BR2-4-05
152'-1¾" BACK TO BACK OF BACKWALLS
146'-0"
C/L BRGS. TO C/L BRGS. ABUTMENTS
73'-0" SPAN 1
73'-0" SPAN 2
BR2-4-06
C/L PIER
ABUTMENT 1 C/L BEARINGS
ABUTMENT 2 C/L BEARINGS
TO WILMINGTON
C/L DRAINAGE INLET STA. 15+63.0
C/L DRAINAGE INLET STA. 17+80.0
WINGWALL 1
WINGWALL 2
WINGWALL 3
WINGWALL 4
3'-6"
POINT OF MINIMUM VERT. CLEARANCE (US 301 SB)
POINT OF MINIMUM VERT. CLEARANCE (US 301 NB)
1'-5¼" BARRIER
2'-0" OFFSET
5'-0" SHLD
11'-0" LANE
42'-2¼" OUT TO OUT
5'-9" SIDEWALK
1'-0" BARRIER
SLEEPER SLAB (TYP.)
APPROACH SLAB (TYP.)
STA. 15+98.11
SM-1-475-1
SP-1-475-1
16+00
F. F. MSE WALL
CONSTRUCTION AND R/W BASELINE BUNKER HILL ROAD
S 53°17'03.02" E
STA. 347+69.66 B/L US 301 =
STA. 16+71.11 B/L BUNKER HILL RD.
BUNKER HILL ROAD (1-475)
17+00
12°31'50" TO LOCAL TANGENT
STA. 17+44.11
SM-1-475-2
SP-1-475-2
12°31'50" (TYP.)
PC STA. 17+99.11
348+00
347+00
US 301 SB
US 301 NB
US 301 CONSTRUCTION AND R/W BASELINE
BR2-4-01
BR2-4-02
BR2-4-03
BR2-4-04
MARYLAND
CU-G
TM-W
VER-C
DP-E
27'-0"
24'-0" ROADWAY
4'-0" OFFSET
10'-0" SHLD.
4'-0" SHLD

US 301 VERTICAL DATA

PVC 345+45.00 EL. = 67.03
PVI 346+70.00 EL. = 66.34 VC = 250.00'
PVT 347+95.00 EL. = 67.02
PVI 363+20.00 EL. = 75.26
-0.55% +0.54%

US 301 HORIZONTAL DATA

PI 341+14.79
△ = 15°58'21.48" LT
Dc = 0°45'50.20"
R = 7,500.0000'
T = 1,052.23'
L = 2,090.81'

BUNKER HILL ROAD GEOMETRY VERTICAL DATA

PVC 15+00.00 EL. 81.39
PVI 17+80.00 EL. = 100.99 L = 560.00' E = 8.26' K = 47.5 SSD = 320'
PVT 20+60.00 EL. 87.55
+7.00% -4.80%

BUNKER HILL ROAD GEOMETRY HORIZONTAL DATA

PI 20+99.29
△ = 3°12'44.96" RT
Dc = 0°32'06.81"
R = 10,705.0000'
T = 300.19'
L = 600.21'

LEGEND

- SETTLEMENT PLATFORM
- SETTLEMENT MONUMENT

BRIDGE LIMITS

PLAN

SCALE: ½" = 1'-0"

1'-0" 6 SPA. @ 7'-2" = 43'-0"
21 SPACES @ 7'-5⅜" ± = 156'-5⅞"
20 SPACES @ 7'-6⅜" ± = 150'-7⅞"
14 SPACES @ 7'-2" = 100-4"
1'-0" FENCE POST SPACING (SIDEWALK SIDE ONLY)
BARRIER CONTROL JOINT SPACING

ELEVATION

SCALE: ½" = 1'-0"

CHAIN LINK SAFETY FENCE (TYP.) (H = 6'-2⅜")
ABUTMENT 1 C/L BEARINGS
73'-0" SPAN 1
C/L PIER
TOP OF BARRIER
PROFILE GRADE
73'-0" SPAN 2
ABUTMENT 2 C/L BEARINGS
GUIDE RAIL (TYP.)
MSE WALL PANELS
16'-10" CL. ACTUAL 16'-6" CLEARANCE REQUIRED
GUARD RAIL (TYP.)
18'-8" CLEARANCE ACTUAL 16'-6" CL. REQUIRED
14" PPC PILES (TYP.)
MSE WALL PANELS
PROPOSED GROUND (TYP.)
APPROXIMATE EXISTING GROUND
18" PPC PILES
DATUM EL. 55.00

CROSS REFERENCE NOTE:

FOR SETTLEMENT PLATFORM AND MONUMENT LOCATIONS AND DETAILS, SEE DWG. 1-475 DT-1.

U:\Projects\AA\21387385\CAD\Bridge\BR2-4\pe01_BR2-4_US301.dgn
11/2/2012
Steve_Lambert

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 10 20 30 FEET

US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	T200511303
COUNTY	NEW CASTLE
BRIDGE NO.	1-475
DESIGNED BY:	R. F. KIRCHNER
CHECKED BY:	G. P. MISTRY

BUNKER HILL ROAD OVER US 301 MAINLINE

BRIDGE PLAN AND ELEVATION

1-475 PE-1	
SHEET NO.	391
TOTAL SHTS.	1256

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
202505	SETTLEMENT PLATFORM	EACH	2
202518	SETTLEMENT MONUMENT	EACH	2
207000	EXCAVATION AND BACKFILL FOR STRUCTURES	CY	75
302012	DELAWARE NO. 57 STONE	TON	12
602006	PORTLAND CEMENT CONCRETE MASONRY, PIER FOOTING, CLASS B	CY	38
602007	PORTLAND CEMENT CONCRETE MASONRY, PIER ABOVE FOOTING, CLASS A	CY	86
602013	PORTLAND CEMENT CONCRETE MASONRY, SUPERSTRUCTURE, CLASS D	CY	235
602014	PORTLAND CEMENT CONCRETE MASONRY, APPROACH SLAB, CLASS D	CY	135
602015	PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A	CY	75
602017	PORTLAND CEMENT CONCRETE MASONRY, PARAPET, CLASS A	CY	250
602772	MECHANICALLY STABILIZED EARTH WALLS, WALL 1	LS	1
603000	BAR REINFORCEMENT	LB	26,000
604000	BAR REINFORCEMENT, EPOXY COATED	LB	154,000
605511	PREFABRICATED EXPANSION JOINT SYSTEM, 3"	LF	85
605581	ELASTOMERIC BRIDGE BEARING PAD	EACH	20
618081	FURNISH PRECAST PRESTRESSED CONCRETE PILE, 14"X14"	LF	900
618083	FURNISH PRECAST PRESTRESSED CONCRETE PILE, 18"X18"	LF	820
618091	FURNISH PRECAST PRESTRESSED CONCRETE TEST PILE, 14"X14"	LF	170
618093	FURNISH PRECAST PRESTRESSED CONCRETE TEST PILE, 18"X18"	LF	125
619061	INSTALL PRECAST PRESTRESSED CONCRETE PILE, 14"X14"	LF	900
619063	INSTALL PRECAST PRESTRESSED CONCRETE PILE, 18"X18"	LF	820
619067	INSTALL PRECAST PRESTRESSED CONCRETE TEST PILE, 14"X14"	LF	170
619069	INSTALL PRECAST PRESTRESSED CONCRETE TEST PILE, 18"X18"	LF	125
619501	PRODUCTION PILE RESTRIKE	EACH	10
619502	TEST PILE RESTRIKE	EACH	4
619519	DYNAMIC PILE TESTING BY CONTRACTOR	EACH	4
619539	SIGNAL MATCHING ANALYSIS BY CONTRACTOR	EACH	8
623003	PRESTRESSED REINFORCED CONCRETE MEMBERS BULB-T BEAM	LS	1
727004	CHAIN-LINK FENCE	LF	302

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
391	1-475 PE-1	BRIDGE PLAN AND ELEVATION
392	1-475 PN-1	INDEX OF DRAWINGS
393	1-475 PN-2	GENERAL NOTES
394	1-475 FT-1	GEOMETRIC LAYOUT
395	1-475 TS-1	TYPICAL SECTION
396	1-475 PL-1	PRESTRESSED CONCRETE PILE DETAILS
397	1-475 AB-1	ABUTMENT FOUNDATION PLANS
398	1-475 AB-2	ABUTMENT 1 PLAN AND ELEVATION
399	1-475 AB-3	ABUTMENT 2 PLAN AND ELEVATION
400	1-475 AB-4	ABUTMENT 1 REINFORCEMENT
401	1-475 AB-5	ABUTMENT 2 REINFORCEMENT
402	1-475 AB-6	ABUTMENT REINFORCEMENT DETAILS
403	1-475 AB-7	ABUTMENT REINFORCING BAR LIST
404	1-475 WW-1	WING WALL 1 AND 2 PLAN AND ELEVATION
405	1-475 WW-2	WING WALL 3 AND 4 PLAN AND ELEVATION
406	1-475 WW-3	WING WALL DETAILS 1
407	1-475 WW-4	WING WALL DETAILS 2
408	1-475 WW-5	WING WALL DETAILS 3
409	1-475 WW-6	MOMENT SLAB AND BARRIER REINFORCING 1
410	1-475 WW-7	MOMENT SLAB AND BARRIER REINFORCING 2
411	1-475 WW-8	MOMENT SLAB AND BARRIER REINFORCING 3
412	1-475 WW-9	MOMENT SLAB AND BARRIER REINFORCING 4
413	1-475 PR-1	PIER FOUNDATION PLAN
414	1-475 PR-2	PIER PLAN AND ELEVATION
415	1-475 PR-3	PIER REINFORCEMENT 1
416	1-475 PR-4	PIER REINFORCEMENT 2
417	1-475 PR-5	PIER REINFORCING BAR LIST
418	1-475 BD-1	BEARING DETAILS
419	1-475 FR-1	FRAMING PLAN
420	1-475 BM-1	GIRDER DETAILS
421	1-475 BM-2	DIAPHRAGMS 1
422	1-475 BM-3	DIAPHRAGMS 2
423	1-475 CT-1	CAMBER TABLE
424	1-475 BM-4	GIRDERS AND DIAPHRAGMS REINFORCING BAR LIST
425	1-475 DK-1	BRIDGE DECK POURING SEQUENCE
426	1-475 DK-2	BRIDGE DECK AND BARRIER REINFORCEMENT 1
427	1-475 DK-3	BRIDGE DECK AND BARRIER REINFORCEMENT 2
428	1-475 DK-4	BRIDGE DECK AND BARRIER REINFORCEMENT 3
429	1-475 DK-5	BRIDGE DECK AND BARRIER REINFORCING BAR LIST
430	1-475 FD-1	FINISHED DECK ELEVATIONS
431	1-475 EX-1	EXPANSION JOINT DETAILS
432	1-475 RA-1	CHAIN LINK SAFETY FENCE DETAILS 1
433	1-475 RA-2	CHAIN LINK SAFETY FENCE DETAILS 2
434	1-475 AS-1	APPROACH SLAB PLANS
435	1-475 AS-2	APPROACH SLABS REINFORCEMENT 1
436	1-475 AS-3	APPROACH SLABS REINFORCEMENT 2
437	1-475 AS-4	APPROACH SLABS REINFORCEMENT 3
438	1-475 AS-5	APPROACH SLABS REINFORCING BAR LIST
439	1-475 DT-1	SETTLEMENT PLATFORM
440	1-475 BO-1	BORINGS 1

NOTES;

1. ITEM NO. 602014 INCLUDES APPROACH SLAB AND SLEEPER SLAB CONCRETE.

2. ITEM NO. 602017 INCLUDES CONCRETE FOR BARRIER, SIDEWALK AND MOMENT SLAB.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: G. P. MISTRY	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
INDEX OF DRAWINGS

1-475 PN-1
SHEET NO.
392
TOTAL SHTS.
1256

GENERAL NOTES

1. DESIGN SPECIFICATIONS:

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

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

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

2. LOADING:

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

   FUTURE OVERLAY ALLOWANCE SHALL BE 25 LBS/SQ FT.

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

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

   A PEDESTRIAN LOAD OF 75 PSF SHALL BE APPLIED TO SIDEWALK AREA.

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

   FATIGUE DESIGN SHALL BE BASED ON THE FOLLOWING ONE DIRECTIONAL TRAFFIC VOLUMES (2030): DESIGN ADT = 6,900, DESIGN ADTT = 100

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

   FOR SEISMIC LOADS, CONSIDER SEISMIC PERFORMANCE ZONE 1, WITH A SITE CLASS = D AND IMPORTANCE CATEGORY - ESSENTIAL. ACCELERATION COEFFICIENT = 0.08.

3. PORTLAND CEMENT CONCRETE:

   PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE ELEMENTS SHALL BE AS FOLLOWS:
   (28 DAY COMPRESSIVE STRENGTH)
   ITEM NO. 602006 (CLASS B, F'c=3000 PSI) - PIER FOOTING
   ITEM NO. 602007 (CLASS A, F'c=4500 PSI) - PIER ABOVE FOOTING
   ITEM NO. 602013 (CLASS D, F'c=4500 PSI) - DECK AND DIAPHRAGMS
   ITEM NO. 602014 (CLASS D, F'c=4500 PSI) - APPROACH SLAB, SLEEPER SLAB
   ITEM NO. 602015 (CLASS A, F'c=4500 PSI) - ABUTMENT ABOVE FOOTING
   ITEM NO. 602017 (CLASS A, F'c=4500 PSI) - BARRIER, SIDEWALK, MOMENT SLAB

   RAKE FINISH ALL HORIZONTAL CONSTRUCTION, EXCEPT AS INDICATED.

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

   PLACE CHEEKWALL AND BACKWALL CONCRETE AFTER GIRDERS HAVE BEEN SET IN POSITION.

   DECK SLAB THICKNESS INCLUDES ½" INTEGRAL WEARING SURFACE.

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

   ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS UNLESS NOTED OTHERWISE, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE NOTATION ON THE PLANS, "DO NOT CHAMFER".

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

4. BAR REINFORCEMENT:

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

   ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2" UNLESS OTHERWISE SPECIFIED ON THE PLANS.

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

   DO NOT WELD GRADE 60 REINFORCING STEEL.

5. PRESTRESSED CONCRETE DESIGN:

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

   THE TIME FROM CASTING OF CONCRETE GIRDERS TO POURING OF PIER DIAPHRAGM SHALL BE NO LESS THAN 90 DAYS. IF TIME IS NOT SUFFICIENT, CONTRACTOR MUST SUBMIT DESIGN FOR APPROVAL SHOWING STRUCTURAL DESIGN CALCULATIONS TO ACCOUNT FOR RESTRAINT MOMENTS. FOR CONTINUOUS SPANS, PIER DIPHRAGMS SHALL NOT BE POURED UNTIL DECK POURS 1 AND 2 ARE COMPLETED.

   PRESTRESSED CONCRETE:

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

   PRESTRESSED STEEL:

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

   AFTER ESTIMATED LOSSES OF 17,330 PSI, THE FINAL EFFECTIVE PRESTRESS FORCE PER STRAND IS 40,180 LBS.

6. SERVICEABILITY:

   LIVE LOAD DEFLECTION SHALL BE LIMITED TO L/1000 FOR VEHICULAR AND PDESTRIAN LOADING.

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

7. CONSTRUCTION JOINTS:

   KEYED CONSTRUCTION JOINTS SHALL BE 2" X 4" OR AS NOTED. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A ¾" V-NOTCH, UNLESS NOTED OTHERWISE.

8. STRUCTURAL EXCAVATIONS:

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

9. STRUCTURAL BACKFILL:

   MSE BACKFILL SHALL BE AS SPECIFIED ON PLANS.

10. ROADWAY CLEARANCES:

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

11. UTILITIES:

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

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

12. CONSTRUCTION NOTES:

    a) PROVIDE A MINIMUM TEMPORARY VERTICAL CLEARANCE OF 16'-6" AT ALL TIMES DURING CONSTRUCTION.

    b) DO NOT PICK OR LIFT OVER LANES AND/OR SHOULDERS OPEN TO TRAFFIC.

    c) DO NOT PERFORM ANY WORK DIRECTLY OVER OPEN LANES OF TRAFFIC WITHOUT ADEQUATE SHIELDING OR WORK PLATFORMS, LANE CLOSURES OR DETOURS IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS.

    d) INSTALL SIP FORMS, ADDITIONAL PROTECTIVE SHIELD SYSTEM, WORK PLATFORMS AND/OR OVERHANG FALSEWORK BEFORE BEGINNING ANY CONSTRUCTION OPERATIONS OVER TRAFFIC.

    e) IF THE CONTRACTOR DETERMINES THAT ADDITIONAL PROTECTIVE SHIELDING OR WORK PLATFORMS ARE NEEDED TO PROTECT TRAFFIC, SUBMIT PLANS AND CALCULATIONS FOR REVIEW AND APPROVAL FOR PROTECTING TRAFFIC WHILE WORKING OVER TRAVELWAYS. HAVE THE DRAWINGS AND DESIGN CALCULATIONS PREPARED, SIGNED, AND SEALED BY A DELAWARE REGISTERED PROFESSIONAL ENGINEER. THE APPROVAL OF THE ENGINEER WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR THE SAFETY OF THE METHOD OR EQUIPMENT. BASED ON CONTRACTOR MEANS AND METHODS, DETERMINE AND CLEARLY DEFINE ALL DEAD AND LIVE LOADS FOR THIS SYSTEM, WHICH, AT A MINIMUM, SHALL BE INSTALLED WHERE TRAFFIC IS MAINTAINED. NO SEPARATE PAYMENT WILL BE MADE FOR ADDITIONAL PROTECTIVE SHIELDING OR WORK PLATFORMS.

    f) ALL FORMWORK INCLUDING STAY-IN-PLACE FORMS SHALL BE MORTAR TIGHT.

    g) WHILE PLACING DECK, DECK OVERHANG AND PARAPET CONCRETE OVER LANES OPEN TO TRAFFIC, NO CLOSURE OR DETOURS WILL BE ALLOWED DURING THESE OPERATIONS.

    h) THE MAINTENANCE OF TRAFFIC REQUIRED FOR THE INSTALLATION OF THESE ITEMS WILL BE PAID UNDER THE MAINTENANCE OF TRAFFIC UNIT BID ITEMS. CONTRACTOR SHALL ADHERE TO THE TRAFFIC CONTROL PLAN, DELAWARE MUTCD, AND TRAFFIC LANE CLOSURE AND WORK RESTRICTIONS PROVIDED IN THE CONTRACT DOCUMENTS.

BRIDGE LOAD RATING (TONS)

DESIGN VEHICLE	RATING FACTOR	RATING WEIGHT (TONS)	CONTROLLING MEMBER	CONTROLLING POINT	LOAD EFFECT
HL-93 TRUCK (INVENTORY)	1.15	N/A	INTERIOR BEAM	105	FLEXURE
HL-93 TANDEM (INVENTORY)	1.29	N/A	INTERIOR BEAM	105	FLEXURE
HL-93 TRUCK TRAIN (INVENTORY)	1.18	N/A	INTERIOR BEAM	110	FLEXURE
HS20 (INVENTORY)	1.45	52.2	INTERIOR BEAM	110	SHEAR
HL-93 TRUCK (OPERATING)	1.48	N/A	INTERIOR BEAM	105	FLEXURE
HL-93 TANDEM (OPERATING)	1.68	N/A	INTERIOR BEAM	105	FLEXURE
HL-93 TRUCK TRAIN (OPERATING)	1.52	N/A	INTERIOR BEAM	110	FLEXURE
HS20 (OPERATING)	1.90	68.4	INTERIOR BEAM	110	SHEAR
DE S220 & LEGAL-LANE (LEGAL)	2.43	48.6	INTERIOR BEAM	105	FLEXURE
DE S335 & LEGAL-LANE (LEGAL)	1.35	47.3	INTERIOR BEAM	105	FLEXURE
DE S437 & LEGAL-LANE (LEGAL)	1.29	47.3	INTERIOR BEAM	105	FLEXURE
DE T330 & LEGAL-LANE (LEGAL)	2.00	60.0	INTERIOR BEAM	105	FLEXURE
DE T435 & LEGAL-LANE (LEGAL)	1.75	61.3	INTERIOR BEAM	105	FLEXURE
DE T540 & LEGAL-LANE (LEGAL)	1.56	62.4	INTERIOR BEAM	105	FLEXURE

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

DELAWARE
DEPARTMENT OF TRANSPORTATION

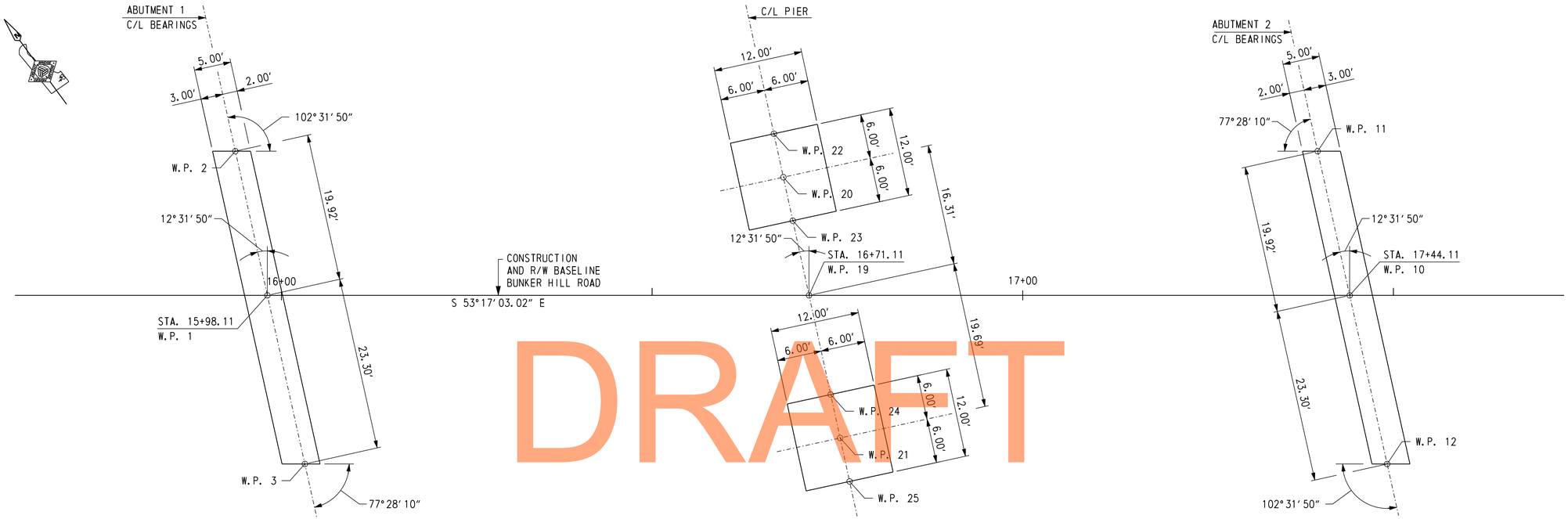
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: G. P. MISTRY	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
GENERAL NOTES

1-475 PN-2	
SHEET NO.	393
TOTAL SHTS.	1256



PLAN
SCALE: ⅛" = 1'-0"

WORKING POINTS

W.P. NO.	STATION	OFFSET	COORDINATES	
			NORTHING	EASTING
1	15+98.11	0.00'	530,657.9211	564,379.5561
2	15+93.79	19.44' LT.	530,676.0852	564,387.7137
3	16+03.17	22.75' RT.	530,636.6616	564,370.0082
4	15+97.25	19.98' LT.	530,674.4479	564,390.8152
5	16+06.87	23.29' RT.	530,634.0119	564,372.6550
6	15+69.83	19.98' LT.	530,690.8418	564,368.8337
7	15+69.83	23.29' RT.	530,656.1554	564,342.9643
8	15+44.25	18.94' LT.	530,705.2987	564,347.7070
9	15+53.87	23.29' RT.	530,665.6976	564,330.1695
10	17+44.11	0.00'	530,570.6355	564,496.5912
11	17+39.79	19.44' LT.	530,588.7996	564,504.7489
12	17+49.17	22.75' RT.	530,549.3760	564,487.0434
13	17+36.08	19.98' LT.	530,591.4493	564,502.1021
14	17+45.70	23.29' RT.	530,551.0133	564,483.9419
15	17+73.17	19.98' LT.	530,569.2796	564,531.8279
16	17+73.17	23.29' RT.	530,534.5932	564,505.9585
17	18+30.03	18.94' LT.	530,534.3809	564,576.8039
18	18+55.82	23.29' RT.	530,485.1333	564,572.0248
19	16+71.11	0.00'	530,614.2798	564,438.0717
20	16+67.57	15.92' LT.	530,629.1605	564,444.7547
21	16+75.38	19.22' RT.	530,596.3204	564,430.0060
22	16+66.27	21.78' LT.	530,634.6338	564,447.2129
23	16+68.87	10.07' LT.	530,623.6871	564,442.2966
24	16+74.08	13.36' RT.	530,601.7937	564,432.4641
25	16+76.68	25.08' RT.	530,590.8470	564,427.5478
26	15+59.78	22.25' RT.	530,663.0002	564,335.5290
27	18+49.90	22.25' RT.	530,489.5217	564,567.9331

CROSS REFERENCE NOTE:

1. FOR LOCATION OF WORKING POINTS ALONG WING WALLS, SEE DWG. 1-475 AB-2 AND 1-475 AB-3.

DELAWARE
DEPARTMENT OF TRANSPORTATION

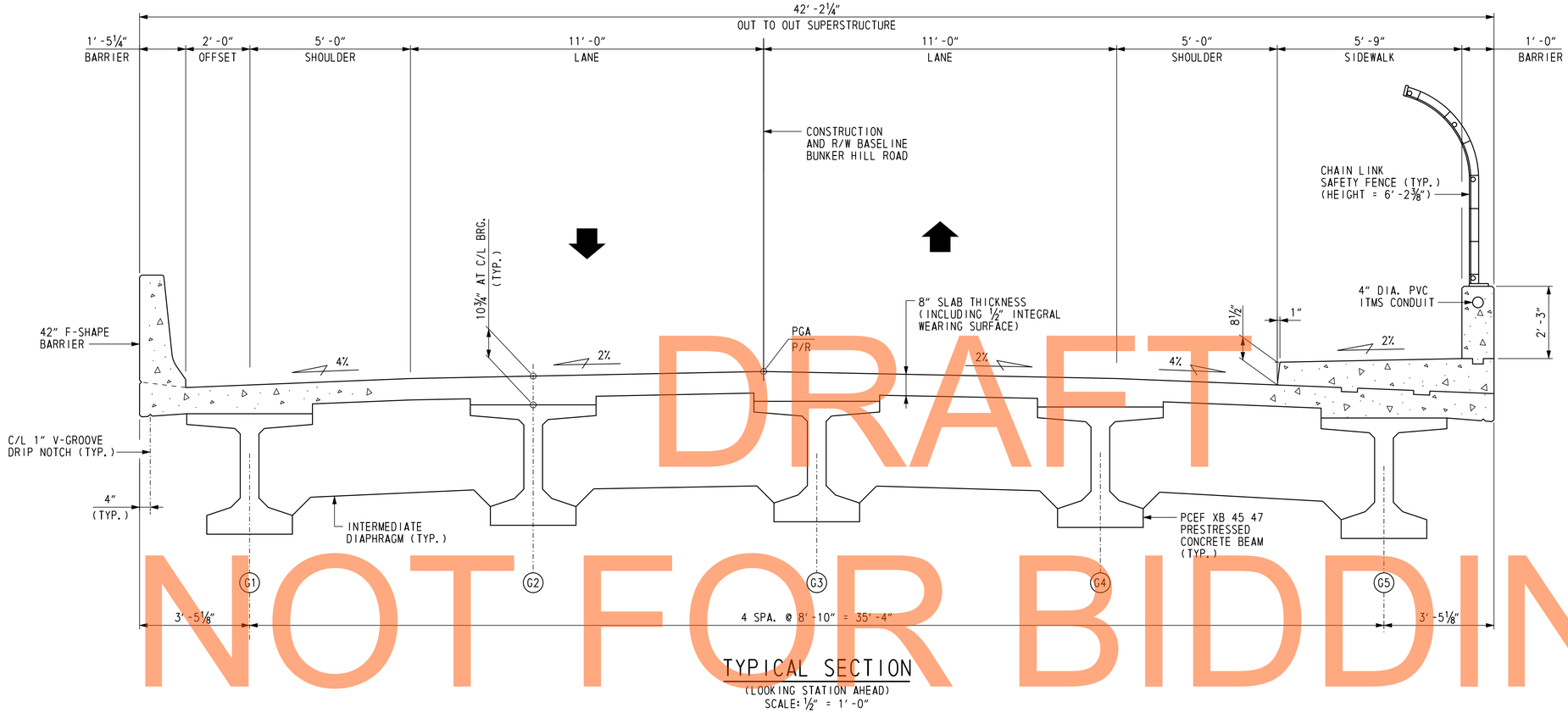
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303
COUNTY NEW CASTLE
BRIDGE NO. 1-475
DESIGNED BY: J. S. LI
CHECKED BY: R. F. KIRCHNER

BUNKER HILL ROAD
OVER US 301 MAINLINE
GEOMETRIC LAYOUT

1-475 FT-1
SHEET NO. 394
TOTAL SHTS. 1256



TYPICAL SECTION
(LOOKING STATION AHEAD)
SCALE: ½″ = 1′-0″

CROSS REFERENCE NOTES:

1. FOR FRAMING PLAN, SEE DWG. 1-475 FR-1.
2. FOR DECK, BARRIER AND SIDEWALK REINFORCEMENT, SEE DWG. 1-475 DK-2 TO 1-475 DK-4.
3. FOR FENCE DETAILS, SEE DWGS. 1-475 RA-1 AND 1-475 RA-2.
4. FOR US 301 TYPICAL ROADWAY SECTION, SEE DWG. TS-04.
5. FOR DETAILS OF CONDUIT IN BARRIER, SEE DWG.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: G. P. MISTRY	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE

TYPICAL SECTION

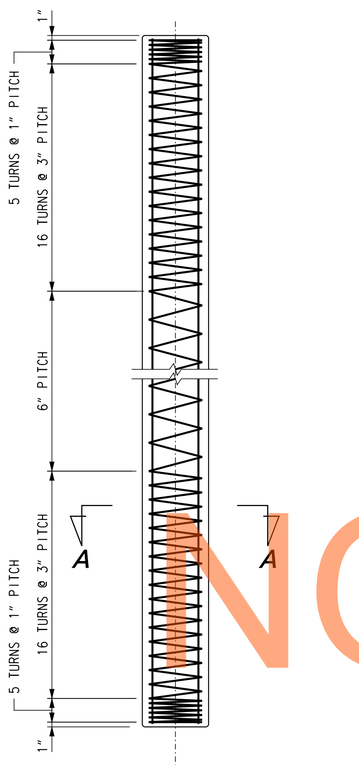
1-475 TS-1
SHEET NO.
395
TOTAL SHTS.
1256

PILE PICK-UP NOTES:

1. UNLESS SPECIAL LIFTING DEVICES ARE ATTACHED FOR PICK-UP, PICK-UP POINTS SHALL BE PLAINLY MARKED ON ALL PILES AFTER REMOVAL OF THE FORMS. THE PILE SHALL BE SUPPORTED ONLY AT THE INDICATED PICK-UP POINTS WHILE BEING STORED OR HANDLED.

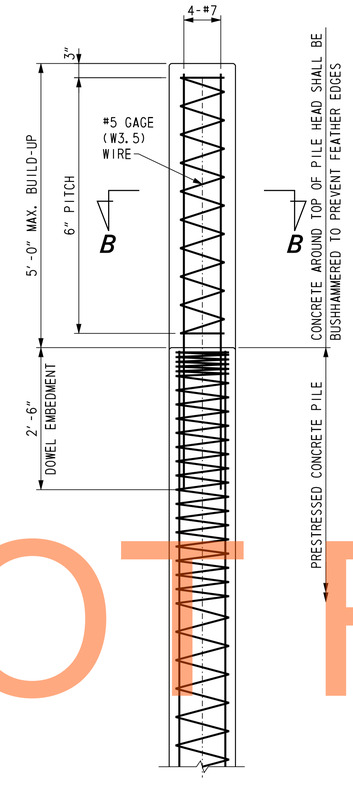
2. THE USE OF PROPER RIGGING IS REQUIRED TO INSURE THAT THE PICK-UP POINTS REMAIN IN A STRAIGHT LINE DURING LIFTING AND WHEN POSITIONING THE PILE FOR DRIVING.

3. THE USE OF SPECIAL EMBEDDED OR ATTACHED LIFTING DEVICES, THE USE OF OTHER PICK-UP LOCATIONS OR ANY OTHER METHOD OF PICK-UP SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.



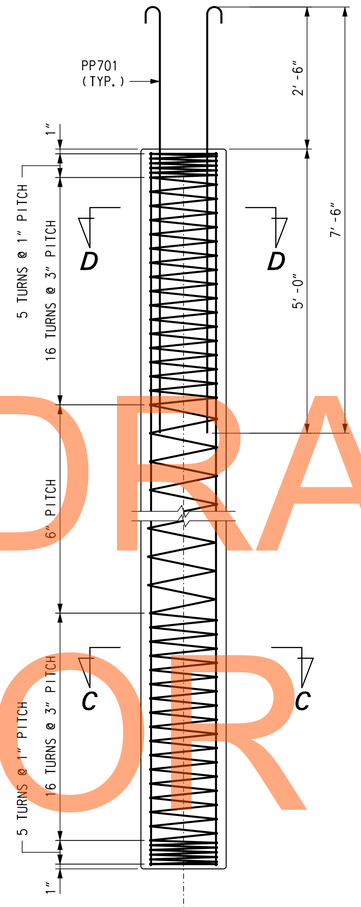
14" SQUARE PRESTRESSED CONCRETE PILE

SCALE: ¾" = 1'-0"



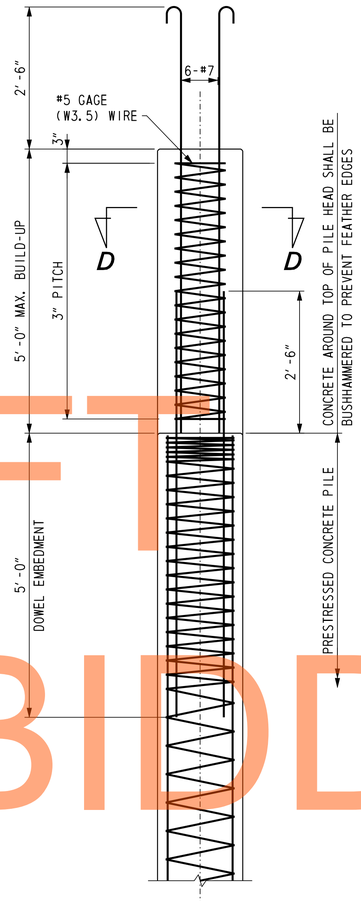
14" SQUARE PILE BUILD-UP DETAIL

SCALE: ¾" = 1'-0"



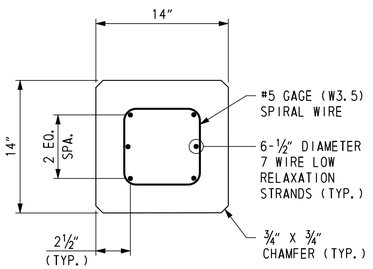
18" SQUARE PRESTRESSED CONCRETE PILE

SCALE: ¾" = 1'-0"



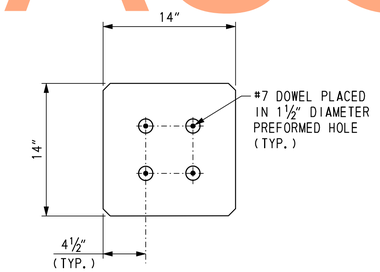
18" SQUARE PILE BUILD-UP DETAIL

SCALE: ¾" = 1'-0"



SECTION A-A

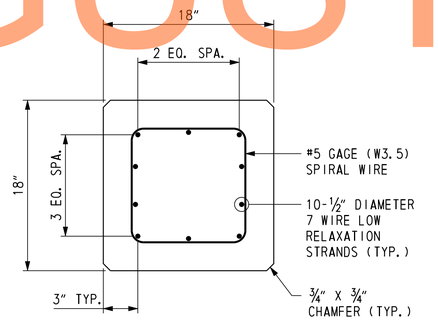
SCALE: 1½" = 1'-0"



SECTION B-B

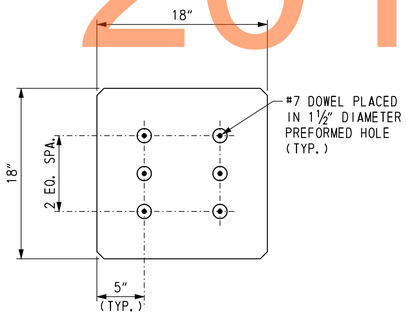
(STRANDS AND SPIRALS NOT SHOWN)

SCALE: 1½" = 1'-0"



SECTION C-C

SCALE: 1½" = 1'-0"



SECTION D-D

(STRANDS AND SPIRALS NOT SHOWN)

SCALE: 1½" = 1'-0"

NOTES:

1. ALL PILES SHALL BE 14" X 14" OR 18" X 18" PRECAST PRESTRESSED CONCRETE PILES AS DESIGNATED ON THE FOUNDATION PLANS. PILES SHALL NOT BE COATED.

2. THE MINIMUM COMPRESSIVE STRENGTH FOR THE PRESTRESSED CONCRETE PILES AT THE AGE OF 28 DAYS SHALL BE fc'=6000 PSI. THE MINIMUM COMPRESSIVE STRENGTH AT TIME OF TRANSFER SHALL BE f'ci=4800 PSI.

3. ALL PRESTRESSING STRANDS SHALL MEET THE REQUIREMENTS OF ASTM A416, GRADE 270, LOW RELAXATION. STRANDS SHALL BE ONE HALF (½) INCH DIAMETER AND SHALL HAVE AN ULTIMATE STRENGTH OF 41,300 LBS. CUT STRANDS FLUSH WITH PILE HEAD AND PILE TIP.

4. SPIRAL TIES SHALL BE #5 GAGE STEEL WIRE CONFORMING TO THE REQUIREMENTS OF ASTM A82.

5. THE SPLICING OF PRESTRESSED PRECAST CONCRETE PILES SHALL NOT BE PERMITTED.

6. PROVIDE 1½" DIAMETER PREFORMED HOLES IN PILE HEAD AT THE DOWEL LOCATIONS. DOWELS SHALL BE GROUTED IN PLACE WITH AN APPROVED EPOXY GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF fc'=6000 PSI. THE CONTRACTOR SHALL SUBMIT A GROUT PLACEMENT PROCEDURE FOR APPROVAL, INCLUDING A METHOD FOR REMOVING WATER AND DEBRIS FROM THE HOLES PRIOR TO GROUTING.

7. DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN A ONE INCH CLEAR DISTANCE FROM ALL PRESTRESSING STRANDS IN THE PILE.

8. ALL TEST PILES SHALL BE TEN (10) FEET LONGER THAN THE PRODUCTION PILE LENGTH INDICATED ON PILE INSTALLATION DATA TABLE.

9. ALL PILES SHALL BE DRIVEN TO THE NOMINAL PILE DRIVING RESISTANCE LISTED IN THE PILE INSTALLATION DATA TABLES ON THE PILE FOUNDATION PLANS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE NET CROSS-SECTIONAL AREA SHALL BE CONSIDERED IN THE WAVE EQUATION ANALYSIS. THE WAVE EQUATION AND HIGH-STRAIN DYNAMIC PILE TESTING MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

11. UPON COMPLETION OF THE HIGH-STRAIN DYNAMIC PILE TESTING, THE CONTRACTOR SHALL SUBMIT A SIGNAL MATCHING ANALYSIS TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

12. FOR ABUTMENT PILES, PILE CASINGS SHALL BE INSTALLED AT THE PROPOSED PILE LOCATIONS.

13. A QUARANTINE PERIOD OF THIRTY (30) DAYS IS REQUIRED AFTER THE CONSTRUCTION OF THE FULL HEIGHT OF THE FILL AT THE ABUTMENTS IS ACHIEVED.

14. ABUTMENT PILES MAY NOT BE DRIVEN UNTIL AFTER COMPLETION OF THE THIRTY (30) DAY QUARANTINE PERIOD, UNLESS NOTED BELOW FOR TEST PILES.

15. THE ENGINEER SHALL APPROVE THE COMPLETION OF THE WAITING PERIOD, BASED ON RESULTS OF INSTRUMENTATION.

16. TEST PILES MAY BE DRIVEN PRIOR TO PLACING MSE WALL BACKFILL. RESTRIKES OF THESE TEST PILES SHALL BE PERFORMED PRIOR TO PLACING ANY EMBANKMENT IN ACCORDANCE WITH ITEM 619502-TEST PILE RESTRIKE. TEST PILES BEHIND MSE WALLS SHALL THEN BE CASED PRIOR TO PLACING EMBANKMENT. AFTER THE SETTLEMENT HAS BEEN ACHIEVED AND THE SUBSTRUCTURE HAS BEEN RELEASED BY THE ENGINEER, PRODUCTION PILES MAY BE INSTALLED. AT THIS POINT, THE TEST PILE SHALL BE ACTING AS A PRODUCTION PILE AND IT SHALL BE RE-STRUCK AS DIRECTED BY THE ENGINEER PRIOR TO PLACING ANY OTHER PRODUCTION PILES WITH PAYMENT UNDER ITEM 619501-PRODUCTION PILE RESTRIKE.

17. SEE SPECIAL PROVISIONS 202505 AND 202518 FOR SETTLEMENT MONITORING REQUIREMENTS.

18. PILE LENGTHS FOR ORDERING PURPOSES SHALL BE DETERMINED BY TEST PILES. A MINIMUM OF ONE PILE PER SUBSTRUCTURE, AS SHOWN ON THE PLANS, SHALL BE DYNAMICALLY TESTED WITH SIGNAL MATCHING ANALYSIS BY THE CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISION 619519 AND 619539. TEST AND PRODUCTION PILE RESTRIKES WILL BE PAID AS FOLLOWS:

    A. ALL TEST PILE(S) WILL BE RESTRUCK AFTER A WAITING PERIOD OF AT LEAST 48 HOURS. TEST PILE RESTRIKES SHALL BE INCIDENTAL TO THE INITIAL INSTALLATION OF THE PILE PROVIDED THEY ARE REQUESTED WITHIN FIVE WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE. IF TEST PILE RESTRIKES ARE REQUESTED AFTER THE FIVE (5) WORKING DAYS FROM THE COMPLETION OF THE INITIAL DRIVE THEN THE TEST PILE RESTRIKE SHALL BE PAID AS NOTED IN SPECIAL PROVISION 619502.

    B. IF DIRECTED BY THE ENGINEER TO RESTRIKE A PRODUCTION PILE, THE RESTRIKE OF THE PRODUCTION PILE SHALL BE PAID SEPARATELY UNDER ITEM NO. 619501.

    C. DELDOT STANDARD SPECIFICATION 619.11(a)(6) SHALL BE MODIFIED BY REFERENCE TO SPECIAL PROVISION 619519 AND 619539.

19. THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC TESTING OF RESTRIKES.

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DELAWARE DEPARTMENT OF TRANSPORTATION

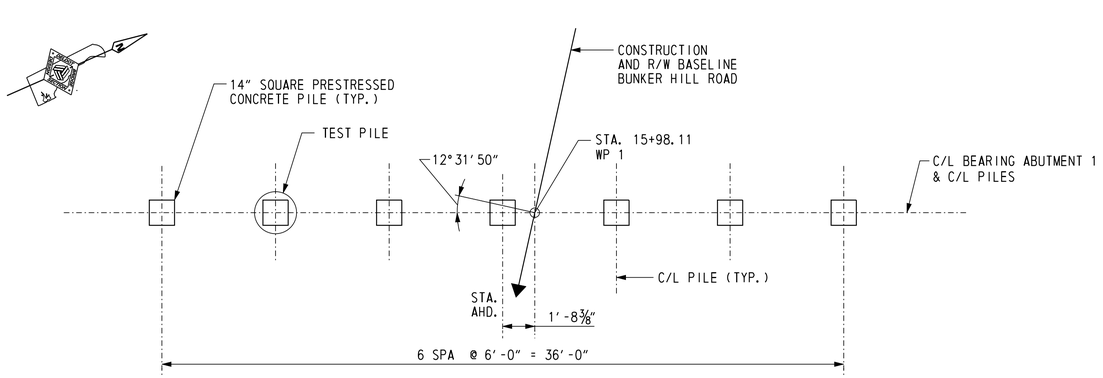
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: G. P. MISTRY	
NEW CASTLE		

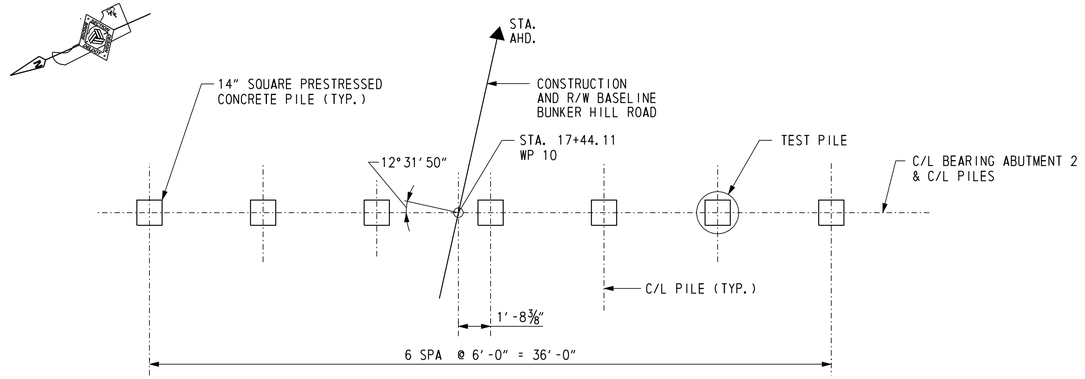
BUNKER HILL ROAD
OVER US 301 MAINLINE
PRESTRESSED
CONCRETE PILE DETAILS

1-475 PL-1
SHEET NO.
396
TOTAL SHTS.
1256



ABUTMENT 1 PILE PLAN

SCALE: ¼" = 1'-0"



ABUTMENT 2 PILE PLAN

SCALE: ¼" = 1'-0"

PILE INSTALLATION DATA				
	DESIGN DATA		ACTUAL FIELD DATA	
SUBSTRUCTURE UNIT	NOMINAL PILE DRIVING RESISTANCE (KIPS)	ESTIMATED PILE TIP ELEVATION	AVERAGE MINIMUM TIP ELEVATION	AVERAGE MAXIMUM TIP ELEVATION
ABUTMENT 1	300	7.0		
ABUTMENT 2	300	7.0		

ABUTMENT 1 PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

ABUTMENT 2 PILE DRIVING INFORMATION
PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

LEGEND

- DENOTES 14" SQ. PLUMB PRESTRESSED CONCRETE PILE
- DENOTES TEST PILE

NOTE:

TEST PILE SHALL BE TEN (10) FEET LONGER THAN THE PRODUCTION PILE LENGTH INDICATED IN THE PILE INSTALLATION DATA TABLE.

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR ABUTMENT PLAN AND ELEVATION, SEE DWG. 1-475 AB-2 & 1-475 AB-3.
3. FOR PILE DETAILS, SEE DWG. 1-475 PL-1.
4. FOR GEOMETRIC LAYOUT, SEE DWG. 1-475 FT-1.

DELAWARE
DEPARTMENT OF TRANSPORTATION

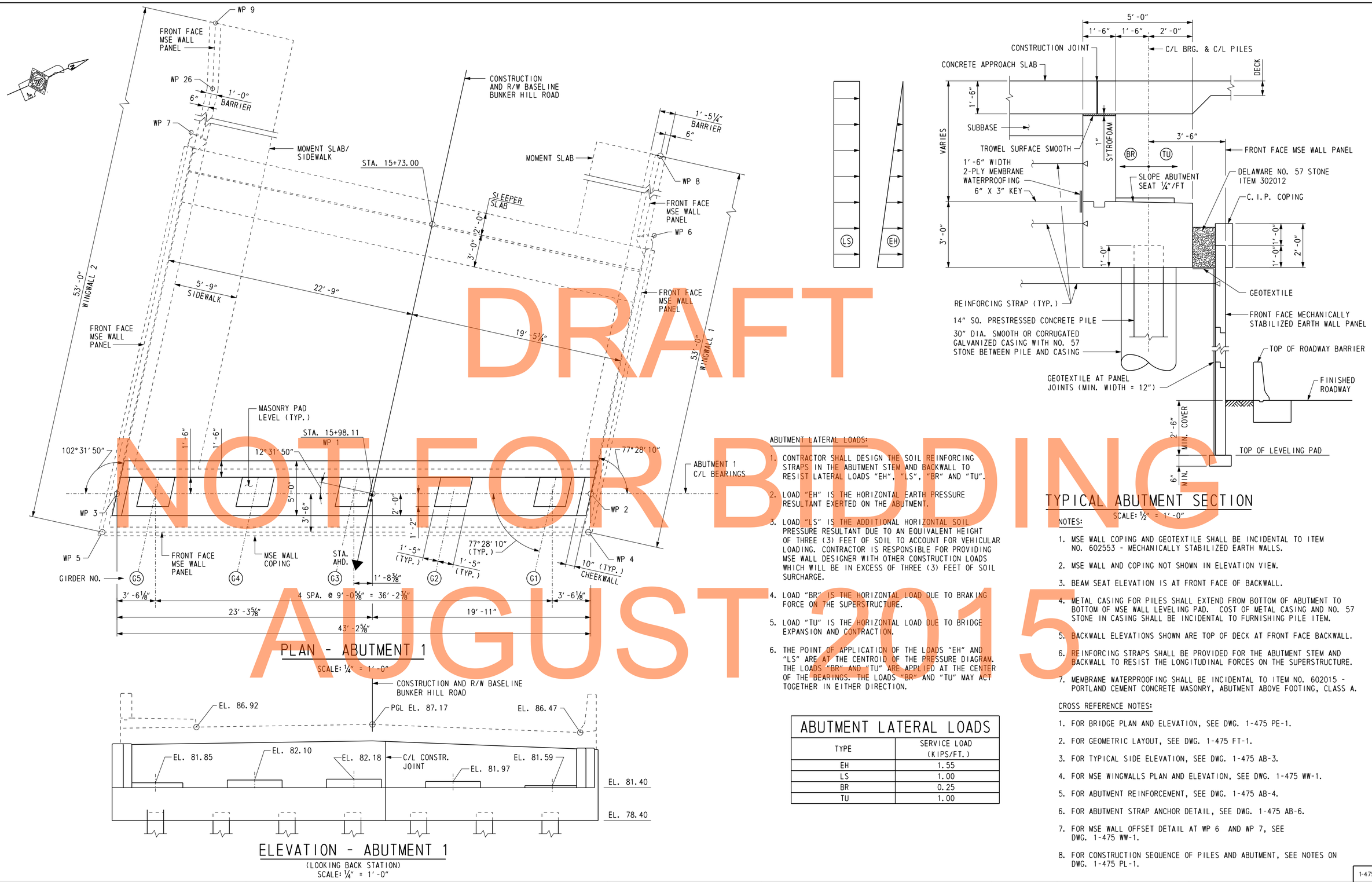
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K.D. BEAVER	
COUNTY	CHECKED BY: R.F. KIRCHNER	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
ABUTMENT
FOUNDATION PLANS

1-475 AB-1	
SHEET NO.	397
TOTAL SHTS.	1256



PLAN - ABUTMENT 1

SCALE: ¼" = 1'-0"

ELEVATION - ABUTMENT 1

(LOOKING BACK STATION)
SCALE: ¼" = 1'-0"

ABUTMENT LATERAL LOADS:

1. CONTRACTOR SHALL DESIGN THE SOIL REINFORCING STRAPS IN THE ABUTMENT STEM AND BACKWALL TO RESIST LATERAL LOADS "EH", "LS", "BR" AND "TU".
2. LOAD "EH" IS THE HORIZONTAL EARTH PRESSURE RESULTANT EXERTED ON THE ABUTMENT.
3. LOAD "LS" IS THE ADDITIONAL HORIZONTAL SOIL PRESSURE RESULTANT DUE TO AN EQUIVALENT HEIGHT OF THREE (3) FEET OF SOIL TO ACCOUNT FOR VEHICULAR LOADING. CONTRACTOR IS RESPONSIBLE FOR PROVIDING MSE WALL DESIGNER WITH OTHER CONSTRUCTION LOADS WHICH WILL BE IN EXCESS OF THREE (3) FEET OF SOIL SURCHARGE.
4. LOAD "BR" IS THE HORIZONTAL LOAD DUE TO BRAKING FORCE ON THE SUPERSTRUCTURE.
5. LOAD "TU" IS THE HORIZONTAL LOAD DUE TO BRIDGE EXPANSION AND CONTRACTION.
6. THE POINT OF APPLICATION OF THE LOADS "EH" AND "LS" ARE AT THE CENTROID OF THE PRESSURE DIAGRAM. THE LOADS "BR" AND "TU" ARE APPLIED AT THE CENTER OF THE BEARINGS. THE LOADS "BR" AND "TU" MAY ACT TOGETHER IN EITHER DIRECTION.

ABUTMENT LATERAL LOADS	
TYPE	SERVICE LOAD (KIPS/FT.)
EH	1.55
LS	1.00
BR	0.25
TU	1.00

TYPICAL ABUTMENT SECTION

SCALE: ½" = 1'-0"

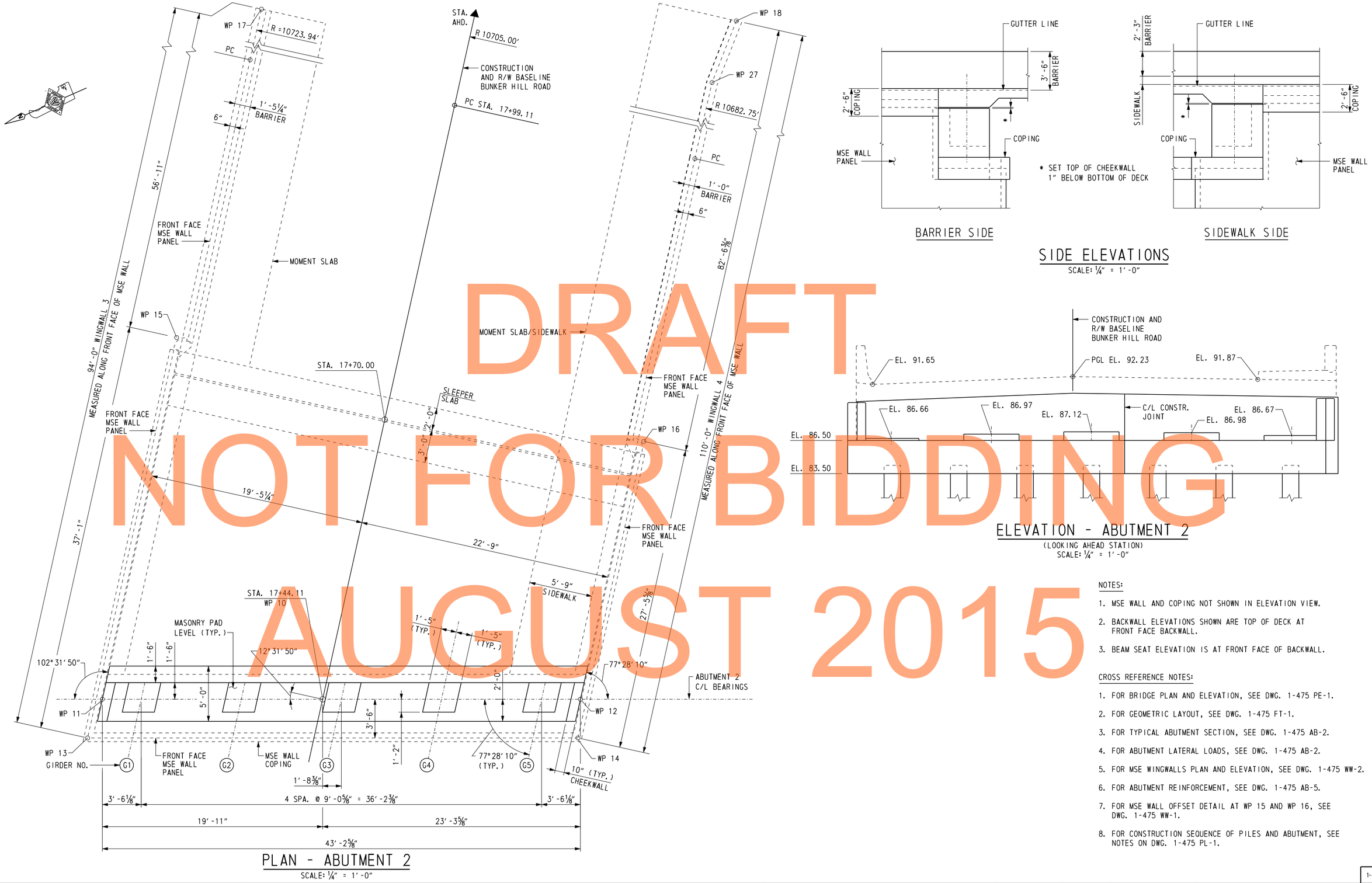
NOTES:

1. MSE WALL COPING AND GEOTEXTILE SHALL BE INCIDENTAL TO ITEM NO. 602553 - MECHANICALLY STABILIZED EARTH WALLS.
2. MSE WALL AND COPING NOT SHOWN IN ELEVATION VIEW.
3. BEAM SEAT ELEVATION IS AT FRONT FACE OF BACKWALL.
4. METAL CASING FOR PILES SHALL EXTEND FROM BOTTOM OF ABUTMENT TO BOTTOM OF MSE WALL LEVELING PAD. COST OF METAL CASING AND NO. 57 STONE IN CASING SHALL BE INCIDENTAL TO FURNISHING PILE ITEM.
5. BACKWALL ELEVATIONS SHOWN ARE TOP OF DECK AT FRONT FACE BACKWALL.
6. REINFORCING STRAPS SHALL BE PROVIDED FOR THE ABUTMENT STEM AND BACKWALL TO RESIST THE LONGITUDINAL FORCES ON THE SUPERSTRUCTURE.
7. MEMBRANE WATERPROOFING SHALL BE INCIDENTAL TO ITEM NO. 602015 - PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A.

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR GEOMETRIC LAYOUT, SEE DWG. 1-475 FT-1.
3. FOR TYPICAL SIDE ELEVATION, SEE DWG. 1-475 AB-3.
4. FOR MSE WINGWALLS PLAN AND ELEVATION, SEE DWG. 1-475 WW-1.
5. FOR ABUTMENT REINFORCEMENT, SEE DWG. 1-475 AB-4.
6. FOR ABUTMENT STRAP ANCHOR DETAIL, SEE DWG. 1-475 AB-6.
7. FOR MSE WALL OFFSET DETAIL AT WP 6 AND WP 7, SEE DWG. 1-475 WW-1.
8. FOR CONSTRUCTION SEQUENCE OF PILES AND ABUTMENT, SEE NOTES ON DWG. 1-475 PL-1.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE ABUTMENT 1 PLAN AND ELEVATION
			COUNTY NEW CASTLE	DESIGNED BY: K. D. BEAVER	1-475 AB-2
				CHECKED BY: R.F.KIRCHNER	SHEET NO. 398
					TOTAL SHTS. 1256



PLAN - ABUTMENT 2

SCALE: ¼" = 1'-0"

BARRIER SIDE

SIDEWALK SIDE

SIDE ELEVATIONS

SCALE: ¼" = 1'-0"

ELEVATION - ABUTMENT 2

(LOOKING AHEAD STATION)
SCALE: ¼" = 1'-0"

NOTES:

1. MSE WALL AND COPING NOT SHOWN IN ELEVATION VIEW.
2. BACKWALL ELEVATIONS SHOWN ARE TOP OF DECK AT FRONT FACE BACKWALL.
3. BEAM SEAT ELEVATION IS AT FRONT FACE OF BACKWALL.

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR GEOMETRIC LAYOUT, SEE DWG. 1-475 FT-1.
3. FOR TYPICAL ABUTMENT SECTION, SEE DWG. 1-475 AB-2.
4. FOR ABUTMENT LATERAL LOADS, SEE DWG. 1-475 AB-2.
5. FOR MSE WINGWALLS PLAN AND ELEVATION, SEE DWG. 1-475 WW-2.
6. FOR ABUTMENT REINFORCEMENT, SEE DWG. 1-475 AB-5.
7. FOR MSE WALL OFFSET DETAIL AT WP 15 AND WP 16, SEE DWG. 1-475 WW-1.
8. FOR CONSTRUCTION SEQUENCE OF PILES AND ABUTMENT, SEE NOTES ON DWG. 1-475 PL-1.

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DELAWARE DEPARTMENT OF TRANSPORTATION

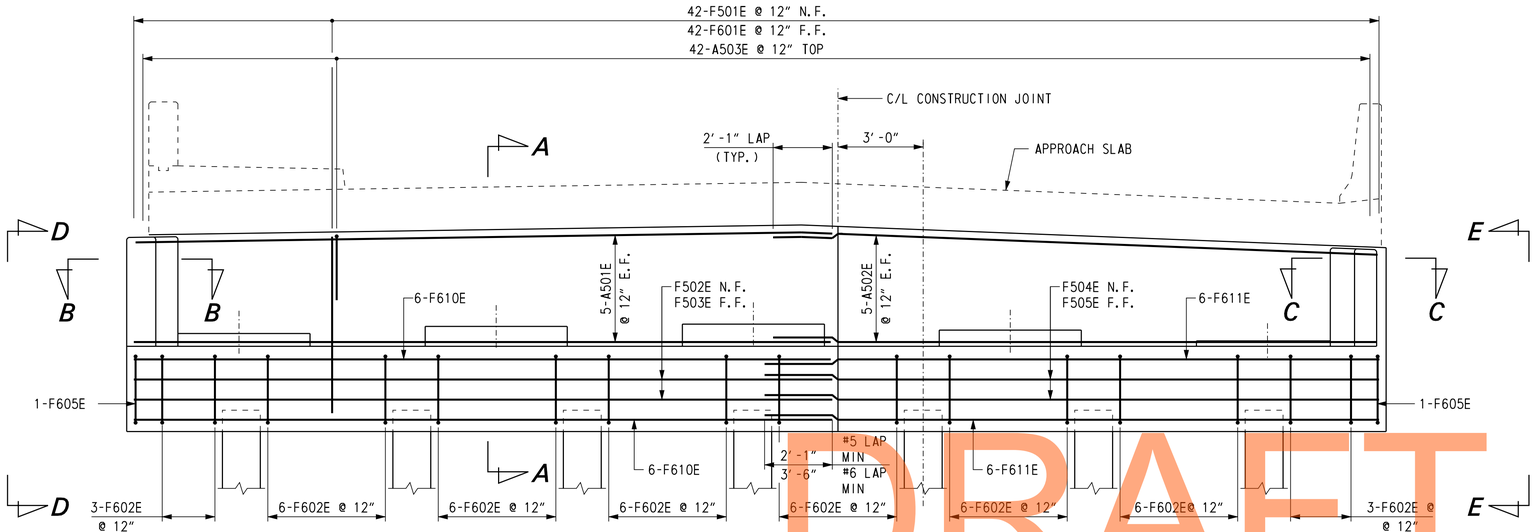
ADDENDUMS / REVISIONS

US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K.D. BEAVER	
COUNTY	CHECKED BY: R.F.KIRCHNER	
NEW CASTLE		

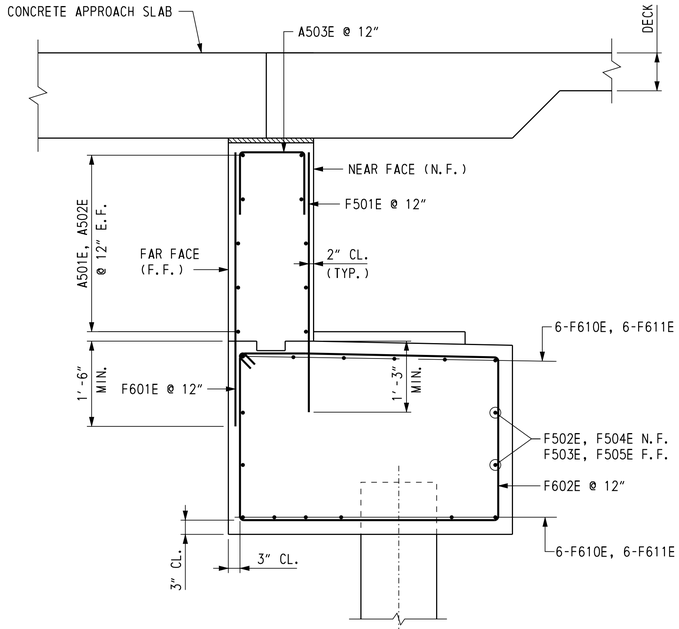
BUNKER HILL ROAD OVER US 301 MAINLINE ABUTMENT 2 PLAN AND ELEVATION

1-475 AB-3
SHEET NO. 399
TOTAL SHTS. 1256



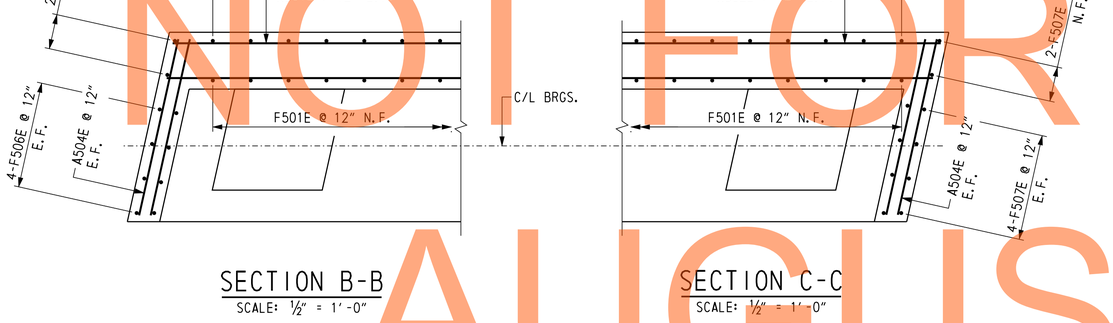
ABUTMENT 1 ELEVATION

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



SECTION A-A

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

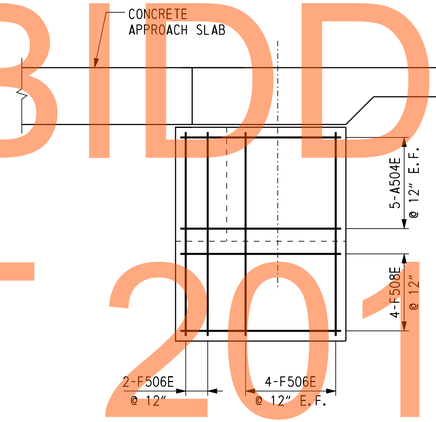


SECTION B-B

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

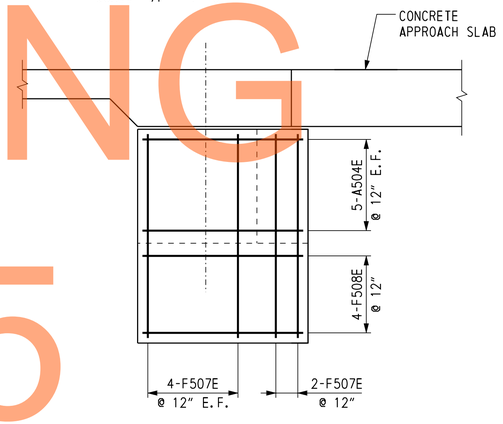
SECTION C-C

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



VIEW D-D

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



VIEW E-E

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

CROSS REFERENCE NOTES:

1. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
2. FOR WING WALL 1 AND 2 PLAN AND ELEVATION, SEE DWG. 1-475 WW-1.
3. FOR MASONRY PAD REINFORCEMENT, SEE DWG. 1-475 AB-6.
4. FOR REINFORCING BAR LIST, SEE DWG. 1-475 AB-7.

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DELAWARE
DEPARTMENT OF TRANSPORTATION

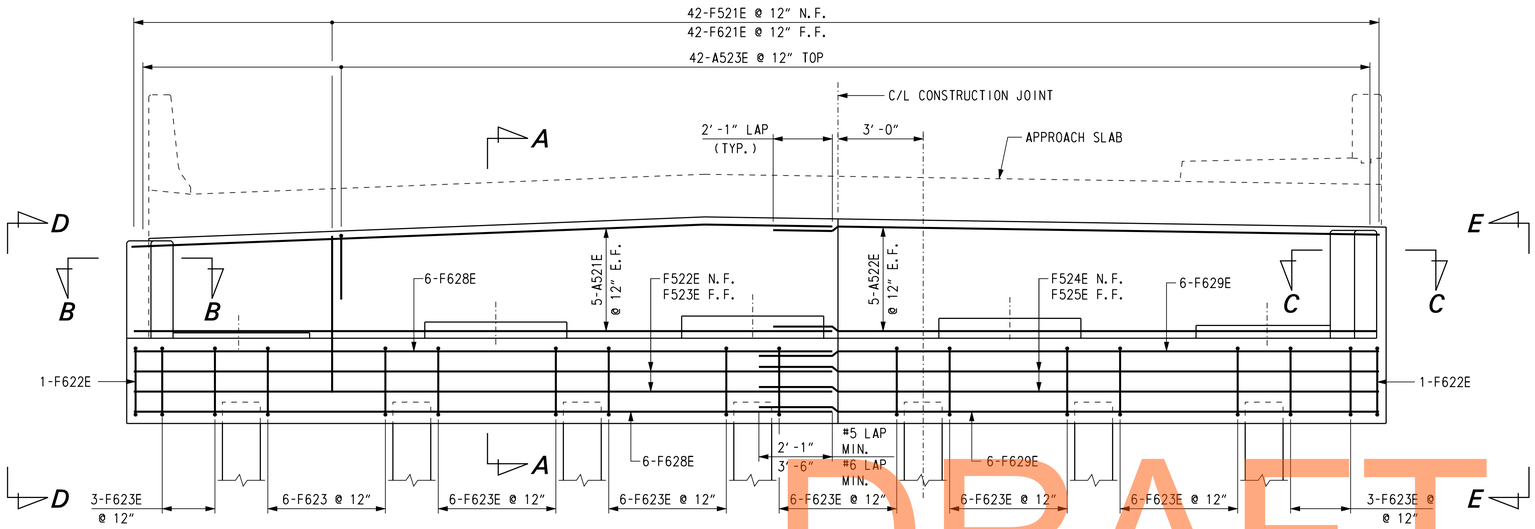
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303	BRIDGE NO.	1-475
COUNTY NEW CASTLE	DESIGNED BY: K.D.BEAVER	
	CHECKED BY: R.F.KIRCHNER	

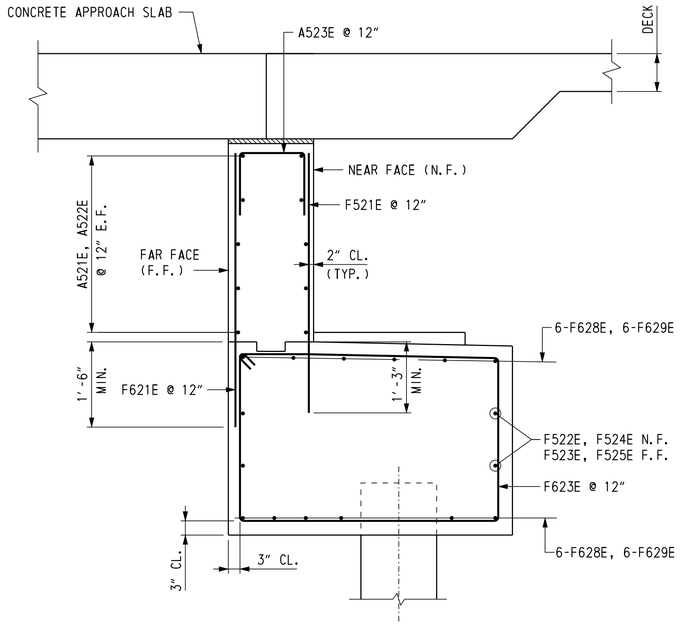
BUNKER HILL ROAD
OVER US 301 MAINLINE
ABUTMENT 1 REINFORCEMENT

1-475- AB-4	
SHEET NO.	400
TOTAL SHTS.	1256



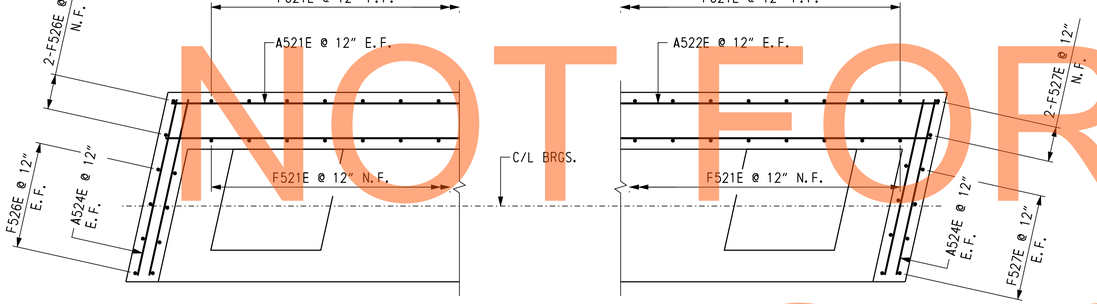
ABUTMENT 2 ELEVATION

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



SECTION A-A

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

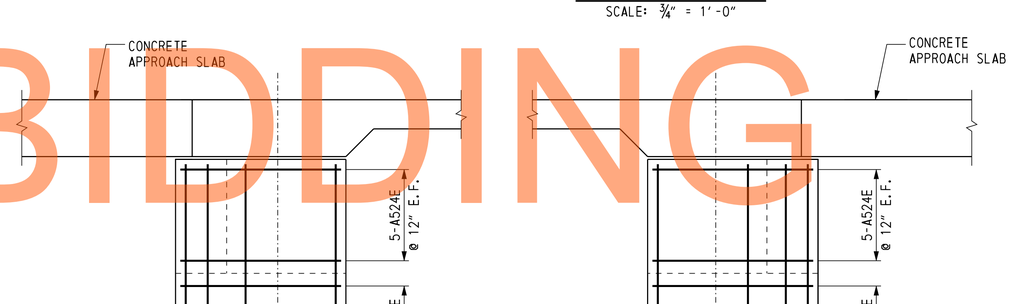


SECTION B-B

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

SECTION C-C

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



VIEW D-D

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

VIEW E-E

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

CROSS REFERENCE NOTES:

1. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
2. FOR WING WALL 3 AND 4 PLAN AND ELEVATION, SEE DWG. 1-475 WW-2.
3. FOR MASONRY PAD REINFORCEMENT, SEE DWG. 1-475 AB-6.
4. FOR REINFORCING BAR LIST, SEE DWG. 1-475 AB-7.

Steve_Lambert 11/8/2012 U:\Projects\AA\21387385\CAD\Bridge\BR2-4\ab05_BR2-4_US301.dgn

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

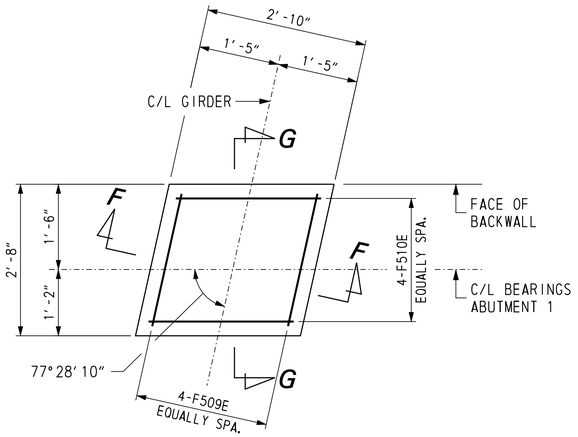
US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K.D. BEAVER	
COUNTY	CHECKED BY: R.F. KIRCHNER	
NEW CASTLE		

BUNKER HILL ROAD OVER US 301 MAINLINE

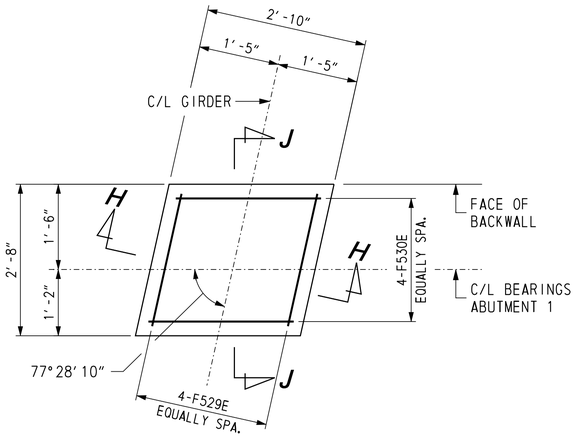
ABUTMENT 2 REINFORCEMENT

1-475-AB-5
SHEET NO.
401
TOTAL SHTS.
1256



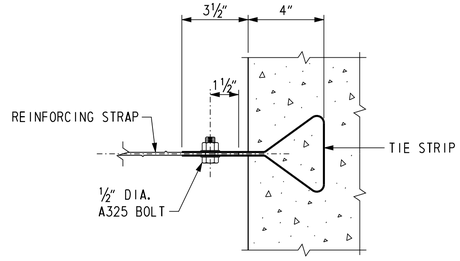
PLAN - ABUTMENT 1 MASONRY PAD

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



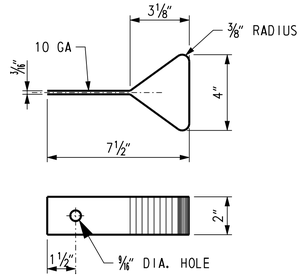
PLAN - ABUTMENT 2 MASONRY PAD

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



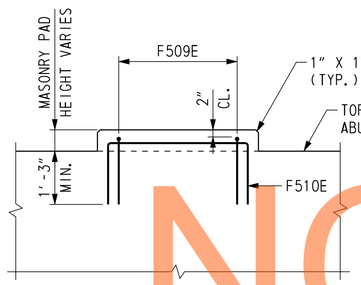
ABUTMENT STRAP ANCHOR DETAIL

NOT TO SCALE



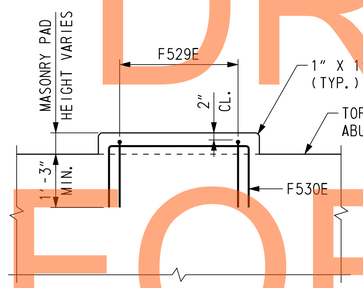
TIE STRIP DETAIL

NOT TO SCALE



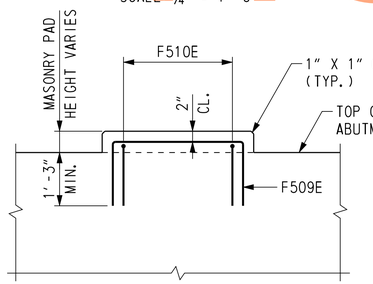
SECTION F-F

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



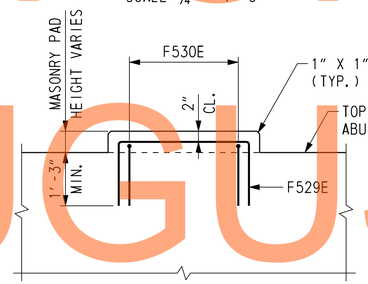
SECTION H-H

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



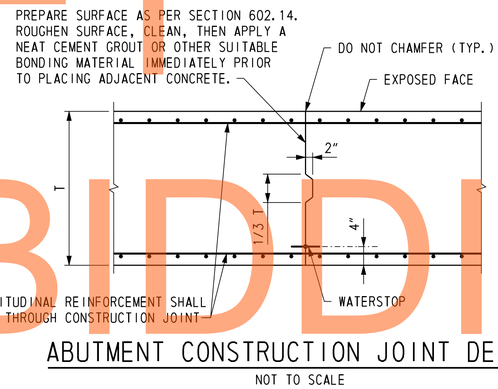
SECTION G-G

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



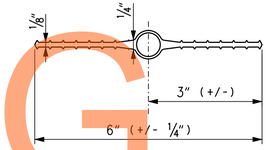
SECTION J-J

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



ABUTMENT CONSTRUCTION JOINT DETAIL

NOT TO SCALE



PVC WATERSTOP DETAIL

NOT TO SCALE

NOTES:

1. ABUTMENT 1 MASONRY PAD REINFORCEMENT APPLIES AT GIRDERS G2 THROUGH G5.
2. ABUTMENT 2 MASONRY PAD REINFORCEMENT APPLIES AT GIRDERS G2 THROUGH G4.
3. CHAMFER NOT SHOWN IN PLAN VIEW.
4. TIE STRIP MATERIAL IS SAME AS USED IN MSE WALL PANELS. DESIGN SHALL BE CONSISTENT WITH MSE WALL DESIGN. COST OF REINFORCING STRAPS AND ANCHORS SHALL BE INCIDENTAL TO MSE WALL ITEM.

CROSS REFERENCE NOTES:

1. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
2. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
3. FOR REINFORCING BAR LIST, SEE DWG. 1-475 AB-7.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K.D.BEAVER	
COUNTY	CHECKED BY: R.F.KIRCHNER	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
ABUTMENT
REINFORCEMENT DETAILS

1-475 AB-6
SHEET NO. 402
TOTAL SHTS. 1256

REINFORCING BAR LIST

ABUTMENT 1

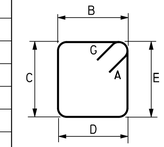
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	G	H	J	K	O	R	REMARKS
F501E	5′-4″	42	STR.												
F502E	24′-8″	2	STR.												
F503E	23′-8″	2	STR.												
F504E	20′-4″	2	STR.												
F505E	21′-4″	2	STR.												
F506E	6′-4″	10	STR.												
F507E	6′-1″	10	STR.												
F508E	4′-8″	8	STR.												
F509E	6′-2″	16	17		1′-11″	2′-4″	1′-11″								
F510E	6′-4″	16	17		1′-11″	2′-6″	1′-11″								
F601E	5′-7″	42	STR.												
F602E	15′-8″	42	T1	0′-8″	4′-7″	2′-7″	4′-7″	2′-7″	0′-8″						
F605E	15′-10″	2	T1	0′-8″	4′-8″	2′-7″	4′-8″	2′-7″	0′-8″						
F610E	23′-8″	12	STR.												
F611E	22′-8″	12	STR.												
A501E	23′-8″	10	STR.												
A502E	21′-4″	10	STR.												
A503E	3′-2″	42	17		1′-0″	1′-2″	1′-0″								
A504E	4′-8″	20	STR.												

ABUTMENT 2

MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	G	H	J	K	O	R	REMARKS
F521E	5′-4″	42	STR.												
F522E	24′-8″	2	STR.												
F523E	23′-8″	2	STR.												
F524E	20′-4″	2	STR.												
F525E	21′-4″	2	STR.												
F526E	6′-1″	10	STR.												
F527E	6′-2″	10	STR.												
F528E	4′-8″	8	STR.												
F529E	5′-10″	12	17		1′-9″	2′-4″	1′-9″								
F530E	6′-0″	12	17		1′-9″	2′-6″	1′-9″								
F621E	5′-7″	42	STR.												
F622E	15′-10″	2	T1	0′-8″	4′-8″	2′-7″	4′-8″	2′-7″	0′-8″						
F623E	15′-8″	42	T1	0′-8″	4′-7″	2′-7″	4′-7″	2′-7″	0′-8″						
F628E	23′-8″	12	STR.												
F629E	22′-8″	12	STR.												
A521E	23′-8″	10	STR.												
A522E	21′-4″	10	STR.												
A523E	3′-2″	42	17		1′-0″	1′-2″	1′-0″								
A524E	4′-8″	20	STR.												

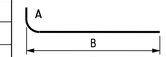
BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



(T1)

(17)



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DELAWARE
DEPARTMENT OF TRANSPORTATION

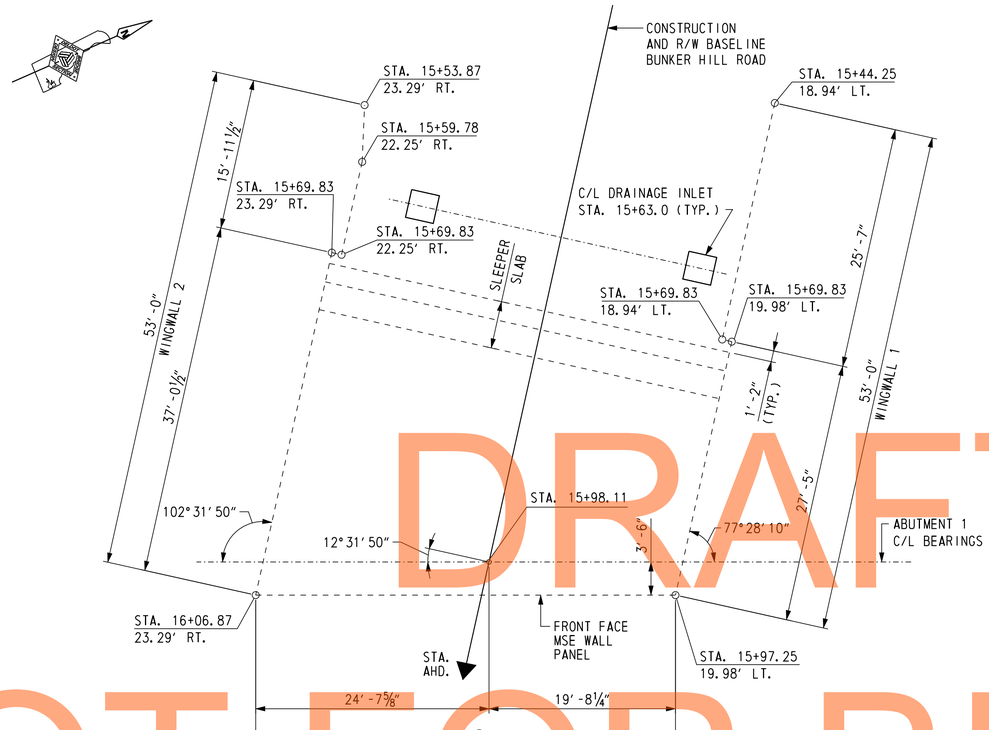
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K.D.BEAVER	
COUNTY	CHECKED BY: R.F.KIRCHNER	
NEW CASTLE		

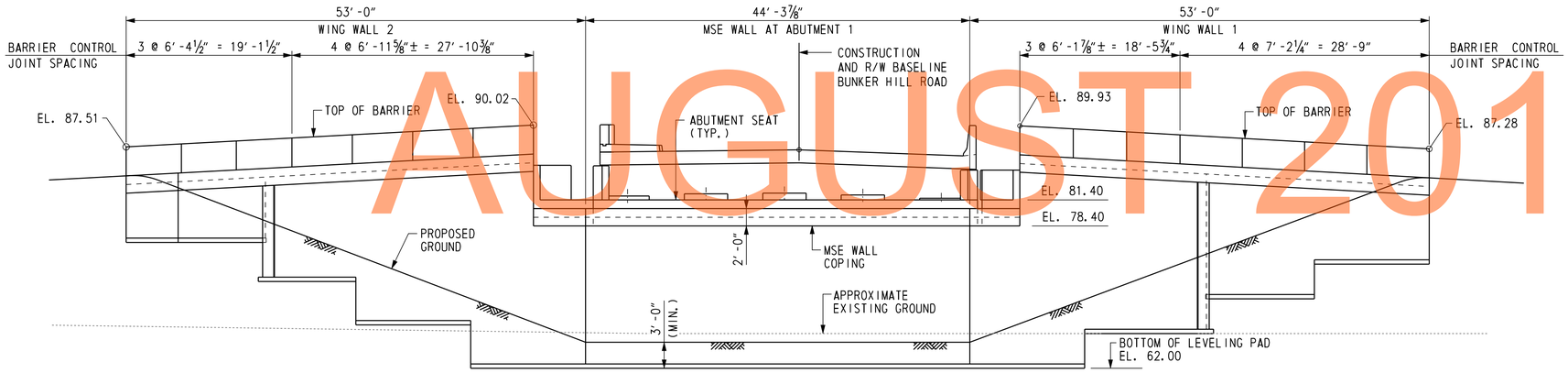
BUNKER HILL ROAD
OVER US 301 MAINLINE
ABUTMENTS 1 AND 2
REINFORCING BAR LIST

1-475: AB-7
SHEET NO.
403
TOTAL SHTS.
1256



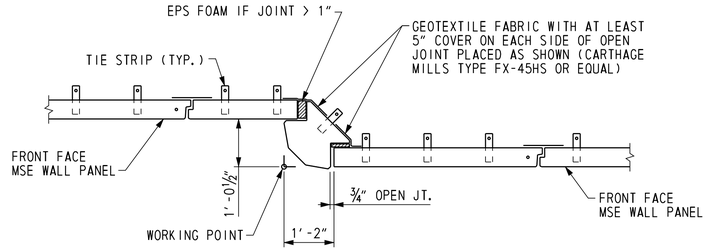
MSE WALL PLAN AT ABUTMENT 1

SCALE: ⅛" = 1'-0"



DEVELOPED ELEVATION AT ABUTMENT 1

(LOOKING BACK STATION)
SCALE: ⅛" = 1'-0"



WALL OFFSET & CORNER ELEMENT DETAIL

NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
3. FOR MSE WALL NOTES, SEE DWG. 1-475 WW-3.
4. FOR MSE WINGWALL DETAILS, SEE DWG. 1-475 WW-3 & 1-475 WW-4.
5. FOR SOIL PROPERTIES AND FOUNDATION NOTES, SEE DWG. 1-475 WW-4.
6. FOR CONSTRUCTION SEQUENCE OF PILES AND ABUTMENT, SEE NOTES ON DWG. 1-475 PL-1.
7. FOR GRADING OF PROPOSED GROUND ALONG WINGWALLS, SEE DWG. 1-475 PE-1.

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11/8/2012
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DELAWARE
DEPARTMENT OF TRANSPORTATION

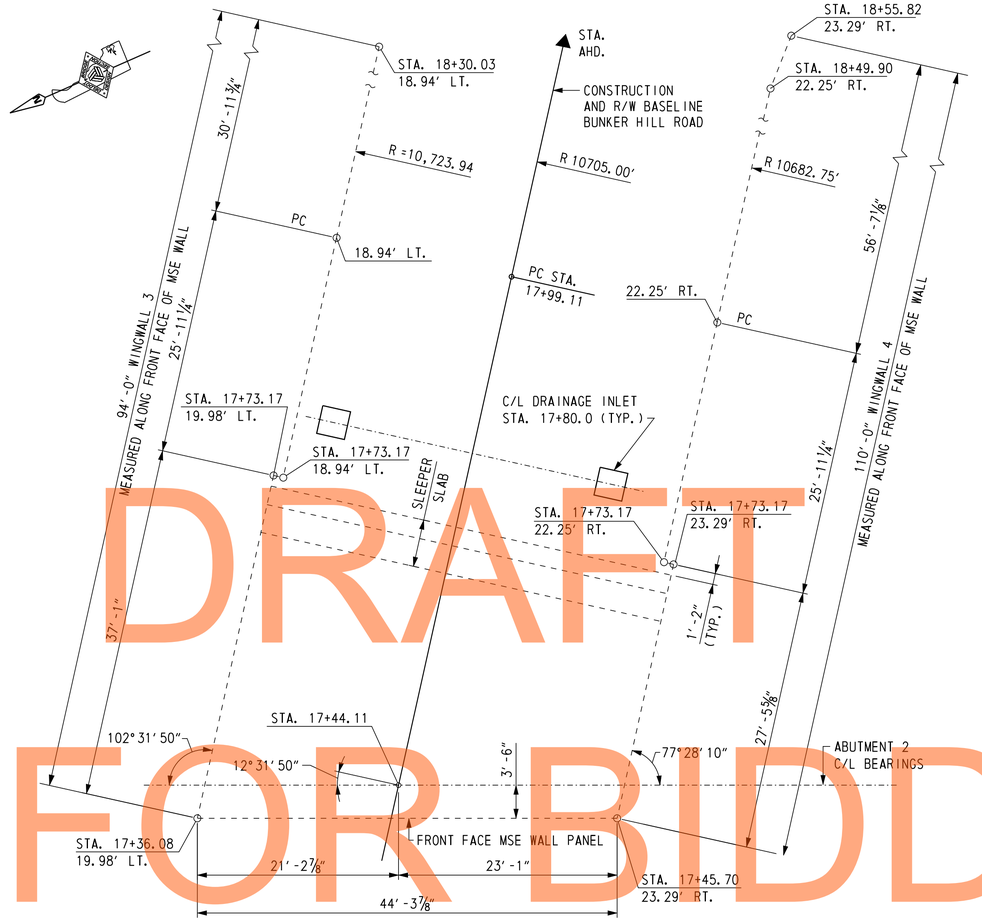
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R.F.KIRCHNER	
COUNTY	CHECKED BY: J.S.LI	
NEW CASTLE		

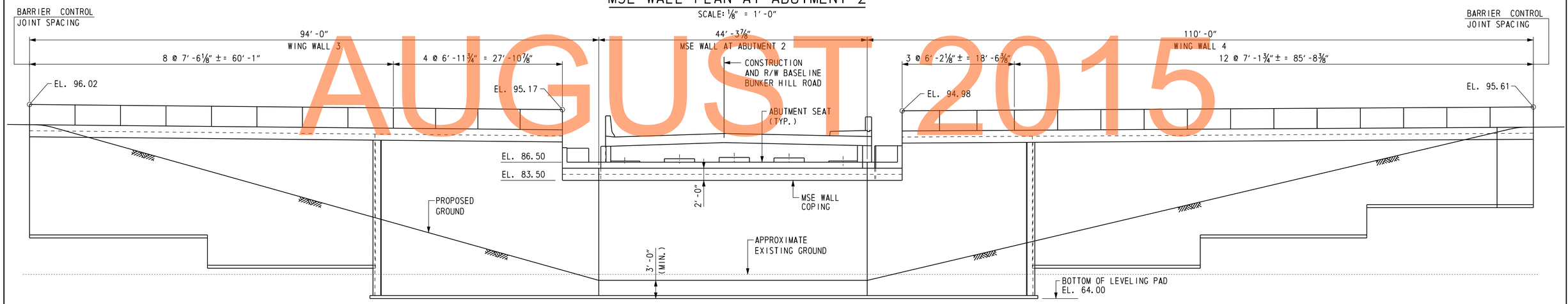
BUNKER HILL ROAD
OVER US 301 MAINLINE
WING WALL 1 AND 2
PLAN AND ELEVATION

1-475 WW-1
SHEET NO. 404
TOTAL SHTS. 1256



MSE WALL PLAN AT ABUTMENT 2

SCALE: ⅛" = 1'-0"



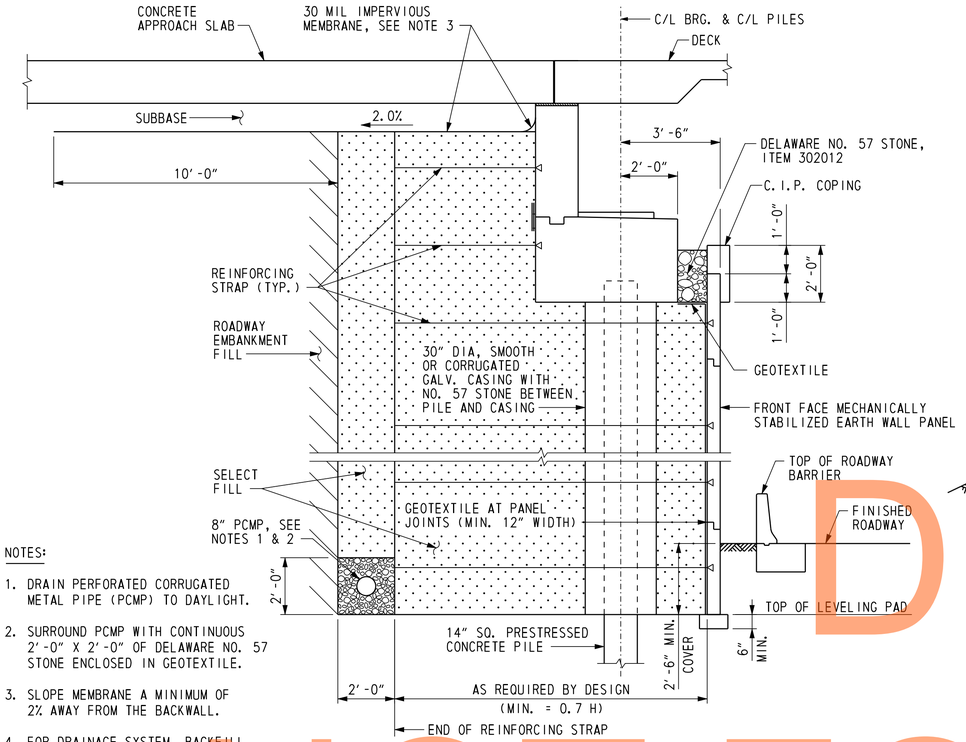
DEVELOPED ELEVATION AT ABUTMENT 2

(LOOKING AHEAD STATION)
SCALE: ⅛" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
3. FOR MSE WALL NOTES, SEE DWG. 1-475 WW-3.
4. FOR MSE WALL OFFSET DETAIL, SEE DWG. 1-475 WW-1.
5. FOR MSE WINGWALL DETAILS, SEE DWG. 1-475 WW-3 & 1-475 WW-4.
6. FOR SOIL PROPERTIES AND FOUNDATION NOTES, SEE DWG. 1-475 WW-4.
7. FOR CONSTRUCTION SEQUENCE OF PILES AND ABUTMENT, SEE NOTES ON DWG. PL-1.
8. FOR GRADING OF PROPOSED GROUND ALONG WINGWALLS, SEE DWG. 1-475 PE-1.

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE WING WALLS 3 AND 4 PLAN AND ELEVATION
				COUNTY NEW CASTLE	DESIGNED BY: R. F. KIRCHNER	1-475 WW-2
					CHECKED BY: J. S. LI	SHEET NO. 405
						TOTAL SHTS. 1256

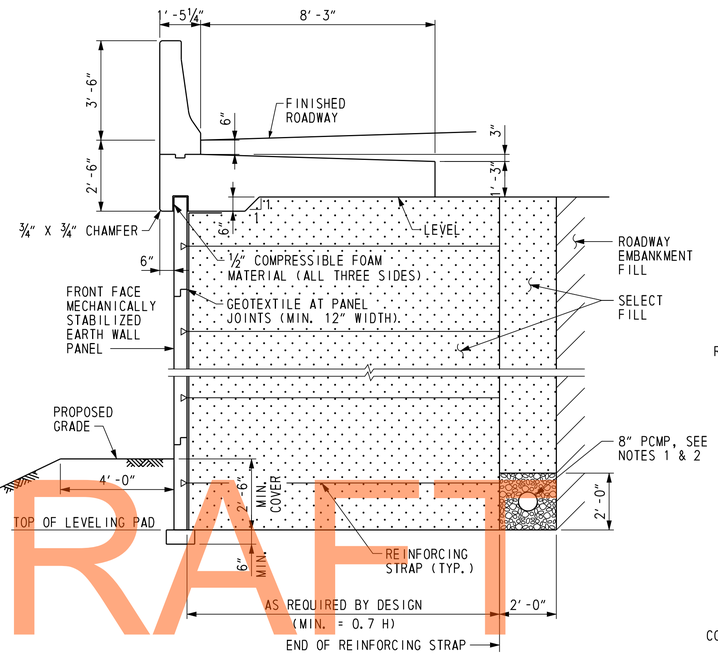


NOTES:

1. DRAIN PERFORATED CORRUGATED METAL PIPE (PCMP) TO DAYLIGHT.
2. SURROUND PCMP WITH CONTINUOUS 2'-0" X 2'-0" OF DELAWARE NO. 57 STONE ENCLOSED IN GEOTEXTILE.
3. SLOPE MEMBRANE A MINIMUM OF 2% AWAY FROM THE BACKWALL.
4. FOR DRAINAGE SYSTEM, BACKFILL AND ADDITIONAL INFORMATION, SEE TYPICAL WINGWALL SECTION WITH BARRIER ON MOMENT SLAB.

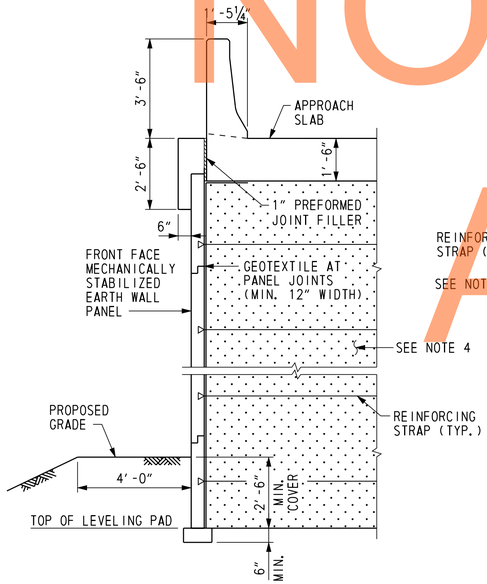
TYPICAL MSE WALL SECTION AT ABUTMENT

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



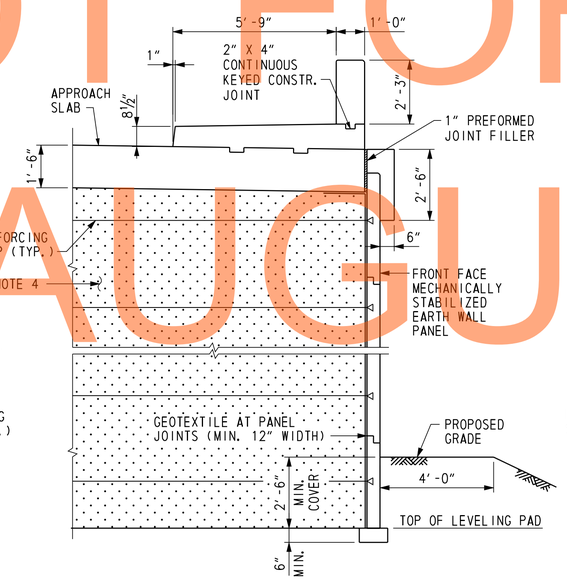
TYPICAL WINGWALL SECTION WITH BARRIER ON MOMENT SLAB

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



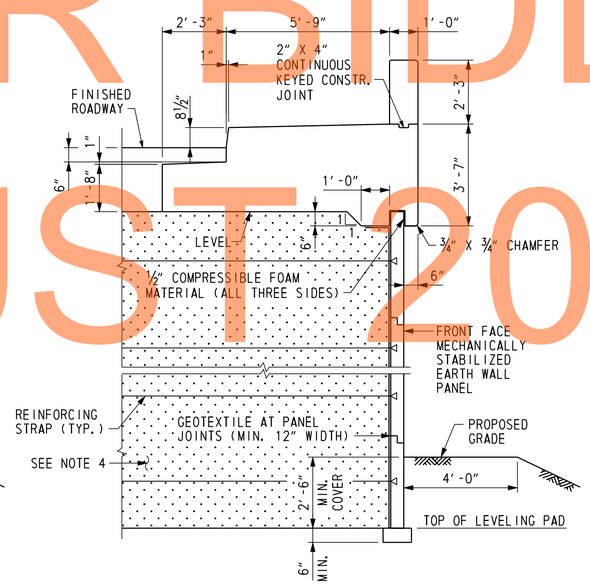
TYPICAL WINGWALL SECTION WITH BARRIER ON APPROACH SLAB

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



TYPICAL WINGWALL SECTION WITH SIDEWALK ON APPROACH SLAB

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



TYPICAL WINGWALL SECTION WITH SIDEWALK ON MOMENT SLAB

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

MSE WALL NOTES

SPECIFICATIONS: PROPRIETARY MSE WALLS SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH ALL CURRENT REVISIONS.
- FEDERAL HIGHWAY ADMINISTRATION PUBLICATION NOS. FHWA-NHI-10-024 AND FHWA-NHI-025, "DESIGN AND CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES", VOLUME I AND VOLUME II.

CONCRETE DESIGN SHALL BE PERFORMED USING THE LOAD AND RESISTANCE FACTOR DESIGN METHOD.

CONCRETE: ALL CONCRETE FOR BARRIERS, MOMENT SLABS, AND ROADWAY BARRIERS SHALL BE 4,500 PSI. LEVELING PAD CONCRETE SHALL BE 3,500 PSI. MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

CHAMFERS: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH ¾" x ¾" MILLED CHAMFER STRIPS, UNLESS OTHERWISE NOTED, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS: "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE LRFD BRIDGE DESIGN SPECIFICATIONS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

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

ONLY GRADE 60 CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL IN THE BARRIER AND MOMENT SLAB SHALL BE FUSION-BONDED EPOXY COATED, AND SHALL CONFORM TO ASTM D3963.

ALL KEYS ARE NOMINAL SIZE.

THE MSE WALL MANUFACTURER MAY SUBSTITUTE ALTERNATE REINFORCING CONFIGURATIONS AND SUBMIT FOR APPROVAL.

EXPANSION AND CONTRACTION JOINTS: THE LOCATION OF THE EXPANSION AND CONTRACTION JOINTS IN THE BARRIER/MOMENT SLAB SHOWN ON THE PLANS MAY BE ADJUSTED TO ACCOMMODATE THE PANEL TYPE USED IN THE PROJECT. ANY CHANGE TO THESE JOINT LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

LEVELING PAD: THE PROPRIETARY WALL MANUFACTURER MAY RELOCATE THE LEVELING PAD STEPS AT THEIR DISCRETION PROVIDED THAT THE MINIMUM EMBEDMENT IS MAINTAINED. ANY CHANGE TO THE STEP LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ROADWAY LIMITS: THE PROPRIETARY WALL MANUFACTURER SHALL ASSURE THAT PROPOSED PROPRIETARY WALL COMPONENTS ARE POSITIONED SUCH THAT THE DESIGNATED ROADWAY LIMITS ARE NOT ENCROACHED UPON.

MOMENT SLAB: THE MOMENT SLAB IS DESIGNED IN ACCORDANCE WITH THE SAME CRITERIA SPECIFIED FOR MECHANICALLY STABILIZED EARTH WALLS IN SECTION 11.10.10.2 OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH. EDITION.

TRAFFIC BARRIER JOINTS: TRAFFIC BARRIER FOOTING/ MOMENT SLAB SHALL HAVE CONSTRUCTION JOINTS TO COINCIDE WITH THE BARRIER JOINTS.

COORDINATION: CONTRACTOR AND PROPRIETARY WALL MANUFACTURER SHALL COORDINATE LOCATIONS OF INLETS AND PIPES WITH LOCATIONS OF PROPRIETARY WALL TIE BACK SYSTEM AND MOMENT SLAB.

ARCHITECTURAL FINISH: THE MSE WALL PANELS SHALL RECEIVE AN ARCHITECTURAL FINISH.

SERVICE LIFE: ALL RETAINING WALL COMPONENTS SHALL BE DESIGNED FOR A MINIMUM SERVICE LIFE OF 100 YEARS.

WALL SYSTEM: ONLY ONE MSE WALL SYSTEM MAY BE USED ON THIS PROJECT.

ROADWAY SUPERELEVATION: FOR ROADWAY SUPERELEVATION, SEE SUPERELEVATION TABLES.

MSE WALL BACKFILL: MSE WALL BACKFILL SHALL CONSIST OF SELECT FILL CONFORMING TO THE REQUIREMENTS OF SPECIAL PROVISION 602772.

REINFORCING STRAPS: SET REINFORCING STRAPS TO CLEAR PILE CASING, 2" MIN. CLEARANCE. MAXIMUM IN-FIELD SKEW OF 15 DEGREES. IF GREATER SKEW ANGLE IS REQUIRED, CONTACT MSE WALL FIELD REPRESENTATIVE PRIOR TO INSTALLATION.

WALLS ON FILL: CONTRACTOR SHALL UTILIZE EROSION CONTROL BLANKETS TO PROTECT SLOPE IN FILL AREAS. COST SHALL BE INCIDENTAL TO MSE WALL ITEM.

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR MSE WINGWALLS PLAN AND ELEVATION, SEE DWG. 1-475 WW-1 & 1-475 WW-2.
3. FOR TYPICAL MSE WINGWALL SECTION ON FILL, SEE DWG. 1-475 WW-4
4. FOR SOIL PROPERTIES AND FOUNDATION NOTES, SEE DWG. 1-475 WW-4.
5. FOR MOMENT SLAB REINFORCEMENT, SEE DWG. 1-475 WW-6 THRU 1-475 WW-9.
6. FOR TEMPORARY FILL PLACEMENT DURING QUARANTINE PERIOD, SEE DWG. 1-475 WW-5.

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11/6/2012
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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

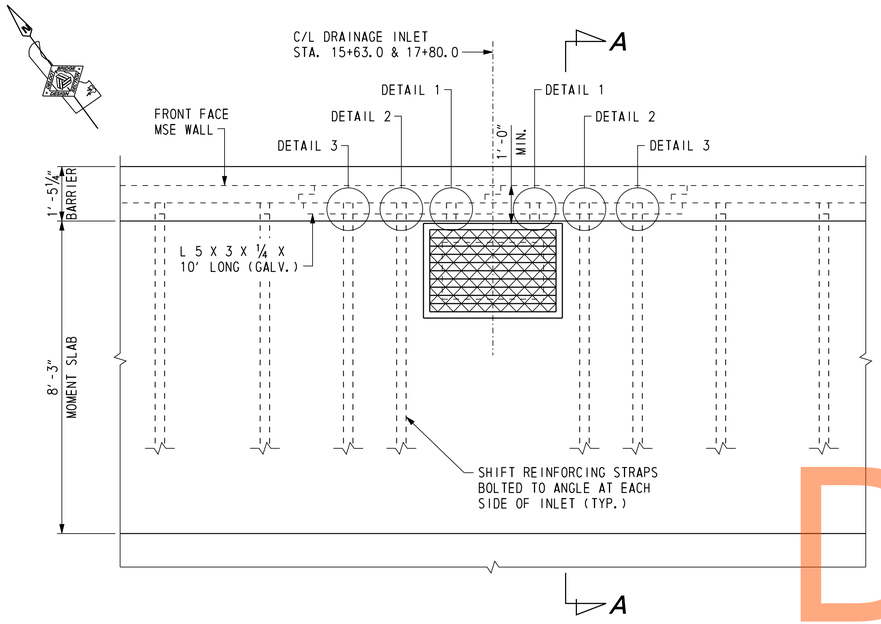
US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R.F. KIRCHNER	
COUNTY	CHECKED BY: J.S. LI	
NEW CASTLE		

BUNKER HILL ROAD OVER US 301 MAINLINE

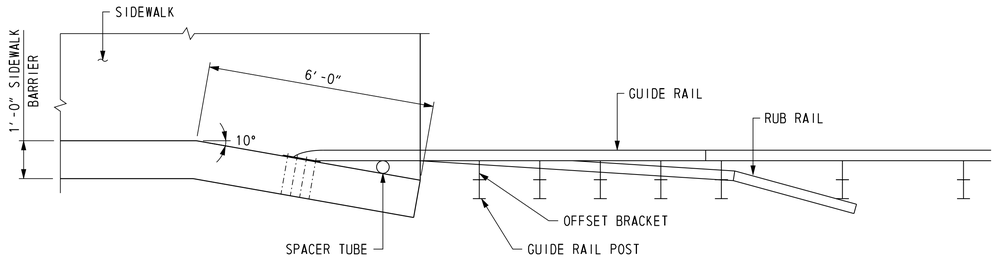
WINGWALL DETAILS 1

1-475 WW-3
SHEET NO. 406
TOTAL SHTS. 1256



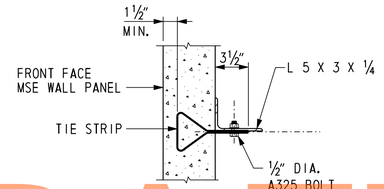
PART PLAN - MSE WALL AT DRAINAGE INLET

SCALE: ½" = 1'-0"



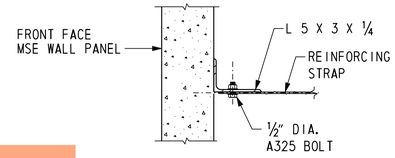
PLAN - END OF WINGWALL DETAIL

SCALE: ½" = 1'-0"



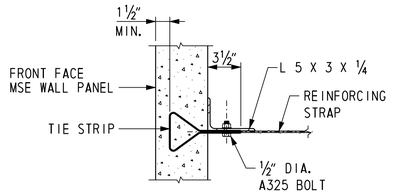
DETAIL 1

(ANGLE BOLTED TO TIE STRAP)
SCALE : 1½" = 1'-0"



DETAIL 2

(SHIFTED REINFORCING STRAP BOLTED TO ANGLE)
SCALE : 1½" = 1'-0"



DETAIL 3

(ANGLE BOLTED TO TIE STRAP WITH REINFORCING STRAP)
SCALE : 1½" = 1'-0"

MSE WALL AT DRAINAGE INLET NOTES:

THE PROPOSED DETAILS ARE CONCEPTUAL AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE DESIGN OF ALL ELEMENTS INCLUDING REINFORCING STRAPS, STEEL ANGLES, CONNECTIONS, ETC., SHALL BE PERFORMED BY THE CONTRACTOR. THESE DETAILS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO PROCEEDING WITH ANY WORK.

THE CONTRACTOR MAY PROPOSE AND DESIGN AN ALTERNATE WALL SUPPORT SYSTEM. THE CONTRACTOR SHALL OBTAIN THE ENGINEER'S APPROVAL OF THE ALTERNATE SYSTEM PRIOR TO ORDERING, FABRICATING, AND CONSTRUCTING ANY WALL COMPONENTS.

THE COST OF THE MSE WALL SUPPORT SYSTEM AT THE DRAINAGE INLET INCLUDING THE DESIGN SHALL BE INCIDENTAL TO THE PERTINENT MSE WALL ITEM. THE COST OF THE INLETS, PIPES, AND GRATES ARE PAID UNDER OTHER ITEMS.

MOMENT SLAB REINFORCING IS NOT SHOWN.

SOIL PROPERTIES			
SOIL TYPE	UNIT WEIGHT (PCF)	DRAINED ANGLE OF FRICTION (DEGREES)	FACTORED BEARING RESISTANCE (KSF)
SELECT FILL	125	34	-
FOUNDATION SOIL			
ABUTMENT A	120	28	8.9
ABUTMENT B	120	28	8.9

MSE WALL FOUNDATION NOTES:

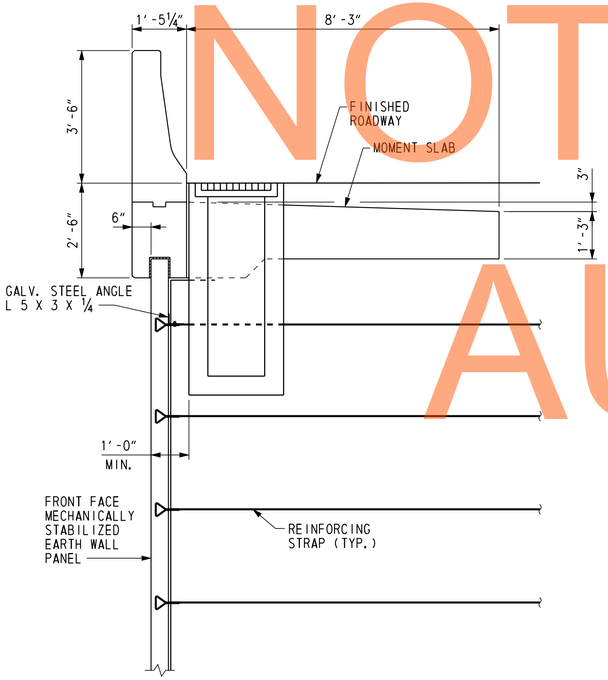
1. THE FACTORED BEARING RESISTANCE SHALL BE VERIFIED PRIOR TO THE CONSTRUCTION OF THE MSE WALL.
2. THE INTERNAL STABILITY OF THE MSE WALL SHALL BE DESIGNED BY THE CONTRACTOR USING THE SOIL PARAMETERS PROVIDED FOR EACH STRUCTURE LOCATION. THE INTERNAL STABILITY CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE AS INDICATED IN THE PROJECT SPECIFICATIONS.
3. THE MINIMUM REINFORCED ZONE WIDTH SHALL BE AT LEAST 70% OF THE WALL HEIGHT.
4. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING MEANS AND METHODS, IN CONSULTATION WITH THE MSE WALL MANUFACTURER, FOR CONSTRUCTING THE MSE WALLS TO THE LINES, GRADES AND DIMENSIONS SHOWN ON THE PLANS.
5. FOR THE WINGWALL SECTION ON FILL, THE CONTRACTOR MAY LOWER THE ELEVATION OF THE LEVELING PAD BY PROVIDING 2'-6" MIN. EMBEDMENT INTO THE EXISTING GROUND AND THEREBY ELIMINATE THE USE OF BORROW TYPE B FILL. THIS OPTION SHALL BE AT NO ADDITIONAL COST TO THE DEPARTMENT.
6. TYPE B BORROW FOR WINGWALL SECTION ON FILL SHALL BE INCIDENTAL TO ITEM 602772 - MECHANICALLY STABILIZED EARTH WALLS.

NOTES:

1. DRAINAGE INLET SHOWN ADJACENT TO BRIDGE BARRIER ON NORTH SIDE OF BRIDGE. INLET DETAIL ADJACENT TO SIDEWALK SIMILAR.
2. PROVIDE 6'-0" CLEAR FROM CURBLINE TO FACE OF GUIDE RAIL ADJACENT TO SIDEWALK ON SOUTH SIDE OF BRIDGE.

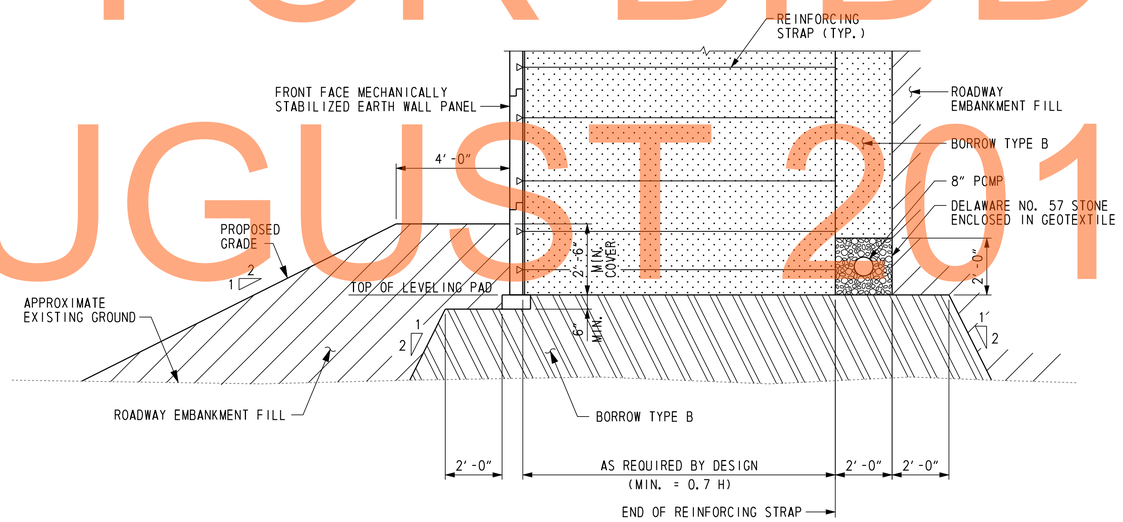
CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR MSE WINGWALLS PLAN AND ELEVATION, SEE DWG. 1-475 WW-1 & 1-475 WW-2.
3. FOR MOMENT SLAB REINFORCEMENT, SEE DWG. 1-475 WW-6 THRU 1-475 WW-9.



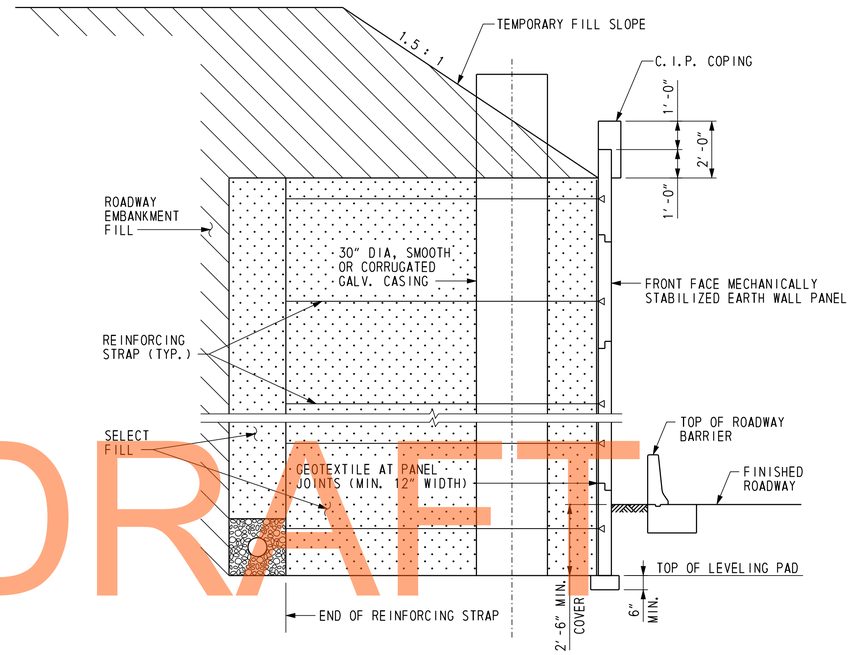
SECTION A-A

SCALE: ½" = 1'-0"



TYPICAL WINGWALL SECTION ON FILL

SCALE: ⅜" = 1'-0"



TEMPORARY FILL PLACEMENT DURING QUARANTINE PERIOD

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

TEMPORARY FILL PLACEMENT NOTES:

1. A QUARANTINE PERIOD OF 30 DAYS IS REQUIRED AFTER CONSTRUCTION OF THE FULL HEIGHT OF THE FILL AT THE ABUTMENTS IS ACHIEVED. THE CONTRACTOR SHALL PLACE TEMPORARY FILL ABOVE THE ABUTMENT MSE WALL ELEVATION AS SHOWN ON THE TEMPORARY FILL PLACEMENT DETAIL. SINCE THE ABUTMENT WING WALLS FOLLOW THE ROADWAY ALIGNMENT, THE WINGWALLS SHALL INITIALLY BE CONSTRUCTED TO THE SAME ELEVATION AS THE ABUTMENT MSE WALL, WITH THE TEMPORARY FILL PLACED AT THE SAME SLOPE AS SHOWN ON THIS DETAIL.
2. THE MSE WALL REINFORCING ZONE SHALL BE PROTECTED BY AN IMPERVIOUS MEMBRANE TO ENSURE THAT THE TEMPORARY FILL DOES NOT PENETRATE MSE WALL REINFORCING ZONE.
3. THE CASING FOR THE PILES SHALL BE PROTECTED DURING THE QUARANTINE PERIOD TO ENSURE THAT FILL MATERIAL WILL NOT ENTER PILE CASING DURING CONSTRUCTION.
4. THE COST OF TEMPORARY FILL SHALL BE INCIDENTAL TO MSE WALL ITEM.
5. AS AN ALTERNATE TO PLACING TEMPORARY FILL, A WIRE-FACED WALL MAY BE CONSTRUCTED BEHIND THE BACKWALL TO ALLOW THE FULL HEIGHT OF THE BACKFILL TO BE PLACED PRIOR TO THE QUARANTINE PERIOD.

NOTES:

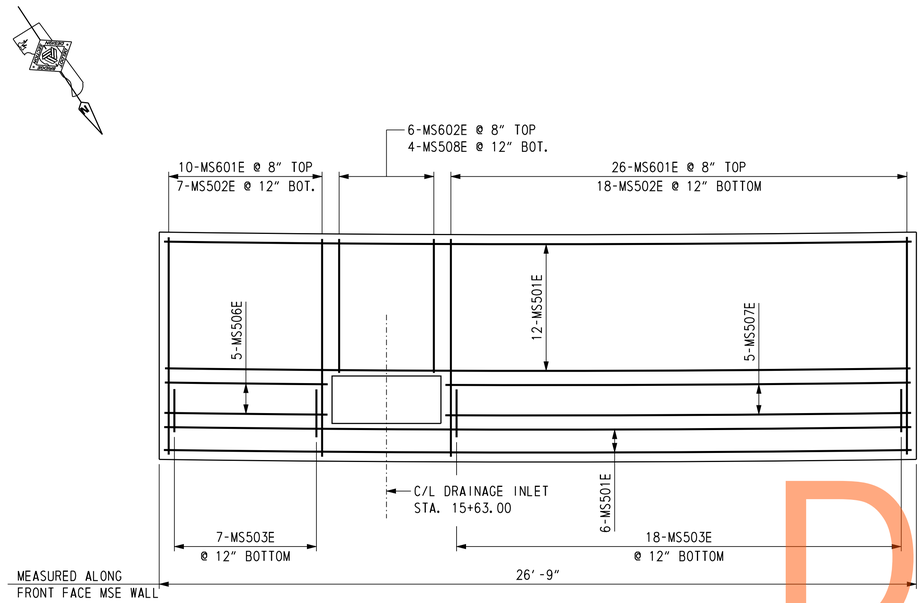
1. FOR DRAINAGE SYSTEM, BACKFILL AND ADDITIONAL INFORMATION, SEE TYPICAL MSE WALL SECTION AT ABUTMENT.
2. METAL CASING FOR PILES MAY INITIALLY BE CONSTRUCTED ABOVE THE TEMPORARY FILL SLOPE AS SHOWN, AND CUT TO PROPER ELEVATION AFTER QUARANTINE PERIOD.

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR TYPICAL MSE WALL SECTION AT ABUTMENT, SEE DWG. 1-475 WW-3.

Steve_Lambert 11/8/2012 U:\Projects\AA\21387385\CAD\Bridge\BR2-4\ww05_BR2-4_US301.dgn

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE	1-475 WW-5
				COUNTY NEW CASTLE	DESIGNED BY: R.F. KIRCHNER	WINGWALL DETAILS 3	SHEET NO. 408
					CHECKED BY: J.S. LI		TOTAL SHTS. 1256



WING WALL 1 MOMENT SLAB PLAN

NOT TO SCALE

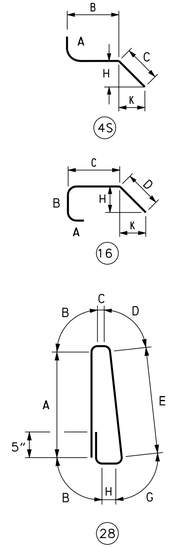
REINFORCING BAR LIST

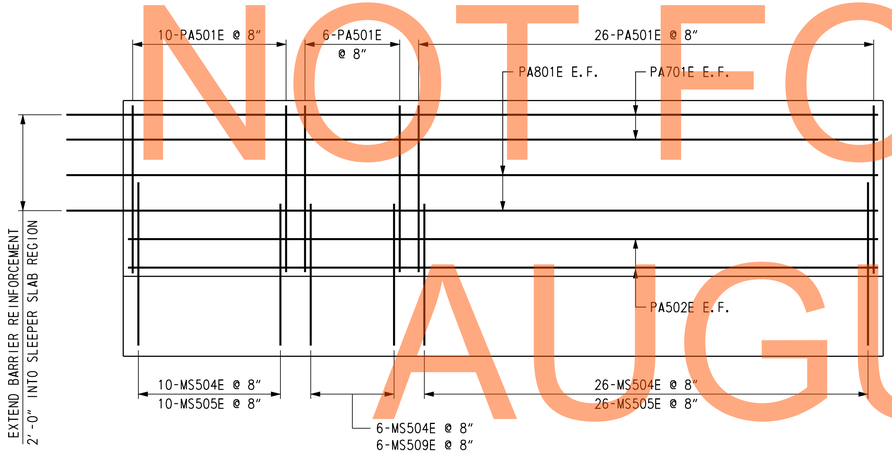
WINGWALL 1 MOMENT SLAB AND BARRIER

MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	K	REMARKS
PA501E	7'-6¼"	41	28	2'-9¼"	0'-2⅞"	0'-1⅝"	0'-2¾"	2'-9½"		0'-3⅛"	0'-5⅛"		
PA502E	26'-3"	4	STR										
PA701E	28'-5"	4	STR										
PA801E	28'-5"	4	STR										
MS501E	26'-3"	18	STR										
MS502E	8'-4"	25	STR										
MS503E	3'-6"	25	16		1'-0"	9"	1'-9"				1'-3"	1'-3"	
MS504E	4'-1"	42	STR										
MS505E	4'-9"	36	4S	1'-0"	2'-0"	1'-9"					1'-0"	1'-5"	
MS506E	5'-7"	5	STR										
MS507E	16'-4"	5	STR										
MS508E	5'-3"	4	STR										
MS509E	4'-2"	6	4S		2'-5"	1'-9"					1'-0"	1'-5"	
MS601E	9'-3"	36	STR										
MS602E	5'-3"	6	STR										

BENDING DIAGRAMS

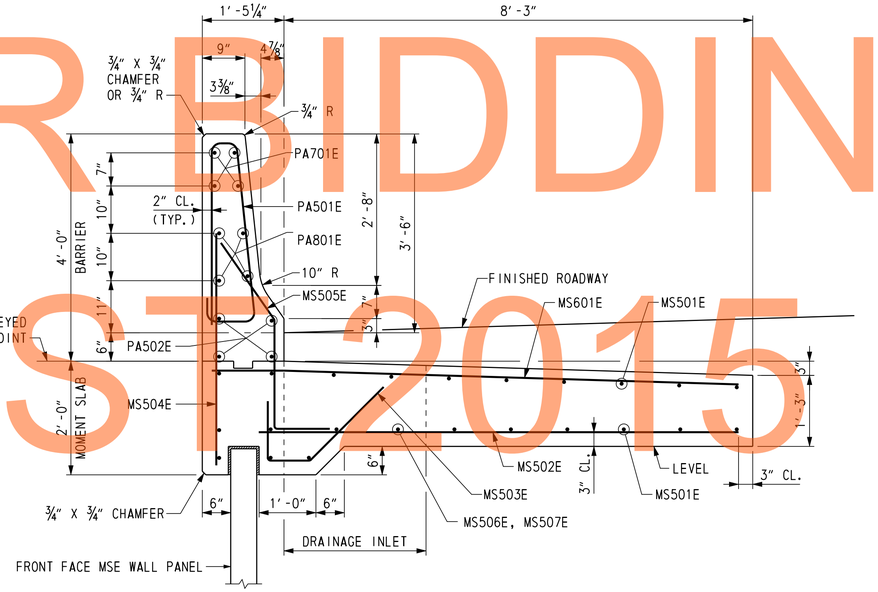
ALL DIMENSIONS ARE FROM OUT TO OUT.





WING WALL 1 BARRIER ELEVATION

NOT TO SCALE



WING WALL 1 MOMENT SLAB AND BARRIER SECTION

SCALE: ¾" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
2. FOR WING WALL ELEVATIONS, SEE DWG. 1-475 WW-1.
3. FOR APPROACH SLAB PLAN, SEE DWG. 1-475 AS-1.

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11/8/2012
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DELAWARE DEPARTMENT OF TRANSPORTATION

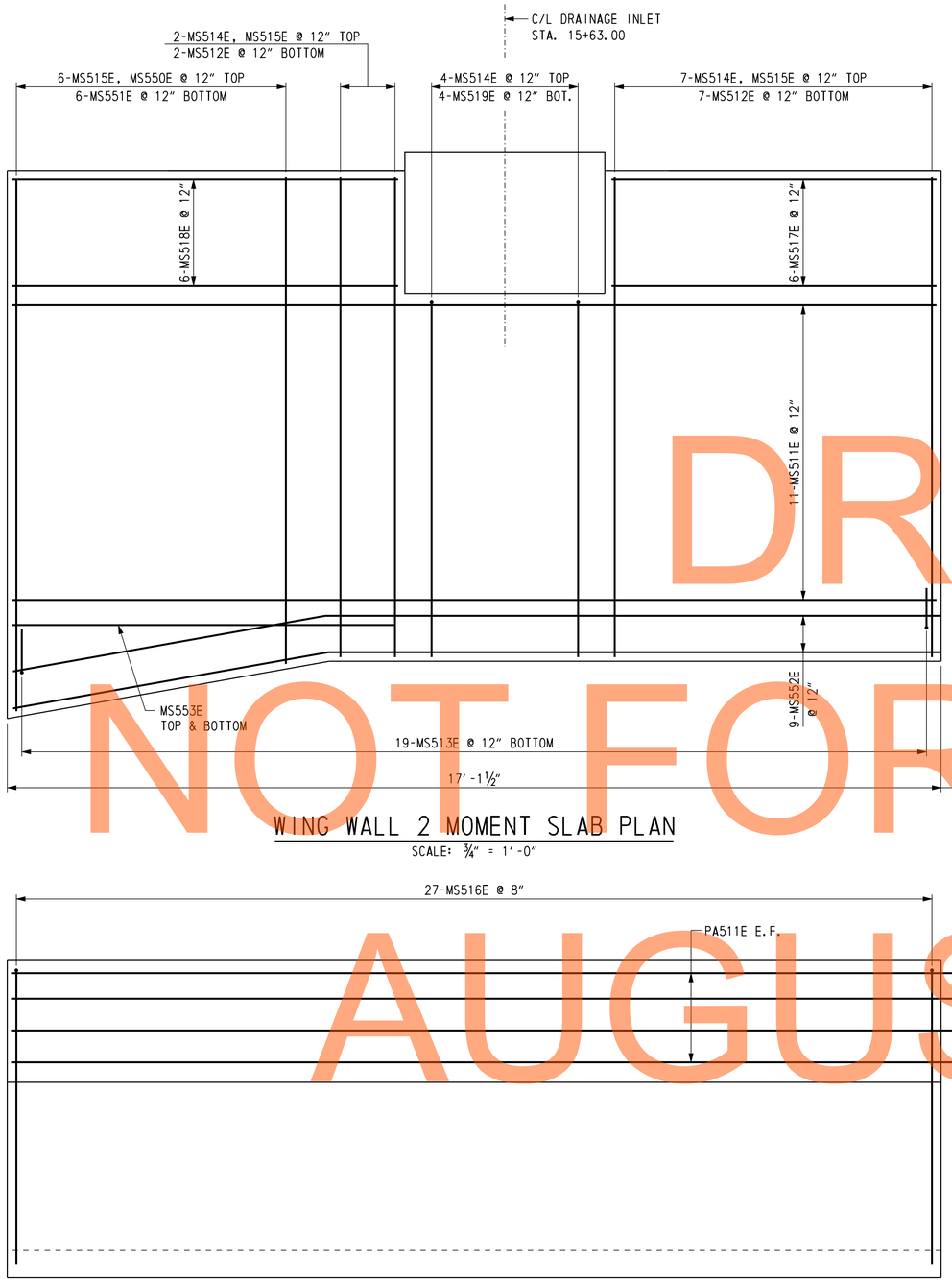
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY:	K.D. BEAVER
COUNTY	CHECKED BY:	R.F.KIRCHNER
NEW CASTLE		

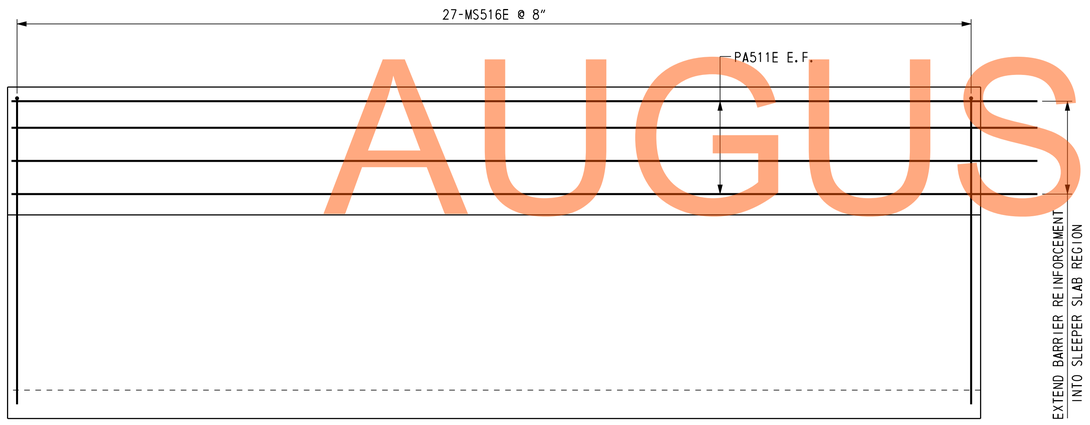
BUNKER HILL ROAD OVER US 301 MAINLINE MOMENT SLAB AND BARRIER REINFORCING 1

1-475 WW-6	
SHEET NO.	409
TOTAL SHTS.	1256



WING WALL 2 MOMENT SLAB PLAN

SCALE: ¾" = 1'-0"



WING WALL 2 BARRIER ELEVATION

SCALE: ¾" = 1'-0"

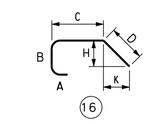
REINFORCING BAR LIST

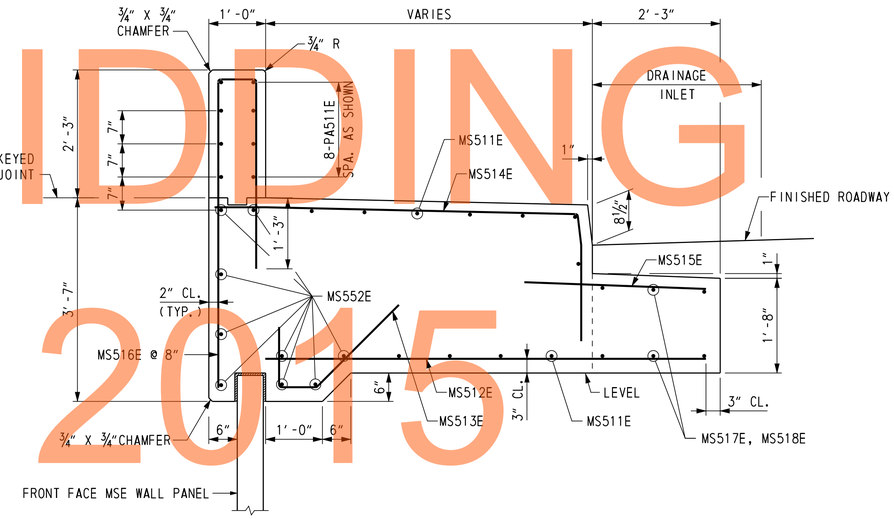
WINGWALL 2 MOMENT SLAB AND SIDEWALK/BARRIER

MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	H	K	REMARKS
PA511E	18'-10"	8	16			13'-0"	5'-10"	1'-0"	5'-9"	
MS511E	16'-8"	11	STR.							
MS512E	7'-8"	9	STR.							
MS513E	3'-6"	19	16		1'-0"	0'-9"	1'-9"	1'-3"	1'-3"	
MS514E	8'-2"	13	16			6'-4"	1'-10"	1'-9⅞"	0'-1½"	
MS515E	2'-9"	15	STR.							
MS516E	9'-5"	27	17		5'-5"	0'-8"	3'-4"			
MS517E	5'-7"	6	STR.							
MS518E	6'-9"	6	STR.							
MS519E	5'-5"	4	STR.							
MS550E	8'-4" TO 9'-2"	6	16			6'-6" TO 7'-4"	1'-10"	1'-9⅞"	0'-1½"	△= 2 "
MS551E	7'-10" TO 8'-8"	6	STR.							△= 2 "
MS552E	16'-8"	9	16			10'-11"	5'-9"	1'-0"	5'-8"	
MS553E	8'-0"	2	STR.							

BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.





WING WALL 2 MOMENT SLAB AND SIDEWALK/BARRIER SECTION

SCALE: ¾" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
2. FOR WING WALL ELEVATION, SEE DWG. 1-475 WW-1.
3. FOR APPROACH SLAB PLAN, SEE DWG. 1-475 AS-1.

Steve_Lambert 11/9/2012 U:\Projects\AA\21387385\CAD\Bridge\BR2-4\ww07_BR2-4_US301.dgn

DELAWARE DEPARTMENT OF TRANSPORTATION

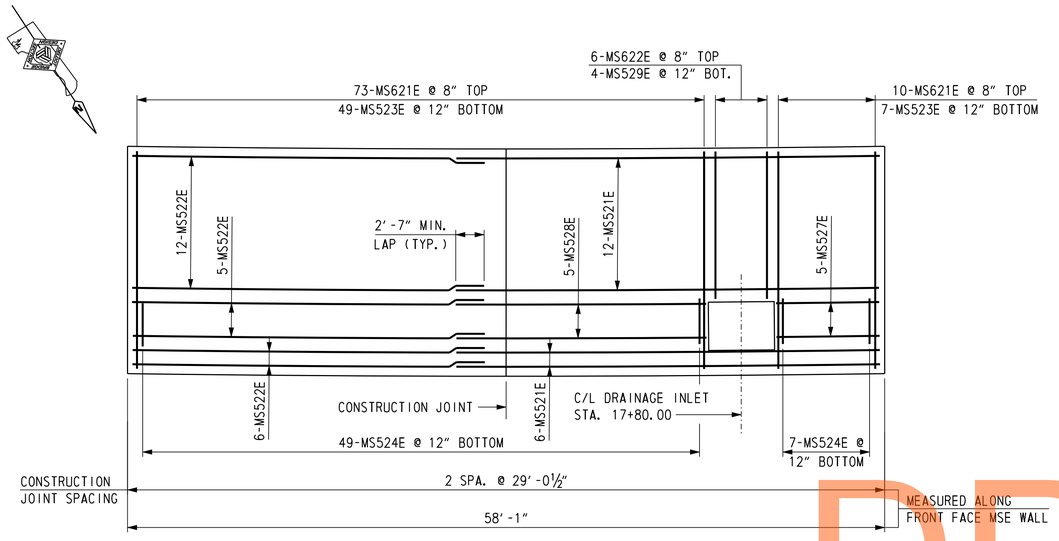
ADDENDUMS / REVISIONS	

US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY:	K. D. BEAVER
COUNTY	CHECKED BY:	R.F.KIRCHNER
NEW CASTLE		

BUNKER HILL ROAD OVER US 301 MAINLINE MOMENT SLAB AND BARRIER REINFORCING 2

1-475 WW-7	
SHEET NO.	410
TOTAL SHTS.	1256



WINGWALL 3 MOMENT SLAB PLAN

NOT TO SCALE

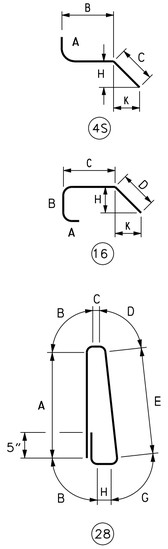
REINFORCING BAR LIST

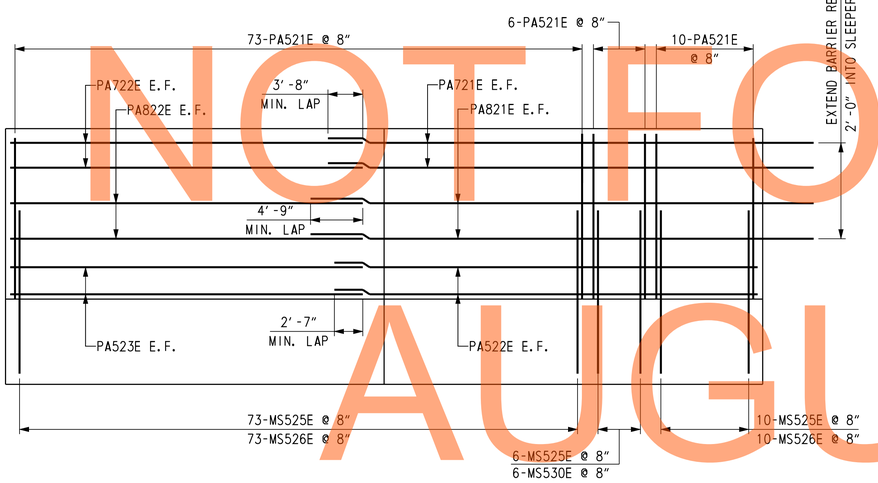
WINGWALL 3 MOMENT SLAB AND BARRIER

MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	K	REMARKS
PA521E	7'-6¼"	88	28	2'-9¼"	0'-2⅝"	0'-1⅝"	0'-2¾"	2'-9½"		0'-3⅛"	0'-5⅛"		
PA522E	33'-6"	4	STR										
PA523E	26'-11"	4	STR										
PA721E	36'-7"	4	STR										
PA722E	26'-11"	4	STR										
PA821E	37'-8"	4	STR										
PA822E	26'-11"	4	STR										
MS521E	33'-5"	18	STR										
MS522E	26'-10"	23	STR										
MS523E	8'-4"	56	STR										
MS524E	3'-6"	56	16		1'-0"	9"	1'-9"				1'-3"	1'-3"	
MS525E	4'-1"	89	STR										
MS526E	4'-9"	83	4S	1'-0"	2'-0"	1'-9"					1'-0"	1'-5"	
MS527E	5'-7"	5	STR										
MS528E	23'-3"	5	STR										
MS529E	5'-3"	4	STR										
MS530E	4'-2"	6	4S		2'-5"	1'-9"					1'-0"	1'-5"	
MS621E	9'-3"	83	STR										
MS622E	5'-3"	6	STR										

BENDING DIAGRAMS

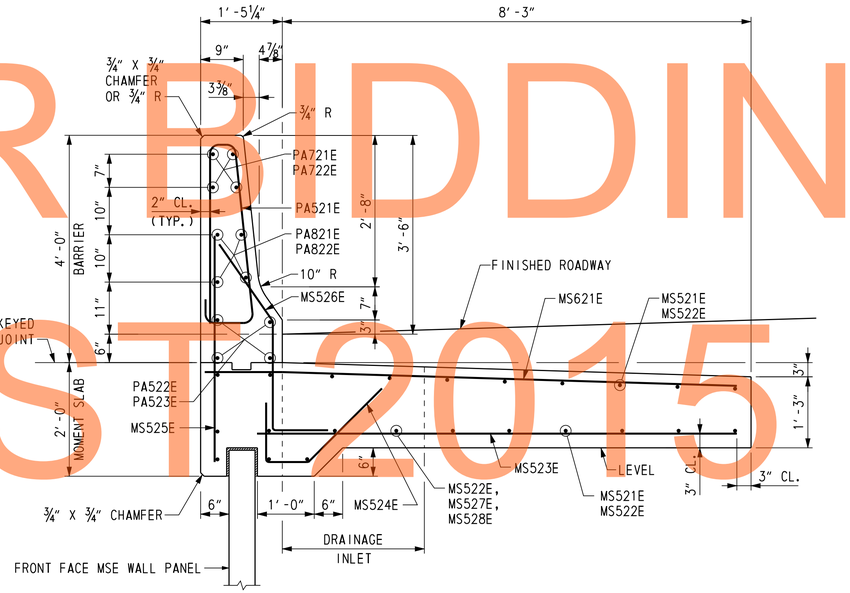
ALL DIMENSIONS ARE FROM OUT TO OUT.





WINGWALL 3 BARRIER ELEVATION

NOT TO SCALE



WINGWALL 3 MOMENT SLAB AND BARRIER SECTION

SCALE: ¾" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
2. FOR WINGWALL ELEVATIONS, SEE DWG. 1-475 WW-2.
3. FOR APPROACH SLAB PLAN, SEE DWG. 1-475 AS-1.

DELAWARE
DEPARTMENT OF TRANSPORTATION

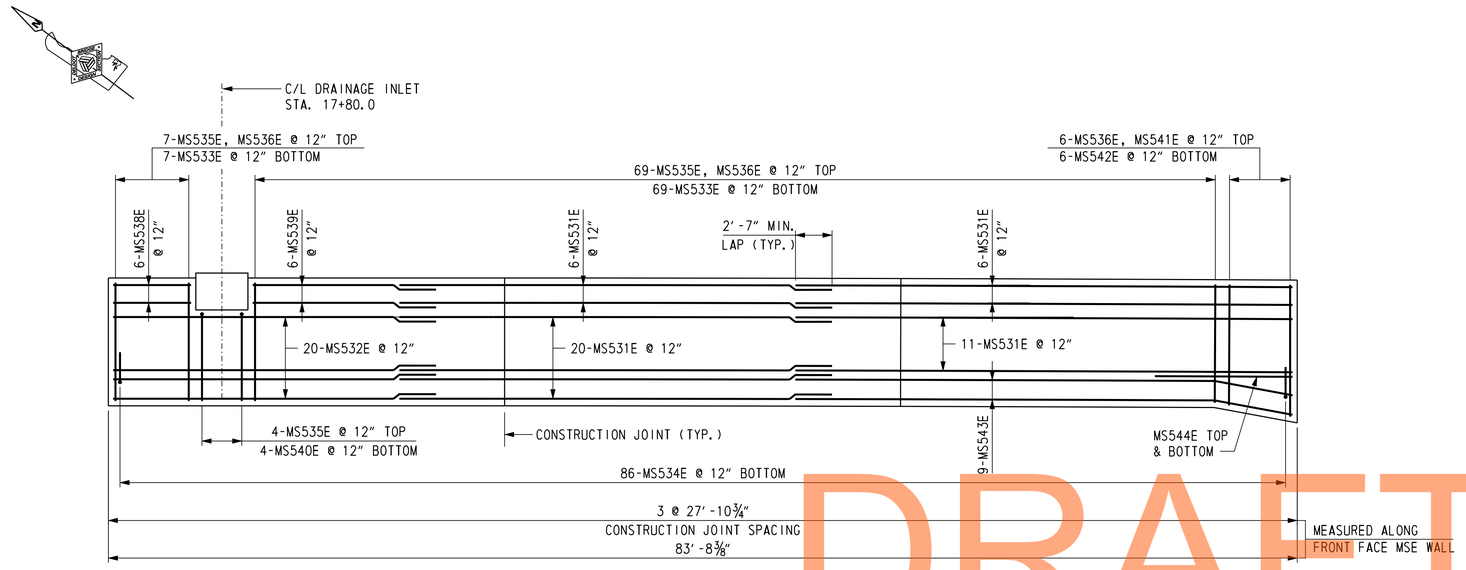
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K.D. BEAVER	
COUNTY	CHECKED BY: R.F.KIRCHNER	
NEW CASTLE		

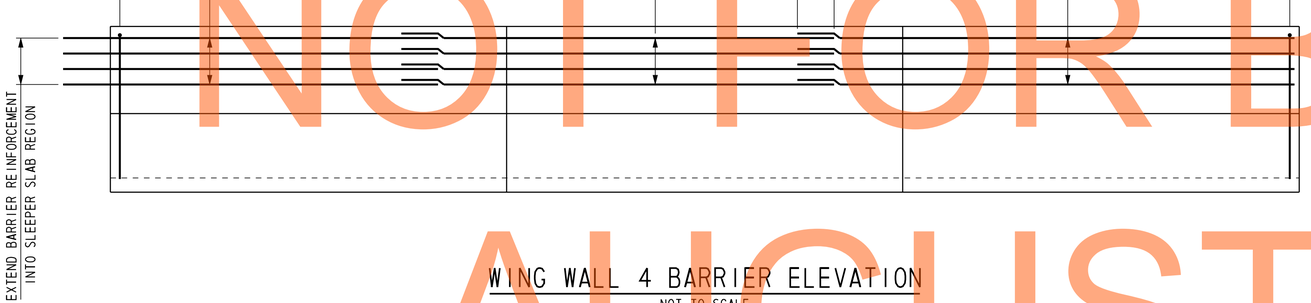
BUNKER HILL ROAD
OVER US 301 MAINLINE
MOMENT SLAB AND
BARRIER REINFORCING 3

1-475 WW-8
SHEET NO. 411
TOTAL SHTS. 1256



WING WALL 4 MOMENT SLAB PLAN

SCALE : ⅛" = 1'-0"



WING WALL 4 BARRIER ELEVATION

NOT TO SCALE

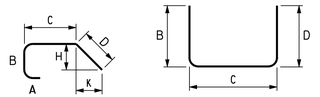
REINFORCING BAR LIST

WINGWALL 4 MOMENT SLAB AND SIDEWALK/BARRIER

MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	H	K	REMARKS
PA531E	32'-4"	8	STR.							
PA532E	27'-9"	8	STR.							
PA533E	32'-5"	8	16			26'-7"	5'-10"	1'-0"	5'-9"	
MS531E	32'-3"	43	STR.							
MS532E	25'-8"	20	STR.							
MS533E	7'-8"	76	STR.							
MS534E	3'-6"	86	16		1'-0"	0'-9"	1'-9"	1'-3"	1'-3"	
MS535E	8'-2"	80	16			6'-4"	1'-10"	1'-9⅞"	0'-1½"	
MS536E	2'-9"	82	STR.							
MS537E	9'-5"	126	17		5'-5"	0'-8"	3'-4"			
MS538E	5'-7"	6	STR.							
MS539E	15'-6"	6	STR.							
MS540E	5'-5"	4	STR.							
MS541E	8'-4" TO 9'-2"	6	16			6'-6" TO 7'-4"	1'-10"	1'-9⅞"	0'-1½"	△ = 2"
MS542E	7'-10" TO 8'-8"	6	STR.							△ = 2"
MS543E	23'-2"	9	16			17'-5"	5'-9"	1'-0"	5'-8"	
MS544E	8'-0"	2	STR.							

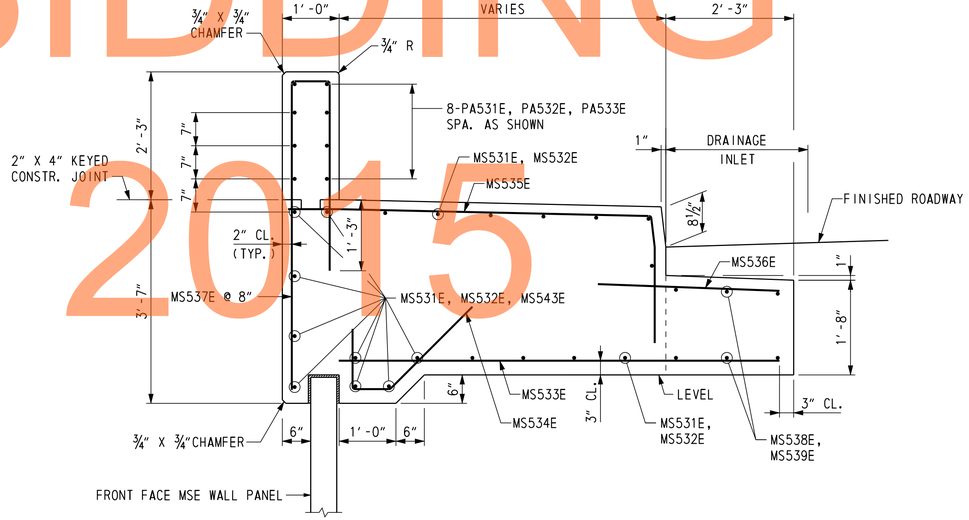
BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



CROSS REFERENCE NOTES:

1. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
2. FOR WING WALL ELEVATION, SEE DWG. 1-475 WW-2.
3. FOR APPROACH SLAB PLAN, SEE DWG. 1-475 AS-1.



WING WALL 4 MOMENT SLAB AND SIDEWALK/BARRIER SECTION

SCALE: ¾" = 1'-0"

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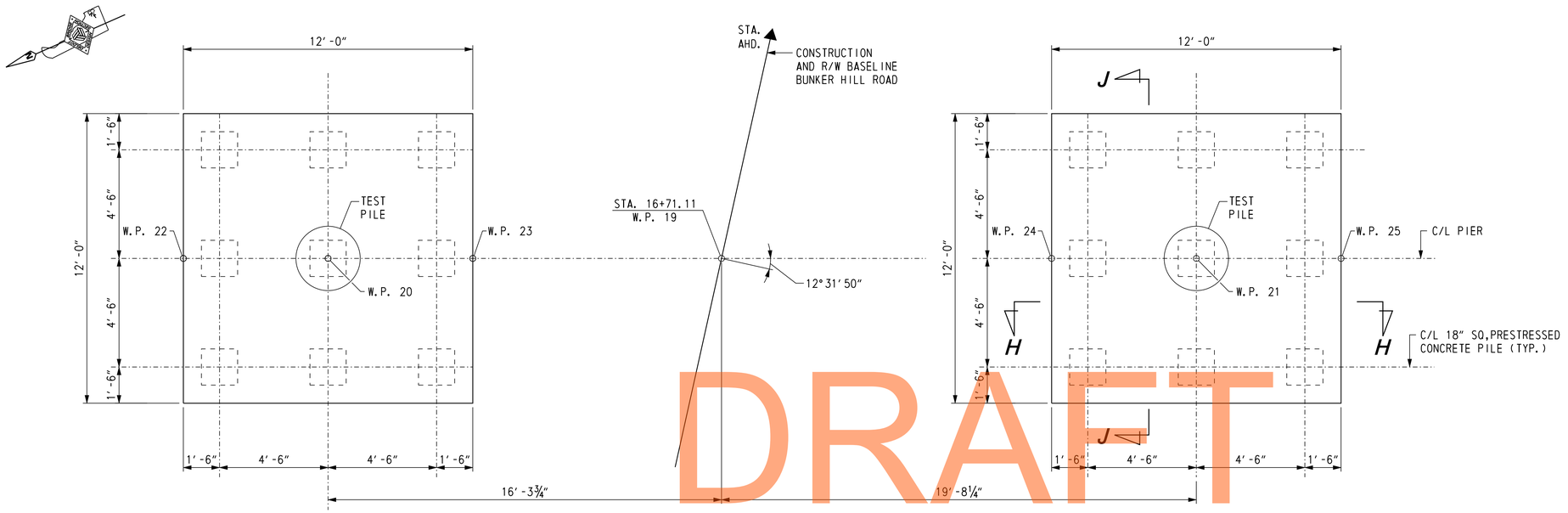
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE MOMENT SLAB AND BARRIER REINFORCING 4
			COUNTY NEW CASTLE	DESIGNED BY: K. D. BEAVER	
				CHECKED BY: R.F.KIRCHNER	

1-475 WW-9	
SHEET NO.	412
TOTAL SHTS.	1256



PIER FOUNDATION PLAN

SCALE: ⅜″ = 1′-0″

PILE INSTALLATION DATA

	DESIGN DATA		ACTUAL FIELD DATA	
SUBSTRUCTURE UNIT	NOMINAL PILE DRIVING RESISTANCE (KIPS)	ESTIMATED PILE TIP ELEVATION	AVERAGE MINIMUM TIP ELEVATION	AVERAGE MAXIMUM TIP ELEVATION
PIER	400	8.0		

PIER PILE DRIVING INFORMATION

PILE SIZE AND TYPE:
ACTUAL BEARING OBTAINED:
HAMMER TYPE:
PILE HAMMER ENERGY:
SPECIAL DRIVING CONDITIONS AND COMMENTS:

LEGEND

DENOTES 18″ SQ. PLUMB PRESTRESSED CONCRETE PILE

DENOTES TEST PILE

NOTE:

TEST PILE SHALL BE TEN (10) FEET LONGER THAN THE PRODUCTION PILE LENGTH INDICATED IN THE PILE INSTALLATION DATA TABLE.

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR GEOMETRIC LAYOUT, SEE DWG. 1-475 FT-1.
3. FOR PIER PLAN AND ELEVATION, SEE DWG. 1-475 PR-2.
4. FOR FOOTING REINFORCING DETAILS SHOWN BY SECTIONS H-H AND J-J, SEE DWG. 1-475 PR-4.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

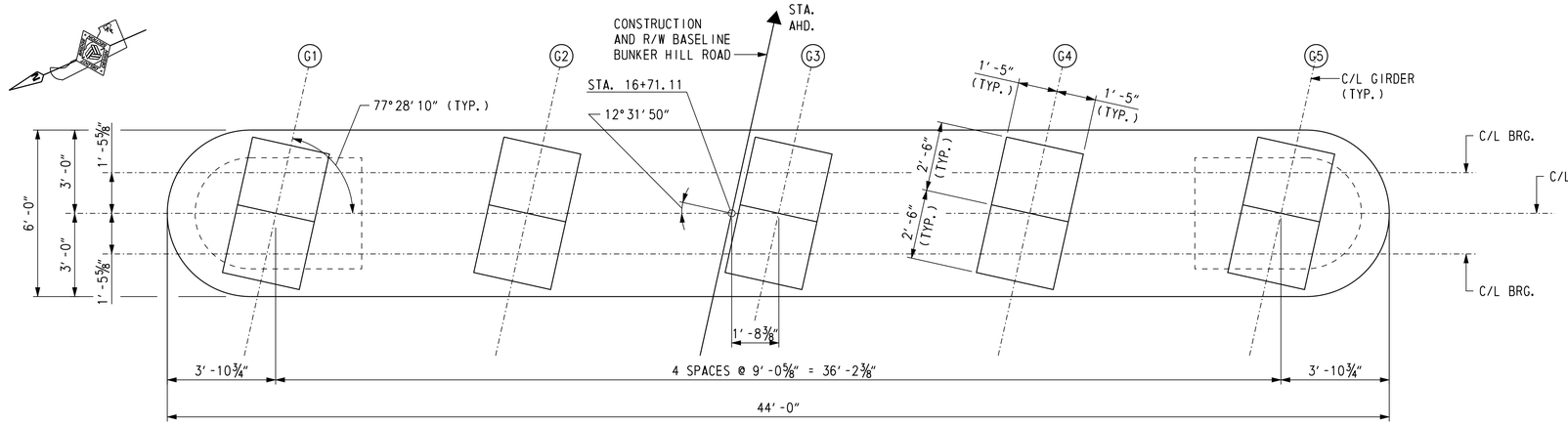
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: G. P. MISTRY	
NEW CASTLE		

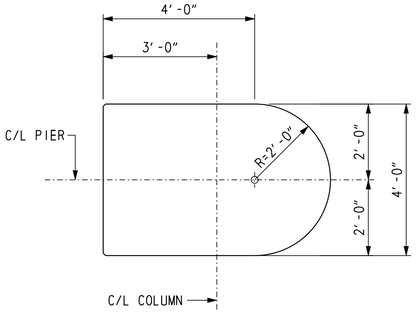
BUNKER HILL ROAD
OVER US 301 MAINLINE

PIER FOUNDATION PLAN

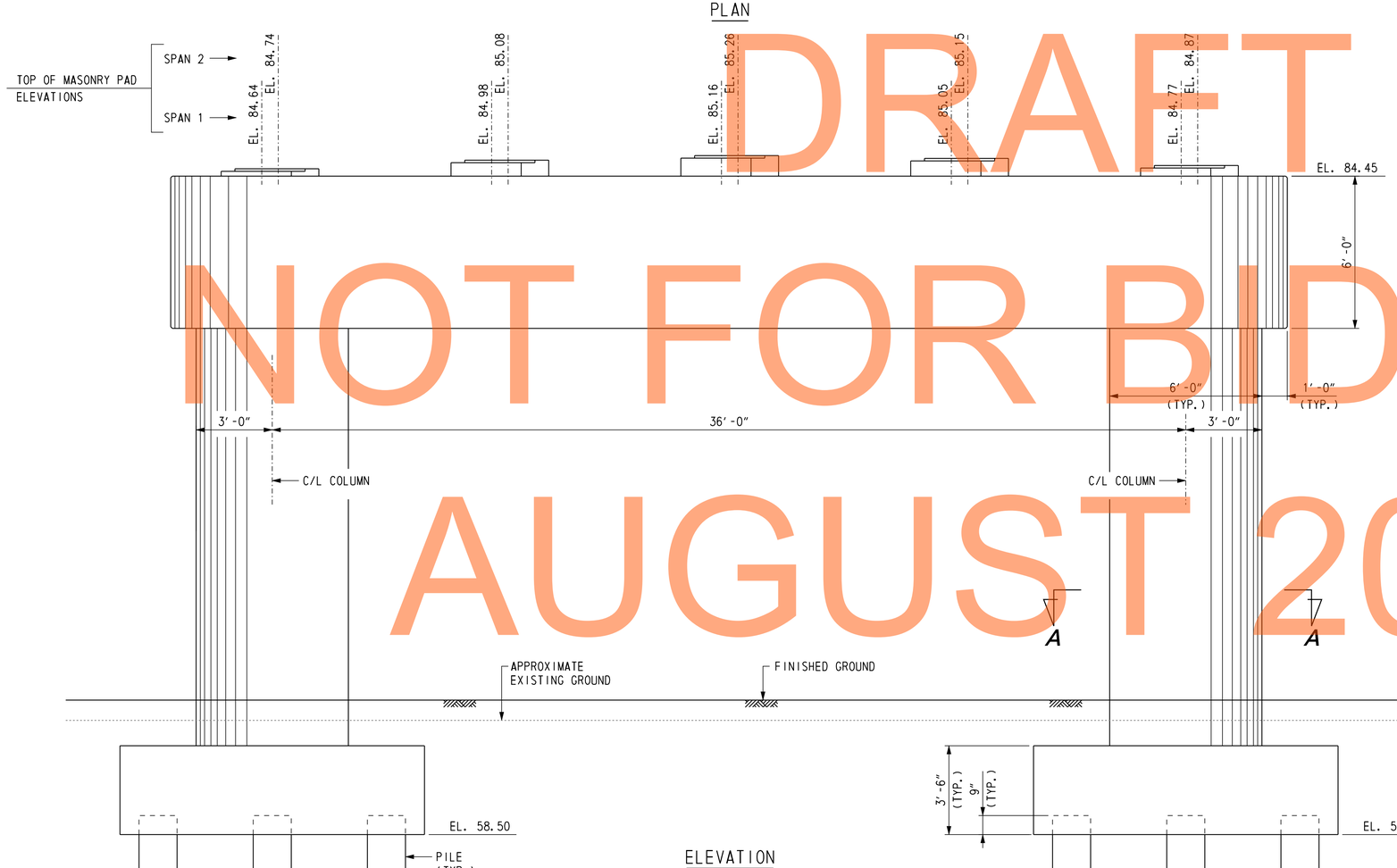
1-475 PR-1	
SHEET NO.	413
TOTAL SHTS.	1256



PLAN

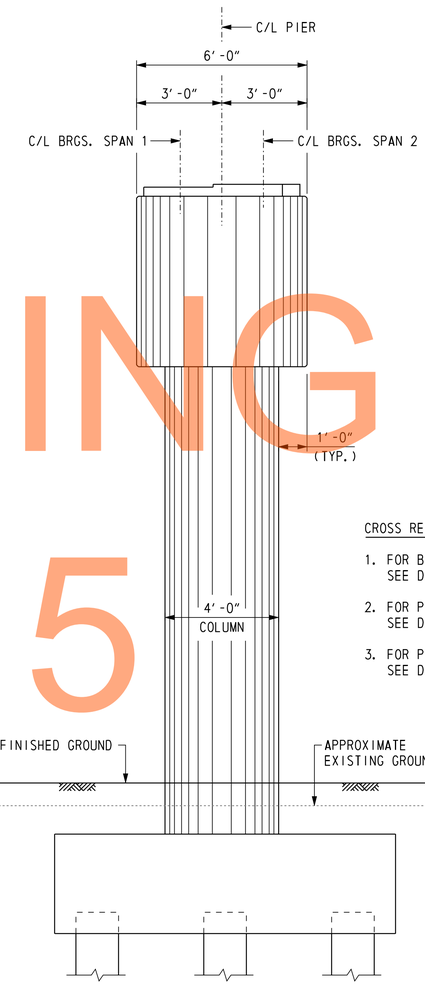


SECTION A-A
SCALE: ½" = 1'-0"



ELEVATION

PIER
(LOOKING STATION AHEAD)
SCALE: ⅜" = 1'-0"



END VIEW

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR PIER FOUNDATION PLAN, SEE DWG. 1-475 PR-1.
3. FOR PIER REINFORCING DETAILS, SEE DWG. 1-475 PR-3 & 1-475 PR-4.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

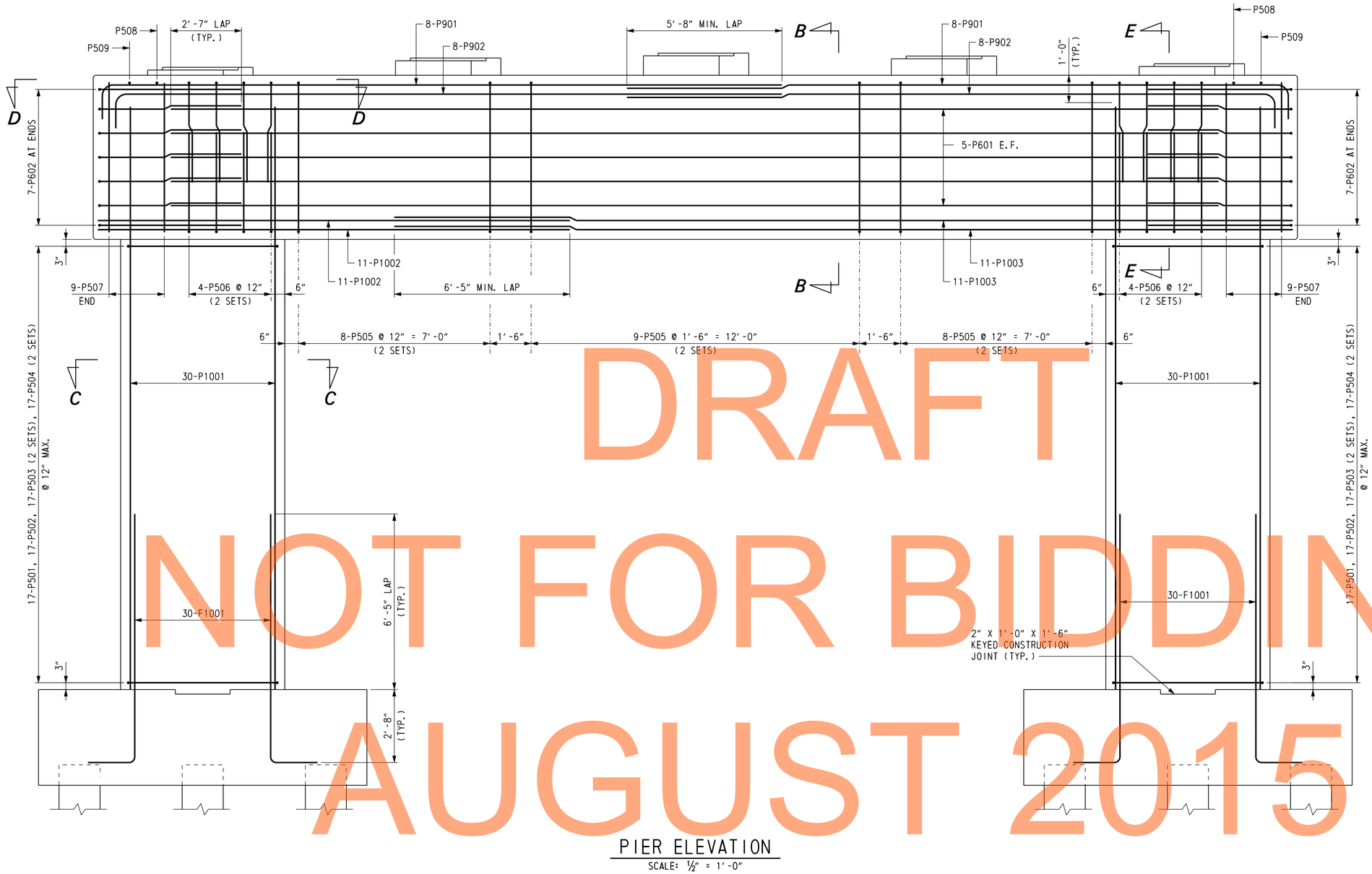
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: G. P. MISTRY	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE

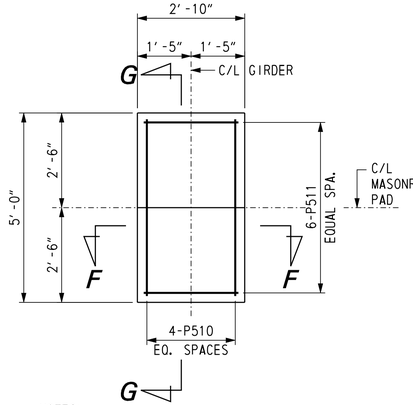
PIER PLAN AND ELEVATION

1-475 PR-2
SHEET NO. 414
TOTAL SHTS. 1256



PIER ELEVATION

SCALE: ½" = 1'-0"



NOTES:

1. PIER BEARING PAD REINFORCEMENT APPLIES AT GIRDERS G2 THRU G5.
2. CHAMFER NOT SHOWN ON PLAN VIEW.

PLAN - PIER MASONRY PAD

SCALE: ½" = 1'-0"

SECTION F-F

SCALE: ½" = 1'-0"

SECTION G-G

SCALE: ½" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. PE-1.
2. FOR PIER PLAN AND ELEVATION, SEE DWG. 1-475 PR-2.
3. FOR PIER FOUNDATION PLAN,, SEE DWG. 1-475 PR-1.
4. FOR SECTIONS B-B TO E-E, SEE DWG. 1-475 PR-4.
5. FOR REINFORCING BAR LIST, SEE DWG. 1-475 PR-5.
6. FOR PIER DIAPHRAGM REINFORCEMENT, SEE DWG. 1-475 BM-3.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: G. P. MISTRY	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE

PIER REINFORCEMENT 1

1-475 PR-3
SHEET NO. 415
TOTAL SHTS. 1256

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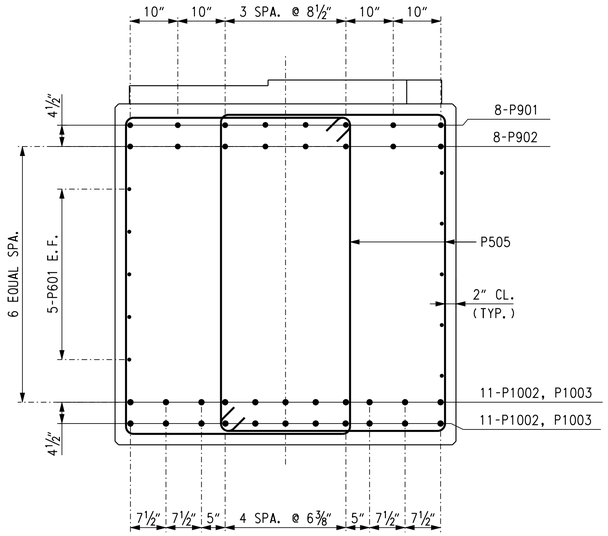
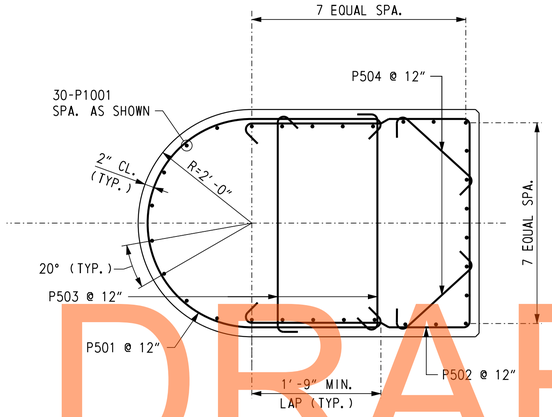


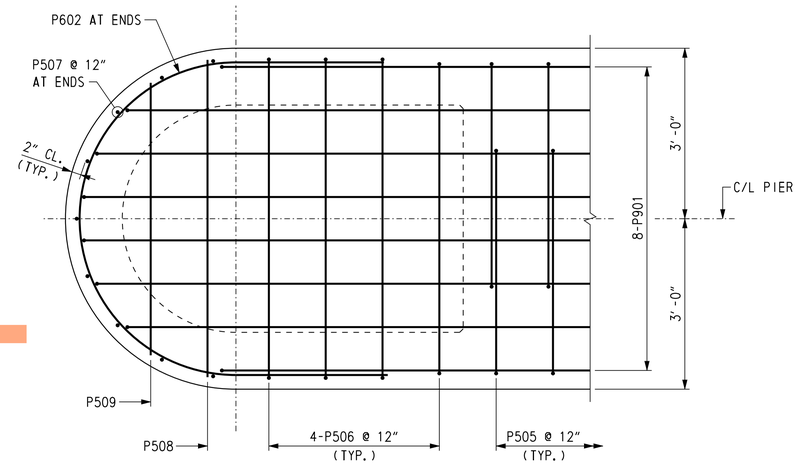
SECTION B-B

SCALE: ¾" = 1'-0"



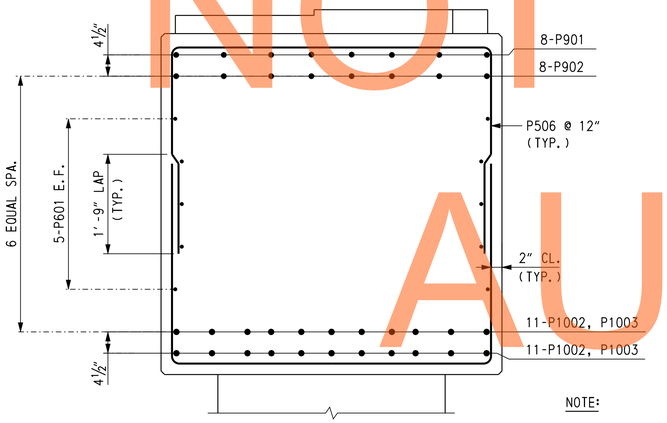
SECTION C-C

SCALE: ¾" = 1'-0"



SECTION D-D

SCALE: ¾" = 1'-0"

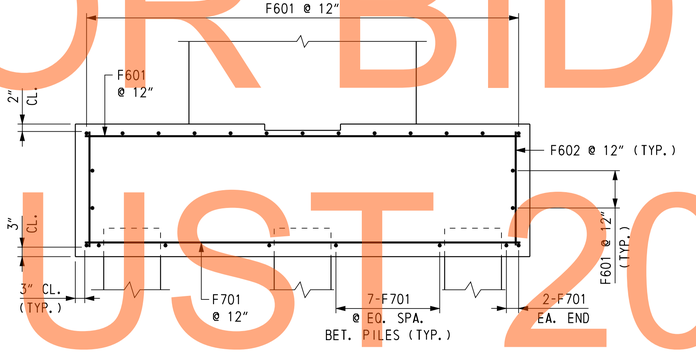


SECTION E-E

SCALE: ¾" = 1'-0"

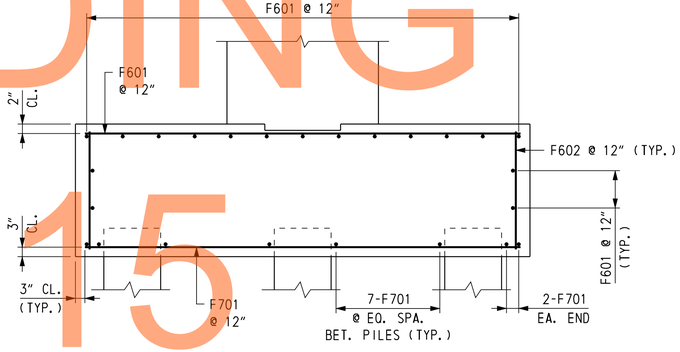
NOTE:

COLUMN REINFORCEMENT NOT SHOWN.



SECTION H-H

SCALE: ½" = 1'-0"



SECTION J-J

SCALE: ½" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR PIER PLAN AND ELEVATION, SEE DWG. 1-475 PR-2.
3. FOR PIER REINFORCING ELEVATION, SEE DWG. 1-475 PR-3.
4. FOR MASONRY PAD REINFORCEMENT, SEE DWG. 1-475 PR-3.
5. FOR LOCATION OF SECTIONS H-H AND J-J, SEE DWG. 1-475 PR-1.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303	BRIDGE NO.	1-475
COUNTY NEW CASTLE	DESIGNED BY: K. D. BEAVER	
	CHECKED BY: G. P. MISTRY	

BUNKER HILL ROAD
OVER US 301 MAINLINE

PIER REINFORCEMENT 2

1-475 PR-4	
SHEET NO.	416
TOTAL SHTS.	1256

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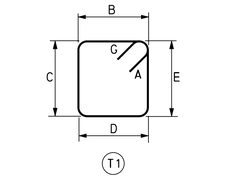
REINFORCING BAR LIST

PIER

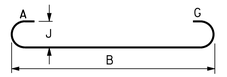
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	G	H	J	K	O	R	REMARKS
F601	11′-6″	64	STR.												
F602	3′-1″	96	STR.												
F701	11′-6″	72	STR.												
F1001	10′-11″	60	36	1′-10″	9′-1″										
P501	9′-3″	34	10	1′-9″	5′-9″	1′-9″							3′-8″	1′-10″	
P502	12′-3″	34	S3	0′-5½″	3′-10″	3′-8″	3′-10″		0′-5½″						
P503	4′-11½″	68	T9	0′-5½″	3′-8″				0′-10″						
P504	2′-8½″	68	T9	0′-5½″	1′-5″				0′-10″						
P505	20′-3″	50	T1	0′-5½″	4′-0″	5′-8″	4′-0″	5′-8″	0′-5½″						
P506	13′-2″	16	17		3′-9″	5′-8″	3′-9″								
P507	6′-11½″	18	T9	0′-5½″	5′-8″				0′-10″						
P508	5′-7″	2	STR.												
P509	4′-10″	2	STR.												
P510	8′-6″	16	17		1′-11″	4′-8″	1′-11″								
P511	6′-4″	24	17		1′-11″	2′-6″	1′-11″								
P601	38′-0″	10	STR.												
P602	13′-11″	14	10	2′-7″	8′-9″	2′-7″							5′-6¾″	2′-9⅜″	
P901	26′-3″	16	36	1′-7″	24′-8″										
P902	25′-8″	16	36	1′-7″	24′-1″										
P1001	21′-6″	60	STR.												
P1002	16′-9″	22	STR.												
P1003	33′-4″	22	STR.												
PP701	8′-4″	108	1	0′-10″	7′-6″						0′-7″				

BENDING DIAGRAMS

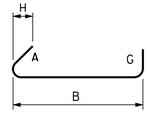
ALL DIMENSIONS ARE FROM OUT TO OUT.



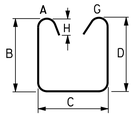
T1



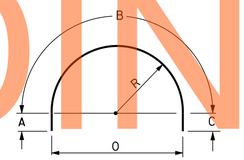
1



T9



S3



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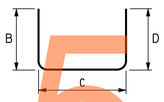

17

36

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DELAWARE
DEPARTMENT OF TRANSPORTATION

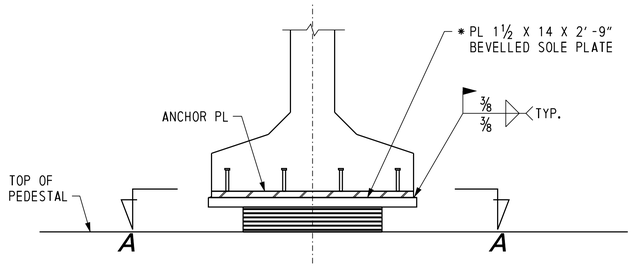
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	T200511303
COUNTY	NEW CASTLE
BRIDGE NO.	1-475
DESIGNED BY:	K. D. BEAVER
CHECKED BY:	G. P. MISTRY

BUNKER HILL ROAD
OVER US 301 MAINLINE
PIER
REINFORCING BAR LIST

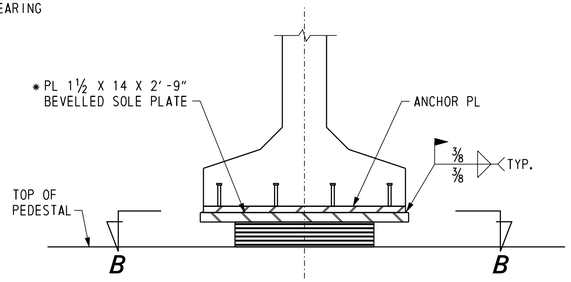
1-475 PR-5	
SHEET NO.	417
TOTAL SHTS.	1256



FIXED BEARING DETAIL - ELEVATION

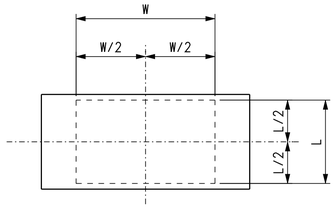
SCALE: 1" = 1'-0"

* AT C/L BEARING



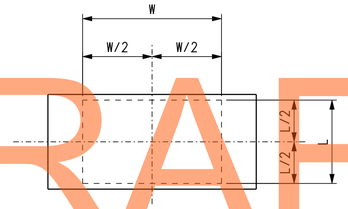
EXPANSION BEARING DETAIL - ELEVATION

SCALE: 1" = 1'-0"



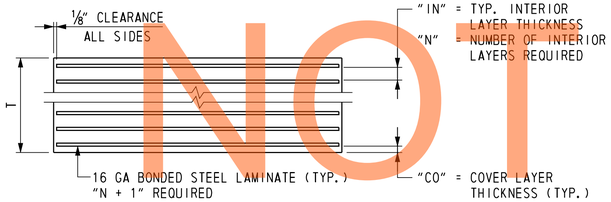
FIXED BEARING DETAIL - SECTION A-A

SCALE: 1" = 1'-0"



EXPANSION BEARING DETAIL - SECTION B-B

SCALE: 1" = 1'-0"



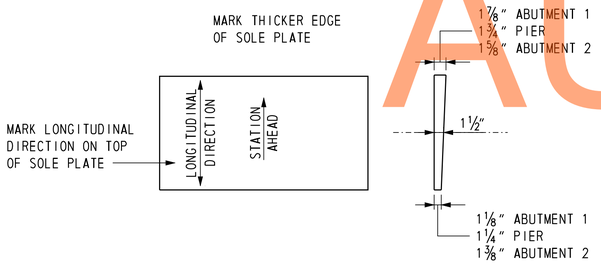
TYPICAL LAMINATED ELASTOMERIC PAD SECTION

NOT TO SCALE

BEARING PAD DATA

LOCATION	TYPE	QUANTITY	L	W	T	N	N+1	IN	CO
ABUTMENT 1	EXP	5	11	22	3⅜	5	6	½	¼
PIER	FIX	10	11	22	3⅜	5	6	½	¼
ABUTMENT 2	EXP	5	11	22	3⅜	5	6	½	¼

L = LENGTH OF PAD ALONG C/L GIRDER
W = WIDTH OF PAD



PLAN SIDE VIEW

SOLE PLATE DETAIL

SCALE: 1" = 1'-0"

BEARING NOTES:

1. WHEN WELDING, THE TEMPERATURE OF THE STEEL ADJACENT TO THE ELASTOMER SHOULD BE KEPT BELOW 250° F. THE TEMPERATURE SHALL BE CONTROLLED BY THE WELDING PROCEDURE. TEMPERATURE INDICATING CRAYONS, OR OTHER HEAT INDICATING DEVICES APPROVED BY THE ENGINEER SHALL BE USED FOR INSPECTION. SHOULD THE HEAT INTENSITY CAUSE CRACKING OR SPALLING ON THE SURFACE OF THE ADJACENT CONCRETE BEAM, ALTERNATE WELDING PROCEDURES SHALL BE USED.
2. THE ELASTOMERIC BEARINGS ARE DESIGNED SO THAT THE SUPERSTRUCTURE MAY BE ERECTED WHEN THE AMBIENT AIR TEMPERATURE IS BETWEEN 43° AND 72° F.
3. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.
4. STEEL LAMINATE SHALL CONFORM TO AASHTO M270 GRADE 36 OR BETTER. ALL STRUCTURAL STEEL FOR THE BEARINGS SHALL BE GALVANIZED AND CONFORM TO AASHTO M270 GRADE 50.
5. 1000 RMS (FINISH ALL OVER) ALL PLATES EXCEPT WHERE OTHERWISE NOTED ON THESE PLANS OR IN THE CONTRACT SPECIFICATIONS.
6. TOP OF SOLE PLATE MUST BE BEVELED TO FIT GRADE OF ROADWAY AS SHOWN IN SOLE PLATE DETAIL.
7. BEARINGS SHALL BE PLACED NORMAL TO THE CENTER LINE OF GIRDER.
8. ALL CENTER LINES OF BEARING AND CENTER LINE OF PADS ARE COINCIDENTS.
9. ALL BEARING SHOES ARE TO BE SHIPPED ASSEMBLED AS UNITS.
10. MAXIMUM VERTICAL SERVICE LOAD FOR THE FIXED BEARING(S): DL = 90 KIPS, LL = 110 KIPS
11. MAXIMUM VERTICAL SERVICE LOAD FOR THE EXPANSION BEARING(S): DL = 81 KIPS, LL = 94 KIPS
12. COST FOR MATERIALS, FABRICATION AND INSTALLATION OF ELASTOMERIC BEARING PADS INCLUDING SOLE PLATES SHALL BE PAID UNDER ITEM 605581.

LAMINATED ELASTOMERIC BEARING PAD NOTES:

1. MANUFACTURE ALL BEARINGS IN ACCORDANCE WITH THE SPECIFICATIONS.
2. ALL BEARING PADS SHALL BE MOLDED TO DESIGN DIMENSIONS. CUTTING TO SIZE AFTER FABRICATION IS PROHIBITED.
3. HOLES ARE NOT PERMITTED IN ELASTOMERIC BEARINGS.
4. PROVIDE NEOPRENE 60 DUROMETER.
5. VULCANIZE PATCH PIN GROOVES.
6. PROVIDE MINIMUM LOW-TEMPERATURE NEOPRENE GRADE 3.
7. ELASTOMERIC BEARING PAD SHALL BE FACTORY VULCANIZED TO THE SOLE PLATE.

CROSS REFERENCE NOTES:

1. FOR ANCHOR PLATE DETAILS, SEE DWG. 1-475 BM-1.

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11/8/2012
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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

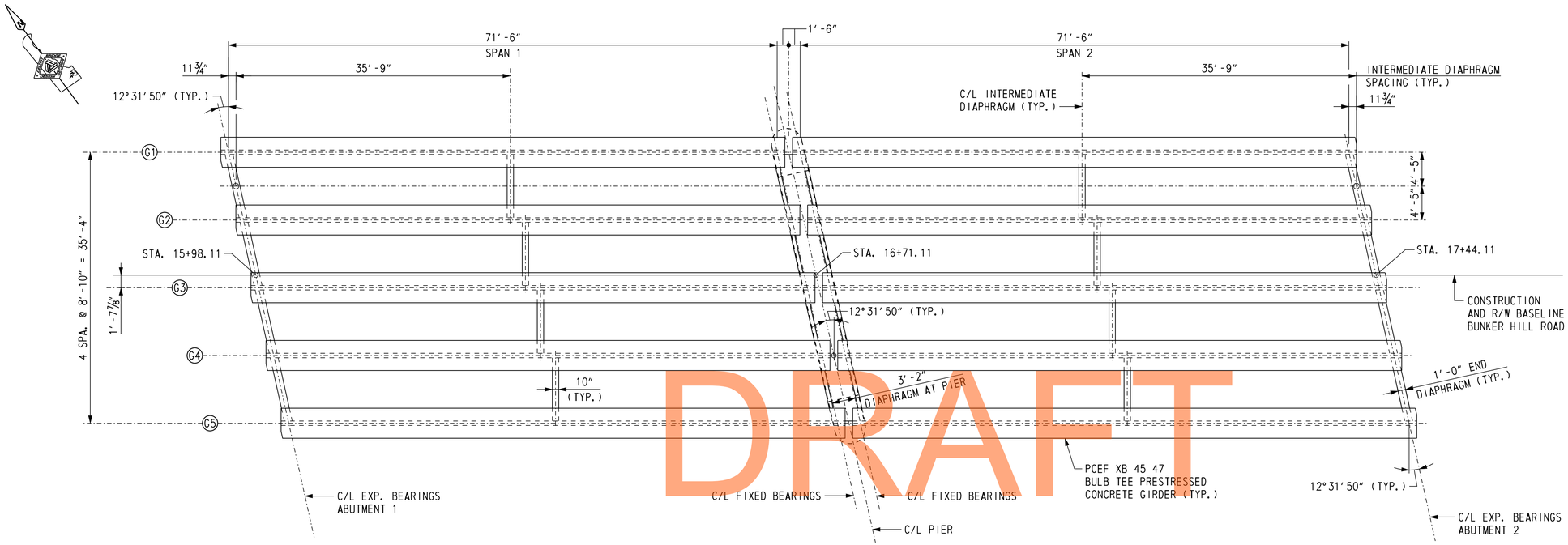
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: W.A. O'CONNOR	
COUNTY	CHECKED BY: G.P.MISTRY	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE

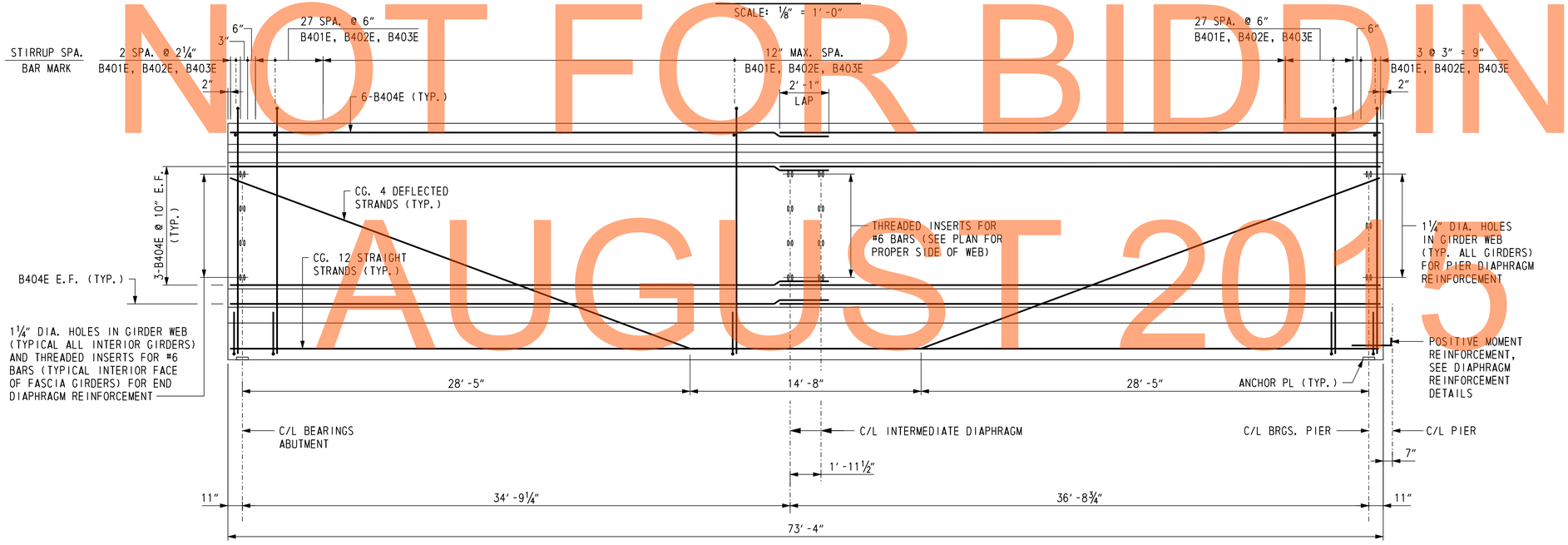
BEARING DETAILS

1-475 BD-1	
SHEET NO.	418
TOTAL SHTS.	1256



FRAMING PLAN

SCALE: ⅛″ = 1′-0″



GIRDER ELEVATION - SPAN 1

SCALE : ¼″ = 1′-0″ HORIZ.
1″ = 1′-0″ VERT.

NOTES:

1. GIRDERS ARE PCEF XB 45 47 BULB TEE CONCRETE.
2. GIRDER LENGTHS IN CASTING BED SHALL BE DETERMINED AND DEPICTED IN SHOP DRAWINGS TO COMPENSATE FOR GRADE SHORTENING DUE TO PRESTRESS EFFECT.
3. TOP SURFACE OF ALL GIRDERS SHALL BE ROUGH FINISHED TO A FULL AMPLITUDE OF 1/4 " AND SCRUBBED TRANSVERSELY WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PRODUCE A ROUGHENED SURFACE FOR BONDING.
4. NO CLEAR COVER LESS THAN AS SHOWN ON THESE PLANS WILL BE ACCEPTED.
5. GIRDER ELEVATION FOR SPAN 2 IS SYMMETRICAL TO SPAN 1.
6. THREADED INSERTS PROVIDED FOR DIAPHRAGM REINFORCEMENT SHALL BE ABLE TO DEVELOP FULL STRENGTH OF THE REINFORCEMENT.
7. CLIP FLANGE AT ABUTMENT ENDS OF GIRDERS. CLIPPED FLANGE REINFORCEMENT DETAILS APPLY AS SHOWN ON GIRDER DETAILS SHEET.
8. GIRDER LIFTING DETAILS SHALL BE PROVIDED BY THE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-475 PN-2.
2. FOR TYPICAL SECTION, SEE DWG. 1-475 TS-1.
3. FOR GIRDER DETAILS, SEE DWG. 1-475 BM-1.
4. FOR DIAPHRAGM DETAILS, SEE DWG. 1-475 BM-2 & 1-475 BM-3.
5. FOR CAMBER TABLE, SEE DWG. 1-475 CT-1.

DELAWARE
DEPARTMENT OF TRANSPORTATION

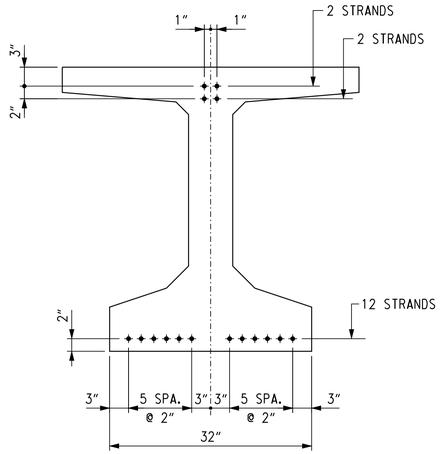
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

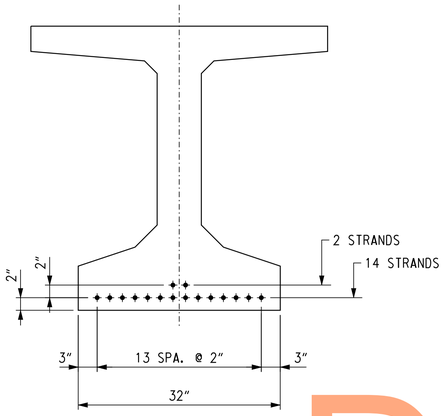
CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: R.F.KIRCHNER	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
FRAMING PLAN
AND GIRDER ELEVATION

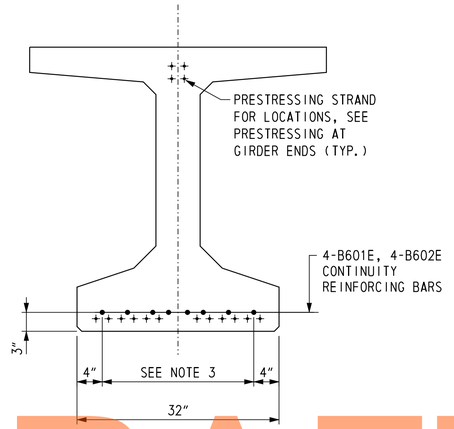
1-475 FR-1
SHEET NO. 419
TOTAL SHTS. 1256



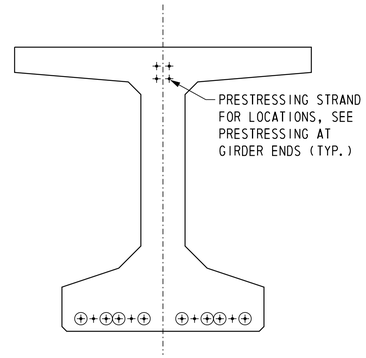
PRESTRESSING AT END OF GIRDER AT ABUTMENTS



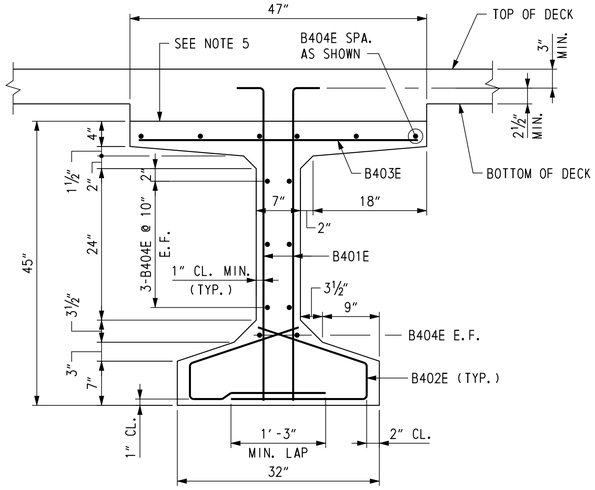
PRESTRESSING AT MIDSPAN



REBAR OPTION AT END OF GIRDER AT PIER



EXTENDED STRAND OPTION AT END OF GIRDER AT PIER



TYPICAL BAR REINFORCEMENT

SCALE: 1" = 1'-0"

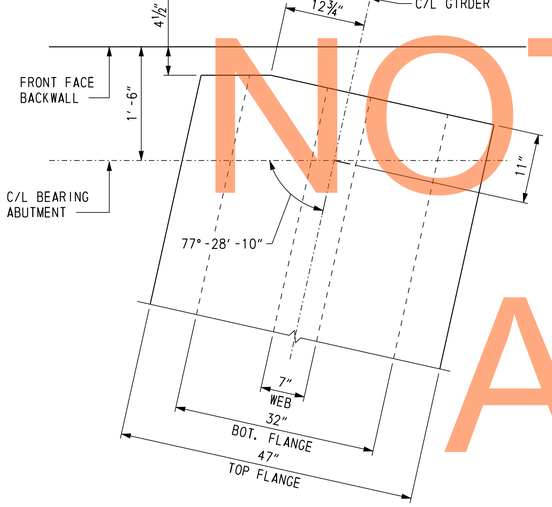
LEGEND

+ PRESTRESSING STRAND

⊕ EXTENDED STRAND, SEE NOTE 4 (MAX. 6" TRANSVERSE SPA.)

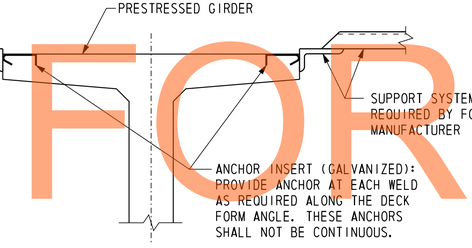
SECTION - PCEF BULB TEE SERIES XB 45 47

SCALE: 1" = 1'-0"



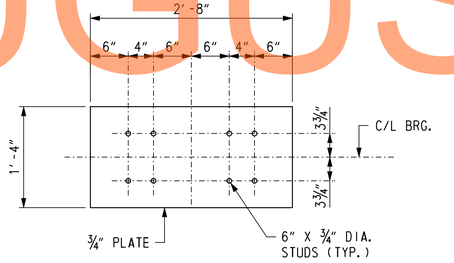
END OF GIRDER DETAIL AT ABUTMENTS

SCALE: 1" = 1'-0"



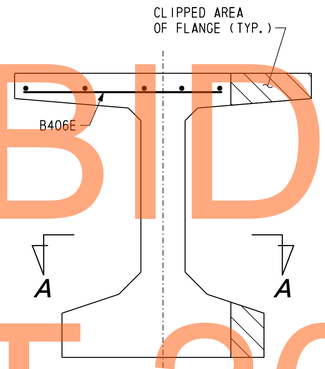
FORM ANCHOR DETAIL

SCALE: 1" = 1'-0"

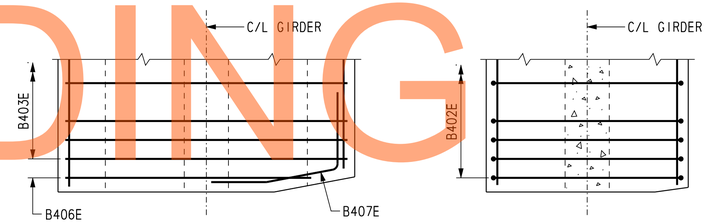


ANCHOR PLATE DETAIL

SCALE: 1" = 1'-0"



GIRDER END VIEW



PLAN - TOP FLANGE

SECTION A-A BOTTOM FLANGE

CLIPPED FLANGE REINFORCEMENT DETAILS

SCALE: 1" = 1'-0"

NOTES:

1. PERMANENT STEEL BRIDGE DECK FORMS AND SUPPORTS SHALL BE PROVIDED CONFORMING TO THE REQUIREMENTS OF SECTION 602 OF THE DELDOT STANDARD SPECIFICATIONS.
2. ANY PERMANENTLY EXPOSED FORM METAL WHERE THE GALVANIZED COATING HAS BEEN DAMAGED SHALL BE THOROUGHLY CLEANED, WIRE BRUSHED AND PAINTED WITH TWO COATS OF ZINC DUST - ZINC OXIDE PAINT, NO COLOR ADDED, TO THE SATISFACTION OF THE ENGINEER. MINOR HEAT DISCOLORATION IN AREAS OF WELDS NEED NOT BE TOUCHED UP.
3. LATERAL SPACING OF CONTINUITY BARS IS APPROXIMATE. BARS AT ADJACENT ENDS OF GIRDERS AT PIER SHALL BE OFFSET TO ALLOW GIRDER PLACEMENT AT ERECTION.
4. EXTENDED STRANDS AT ENDS OF GIRDER MUST BE BENT SLIGHTLY TO PROPERLY POSITION GIRDER DURING ERECTION.
5. TOP SURFACE OF ALL GIRDERS SHALL BE ROUGH FINISHED TO A FULL AMPLITUDE OF ¼" AND SCRUBBED TRANSVERSELY WITH A WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PRODUCE A ROUGHENED SURFACE FOR BONDING.

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES SEE DWG. 1-475 PN-2.
2. FOR TYPICAL SECTION, SEE DWG. 1-475 TS-1.
3. FOR FRAMING PLAN AND GIRDER ELEVATION, SEE DWG. 1-475 FR-1.
4. FOR REINFORCING BAR LIST, SEE DWG. 1-475 BM-4.

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DELAWARE DEPARTMENT OF TRANSPORTATION

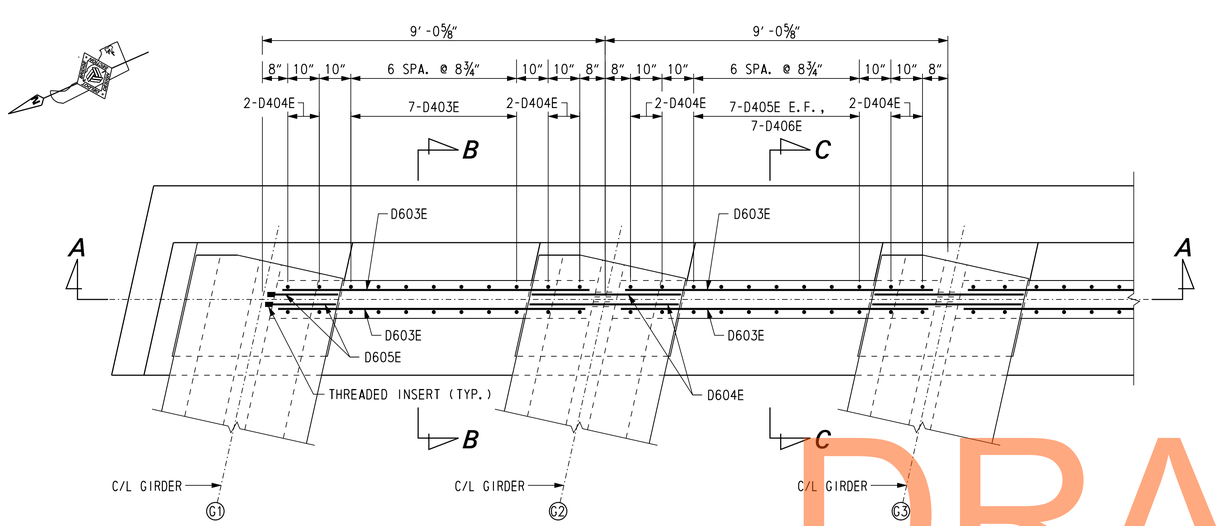
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO. 1-475
T200511303	DESIGNED BY: K. D. BEAVER
COUNTY	CHECKED BY: R. F. KIRCHNER
NEW CASTLE	

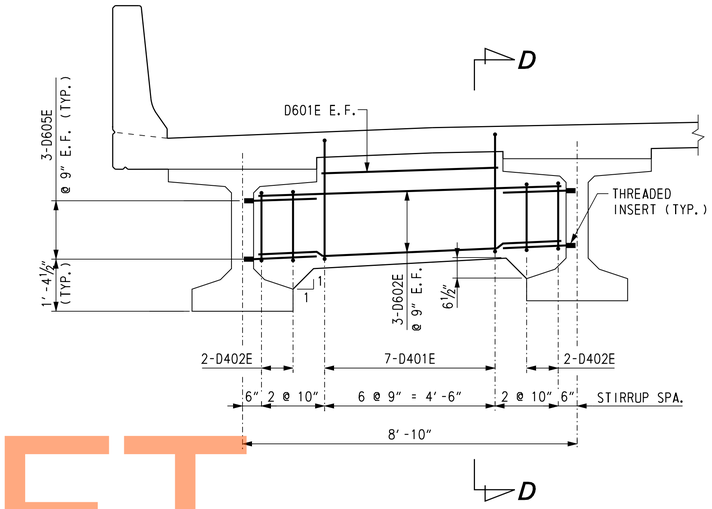
BUNKER HILL ROAD OVER US 301 MAINLINE
GIRDER DETAILS

1-475 BM-1	
SHEET NO.	420
TOTAL SHTS.	1256



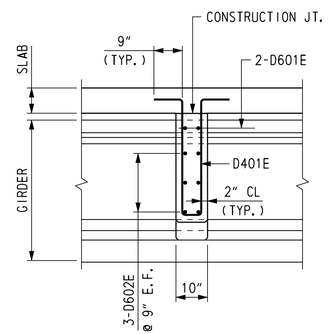
END DIAPHRAGM PLAN

(ABUTMENT 2 SHOWN)
SCALE: ½″ = 1′-0″



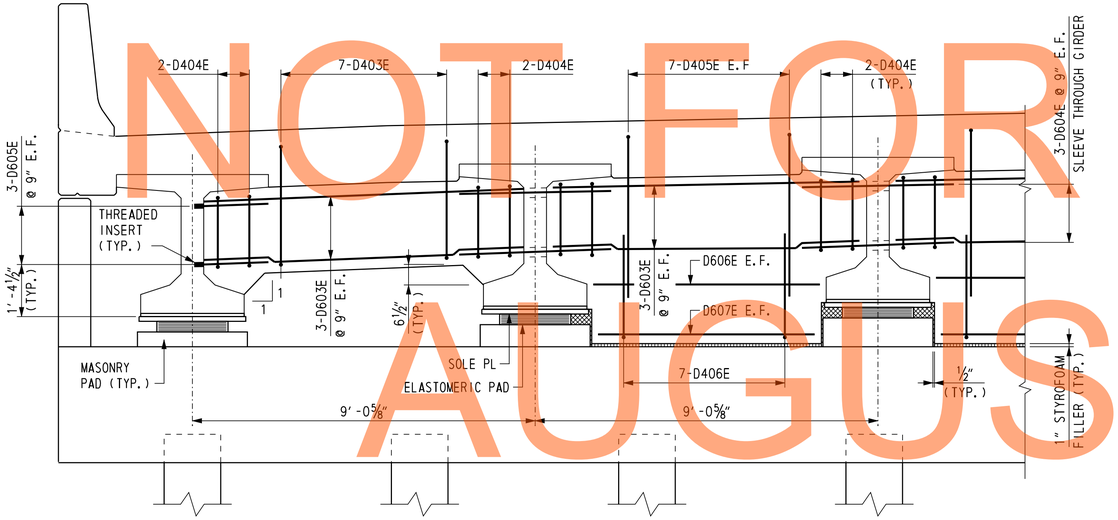
INTERMEDIATE DIAPHRAGM

SCALE: ½″ = 1′-0″



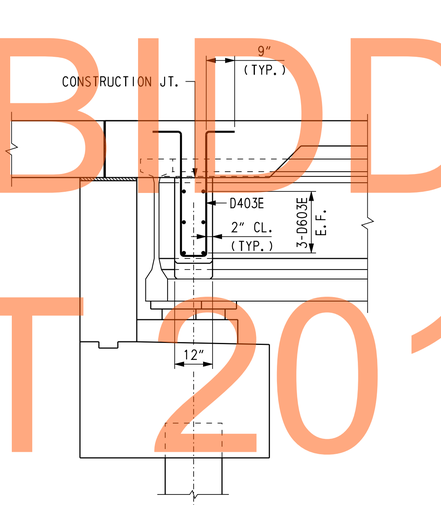
SECTION D-D

SCALE: ½″ = 1′-0″



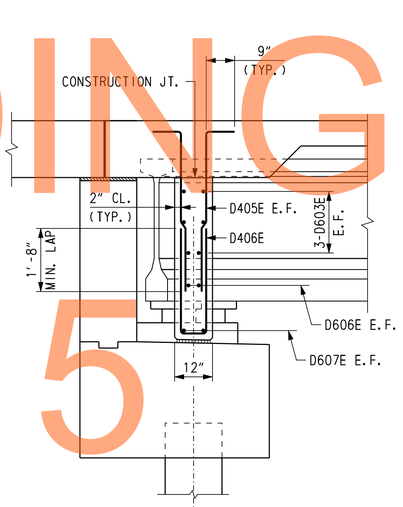
SECTION A-A

SCALE: ½″ = 1′-0″



SECTION B-B

SCALE: ½″ = 1′-0″



SECTION C-C

SCALE: ½″ = 1′-0″

NOTES:

1. FULL DEPTH END DIAPHRAGM APPLIES BETWEEN GIRDERS G2 & G3 AS WELL AS BETWEEN GIRDERS G3 & G4.

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-475 PN-2.
2. FOR TYPICAL SECTION, SEE DWG. 1-475 TS-1.
3. FOR FRAMING PLAN, SEE DWG. 1-475 FR-1.
4. FOR REINFORCING BAR LIST, SEE DWG. 1-475 BM-4.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: J. S. LI	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
DIAPHRAGMS 1

1-475-BM-2
SHEET NO. 421
TOTAL SHTS. 1256

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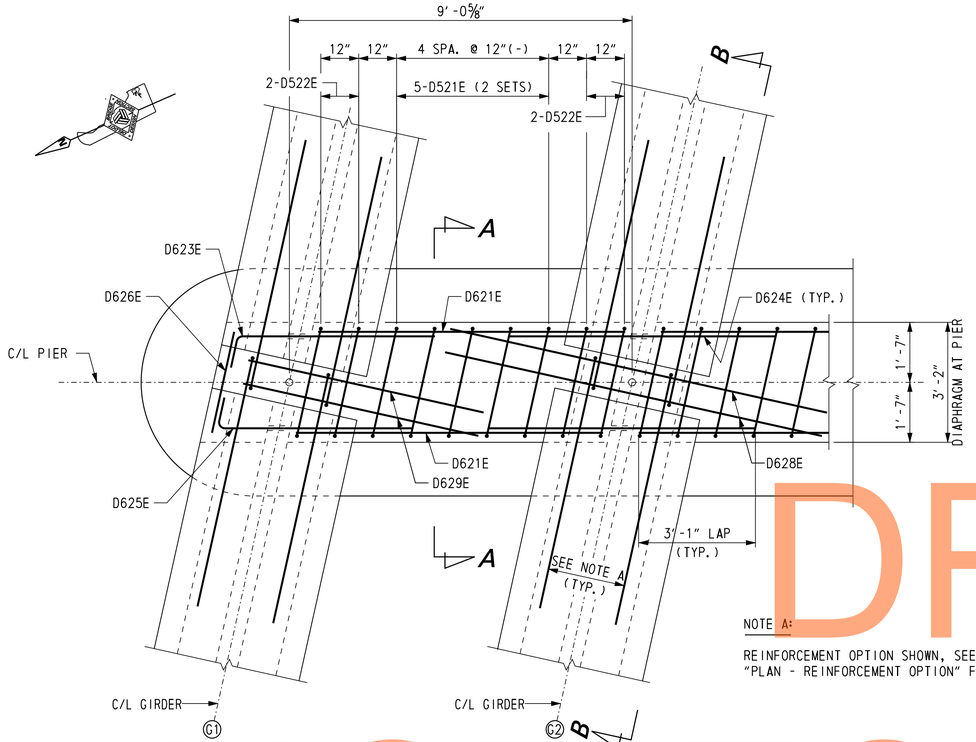
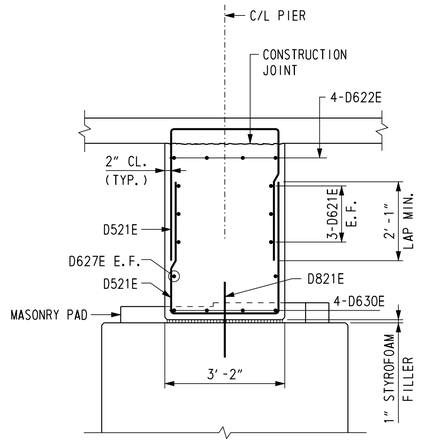


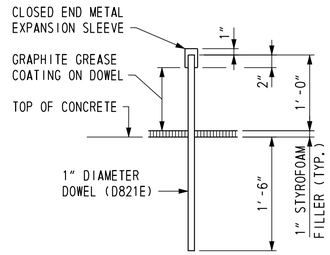
PLAN

SCALE: ½″ = 1′-0″



SECTION A-A

SCALE: ½″ = 1′-0″



DOWEL DETAIL

SCALE: 1″ = 1′-0″

NOTE:

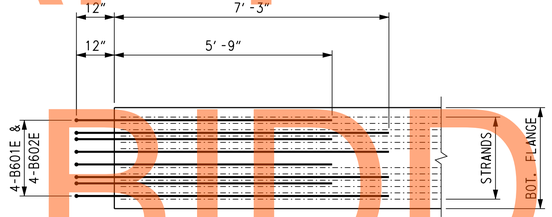
D821E DOWELS SHALL BE 1″ DIAMETER PLAIN BARS CAPPED WITH A SNUG FIT, CLOSED END METAL EXPANSION SLEEVE, TEMPORARILY SECURED TO THE DOWEL SO AS TO PROVIDE A 1″ LONG SOCKET BEYOND THE BAR END AND TO LAP BACK 2″ ON THE BAR. IMMEDIATELY PRIOR TO POURING DIAPHRAGM CONCRETE, DOWELS SHALL BE COATED WITH GRAPHITE GREASE.

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-475 PN-2.
2. FOR TYPICAL SECTION, SEE DWG. 1-475 TS-1.
3. FOR FRAMING PLAN, SEE DWG. 1-475 FR-1.
4. FOR REINFORCING BAR LIST, SEE DWG. 1-475 BM-4.

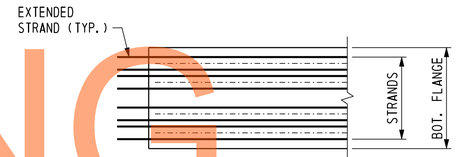
NOTE A:

REINFORCEMENT OPTION SHOWN, SEE "PLAN - REINFORCEMENT OPTION" FOR LAYOUT.



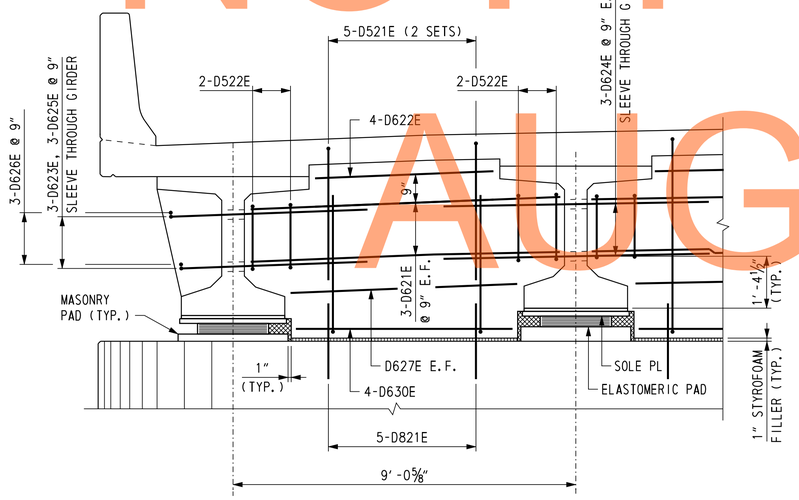
PLAN - REINFORCEMENT OPTION

SCALE: ½″ = 1′-0″



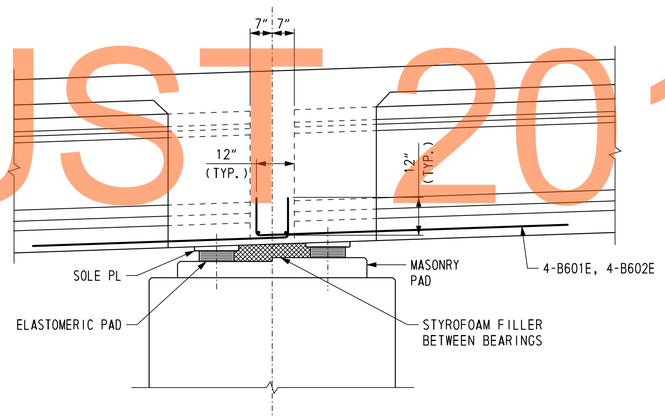
PLAN - EXTENDED STRAND OPTION

SCALE: ½″ = 1′-0″



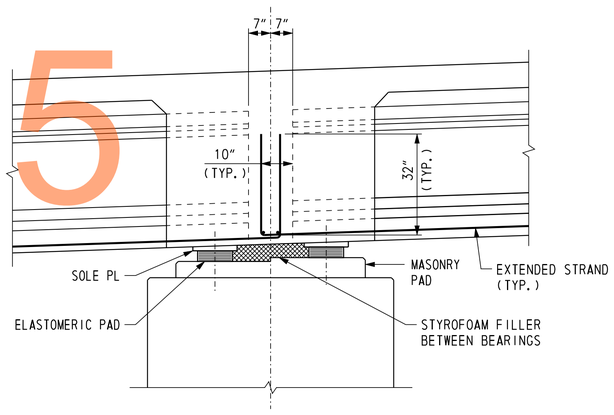
ELEVATION - DIAPHRAGM AT PIER

SCALE: ½″ = 1′-0″



SECTION B-B - REINFORCEMENT OPTION

SCALE: ½″ = 1′-0″



SECTION B-B - EXTENDED STRAND OPTION

SCALE: ½″ = 1′-0″

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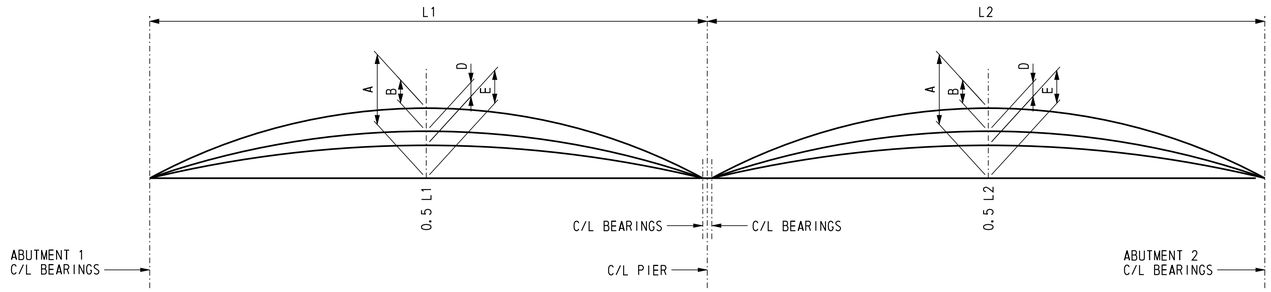
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE DIAPHRAGMS 2
				COUNTY NEW CASTLE	DESIGNED BY: W. A. O'CONNOR	
					CHECKED BY: G. P. MISTRY/W. A. O'CONNOR	

1-475-BM-3
SHEET NO. 422
TOTAL SHTS. 1256



GIRDER CAMBER DIAGRAM

NOT TO SCALE

CAMBER ORDINATES (INCHES)

GIRDER NO.	ITEM	ABUT. 1 C/L BRGS.	SPAN 1 0.5L1	C/L PIER	SPAN 2 0.5L2	ABUT. 2 C/L BRGS.
G1 & G5	A	0	2 5/16	0	2 5/16	0
	B	0	-1	0	-1	0
	C	0	1 5/16	0	1 5/16	0
	D	0	- 5/16	0	- 5/16	0
	E	0	3/4	0	3/4	0
	F	0	1 11/16	0	1 11/16	0
G2 - G4	A	0	2 5/16	0	2 5/16	0
	B	0	-1	0	-1	0
	C	0	1 5/16	0	1 5/16	0
	D	0	- 5/8	0	- 5/8	0
	E	0	1/16	0	1/16	0
	F	0	1 11/16	0	1 11/16	0

LEGEND

A = DENOTES CAMBER DUE TO PRESTRESS AT ERECTION, CREEP MULTIPLIER = 1.8.

B = DENOTES DEFLECTION DUE TO GIRDER DEAD LOAD AT ERECTION, CREEP MULTIPLIER = 1.85.

C = A+B

D = DENOTES DEFLECTION DUE TO SLAB AND DIAPHRAGMS.

E = DENOTES NET CAMBER AT ERECTION, C+D.

F = DENOTES VERTICAL CURVE ORDINATE MEASURED FROM ROADWAY PROFILE TO CHORD LINE BETWEEN SUPPORTS.

NOTES:

1. CAMBER VALUES ARE THEORETICAL VALUES AND MAY VARY WITH CONCRETE STRENGTH (AGE), PRESTRESSING CONDITIONS, CREEP MULTIPLIER AND PRESTRESS LOSES.
2. THICKNESS OF CONCRETE HAUNCH VARIES TO OBTAIN VERTICAL CURVE PROFILE.

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303
COUNTY NEW CASTLE
BRIDGE NO. 1-475
DESIGNED BY: K.D.BEAVER
CHECKED BY: J. S. Li

BUNKER HILL ROAD
OVER US 301 MAINLINE

CAMBER TABLE

1-475 CT-1
SHEET NO. 423
TOTAL SHTS. 1256

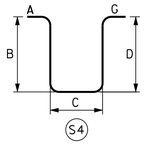
REINFORCING BAR LIST

GIRDER AND DIAPHRAGMS

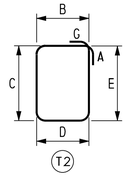
	MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	J	K	O	R	REMARKS
GIRDERS	B401E	4′-10″	2,140	17		0′-8″	4′-2″										
	B402E	3′-8″	2,140	16		1′-10″	0′-5″	1′-5″				1′-3½″		0′-6″			
	B403E	3′-8″	1,070	STR.													
	B404E	37′-7″	280	STR.													
	B406E	3′-0″	10	STR.													
	B407E	2′-7	10	23			1′-0″	0′-7″	1′-0″			0′-11¾″		0′- 2½″			
	B601E	7′-9″	40	17		1′-0″	6′-9″										
	B602E	9′-3″	40	17		1′-0″	8′-3″										
DIAPHRAGMS	D401E	8′-2″	56	S4	0′-9″	3′-1″	0′-6″	3′-1″			0′-9″						
	D402E	5′-1″	32	T2	0′-4½″	0′-6″	1′-8″	0′-6″	1′-8″		0′-4½″						
	D403E	8′-4″	28	S4	0′-9″	3′-1″	0′-8″	3′-1″			0′-9″						
	D404E	5′-5″	32	T2	0′-4½″	0′-8″	1′-8″	0′-8″	1′-8″		0′-4½″						
	D405E	4′-2″	56	S4	0′-9″	3′-5″											
	D406E	7′-6″	28	17		3′-5″	0′-8″	3′-8″									
	D521E	10′-3″	40	17		3′-8″	2′-11″	3′-8″									
	D522E	10′-2″	16	T2	0′-6″	2′-11″	1′-8″	2′-11″	1′-8″		0′-6″						
	D601E	4′-7″	16	STR.													
	D602E	7′-11″	48	STR.													
	D603E	8′-1″	48	STR.													
	D604E	7′-1″	36	STR.													
	D605E	3′-7″	120	STR.													ONE END THREADED
	D606E	6′-0″	8	STR.													
	D607E	5′-8″	8	STR.													
	D621E	8′-1″	24	STR.													
	D622E	4′-9″	16	STR.													
	D623E	6′-9″	6	19		1′-6″	5′-3″					1′-5½″		0′-4″			
	D624E	7′-1″	18	STR.													
	D625E	6′-9″	6	30	5′-3″	1′-6″						1′-5½″		0′-4″			
	D626E	2′-11″	6	STR.													
	D627E	6′-0″	8	STR.													
	D628E	7′-4″	6	STR.													
	D629E	4′-10″	4	STR.													
	D630E	5′-8″	16	STR.													
	D821E	2′-7″	20	STR.													

BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



S4



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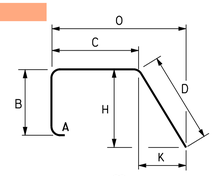

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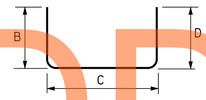

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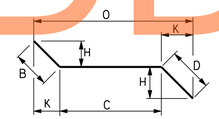

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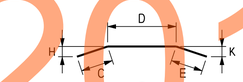

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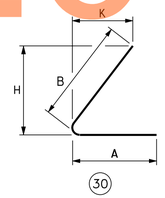

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DELAWARE
DEPARTMENT OF TRANSPORTATION

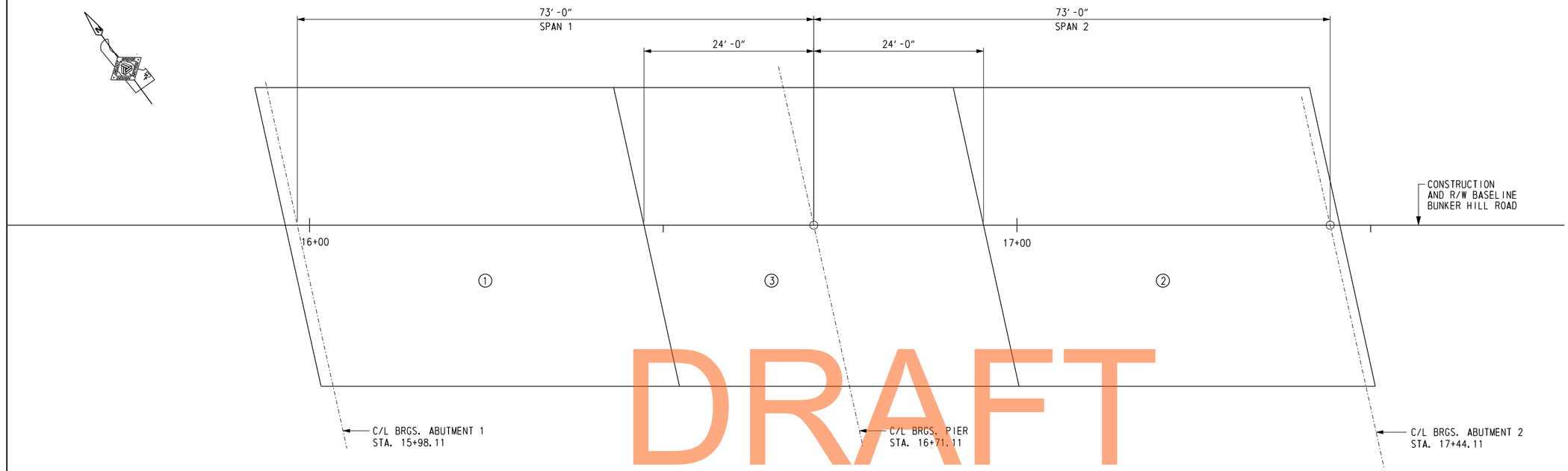
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: J. S. LI/W. A.O'CONNOR	
NEW CASTLE		

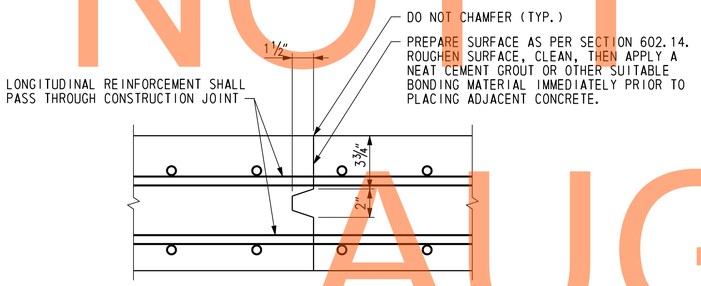
BUNKER HILL ROAD
OVER US 301 MAINLINE
GIRDERS AND DIAPHRAGMS
REINFORCING BAR LIST

1-475-BM-4	
SHEET NO.	424
TOTAL SHTS.	1256



BRIDGE DECK POURING SEQUENCE

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



BRIDGE DECK CONSTRUCTION JOINT

NOT TO SCALE

PLACEMENT SEQUENCE:

1. CAST INTERMEDIATE AND END DIAPHRAGMS AT ABUTMENTS.
2. CAST POSITIVE MOMENT REGIONS ADJACENT TO ABUTMENTS IN THE NUMBER ORDER INDICATED ON THE PLAN.
3. CAST CONTINUITY DIAPHRAGMS AT PIER.
4. CAST NEGATIVE MOMENT REGION.

NOTES:

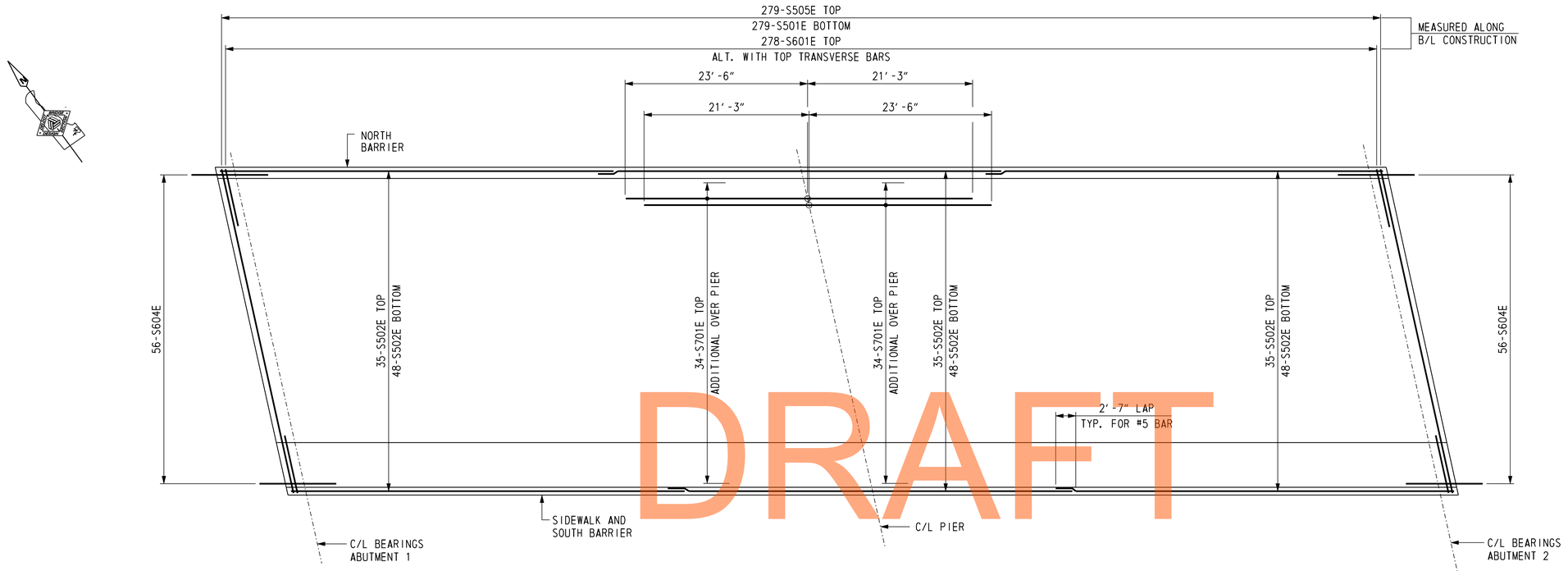
1. THE POURING SEQUENCE FOR THE BRIDGE DECK SLAB SHALL BE MADE IN THE NUMBERED ORDER INDICATED. THERE MUST BE AT LEAST FORTY (40) HOURS BETWEEN THE COMPLETION OF ONE NUMBERED POUR AND THE START OF THE NEXT NUMBERED POUR.
2. AS AN ALTERNATE, CONTRACTOR MAY UTILIZE TWO CREWS AND TWO SETS OF EQUIPMENT TO CONSTRUCT POURS NUMBER 1 AND 2 SIMULTANEOUSLY.
3. ALLOW SUFFICIENT TIME FOR DIAPHRAGMS TO REACH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE POURING DECK ABOVE DIAPHRAGM.

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-475 PN-2.
2. FOR TYPICAL SECTION, SEE SEE DWG. 1-475 TS-1.

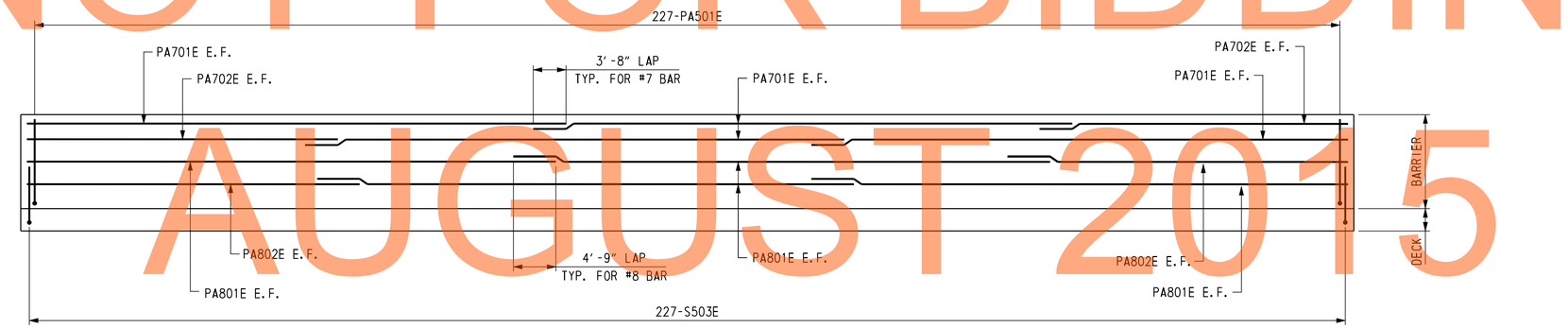
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE BRIDGE DECK POURING SEQUENCE
				COUNTY NEW CASTLE	DESIGNED BY: R.F. KIRCHNER	
					CHECKED BY: J.S.LI	

1-475 DK-1
SHEET NO. 425
TOTAL SHTS. 1256



BRIDGE DECK REINFORCEMENT PLAN

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



ELEVATION - DECK AND NORTH BARRIER REINFORCEMENT

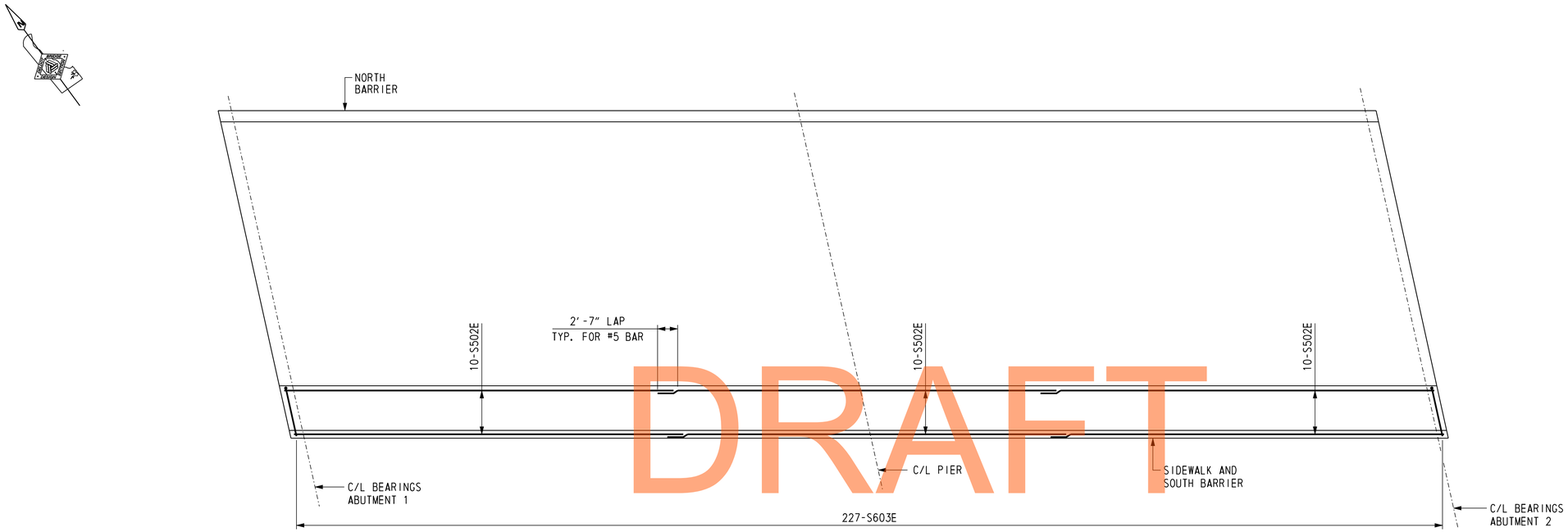
NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-475 PN-2.
2. FOR TYPICAL SECTION, SEE DWG. 1-475 TS-1.
3. FOR TYPICAL DECK AND BARRIER REINFORCEMENT SECTIONS, SEE DWG. 1-475 DK-4.
4. FOR REINFORCING BAR LIST, SEE DWG. 1-475 DK-5.

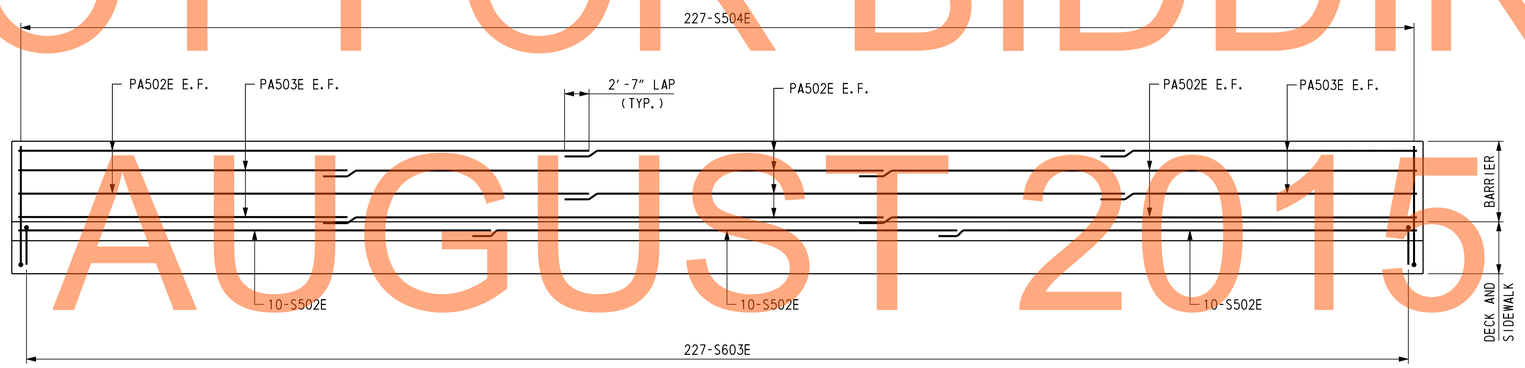
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE BRIDGE DECK AND BARRIER REINFORCEMENT 1
				COUNTY NEW CASTLE	DESIGNED BY: K. D. BEAVER	
					CHECKED BY: J. S. LI	

1-475 DK-2
SHEET NO. 426
TOTAL SHTS. 1256



SIDEWALK REINFORCEMENT PLAN

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



ELEVATION - DECK, SIDEWALK AND SOUTH BARRIER REINFORCEMENT

NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-475 PN-2.
2. FOR TYPICAL SECTION, SEE DWG. 1-475 TS-1.
3. FOR TYPICAL DECK, BARRIER AND SIDEWALK REINFORCEMENT SECTIONS, SEE DWG. 1-475 DK-4.
4. FOR REINFORCING BAR LIST, SEE DWG. 1-475 DK-5.

DELAWARE
DEPARTMENT OF TRANSPORTATION

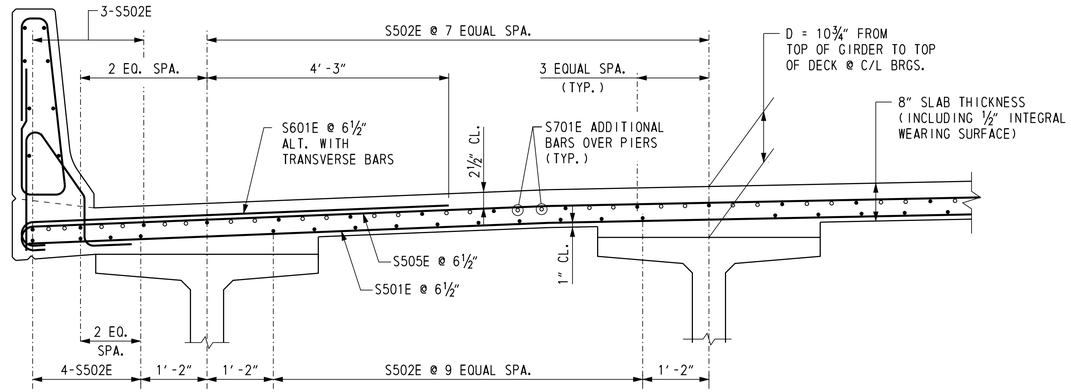
ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: J. S. LI	
NEW CASTLE		

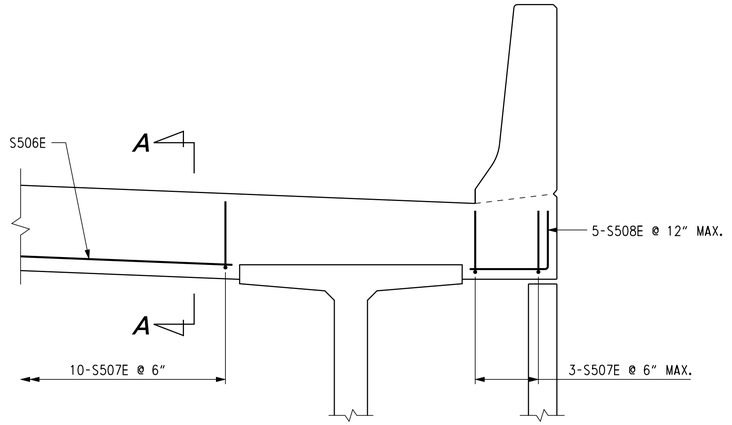
BUNKER HILL ROAD
OVER US 301 MAINLINE
BRIDGE DECK AND BARRIER
REINFORCEMENT 2

1-475-DK-3	
SHEET NO.	427
TOTAL SHTS.	1256



TYPICAL DECK REINFORCEMENT SECTION

SCALE: ¾" = 1'-0"



TYPICAL CONCRETE END HAUNCH SECTION

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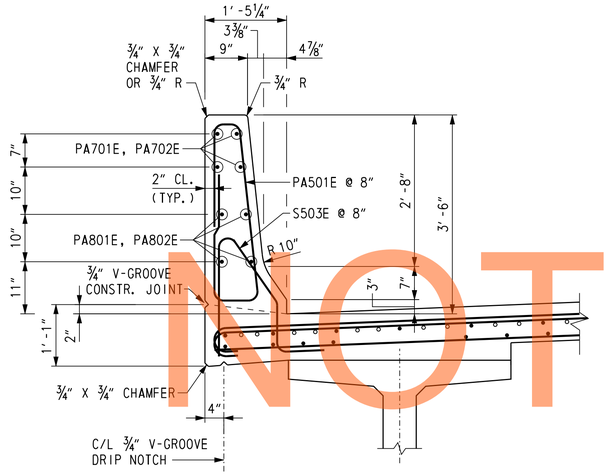
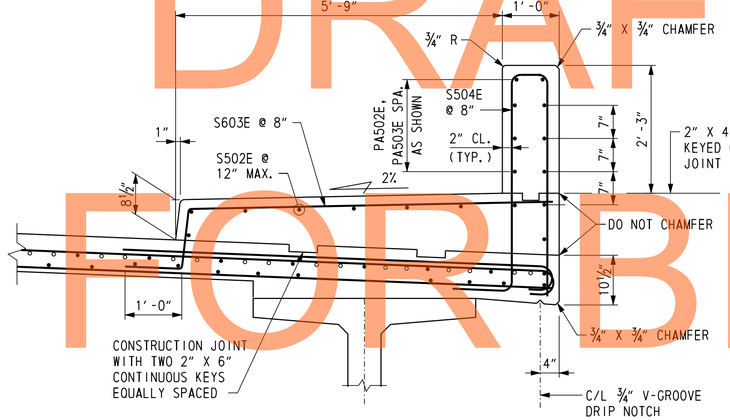


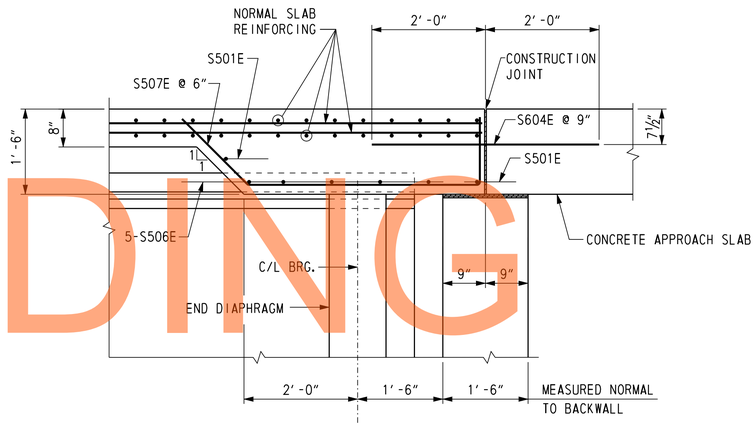
BARRIER REINFORCEMENT SECTION

SCALE: ¾" = 1'-0"



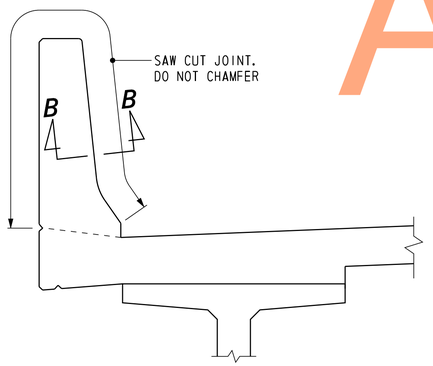
SIDEWALK AND BARRIER REINFORCEMENT SECTION

SCALE: ¾" = 1'-0"



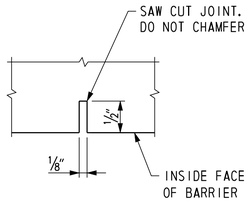
SECTION A-A

SCALE: ¾" = 1'-0"



BARRIER CONTROL JOINT DETAIL

SCALE: ¾" = 1'-0"



SECTION B-B

NOT TO SCALE

NOTES:

1. TRANSVERSE REINFORCEMENT SHALL BE PLACED PARALLEL TO SKEWED SUPPORTS. BAR SPACING SHOWN IN SECTIONS IS MEASURED NORMAL TO SUPPORTS.
2. LONGITUDINAL SLAB REINFORCEMENT IS SET TO PASS THROUGH TRANSVERSE BARRIER BARS AS SHOWN.
3. ALL LONGITUDINAL BARRIER BARS SHALL BE PLACED CONTINUOUSLY IN BARRIER, LAPPING AS NECESSARY. BARRIER IS PLACED CONTINUOUSLY.
4. FRONT FACE OF BARRIER DIMENSIONED FROM PLUMB LINE.
5. SAW CUT CONTROLS JOINT THE SAME DAY THAT THE FORMS ARE STRIPPED.

CROSS REFERENCE NOTES:

1. FOR GENERAL NOTES, SEE DWG. 1-475 PN-2.
2. FOR DECK REINFORCEMENT PLAN, SEE DWG. 1-475 DK-2.
3. FOR REINFORCING BAR LIST, SEE DWG. 1-475 DK-5.

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303	BRIDGE NO.	1-475
COUNTY NEW CASTLE	DESIGNED BY: K. D. BEAVER	
	CHECKED BY: J. S. LI	

BUNKER HILL ROAD
OVER US 301 MAINLINE
BRIDGE DECK AND BARRIER
REINFORCEMENT 3

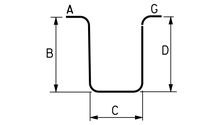
1-475 DK-4	
SHEET NO.	428
TOTAL SHTS.	1256

REINFORCING BAR LIST

	MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	J	K	O	R	REMARKS
BRIDGE DECK	S501E	42′-10″	283	STR.													
	S502E	51′-10″	279	STR.													
	S503E	5′-0½″	227	43	1′-1″	0′-8⅜″	0′-10″	1′-6⅞″	0′-1″		0′-7⅝″	0′-7″	0′-3″	0′-10″			
	S504E	9′-0″	227	S4	0′-10″	3′-9″	0′-8″	3′-9″									
	S505E	44′-0″	279	1	0′-7″	42′-10″					0′-7″		0′-5″				
	S506E	4′-9″	40	STR.													
	S507E	6′-10″	92	16		1′-2″	4′-0″	1′-8″				1′-2″		1′-2″			
	S508E	2′-5″	20	17		1′-2″	1′-3″										
	S601E	8′-4″	556	1	0′-8″	7′-8″							0′-6″				
	S603E	8′-5½″	227	16S		1′-0″	1′-1½″	6′-4″				6′-4″		0′-1½″			
	S604E	4′-0″	112	STR.													
	S701E	44′-9″	68	STR.													
BARRIER	PA501E	7′-6¼″	227	28	2′-9¼″	0′-2¹⁵⁄₁₆″	0′-1⅝″	0′-2¾″	2′-9½″		0′-3⅛″	0′-5⅛″					
	PA502E	60′-0″	16	STR.													
	PA503E	35′-5″	8	STR.													
	PA701E	60′-0″	8	STR.													
	PA702E	37′-7″	4	STR.													
	PA801E	60′-0″	8	STR.													
	PA802E	39′-9″	4	STR.													

BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



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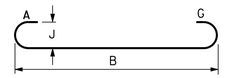

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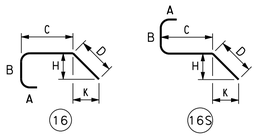
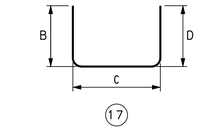


16 16S



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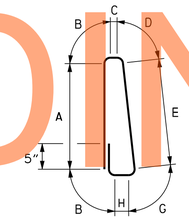

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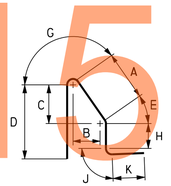

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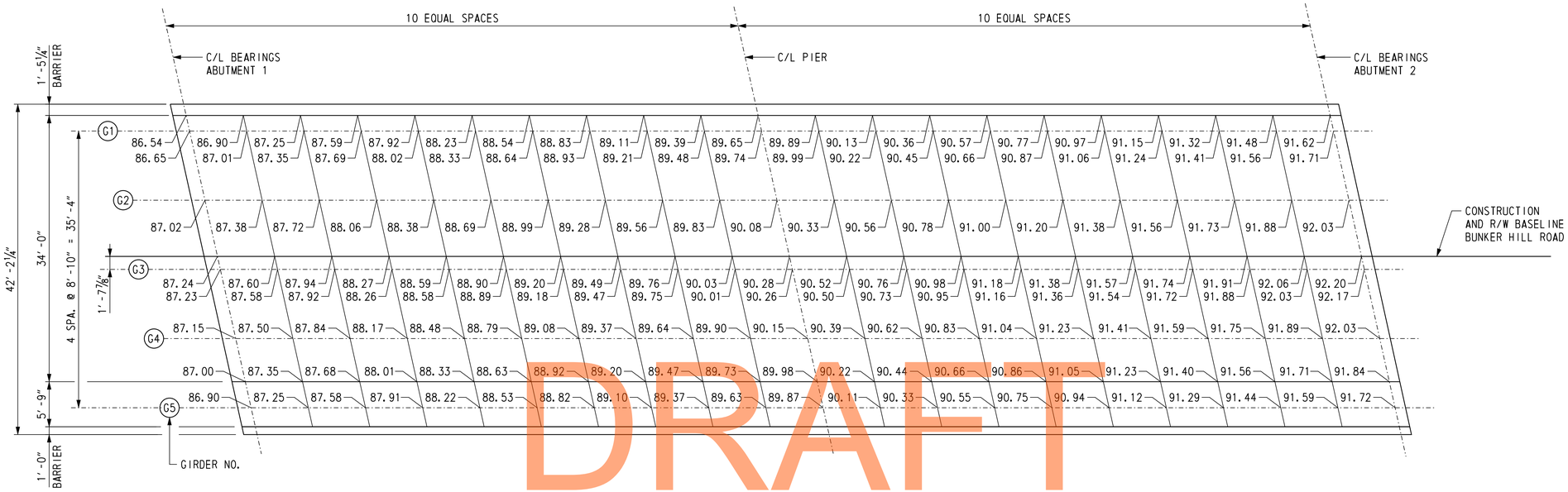
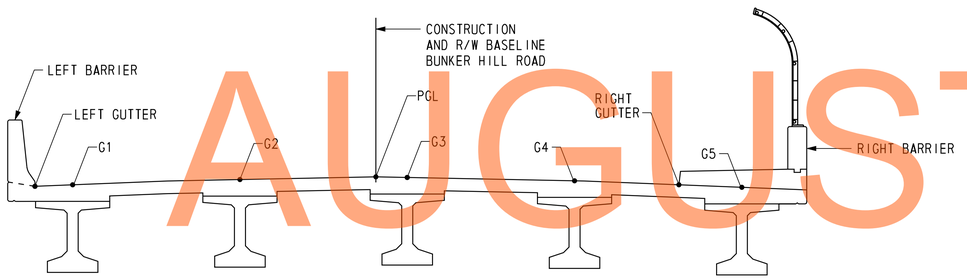
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE BRIDGE DECK AND BARRIER REINFORCING BAR LIST	1-475 DK-5
			COUNTY NEW CASTLE	DESIGNED BY: K. D. BEAVER		SHEET NO. 429
				CHECKED BY: J. S. LI		TOTAL SHTS. 1256



FINISHED DECK ELEVATIONS

SCALE: ⅛" = 1'-0"



TYPICAL SECTION

(LOOKING STATION AHEAD)

SCALE: ¼" = 1'-0"

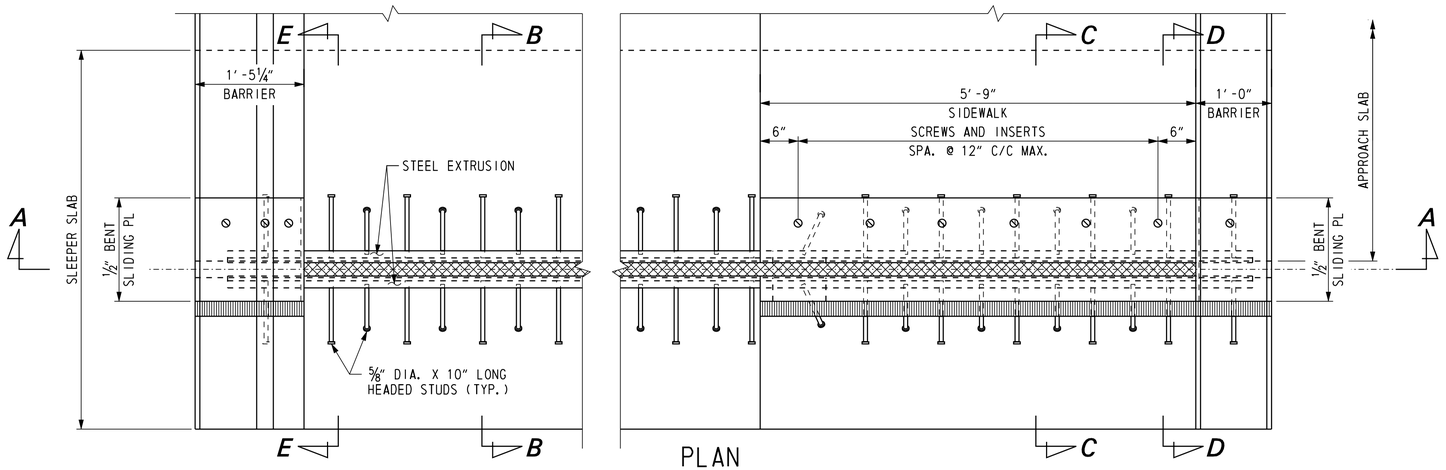
NOTE:

THE FINISHED BRIDGE DECK ELEVATIONS SHOWN ARE TO TOP OF CONCRETE DECK.

CROSS REFERENCE NOTES:

1. FOR VERTICAL CURVE DATA, SEE DWG. 1-475 PE-1.
2. FOR GIRDER ELEVATION, SEE DWG. 1-475 BM-1.

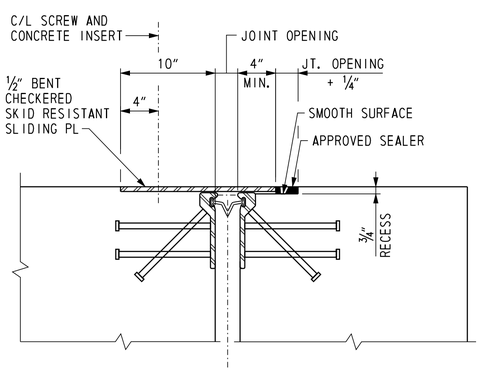
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE	1-475 FD-1
				COUNTY NEW CASTLE	DESIGNED BY: K. D. BEAVER	FINISHED DECK ELEVATIONS	SHEET NO. 430
					CHECKED BY: J. S. LI		TOTAL SHTS. 1256



PLAN

(ABUTMENT 1 SHOWN)

SCALE: 1″ = 1′-0″

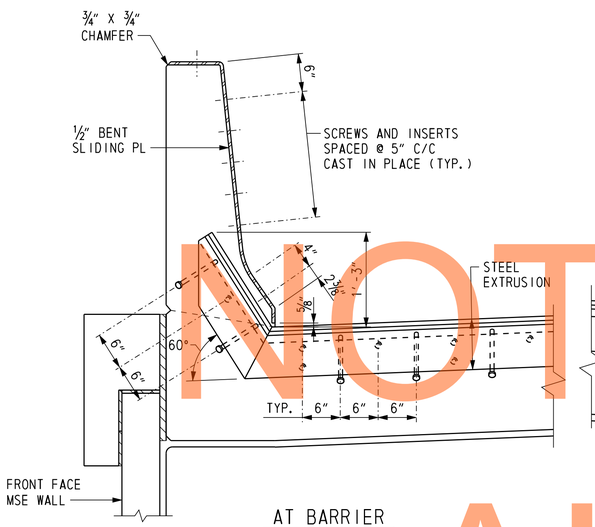


SECTION C-C

SCALE: 1½″ = 1′-0″

NOTES:

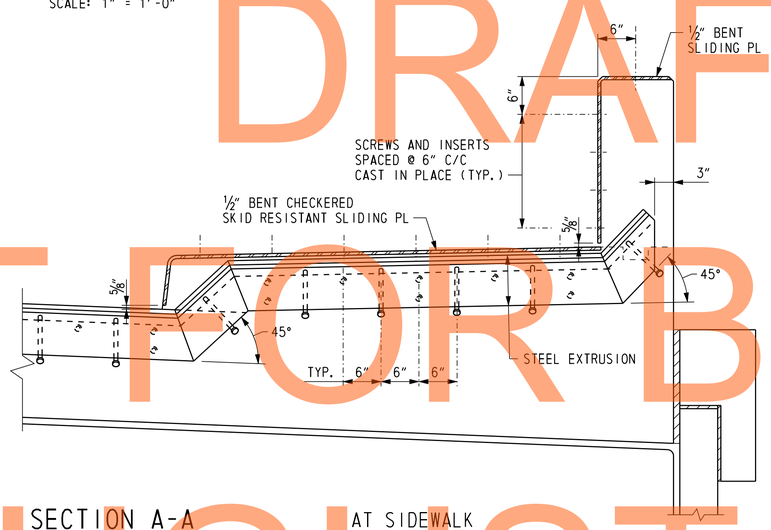
1. STRUCTURAL STEEL FOR DECK JOINTS SHALL CONFORM TO AASHTO M270, GRADE 36.
2. STEEL EXTRUSIONS FOR DECK JOINTS SHALL CONFORM TO AASHTO M270, GRADE 36.
3. THE NEOPRENE STRIP SEAL SHALL BE PROVIDED CONTINUOUS THROUGHOUT THE LIMITS OF THE DECK. SPLICING OF THE NEOPRENE STRIP SEAL IS NOT PERMITTED.
4. USE FLATHEAD STAINLESS STEEL ASTM F 738M OR F 593 (TYPE 304) FOR COUNTERSUNK SCREWS WITH INSERTS. ALL CONCRETE INSERTS AND M 20 COUNTERSUNK MACHINE SCREWS ARE ¾″ DIAMETER UNLESS OTHERWISE NOTED.
5. CONSTRUCT EXPANSION JOINT TO MATCH ROADWAY GRADE AND CROSS SLOPE.
6. GRIND ALL STEEL EDGES EXPOSED TO TRAFFIC OR PEDESTRIANS TO ⅛″ MIN. RADIUS.
7. COST FOR MATERIALS, FABRICATION AND INSTALLATION OF STRIP SEAL EXPANSION JOINTS, 3″ MOVEMENT CLASSIFICATION, WITH STEEL ELEMENTS INCLUDING STUDS, SLIDING PLATES AND STEEL EXTRUSIONS, SHALL BE PAID FOR UNDER ITEM 605511.



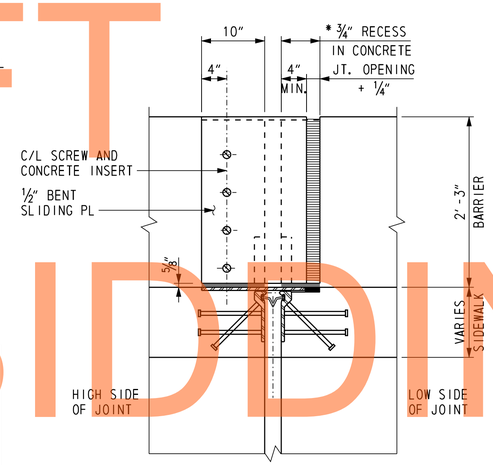
AT BARRIER

SECTION A-A

SCALE: 1″ = 1′-0″

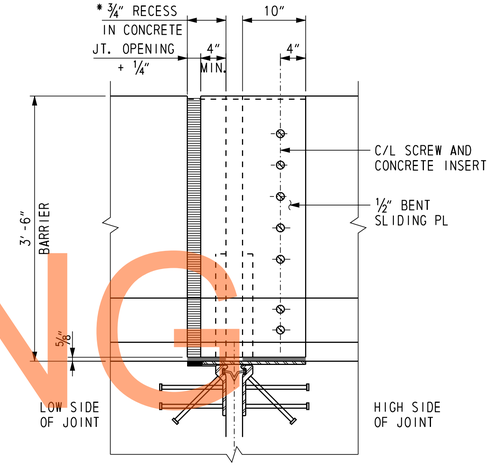


AT SIDEWALK



SECTION D-D

SCALE: 1″ = 1′-0″

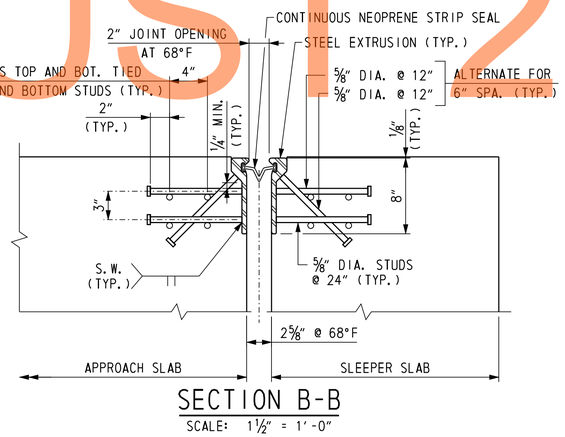


SECTION E-E

SCALE: 1″ = 1′-0″

* FORM CONCRETE RECESS AREA IN BARRIER AND GRIND TO PROVIDE SMOOTH SURFACE. APPLY ONE COAT OF ASPHALT CEMENT PAINT TO ALLOW BENT SLIDING PLATE TO MOVE FREELY WITHOUT FRICTION.

JOINT OPENING (INCH)												
LOCATION	TEMPERATURE (°F)											MOVEMENT CLASSIFICATION
	0	10	20	30	40	50	60	68	80	90	100	
ABUTMENT 1	2 3/16	2 1/2	2 1/16	2 3/8	2 1/4	2 3/16	2 1/16	2	1 15/16	1 13/16	1 3/4	3″
ABUTMENT 2	2 3/16	2 1/2	2 1/16	2 3/8	2 1/4	2 3/16	2 1/16	2	1 15/16	1 13/16	1 3/4	3″



SECTION B-B

SCALE: 1½″ = 1′-0″

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR TYPICAL SECTION, SEE DWG. 1-475 TS-1.
3. FOR APPROACH SLAB PLANS, SEE DWG. 1-475 AS-1.

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

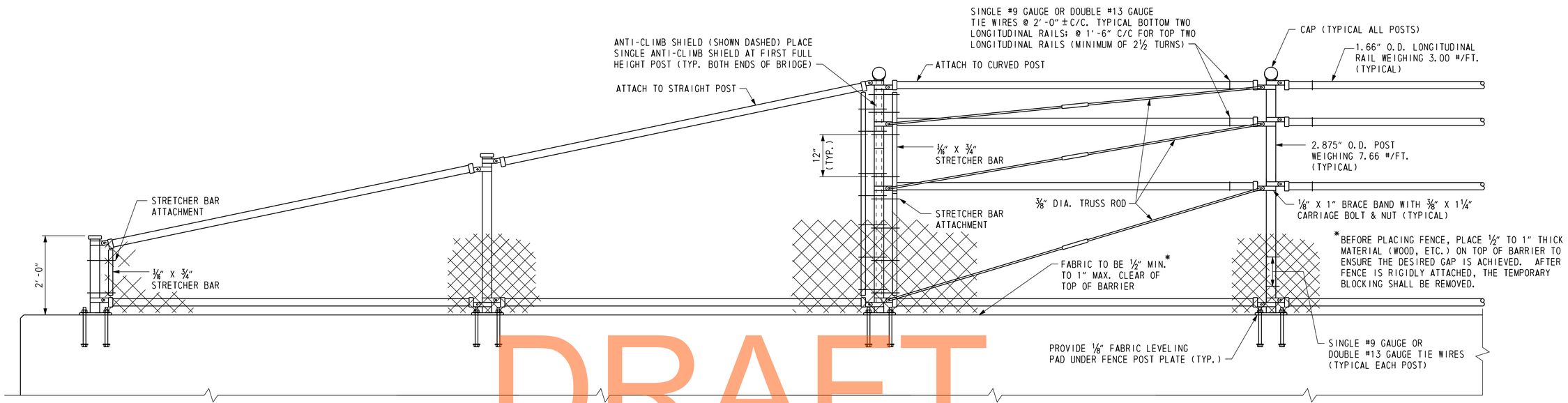
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: W. A. O'CONNOR	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE

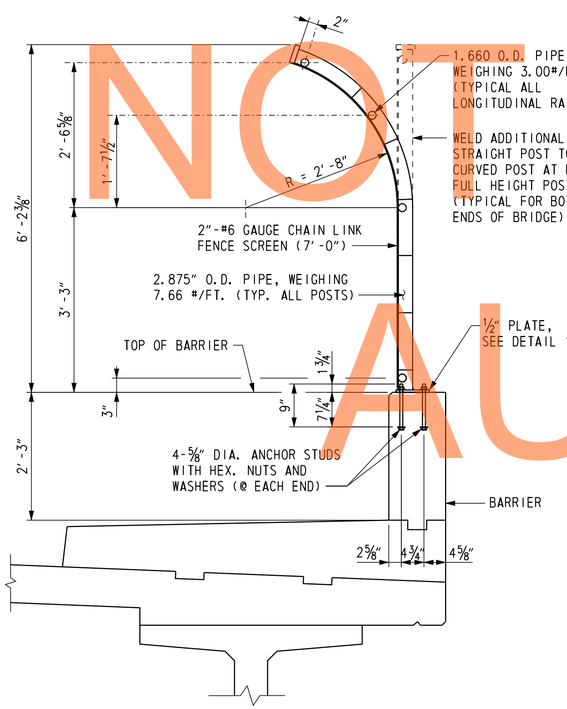
EXPANSION JOINT DETAILS

1-475 EX-1
SHEET NO. 431
TOTAL SHTS. 1256



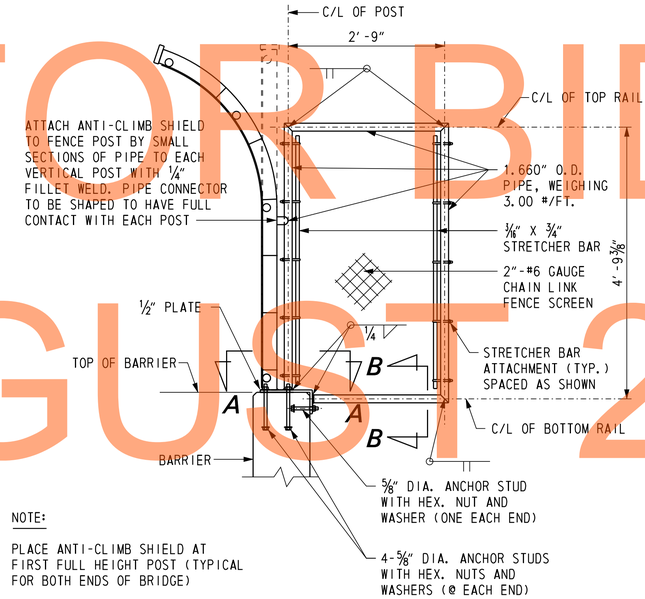
TYPICAL CHAIN LINK SAFETY FENCE ELEVATION

SCALE: ¾" = 1'-0"



TYPICAL SECTION

SCALE: ¾" = 1'-0"



NOTE:

PLACE ANTI-CLIMB SHIELD AT FIRST FULL HEIGHT POST (TYPICAL FOR BOTH ENDS OF BRIDGE)

TYPICAL ANTI-CLIMB SHIELD SECTION

SCALE: ¾" = 1'-0"

NOTES:

1. AS AN OPTION, THE CONTRACTOR MAY SET THE FENCE ANCHOR STUDS IN PREFORMED (SLEEVED OR DRILLED) HOLES USING APPROVED EPOXY GROUT. NUTS AND WASHERS SHALL BE OMITTED FROM EMBEDDED ENDS OF ANCHOR STUDS FOR THIS OPTION. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THIS OPTION.
2. COST OF ANTI-CLIMB SHIELD SHALL BE INCIDENTAL TO ITEM 727004, CHAIN LINK SAFETY FENCE.

CROSS REFERENCE NOTES:

1. FOR FENCE POST SPACING, SEE DWG. 1-475 PE-01.
2. FOR CHAIN LINK SAFETY FENCE MISCELLANEOUS DETAILS, SEE DWG. 1-475 RA-2.

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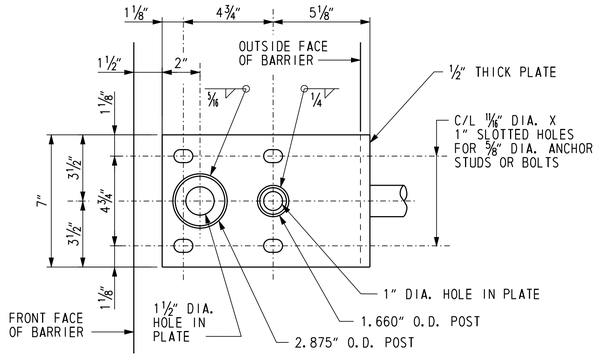
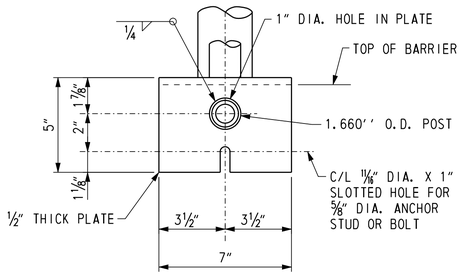
DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD	CONTRACT T200511303	BRIDGE NO. 1-475	BUNKER HILL ROAD OVER US 301 MAINLINE CHAIN LINK SAFETY FENCE DETAILS 1	1-475 RA-1
				COUNTY NEW CASTLE	DESIGNED BY: R. F. KIRCHNER		SHEET NO. 432
					CHECKED BY: W. A. O'CONNOR		TOTAL SHTS. 1256



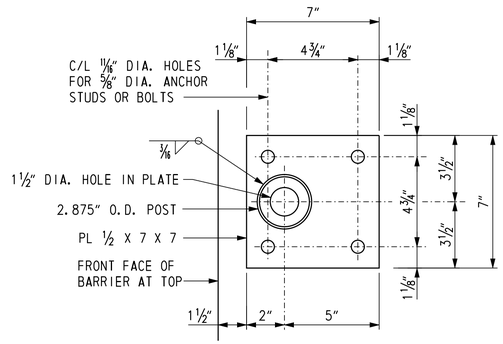
SECTION A-A

SCALE: 3" = 1'-0"



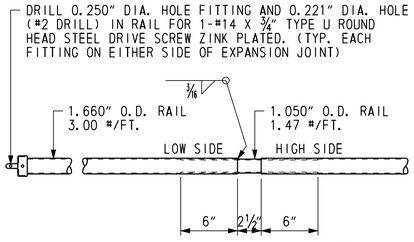
SECTION B-B

SCALE: 3" = 1'-0"



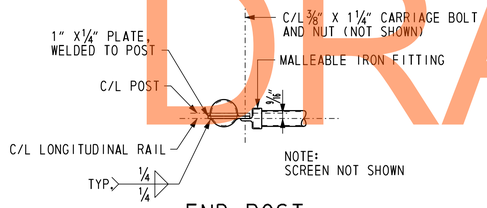
DETAIL 1

SCALE: 3" = 1'-0"

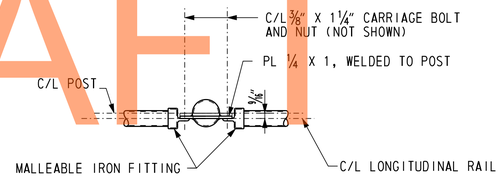


EXPANSION JOINT DETAIL

SCALE: 1½" = 1'-0"



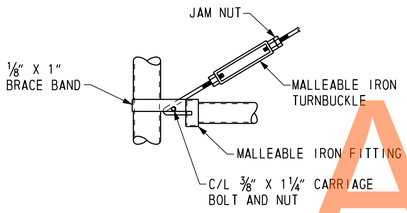
END POST



INTERMEDIATE POST

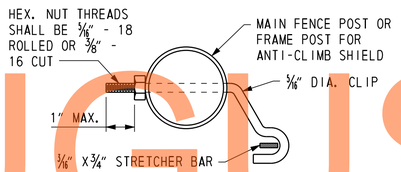
TOP LONGITUDINAL RAIL - POST ATTACHMENT

SCALE: 1½" = 1'-0"



TRUSS ROD ATTACHMENT

SCALE: 1½" = 1'-0"



STRETCHER BAR ATTACHMENT

NOT TO SCALE

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DELAWARE DEPARTMENT OF TRANSPORTATION

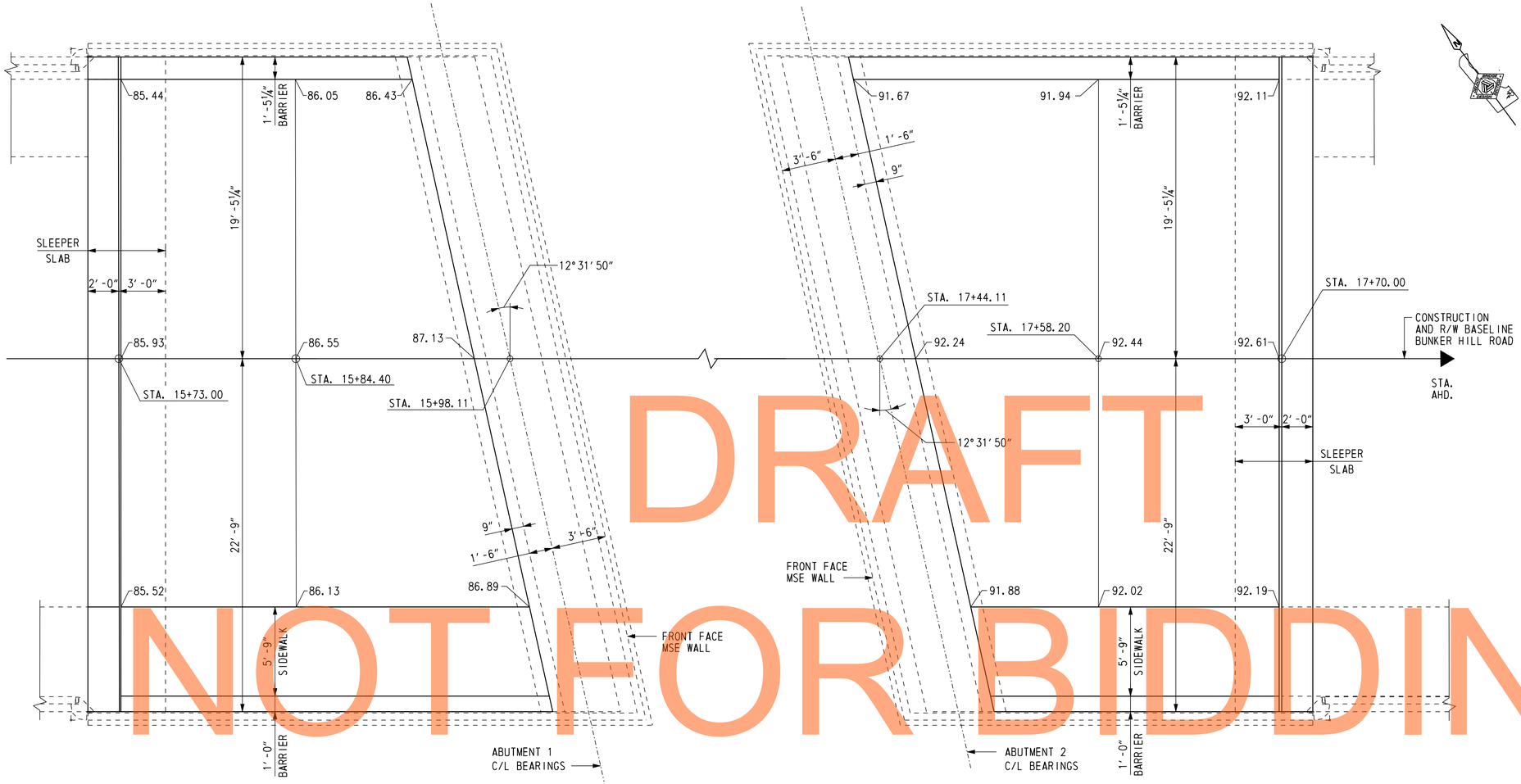
ADDENDUMS / REVISIONS	

US 301 LEVELS ROAD TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: R. F. KIRCHNER	
COUNTY	CHECKED BY: W. A. O'CONNOR	
NEW CASTLE		

BUNKER HILL ROAD OVER US 301 MAINLINE CHAIN LINK SAFETY FENCE DETAILS 2

1-475 RA-2	
SHEET NO.	433
TOTAL SHTS.	1256

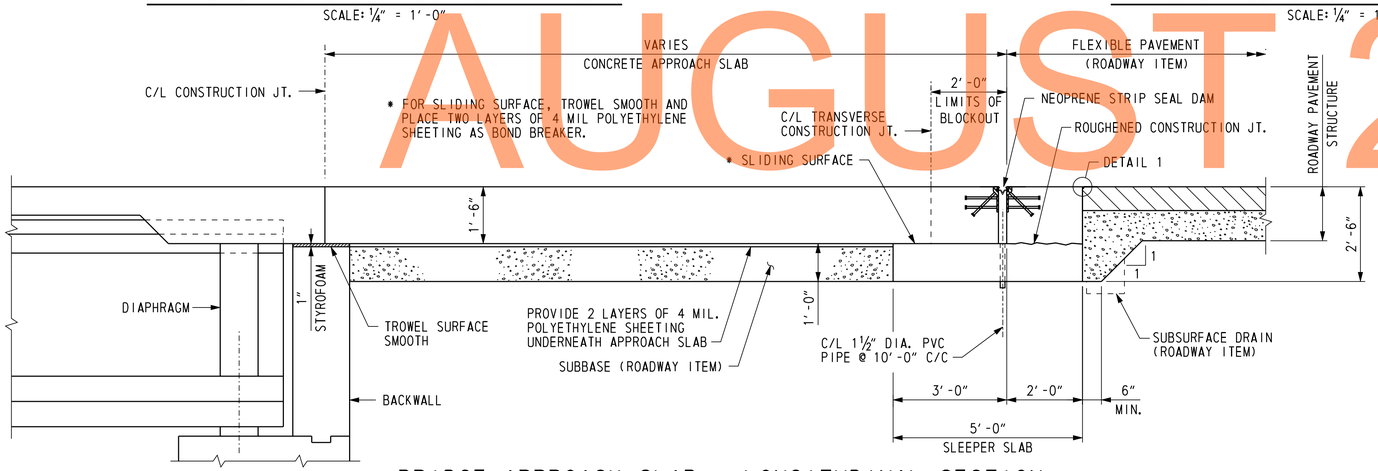


APPROACH SLAB AT ABUTMENT 1 PLAN

SCALE: ¼" = 1'-0"

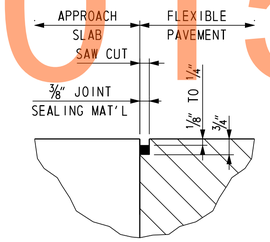
APPROACH SLAB AT ABUTMENT 2 PLAN

SCALE: ¼" = 1'-0"



BRIDGE APPROACH SLAB - LONGITUDINAL SECTION

SCALE: ½" = 1'-0"



DETAIL 1

SCALE: ½" = 1'-0"

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
3. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
4. FOR MSE WALL PLAN AND ELEVATION, SEE DWG. 1-475 WW-1 & 1-475 WW-2.
5. FOR APPROACH SLAB REINFORCING, SEE DWG. 1-475 AS-2 TO 1-475 AS-4.

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

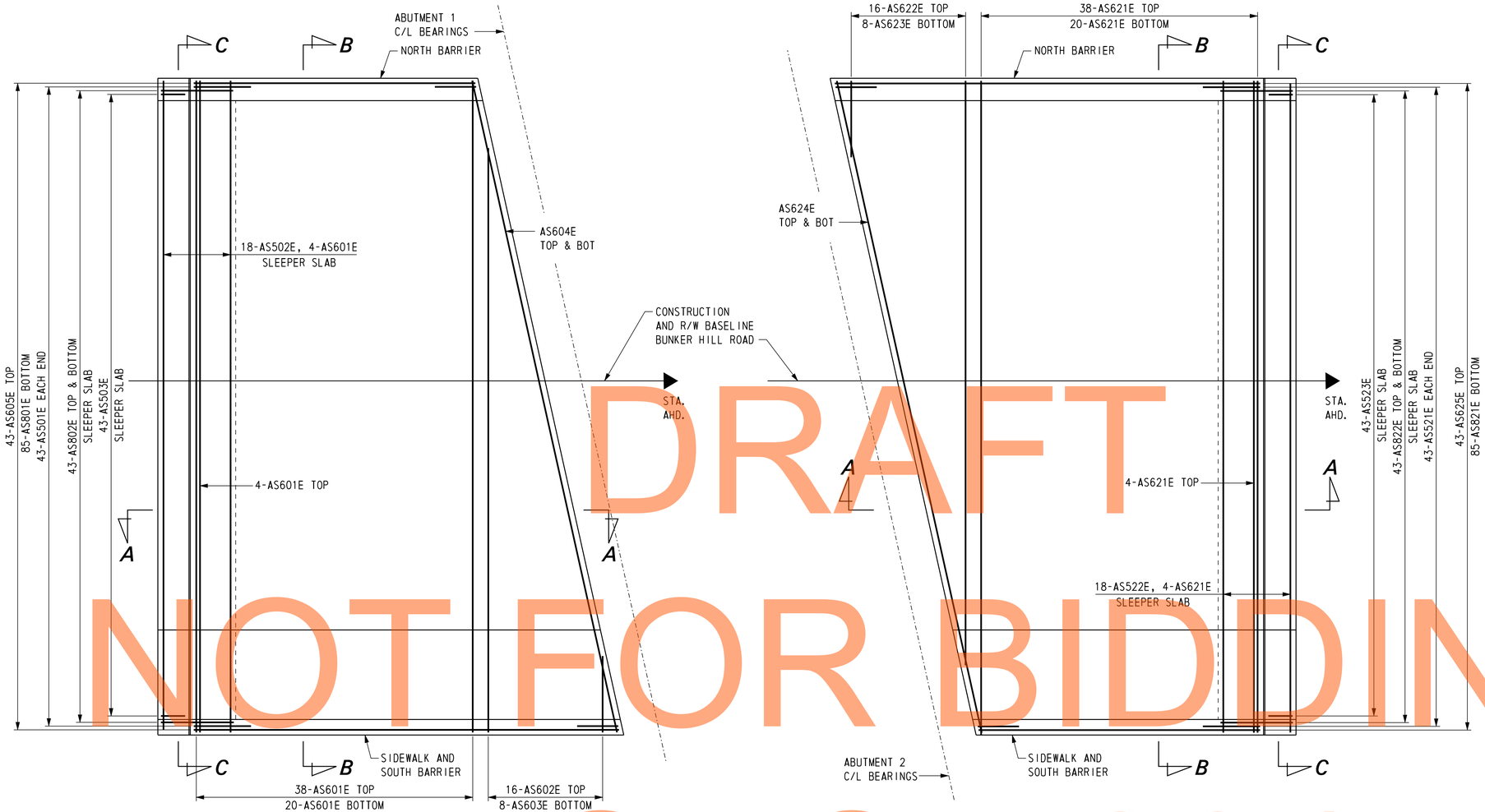
US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO. 1-475
T200511303	DESIGNED BY: R. F. KIRCHNER
COUNTY	CHECKED BY: J. S. LI
NEW CASTLE	

BUNKER HILL ROAD
OVER US 301 MAINLINE

APPROACH SLAB PLANS

1-475 AS-1
SHEET NO. 434
TOTAL SHTS. 1256

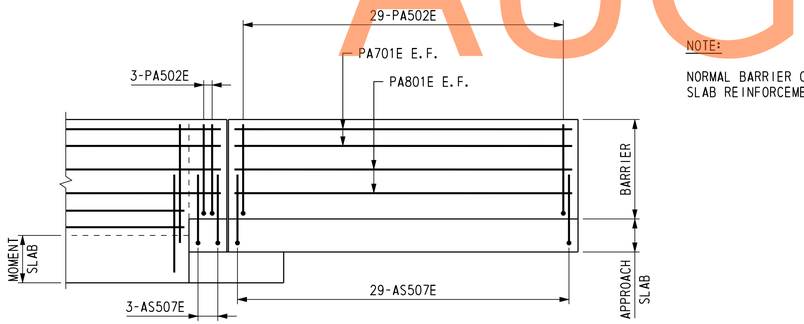


APPROACH SLAB AT ABUTMENT 1 PLAN

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

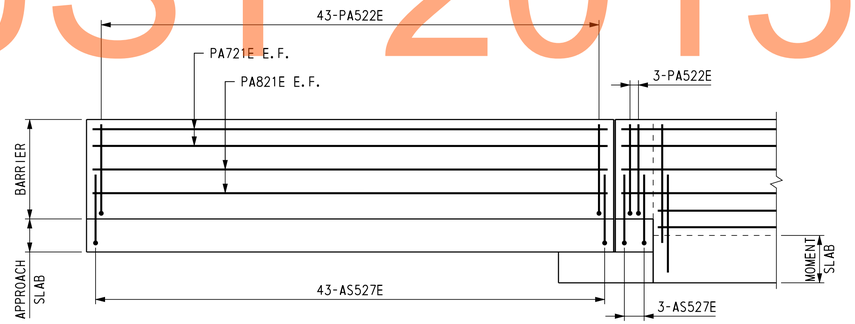
APPROACH SLAB AT ABUTMENT 2 PLAN

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



NOTE:

NORMAL BARRIER ON MOMENT SLAB REINFORCEMENT NOT SHOWN.



ELEVATION - DECK AND NORTH BARRIER REINFORCEMENT

NOT TO SCALE

ELEVATION - DECK AND NORTH BARRIER REINFORCEMENT

NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
3. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
4. FOR APPROACH SLAB PLANS, SEE DWG. 1-475 AS-1.
5. FOR SECTIONS A-A TO C-C, SEE DWG. 1-475 AS-4.
6. FOR REINFORCING BAR LIST, SEE DWG. 1-475 AS-5.
7. FOR SLAB DOWELS, SEE DWG. 1-475 DK-2.

DELAWARE
DEPARTMENT OF TRANSPORTATION

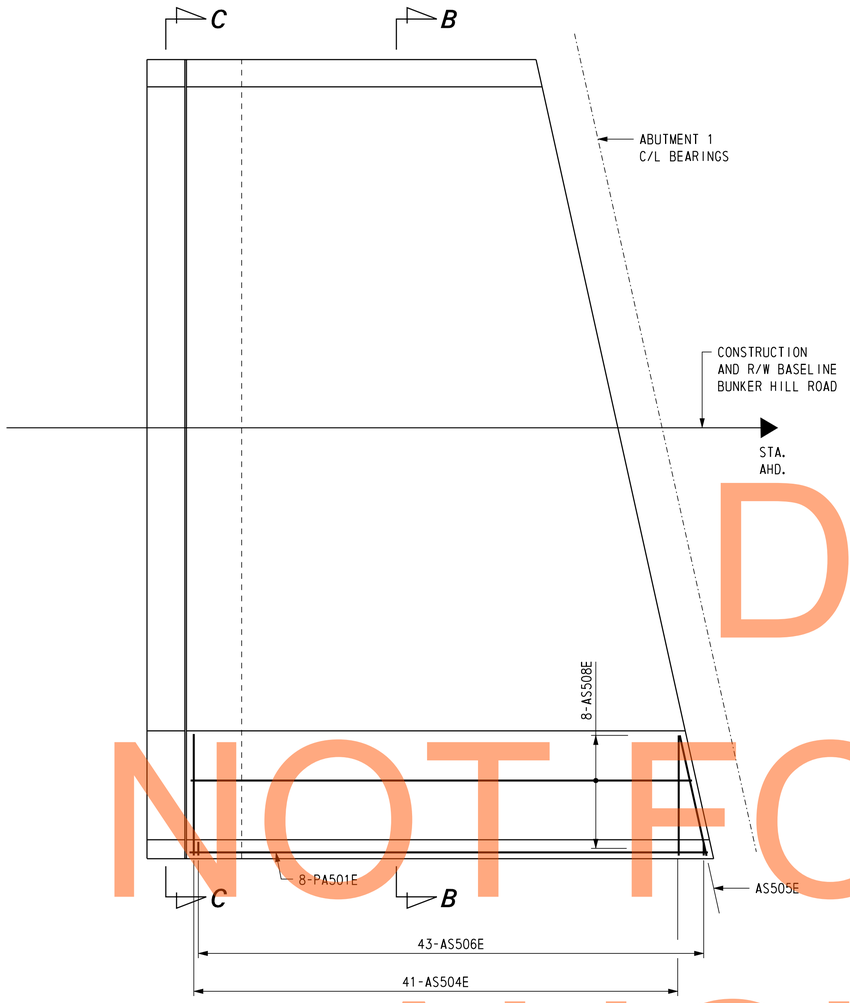
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY		
NEW CASTLE	CHECKED BY: J. S. LI	

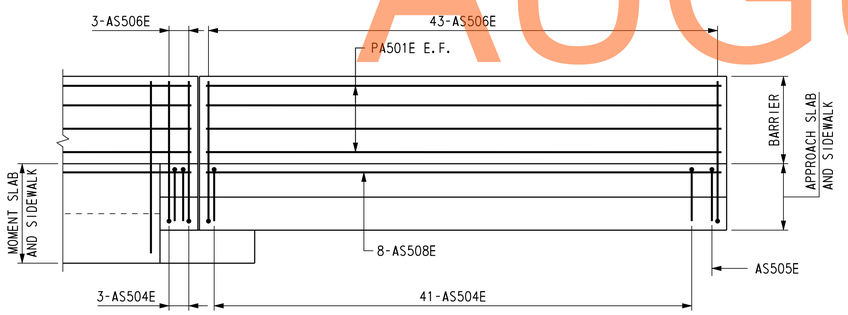
BUNKER HILL ROAD
OVER US 301 MAINLINE
APPROACH SLAB
REINFORCEMENT 1

1-475: AS-2
SHEET NO.
435
TOTAL SHTS.
1256



BARRIER AND SIDEWALK ON APPROACH SLAB AT ABUTMENT 1 PLAN

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

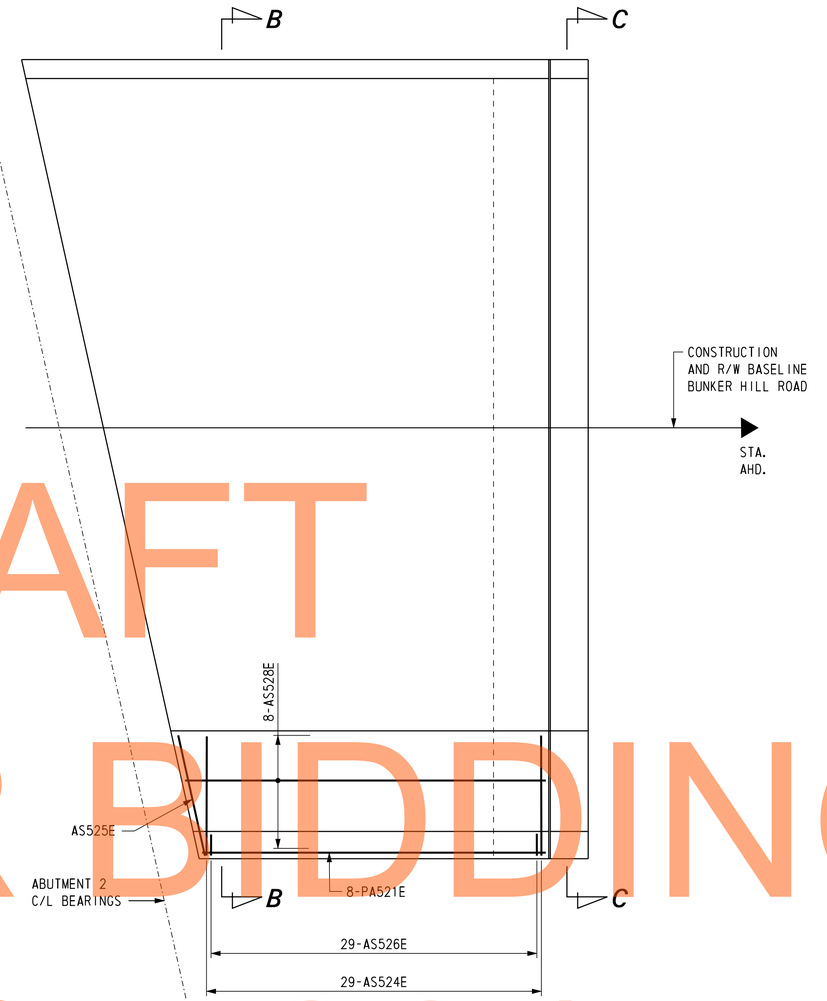


ELEVATION - DECK, SIDEWALK AND SOUTH BARRIER REINFORCEMENT

NOT TO SCALE

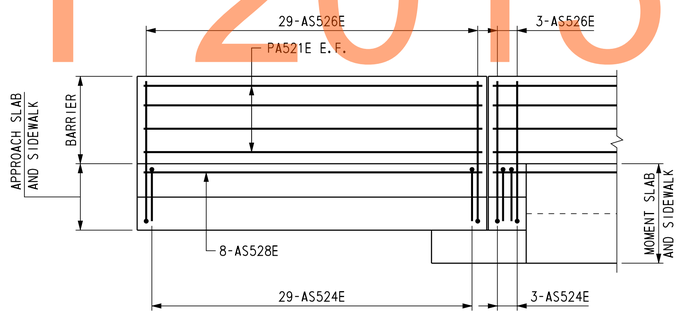
NOTE:

NORMAL BARRIER ON MOMENT SLAB REINFORCEMENT NOT SHOWN.



BARRIER AND SIDEWALK ON APPROACH SLAB AT ABUTMENT 2 PLAN

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



ELEVATION - DECK, SIDEWALK AND SOUTH BARRIER REINFORCEMENT

NOT TO SCALE

CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR ABUTMENT 1 PLAN AND ELEVATION, SEE DWG. 1-475 AB-2.
3. FOR ABUTMENT 2 PLAN AND ELEVATION, SEE DWG. 1-475 AB-3.
4. FOR APPROACH SLAB PLAN, SEE DWG. 1-475 AS-1.
5. FOR SECTION B-B AND C-C, SEE DWG. 1-475 AS-4.
6. FOR REINFORCING BAR LIST, SEE DWG. 1-475 AS-5.

DELAWARE
DEPARTMENT OF TRANSPORTATION

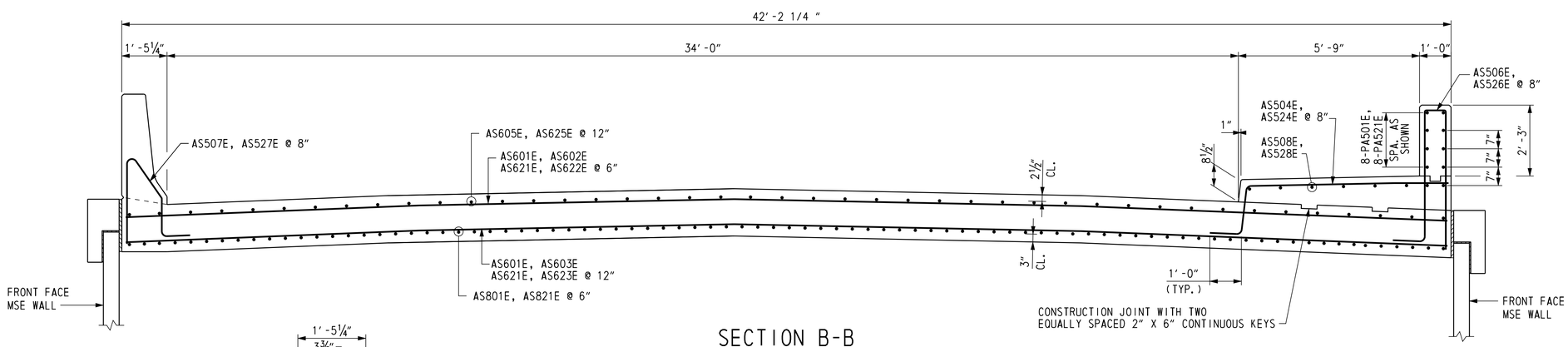
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: J. S. LI	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
APPROACH SLAB
REINFORCEMENT 2

1-475: AS-3
SHEET NO.
436
TOTAL SHTS.
1256

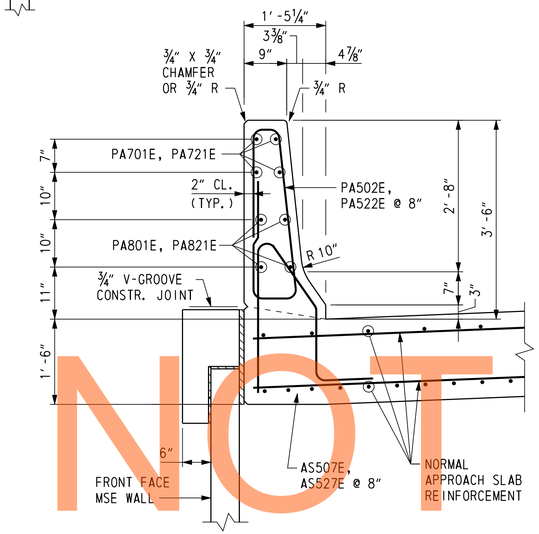


SECTION B-B

SCALE: ½″ = 1′-0″

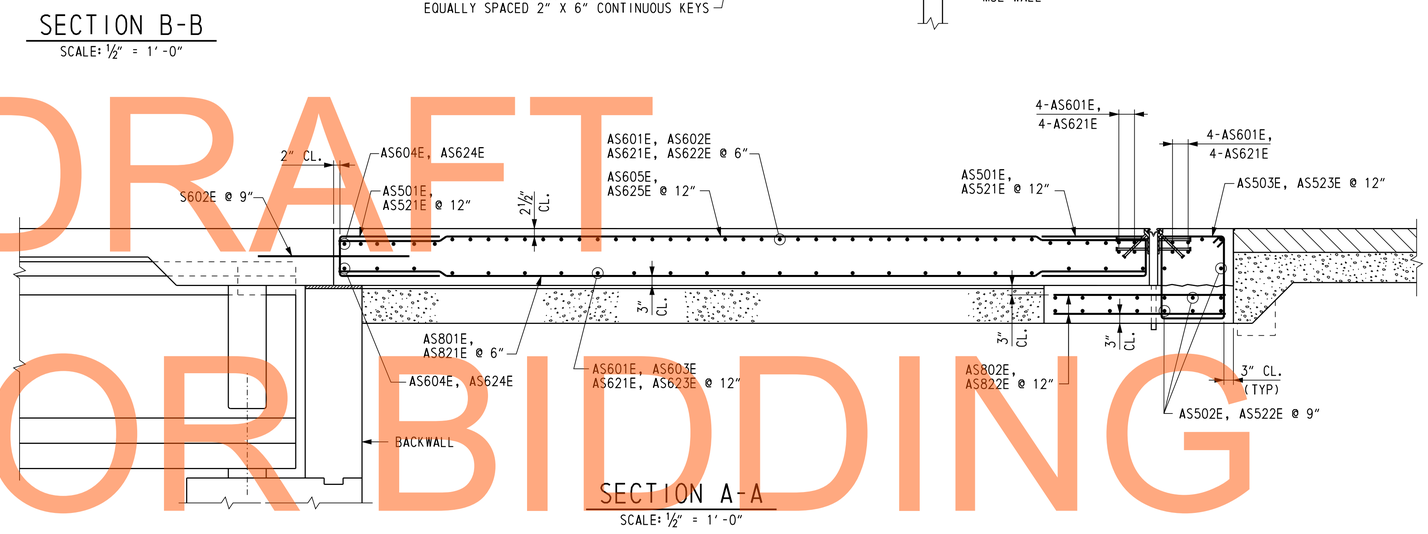
CROSS REFERENCE NOTES:

1. FOR BRIDGE PLAN AND ELEVATION, SEE DWG. 1-475 PE-1.
2. FOR APPROACH SLAB REINFORCEMENT PLANS, SEE DWG. 1-475 AS-2 & 1-475 AS-3.
3. FOR REINFORCING BAR LIST, SEE DWG. 1-475 AS-5.



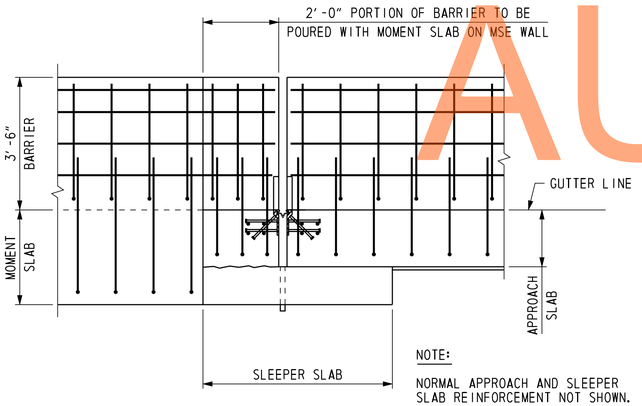
TYPICAL BARRIER REINFORCEMENT SECTION

SCALE: ¾″ = 1′-0″



SECTION A-A

SCALE: ½″ = 1′-0″

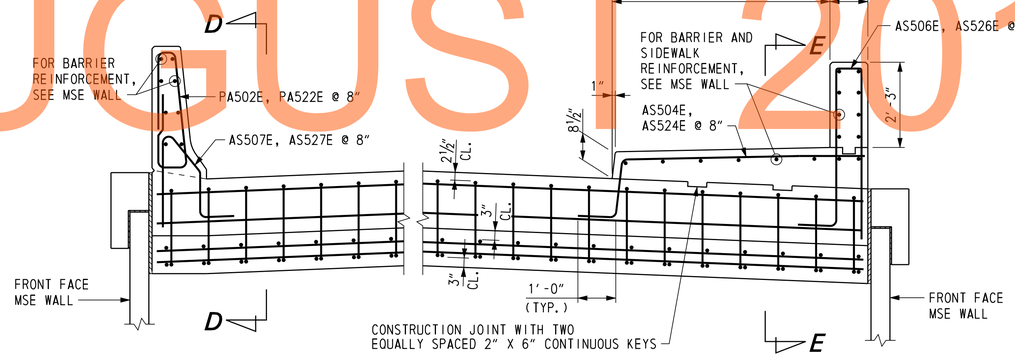


NOTE:

NORMAL APPROACH AND SLEEPER SLAB REINFORCEMENT NOT SHOWN. SECTION SHOWN FOR ABUTMENT 1. ORIENTATION IS OPPOSITE HAND FOR ABUTMENT 2.

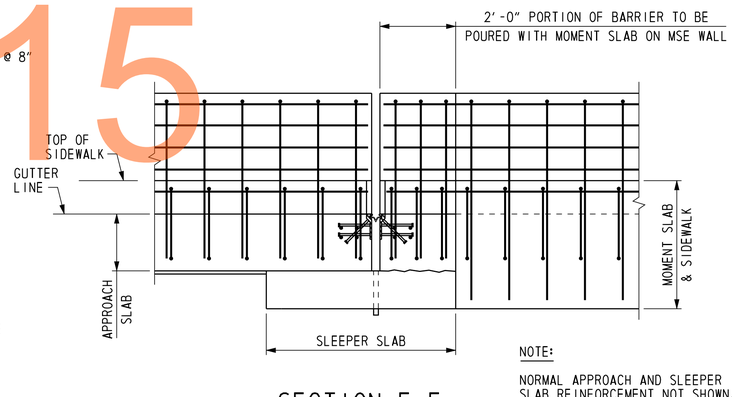
SECTION D-D

SCALE: ½″ = 1′-0″



SECTION C-C

SCALE: ½″ = 1′-0″



NOTE:

NORMAL APPROACH AND SLEEPER SLAB REINFORCEMENT NOT SHOWN. SECTION SHOWN FOR ABUTMENT 1. ORIENTATION IS OPPOSITE HAND FOR ABUTMENT 2.

SECTION E-E

SCALE: ½″ = 1′-0″

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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	BRIDGE NO.	1-475
T200511303	DESIGNED BY: K. D. BEAVER	
COUNTY	CHECKED BY: J. S. Li	
NEW CASTLE		

BUNKER HILL ROAD
OVER US 301 MAINLINE
APPROACH SLABS
REINFORCEMENT 3

1-475- AS-4
SHEET NO. 437
TOTAL SHTS. 1256

REINFORCING BAR LIST

APPROACH AND SLEEPER SLAB AT ABUTMENT 1

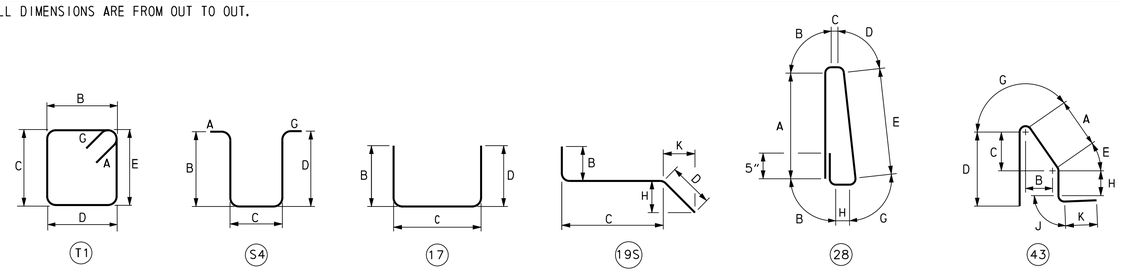
MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	J	K	R	REMARKS
AS501E	6′-2½″	86	17		2′-7″	1′-0½″	2′-7″								
AS502E	41′-10″	18	STR												
AS503E	8′-1″	43	T1	0′-6″	1′-6″	2′-0½″	1′-6″	2′-0½″		0′-6″					
AS504E	9′-1½″	44	19S		1′-0″	1′-8½″	6′-5″				6′-5″		0′-1½″		
AS505E	9′-3½″	1	19S		1′-0″	1′-8½″	6′-7″				6′-7″		0′-1½″		
AS506E	10′-3″	46	S4	0′-10″	4′-4½″	0′-8″	4′-4½″								
AS507E	5′-0½″	32	43	1′-1″	0′-8⅜″	0′-10″	2′-1⅞″	0′-1″		0′-7⅝″	1′-2″	0′-3″	0′-10″		
AS508E	25′-10½″ TO 27′-3″	8	STR												Δ = 2⅜″
AS601E	41′-10″	66	STR												
AS602E	6′-1″ TO 39′-10″	16	STR												Δ = 2′-3″
AS603E	6′-1″ TO 37′-7″	8	STR												Δ = 4′-6″
AS604E	42′-10″	2	STR												
AS605E	18′-0″ TO 27′-3″	43	STR												Δ = 2⅝″ ±
AS801E	18′-0″ TO 27′-3″	85	STR												Δ = 1⅛″ ±
AS802E	4′-6″	86	STR												
PA501E	27′-2″	8	STR												
PA502E	7′-6¼″	32	28	2′-9¼″	0′-2⅝″	0′-1⅝″	0′-2¾″	2′-9½″		0′-3⅛″	0′-5⅛″				
PA701E	18′-0″	4	STR												
PA801E	18′-0″	4	STR												

APPROACH AND SLEEPER SLAB AT ABUTMENT 2

MARK	LENGTH	NO. BARS	TYPE	A	B	C	D	E	F	G	H	J	K	R	REMARKS
AS521E	6′-2½″	86	17		2′-7″	1′-0½″	2′-7″								
AS522E	41′-10″	18	STR												
AS523E	8′-1″	43	T1	0′-6″	1′-6″	2′-0½″	1′-6″	2′-0½″		0′-6″					
AS524E	9′-1½″	32	19S		1′-0″	1′-8½″	6′-5″				6′-5″		0′-1½″		
AS525E	9′-3½″	1	19S		1′-0″	1′-8½″	6′-7″				6′-7″		0′-1½″		
AS526E	10′-3″	32	S4	0′-10″	4′-4½″	0′-8″	4′-4½″								
AS527E	5′-0½″	46	43	1′-1″	0′-8⅜″	0′-10″	2′-1⅞″	0′-1″		0′-7⅝″	1′-2″	0′-3″	0′-10″		
AS528E	18′-0″ TO 19′-5″	8	STR												Δ = 2⅜″
AS621E	41′-10″	66	STR												
AS622E	6′-1″ TO 39′-10″	16	STR												Δ = 2′-3″
AS623E	6′-1″ TO 37′-7″	8	STR												Δ = 4′-6″
AS624E	42′-10″	2	STR												
AS625E	18′-0″ TO 27′-3″	43	STR												Δ = 2⅝″ ±
AS821E	18′-0″ TO 27′-3″	85	STR												Δ = 1⅛″ ±
AS822E	4′-6″	86	STR												
PA521E	18′-0″	8	STR												
PA522E	7′-6¼″	46	28	2′-9¼″	0′-2⅝″	0′-1⅝″	0′-2¾″	2′-9½″		0′-3⅛″	0′-5⅛″				
PA721E	27′-1″	4	STR												
PA821E	27′-1″	4	STR												

BENDING DIAGRAMS

ALL DIMENSIONS ARE FROM OUT TO OUT.



DELAWARE
DEPARTMENT OF TRANSPORTATION

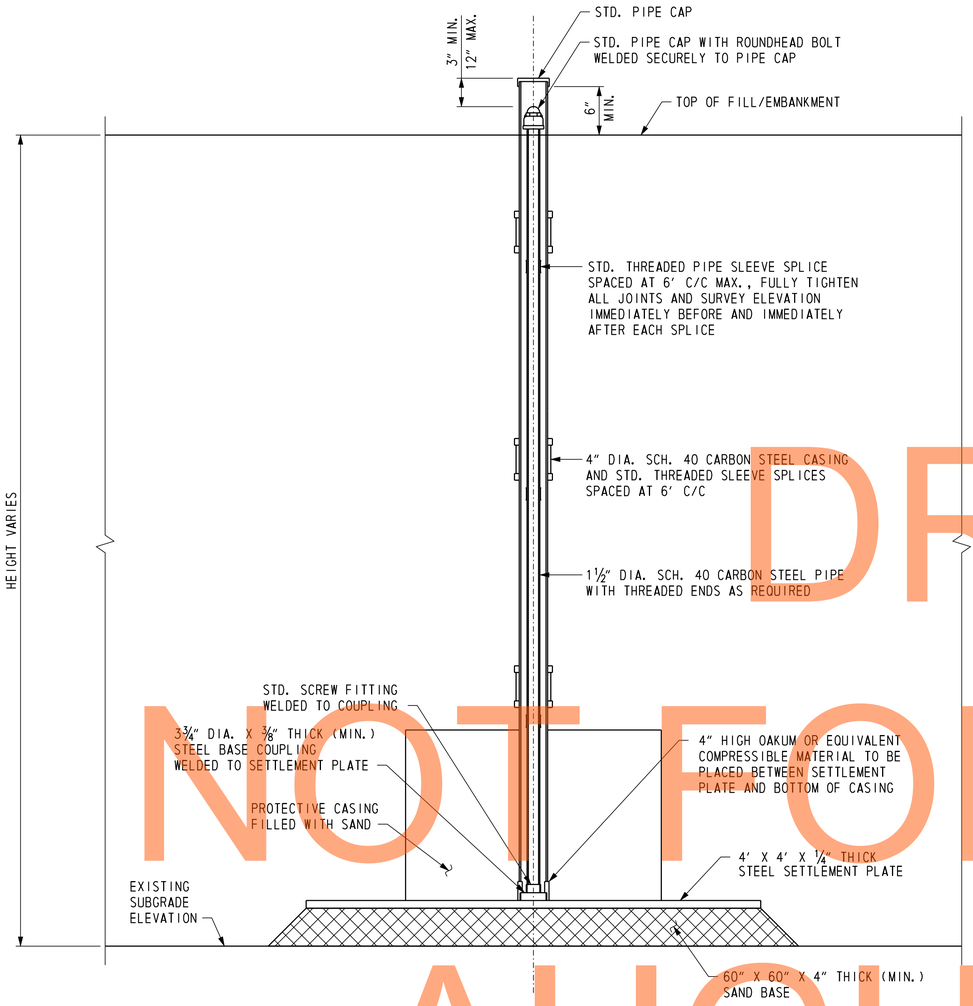
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303
COUNTY NEW CASTLE
BRIDGE NO. 1-475
DESIGNED BY: K. D. BEAVER
CHECKED BY: J. S. Li

BUNKER HILL ROAD
OVER US 301 MAINLINE
APPROACH SLABS
REINFORCING BAR LIST

1-475-AS-5
SHEET NO. 438
TOTAL SHTS. 1256



SETTLEMENT PLATFORM

NOT TO SCALE

SETTLEMENT PLATFORM	STATION	OFFSET	SETTLEMENT MONUMENT	STATION	OFFSET
SP-1-475-1	15+86.00	4.00' RT	SM-1-475-1	15+86.00	1.00' LT
SP-1-475-2	17+57.00	4.00' RT	SM-1-475-2	17+57.00	1.00' LT

SETTLEMENT NOTE

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, INSTALL SETTLEMENT MONUMENTS AS INDICATED ON THE BRIDGE PLANS AND TAKE INITIAL READINGS. READINGS ON ALL SETTLEMENT MONITORING DEVICES SHALL THEN BE TAKEN AT A MINIMUM OF THREE (3) CALENDAR DAY INTERVALS. AFTER THE FILL HAS BEEN COMPLETED AND TWO (2) SUCCESSIVE READINGS OF EACH DEVICE HAVE BEEN RECORDED LESS THAN OR EQUAL TO 0.1", THE IMMEDIATE SETTLEMENT WILL BE DEEMED COMPLETE AND THE GEOTECHNICAL ENGINEER CAN RELEASE THE SUBSTRUCTURE FOR INSTALLATION OF PRODUCTION PILES. AFTER COMPLETION OF THE MSE WALL PANEL PLACEMENT, THE CONTRACTOR SHALL ESTABLISH REFERENCE POINTS TO MONITOR SETTLEMENT ON TOP OF THE MSE WALL PANELS OR ON TOP OF THE MSE WALL LEVELING PAD AT POINTS WITHIN FIVE FEET OF ALL ENDS AND CORNERS AND AT THE CENTER OF BRIDGES AND THE CENTERLINE OF US 301. AFTER THE SUBSTRUCTURE HAS BEEN RELEASED, READINGS ON ALL SETTLEMENT MONITORING DEVICES AND REFERENCE POINTS SHALL CONTINUE TO BE TAKEN AT A MINIMUM OF 30-DAY INTERVALS FOR THE NEXT SIX (6) MONTHS OR AS DIRECTED BY THE ENGINEER.

NOTE:

THE BASE OF THE SETTLEMENT PLATFORM SHALL BE PLACED ON THE TOP OF EXISTING GROUND.

CROSS REFERENCE NOTE:

FOR LOCATION OF SETTLEMENT PLATFORMS AND MONUMENTS, SEE DWG. 1-475 PE-1.

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11/8/2012
Steve_Lambert

DELAWARE
DEPARTMENT OF TRANSPORTATION

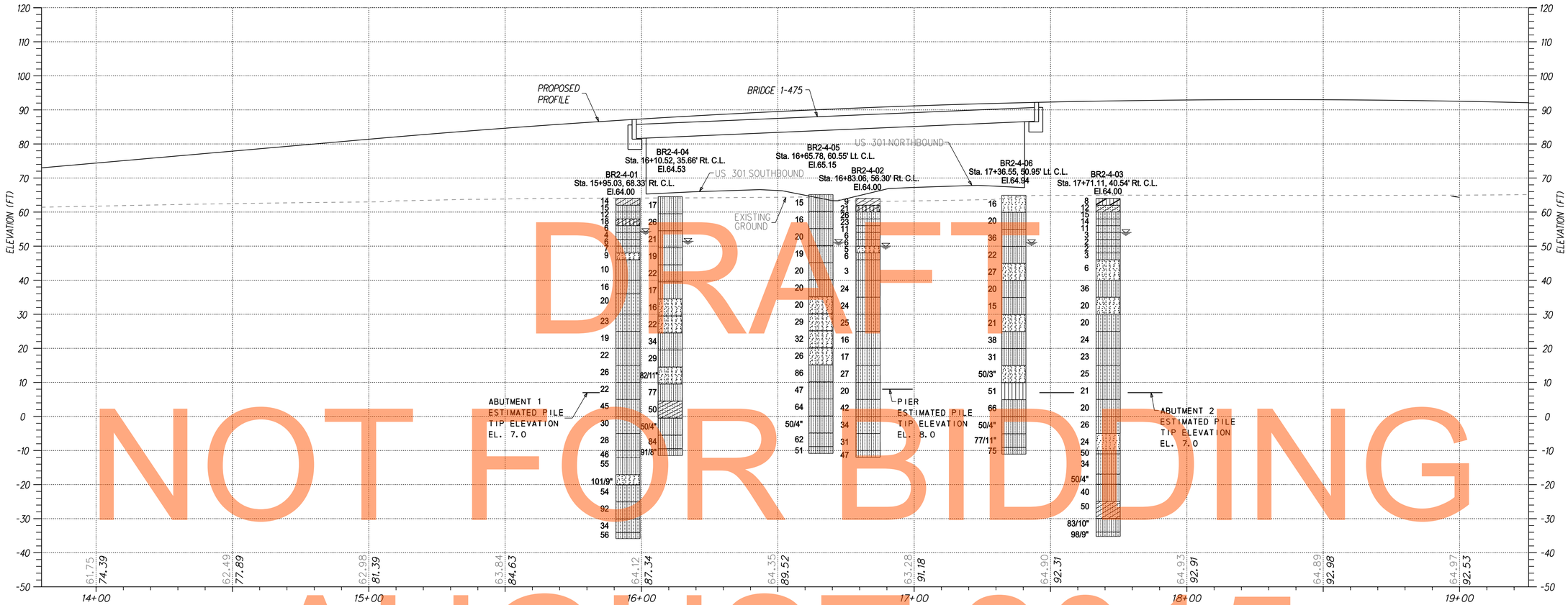
ADDENDUMS / REVISIONS

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT T200511303
COUNTY NEW CASTLE
BRIDGE NO. 1-475
DESIGNED BY: ADH
CHECKED BY: DHG

BUNKER HILL ROAD
OVER US 301 MAINLINE
SETTLEMENT PLATFORM

1-475 DT-1
SHEET NO. 439
TOTAL SHTS. 1256



KEY TO SYMBOLS

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

VERTICAL SCALE FEET 0 16 32 48

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

HORIZONTAL SCALE
0 20 40 60
FEET

US 301
LEVELS ROAD
TO SUMMIT BRIDGE ROAD

CONTRACT	T200511303
COUNTY	NEW CASTLE
BRIDGE NO.	1-475
DESIGNED BY:	ZH
CHECKED BY:	RDB

BUNKER HILL ROAD
OVER US 301 MAINLINE

BORINGS

1-475 BO-1	
SHEET NO.	440
TOTAL SHTS.	1256

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11/8/2012
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