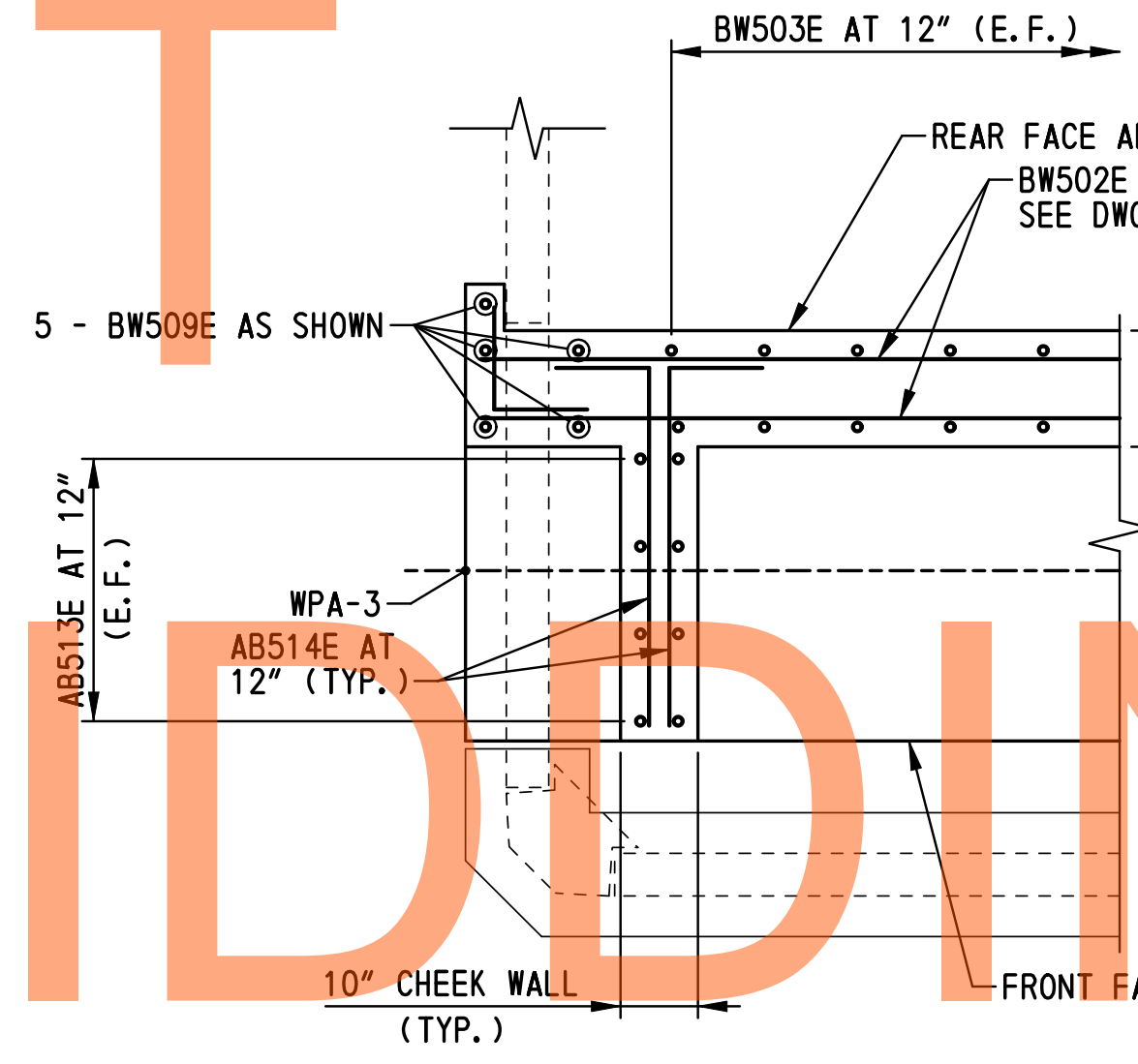
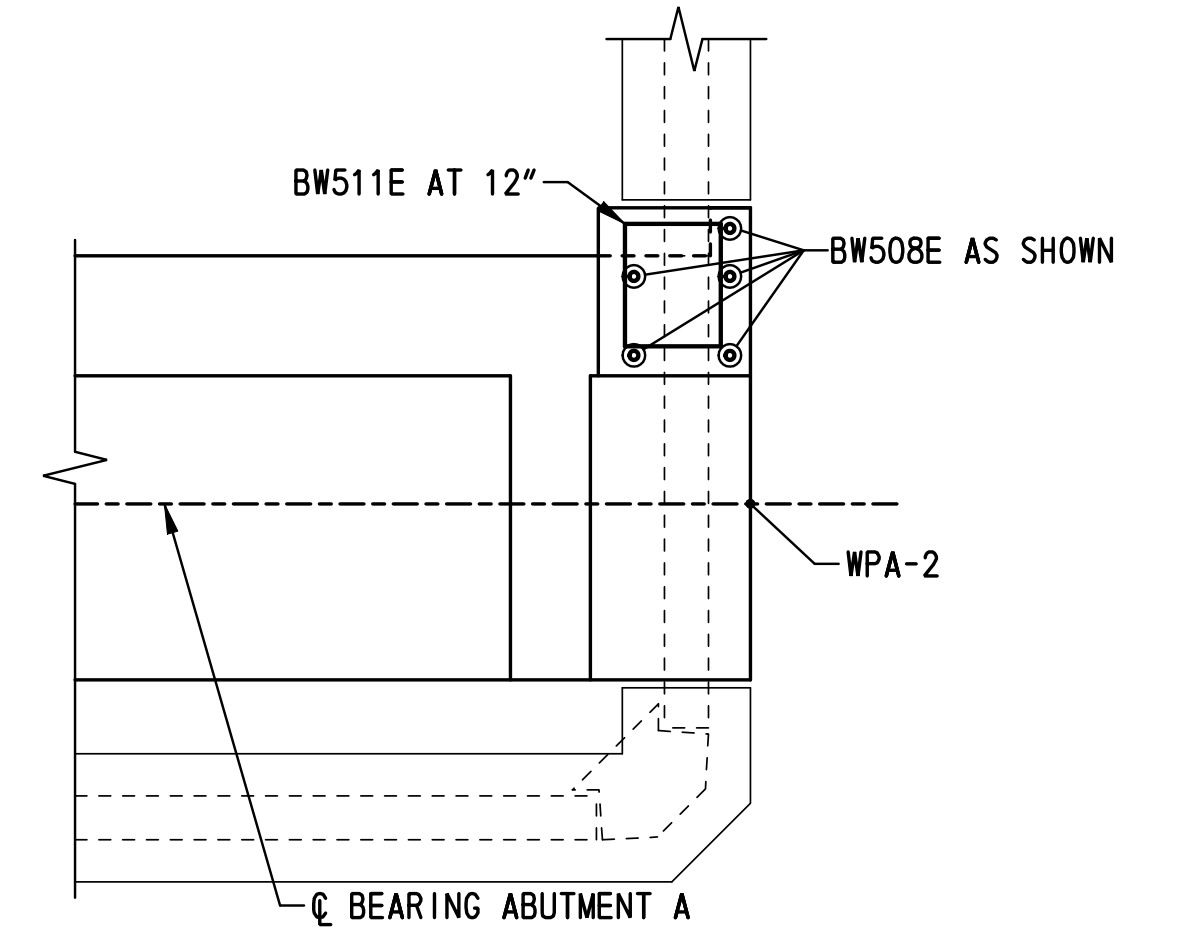
WING WALL ELEVATION  
SCALE: 3/4" = 1' - 0"



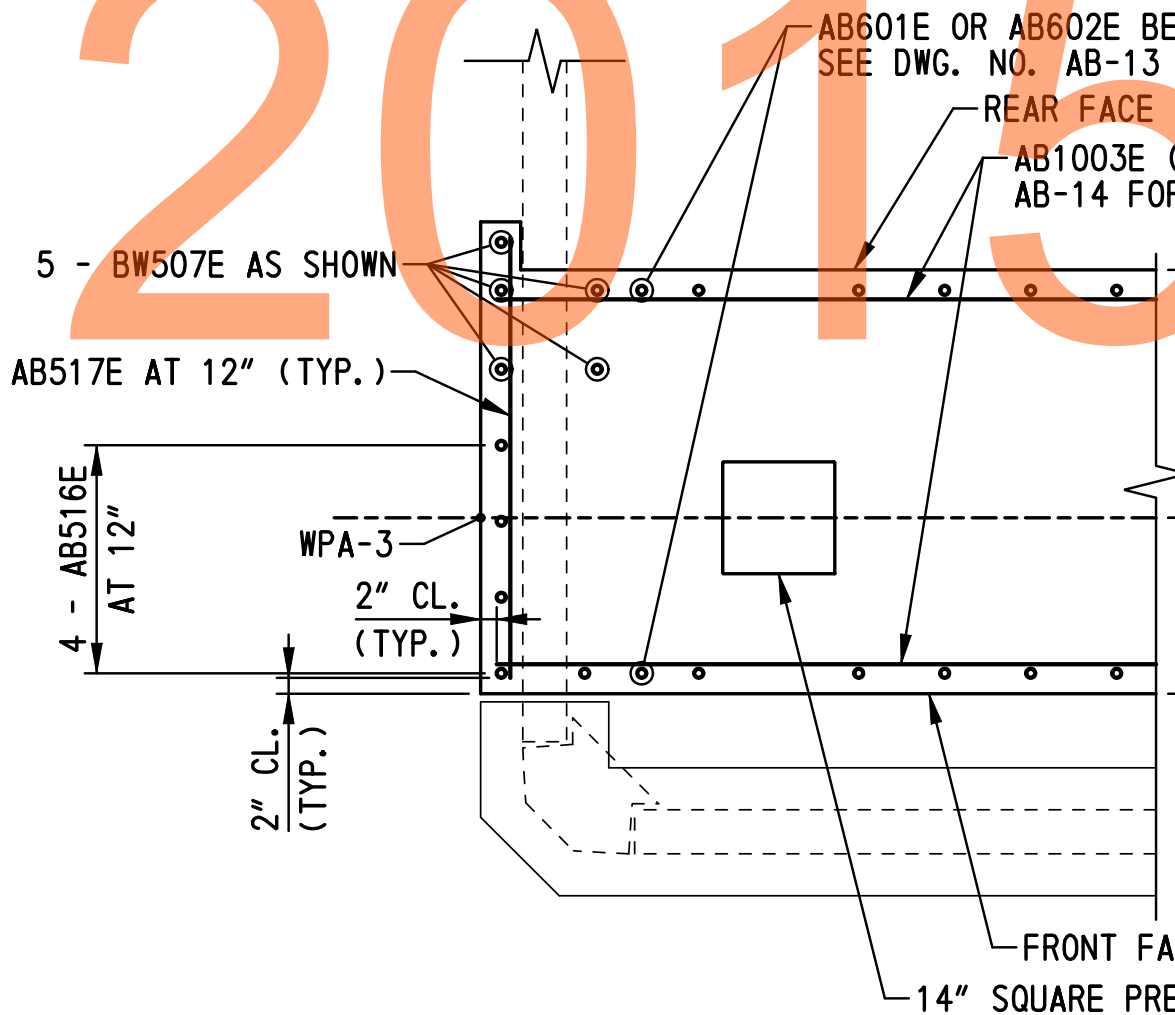
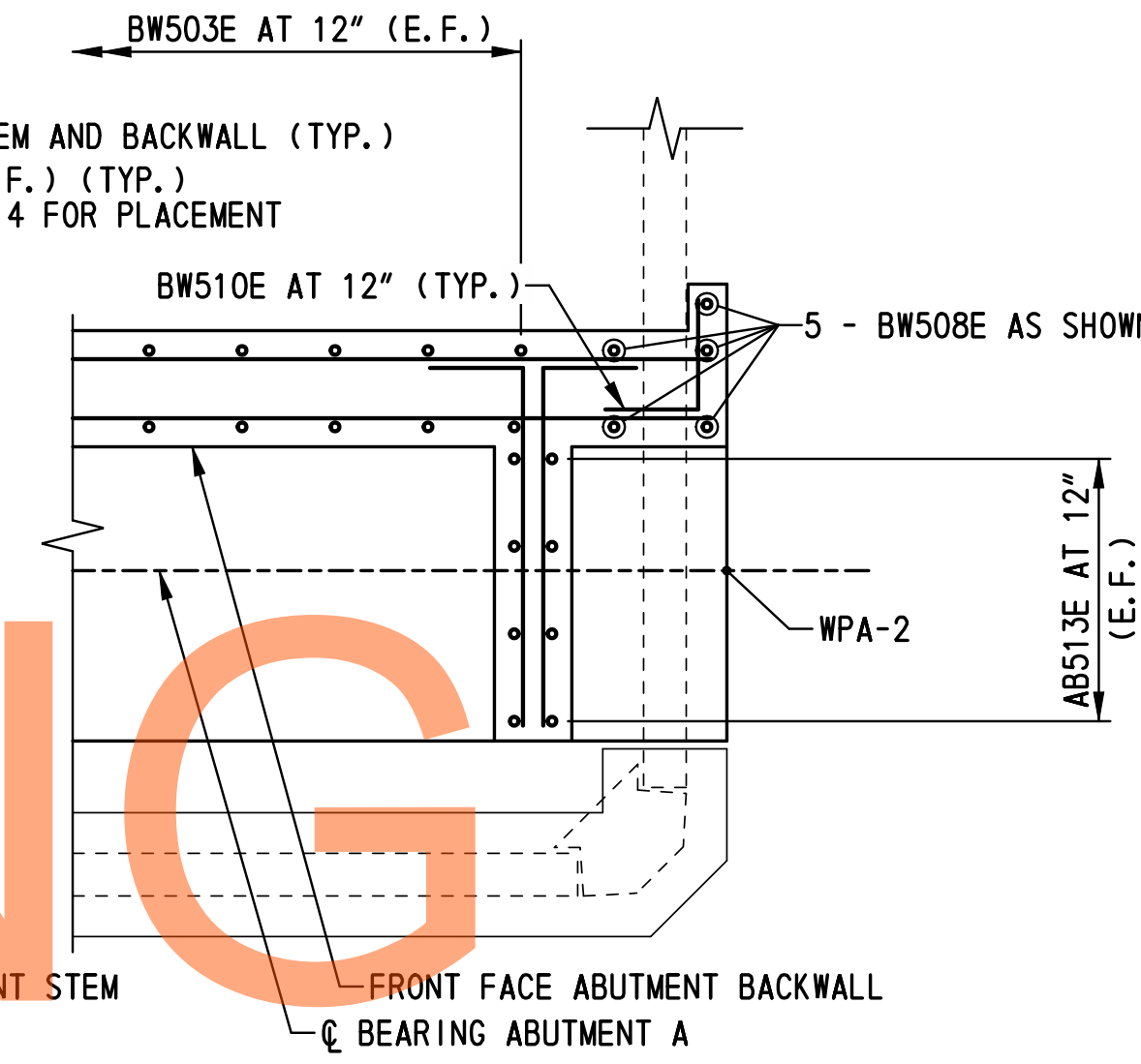
CHEEK WALL ELEVATION  
SCALE: 3/4" = 1' - 0"



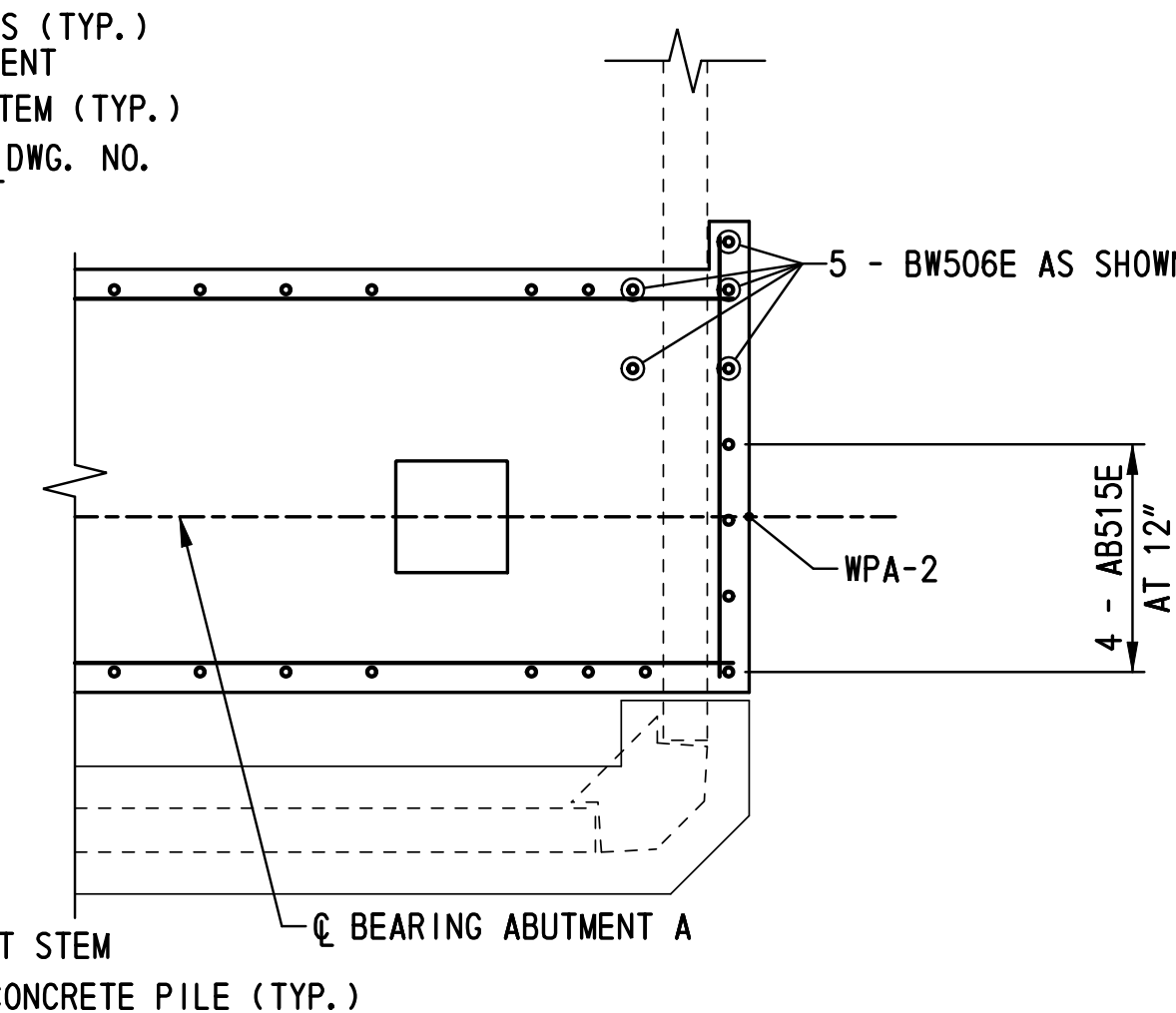
SECTION C-C  
SCALE: 1/2" = 1' - 0"



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



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



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ADDENDUMS / REVISIONS	

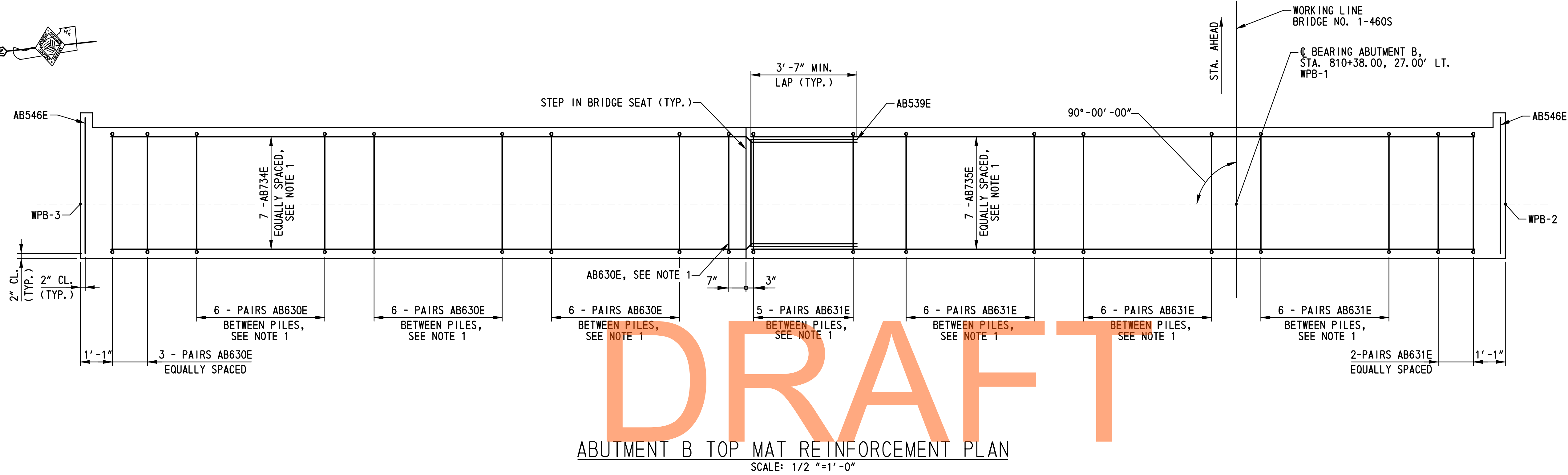
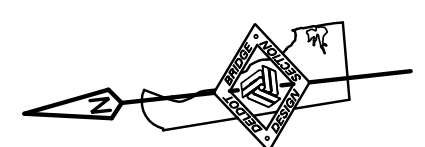
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

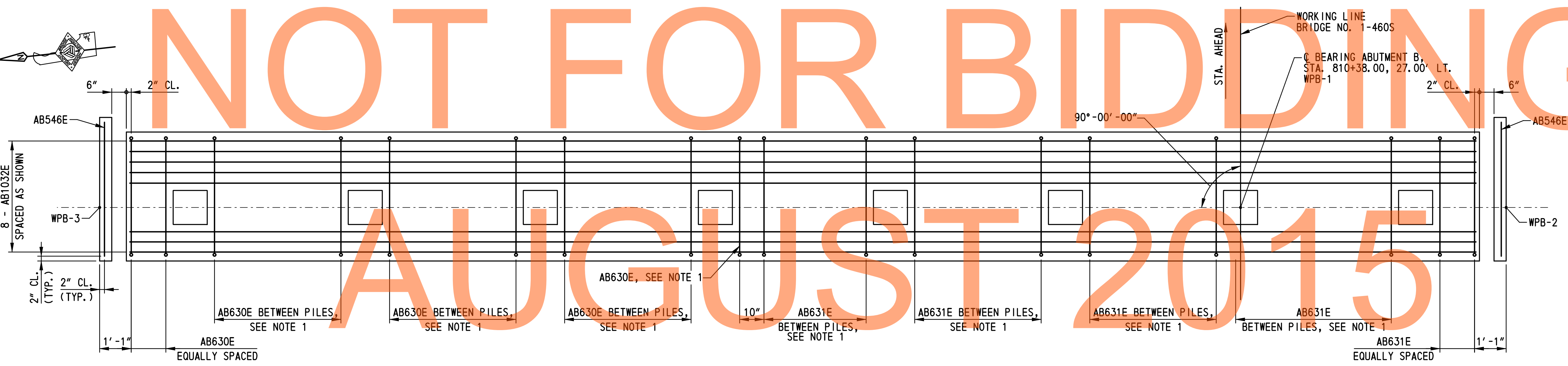
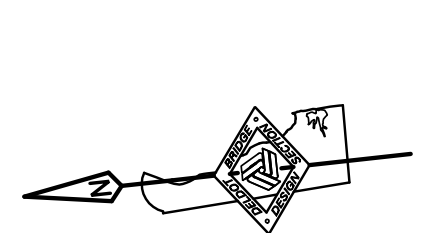
CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT A  
REINFORCEMENT  
DETAILS - 3**

<b>BR1-7S AB-15</b>
SHEET NO.
460
TOTAL SHTS.
875



**DRAFT**  
 ABUTMENT B TOP MAT REINFORCEMENT PLAN  
 SCALE: 1/2" = 1'-0"



ABUTMENT B BOTTOM MAT REINFORCEMENT PLAN  
 SCALE: 1/2" = 1'-0"

**NOT FOR BIDDING**  
**AUGUST 2015**

- NOTES:**
1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS. FOR ADDITIONAL INFORMATION, SEE DWG. NOS. BB-01 AND AB-17.
  2. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-17 AND AB-18.
  3. REINFORCING STEEL OVER PILES NOT SHOWN FOR CLARITY. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PL-01.

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 08/24/2015 10:52:28 AM



ADDENDUMS / REVISIONS	

SCALE: AS NOTED

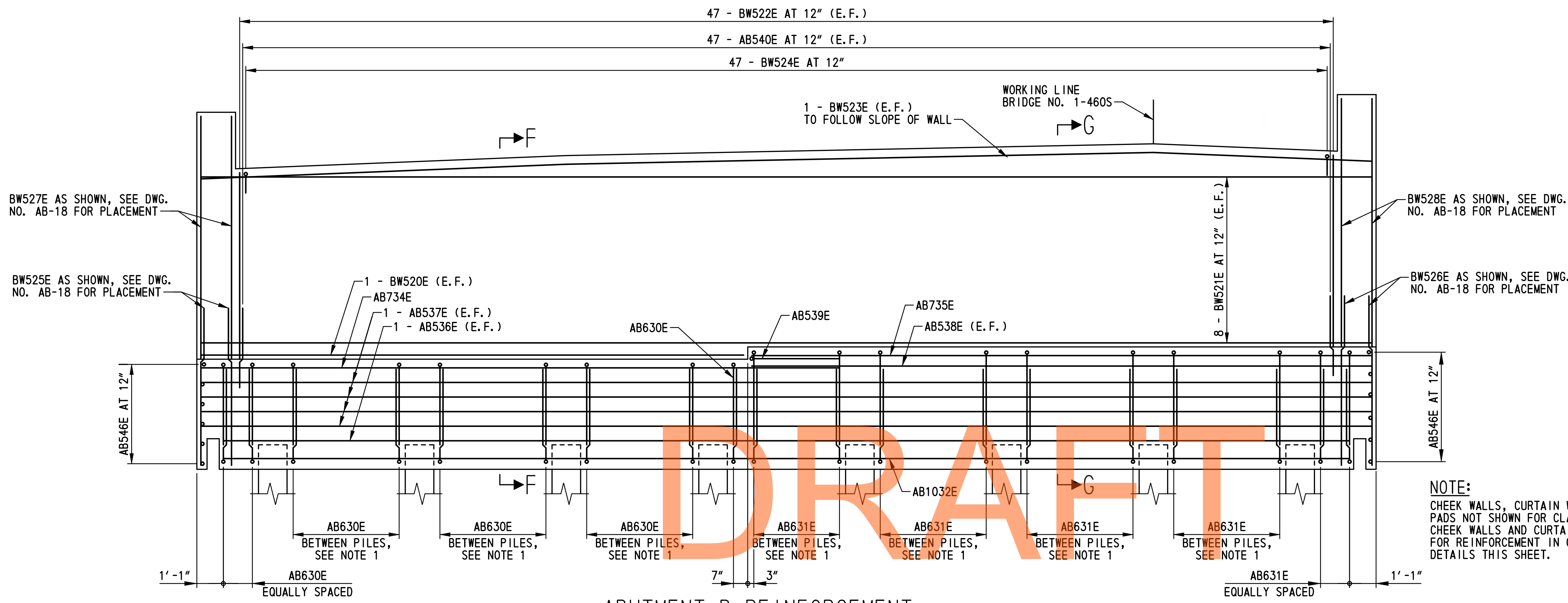
**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT B  
REINFORCEMENT  
DETAILS - 1**

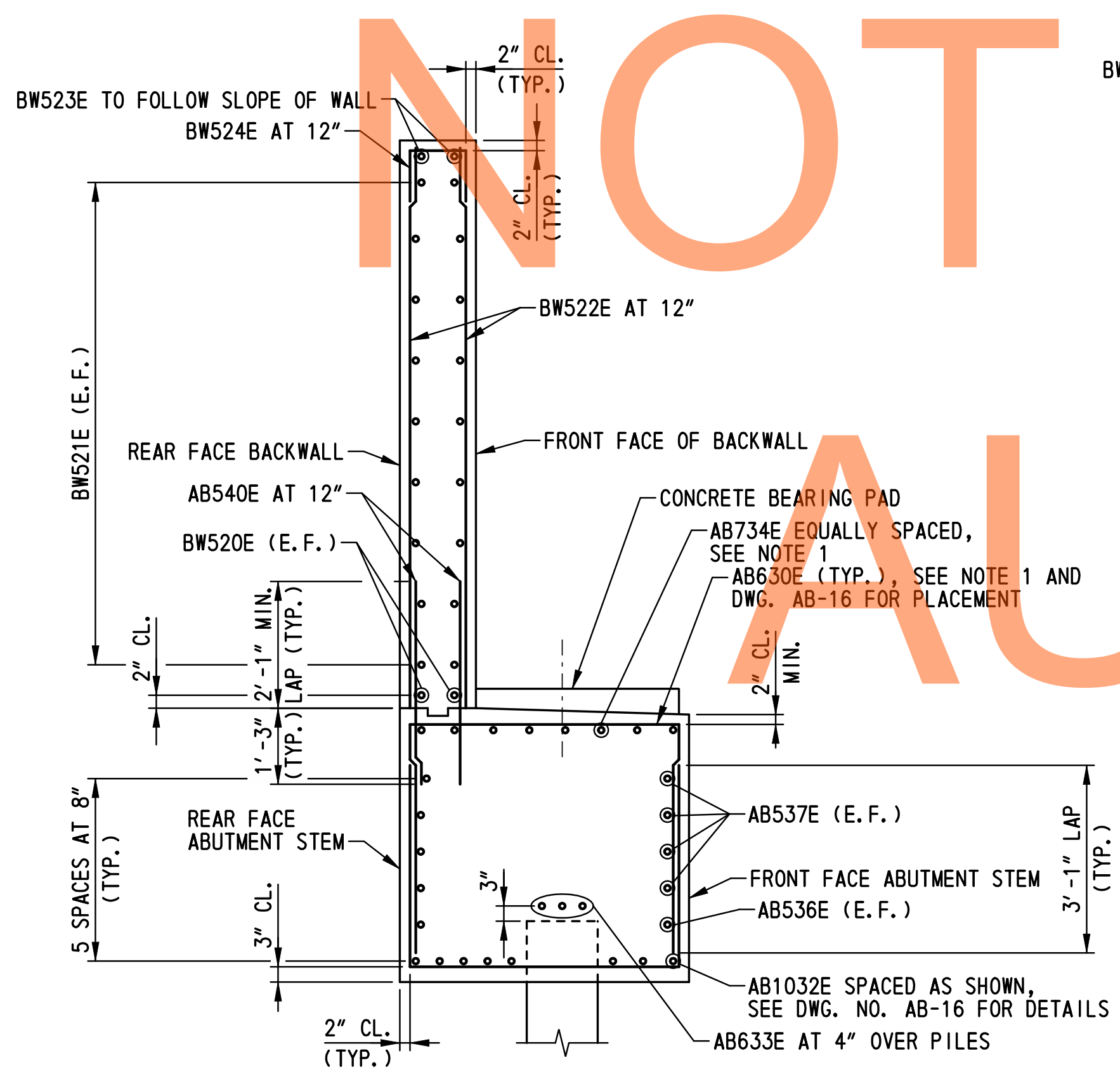
<b>BRI-7S AB-16</b>
SHEET NO.
461
TOTAL SHTS.
875



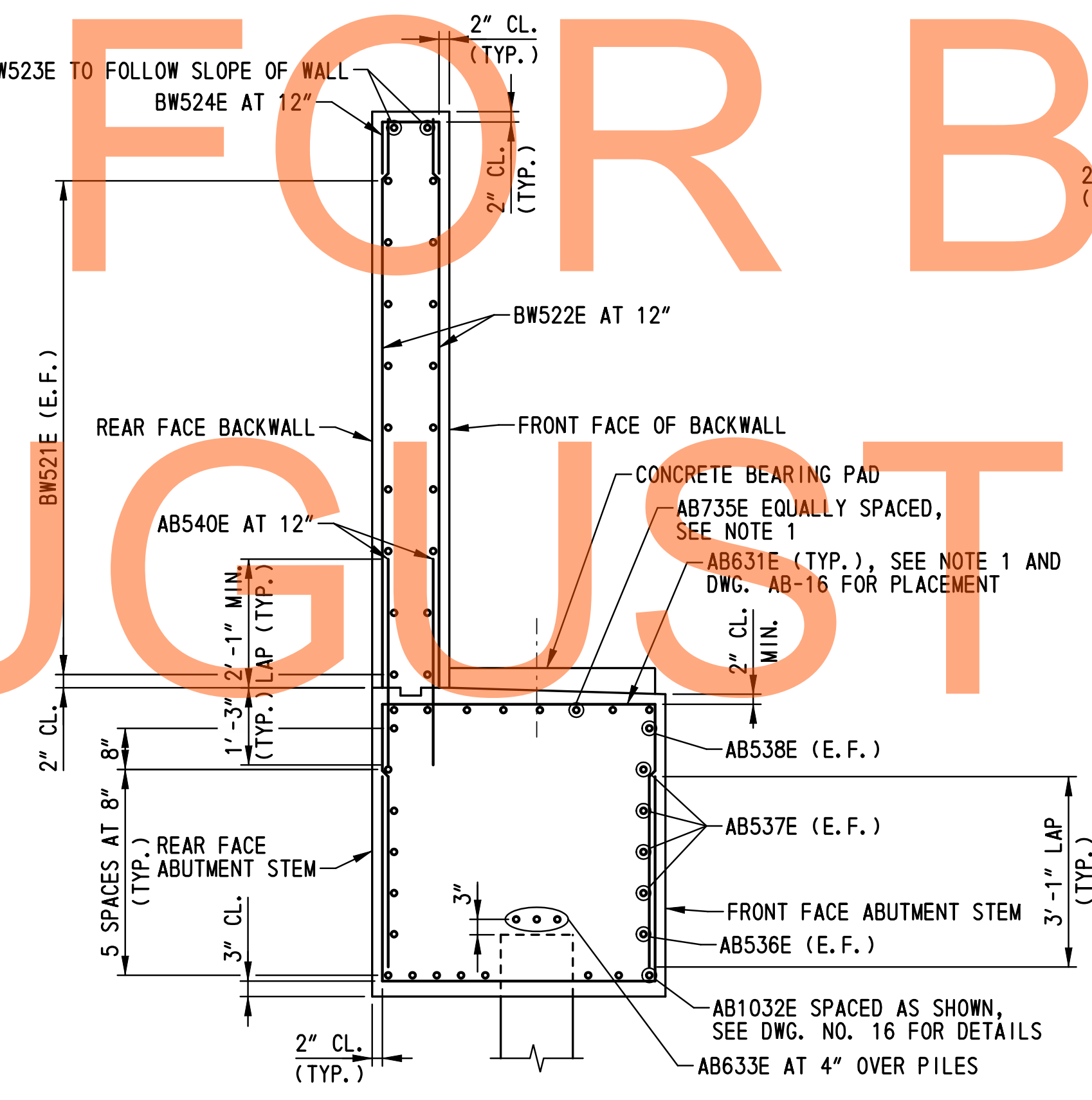


**ABUTMENT B REINFORCEMENT**  
SCALE: 3/8"=1'-0"

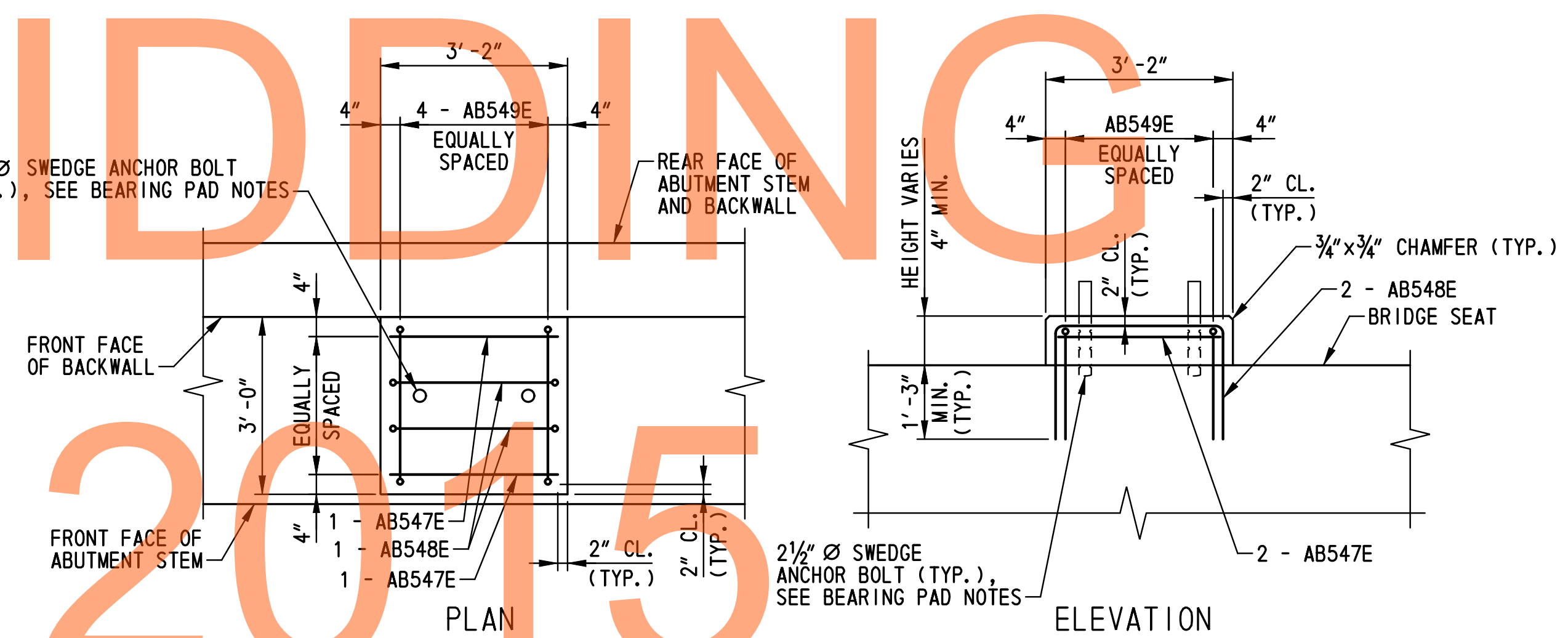
**NOTE:**  
CHEEK WALLS, CURTAIN WALLS, AND CONCRETE BEARING PADS NOT SHOWN FOR CLARITY. FOR REINFORCEMENT IN CHEEK WALLS AND CURTAIN WALLS SEE DWG. NO. AB-18. FOR REINFORCEMENT IN CONCRETE BEARING PAD SEE DETAILS THIS SHEET.



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



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



**ABUTMENT CONCRETE BEARING PAD DETAILS**  
SCALE: 1/2"=1'-0"

**BEARING PAD NOTES:**  
1. FOR ANCHOR BOLT DIMENSIONS AND LOCATION, SEE DWG. NO. BB-01.  
2. ANCHOR BOLTS SHALL BE CAST IN PLACE. A TEMPORARY CASTING TEMPLATE SHALL BE USED TO ENSURE THE ANCHOR BOLTS ARE PROPERLY ALIGNED AND PLUMB. THE TEMPLATE SHALL BE REMOVED AFTER CONCRETE HAS SET.  
3. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS.

**NOTES:**  
1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS. FOR ADDITIONAL INFORMATION, SEE DWG. NOS. BB-01 AND AB-16.  
2. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-16 AND AB-18.  
3. REINFORCING STEEL OVER PILES NOT SHOWN FOR CLARITY. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PL-01.

NOT FOR BIDDING  
AUGUST 2015

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ADDENDUMS / REVISIONS	

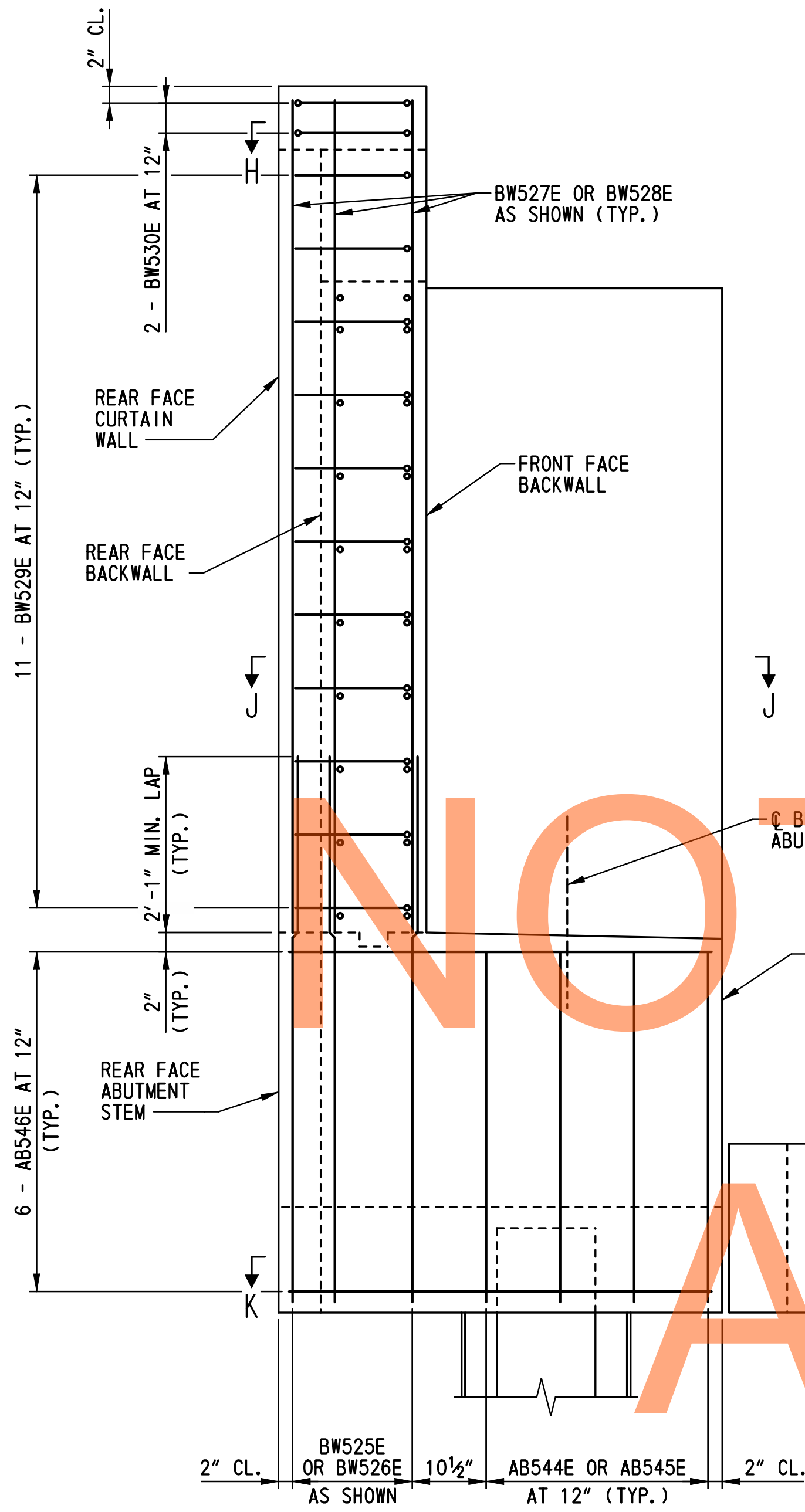
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**US 301,  
SR 896 TO SR 1**

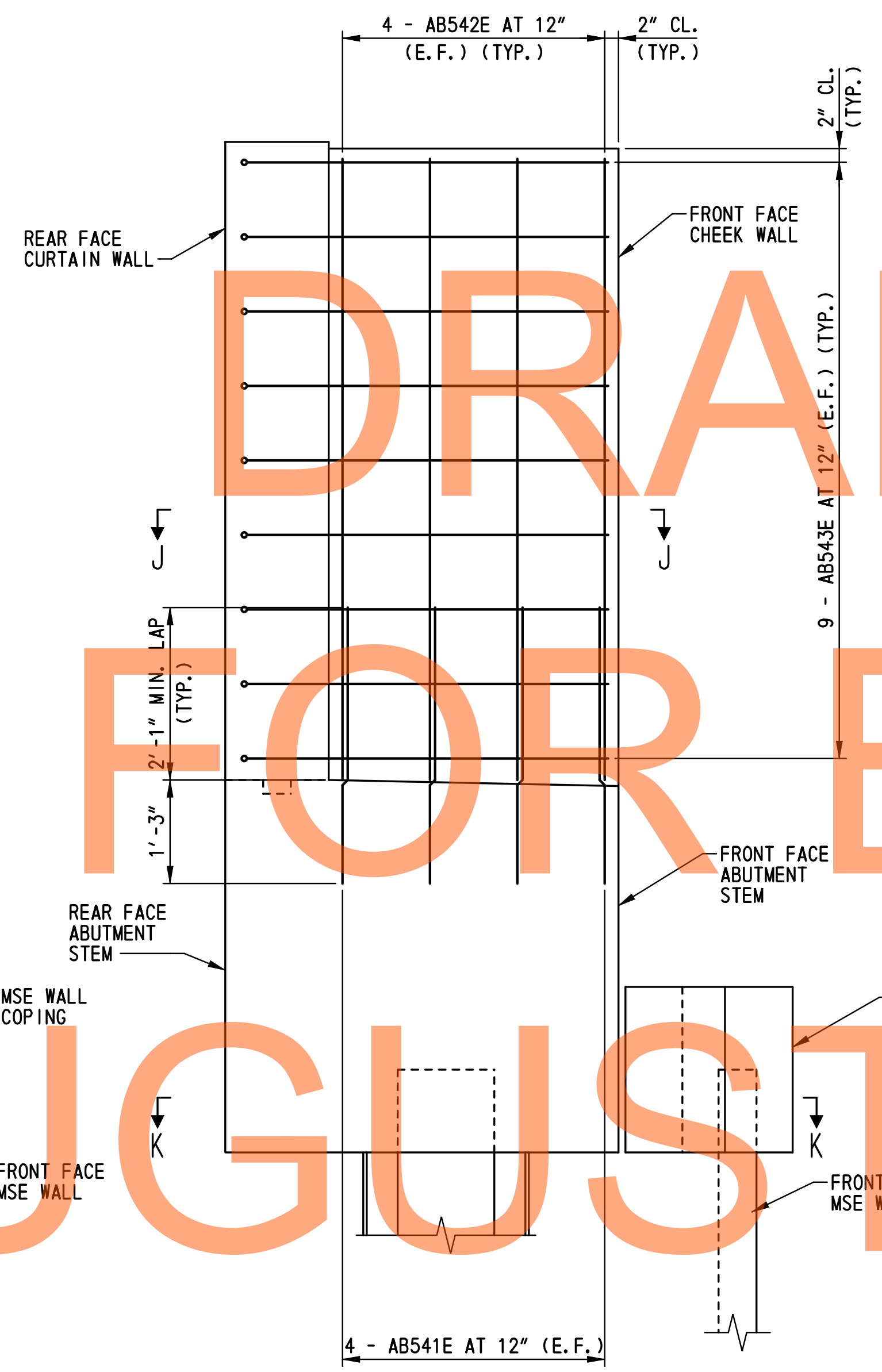
CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: A.D.D. CHECKED BY: P.S.D.

**ABUTMENT B  
REINFORCEMENT  
DETAIL - 2**

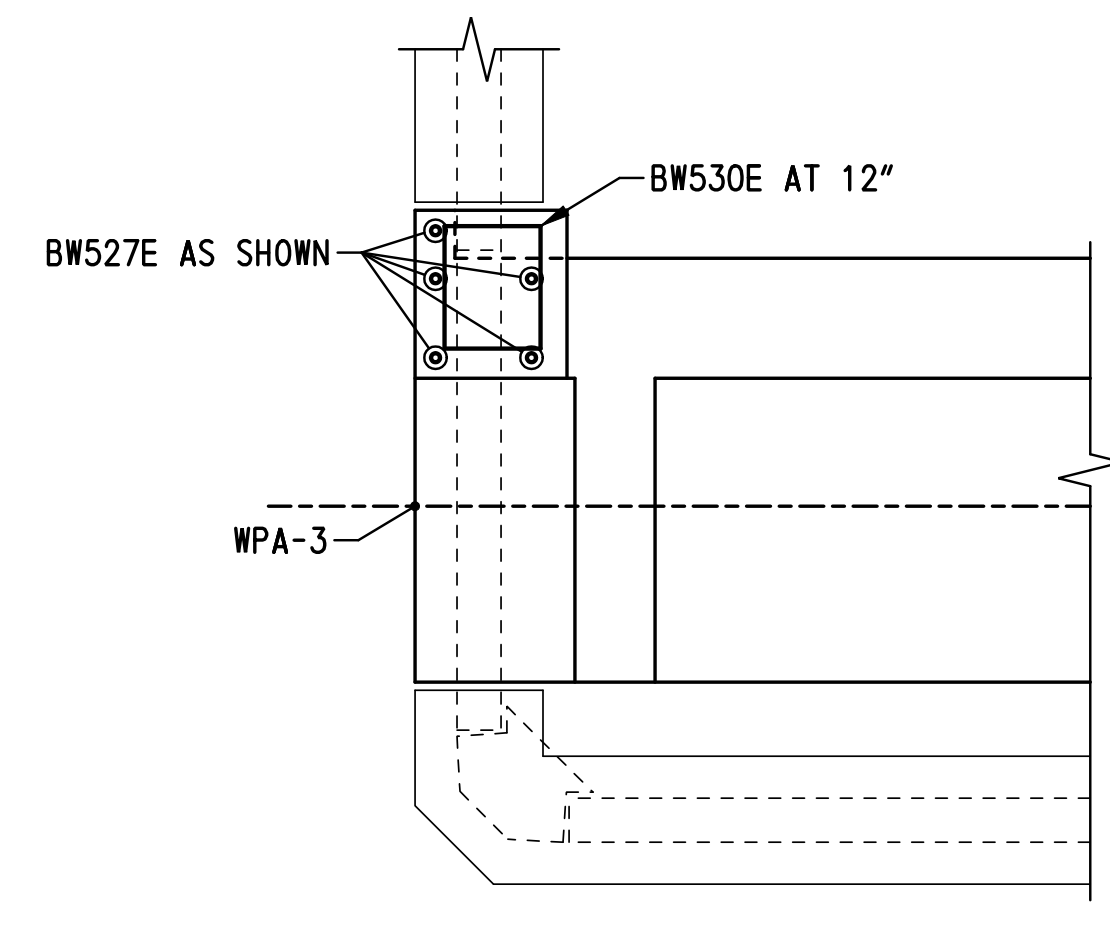
<b>BRI-7S AB-17</b>
SHEET NO. 462
TOTAL SHTS. 875



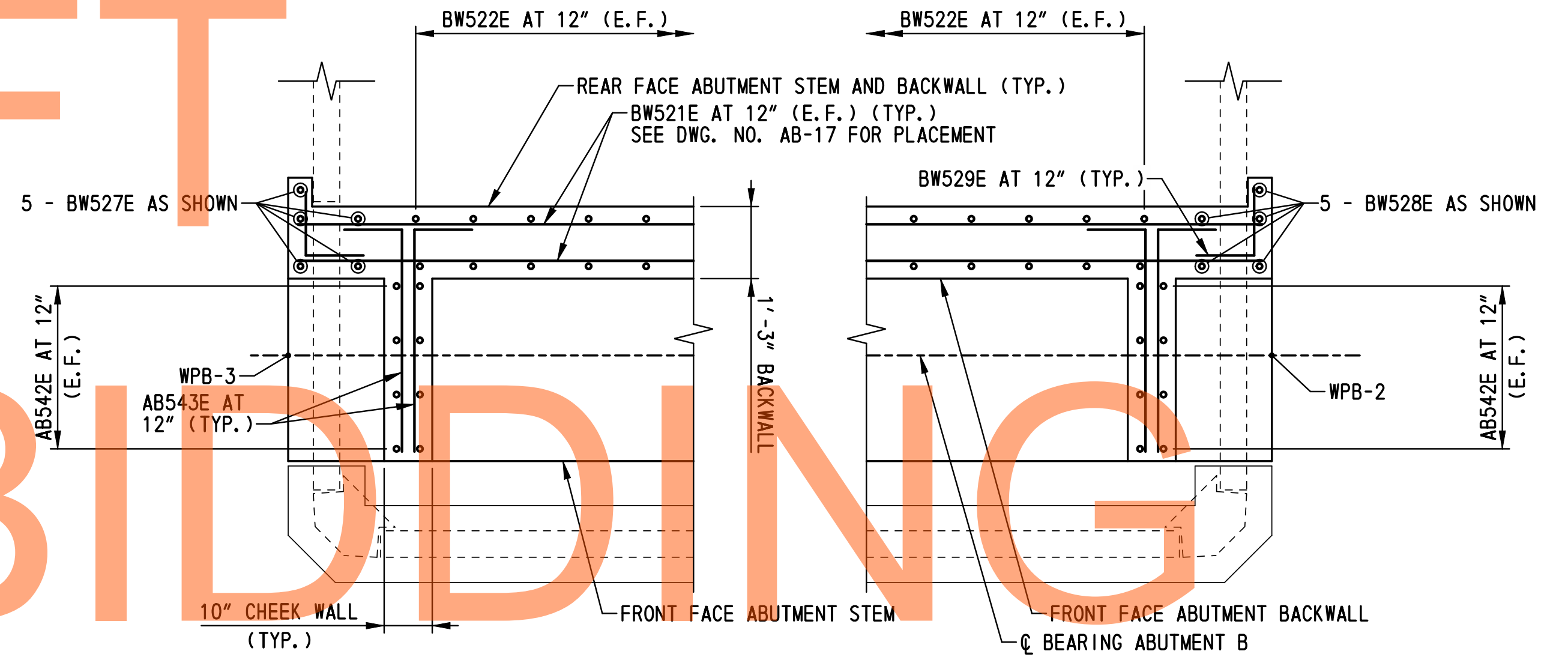
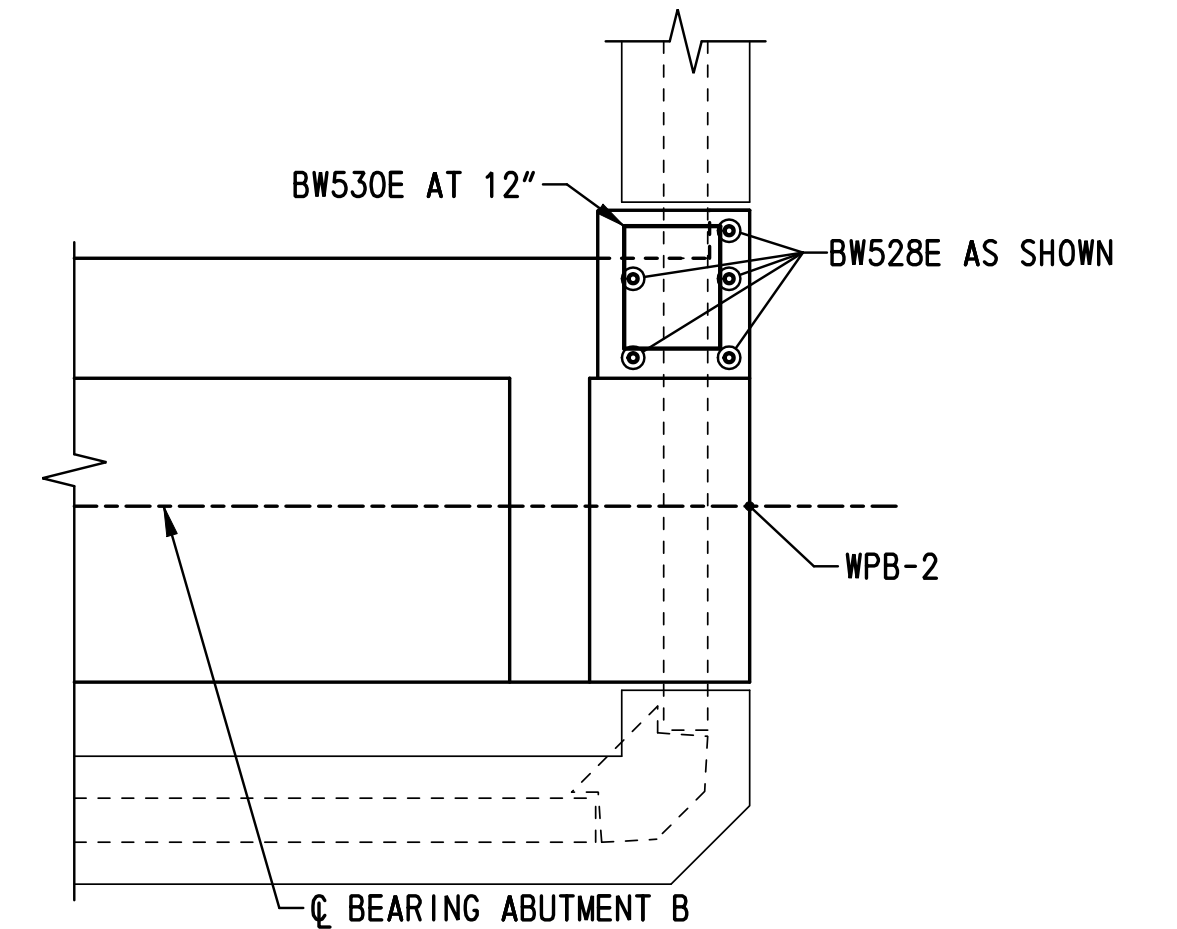
WING WALL ELEVATION  
SCALE: 3/4" = 1' - 0"



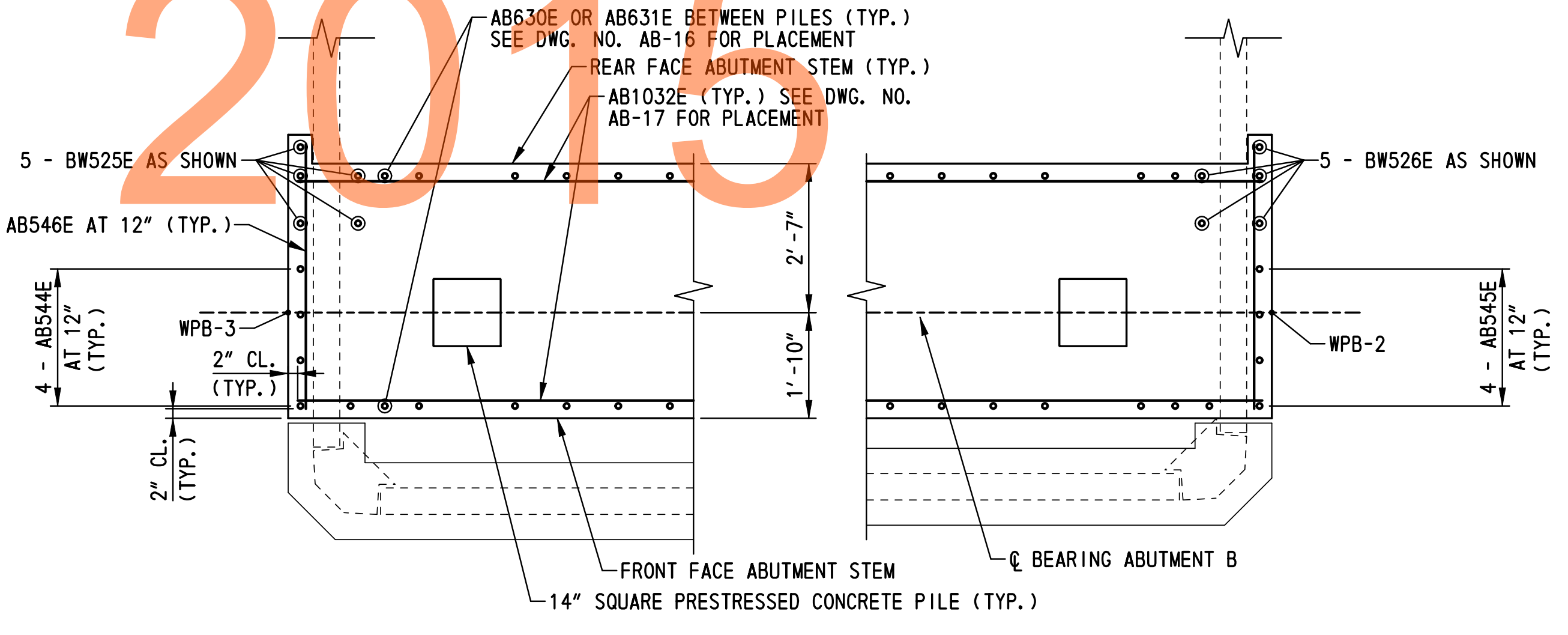
CHEEK WALL ELEVATION  
SCALE: 3/4" = 1' - 0"



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



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



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

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ADDENDUMS / REVISIONS	

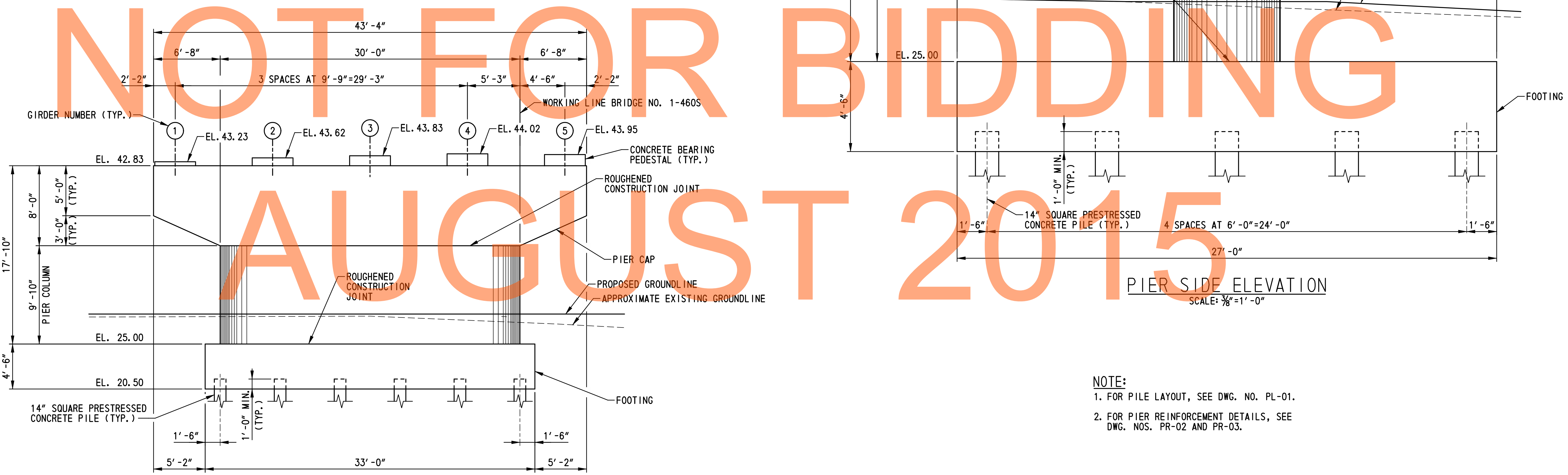
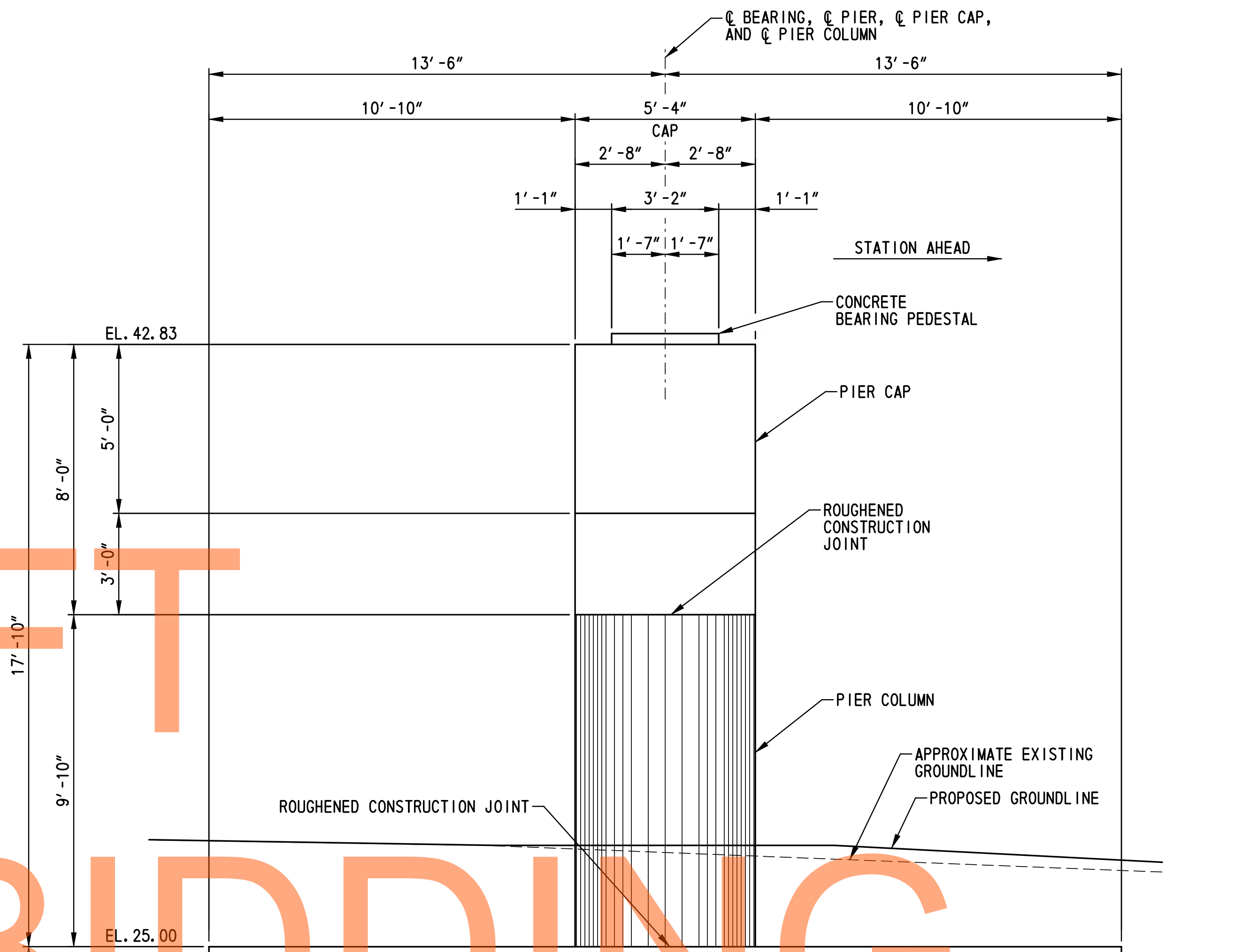
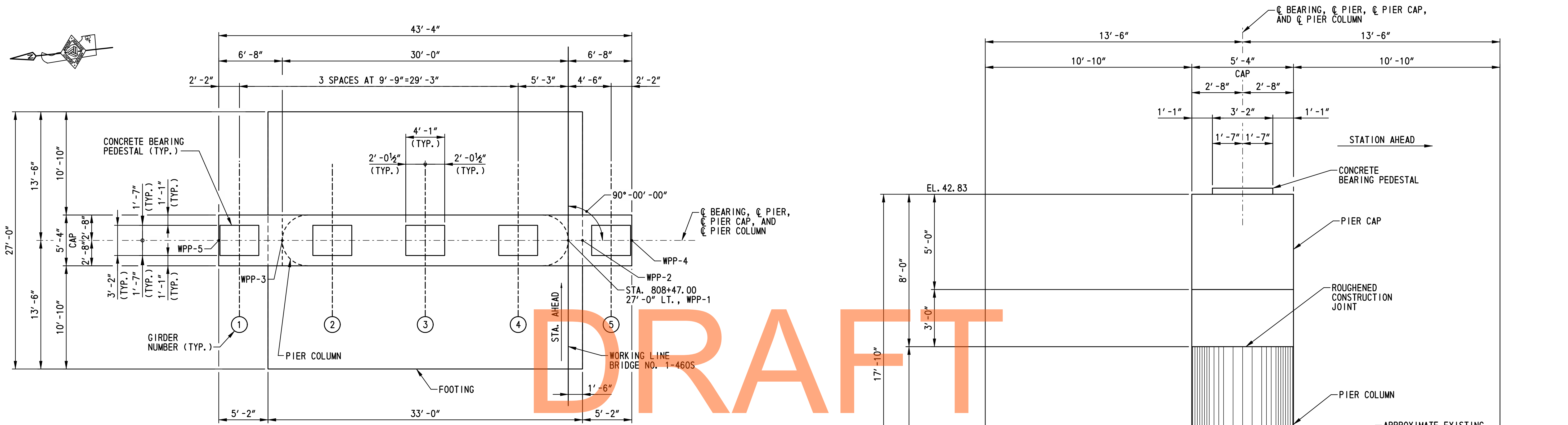
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	A.D.D.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ABUTMENT B  
REINFORCEMENT  
DETAILS - 3**

<b>BRI-7S AB-18</b>
SHEET NO.
463
TOTAL SHTS.
875



**NOTE:**  
 1. FOR PILE LAYOUT, SEE DWG. NO. PL-01.  
 2. FOR PIER REINFORCEMENT DETAILS, SEE DWG. NOS. PR-02 AND PR-03.

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ADDENDUMS / REVISIONS	

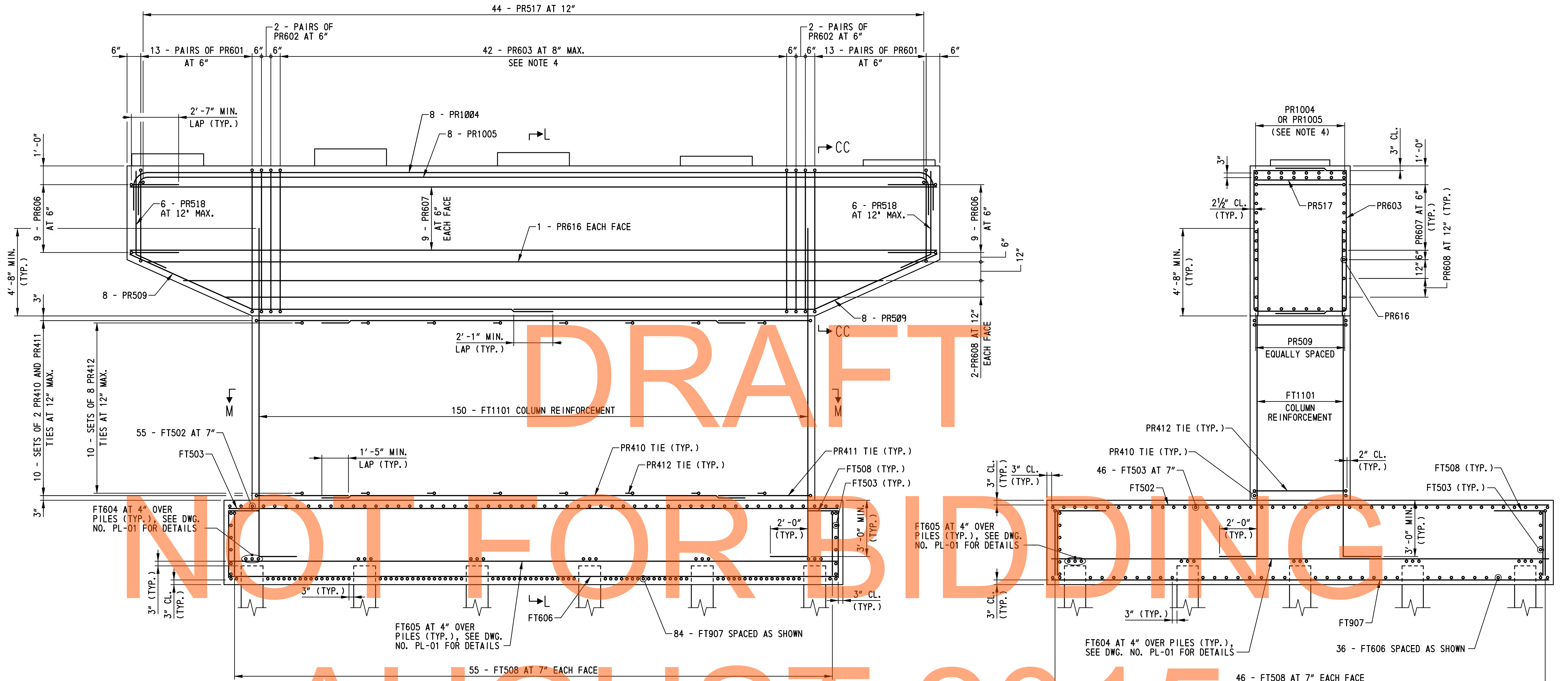
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: S.E.B. CHECKED BY: P.S.D.

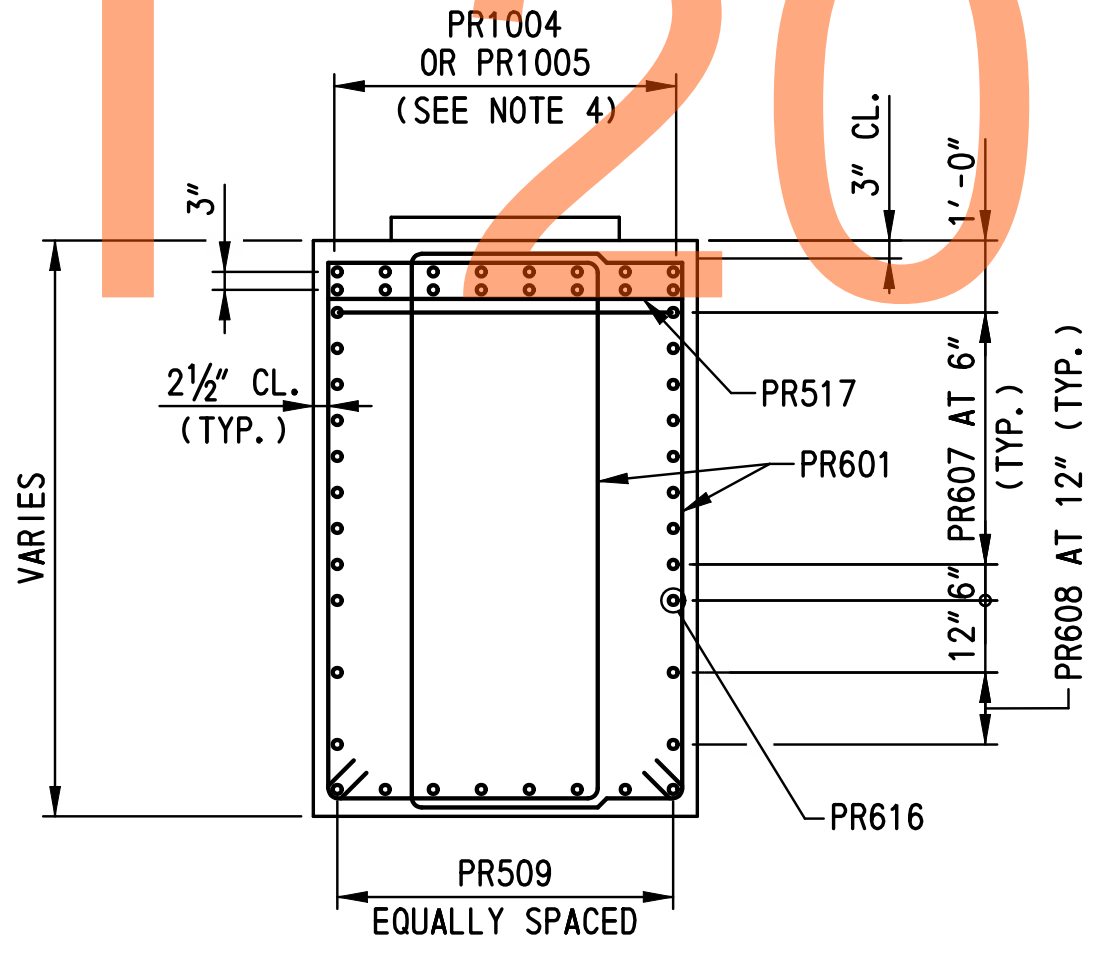
**PIER  
PLAN AND ELEVATIONS**

<b>BR1-7S PR-01</b>
SHEET NO. 464
TOTAL SHTS. 875



**ELEVATION**  
SCALE: 3/8" = 1' - 0"

**SECTION L-L**  
SCALE: 3/8" = 1' - 0"



**SECTION CC-CC**  
SCALE: 3/8" = 1' - 0"

**NOTES:**

1. FOR PIER PLAN AND ELEVATIONS, SEE DWG. NO. PR-01.
2. FOR CONCRETE BEARING PEDESTAL REINFORCING DETAILS, SEE DWG. NO. PR-03.
3. FOR SECTION M-M, SEE DWG. NO. PR-03.
4. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS. FOR ADDITIONAL INFORMATION, SEE DWG. NOS. PR-03 AND BB-03.
5. ALTERNATE 90 DEGREE AND 135 DEGREE HOOK OF PR412 IN EACH LAYER OF COLUMN.



ADDENDUMS / REVISIONS

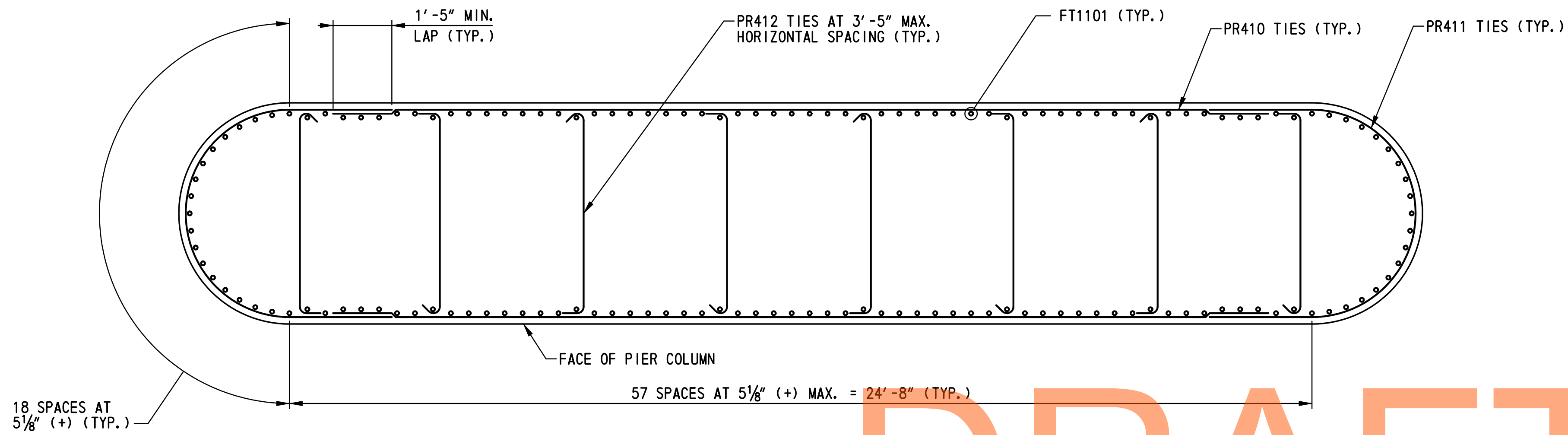
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	S.E.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

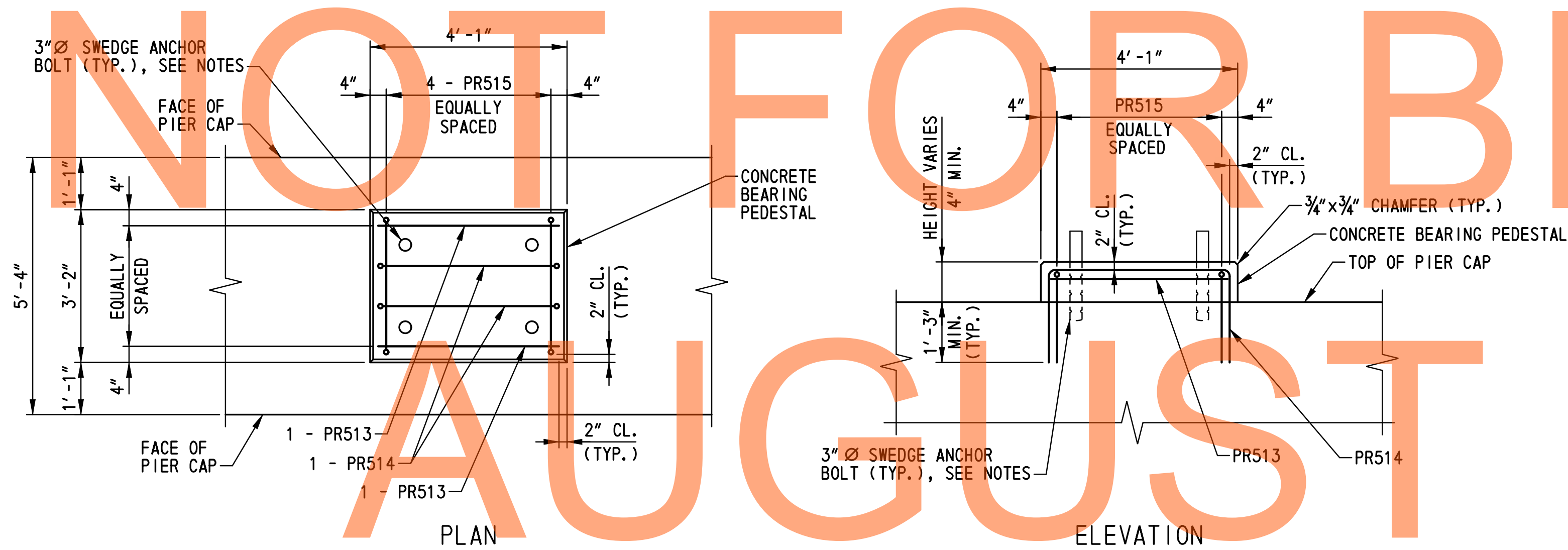
**PIER REINFORCEMENT DETAILS - 1**

<b>BRI-7S PR-02</b>
SHEET NO.
465
TOTAL SHTS.
875



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

NOTE:  
ALTERNATE 90 DEGREE AND 135 DEGREE HOOK  
OF PR412 TIES IN EACH LAYER.



PIER CONCRETE BEARING PEDESTAL REINFORCEMENT DETAILS  
SCALE: 1/2" = 1' - 0"

NOTES:

1. FOR ANCHOR BOLT DIMENSIONS AND LOCATION, SEE DWG. NO. BB-02.
2. ANCHOR BOLTS SHALL BE F1554 GRADE 105 STEEL, GALVANIZED IN ACCORDANCE WITH A153.
3. ANCHOR BOLTS SHALL BE CAST IN PLACE. A TEMPORARY CASTING TEMPLATE SHALL BE USED TO ENSURE THE ANCHOR BOLTS ARE PROPERLY ALIGNED AND PLUMB. THE TEMPLATE SHALL BE REMOVED AFTER THE CONCRETE HAS SET.
4. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS.

ADDENDUMS / REVISIONS

SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

CONTRACT  
T200911308  
COUNTY  
NEW CASTLE

BRIDGE NO. **1-460S**  
DESIGNED BY: S.E.B.  
CHECKED BY: P.S.D.

PIER  
REINFORCEMENT  
DETAILS - 2

BR1-7S  
PR-03

SHEET NO.  
466  
TOTAL SHTS.  
875

DRAFT  
 SHEET NOT USED  
 NOT FOR BIDDING  
 AUGUST 2015

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ADDENDUMS / REVISIONS	

SCALE: AS NOTED

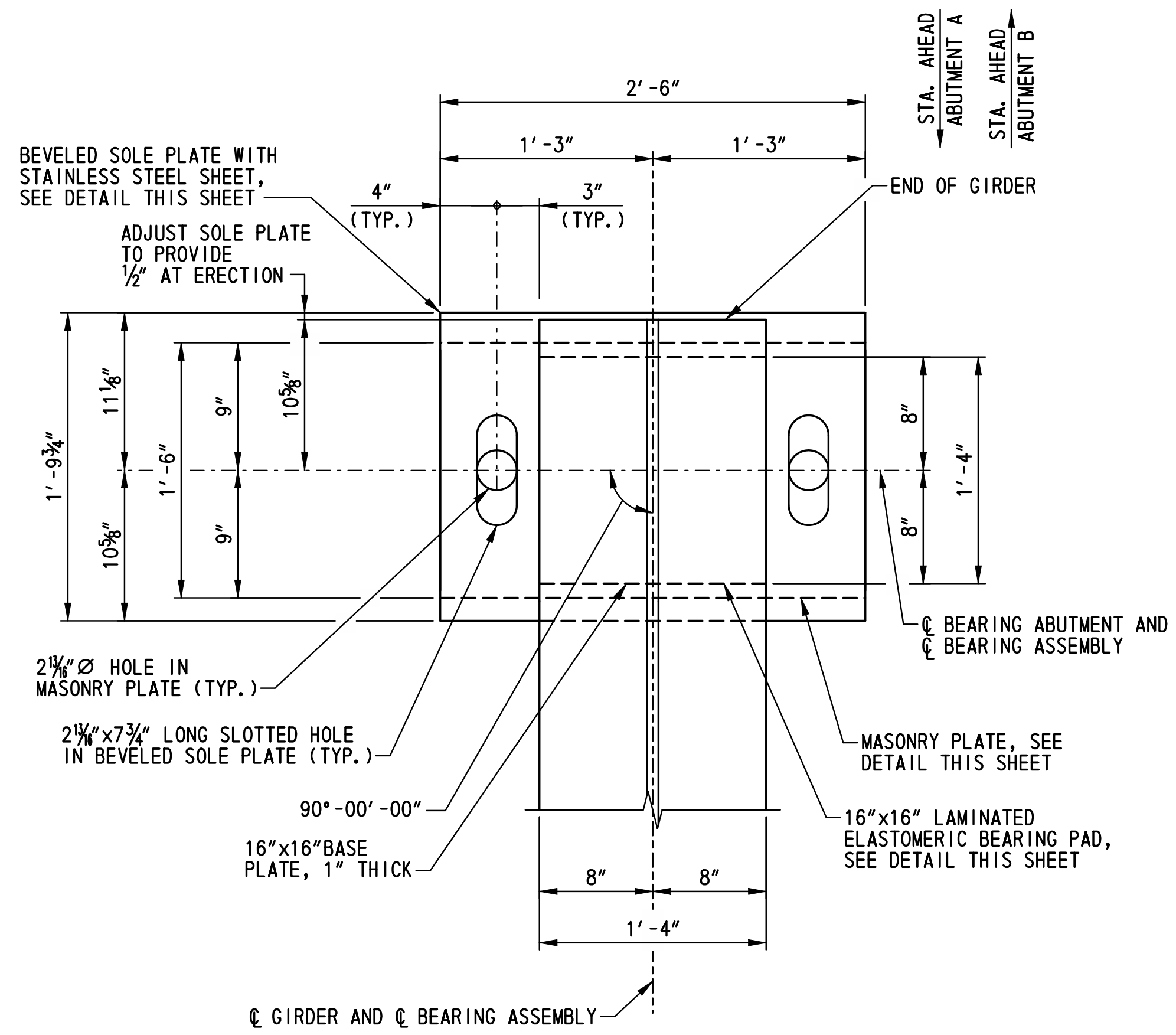
**US 301,  
 SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY: M.P.U.	
COUNTY	CHECKED BY: P.S.D.	
NEW CASTLE		

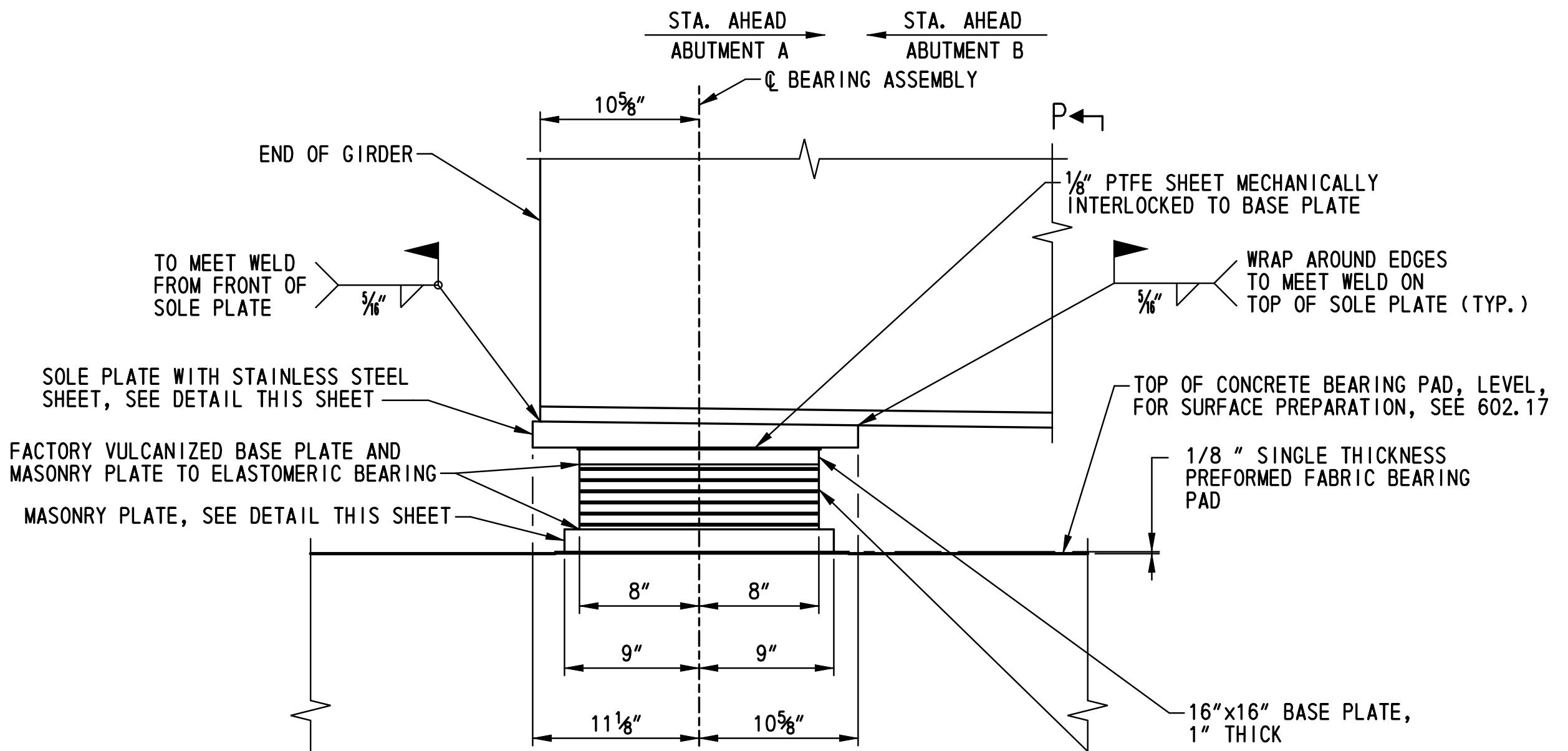
**PIER SCOUR  
 COUNTERMEASURES  
 PLAN AND SECTION**

<b>BR1-7S    PR-04</b>
SHEET NO.
467
TOTAL SHTS.
875

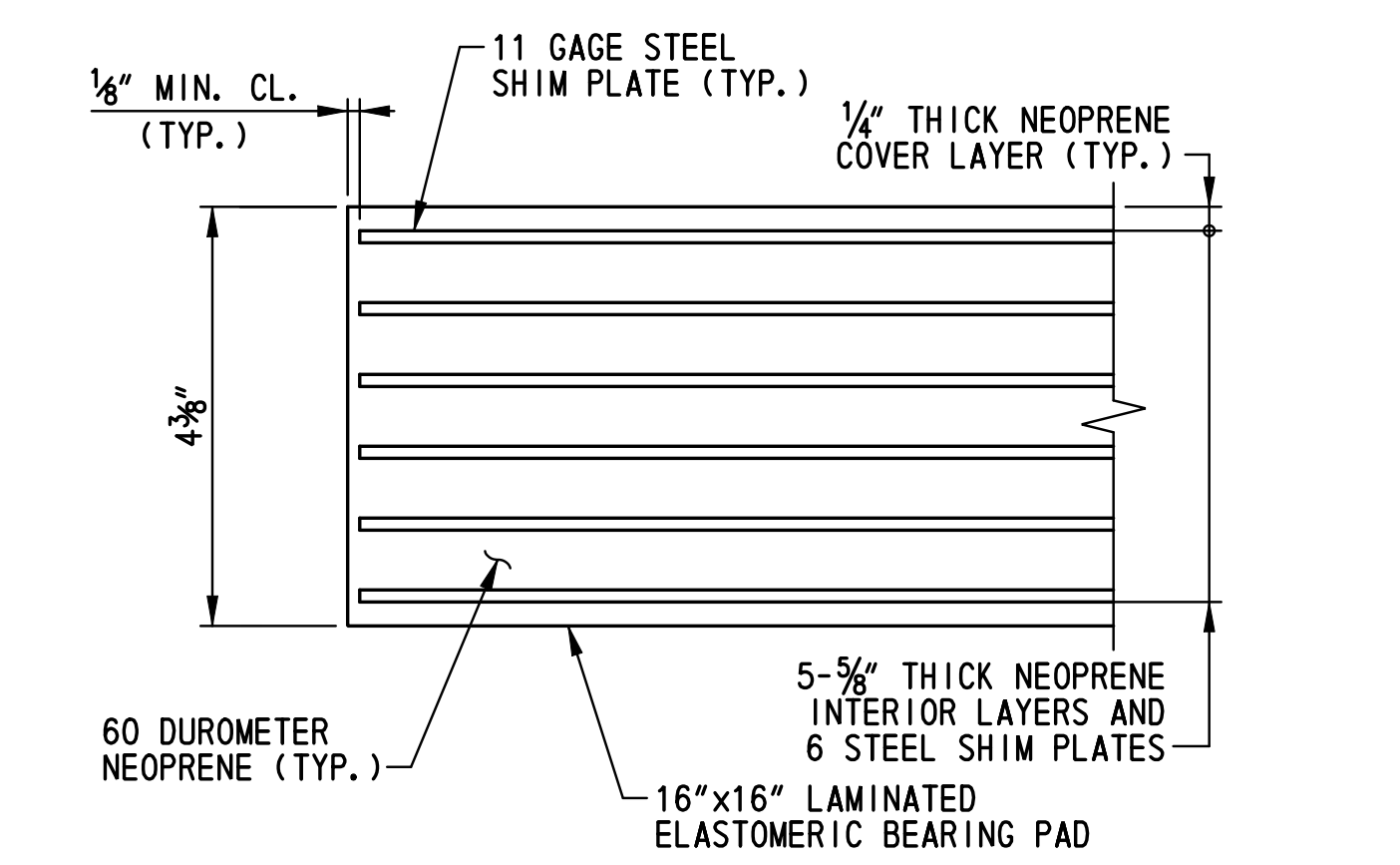




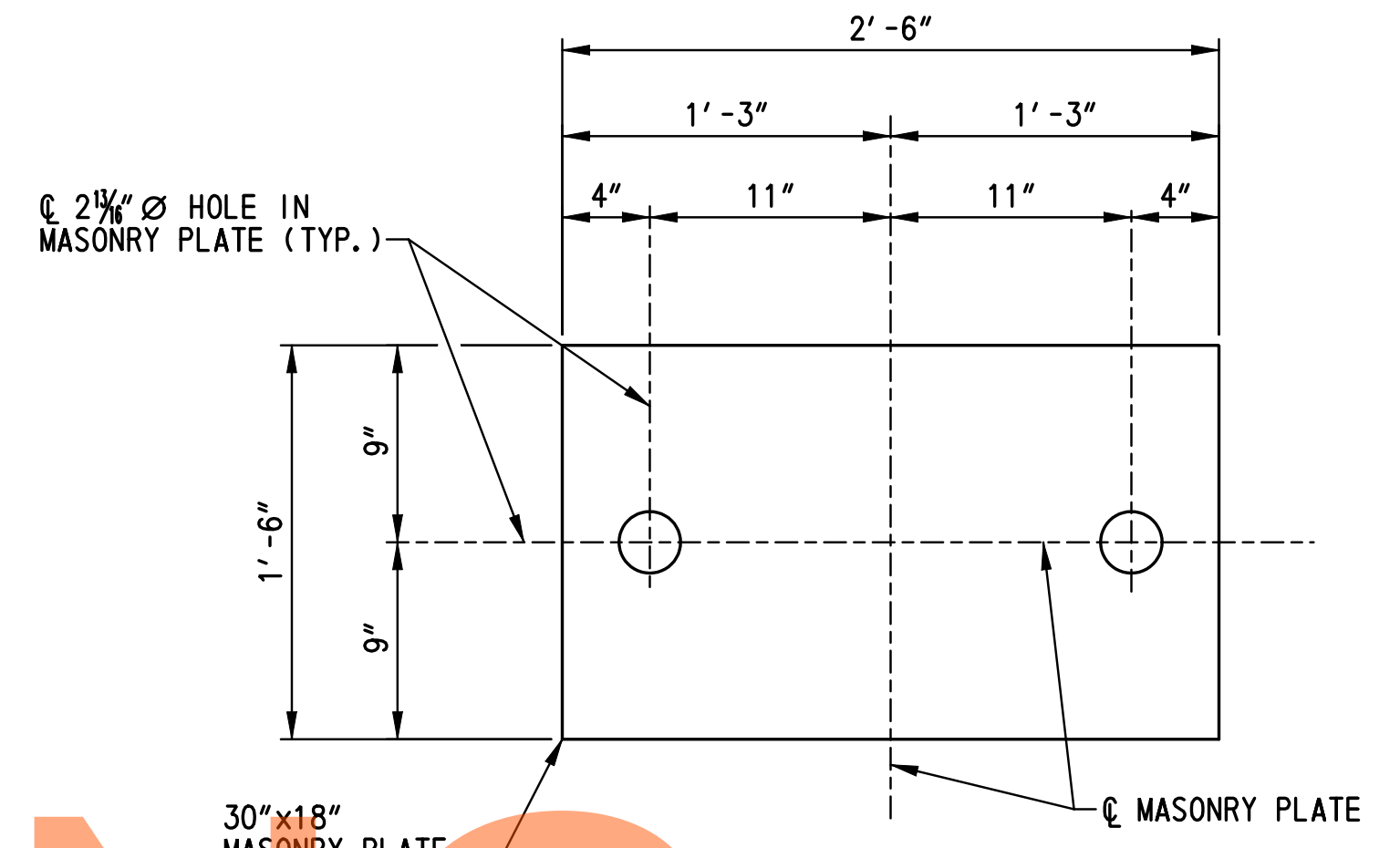
EXPANSION BEARING PLAN  
SCALE: 1 1/2" = 1'-0"



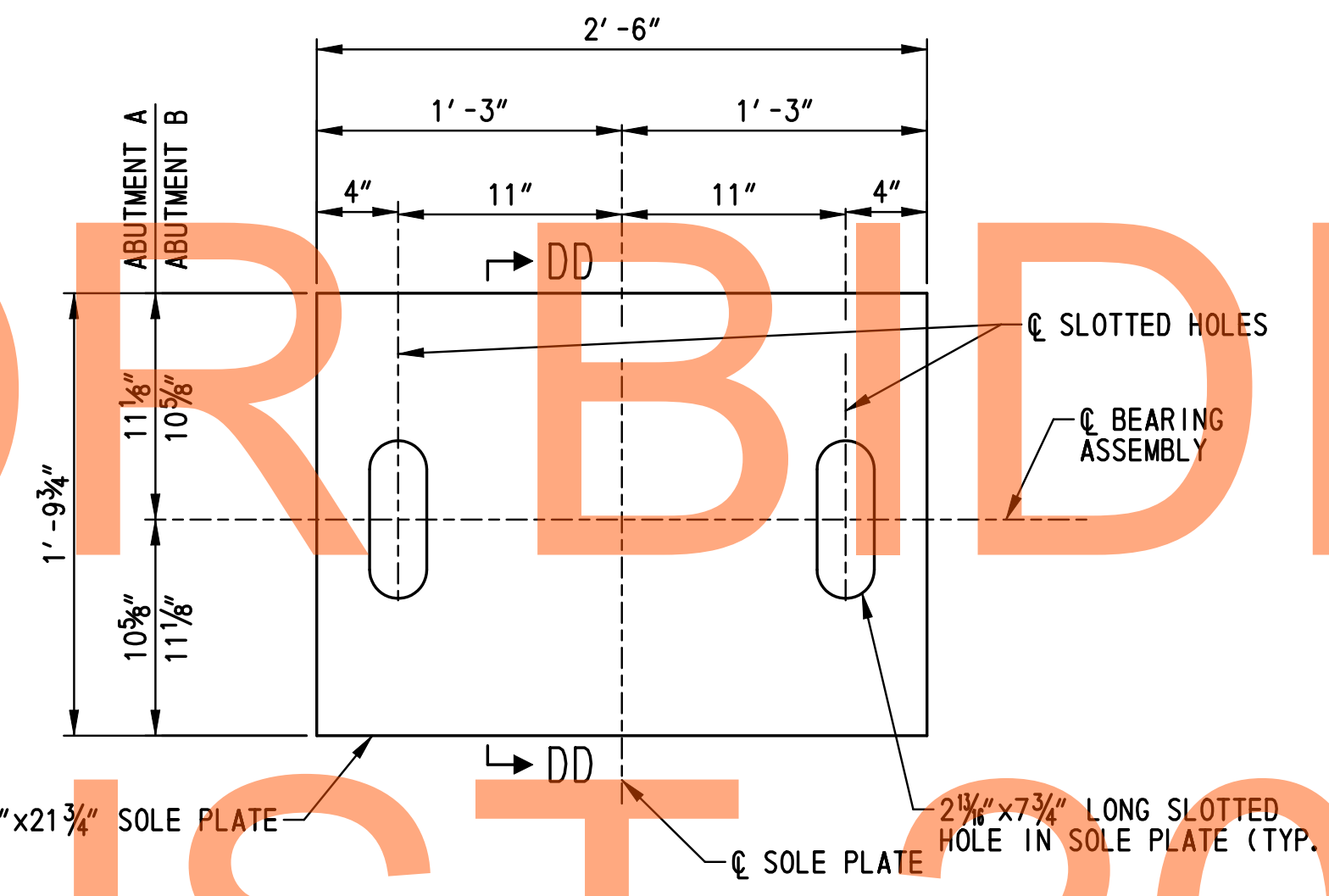
EXPANSION BEARING ELEVATION  
SCALE: 1 1/2" = 1'-0"



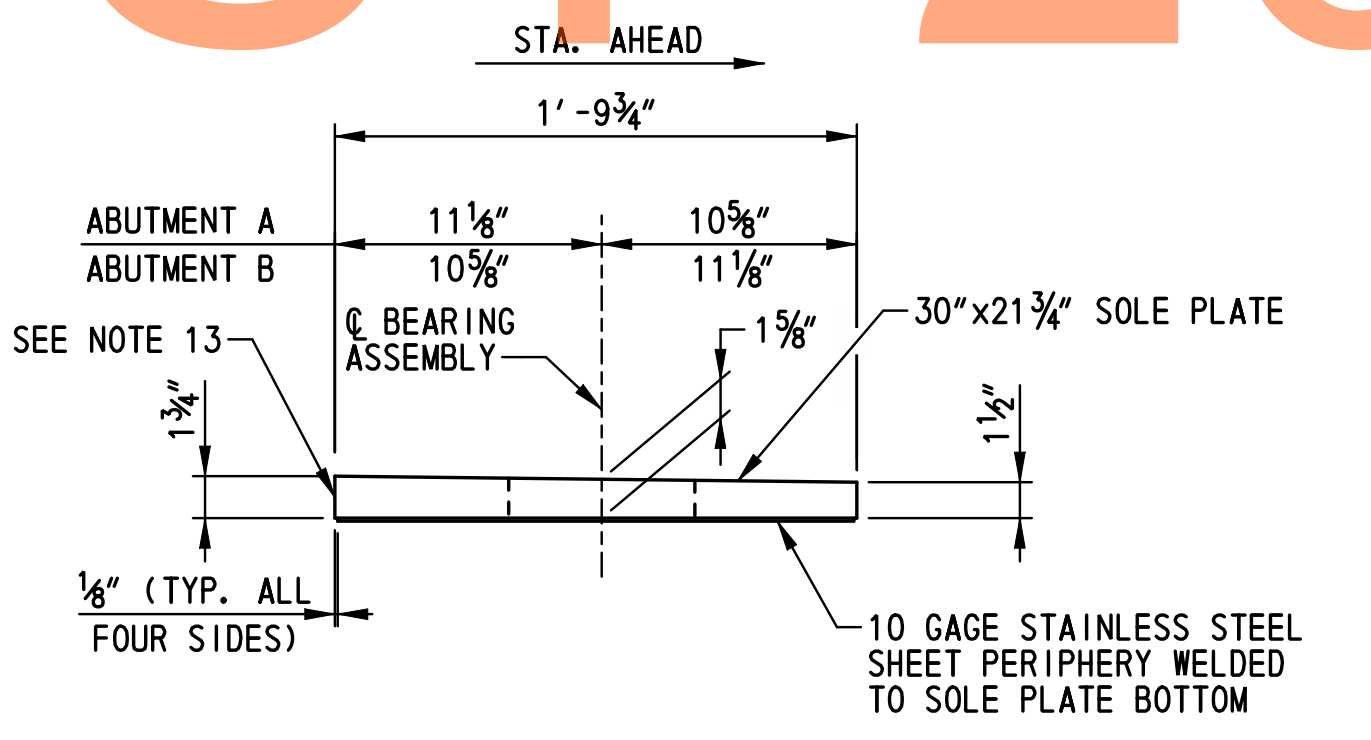
LAMINATED ELASTOMERIC BEARING PAD  
SCALE: 6" = 1'-0"



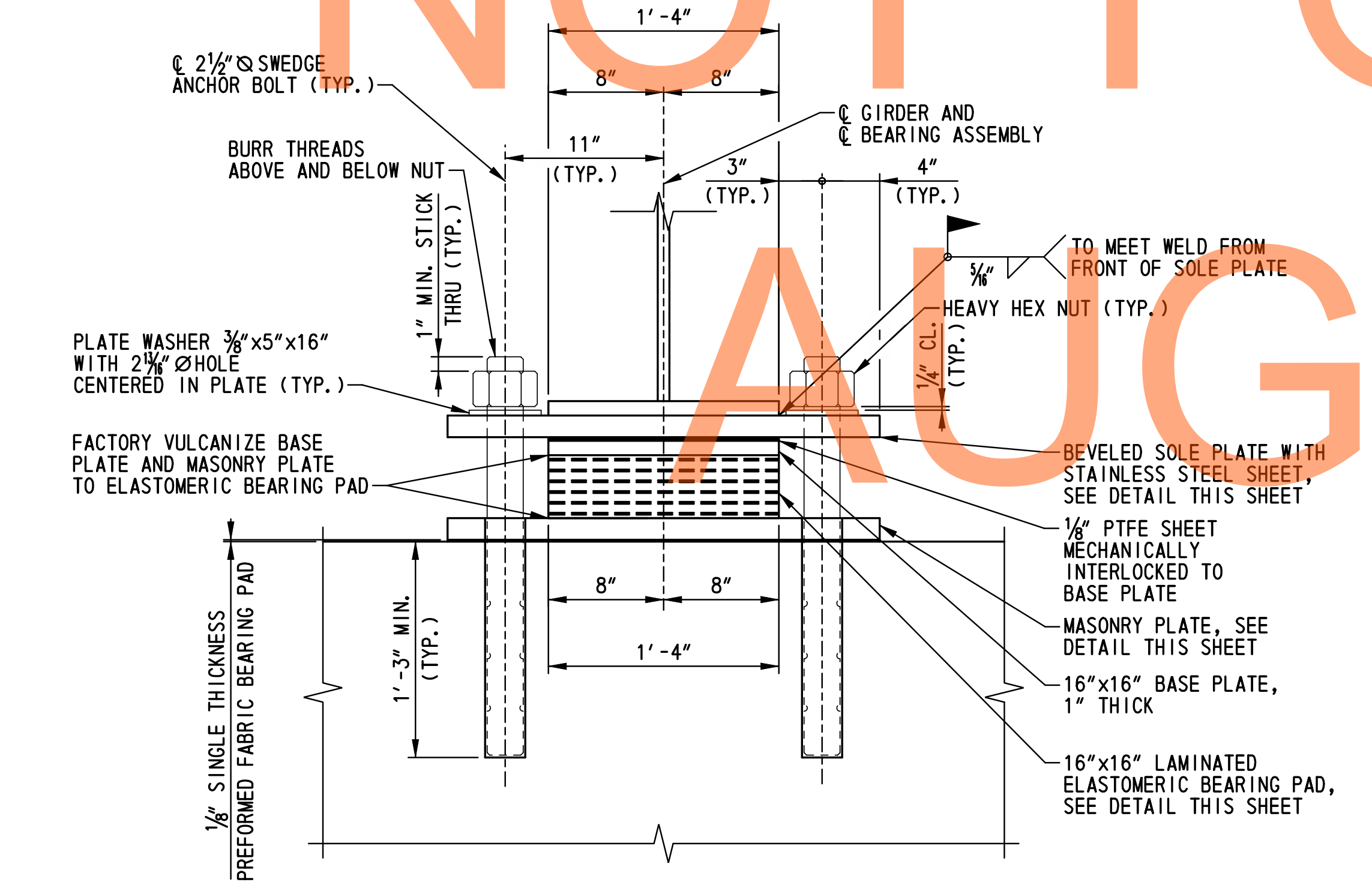
MASONRY PLATE  
SCALE: 1 1/2" = 1'-0"



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



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



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

- ABUTMENT A EXPANSION BEARING NOTES:**
- BEARING ASSEMBLIES SHALL BE PLACED PERPENDICULAR TO THE CENTERLINE OF GIRDER.
  - SOLE PLATES, BASE PLATES AND MASONRY PLATES SHALL BE ASTM A 709, GRADE 36 STEEL. PLATES SHALL BE PAINTED WITH A URETHANE PAINT SYSTEM IN ACCORDANCE WITH SPECIAL PROVISION ITEM 605537 - URETHANE PAINT SYSTEM, NEW STEEL. TOPCOAT COLOR SHALL BE STANDARD COLOR NO. 10076 (BROWN) OF FEDERAL STANDARD NO. 595B. THE COST OF PAINTING SHALL BE INCIDENTAL TO ITEM 605639 - TFE STAINLESS STEEL STRUCTURAL BEARINGS.
  - FILL SLOTS AND HOLES AROUND ANCHOR BOLTS WITH NONHARDENING CAULKING COMPOUND OR ELASTIC JOINT SEALER.
  - 1000 RMS FINISH ON ALL STEEL PLATES.
  - ANCHOR BOLTS SHALL BE UNPAINTED ASTM F 1554, GRADE 105 GALVANIZED STEEL. PLATE WASHERS SHALL BE UNPAINTED ASTM A 709, GRADE 36 GALVANIZED STEEL. NUTS SHALL BE UNPAINTED ASTM A 563 GALVANIZED STEEL.
  - ELASTOMERIC BEARINGS SHALL CONFORM TO M 251 AND THE ELASTOMER SHALL BE 60 DUROMETER NEOPRENE. SHIMS SHALL BE 11 GAGE MILD STEEL CONFORMING TO ASTM A 36.
  - STAINLESS STEEL SHEET SHALL BE ASTM A 167 OR A 264, TYPE 304, #8 MIRROR FINISH.
  - PTFE SHEET SHALL BE DIMPLED LUBRICATED MEETING THE REQUIREMENTS OF ASTM D 4894 OR D 4895. PTFE SHEET SHALL HAVE THE SAME PLAN AREA AS THE BASE PLATE.
  - THE BASE PLATE AND MASONRY PLATE SHALL BE FACTORY VULCANIZED TO THE ELASTOMERIC BEARING, AND BEARINGS ARE TO BE SHIPPED ASSEMBLED AS UNITS.
  - BEARING MAXIMUM DESIGN LOAD: 263 KIPS. BEARING DESIGN COEFFICIENT OF FRICTION: 0.04.
  - CONTRACTOR SHALL TOUCH UP SOLE PLATE PAINT SYSTEM, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AFTER WELDING THE SOLE PLATE TO THE GIRDER.
  - PAYMENT FOR ABUTMENT A EXPANSION BEARINGS WILL BE MADE UNDER ITEM NO. 605639 - TFE STAINLESS STEEL STRUCTURAL BEARINGS.
  - THICKER END OF BEVELED SOLE PLATE SHALL BE MARKED TO ENSURE PROPER INSTALLATION IN THE FIELD.

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ADDENDUMS / REVISIONS

SCALE: AS NOTED

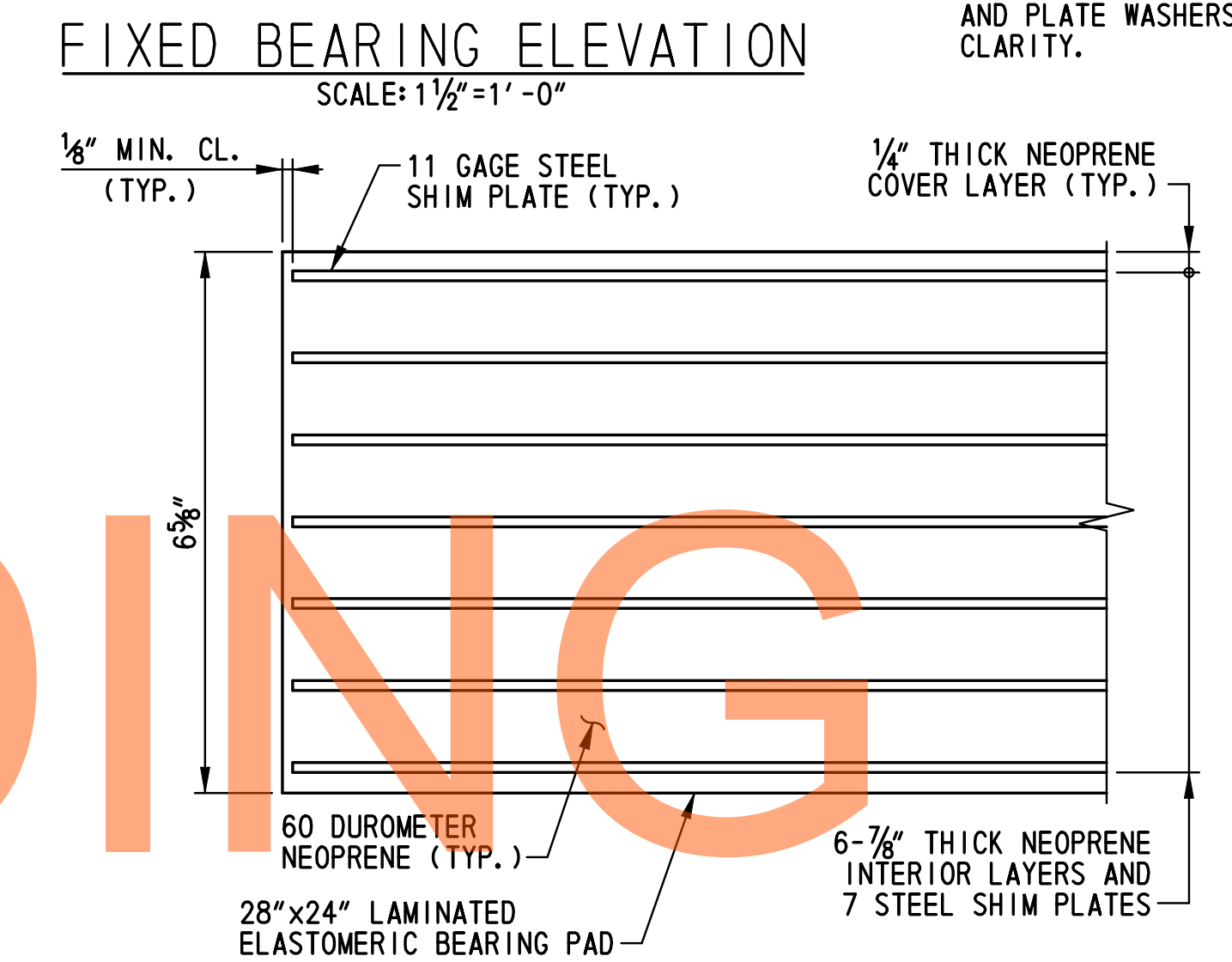
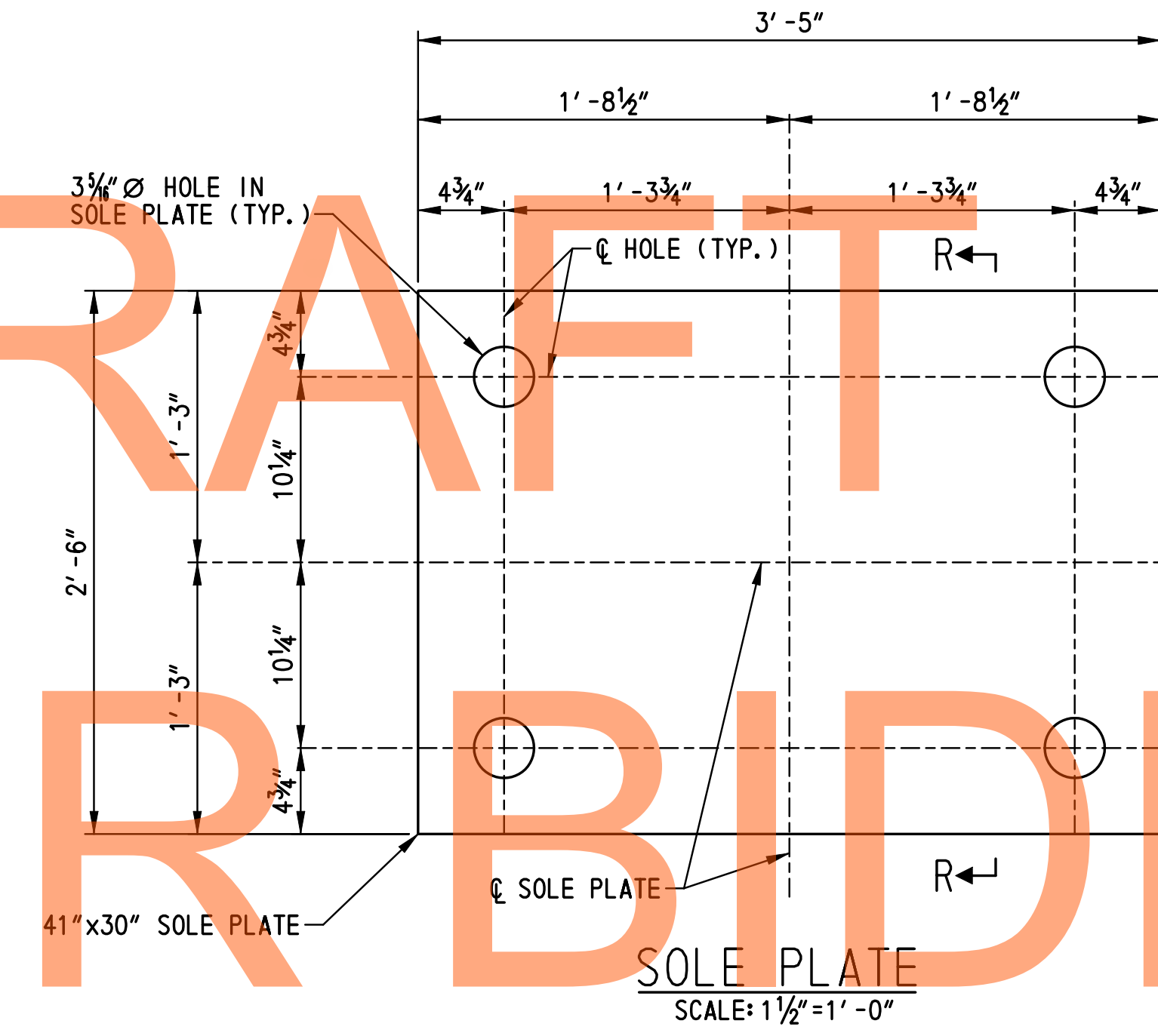
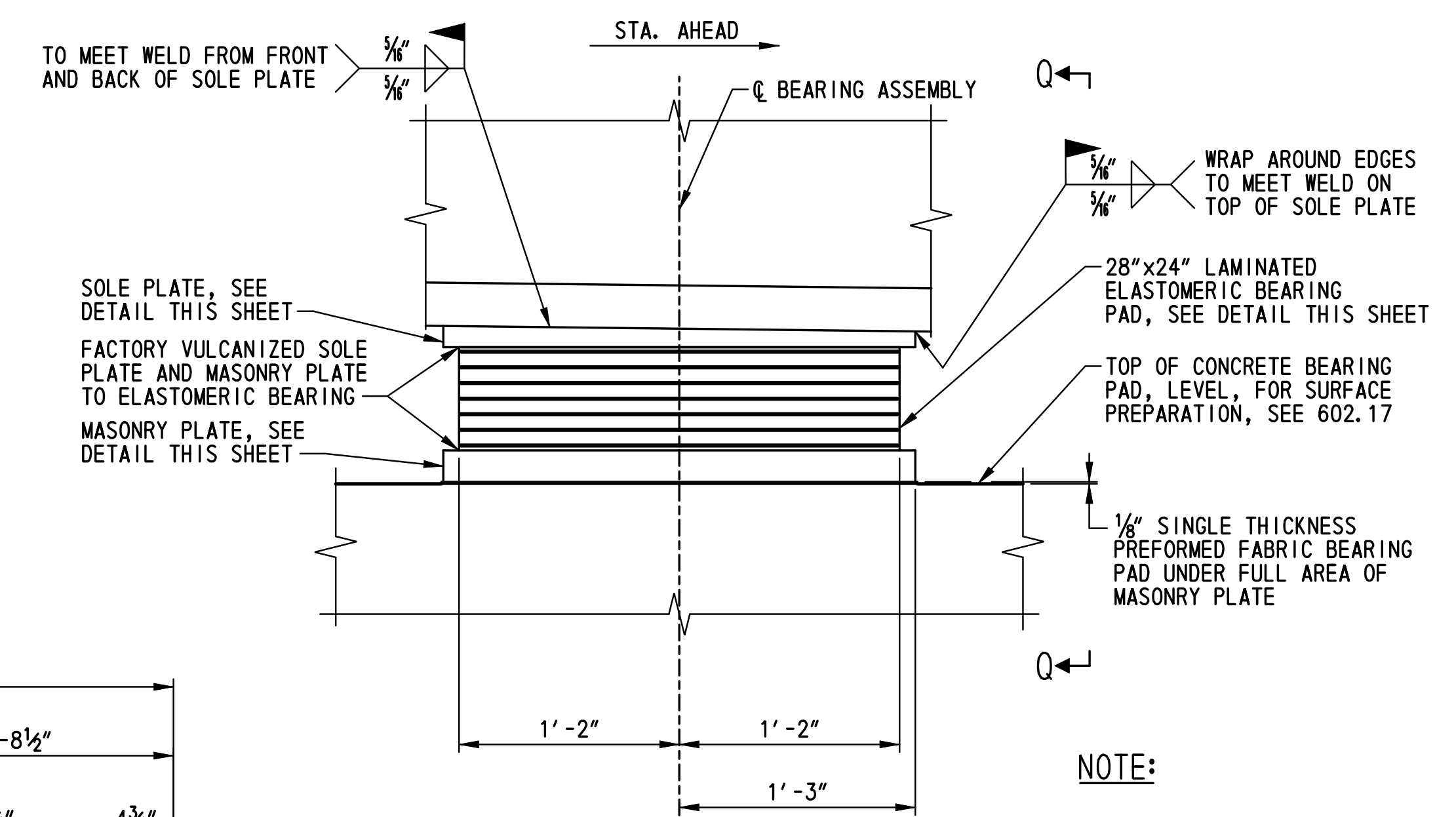
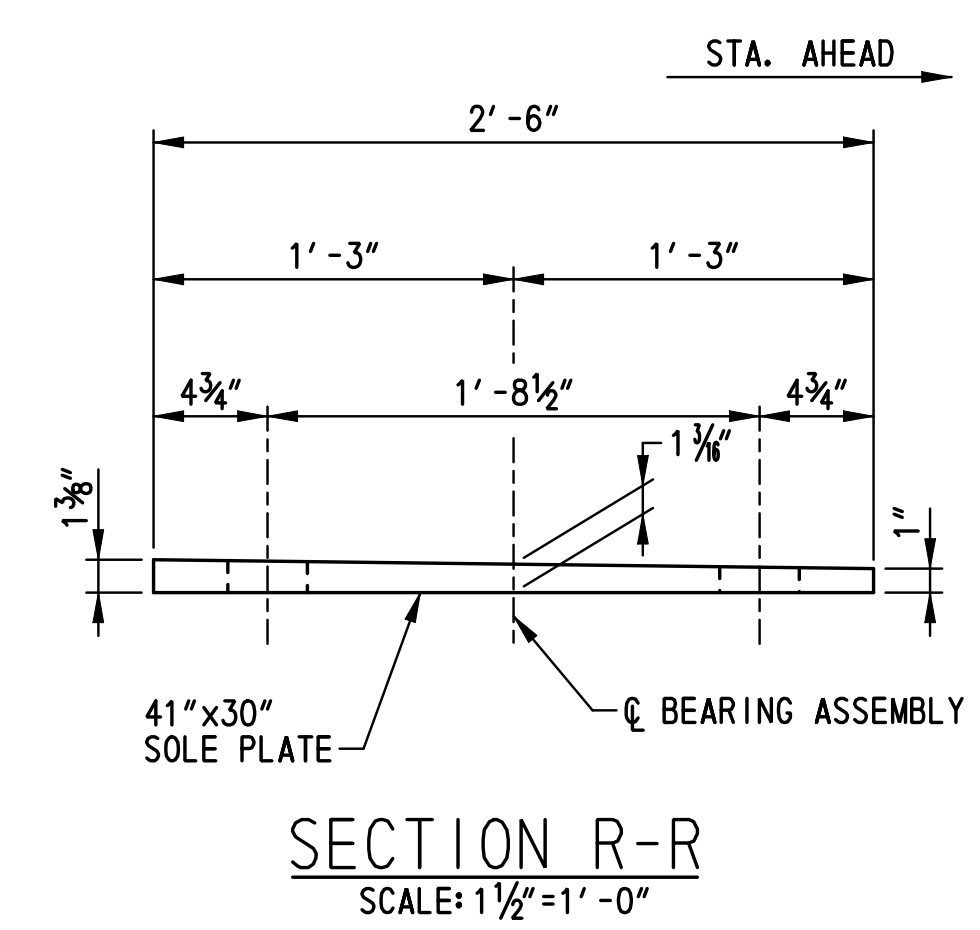
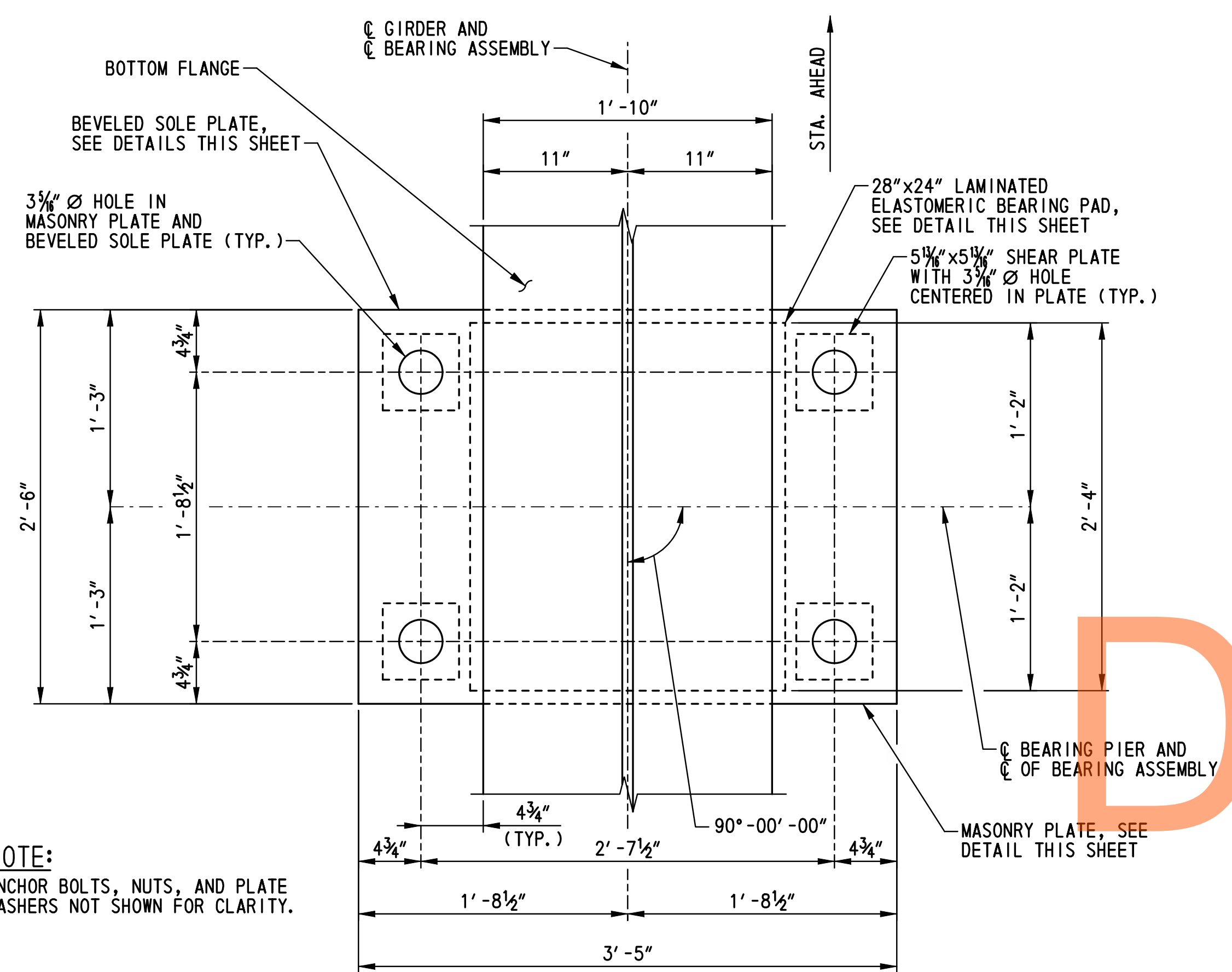
**US 301,**  
**SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

<b>EXPANSION BEARING</b> <b>DETAILS - ABUTMENT A</b> <b>AND ABUTMENT B</b>	
SHEET NO.	469
TOTAL SHTS.	875

**BR1-7S**  
**BB-01**



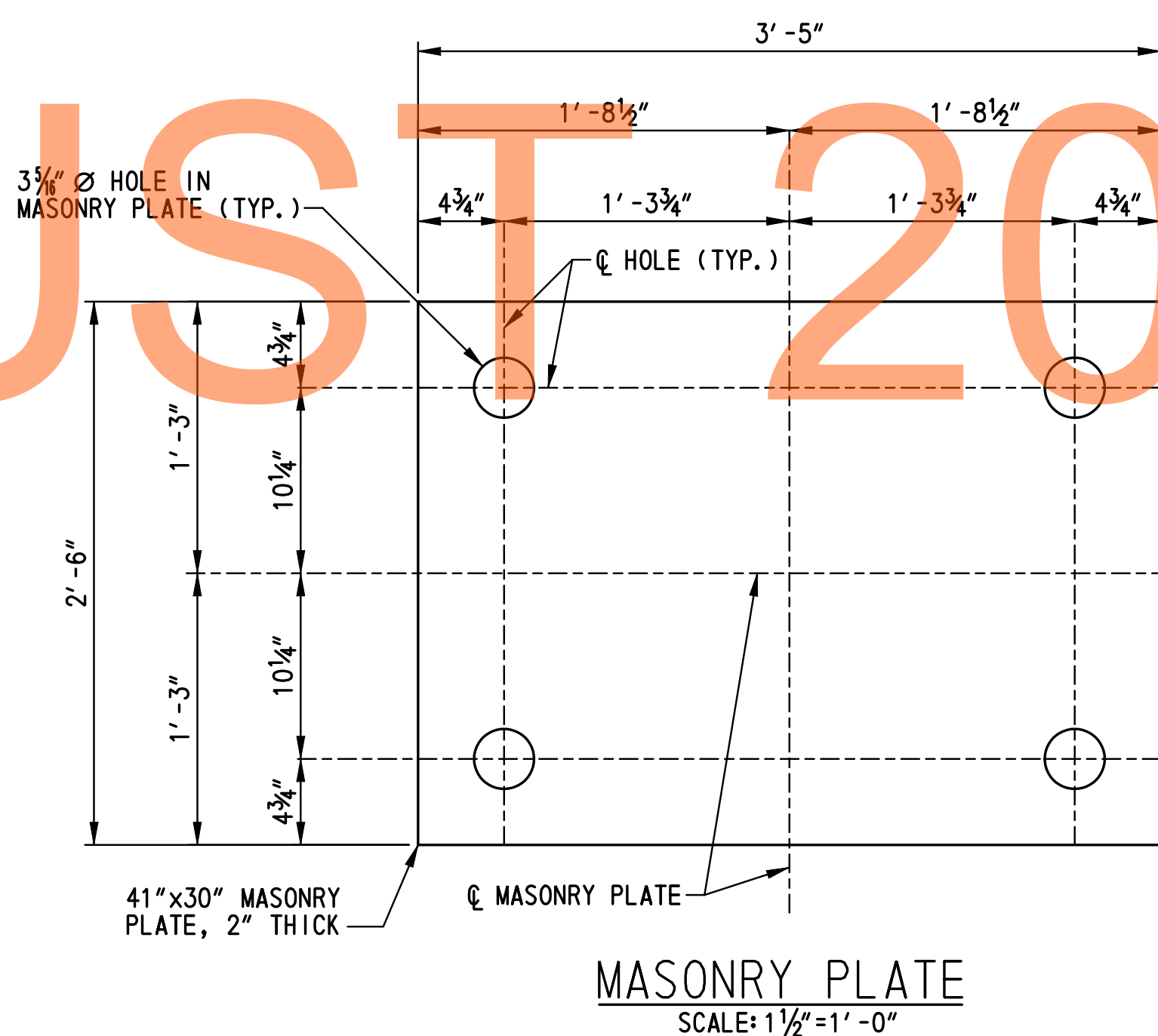
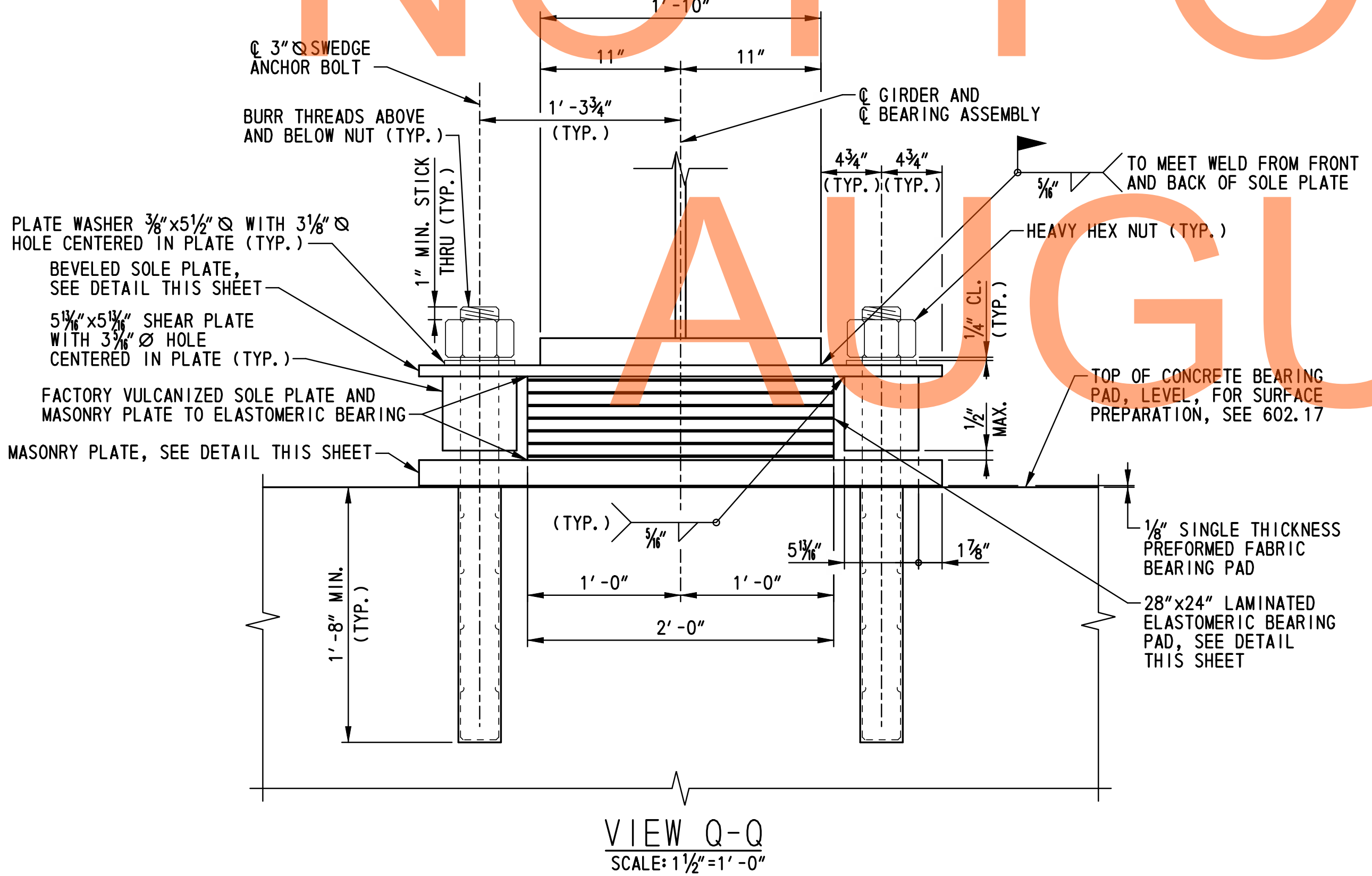


NOTE:  
ANCHOR BOLTS, NUTS, AND PLATE WASHERS NOT SHOWN FOR CLARITY.

FIXED BEARING PLAN  
SCALE: 1 1/2" = 1'-0"

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

LAMINATED ELASTOMERIC BEARING PAD  
SCALE: 6" = 1'-0"



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

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

- PIER FIXED BEARING NOTES:**
- BEARING ASSEMBLIES SHALL BE PLACED PERPENDICULAR TO THE CENTERLINE OF GIRDER.
  - SOLE PLATES AND MASONRY PLATES SHALL BE ASTM A 709, GRADE 36 STEEL. PLATES SHALL BE PAINTED WITH A URETHANE PAINT SYSTEM IN ACCORDANCE WITH SPECIAL PROVISION ITEM 605537 - URETHANE PAINT SYSTEM, NEW STEEL. TOPCOAT COLOR SHALL BE STANDARD COLOR NO. 10076 (BROWN) OF FEDERAL STANDARD NO. 595B. THE COST OF PAINTING SHALL BE INCIDENTAL TO ITEM 605581 - ELASTOMERIC BEARING PADS.
  - FILL HOLES AROUND ANCHOR BOLTS WITH NONHARDENING CAULKING COMPOUND OR ELASTIC JOINT SEALER.
  - 1000 RMS FINISH ON ALL STEEL PLATES.
  - ANCHOR BOLTS SHALL BE UNPAINTED ASTM F 1554, GRADE 105 GALVANIZED STEEL. PLATE WASHERS SHALL BE UNPAINTED ASTM A 709, GRADE 36 GALVANIZED STEEL. NUTS SHALL BE UNPAINTED ASTM A 563 GALVANIZED STEEL.
  - ELASTOMERIC BEARINGS SHALL CONFORM TO M 251 AND THE ELASTOMER SHALL BE 60 DUROMETER NEOPRENE. SHIMS SHALL BE 11 GAGE MILD STEEL CONFORMING TO ASTM A 36.
  - THE SOLE PLATE AND MASONRY PLATE SHALL BE FACTORY VULCANIZED TO THE ELASTOMERIC BEARING, AND BEARINGS ARE TO BE SHIPPED ASSEMBLED AS UNITS.
  - BEARING MAXIMUM DESIGN LOAD: 789 KIPS.
  - CONTRACTOR SHALL TOUCH UP SOLE PLATE PAINT SYSTEM, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AFTER WELDING THE SOLE PLATE TO THE GIRDER.
  - PAYMENT FOR PIER FIXED BEARINGS WILL BE MADE UNDER ITEM NO. 605581 - ELASTOMERIC BEARING PADS.

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ADDENDUMS / REVISIONS	

SCALE: AS NOTED

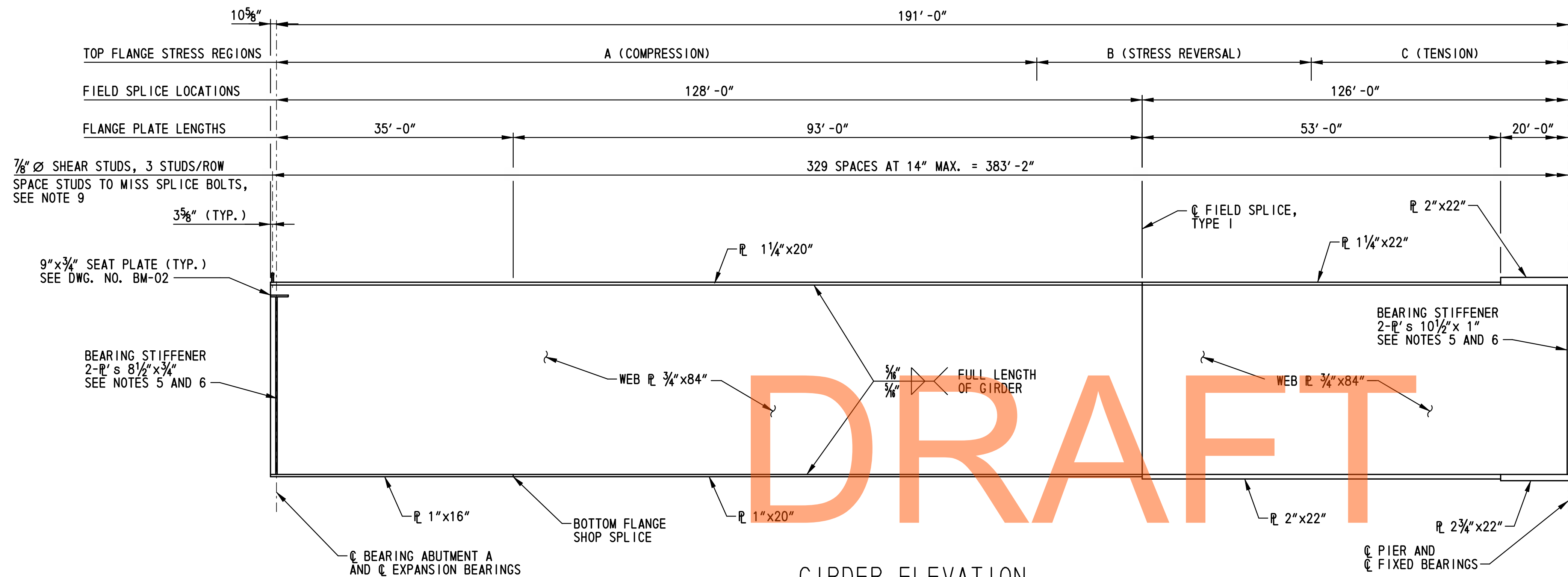
**US 301,**  
**SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**FIXED BEARING**  
**DETAILS - PIER**

<b>BRI-7S</b> <b>BB-02</b>	SHEET NO.	470
	TOTAL SHTS.	875

SPAN 1



GIRDER ELEVATION

HORIZONTAL SCALE: 3/8" = 1' - 0"  
VERTICAL SCALE: 3/8" = 1' - 0"

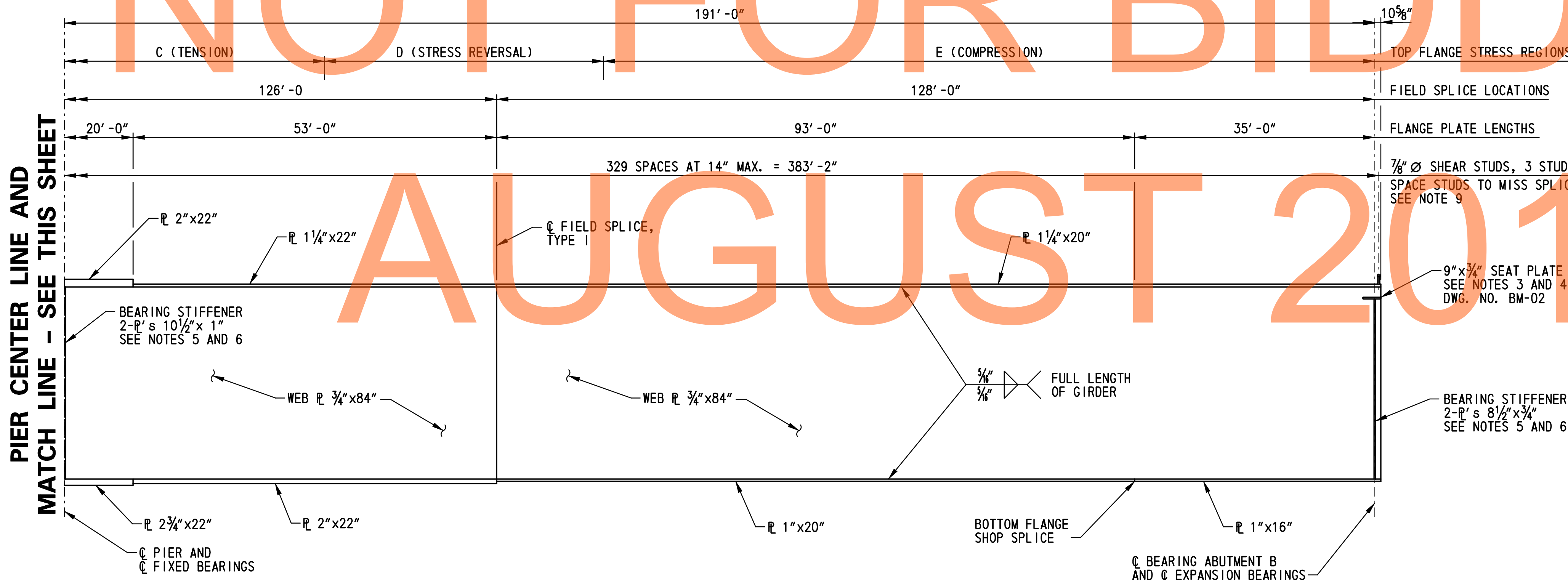
PIER CENTER LINE AND MATCH LINE - SEE THIS SHEET

TOP FLANGE STRESS REGIONS					
GIRDER NO.	A	B	C	D	E
1 AND 5	112' -5"	40' -7"	75' -11"	40' -8"	112' -5"
2 - 4	117' -9 1/2"	32' -8"	81' -1"	32' -8"	117' -9 1/2"

NOT FOR BIDDING

AUGUST 2015

SPAN 2



GIRDER ELEVATION

HORIZONTAL SCALE: 3/8" = 1' - 0"  
VERTICAL SCALE: 3/8" = 1' - 0"

PIER CENTER LINE AND MATCH LINE - SEE THIS SHEET

NOTES:

1. THE GIRDERS ARE REQUIRED TO BE PLUMB UNDER FULL DEAD LOAD.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE ENTIRE ERECTION OF THE BRIDGE. THE CONTRACTOR SHALL SUBMIT DRAWINGS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE, ILLUSTRATING FULLY THE PROPOSED METHOD OF ERECTION. THE DRAWINGS SHALL SHOW DETAILS OF ALL TEMPORARY SHORING, FALSEWORK, BRACING, GUYS, DEAD-MEN, LIFTING DEVICES, HOLD-DOWN DEVICES AND ATTACHMENTS TO THE BRIDGE MEMBERS. THE DRAWINGS SHALL ALSO INCLUDE THE SEQUENCE OF ERECTION, LOCATION OF CRANES, CRANE CAPACITIES, LOCATION OF LIFTING POINTS ON THE BRIDGE MEMBERS AND WEIGHTS OF MEMBERS. THE PLAN AND DRAWINGS SHALL BE COMPLETE IN DETAIL FOR ALL ANTICIPATED PHASES AND CONDITIONS DURING ERECTION. CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE ARE REQUIRED TO DEMONSTRATE THAT ALLOWABLE STRESSES ARE NOT EXCEEDED AND THAT MEMBER CAPACITIES AND FINAL GEOMETRY WILL BE CORRECT.
3. THERE SHALL BE NO FIELD WELDING TO THE TOP FLANGE, EXCEPT FOR SHEAR STUDS, IN THE TENSION AND STRESS REVERSAL REGIONS.
4. CROSS FRAME CONNECTION PLATE SPACING NOT SHOWN. FOR LOCATION OF CROSS FRAME CONNECTION PLATES, SEE DWG. NO. FR-01.
5. GIRDER ENDS AND ALL BEARING STIFFENERS, INCLUDING BEARING STIFFENERS AT PIER, SHALL BE VERTICAL UNDER FULL DEAD LOAD.
6. FOR BEARING STIFFENER AND CONNECTION PLATE DETAILS, SEE DWG. NOS. BM-02 AND BM-03.
7. FOR SHOP FLANGE SPLICE DETAILS, SEE DWG. NO. BM-04.
8. FOR FIELD SPLICE DETAILS, SEE DWG. NO. BM-04.
9. FOR SHEAR STUD DETAILS, SEE DWG. NO. SD-01.

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ADDENDUMS / REVISIONS

SCALE: AS NOTED

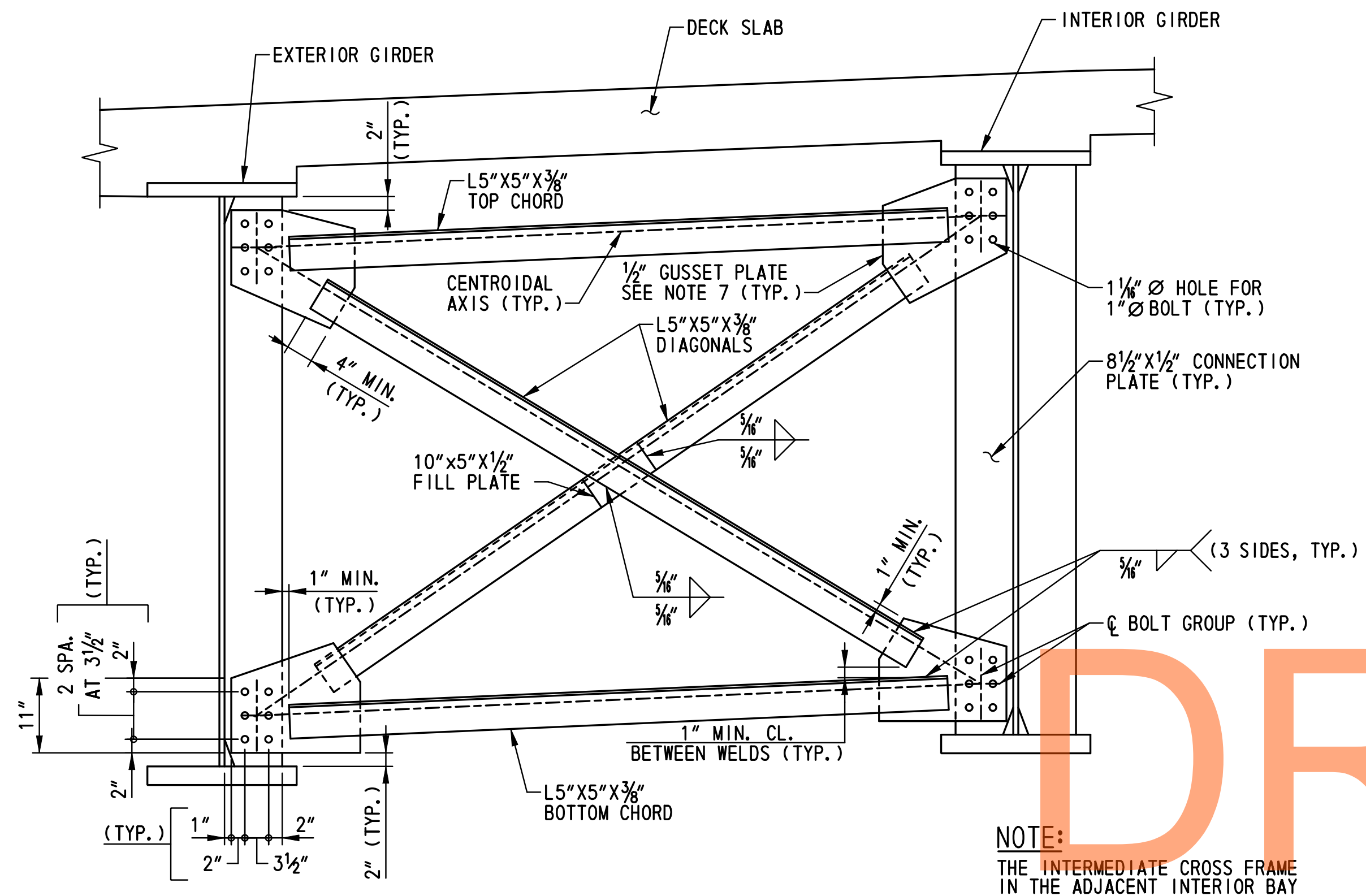
US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	1-460S
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

GIRDER ELEVATION

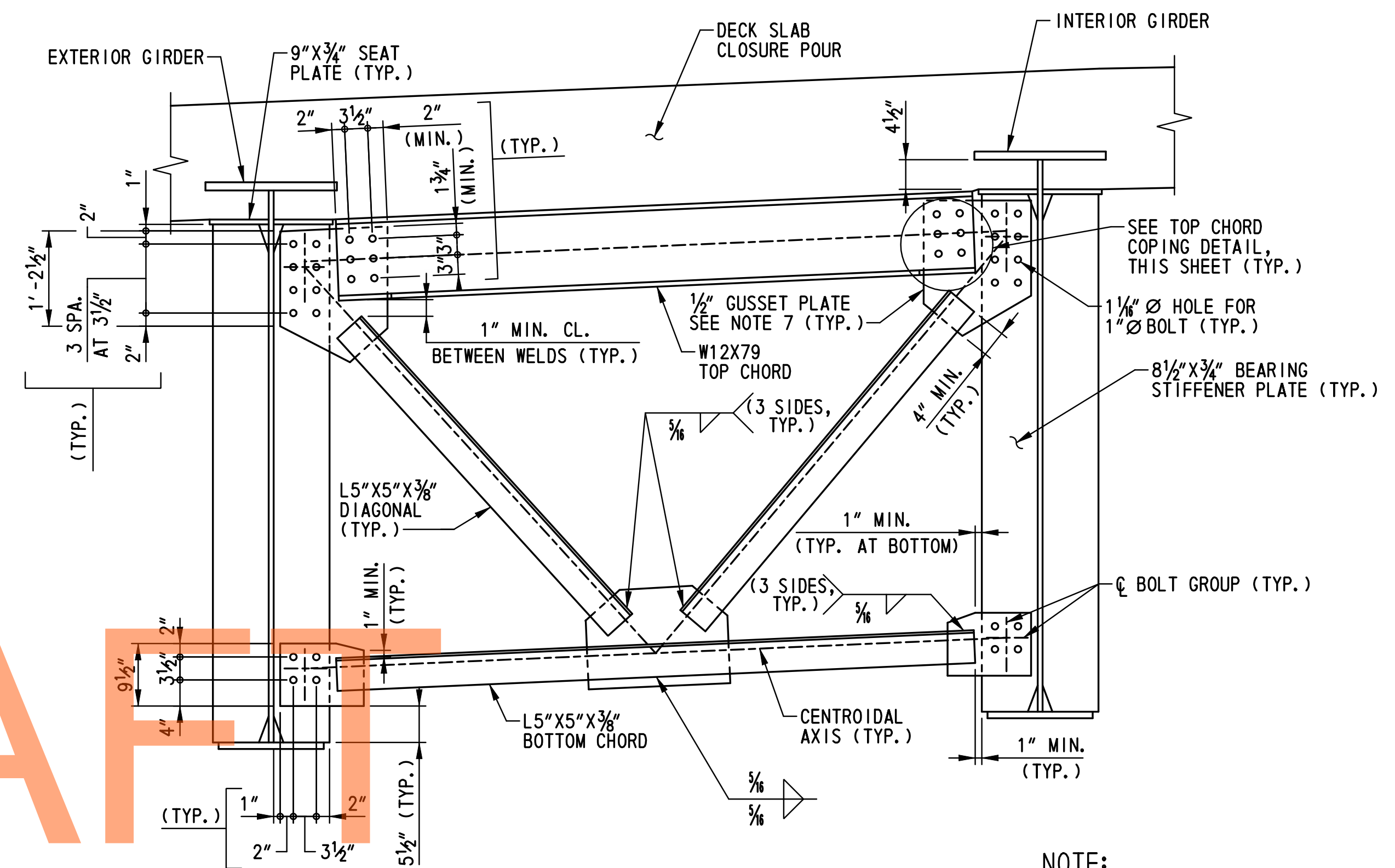
BRI-7S  
BM-01

SHEET NO.	471
TOTAL SHTS.	875



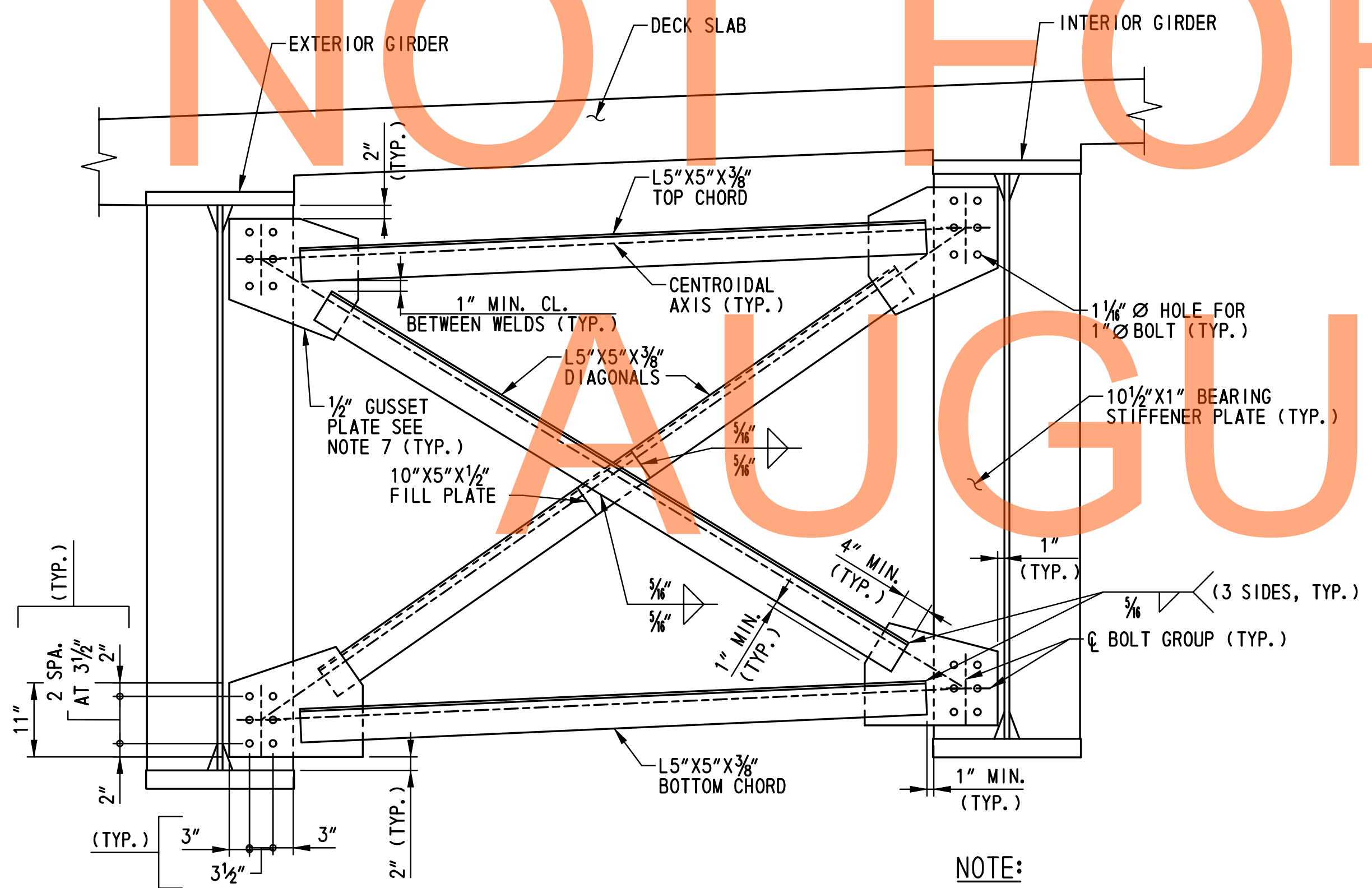
INTERMEDIATE CROSS FRAME DETAIL  
SCALE: 3/4"=1'-0"

NOTE:  
THE INTERMEDIATE CROSS FRAME IN THE ADJACENT INTERIOR BAY IS NOT SHOWN FOR CLARITY.



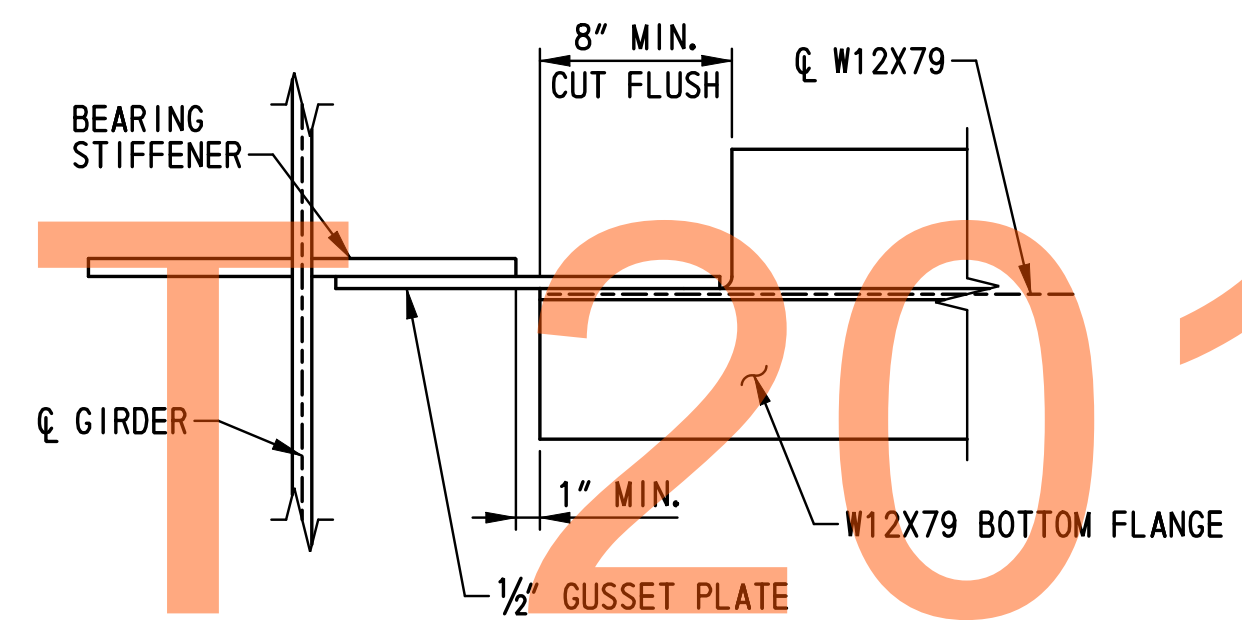
ABUTMENT CROSS FRAME DETAIL  
SCALE: 3/4"=1'-0"

NOTE:  
THE ABUTMENT CROSS FRAME IN THE ADJACENT INTERIOR BAY IS NOT SHOWN FOR CLARITY.



PIER CROSS FRAME DETAIL  
SCALE: 3/4"=1'-0"

NOTE:  
THE PIER CROSS FRAME IN THE ADJACENT INTERIOR BAY IS NOT SHOWN FOR CLARITY.



TOP CHORD COPING DETAIL  
SCALE: 1 1/2"=1'-0"

- NOTES:
- FOR LOCATIONS OF CROSS FRAMES, SEE DWG. NO. FR-01.
  - ALL BOLTS SHALL BE 1" Ø HIGH STRENGTH BOLTS IN CONFORMANCE WITH A 325, TYPE 3. ALL BOLTS SHALL BE FABRICATED WITH THREADS EXCLUDED FROM THE SHEAR PLANE.
  - ALL BOLT HOLES IN CROSS FRAME GUSSET PLATES, BEARING STIFFENERS, AND CONNECTION PLATES SHALL BE 1 1/16" Ø.
  - THE MINIMUM ACCEPTABLE EDGE DISTANCE FOR ANY BOLT HOLE SHALL BE 1 3/4".
  - FOR BEARING STIFFENER AND CONNECTION PLATE DETAILS, SEE DWG. NO. BM-03.
  - ALL CROSS FRAMES SHALL BE COMPLETELY CONNECTED TO GIRDERS PRIOR TO PLACING THE DECK SLAB.
  - CONTRACTOR HAS THE OPTION OF FABRICATING RECTANGULAR GUSSET PLATES IN LIEU OF THE CLIPPED PLATES SHOWN. THE MINIMUM DIMENSION REQUIREMENTS SHOWN SHALL BE MAINTAINED. NO ADDITIONAL COMPENSATION WILL BE MADE TO THE CONTRACTOR WHICHEVER ALTERNATIVE IS SELECTED.
  - THE GIRDERS ARE REQUIRED TO BE PLUMB UNDER FULL DEAD LOAD.

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AUGUST 2015

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ADDENDUMS / REVISIONS

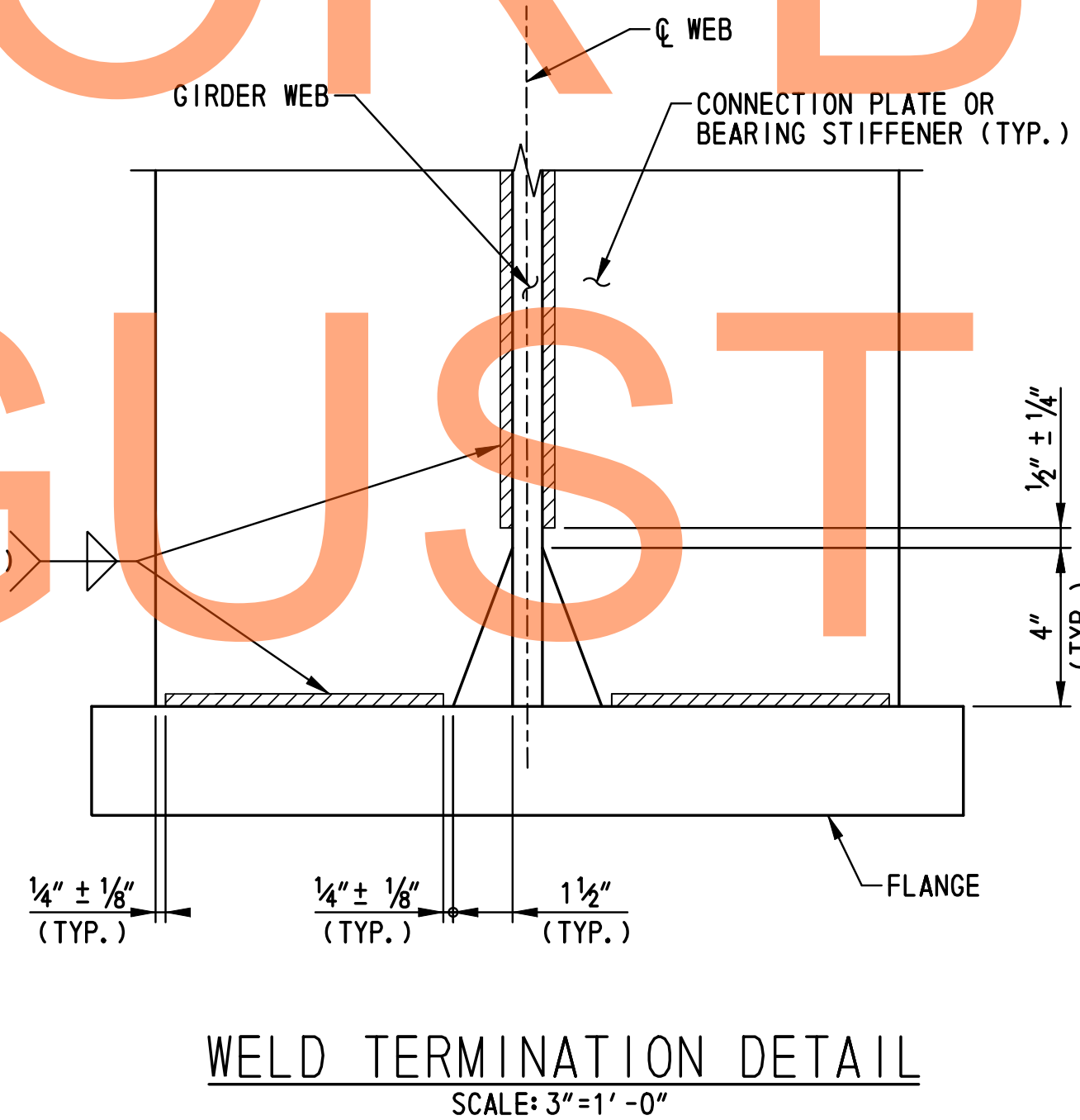
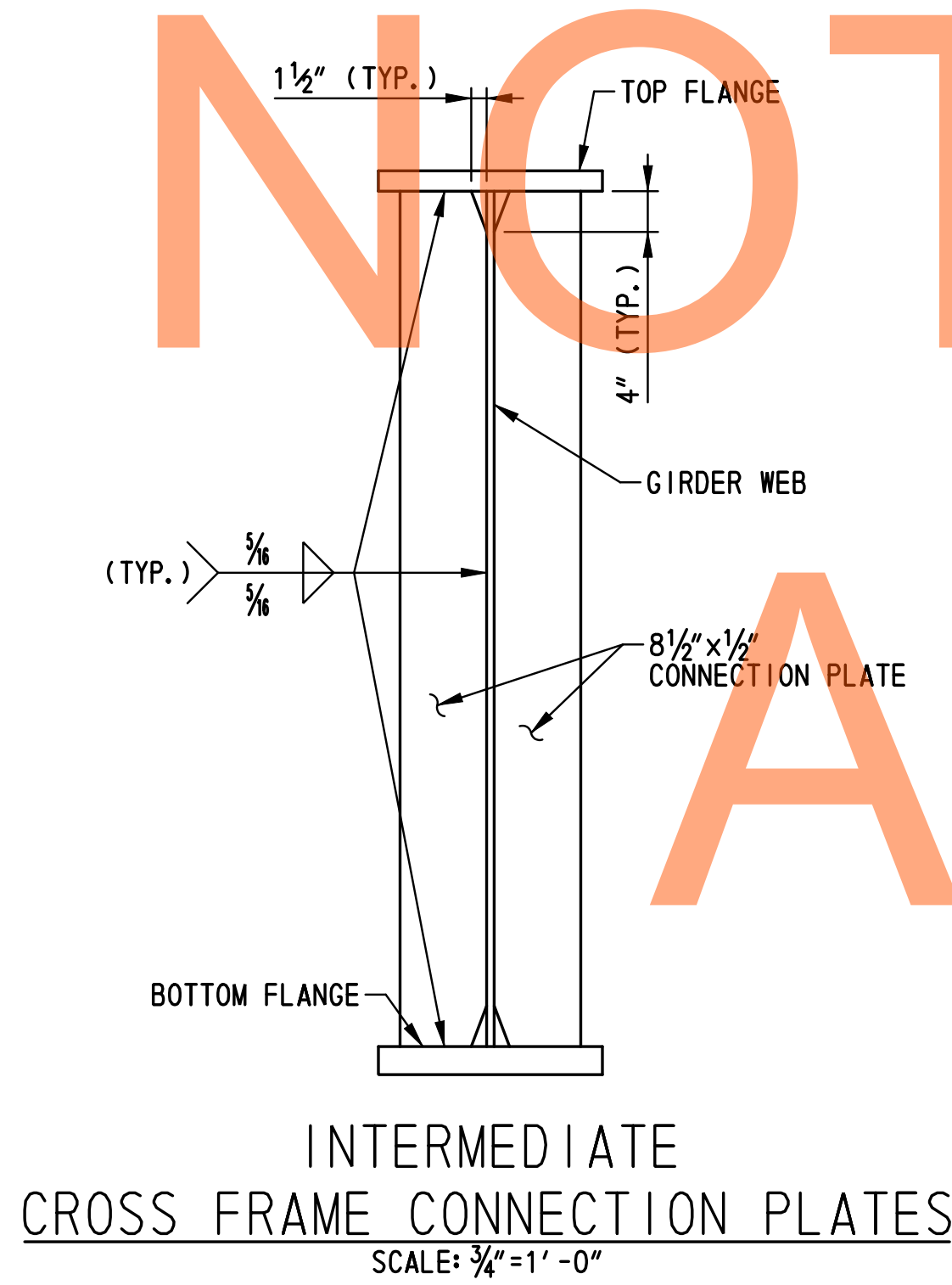
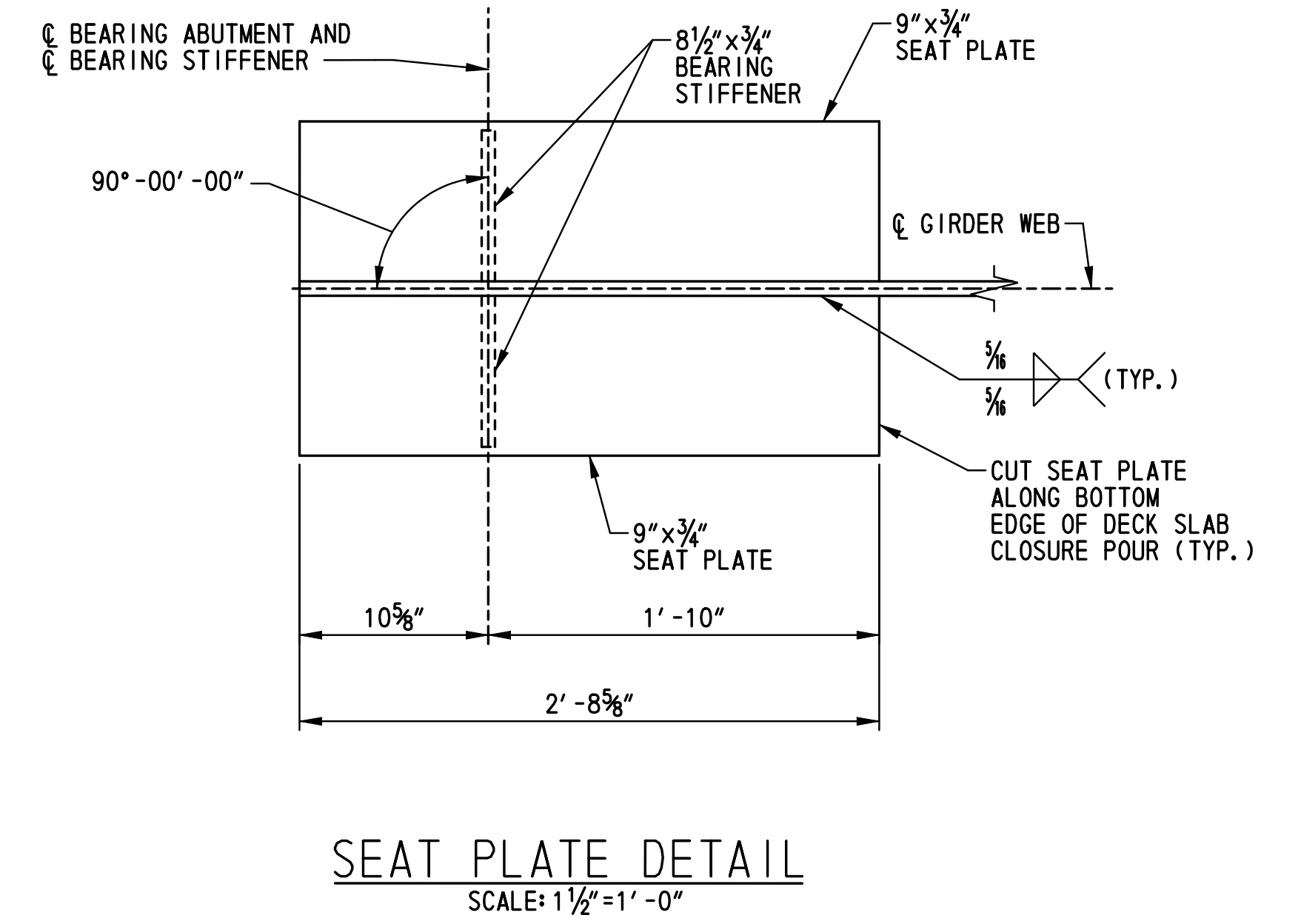
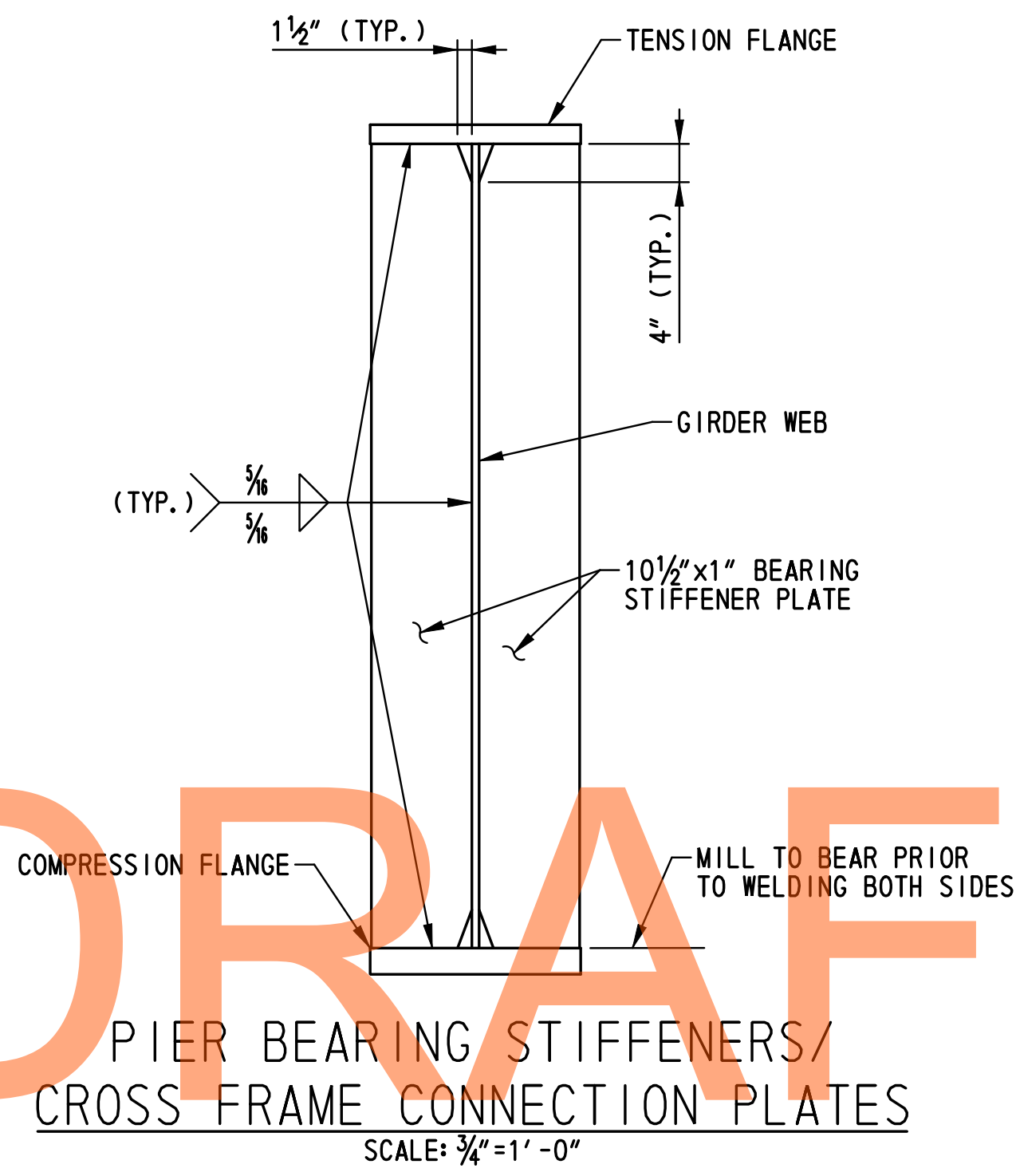
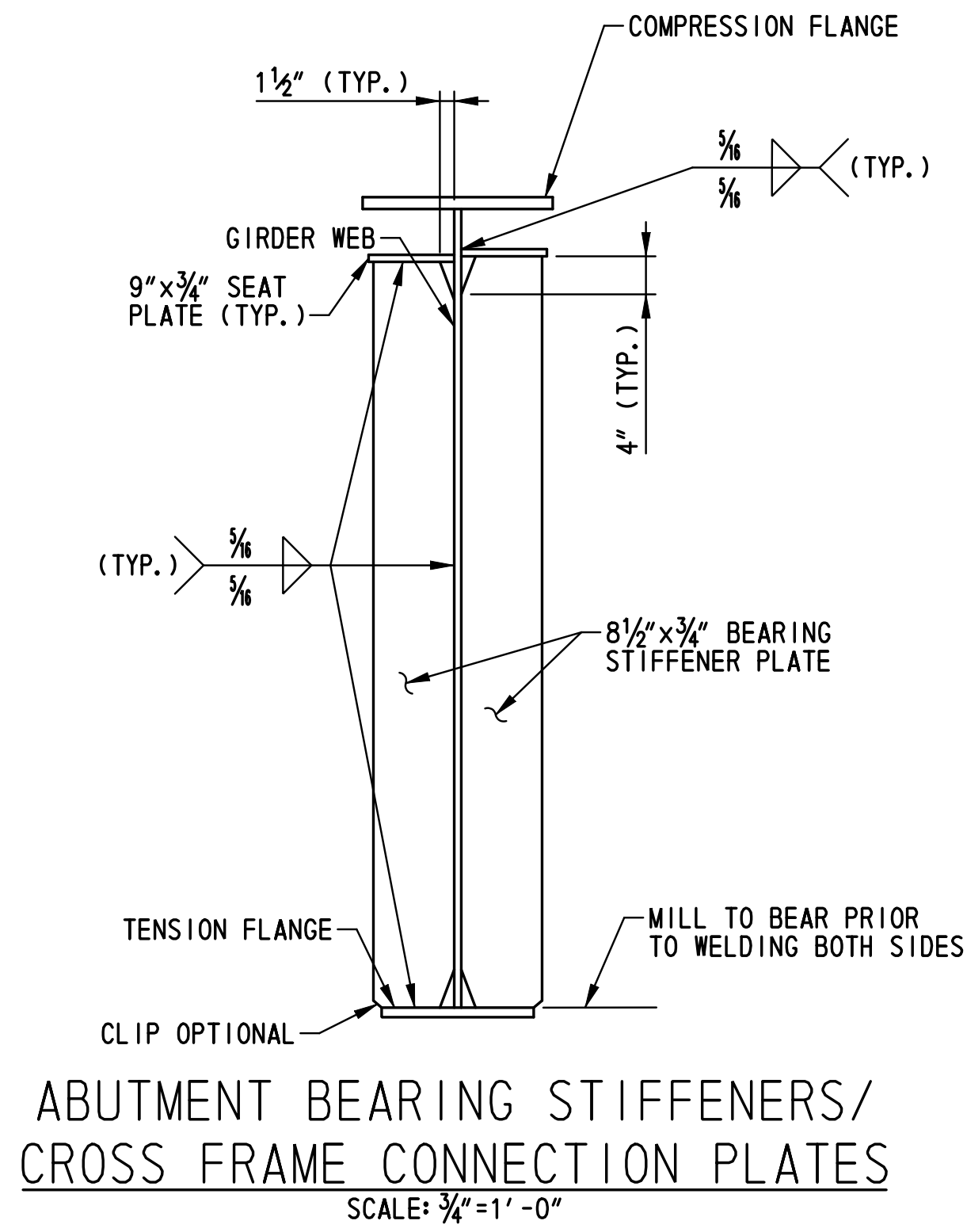
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	K.M.L.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**CROSS FRAME DETAILS**

<b>BRI-7S BM-02</b>
SHEET NO.
472
TOTAL SHTS.
875



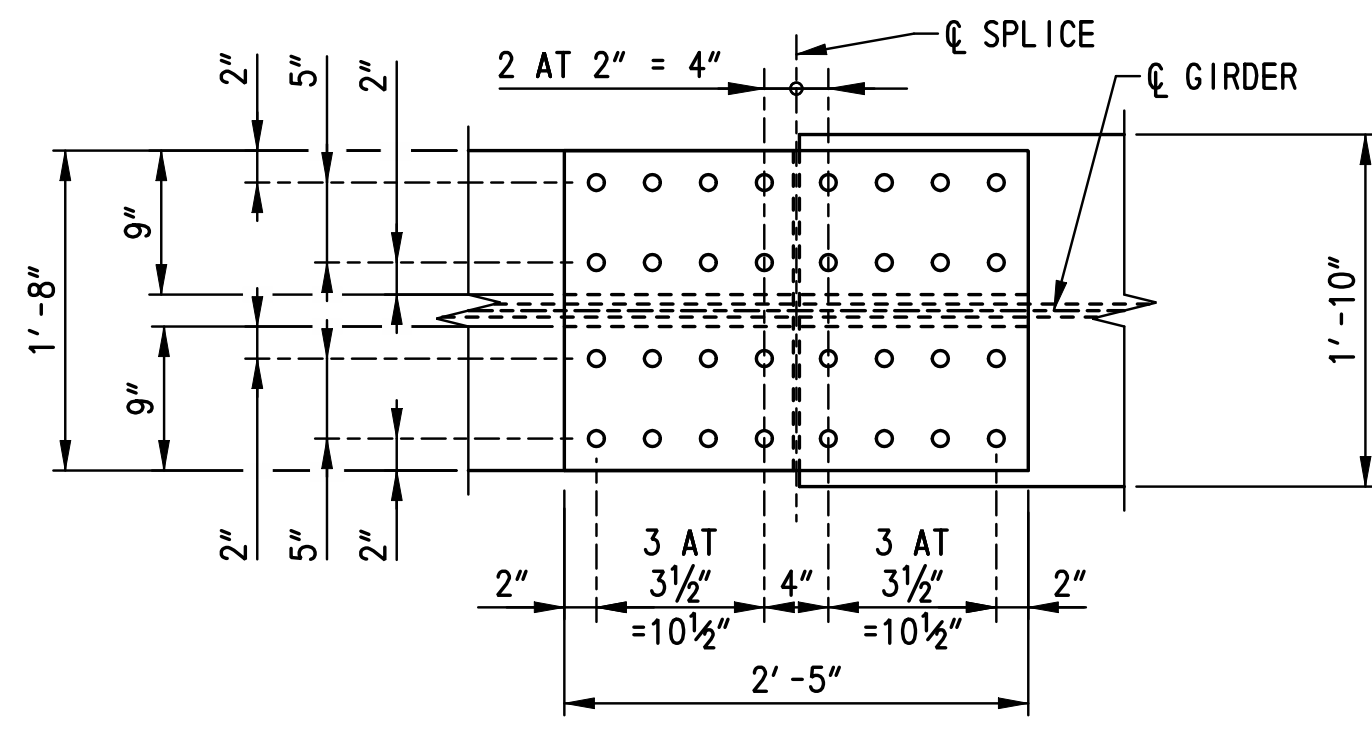
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NOT FOR BIDDING

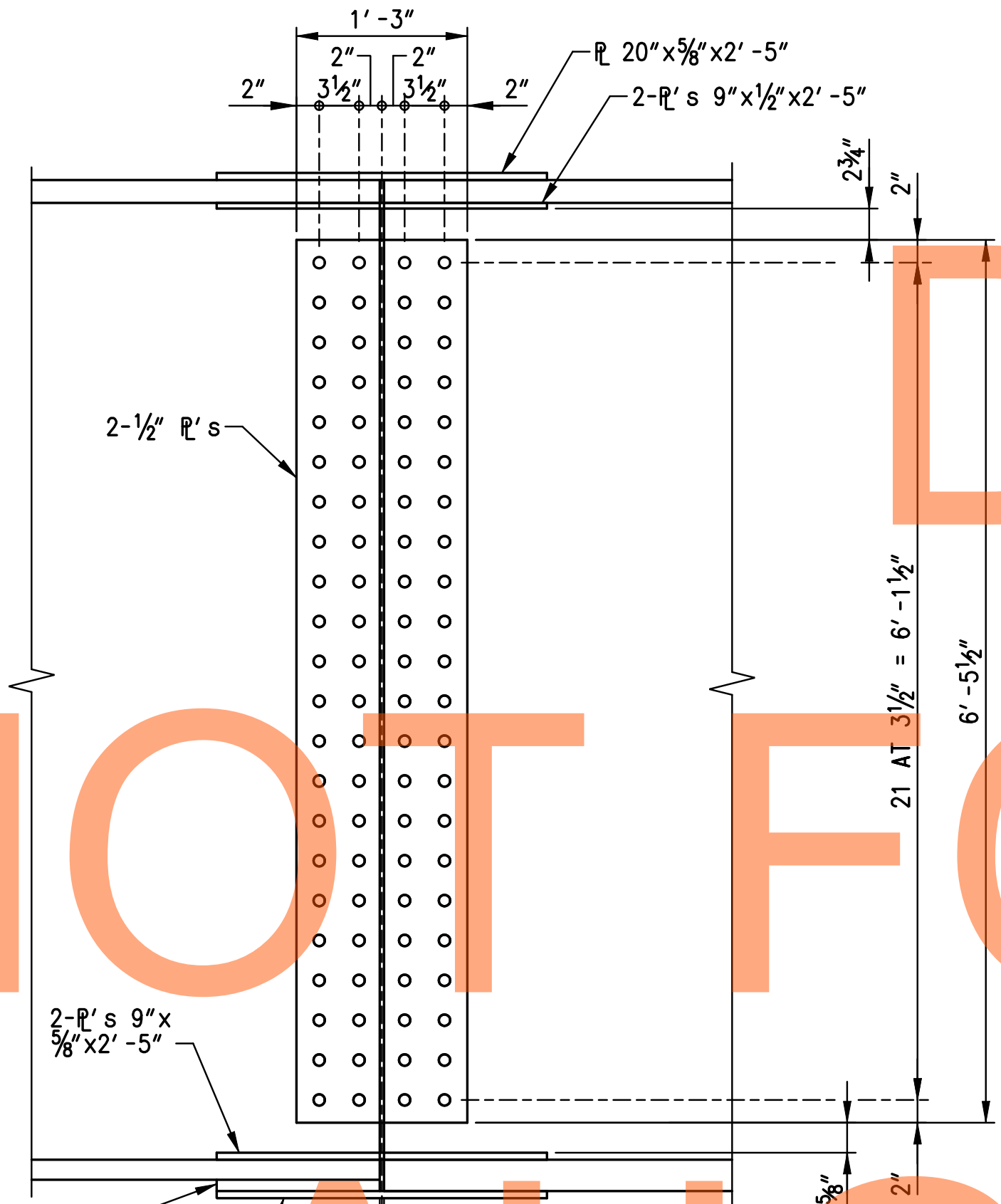
AUGUST 2015

- NOTES:**
- FOR LOCATION OF CROSS FRAMES, SEE DWG. NO. FR-01.
  - FOR ADDITIONAL BEARING STIFFENER INFORMATION, SEE DWG. NO. BM-01.
  - CONNECTION PLATES SHALL BE NORMAL TO THE GIRDER FLANGE.
  - THE GIRDERS ARE REQUIRED TO BE PLUMB UNDER FULL DEAD LOAD.

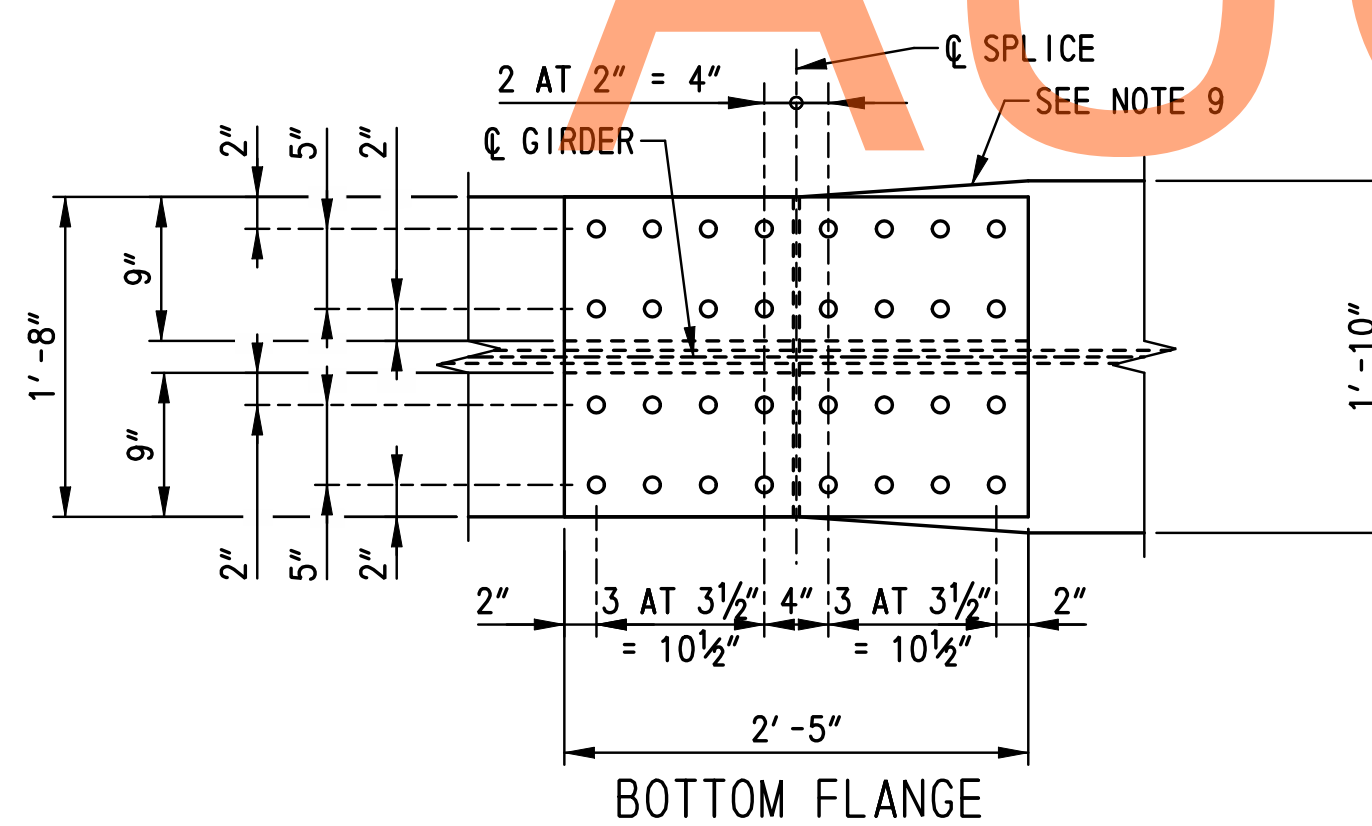
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TOP FLANGE

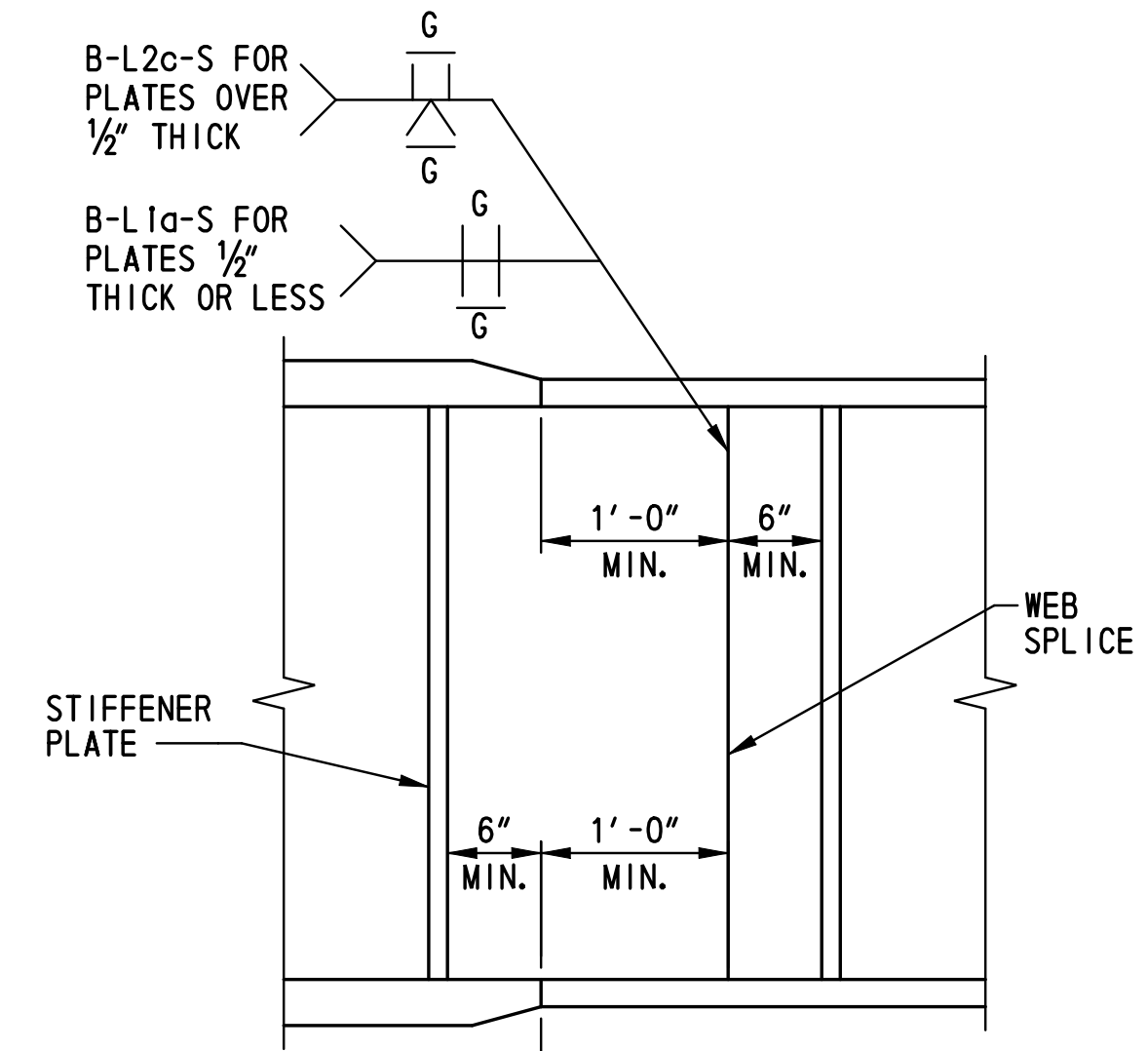


FIELD SPLICE DETAIL - TYPE I  
SCALE: 1" = 1'-0"

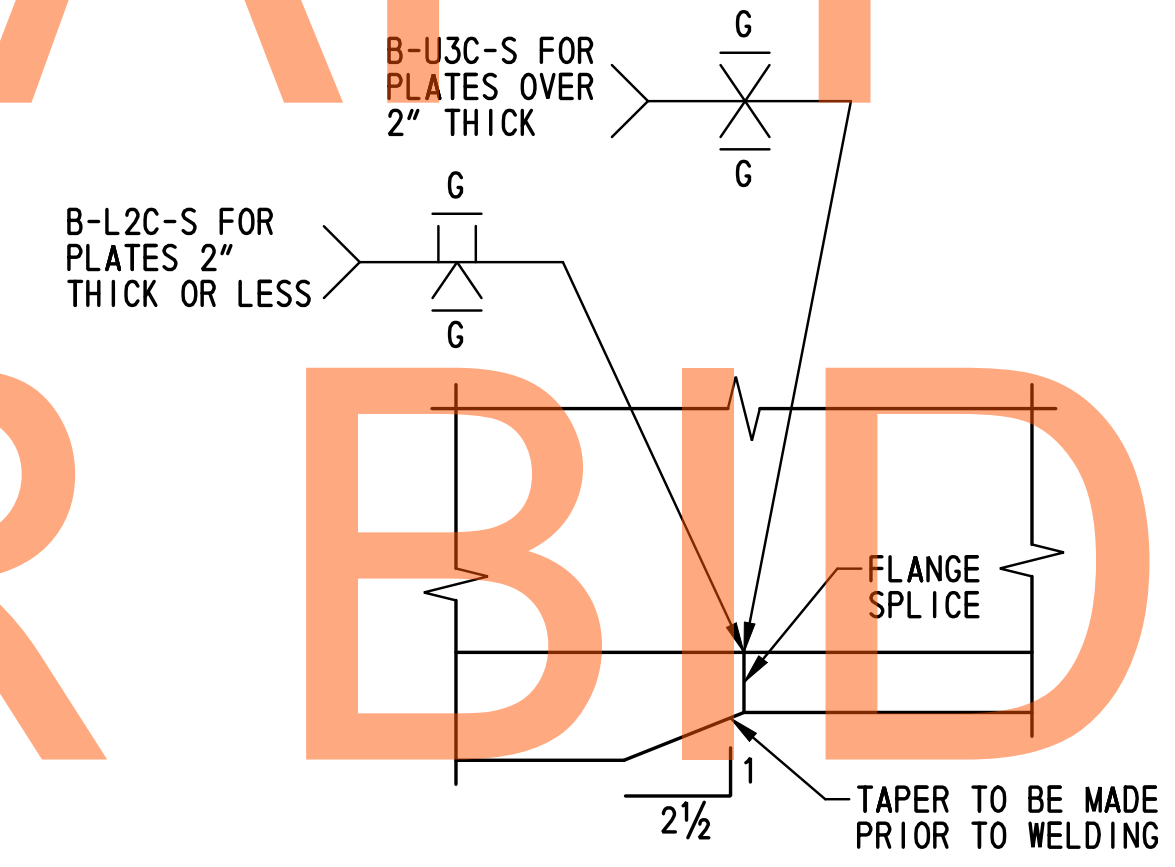


BOTTOM FLANGE

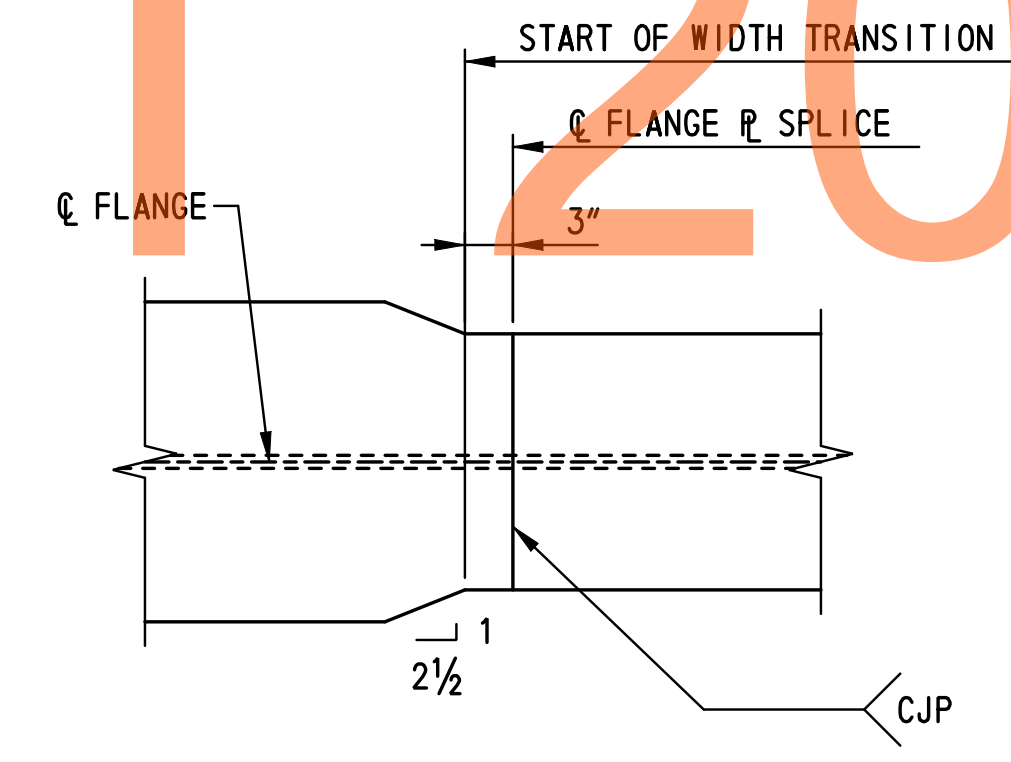
FIELD SPLICE DETAIL - TYPE I  
SCALE: 1" = 1'-0"



ELEVATION OF GIRDER  
NOT TO SCALE



FLANGE THICKNESS TRANSITION SHOP SPLICE  
SCALE: 3" = 1'-0"



FLANGE WIDTH TRANSITION SHOP SPLICE  
SCALE: 1" = 1'-0"

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NOT FOR BIDDING  
AUGUST 2015

**SPLICE NOTES:**

1. FOR LOCATIONS OF FIELD AND SHOP SPLICES, SEE DWG. NOS. FR-01 AND BM-01.
2. ALL BOLTS TO BE 1" Ø HIGH STRENGTH BOLTS CONFORMING TO A 325, TYPE 3. ALL BOLT HOLES SHALL BE 1 1/4" Ø. ALL BOLTS SHALL BE FABRICATED WITH THREADS EXCLUDED FROM THE SHEAR PLANE.
3. FIELD SPLICE DESIGNED AS A SLIP-CRITICAL CONNECTION WITH CLASS A SURFACE CONDITIONS.
4. THE MINIMUM ACCEPTABLE EDGE DISTANCE FOR ANY HOLE SHALL BE 1 3/4".
5. BOLT HEADS SHALL BE ON THE EXTERIOR FACE OF THE EXTERIOR GIRDERS AND THE BOTTOM OF THE BOTTOM FLANGES.
6. BOLTS NOT SHOWN IN SPLICE FOR CLARITY.
7. SPACE SHEAR STUDS TO MISS TOP FLANGE SPLICE BOLTS.
8. ON EACH SIDE OF THE Ø OF SPLICE, A MINIMUM OF 50 PERCENT OF THE WEB, TOP FLANGE, AND BOTTOM FLANGE SPLICE BOLTS SHALL BE IN PLACE BEFORE THE GIRDER IS LEFT UNSUPPORTED.
9. WHEN FLANGE IS LARGER THAN ADJACENT FLANGE BY MORE THAN 2", THE LARGER FLANGE SHALL BE TAPERED TO SMALLER FLANGE WIDTH IN A DISTANCE OF 1/2 LENGTH OF SPLICE PLATE (BOTTOM FLANGE ONLY).
10. FIELD SPLICES SHALL BE COMPLETELY SHOP ASSEMBLED AND MATCH MARKED AFTER ALL SHOP WELDING HAS BEEN COMPLETED. CONTACT SURFACES SHALL BE FREE OF ALL OIL AND DIRT.
11. ALL SPLICE PLATES ARE SUBJECT TO CHАРPY V-NOTCH REQUIREMENTS.
12. BUTT WELDS OF FLANGE SPLICE PLATES TO BE GROUND FLUSH PRIOR TO ATTACHING WEB PLATES.

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ADDENDUMS / REVISIONS	

SCALE: AS NOTED

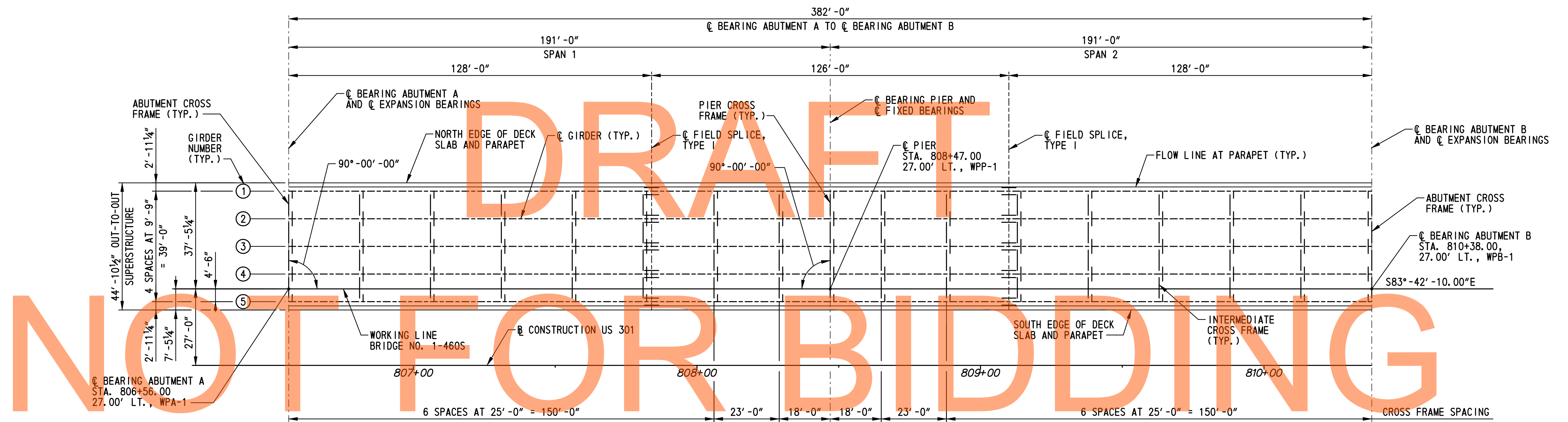
**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**SPLICE DETAILS**

<b>BRI-7S BM-04</b>
SHEET NO.
474
TOTAL SHTS.
875





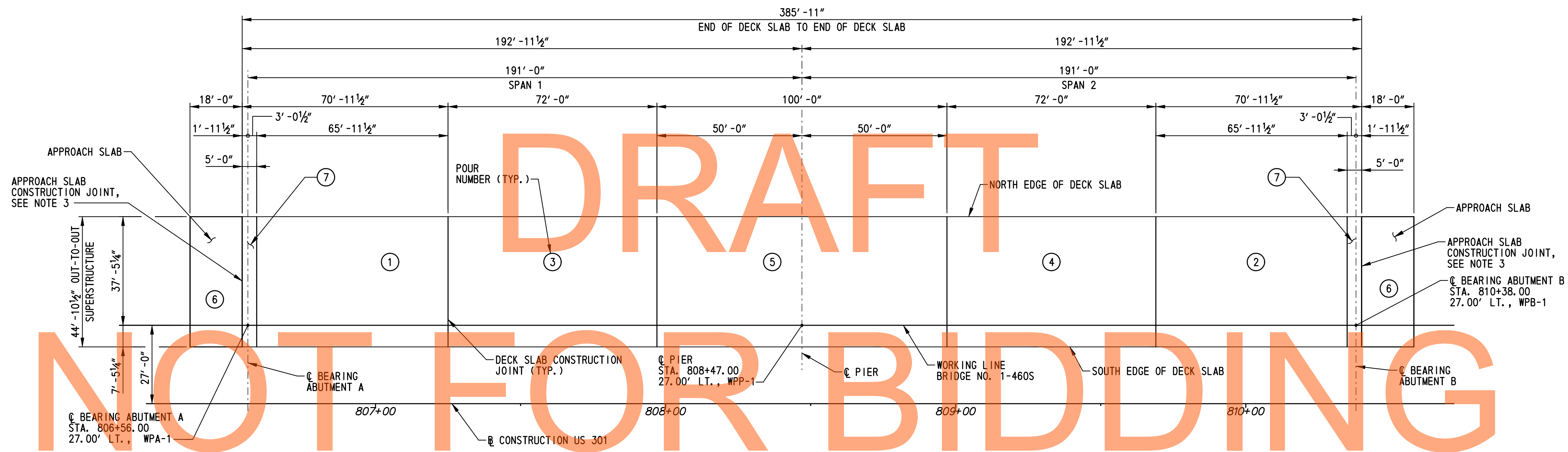
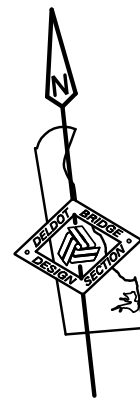
NOT FOR BIDDING

AUGUST 2015

**FRAMING PLAN**  
SCALE: 1"=20'-0"

- NOTES:**
1. FOR GIRDER ELEVATION, SEE DWG. NO. BM-01.
  2. FOR CROSS FRAME DETAILS, SEE DWG. NO. BM-02.
  3. FOR FIELD SPLICE DETAILS, SEE DWG. NO. BM-04.

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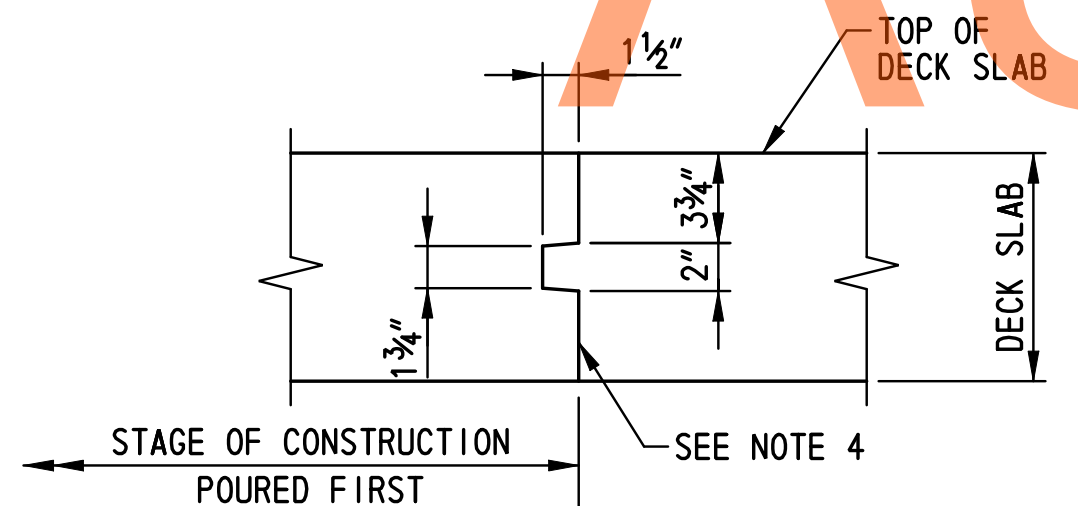


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NOT FOR BIDDING

AUGUST 2015

DECK SLAB POURING SEQUENCE PLAN  
SCALE: 1" = 20' - 0"



DECK SLAB CONSTRUCTION JOINT DETAIL  
SCALE: 1 1/2" = 1' - 0"

- NOTES:**
1. THE CONTRACTOR SHALL FOLLOW THE POURING SEQUENCE SHOWN ON THESE PLANS. NO OTHER ALTERNATE POURING SEQUENCE WILL BE ALLOWED FOR THIS PROJECT.
  2. THE POURING SEQUENCE FOR THE DECK SLAB SHALL BE MADE IN THE NUMBERED ORDER INDICATED. THERE MUST BE AT LEAST FORTY (40) HOURS BETWEEN THE COMPLETION OF ONE NUMBERED POUR AND THE START OF THE NEXT NUMBERED POUR. THE CONTRACTOR MAY REVERSE THE ORDER OF POURS NUMBERED 1 AND 2, AND POURS NUMBERED 3 AND 4. THE CONTRACTOR MAY PLACE THE POUR 6 SECTIONS AS SOON AS THE POUR 1 AND POUR 2 SECTIONS HAVE BEEN PLACED. THE POUR 7 SECTIONS SHALL BE PLACED STARTING AT THE BRIDGE DECK AND WORKING TOWARD THE APPROACH SLAB.
  3. MAKE A 3" DEEP SAWCUT AT THE APPROACH SLAB CONSTRUCTION JOINT NO LATER THAN 36 HOURS AFTER PLACEMENT OF POUR 7 SECTIONS. SEAL THIS SAWCUT WITH AN APPROVED COLD APPLIED SILICONE SEALER PLACED IN A CLEAN AIR-BLOWN NOTCH FREE OF MOISTURE. COST SHALL BE INCIDENTAL TO ITEM 602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D.
  4. ENTIRE FACE OF CONSTRUCTION JOINT SHALL BE COATED WITH AN APPROVED EPOXY BONDING COMPOUND. COST SHALL BE INCIDENTAL TO ITEM 602013 - PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D.
  5. FOR FINISHED ROADWAY ELEVATIONS, SEE DWG. NOS. FD-01 AND FD-02.
  6. FOR DECK SLAB REINFORCEMENT, SEE DWG. NOS. DK-02 THRU DK-04.

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ADDENDUMS / REVISIONS	

SCALE: AS NOTED

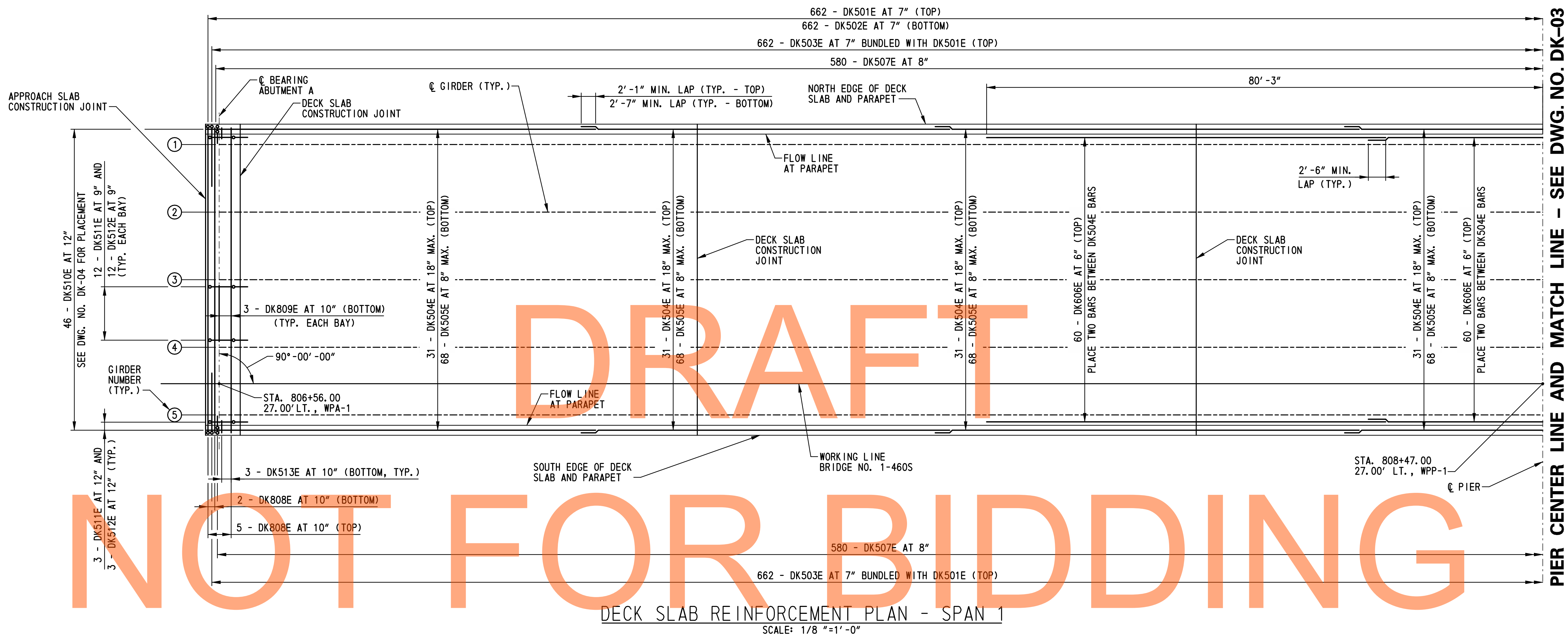
**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

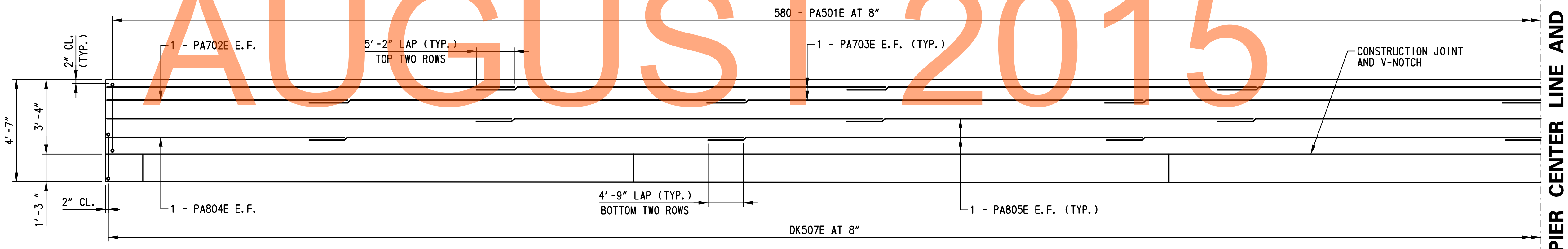
**DECK SLAB  
POURING SEQUENCE**

<b>BRI-7S DK-01</b>
SHEET NO.
477
TOTAL SHTS.
875





DECK SLAB REINFORCEMENT PLAN - SPAN 1  
SCALE: 1/8" = 1'-0"



PARAPET REINFORCEMENT ELEVATION - SPAN 1  
HORIZONTAL SCALE: 1/8" = 1'-0"  
VERTICAL SCALE: 3/8" = 1'-0"

- NOTES:**
1. FOR ADDITIONAL INFORMATION ON PLACEMENT OF DK507E AND DK606E, AND FOR ADDITIONAL DECK SLAB AND PARAPET REINFORCEMENT DETAILS, SEE DWG. NO. DK-04.
  2. FOR DECK SLAB CONSTRUCTION JOINT LOCATIONS AND DECK SLAB POURING SEQUENCE, SEE DWG. NO. DK-01.
  3. FOR PARAPET CONTROL JOINT LOCATIONS, SEE DWG. NO. PE-01. FOR PARAPET CONTROL JOINT DETAILS, SEE DWG. NO. SD-01.

**NOTE:**  
SOUTH PARAPET SHOWN LOOKING NORTH, NORTH PARAPET SIMILAR LOOKING SOUTH.

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NOT FOR BIDDING

AUGUST 2015

PIER CENTER LINE AND MATCH LINE - SEE DWG. NO. DK-03

MATCH LINE - SEE DWG. NO. DK-03

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ADDENDUMS / REVISIONS	

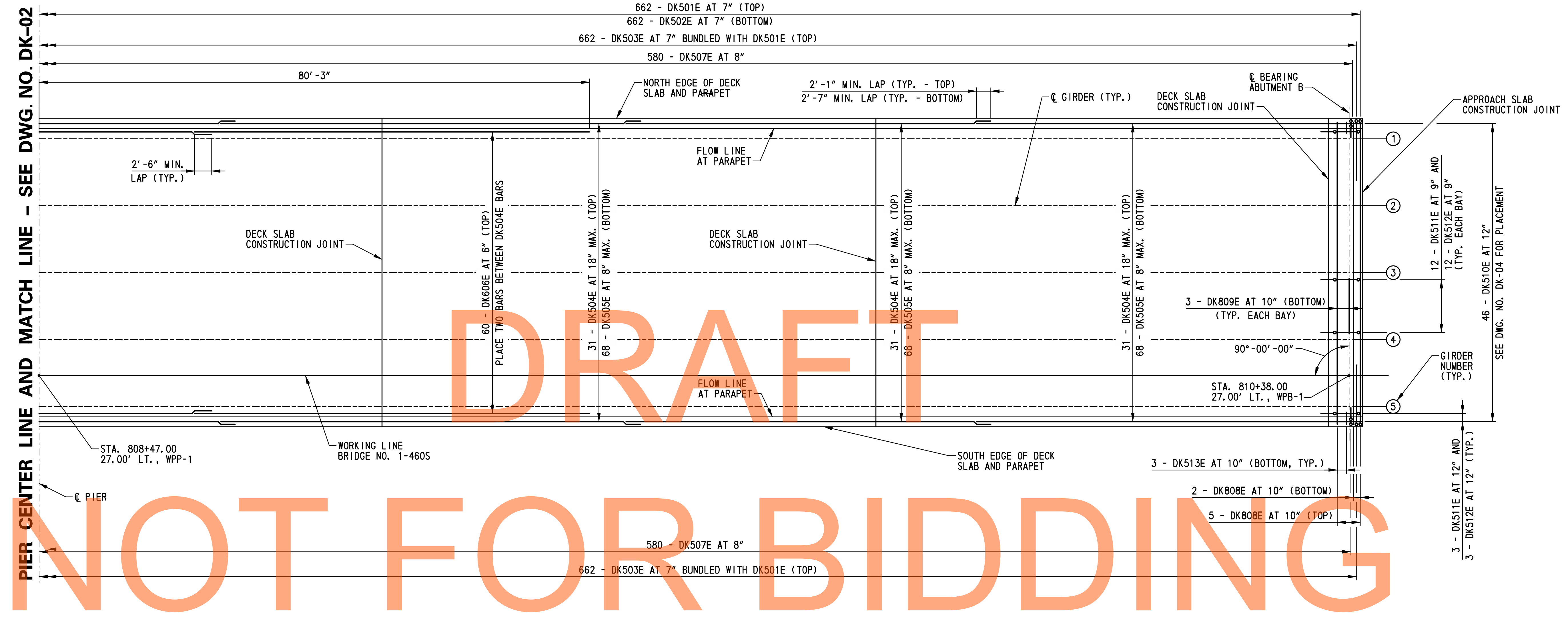
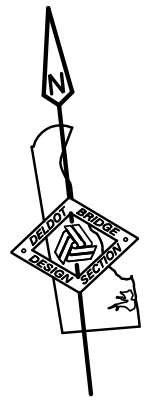
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**US 301,  
SR 896 TO SR 1**

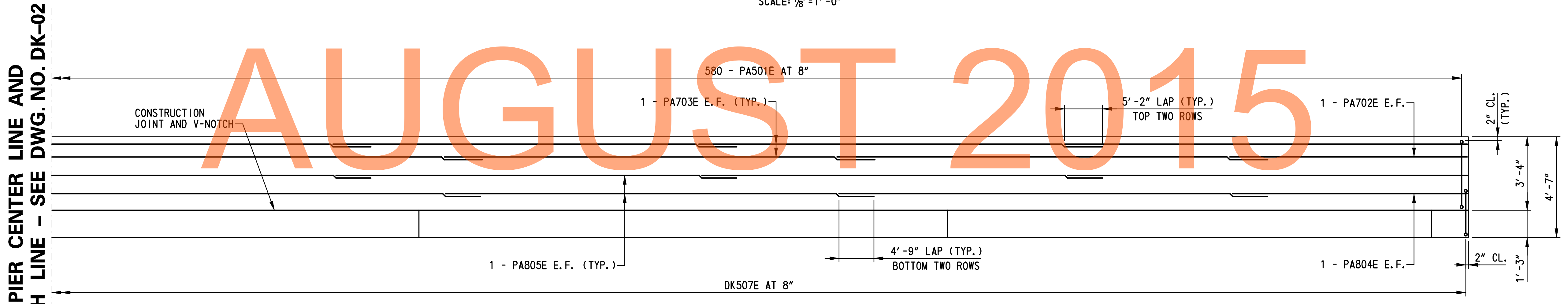
CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: M.P.U. CHECKED BY: P.S.D.

**DECK SLAB AND  
PARAPET REINFORCEMENT  
- SPAN 1**

<b>BRI-7S DK-02</b>
SHEET NO. 478
TOTAL SHTS. 875



DECK SLAB REINFORCEMENT PLAN - SPAN 2  
SCALE: 1/8" = 1' - 0"



PARAPET REINFORCEMENT ELEVATION - SPAN 2  
HORIZONTAL SCALE: 1/8" = 1' - 0"  
VERTICAL SCALE: 3/8" = 1' - 0"

NOTE:  
SOUTH PARAPET SHOWN LOOKING NORTH, NORTH  
PARAPET SIMILAR LOOKING SOUTH.

- NOTES:
1. FOR ADDITIONAL INFORMATION ON PLACEMENT OF DK507E AND DK606E, AND FOR ADDITIONAL DECK SLAB AND PARAPET REINFORCEMENT DETAILS, SEE DWG. NO. DK-04.
  2. FOR DECK SLAB CONSTRUCTION JOINT LOCATIONS AND DECK SLAB POURING SEQUENCE, SEE DWG. NO. DK-01.
  3. FOR PARAPET CONTROL JOINT LOCATIONS, SEE DWG. NO. PE-01. FOR PARAPET CONTROL JOINT DETAILS, SEE DWG. NO. SD-01.

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ADDENDUMS / REVISIONS	

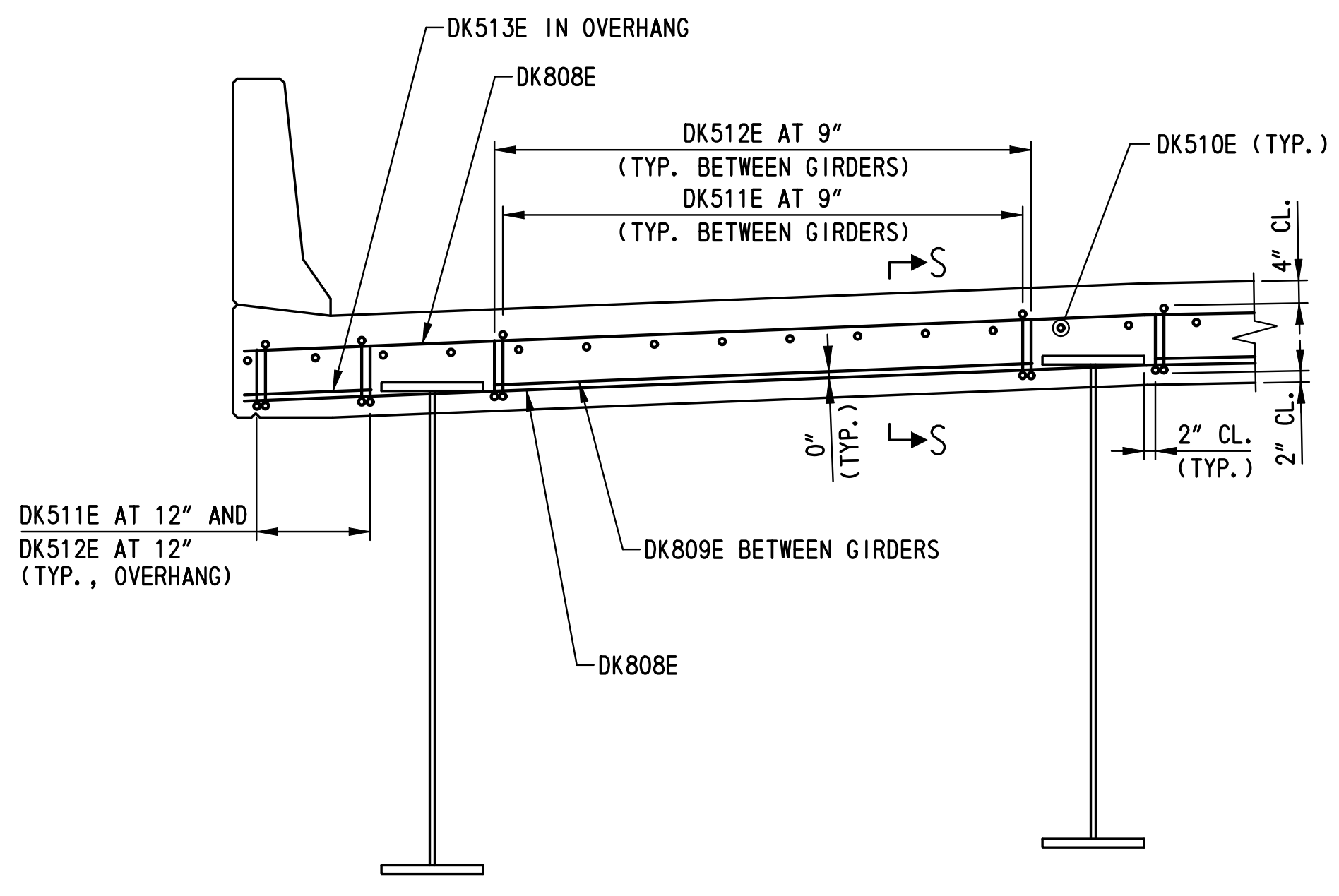
SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	1-460S
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

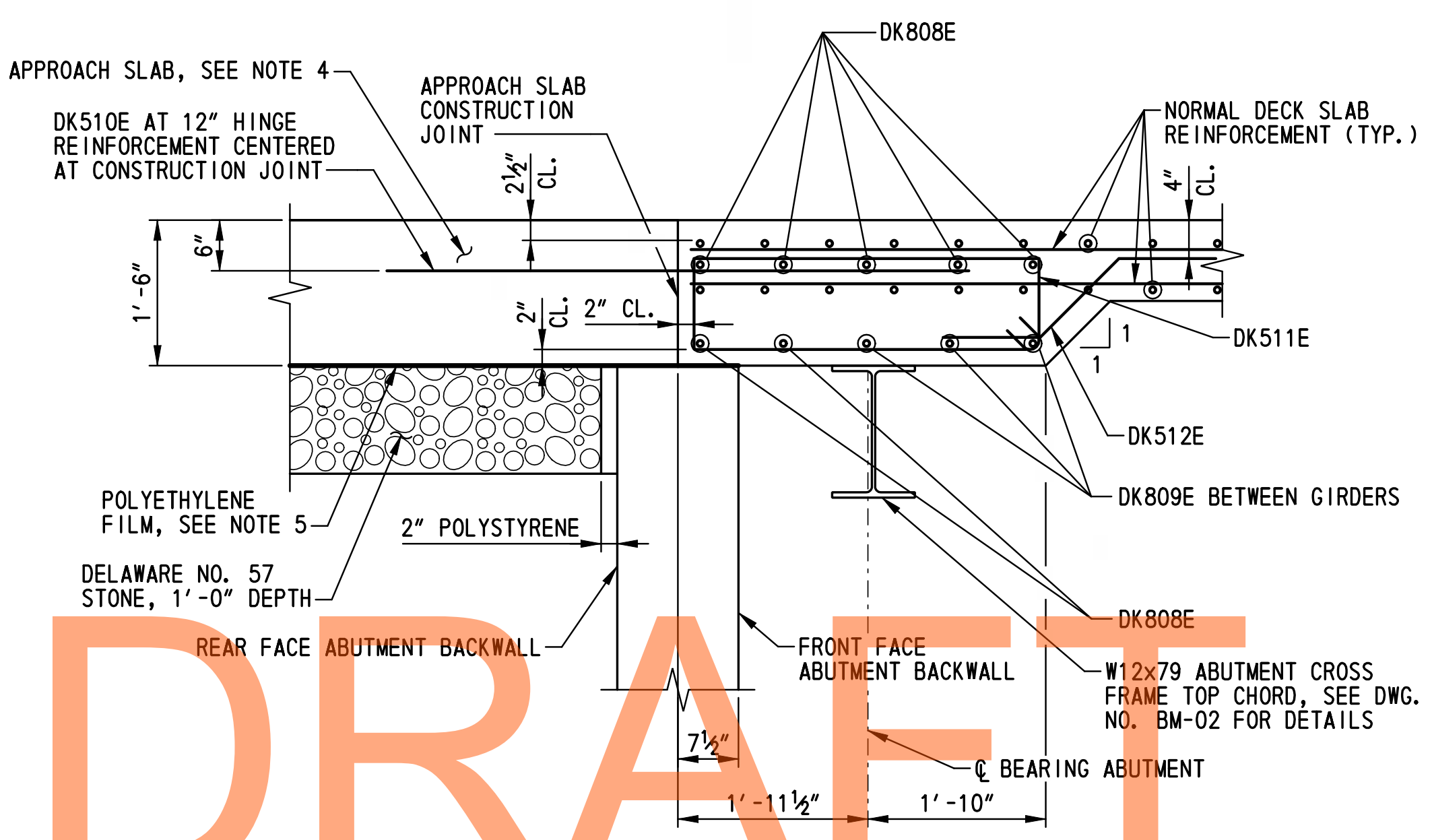
DECK SLAB AND  
PARAPET REINFORCEMENT  
- SPAN 2

BR-7S DK-03
SHEET NO.
479
TOTAL SHTS.
875

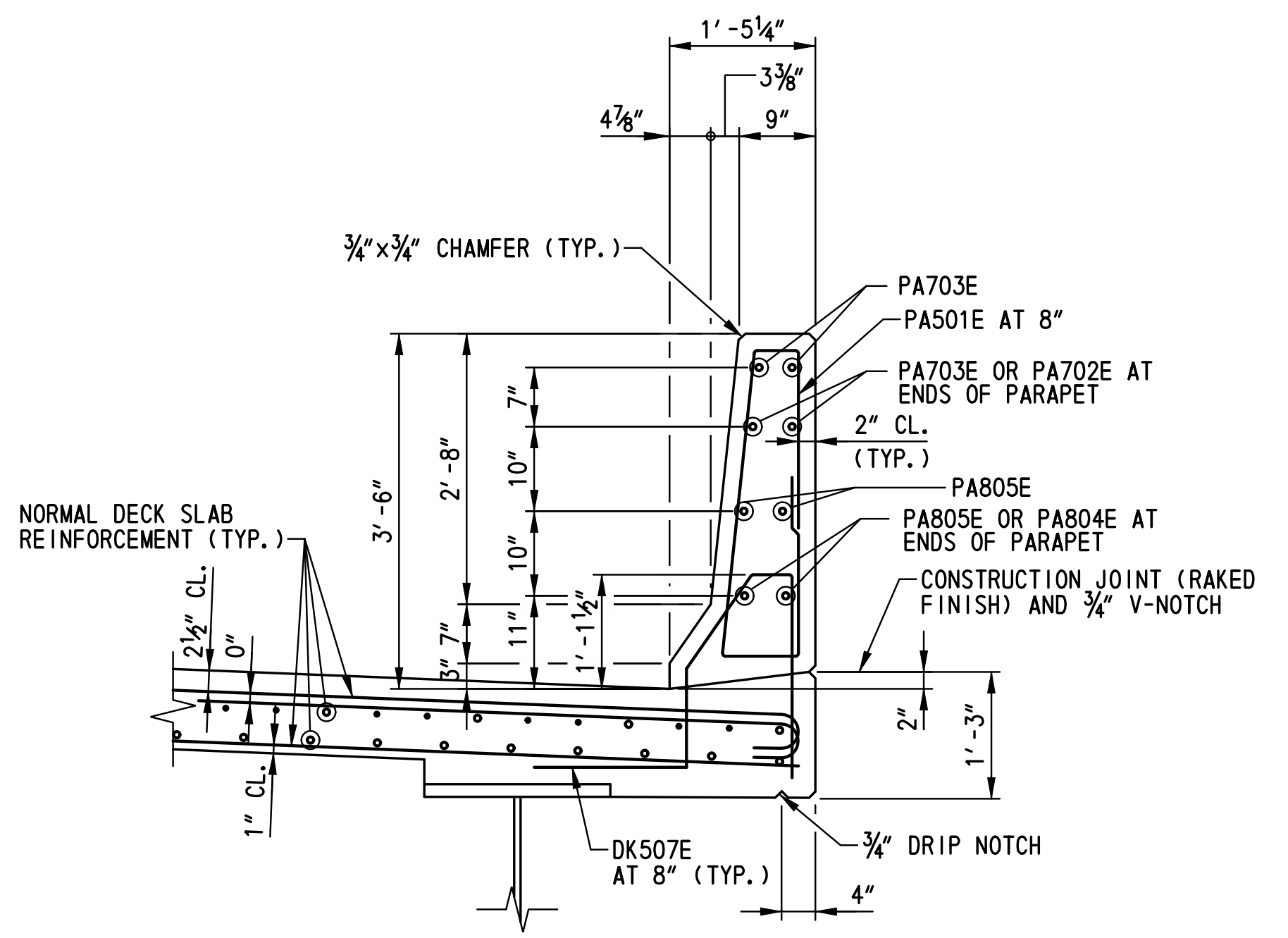


NOTE:  
NORMAL SLAB AND PARAPET REINFORCEMENT  
NOT SHOWN FOR CLARITY.

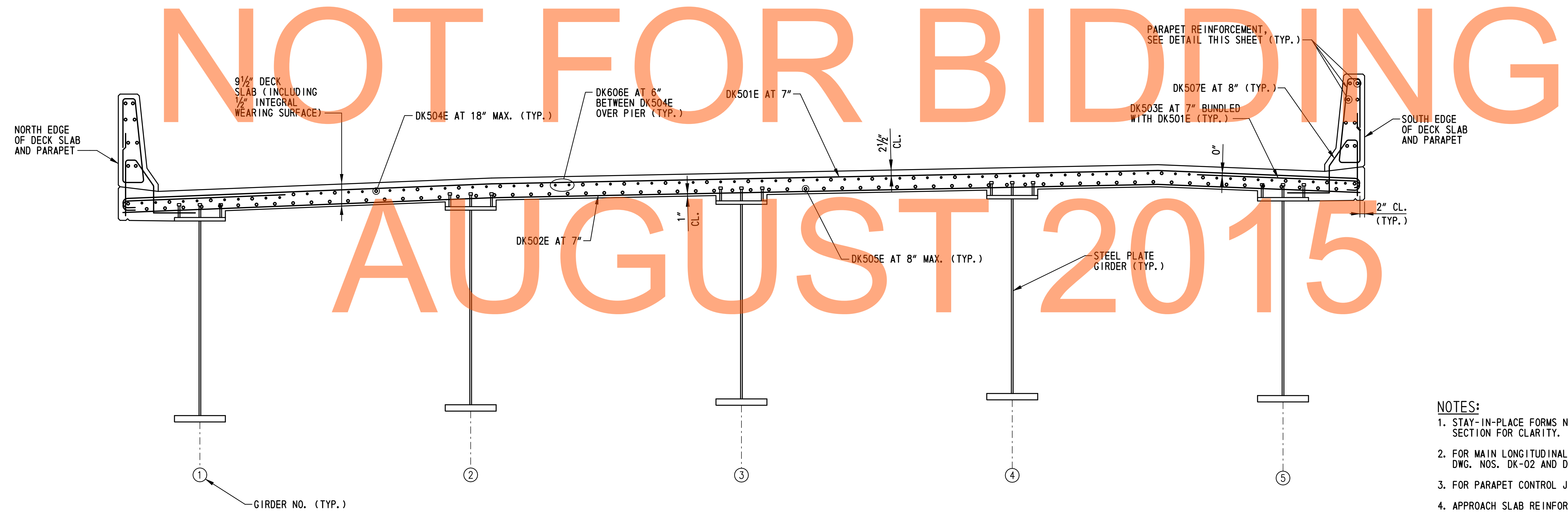
CONCRETE END HAUNCH TYPICAL REINFORCEMENT SECTION  
SCALE: 1/2"=1'-0"



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



PARAPET TYPICAL REINFORCEMENT SECTION  
SCALE: 3/4"=1'-0"



DECK SLAB TYPICAL REINFORCEMENT SECTION  
SCALE: 1/2"=1'-0"

NOTE:  
TYPICAL SECTION SHOWN LOOKING STATIONS AHEAD.

- NOTES:
1. STAY-IN-PLACE FORMS NOT SHOWN ON TYPICAL REINFORCEMENT SECTION FOR CLARITY. SEE DWG. NO. SD-01.
  2. FOR MAIN LONGITUDINAL AND TRANSVERSE REINFORCEMENT, SEE DWG. NOS. DK-02 AND DK-03.
  3. FOR PARAPET CONTROL JOINT DETAILS, SEE DWG. NO. SD-01.
  4. APPROACH SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.
  5. FOR POLYETHYLENE FILM INFORMATION, SEE DWG. NO. AS-07.

DRAFT  
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AUGUST 2015

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ADDENDUMS / REVISIONS	

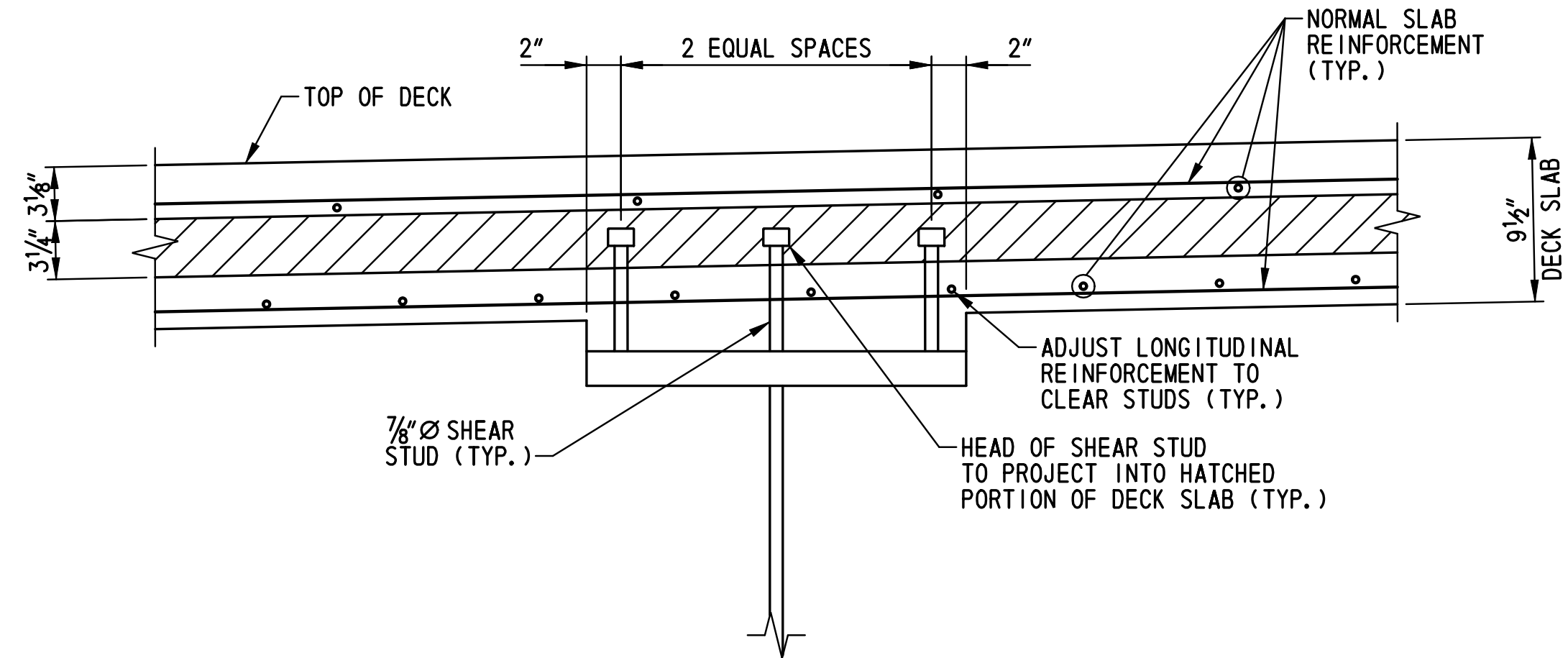
SCALE: AS NOTED

**US 301,**  
**SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: M.P.U. CHECKED BY: P.S.D.

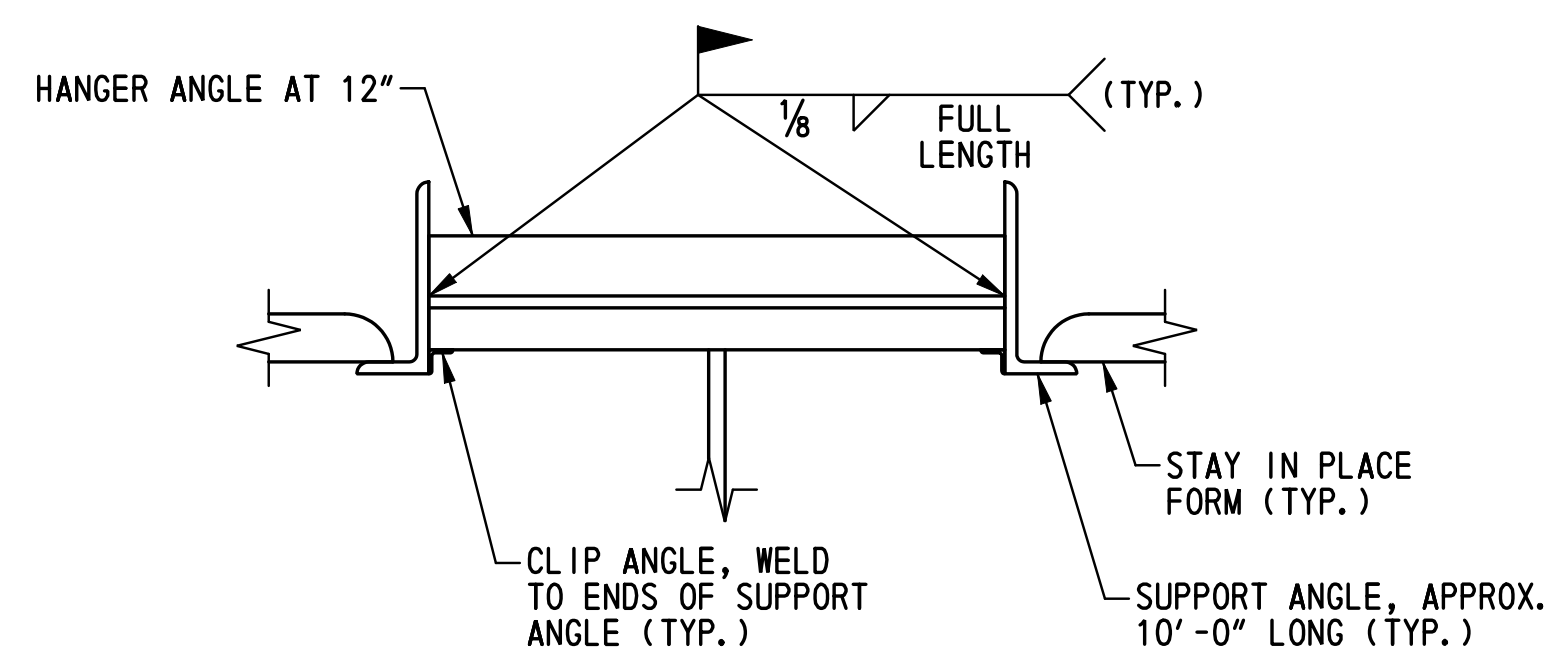
**DECK SLAB AND**  
**PARAPET REINFORCEMENT**  
**DETAILS**

<b>BRI-7S</b> <b>DK-04</b>
SHEET NO. 480
TOTAL SHTS. 875

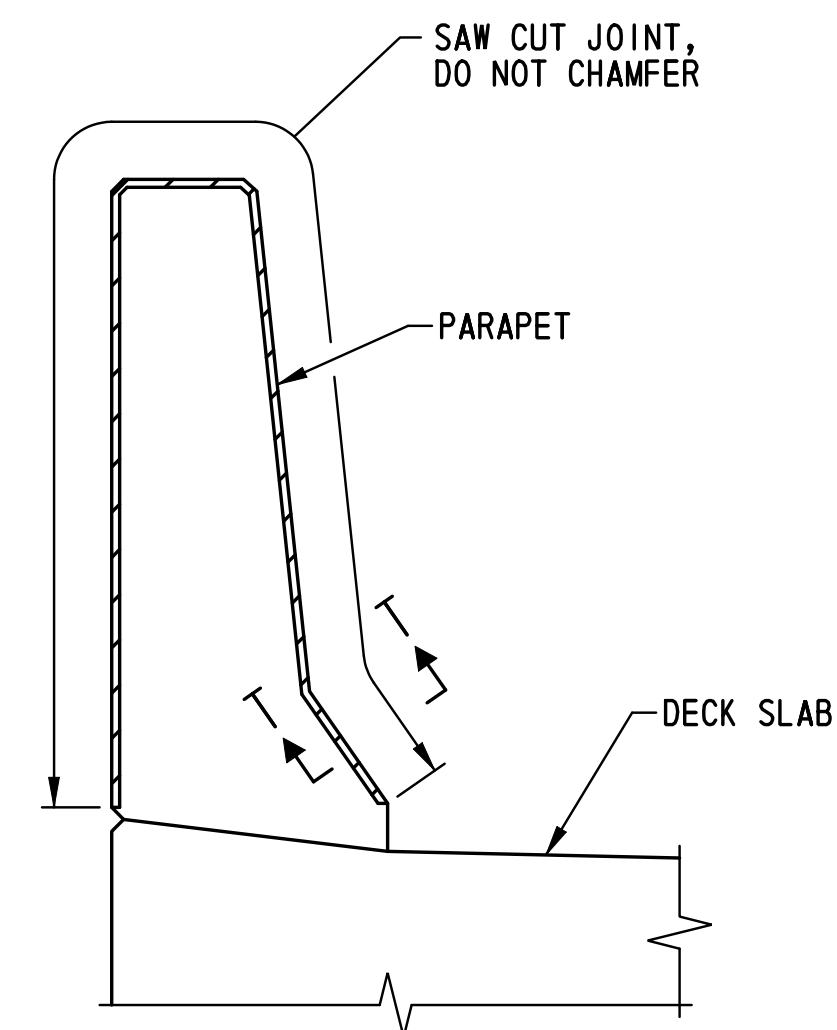


SHEAR STUD DETAIL  
SCALE: 1 1/2" = 1' - 0"

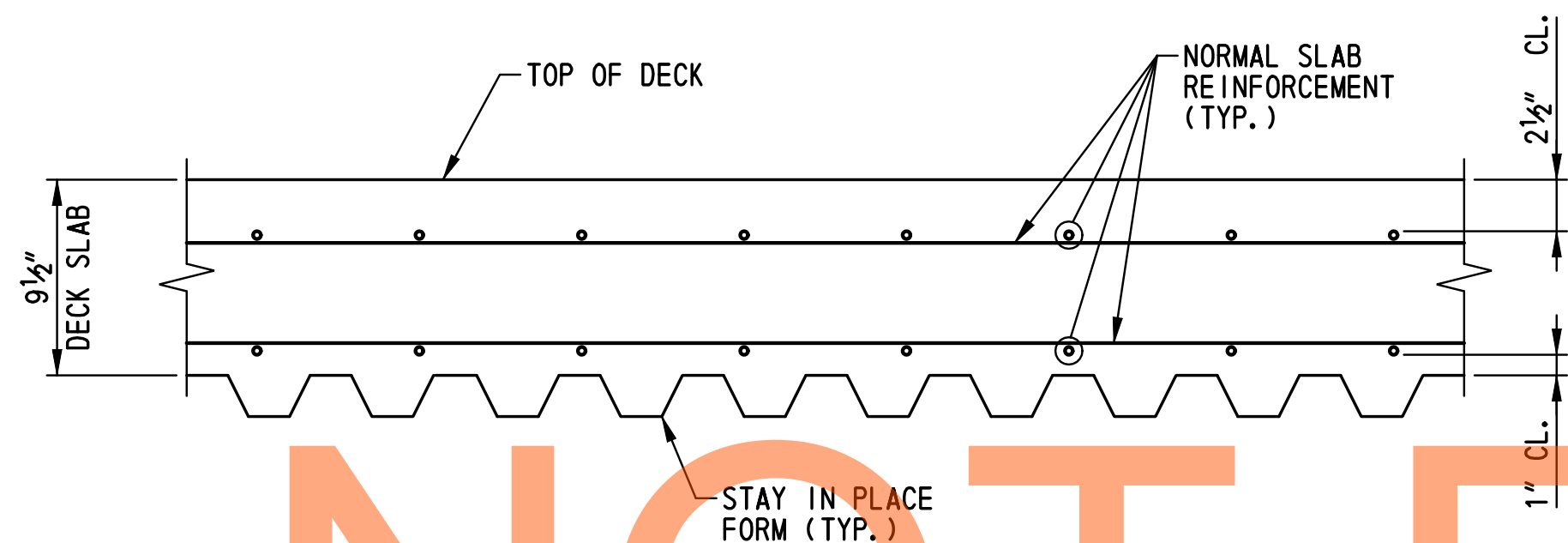
- NOTES:  
1. S.I.P. FORMS NOT SHOWN FOR CLARITY.  
2. FOR LONGITUDINAL SPACING OF SHEAR STUDS SEE DWG. NO. BM-01.



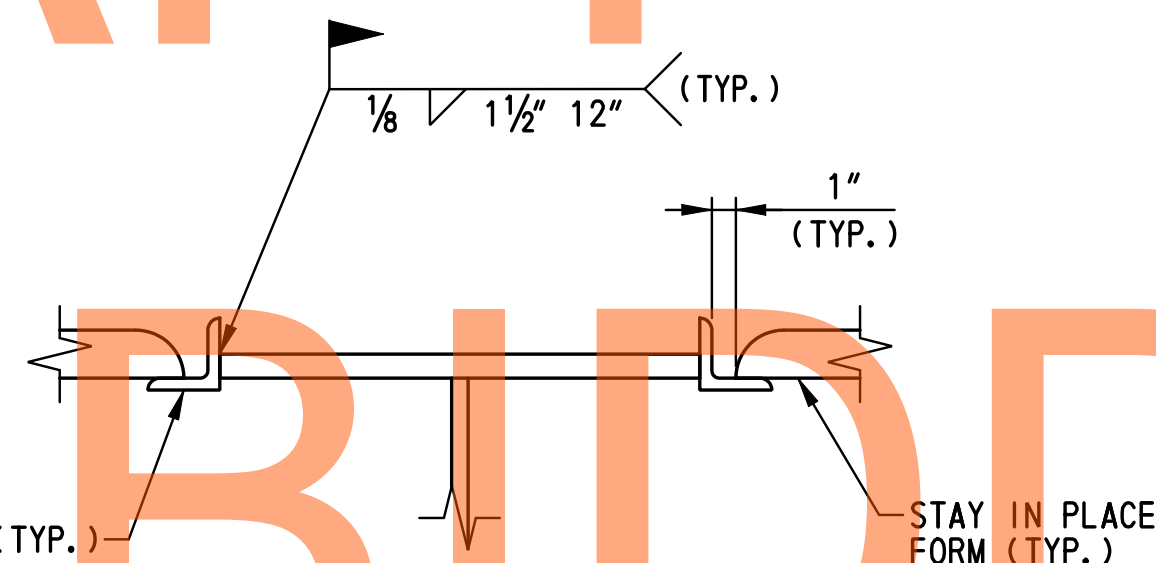
TENSION FLANGE S.I.P. FORM ATTACHMENT DETAIL  
SCALE: 1 1/2" = 1' - 0"



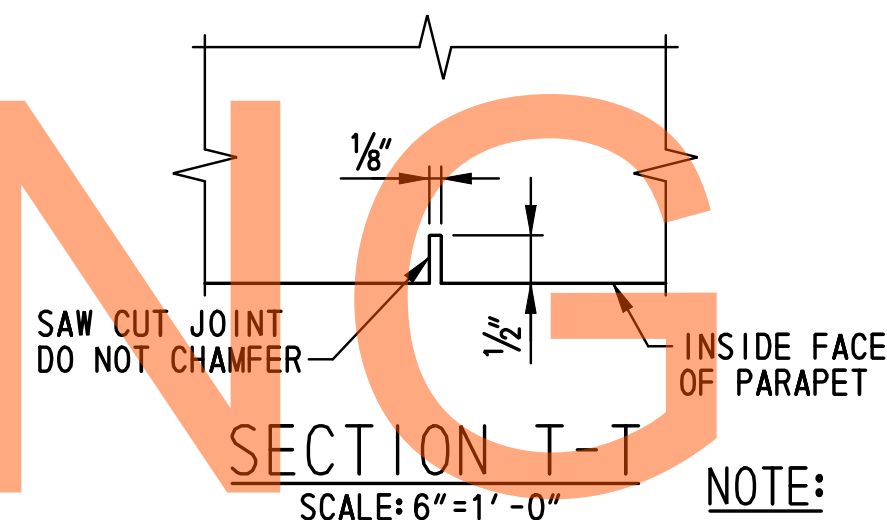
PARAPET CONTROL JOINT DETAIL  
SCALE: 1" = 1' - 0"



S.I.P. FORM PLACEMENT DETAIL  
SCALE: 1 1/2" = 1' - 0"

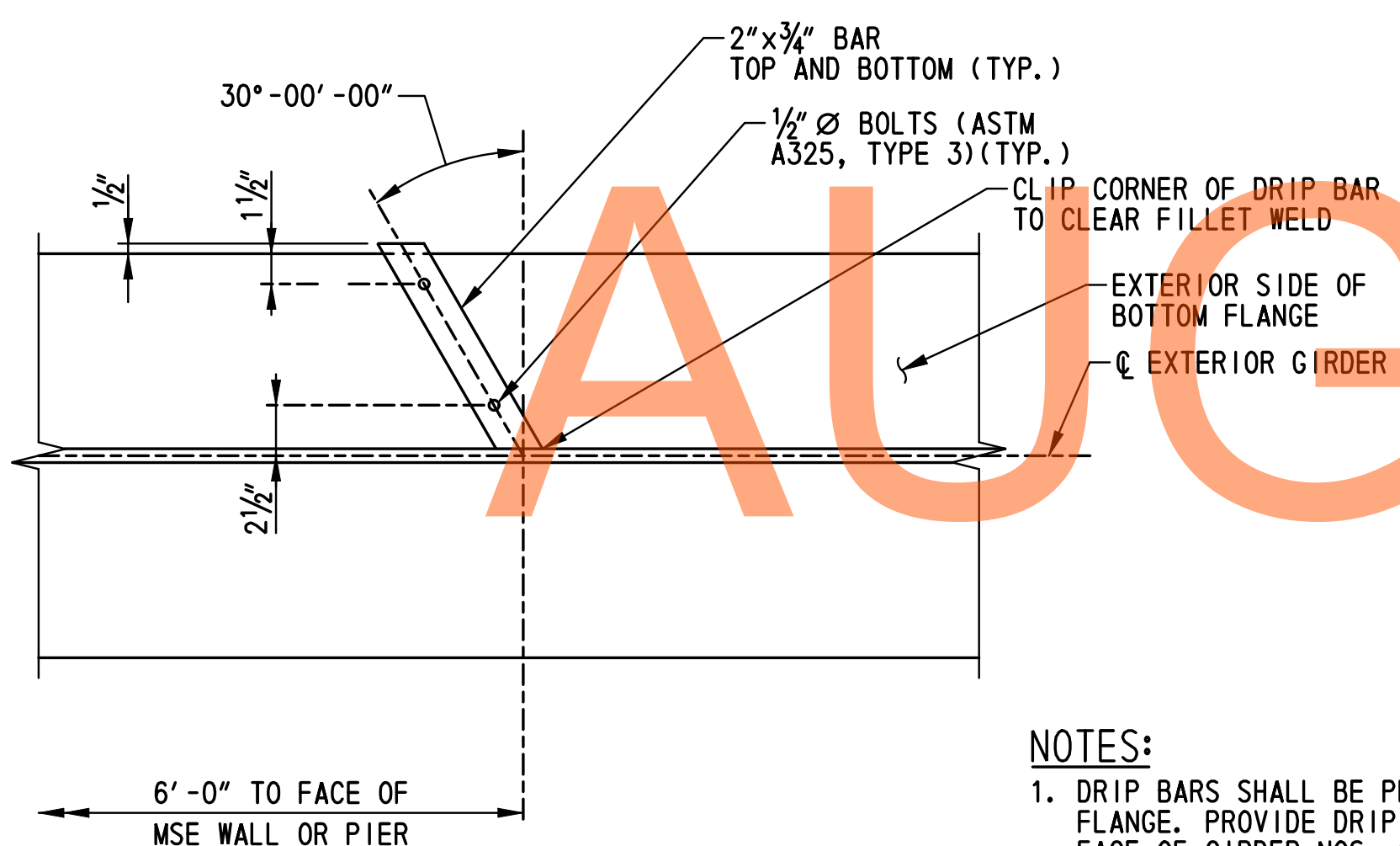


COMPRESSION FLANGE S.I.P. FORM ATTACHMENT DETAIL  
SCALE: 1 1/2" = 1' - 0"



SECTION T-T  
SCALE: 6" = 1' - 0"

- NOTE:  
SAW CUT CONTROL JOINT SHALL BE SAWED SAME DAY AS CONCRETE IS POURED.



DRIP BAR DETAIL  
SCALE: 1 1/2" = 1' - 0"

- NOTES:  
1. DRIP BARS SHALL BE PLACED ON BOTTOM FLANGE. PROVIDE DRIP BAR FOR EXTERIOR FACE OF GIRDER NOS. 1 AND 5 ONLY.  
2. DRIP BARS ARE PLACED ADJACENT TO SUPPORTS TO PREVENT WATER FLOW ONTO SUPPORT.  
3. DRIP BARS SHALL BE CAULKED AGAINST FLANGE, WEB AND FILLET WELD WITH AN APPROVED NON-HARDENING CAULKING COMPOUND.  
4. DRIP BARS SHALL CONFORM TO ASTM A 709 GRADE 50W STRUCTURAL STEEL.

STAY IN PLACE FORM NOTES:

- STAY IN PLACE FORMS SHALL CONFORM TO 602.03.
- NO WELDING OF STAY IN PLACE FORMS TO TENSION FLANGES IS PERMITTED. SEE GIRDER ELEVATION ON DWG. NO. BM-01.
- STAY IN PLACE FORMS SHALL BE VERTICALLY ADJUSTED TO ATTAIN FINISHED LINES AND GRADES REQUIRED ON THE PLANS.
- 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-OXIDE DUST PRIMER, FEDERAL SPECIFICATION TT-P-641D, TYPE II, NO COLOR ADDED, TO THE SATISFACTION OF THE ENGINEER. MINOR HEAT DISCOLORATION IN AREAS OF WELDS NEED NOT BE TOUCHED UP.

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- ① ANY MARK NUMBER WITH SUFFIX 'E' DENOTES EPOXY COATED REINFORCING STEEL.
- ② ALL MARK 'LOCATION PREFIXES' SHALL CONSIST OF TWO LETTERS AND ARE AS FOLLOWS: AB = ABUTMENT, AS = APPROACH SLAB, BC = BOX CULVERT, BW = BACKWALL, CL = COLUMN, DK = DECK, DL = DOWEL, FT = FOOTING, HW = HEADWALL, MS = MISC. BARS, PA = PARAPET, PR = PIER, SC = SHEETPILE CAP, SL = SLAB, TW = TOEWALL, WL = WALL (UNIQUE LOCATION), WW = WINGWALL

SPECIFICATIONS					BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)																			
QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F/R	G	H	J	K	O									
DECK																								
662	5	45-08.2	DK501E	1	0-07.0	44-06.2										0-07.0		0-05.0						
662	5	44-06.2	DK502E	STR		44-06.2																		
1324	5	8-09.1	DK503E	1	0-07.0	8-02.1																		
217	5	56-11.0	DK504E	STR		56-11.0																		
476	5	57-04.0	DK505E	STR		57-04.0																		
180	6	55-02.0	DK606E	STR		55-02.0																		
1160	5	5-07.0	DK507E	T15	2-00.0	0-05.2	1-01.2	1-00.0	1-00.0			1-00.0	0-07.3	0-11.0	1-01.1									
14	8	44-06.2	DK808E	STR		44-06.2																		
24	8	7-09.0	DK809E	STR		7-09.0																		
92	5	6-00.0	DK510E	STR		6-00.0																		
108	5	10-01.0	DK511E	T1	0-05.2	1-00.1	3-06.3	1-00.1	3-06.3				0-05.2											
108	5	3-09.1	DK512E	6	1-03.0	1-03.1	1-03.0							0-10.2	0-10.2	3-04.2								
12	5	1-10.0	DK513E	STR		1-10.0																		

SPECIFICATIONS					BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)																			
QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F/R	G	H	J	K	O									
PARAPET																								
1160	5	8-00.3	PA501E	PA		2-06.2	0-09.0	3-00.1	0-05.0	2-06.2						3-00.0		0-04.0						
8	7	32-04.0	PA702E	STR		32-04.0																		
52	7	59-07.0	PA703E	STR		59-07.0																		
8	8	31-11.2	PA804E	STR		31-11.2																		
52	8	59-01.3	PA805E	STR		59-01.3																		

SPECIFICATIONS					BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)																			
QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F/R	G	H	J	K	O									

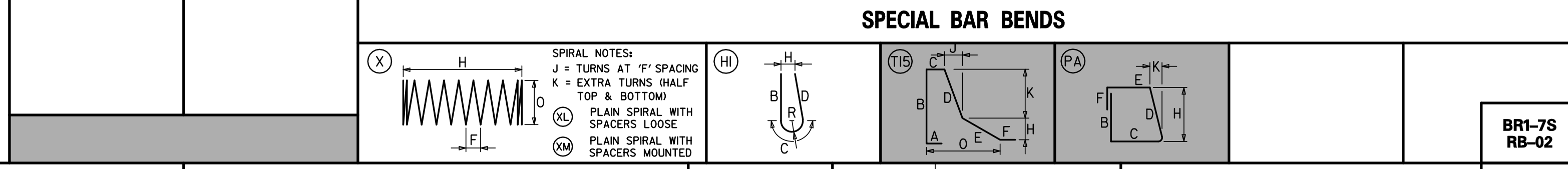
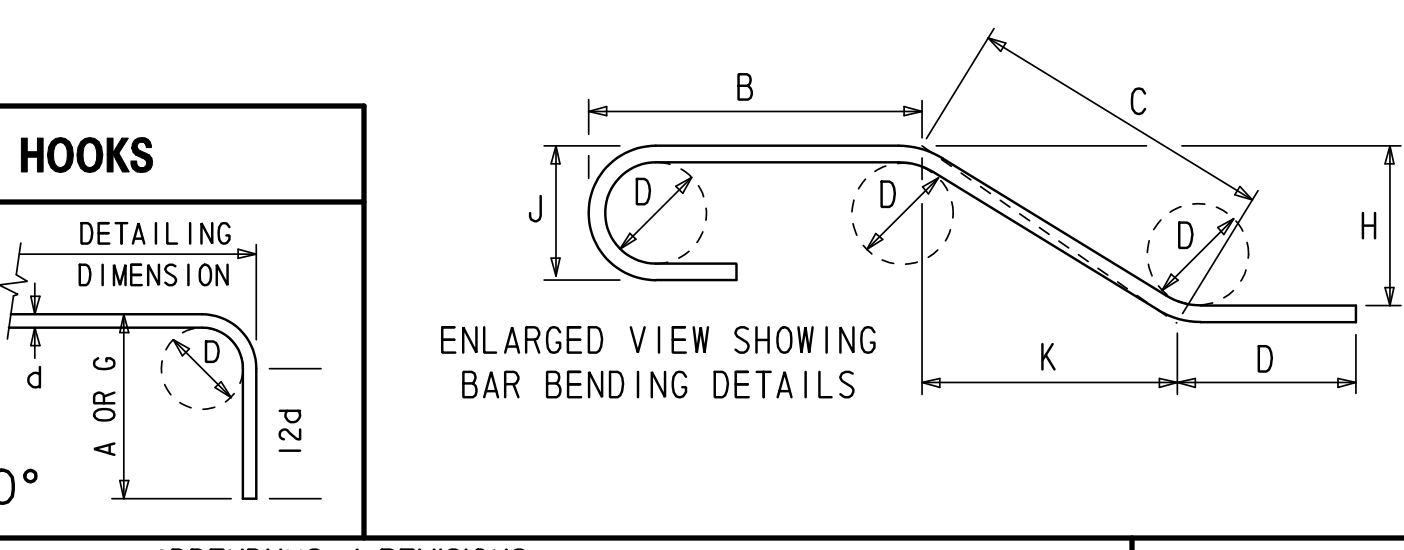
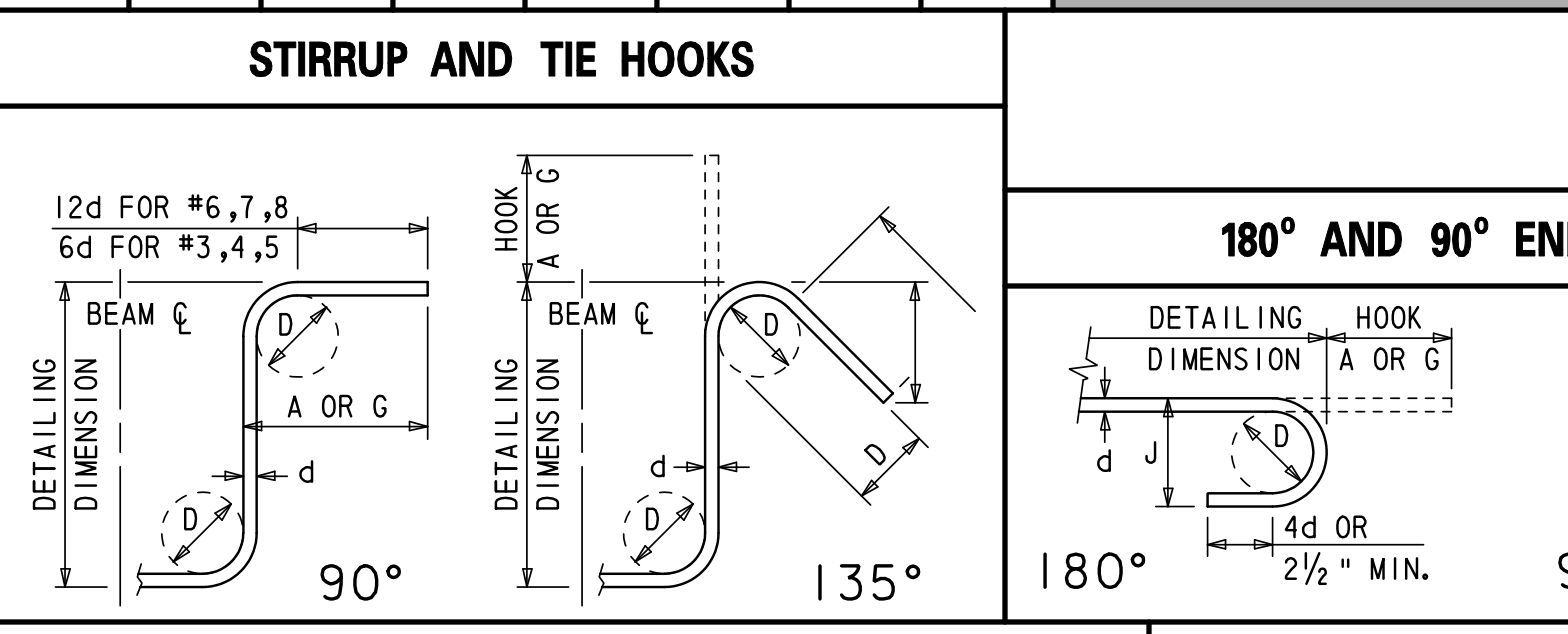
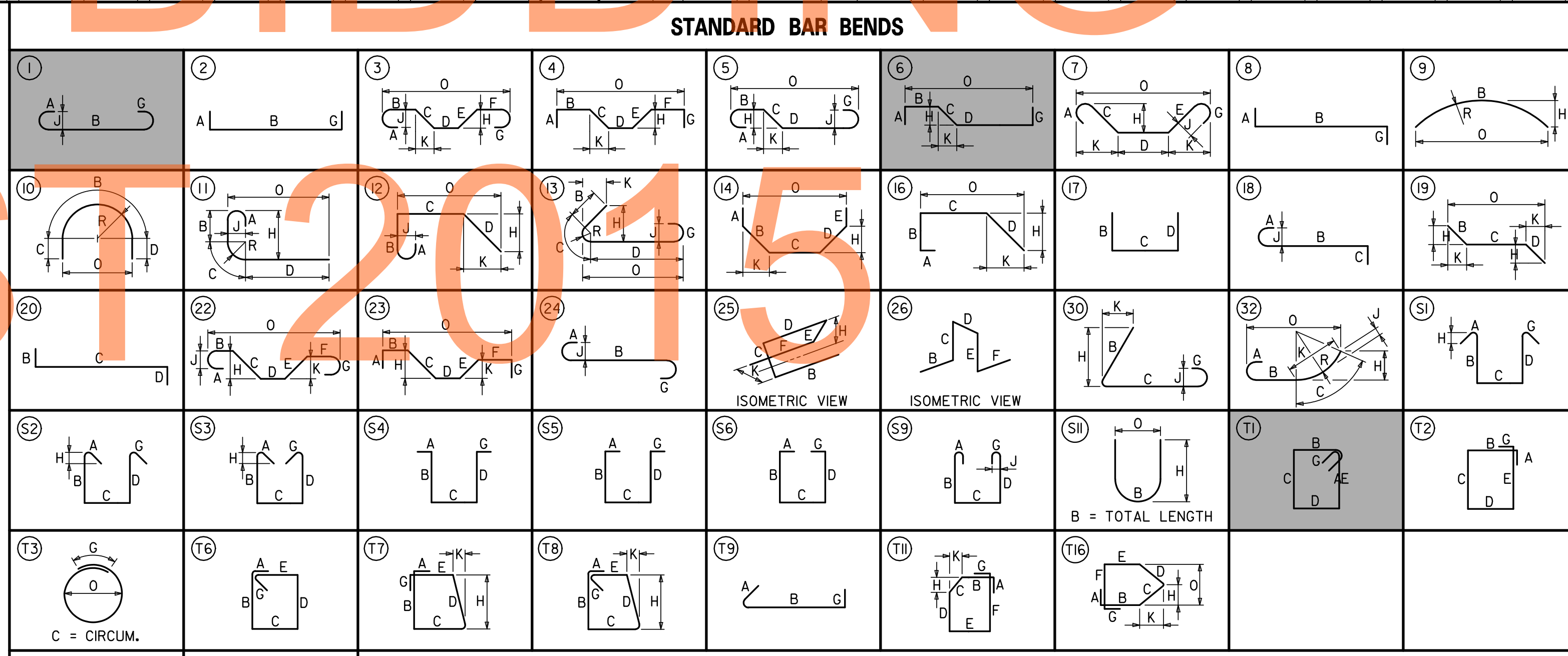
SPECIFICATIONS					BENDING DIMENSIONS (FEET-INCHES /QUARTER INCH)																			
QTY.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F/R	G	H	J	K	O									

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ASTM STANDARD ENGLISH REINFORCING BARS				RECOMMENDED END HOOKS, APPLICABLE TO ALL GRADES				STIRRUP AND TIE HOOKS, APPLICABLE TO ALL GRADES			
BAR SIZE	NOMINAL DIMENSIONS			180° HOOKS		90° HOOKS		90° HOOK		135° HOOK	
	DIAMETER (INCHES)	AREA (INCHES <sup>2</sup> )	WEIGHT (LBS./FT.)	D	A OR G	J	A OR G	D	A OR G	A OR G	A OR G
3	0.375	0.110	0.376	2 1/4"	5"	3"	6"	1 1/2"	4"	4"	2 1/2"
4	0.500	0.200	0.668	3"	6"	4"	8"	2"	4 1/2"	4 1/2"	3"
5	0.625	0.310	1.043	3 3/4"	7"	5"	10"	2 1/2"	6"	5 1/2"	3 3/4"
6	0.750	0.440	1.502	4 1/2"	8"	6"	1-0"	4 1/2"	1-0"	8"	4 1/2"
7	0.875	0.600	2.044	5 1/2"	10"	7"	1-2"	5 1/4"	1-2"	9"	5 1/4"
8	1.000	0.790	2.670	6"	11"	8"	1-4"	6"	1-4"	10 1/2"	6"
9	1.128	1.000	3.400	9 1/2"	1-3"	11 3/4"	1-7"				
10	1.270	1.270	4.303	10 3/4"	1-5"	1-1 1/4"	1-10"				
11	1.410	1.560	5.313	1-0"	1-7"	1-2 3/4"	2-0"				
14	1.693	2.250	7.650	1-6 1/4"	2-3"	1-9 3/4"	2-7"				
18	2.257	4.000	13.600	2-0"	3-0"	2-4 1/2"	3-5"				

NOTES:

- FIGURES SHOWN IN CIRCLES REPRESENT BAR BEND TYPES.
- STANDARD BAR BENDS INCLUDE ONLY THOSE TYPES BELOW, INDICATED AS SUCH.
- ALL DIMENSIONS OUT-TO-OUT, EXCEPT "A" AND "C" ON STD. 180° AND 135° HOOKS.
- "J" DIMENSIONS ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD 'ACI' HOOKS ARE TO BE USED.
- WHERE "J" IS NOT SHOWN, "J" WILL BE KEPT EQUAL TO OR LESS THAN "H" ON TYPES 3, 5 AND 22. WHERE "J" CAN EXCEED "H", IT SHALL BE SHOWN.
- "H" DIMENSIONS OF STIRRUPS TO BE SHOWN AS NEEDED TO FIT WITHIN THE CONCRETE.
- UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR (EXCEPT FOR BEND TYPES 11 AND 13).
- WHERE SLOPE DIFFERS FROM 45° OFFSET, "H" AND "K" MUST BE SHOWN.
- WHERE BARS ARE TO BE BENT MORE ACCURATELY THAN STANDARD BENDING TOLERANCES, BENDING DIMENSIONS REQUIRING CLOSER FABRICATION SHOULD HAVE LIMITS INDICATED.
- FOR RECOMMENDED DIAMETER "D", OF BENDS, HOOKS, ETC., REFER TO TABLE ABOVE, 'CRS1' OR 'AC1' TABLES WHERE APPLICABLE AND REQUIRED.
- TYPE S1-S6, S11, T1-T3 AND T6-T9 APPLICABLE TO BAR SIZES #3 THROUGH #8.



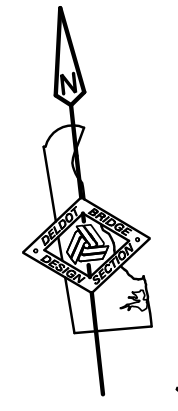
**DELAWARE DEPARTMENT OF TRANSPORTATION**

ADDENDUMS / REVISIONS

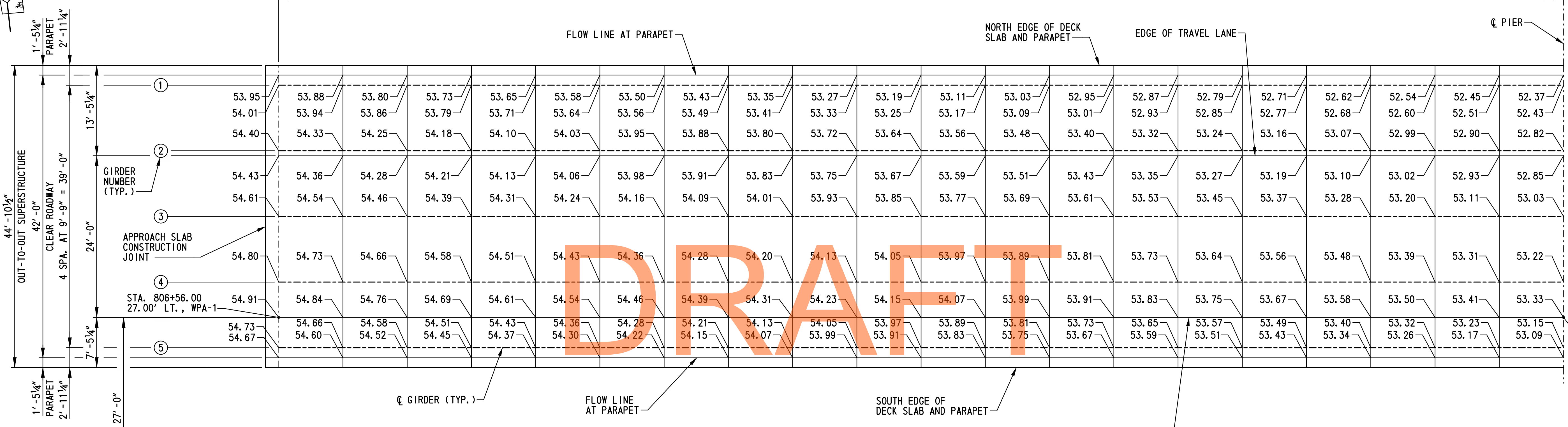
**US 301, SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>	SHEET NO. 482
COUNTY NEW CASTLE	DESIGNED BY: M.P.U.	TOTAL SHTS. 875
CHECKED BY: P.S.D.	<b>SUPERSTRUCTURE REINFORCEMENT LIST</b>	

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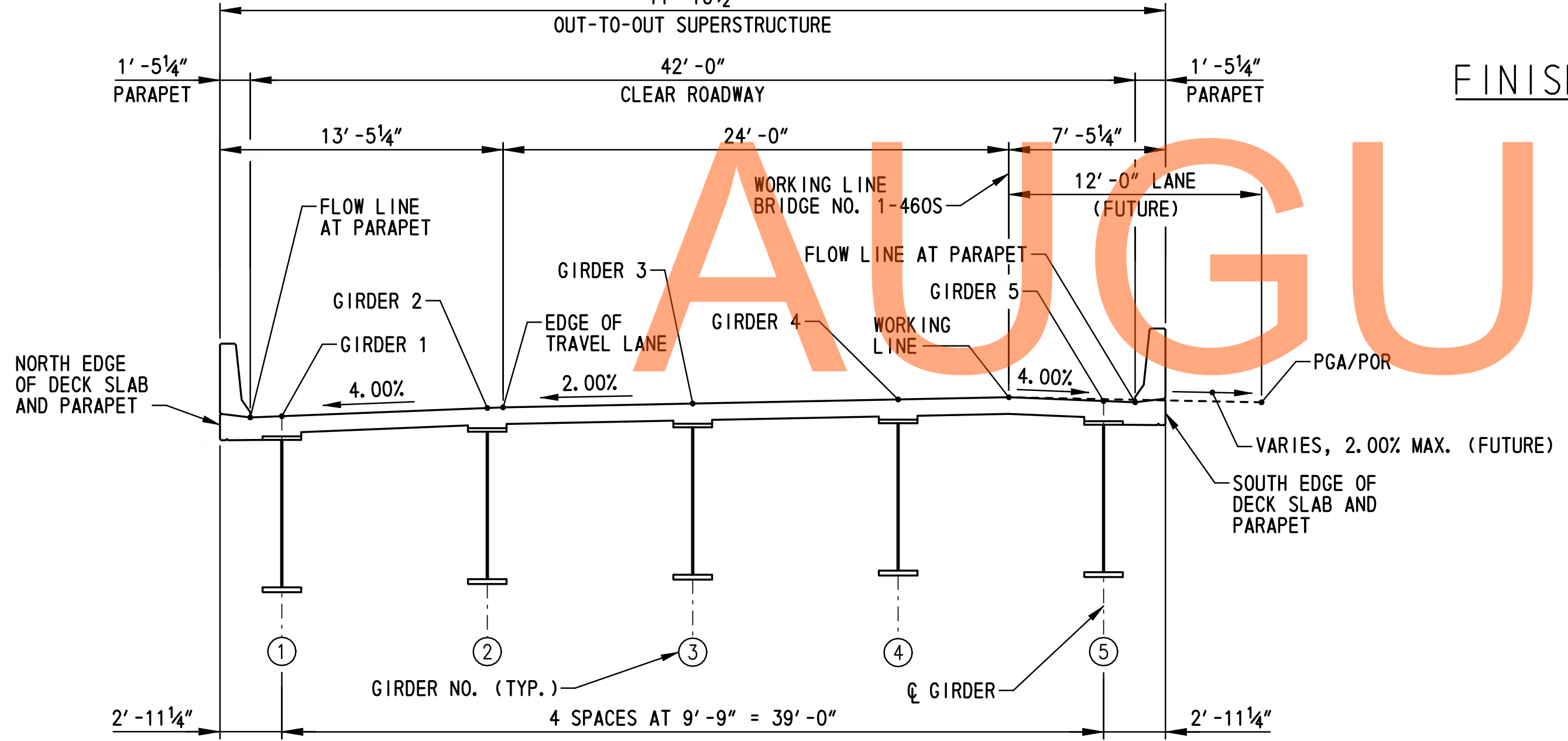
20 SPACES AT 9'-6 5/8" (-) = 191'-0"



MATCH LINE - SEE DWG. NO. FD-02

**NOT FOR BIDDING**

FINISHED BRIDGE DECK ELEVATIONS - SPAN 1  
SCALE: 1/8" = 1'-0"



LOCATIONS OF FINISHED BRIDGE DECK ELEVATIONS  
SCALE: 1/8" = 1'-0"

- NOTES:**
1. FINISHED BRIDGE DECK ELEVATIONS SHOWN ARE TOP OF PROPOSED CONCRETE DECK SLAB.
  2. FOR VERTICAL CURVE DATA, SEE DWG. NO. PE-01.
  3. FOR SUPERELEVATION TRANSITION DATA, SEE DWG. NO. GG-15.
  4. FOR CAMBER DIAGRAM, SEE DWG. NO. CT-01.

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ADDENDUMS / REVISIONS	

SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

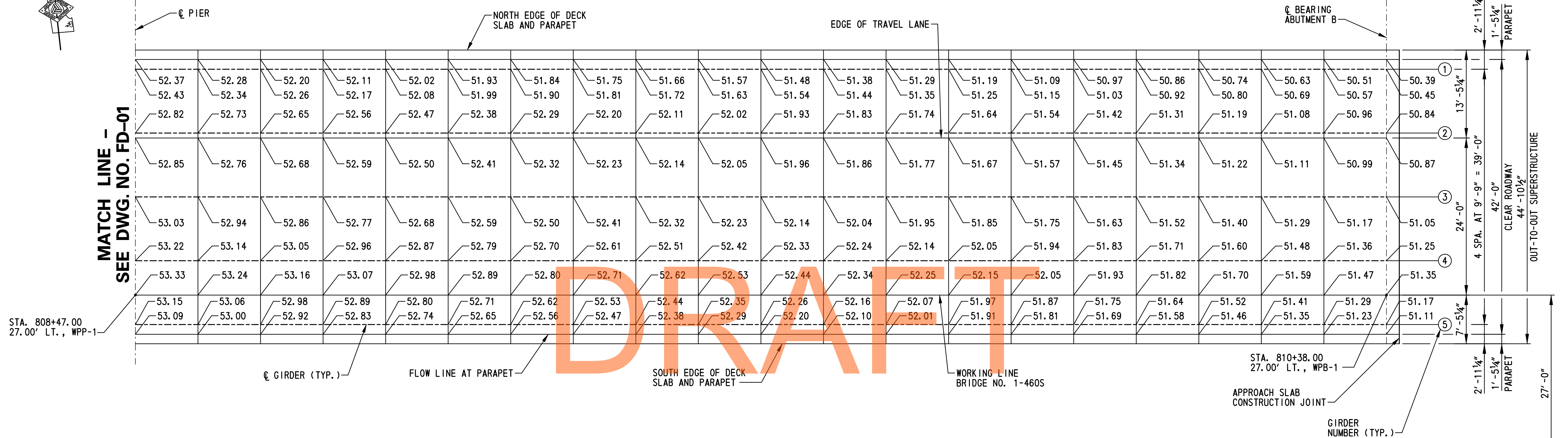
CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**FINISHED BRIDGE DECK ELEVATIONS - SPAN 1**

<b>BR1-7S FD-01</b>
SHEET NO.
483
TOTAL SHTS.
875

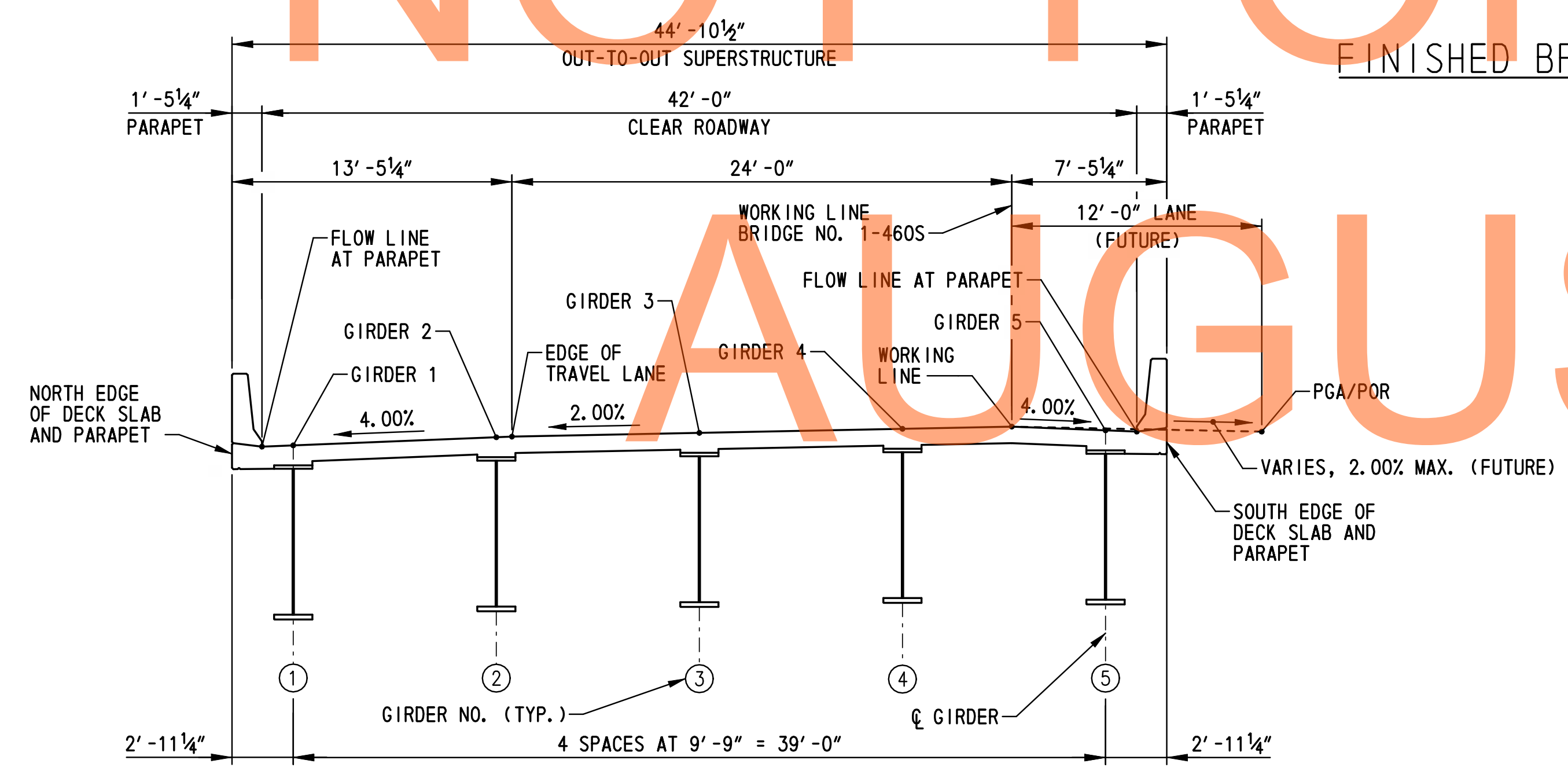


20 SPACES AT 9'-6 5/8" (-) = 191'-0"



NOT FOR BIDDING

FINISHED BRIDGE DECK ELEVATIONS - SPAN 2  
SCALE: 1/8" = 1'-0"



LOCATIONS OF FINISHED BRIDGE DECK ELEVATIONS  
SCALE: 1/8" = 1'-0"

- NOTES:**
1. FINISHED BRIDGE DECK ELEVATIONS SHOWN ARE TOP OF PROPOSED CONCRETE DECK SLAB.
  2. FOR VERTICAL CURVE DATA, SEE DWG. NO. PE-01.
  3. FOR SUPERELEVATION TRANSITION DATA, SEE DWG. NO. GG-15.
  4. FOR CAMBER DIAGRAM, SEE DWG. NO. CT-01.

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ADDENDUMS / REVISIONS	

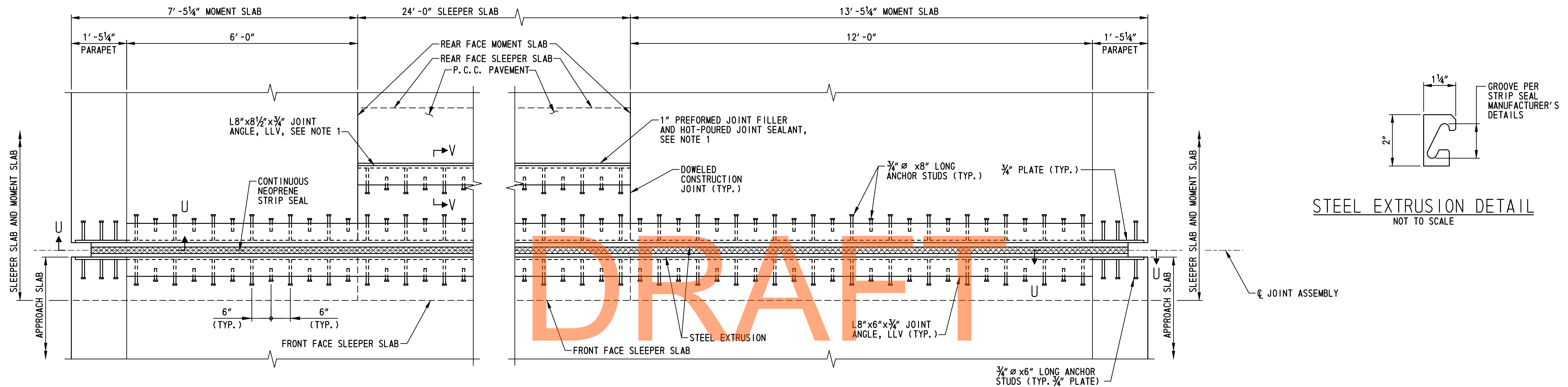
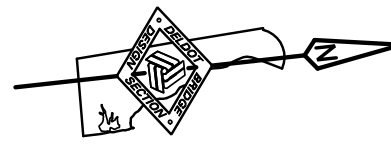
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>	DESIGNED BY: L.M.B.
COUNTY NEW CASTLE	CHECKED BY: P.S.D.	

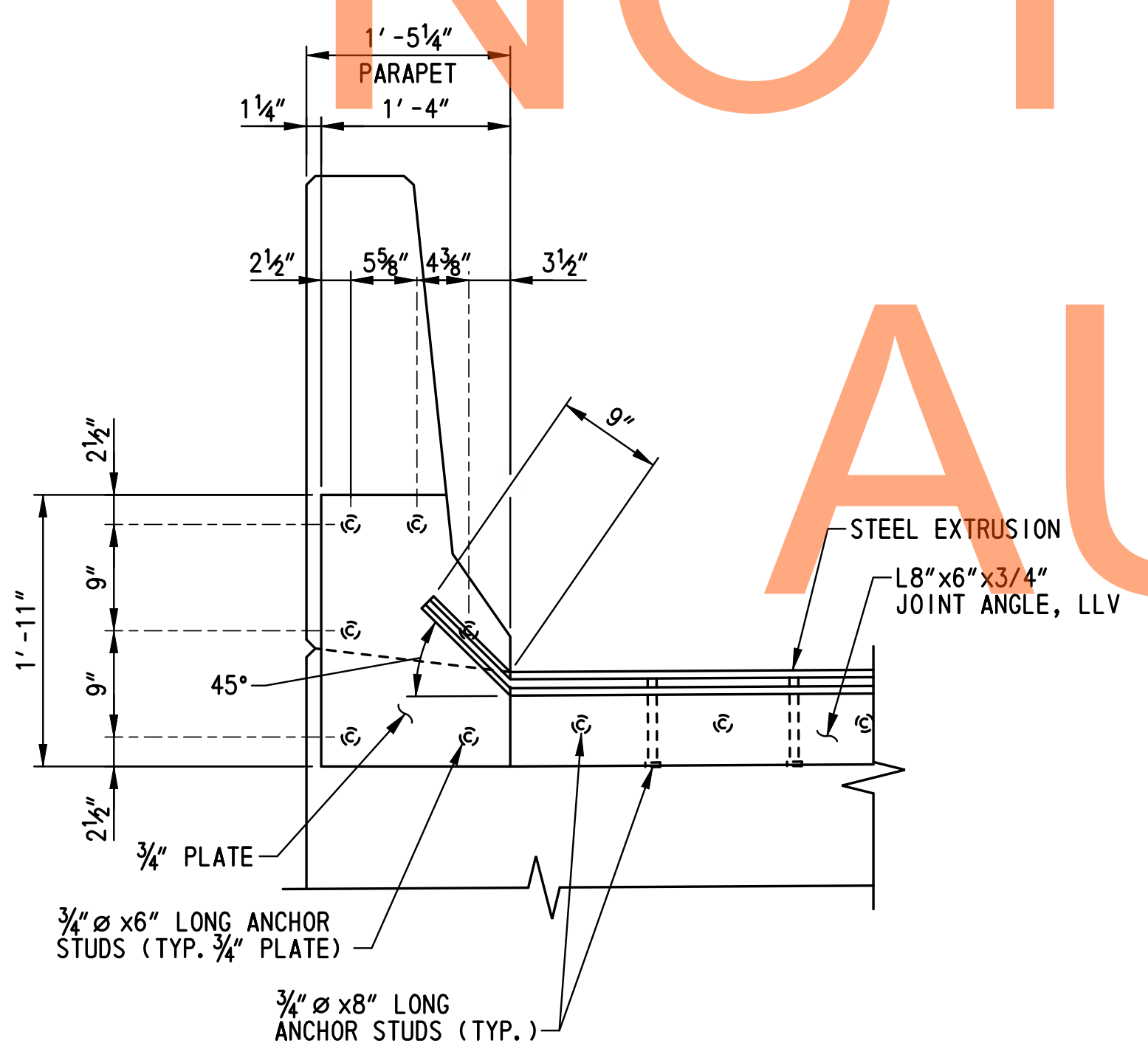
**FINISHED  
BRIDGE DECK ELEVATIONS  
- SPAN 2**

<b>BR1-7S FD-02</b>
SHEET NO. 484
TOTAL SHTS. 875

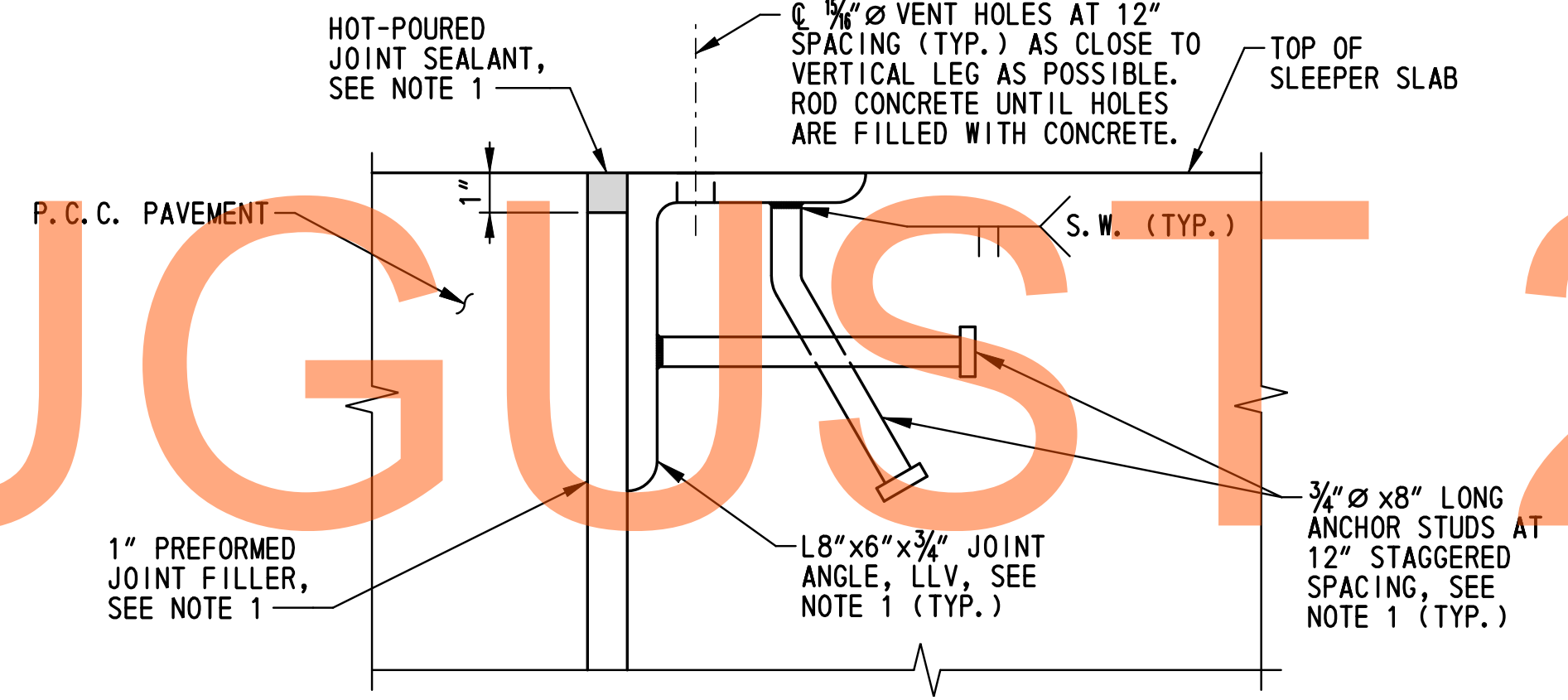


ARMORED STRIP SEAL JOINT PLAN  
SCALE: 3/4"=1'-0"

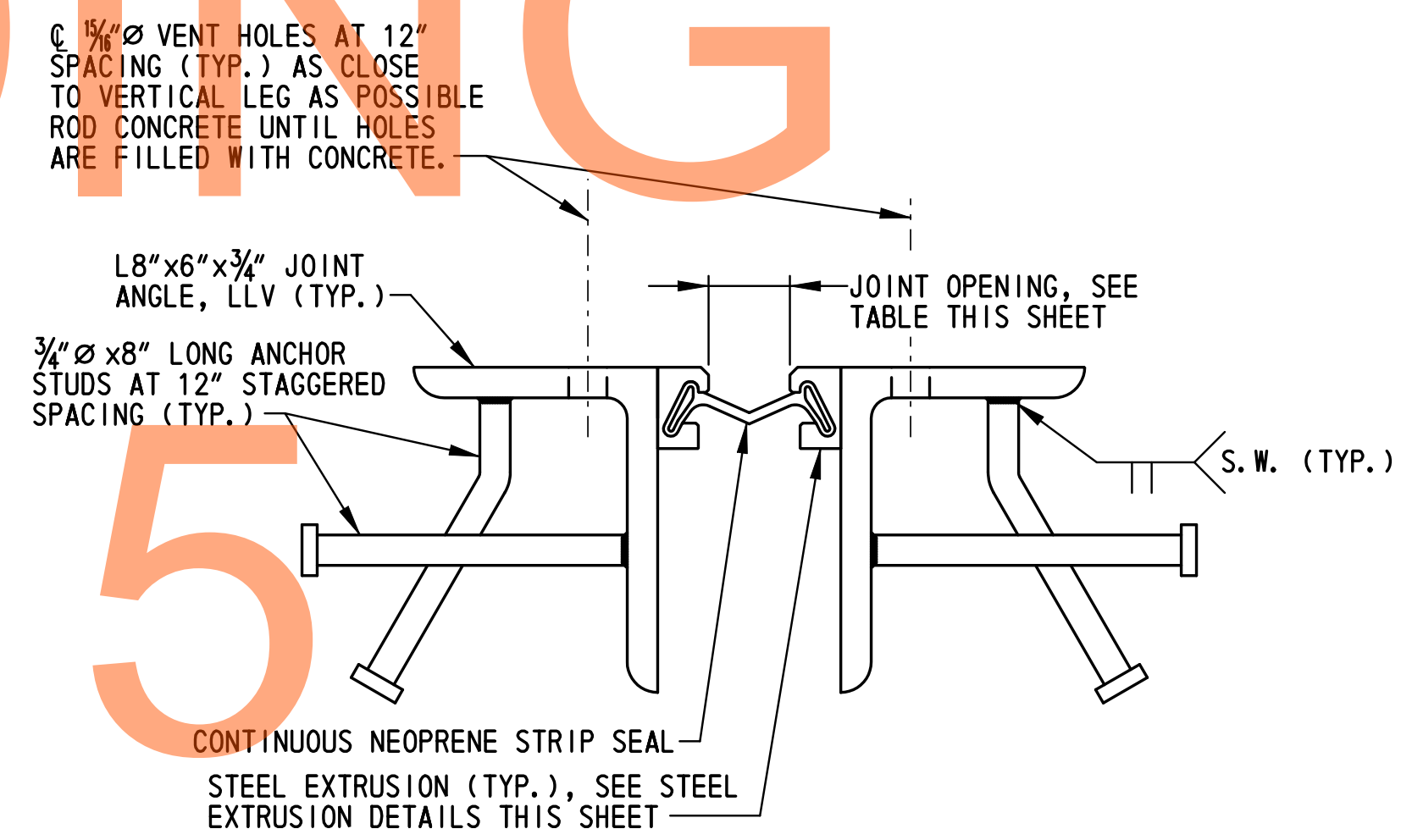
NOTE:  
MOMENT SLAB A, APPROACH SLAB A AND SLEEPER SLAB A SHOWN,  
MOMENT SLAB B, APPROACH SLAB B AND SLEEPER SLAB B SIMILAR.



SECTION U-U  
SCALE: 1"=1'-0"



SECTION V-V  
SCALE: 3"=1'-0"



ARMORED STRIP SEAL JOINT ASSEMBLY DETAIL  
SCALE: 3"=1'-0"

LOCATION	TEMPERATURE (°F)												
	0	10	20	30	40	50	60	70	80	90	100	110	120
APPROACH SLAB A AND B	2 3/4"	2 5/8"	2 1/2"	2 3/8"	2 1/4"	2 1/8"	2"	1 7/8"	1 3/4"	1 5/8"	1 1/2"	1 3/8"	1 1/4"

- NOTES:
- PAYMENT FOR JOINT ANGLES AT APPROACH PAVEMENT EDGE OF SLEEPER SLAB, PREFORMED JOINT FILLER, AND HOT-POURED JOINT SEALANT SHALL BE INCIDENTAL TO ITEM 602018 - PORTLAND CEMENT CONCRETE MASONRY, CLASS D.
  - FOR APPROACH SLAB AND SLEEPER SLAB TYPICAL SECTIONS, SEE DWG. NO. AS-07.
  - FOR MOMENT SLAB DETAILS, SEE DWG. NO. AS-08.

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ADDENDUMS / REVISIONS

SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**ARMORED STRIP SEAL  
JOINT DETAILS**

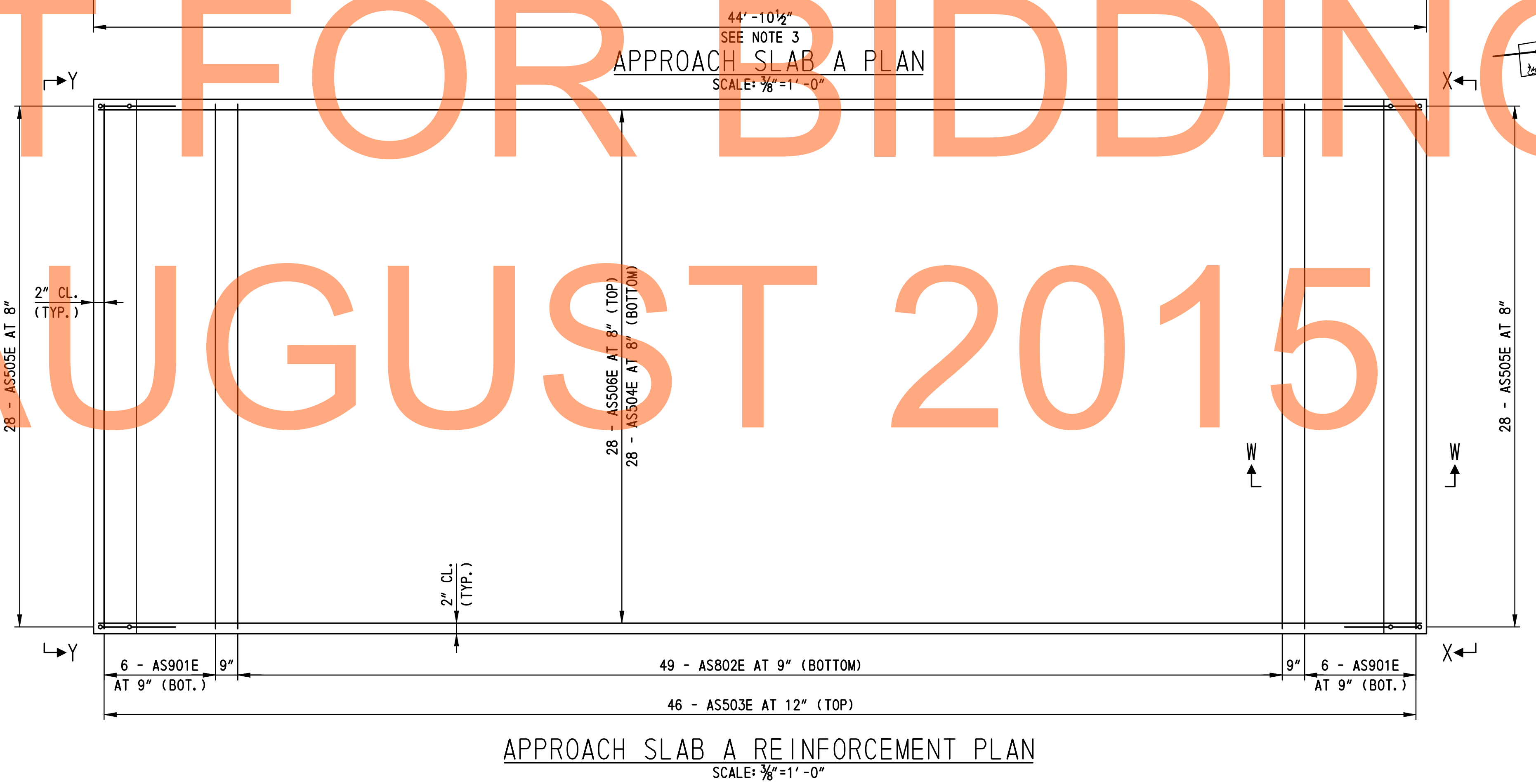
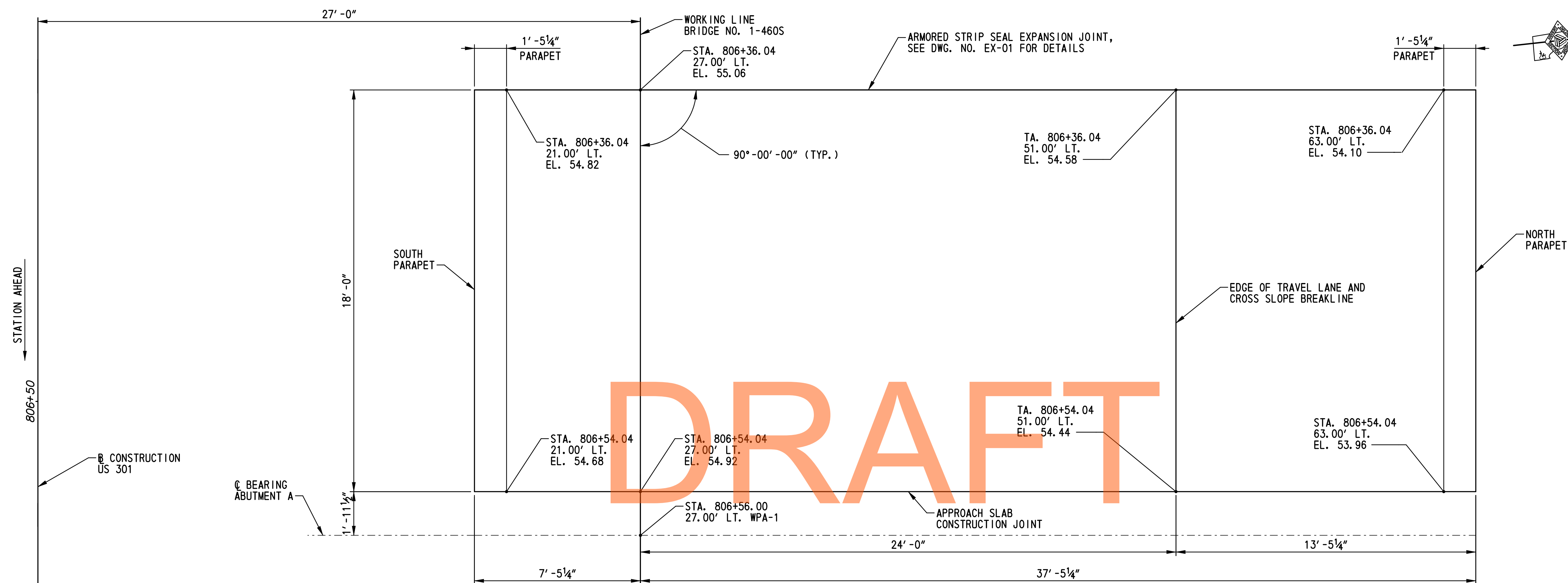
<b>BR1-7S EX-01</b>
SHEET NO.
485
TOTAL SHTS.
875



DRAFT

NOT FOR BIDDING

AUGUST 2015



- NOTES:**
- FOR APPROACH SLAB A TYPICAL SECTION AND REINFORCEMENT SECTION, SEE DWG. NO. AS-07.
  - FOR SECTION W-W AND VIEWS X-X AND Y-Y, SEE DWG. NO. AS-07.
  - RUMBLE STRIPS SHALL BE LOCATED IN THE APPROACH SLAB AT EACH SHOULDER. FOR LANE AND SHOULDER CONFIGURATION AND ADDITIONAL REQUIREMENTS, SEE DWG. NO. TS-01. FOR RUMBLE STRIP DETAIL, SEE DWG. NO. DT-01. RUMBLE STRIPS SHALL BE PAID FOR UNDER ITEM 760015, RUMBLE STRIPS, CONCRETE, SHALLOW DEPTH.

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ADDENDUMS / REVISIONS	

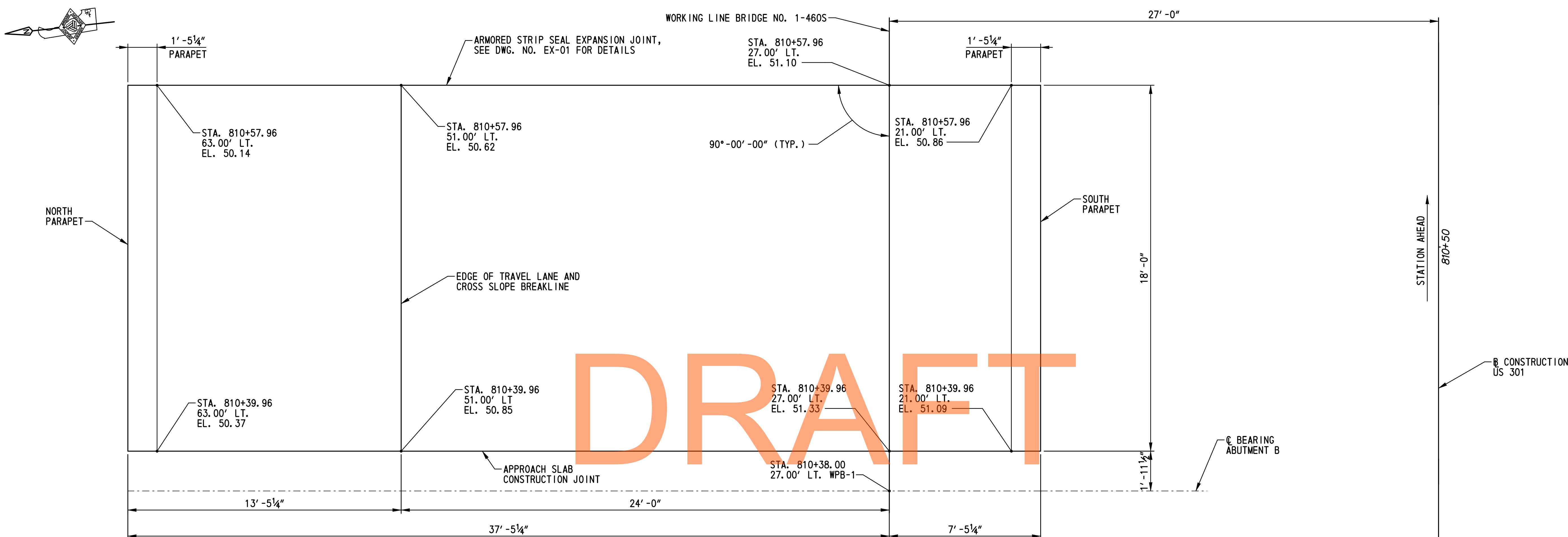
SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	1-460S
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

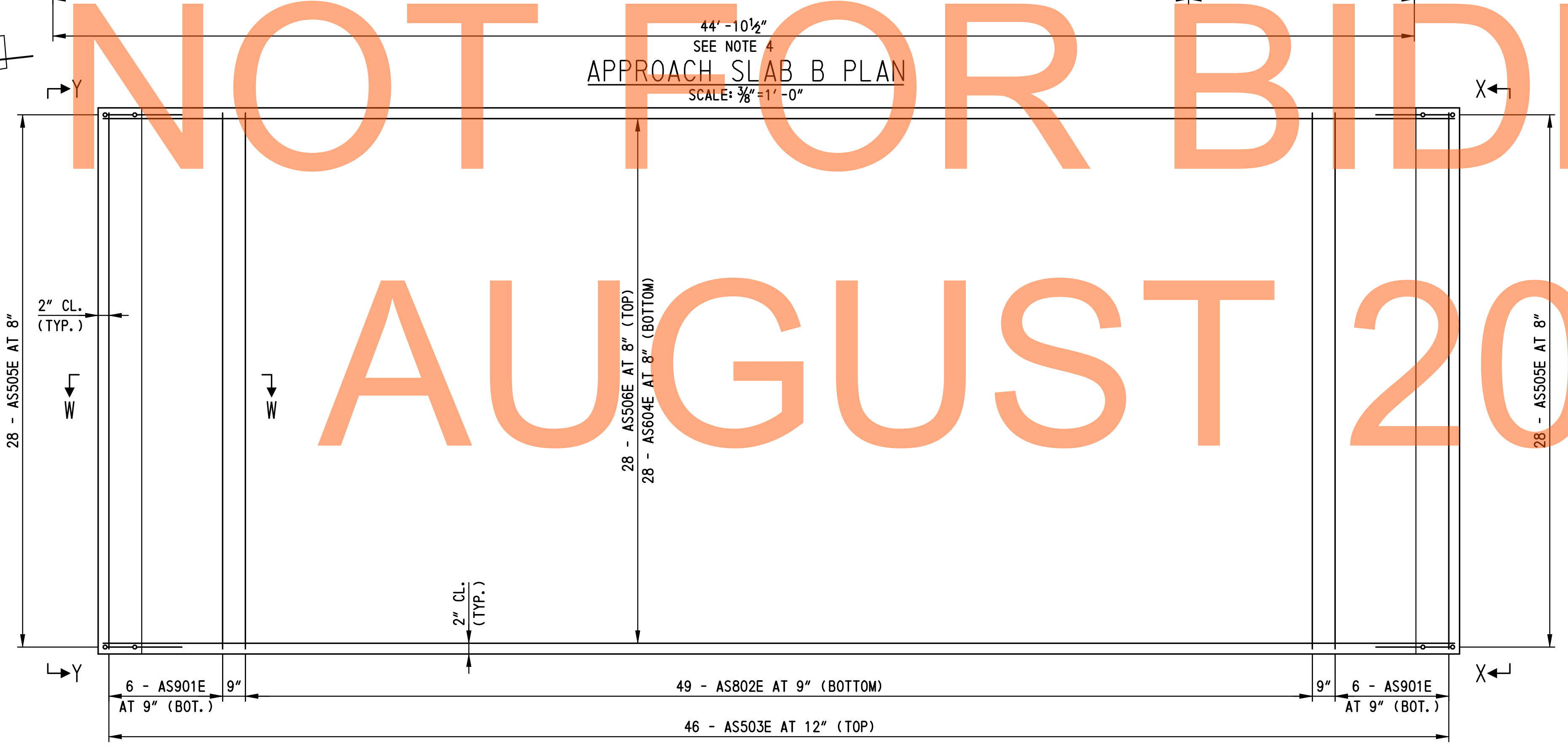
**APPROACH SLAB A  
PLAN AND  
REINFORCEMENT PLAN**

<b>BRI-7S AS-01</b>
SHEET NO.
486
TOTAL SHTS.
875



DRAFT

NOT FOR BIDDING



APPROACH SLAB B REINFORCEMENT PLAN  
SCALE: 3/8" = 1'-0"

- NOTES:**
1. FOR APPROACH SLAB B TYPICAL SECTION AND REINFORCEMENT SECTION, SEE DWG. NO. AS-07.
  2. FOR SECTION W-W AND VIEWS X-X AND Y-Y, SEE DWG. NO. AS-07.
  3. FOR SUPERELEVATION TRANSITION INFORMATION, SEE DWG. NO. GG-15.
  4. RUMBLE STRIPS SHALL BE LOCATED IN THE APPROACH SLAB AT EACH SHOULDER. FOR LANE AND SHOULDER CONFIGURATION AND ADDITIONAL REQUIREMENTS, SEE DWG. NO. TS-01. FOR RUMBLE STRIP DETAIL, SEE DWG. NO. DT-01. RUMBLE STRIPS SHALL BE PAID FOR UNDER ITEM 760015, RUMBLE STRIPS, CONCRETE, SHALLOW DEPTH.

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ADDENDUMS / REVISIONS	

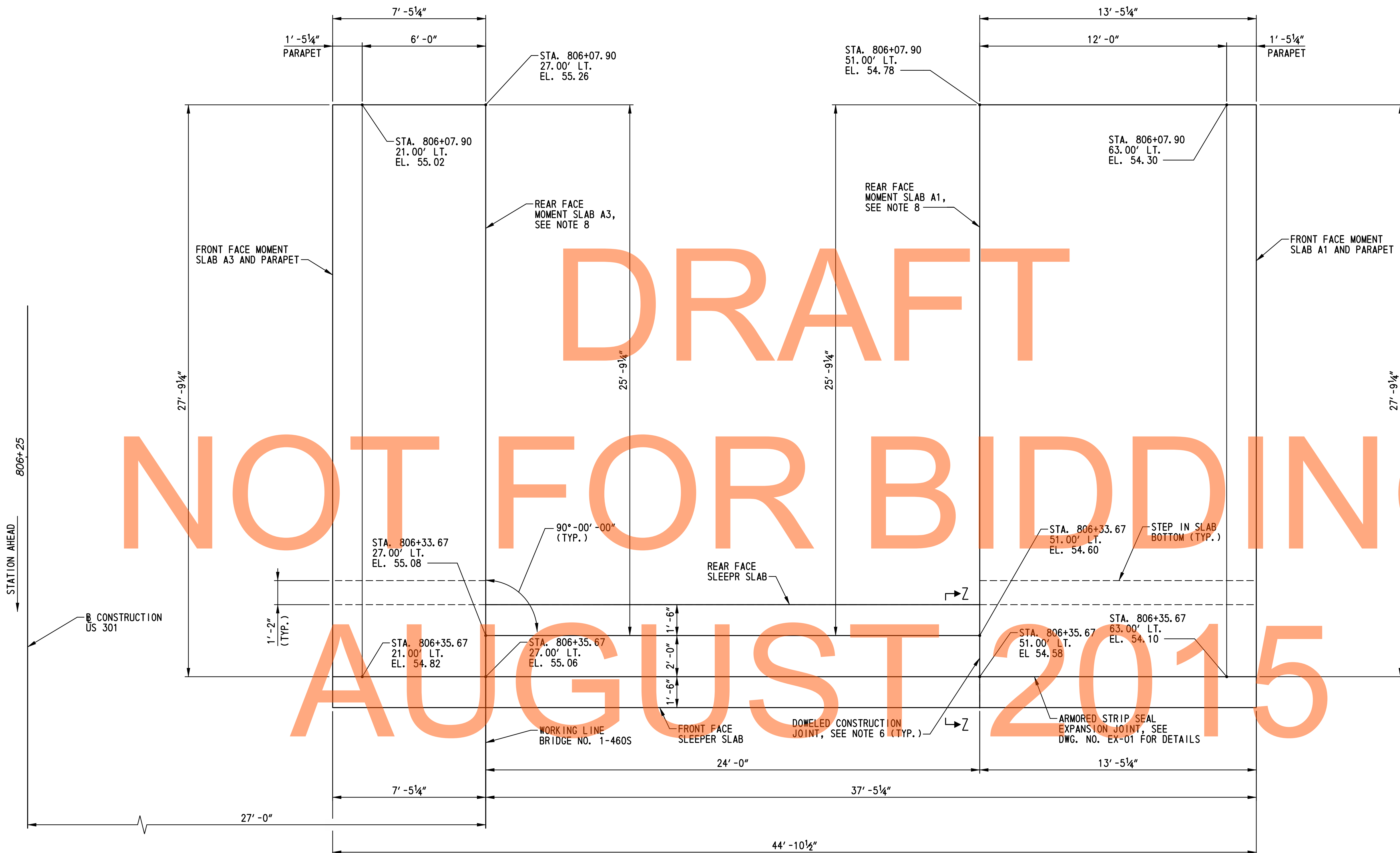
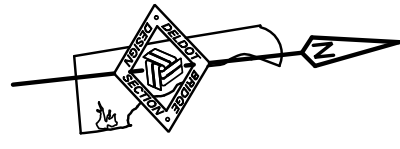
SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**APPROACH SLAB B  
PLAN AND  
REINFORCEMENT PLAN**

<b>BR1-7S AS-02</b>
SHEET NO.
487
TOTAL SHTS.
875



MOMENT SLAB A PLAN  
SCALE: 3/8"=1'-0"

NOTES:

1. PAYMENT FOR CONSTRUCTION OF MOMENT SLABS AND SLEEPER SLABS WILL BE MADE UNDER ITEM 602018-PORTLAND CEMENT CONCRETE MASONRY CLASS D. PAYMENT FOR DOWEL BARS SHALL BE INCIDENTAL TO THIS ITEM.
2. FOR MOMENT SLAB A TYPICAL SECTION, SEE DWG. NO. AS-08.
3. FOR SLEEPER SLAB TYPICAL SECTIONS, SEE DWG. NO. AS-07.
4. FOR REINFORCEMENT PLAN, SEE DWG. NO. AS-04.
5. FOR REINFORCEMENT DETAILS, SEE DWG. NO. AS-08.
6. DOWEL BARS SHALL CONFORM TO SECTION 824.02(G). SEE SECTION Z-Z ON DWG. NO. AS-07.
7. RUMBLE STRIPS SHALL BE LOCATED IN THE MOMENT SLABS AT EACH SHOULDER. FOR RUMBLE STRIP DETAIL, SEE DWG. NO. DT-01. FOR ADDITIONAL REQUIREMENTS, SEE DWG. NO. TS-01. RUMBLE STRIPS SHALL BE PAID UNDER ITEM 760015, RUMBLE STRIPS, CONCRETE, SHALLOW DEPTH.
8. PRIOR TO PLACING MOMENT SLAB CONCRETE ADJACENT TO EXISTING CONCRETE PAVEMENT, OR PRIOR TO PLACING CONCRETE PAVEMENT ADJACENT TO EXISTING MOMENT SLAB CONCRETE, AN APPROVED BOND BREAKER SHALL BE APPLIED TO THE EXISTING CONCRETE VERTICAL FACE. THIS LONGITUDINAL JOINT AT THE INTERFACE BETWEEN THE CONCRETE PAVEMENT AND THE MOMENT SLAB CONCRETE SHALL NOT BE SEALED. VERTICAL CRACKS IN THE EXISTING CONCRETE FACE SHALL BE COVERED OR SEALED AS APPROVED BY THE ENGINEER TO PREVENT INTRUSION OF THE NEW CONCRETE INTO THE EXISTING CONCRETE. ALL WORK SHALL BE INCIDENTAL TO ITEM NO. 602014 - PORTLAND CEMENT CONCRETE MASONRY, CLASS D.

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ADDENDUMS / REVISIONS	

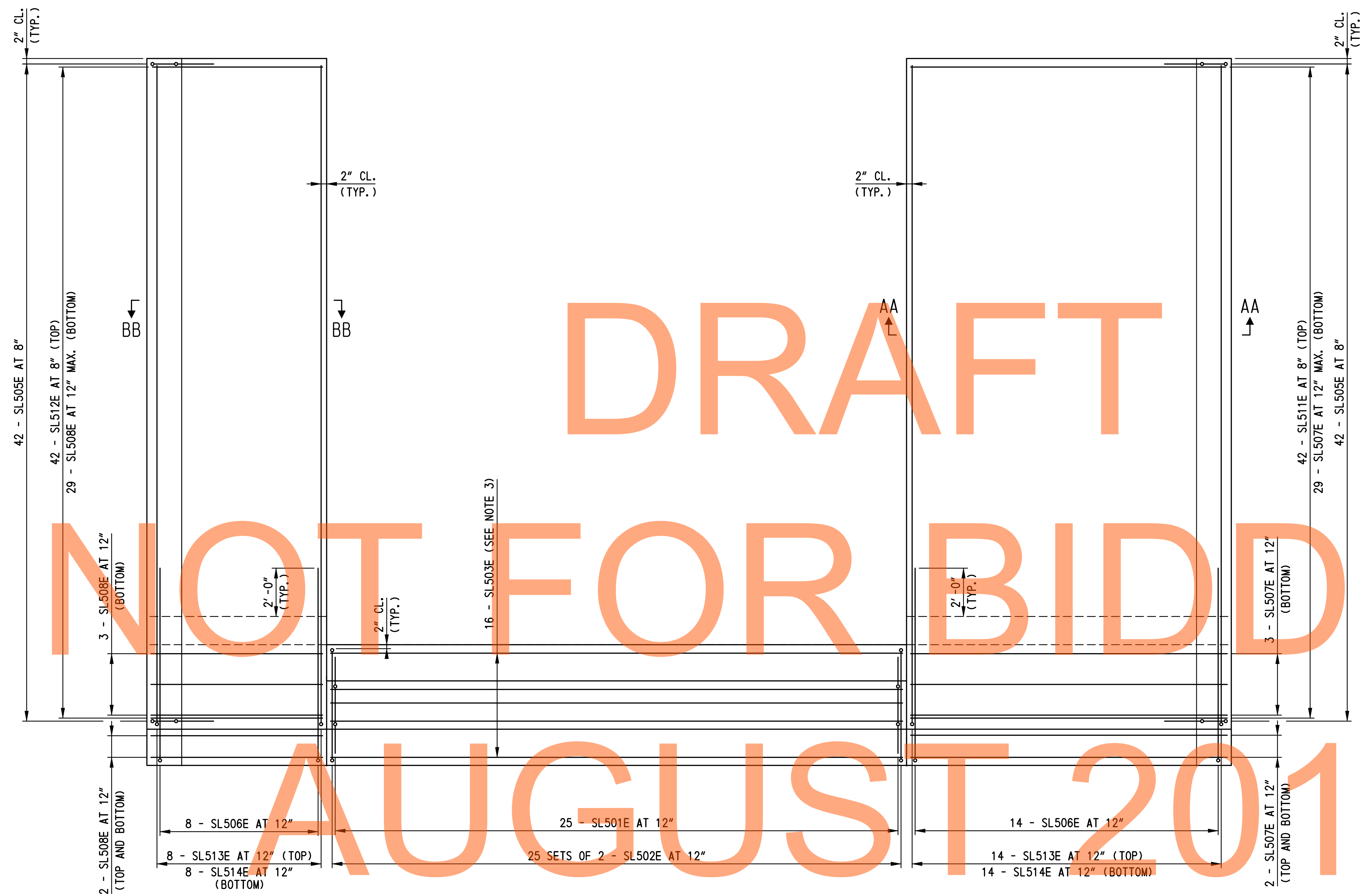
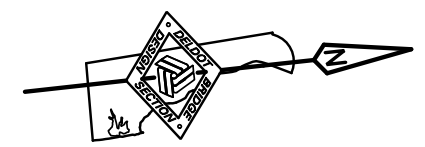
SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	1-460S
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

MOMENT SLAB A  
PLAN

BRI-7S AS-03
SHEET NO.
488
TOTAL SHTS.
875



DRAFT  
NOT FOR BIDDING  
AUGUST 2015

MOMENT SLAB A REINFORCEMENT PLAN  
SCALE: 3/8" = 1' - 0"

- NOTES:**
1. FOR MOMENT SLAB A PLAN, SEE DWG. NO. AS-03.
  2. FOR SECTIONS AA-AA AND BB-BB, SEE DWG. NO. AS-08.
  3. FOR SLEEPER SLAB TYPICAL SECTIONS, SEE DWG. NO. AS-07.
  4. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AS-07 AND AS-08.

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ADDENDUMS / REVISIONS

SCALE: AS NOTED

**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY: L.M.B.	
COUNTY	CHECKED BY: P.S.D.	
NEW CASTLE		

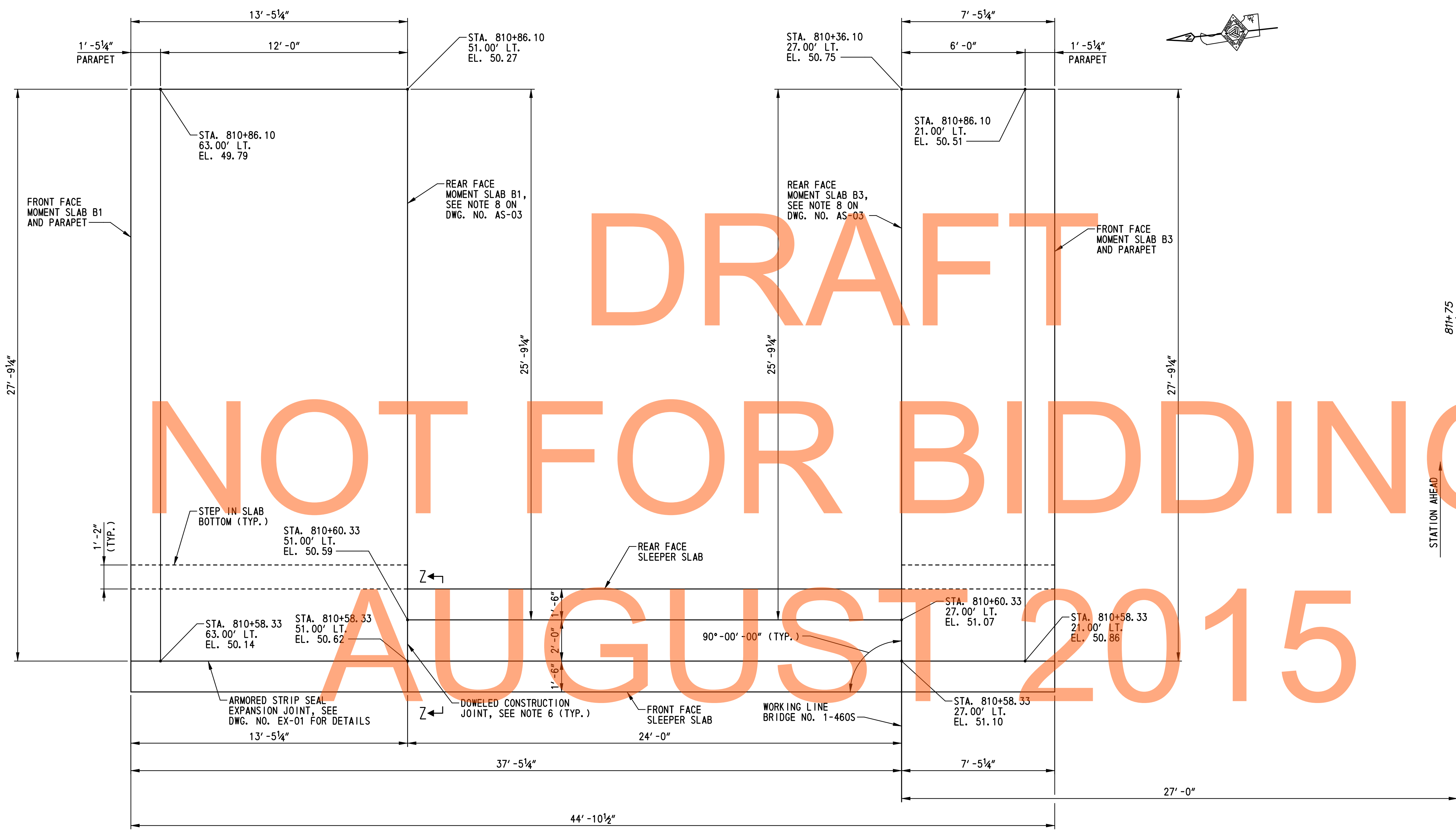
**MOMENT SLAB A  
REINFORCEMENT PLAN**

<b>BR1-7S AS-04</b>
SHEET NO.
489
TOTAL SHTS.
875

# DRAFT

# NOT FOR BIDDING

# AUGUST 2015



MOMENT SLAB B PLAN  
SCALE: 3/8"=1'-0"

- NOTES:**
- PAYMENT FOR CONSTRUCTION OF MOMENT SLABS AND SLEEPER SLABS WILL BE MADE UNDER ITEM 602018-PORTLAND CEMENT CONCRETE MASONRY CLASS D. PAYMENT FOR DOWEL BARS SHALL BE INCIDENTAL TO THIS ITEM.
  - FOR MOMENT SLAB B TYPICAL SECTION, SEE DWG. NO. AS-08.
  - FOR SLEEPER SLAB TYPICAL SECTIONS, SEE DWG. NO. AS-07.
  - FOR REINFORCEMENT PLAN, SEE DWG. NO. AS-06.
  - FOR REINFORCEMENT DETAILS, SEE DWG. NO. AS-08.
  - DOWEL BARS SHALL CONFORM TO SECTION 824.02(G). SEE SECTION Z-Z ON DWG. NO. AS-07.
  - RUMBLE STRIPS SHALL BE LOCATED IN THE MOMENT SLABS AT EACH SHOULDER. FOR RUMBLE STRIP DETAIL, SEE DWG. NO. DT-01. FOR ADDITIONAL REQUIREMENTS, SEE DWG. NO. TS-01. RUMBLE STRIPS SHALL BE PAID UNDER ITEM 760015, RUMBLE STRIPS, CONCRETE, SHALLOW DEPTH.

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ADDENDUMS / REVISIONS	

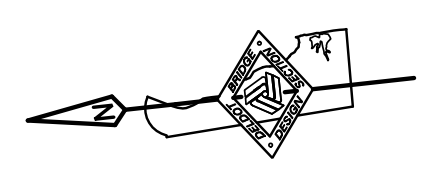
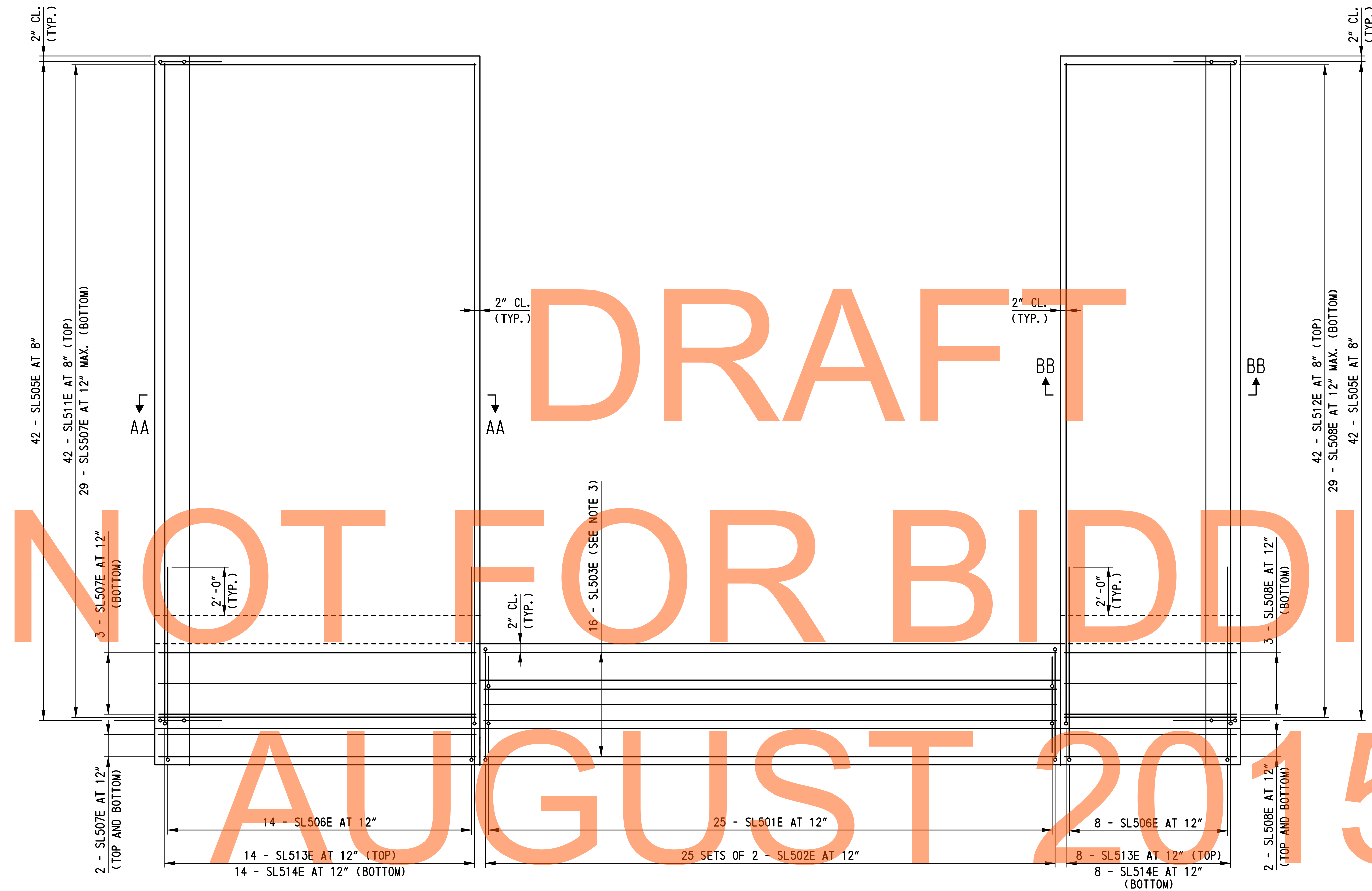
SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

MOMENT SLAB B  
PLAN

<b>BRI-7S AS-05</b>
SHEET NO.
490
TOTAL SHTS.
875



DRAFT  
NOT FOR BIDDING  
AUGUST 2015

MOMENT SLAB B REINFORCEMENT PLAN  
SCALE: 3/8" = 1' - 0"

- NOTES:**
1. FOR MOMENT SLAB B PLAN, SEE DWG. NO. AS-05.
  2. FOR SECTIONS AA-AA AND BB-BB, SEE DWG. NO. AS-08.
  3. FOR SLEEPER SLAB TYPICAL SECTIONS, SEE DWG. NO. AS-07.
  4. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AS-07 AND AS-08.

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ADDENDUMS / REVISIONS	

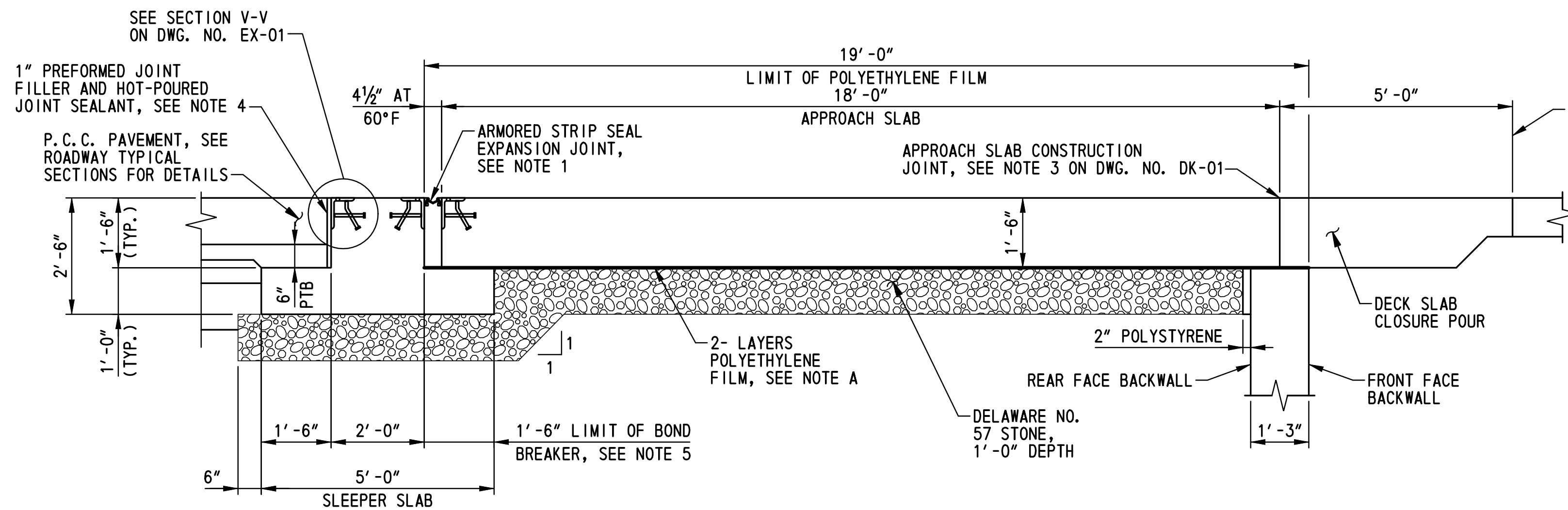
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**US 301,  
SR 896 TO SR 1**

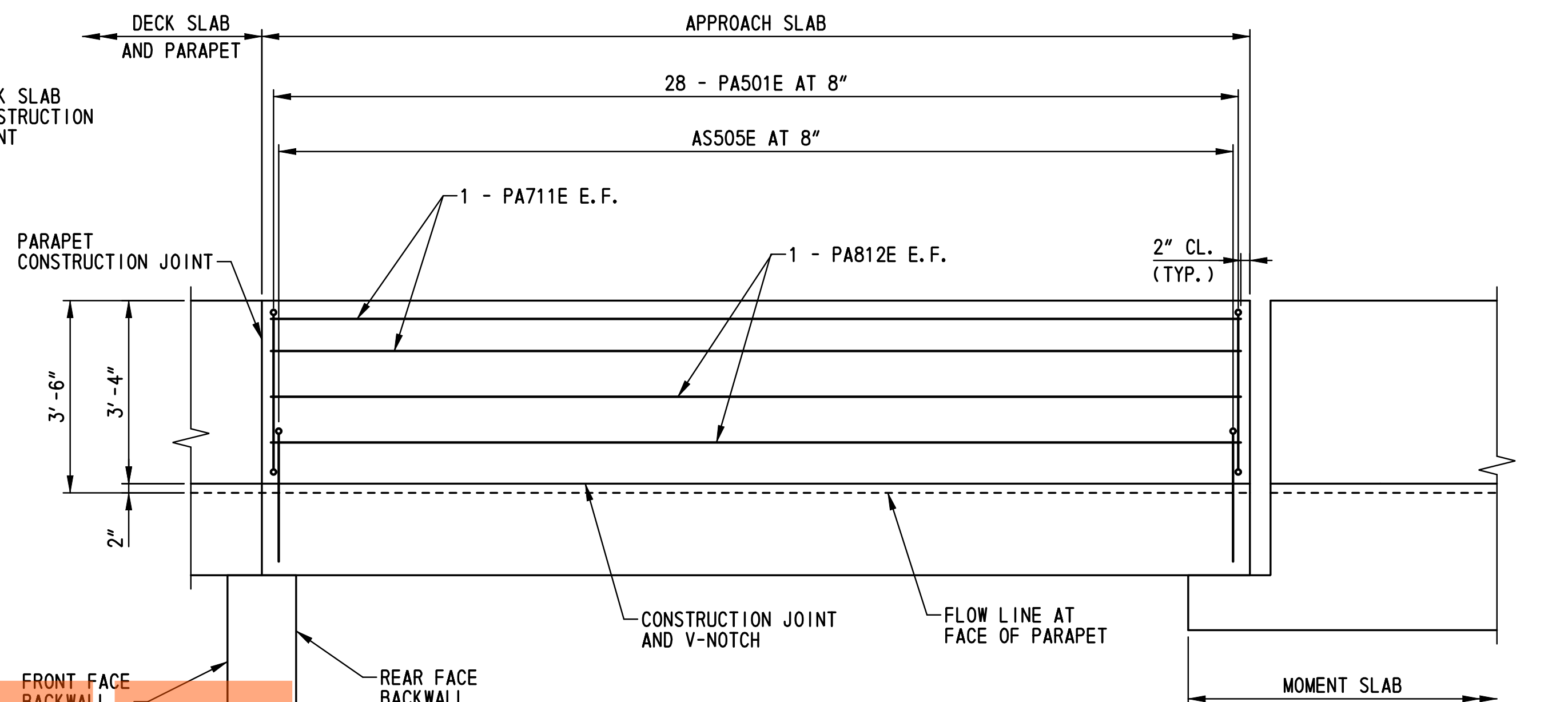
CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**MOMENT SLAB B  
REINFORCEMENT PLAN**

<b>BRI-7S AS-06</b>
SHEET NO.
491
TOTAL SHTS.
875

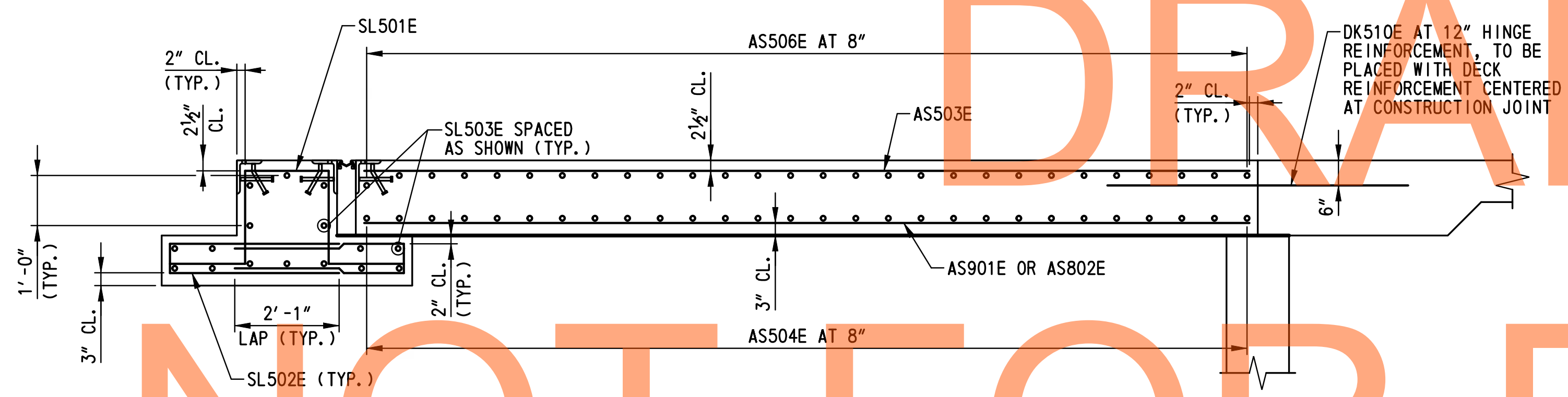


APPROACH SLAB AND SLEEPER SLAB TYPICAL SECTION  
SCALE: 1/2"=1'-0"

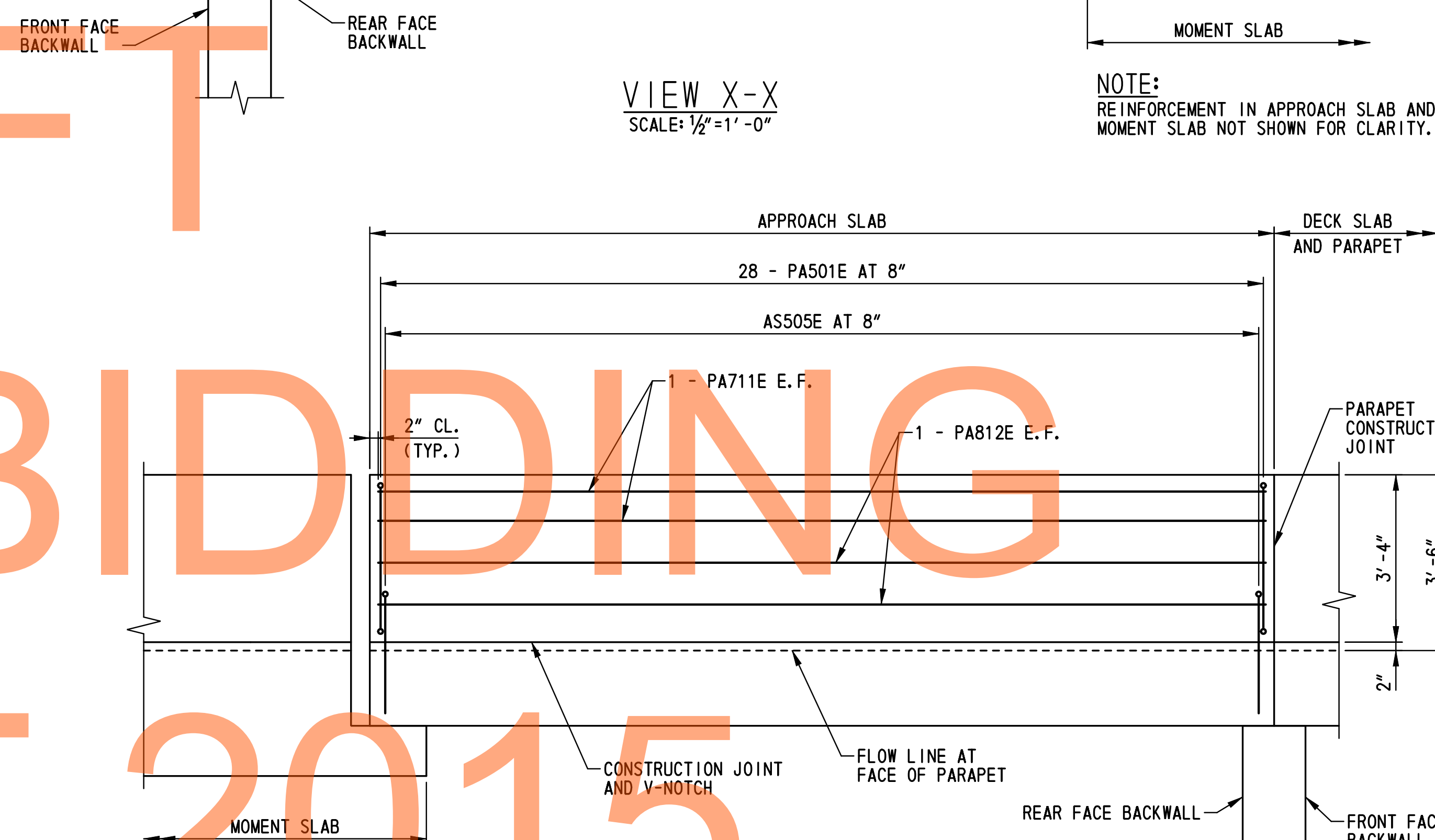


VIEW X-X  
SCALE: 1/2"=1'-0"

NOTE:  
REINFORCEMENT IN APPROACH SLAB AND  
MOMENT SLAB NOT SHOWN FOR CLARITY.

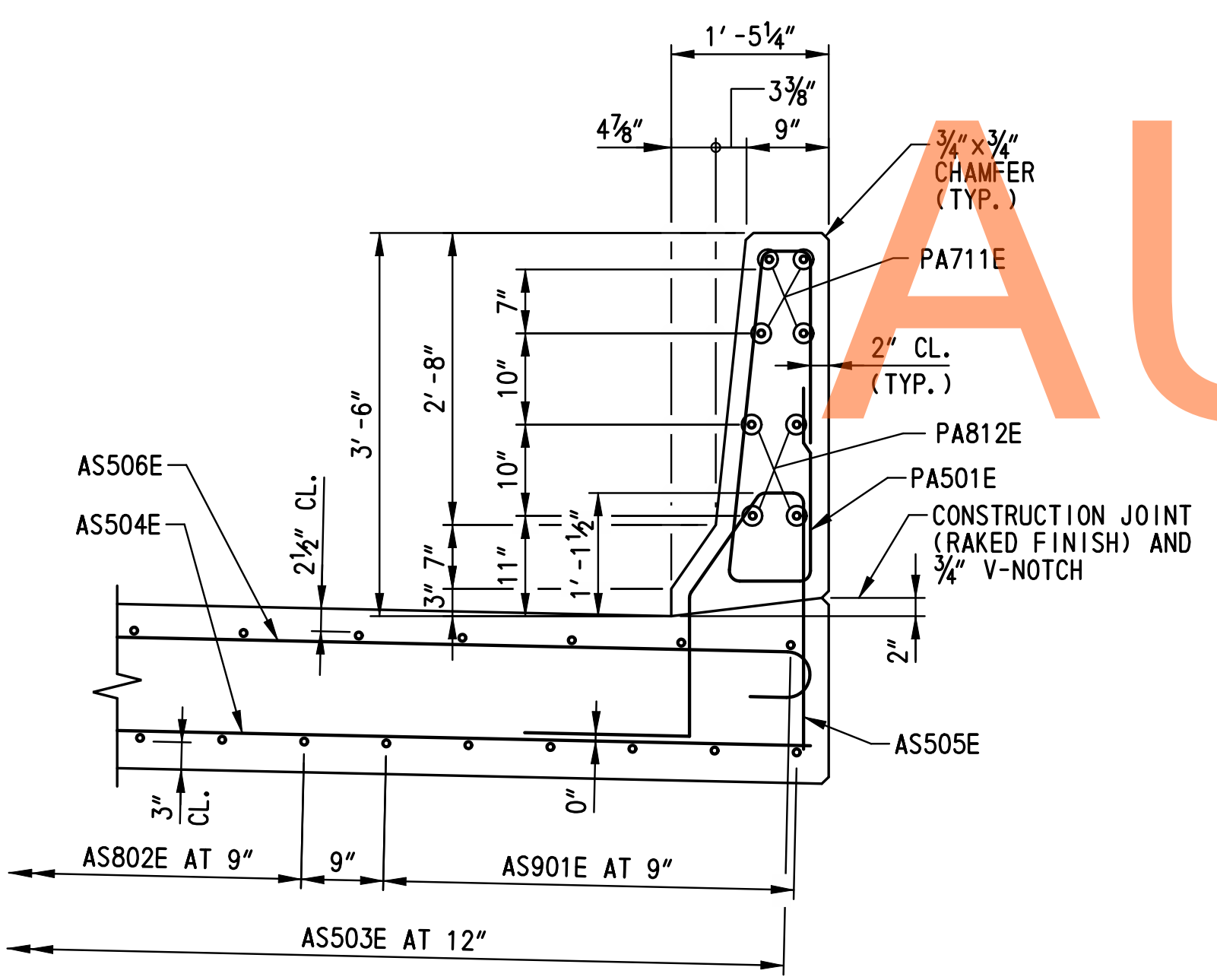


APPROACH SLAB AND SLEEPER SLAB TYPICAL REINFORCEMENT SECTION  
SCALE: 1/2"=1'-0"



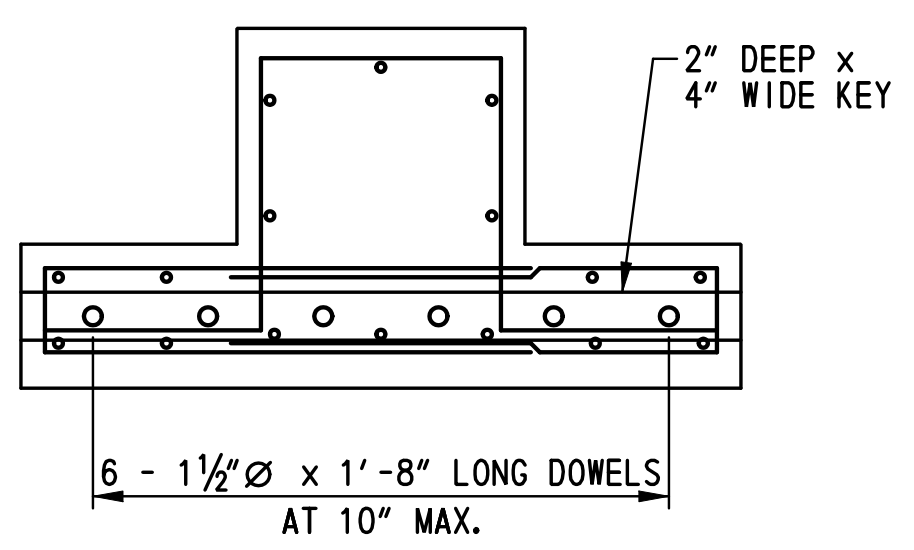
VIEW Y-Y  
SCALE: 1/2"=1'-0"

NOTE:  
REINFORCEMENT IN APPROACH SLAB AND  
MOMENT SLAB NOT SHOWN FOR CLARITY.



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

NOTE A:  
THE TOP SURFACE OF THE DELAWARE NO. 57 STONE SHALL BE ACCURATELY CONTROLLED TO FOLLOW AND BE PARALLEL TO THE PROPOSED APPROACH SLAB GRADE AND CROSS SLOPE. TWO LAYERS OF WHITE OPAQUE POLYETHYLENE FILM SHALL BE PLACED ON THE FINISHED SUBGRADE FOR THE FULL WIDTH AND LENGTH OF THE APPROACH SLAB PRIOR TO PLACING ANY REINFORCEMENT. THE WHITE OPAQUE POLYETHYLENE FILM SHALL BE PLACED WITH 2'-0" MINIMUM LAPS AND SHALL EXTEND TO THE FRONT FACE OF BACKWALL. COST SHALL BE INCIDENTAL TO ITEM 602014 - PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D.



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

NOTES:

- FOR ARMORED STRIP SEAL EXPANSION JOINT DETAILS, SEE DWG. NO. EX-01.
- FOR ADDITIONAL APPROACH SLAB REINFORCEMENT DETAILS, SEE DWG. NOS. AS-01 AND AS-02.
- SLEEPER SLAB SHALL BE CAREFULLY PLACED AFTER COMPACTION OF THE MSE WALL BACKFILL MATERIAL IN CONFORMANCE WITH ITEM 602772-MECHANICALLY STABILIZED EARTH WALLS.
- PAYMENT FOR INSTALLATION OF 1" PREFORMED JOINT FILLER, HOT-POURED JOINT SEALER, AND JOINT ANGLES AND STUDS AT APPROACH PAVEMENT EDGE OF SLEEPER SLAB WILL BE INCIDENTAL TO ITEM NO. 602018 - PORTLAND CEMENT CONCRETE MASONRY, CLASS D.
- STEEL TROWEL FINISH SLEEPER SLAB AND APPLY 30 MIL. NOMINAL THICKNESS OF ASPHALT BOND BREAKER. COST SHALL BE INCIDENTAL TO ITEM 602018 - PORTLAND CEMENT CONCRETE MASONRY, CLASS D.
- FOR PARAPET CONTROL JOINT LOCATIONS, SEE DWG. NO. PE-01. FOR PARAPET CONTROL JOINT DETAILS, SEE DWG. NO. SD-01.

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ADDENDUMS / REVISIONS	

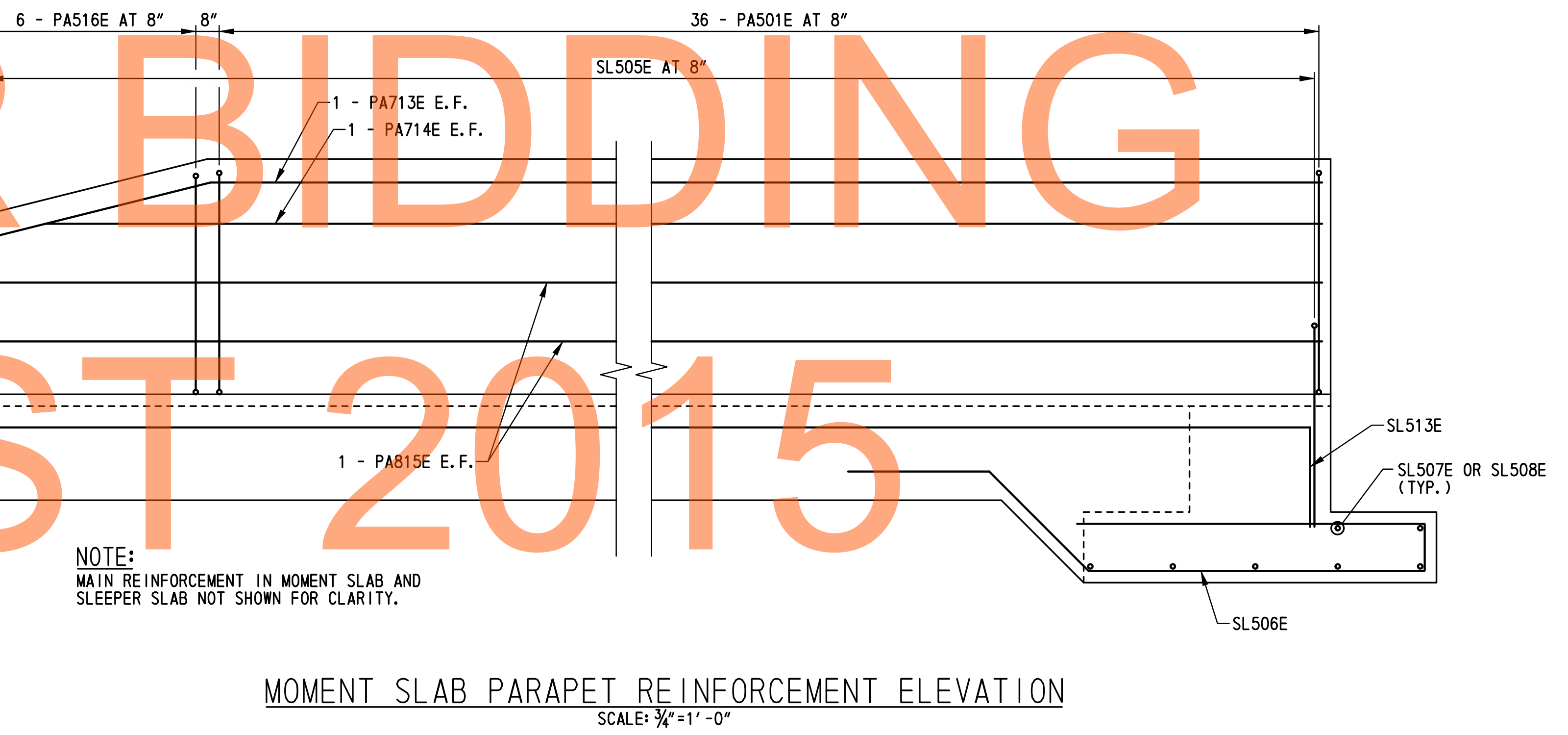
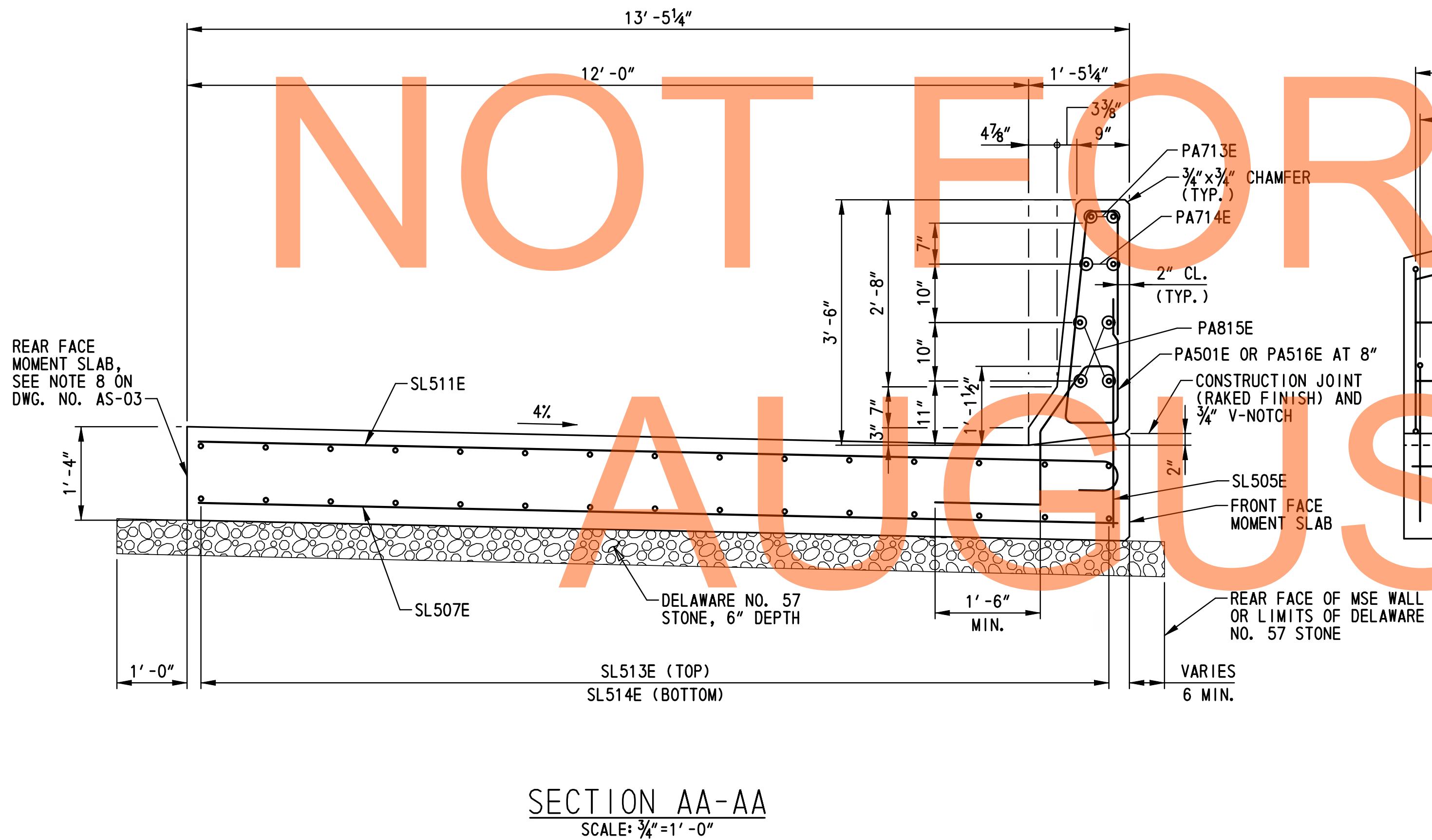
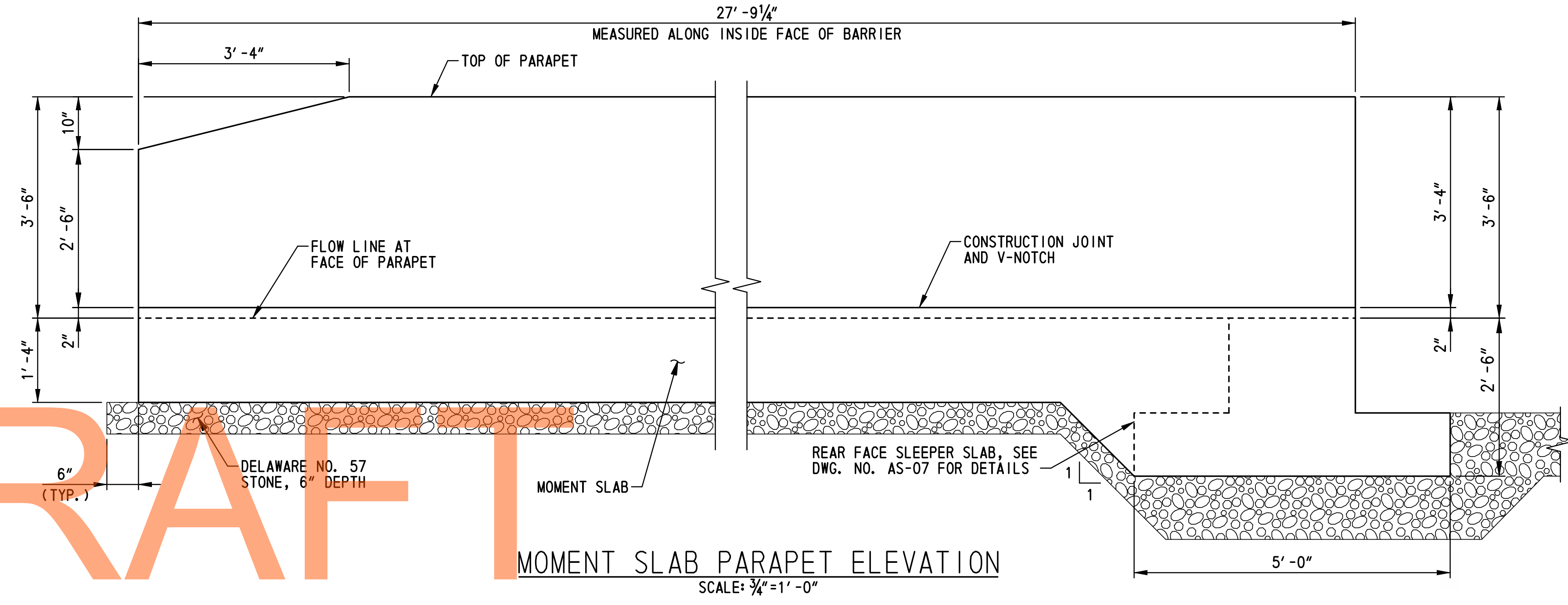
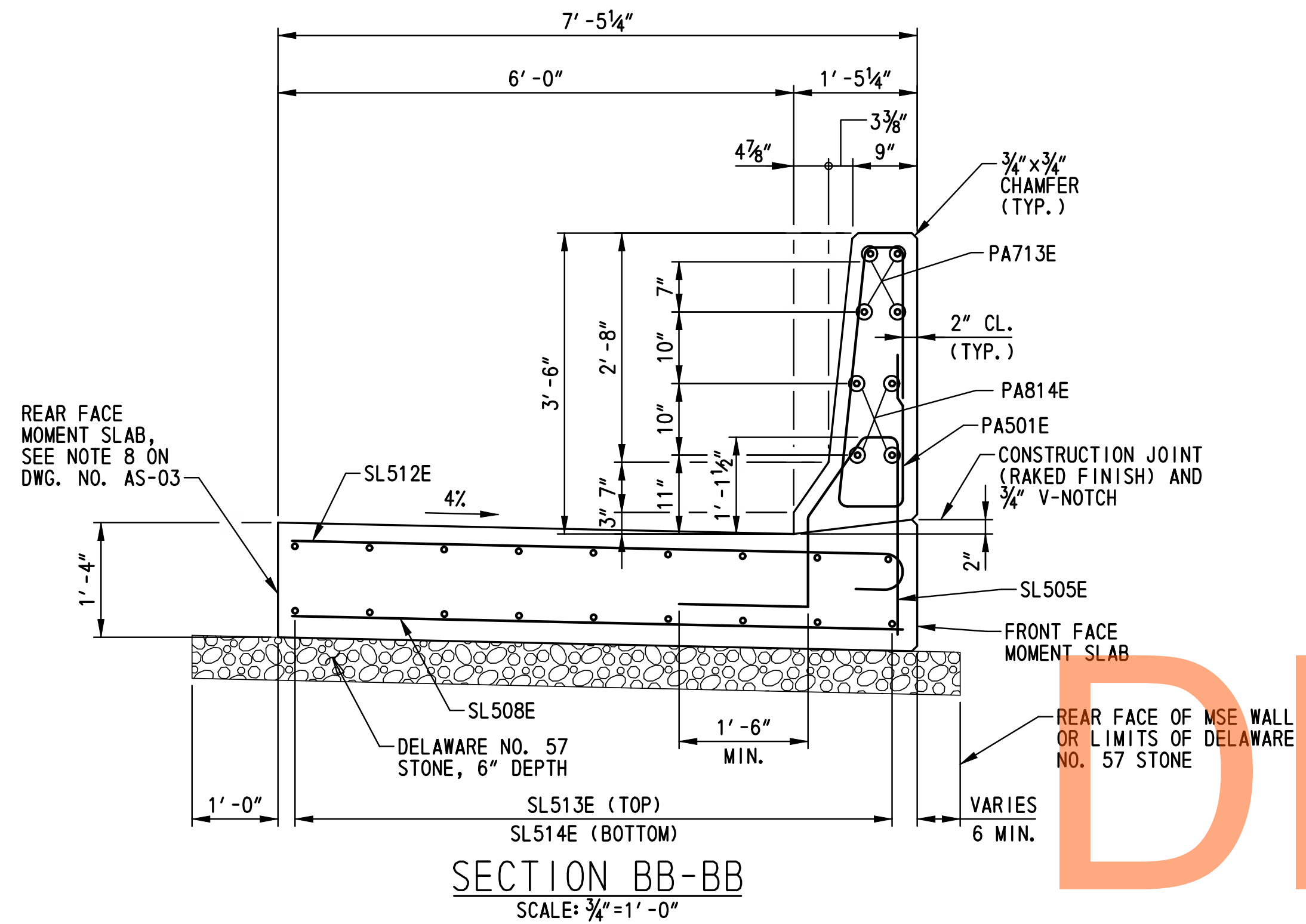
SCALE: AS NOTED

US 301,  
SR 896 TO SR 1

CONTRACT	BRIDGE NO.	1-460S
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**APPROACH SLAB  
AND SLEEPER SLAB  
DETAILS**

<b>BR1-7S AS-07</b>
SHEET NO.
492
TOTAL SHTS.
875



- NOTES:
- FOR PARAPET CONTROL JOINT LOCATIONS, SEE DWG. NO. PE-01. FOR PARAPET CONTROL JOINT DETAILS, SEE DWG. NO. SD-01.
  - ADDITIONAL REINFORCEMENT IN MOMENT SLAB AND SLEEPER SLAB NOT SHOWN FOR CLARITY. SEE DWG. NOS. AS-04 AND AS-06 FOR DETAILS.

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ADDENDUMS / REVISIONS

SCALE: AS NOTED

**US 301,**  
**SR 896 TO SR 1**

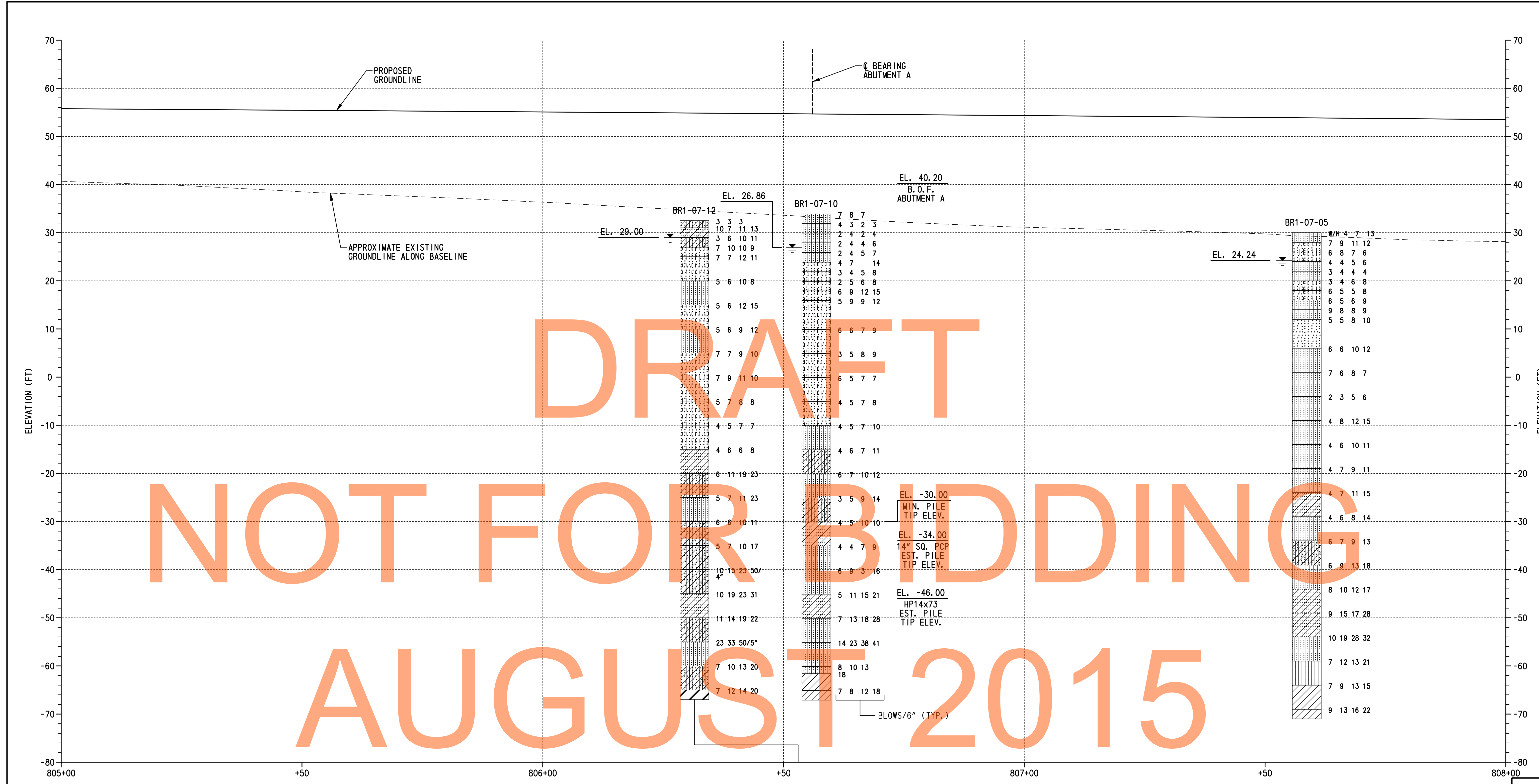
CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	L.M.B.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**MOMENT SLAB**  
**DETAILS**

<b>BRI-7S</b> <b>AS-08</b>
SHEET NO.
493
TOTAL SHTS.
875







**LEGEND:**

	SILTY SAND		SILTY LOW PLASTICITY CLAY		POORLY GRADED CLAYEY SILTY SAND		POORLY GRADED GRAVEL
	CLAYEY SAND		POORLY GRADED SAND		WELL GRADED SAND WITH SILT		WELL GRADED SAND
	LOW PLASTICITY CLAY		POORLY GRADED SAND WITH SILT		SILT		HIGH PLASTICITY CLAY

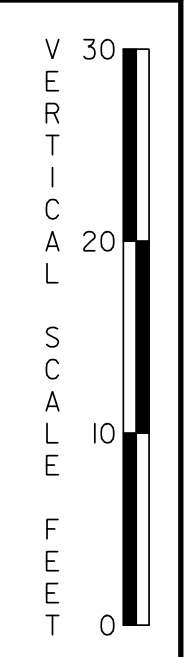
W/R = WEIGHT OF ROD  
W/H = WEIGHT OF HAMMER

WATER TABLE AT BORING COMPLETION

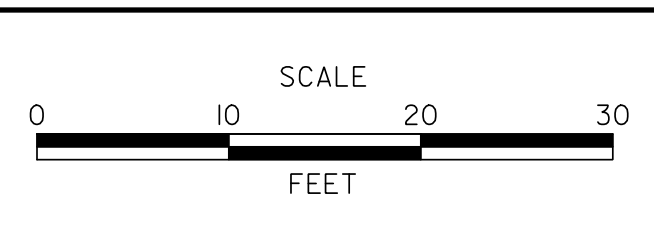
**BORING PROFILE**  
SCALE: 1"=10'-0"

TEST BORINGS				
BORING DESIGNATION	STATION	OFFSET	NORTHING	EASTING
BR1-07-05	807+58.66	72.72' LT.	555424	585752
BR1-07-10	806+56.83	65.51' LT.	555428	585650
BR1-07-12	806+53.04	17.80' LT.	555381	585641

- NOTES:**
- FOR BORING LOCATIONS, SEE DWG. NO. PE-01.
  - BORING BR1-07-12 IS SHOWN OFFSET AS INDICATED FOR CLARITY.
  - RESULTS CONDUCTED ON SAMPLES RECOVERED ARE REPORTED ON THE BORING LOGS. LOGS AND LABORATORY TESTING ARE INCLUDED AS PART OF THE CONTRACT DOCUMENTS, SEE CD.



ADDENDUMS / REVISIONS	



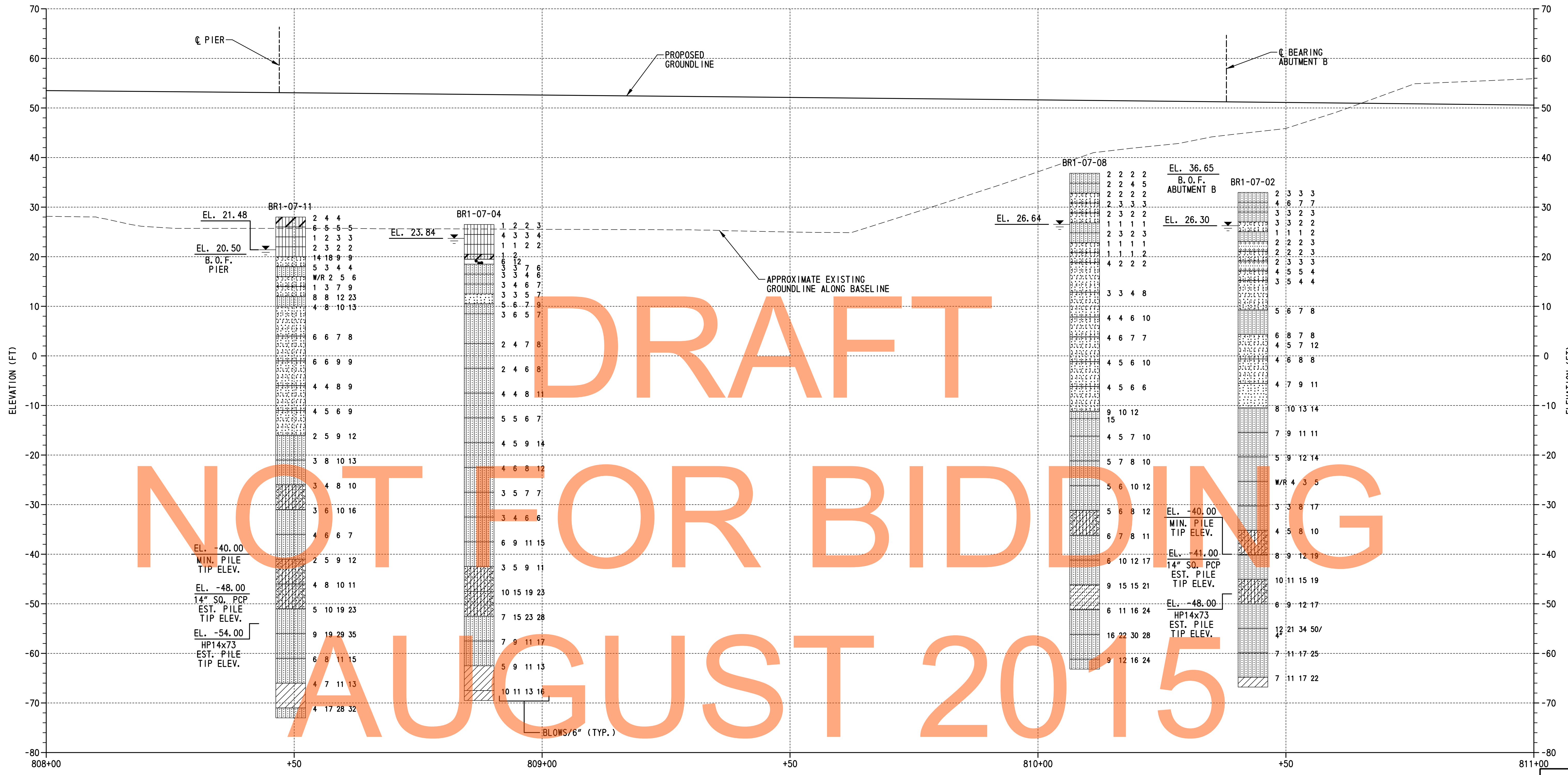
**US 301,  
SR 896 TO SR 1**

CONTRACT	BRIDGE NO.	<b>1-460S</b>
T200911308	DESIGNED BY:	M.P.U.
COUNTY	CHECKED BY:	P.S.D.
NEW CASTLE		

**BORING PROFILE - 1**

<b>BR1-7S BO-01</b>
SHEET NO.
495
TOTAL SHTS.
875

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NOT FOR BIDDING

AUGUST 2015

**LEGEND:**

	SILTY SAND		SILTY LOW PLASTICITY CLAY		POORLY GRADED CLAYEY SILTY SAND		POORLY GRADED GRAVEL
	CLAYEY SAND		POORLY GRADED SAND		WELL GRADED SAND WITH SILT		WELL GRADED SAND
	LOW PLASTICITY CLAY		POORLY GRADED SAND WITH SILT		SILT		HIGH PLASTICITY CLAY

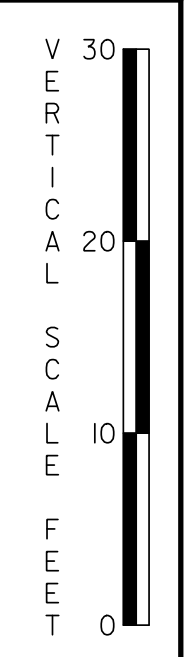
W/R = WEIGHT OF ROD  
W/H = WEIGHT OF HAMMER

WATER TABLE AT BORING COMPLETION

**BORING PROFILE**  
SCALE: 1"=10'-0"

TEST BORINGS				
BORING DESIGNATION	STATION	OFFSET	NORTHING	EASTING
BR1-07-02	810+43.35	72.95' LT.	555393	586035
BR1-07-04	808+87.30	55.73' LT.	555393	585878
BR1-07-08	810+09.42	33.99' LT.	555358	585997
BR1-07-11	808+49.29	26.38' LT.	555411	585862

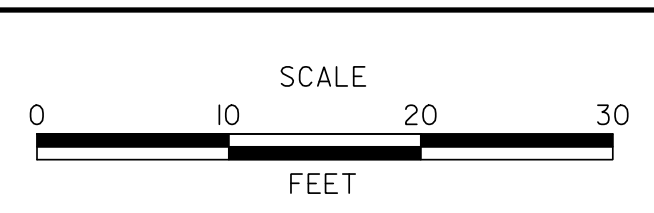
- NOTES:**
- FOR BORING LOCATIONS, SEE DWG. NO. PE-01.
  - RESULTS CONDUCTED ON SAMPLES RECOVERED ARE REPORTED ON THE BORING LOGS. LOGS AND LABORATORY TESTING ARE INCLUDED AS PART OF THE CONTRACT DOCUMENTS, SEE CD.



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ADDENDUMS / REVISIONS	



**US 301,  
SR 896 TO SR 1**

CONTRACT T200911308	BRIDGE NO. <b>1-460S</b>
COUNTY NEW CASTLE	DESIGNED BY: M.P.U. CHECKED BY: P.S.D.

**BORING PROFILE - 2**

<b>BR1-7S B0-02</b>
SHEET NO. 496
TOTAL SHTS. 875