

INLET & OUTLET HEADWALL ELEVATION

- DIMENSIONS ARE TO BE VERIFIED BY ENGINEER IN THE FIELD.
 HEADWALLS HAVE 3/4" Ø GALVANIZED
- X (13) 18'-6" LONG STEEL TIEBACK ROD W/ DMA PLATE
 - (13) 12'-6" LONG STEEL TIEBACK ROD W/ DMA PLATE
 - △ (24) 10'-0" OR 12'-6" LONG STEEL TIEBACK ROD W/ DMA PLATE
 - ⊠ (1) 6'-0" MIN. ROD LENGTH AS NECESSARY TO FACILITATE BOLTING TO BOX AS SHOWN ON "RIB & ANCHOR ATTACHMENT" DETAIL AND PER MANUFACTURER'S RECOMMENDATIONS
 - (12) 6'-0" MIN. LONG STEEL TIEBACK ROD W/ DMA PLATE
 - * PROPOSED ELEVATIONS TO BE FIELD VERIFIED

NOTES

- SOIL PROPERTIES
 Ø = 38 DEG.
 UNIT WEIGHT = 110 PCF
 MINIMUM EMBEDMENT ALONG THE BASE OF WALL SHALL BE 2'-0"
- INLET & OUTLET HEADWALL DESIGN BASED ON HL-93 LOADING
- LIVE LOAD TO BE A MINIMUM 2 FT. FROM HEADWALL.

ALUMINUM STRUCTURAL PLATE WALL
 MATERIAL SPECIFICATIONS (AASHTO M-219):
 INLET & OUTLET HEADWALLS
 Fy = 24 ksi
 THICKNESS = 0.200"
 SECTION MODULUS = 1.484 CUBIC INCHES

ALUMINUM WALE BEAM
 MATERIAL SPECIFICATIONS:
 Fy = 35 ksi
 SECTION MODULUS = 5.073 CUBIC INCHES

TIEBACK ROD
 MATERIAL SPECIFICATIONS:
 ASTM F1554 3/4" Ø
 Fy = 55 ksi

REVISIONS			
NO.	DATE	DESCRIPTION	BY

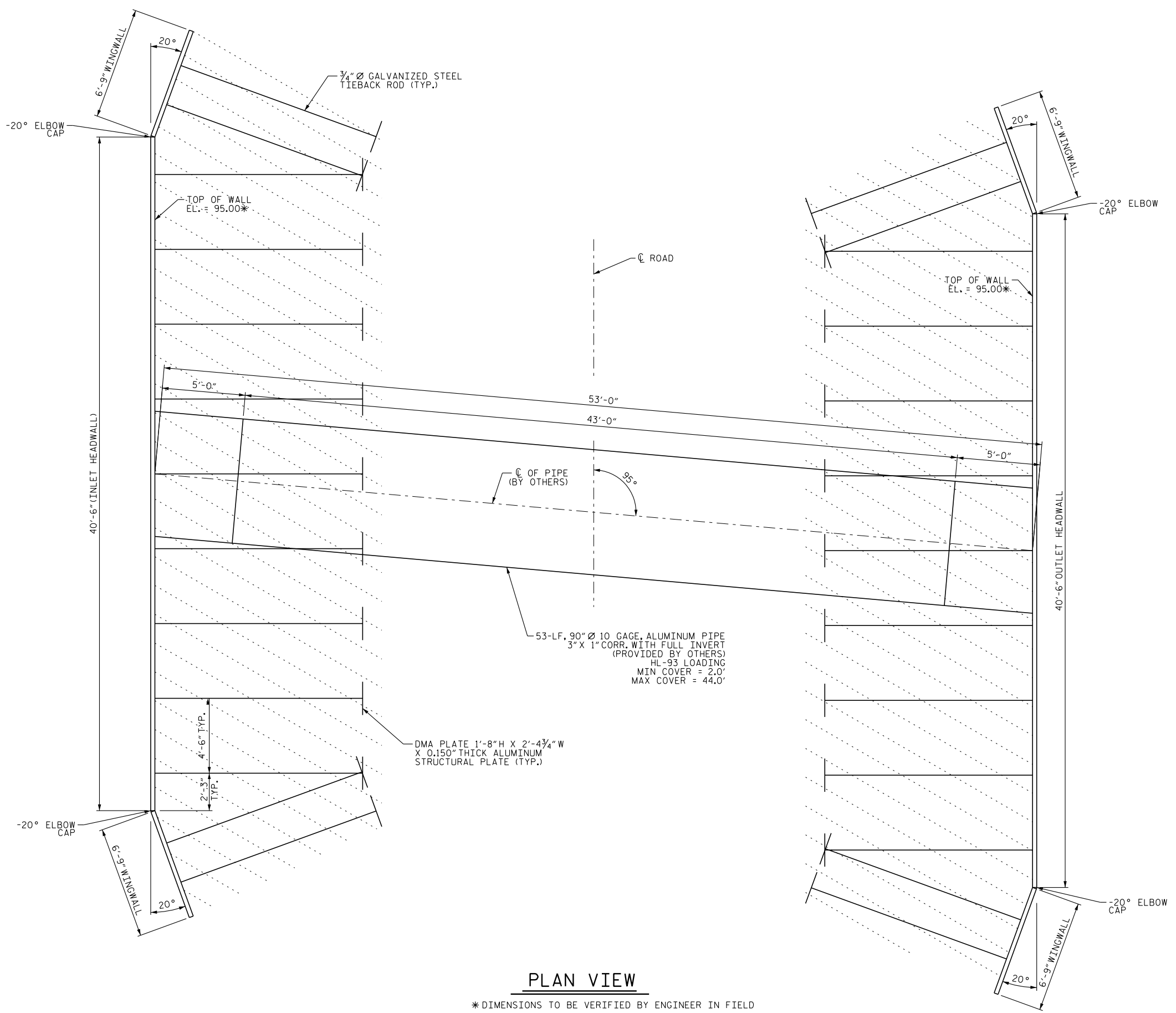
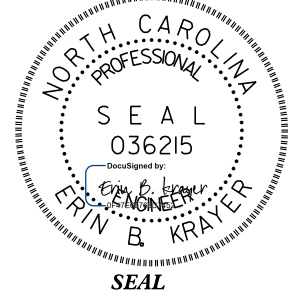
15801 Brixham Hill Ave
 Suite 530
 Charlotte, N.C. 28277
 Bus: 704.919.1860
 Fax: 919.851.8107
 License No. T-0377



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

NC-403
 2 MILES EAST OF FAISON
 DUPLIN COUNTY NORTH CAROLINA
METAL HEADWALL DESIGN

DATE:	1-28-20
SCALE:	NTS
DESIGN:	EBK
DRAWN:	EBK
CHECKED:	JAD
PROJ. NO.	20327.06
SHEET:	S1 OF 3



PLAN VIEW

* DIMENSIONS TO BE VERIFIED BY ENGINEER IN FIELD
 [Symbol] BACKFILL #57 STONE OR APPROVED EQUAL

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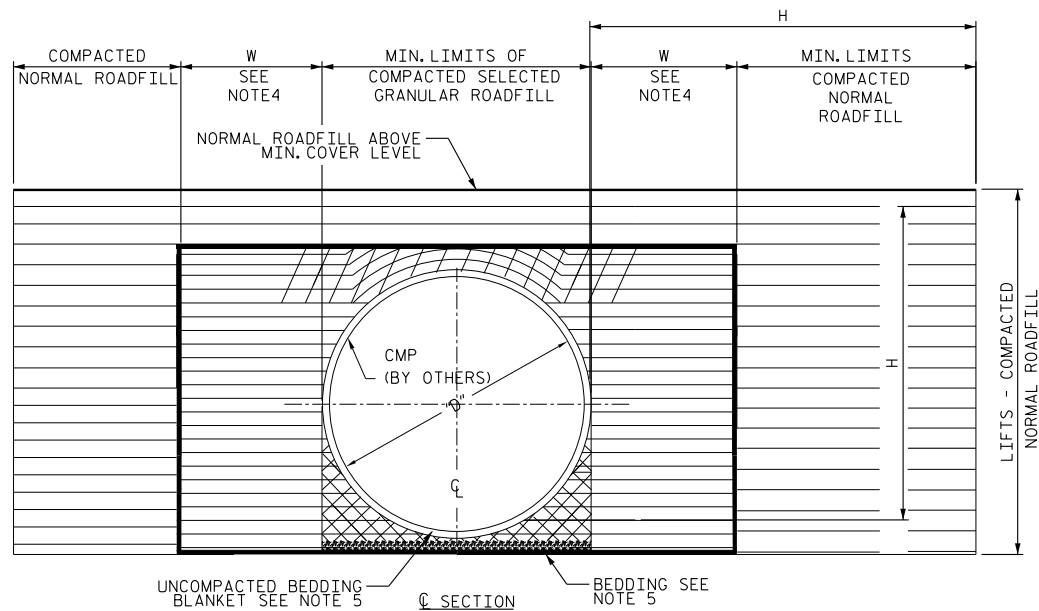
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- CRITICAL BACKFILL ZONE, PROPER COMPACTION MUST BE ACHIEVED
- INITIAL LIFTS OVER CROWN OF STRUCTURE AS INDICATED BY SHADED AREA TO BE COMPACTED TO REQUIRED DENSITY WITH HAND OPERATED EQUIPMENT OR WITH SMALL TRACTOR (D-4 OR SMALLER) DRAWN EQUIPMENT.
- SELECT GRANULAR STRUCTURAL BACKFILL LIMITS.

NOTES:

1. ALL SELECT GRANULAR BACKFILL TO BE PLACED IN A BALANCED FASHION IN THIN LIFTS (6"-8" LOOSE TYPICALLY) AND COMPACTED TO 90 PERCENT DENSITY PER AASHTO T-99. ALL SELECT GRANULAR BACKFILL TO BE NCDOT SELECT BACKFILL CLASS IV OR VI (OR APPROVED EQUAL).
2. COMPLETE AND REGULAR MONITORING OF THE CSP SHAPE IS NECESSARY DURING ALL BACKFILLING OF THE STRUCTURE.
3. PREVENT EXCESSIVE DISTORTION OF SHAPE AS NECESSARY BY VARYING COMPACTION METHODS AND EQUIPMENT.
4. TRENCH WIDTH AND/OR SELECT FILL ENVELOPE WIDTH SHALL BE BY DIRECTION OF THE ENGINEER OF RECORD. A TYPICAL WIDTH OF 3 FEET IS DEPICTED, BUT GREATER OR LESSER DISTANCE MAY BE REQUIRED DEPENDING UPON SITE-SPECIFIC CONDITIONS. THIS WIDTH DEPENDS ON FACTORS SUCH AS THE LATERAL PRESSURES EXERTED BY THE STRUCTURE ONTO THE ADJACENT SOIL FOR THE GIVEN LOADING CONDITIONS, THE STRUCTURE SHAPE, THE QUALITY OF THE SELECT FILL MATERIAL AND THE PROJECT ENGINEER FOR EACH SPECIFIC SITUATION.
5. BEDDING ZONE SHOULD BE FREE OF DEBRIS. PLACE BEDDING MATERIAL AT MIN. THICKNESS EQUAL TO TWICE THE CORRUGATION DEPTH.
6. EMBANKMENT WIDTH H TO BE SUCH THAT A STABLE EMBANKMENT CAPABLE OF RESISTING SIDE PRESSURES FROM CSP PIPE-ARCH SHAPE WILL BE MAINTAINED THROUGHOUT THE LIFE OF INSTALLATION. THIS WIDTH TO BE DETERMINED BY THE PROJECT ENGINEER.

ADDITIONAL BACKFILL NOTES:

SATISFACTORY BACKFILL MATERIAL, PROPER PLACEMENT, AND COMPACTION ARE KEY FACTORS IN OBTAINING MAXIMUM STRENGTH AND STABILITY.

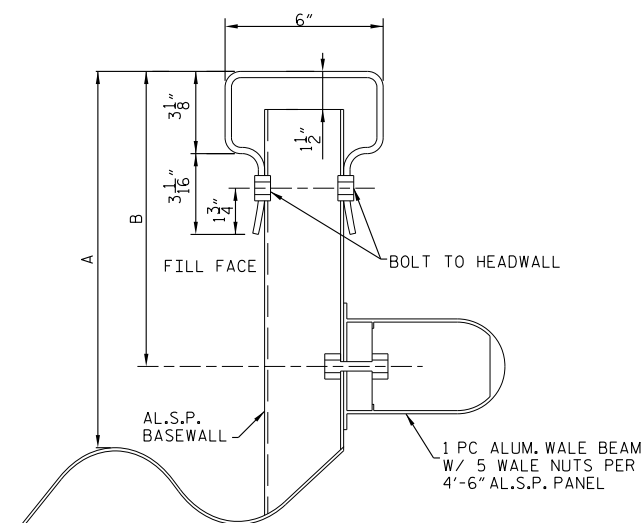
THE BACKFILL MATERIAL SHOULD BE FREE OF ROCKS, FROZEN LUMPS, AND FOREIGN MATERIAL THAT COULD CAUSE HARD SPOTS OR DECOMPOSE TO CREATE VOIDS. BACKFILL MATERIAL SHOULD BE WELL GRADED GRANULAR MATERIAL.

DURING BACKFILL, ONLY SMALL TRACKED VEHICLES (D-4 OR SMALLER) SHOULD BE NEAR THE STRUCTURE AS FILL PROGRESSES ABOVE THE CROWN AND TO THE FINISHED GRADE. THE ENGINEER AND CONTRACTOR ARE CAUTIONED THAT THE MINIMUM COVER MAY NEED TO BE INCREASED TO HANDLE TEMPORARY CONSTRUCTION VEHICLE LOADS. (LARGER THAN D-4)

DETAIL OF TYPICAL BACKFILL

NTS

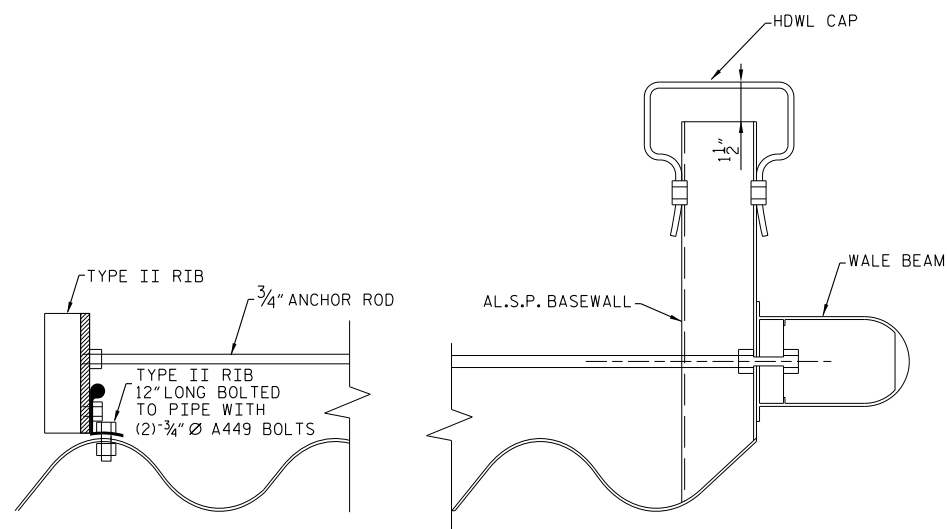
FOUNDATION AND DETAILS ON THIS SHEET PROVIDED BY:
POMONA PIPE PRODUCTS
DUNDAS DR., GREENSBORO, NC



"A" & "B" DIMENSIONS: SEE "INLET/OUTLET END" VIEWS

DETAIL AT TOP OF WALL

NTS



RIB & ANCHOR ATTACHMENT

NTS

MAY BE USED TO ATTACH DEADMAN ANCHOR RODS TO PIPE WHERE COVER LIMITS USE OF THE TYPICAL ANCHOR PLATE.

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15801 Brixton Hill Ave
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Bus: 704 919 8860
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