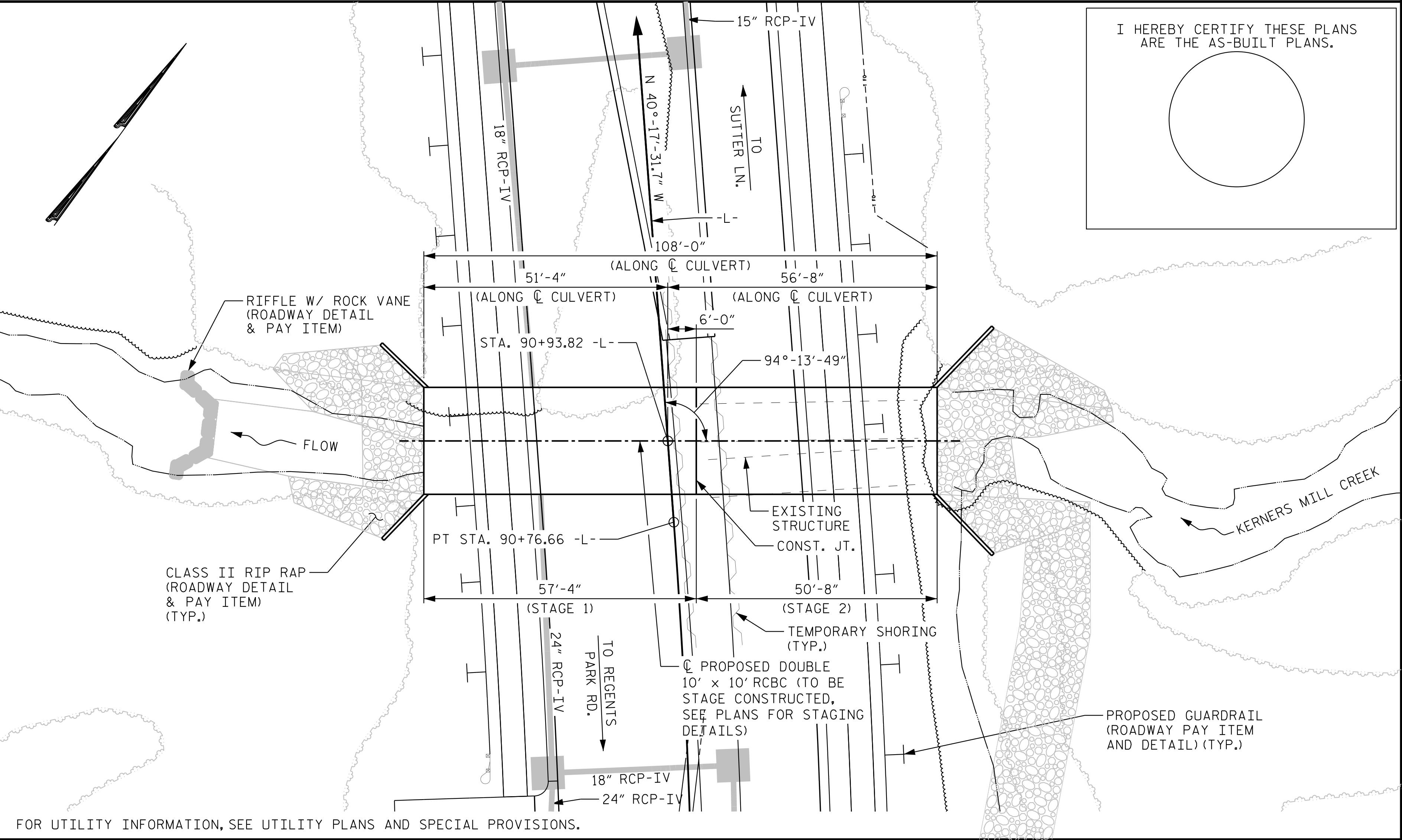


BENCHMARK: -BM 5- 11+50 -Y6-, EL. 878.17, SCRIBED 'X' IN TOP BACK OF CURB



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE -----1,800 CFS
FREQUENCY OF DESIGN FLOOD -----50 YR.
DESIGN HIGH WATER ELEVATION-----873.4 FT.
DRAINAGE AREA -----2.96 SQ. MI.
BASE DISCHARGE (Q100) -----2,000 CFS
BASE HIGH WATER ELEVATION -----874.4 FT.

OVERTOPPING FLOOD DATA

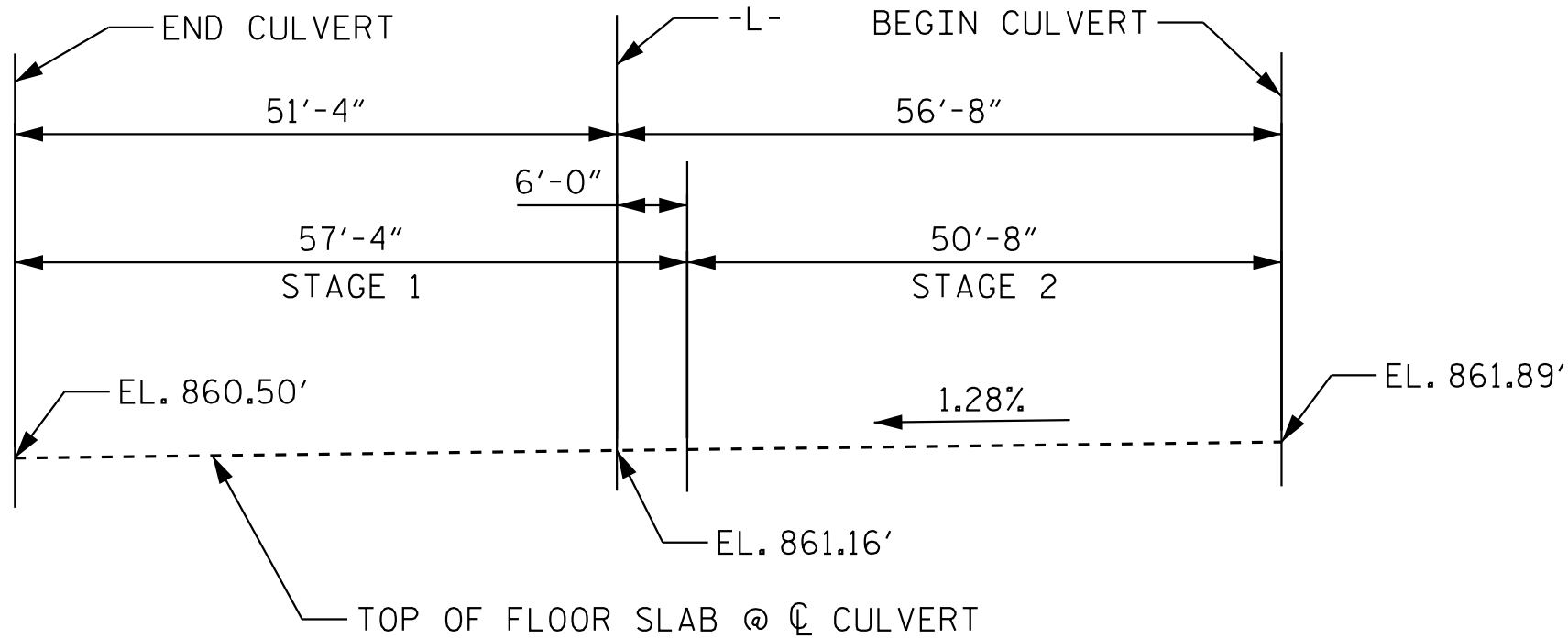
OVERTOPPING DISCHARGE -----2.020 CFS
FREQUENCY OF OVERTOPPING FLOOD ---100 YR.< Q <500 YR.
OVERTOPPING FLOOD ELEVATION -----874.5 *
* OVERTOPPING WILL OCCUR AT THE
SHOULDER POINT AT STA. 89+50 -L- RT.

ROADWAY DATA

GRADE POINT EL. @ STA. 90+93.82 -L- = 874.02
BED ELEVATION @ STA. 90+93.82 -L- = 861.16
ROADWAY SLOPES VARIES

-L- HORIZONTAL CURVE DATA

PI STA. 87+87.62
Δ = 20°56'13.1" (LT)
D = 3°34'51.6"
L = 584.66'
T = 295.63'
R = 1,600.00'



PROFILE ALONG Q CULVERT

NOTES

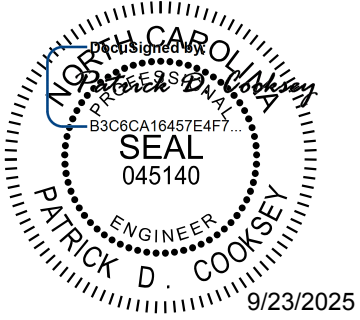
- ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING
- DESIGN FILL -----1.99 FT.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- CONCRETE IN STAGE 1 OR STAGE 2 THE CULVERT TO BE POURED IN THE FOLLOWING ORDER:
1. WING FOOTINGS, CURTAIN WALLS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
- DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON THE WING SHEET.
- AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACES OF THE EXTERIOR WALLS ABOVE THE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
- TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT POURS TO A MAXIMUM OF 70 FEET. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- EXCAVATE A MINIMUM OF 1 FOOT BELOW CULVERT BEARING ELEVATION AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL PER SECTION 414 OF THE STANDARD SPECIFICATIONS.
- AFTER SERVING AS A TEMPORARY STRUCTURE THE EXISTING 2 @ 96" CORRUGATED METAL PIPE LOCATED AT THE SAME LOCATION AS THE PROPOSED CULVERT SHALL BE REMOVED. THE EXISTING STRUCTURE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE STRUCTURE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED CULVERT, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- THE 18"Ø PIPE AND 24"Ø PIPE THROUGH THE SIDEWALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. THE REINFORCING STEEL SHALL BE FIELD BENT AS NECESSARY TO CLEAR PIPE.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- NOTES CONTINUED ON SHEET C1-2.

TOTAL STRUCTURE QUANTITIES

REMOVAL OF EXISTING STRUCTURE AT STA. 90+93.82 -L-	LUMP SUM
CLASS A CONCRETE	
STAGE 1	170.7 C.Y.
STAGE 2	159.1 C.Y.
TOTAL	329.8 C.Y.
REINFORCING STEEL	
STAGE 1	33,704 LBS.
STAGE 2	31,538 LBS.
TOTAL	65,242 LBS.
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	
STAGE 1	108 TONS
STAGE 2	95 TONS
TOTAL	203 TONS

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 90+93.82 -L-

SHEET 1 OF 13



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DOUBLE 10 FT. X 10 FT. CONCRETE BOX CULVERT 94° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C1-1					TOTAL SHEETS 13

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CHECKED BY: A.L. PHILLIPS DATE: 09/25
DESIGN ENGINEER OF RECORD: P.D. COOKSEY DATE: 09/25



STAGE 1:
OUTLET WING W1 FULL HEIGHT, OUTLET WING W2 FULL HEIGHT,
BARREL 1 AND 2 FLOOR SLAB, BARREL 1 AND 2 WALLS, ROOF
SLAB AND HEADWALLS.

STAGE 2:
INLET WING W3 FULL HEIGHT, INLET WING W4 FULL HEIGHT,
BARREL 1 AND 2 FLOOR SLAB, BARREL 1 AND 2 WALLS, ROOF
SLAB AND HEADWALLS.

*** INVERT EL. 866.1' (24" Ø RCP IN BARREL 1 IN STAGE 1)



FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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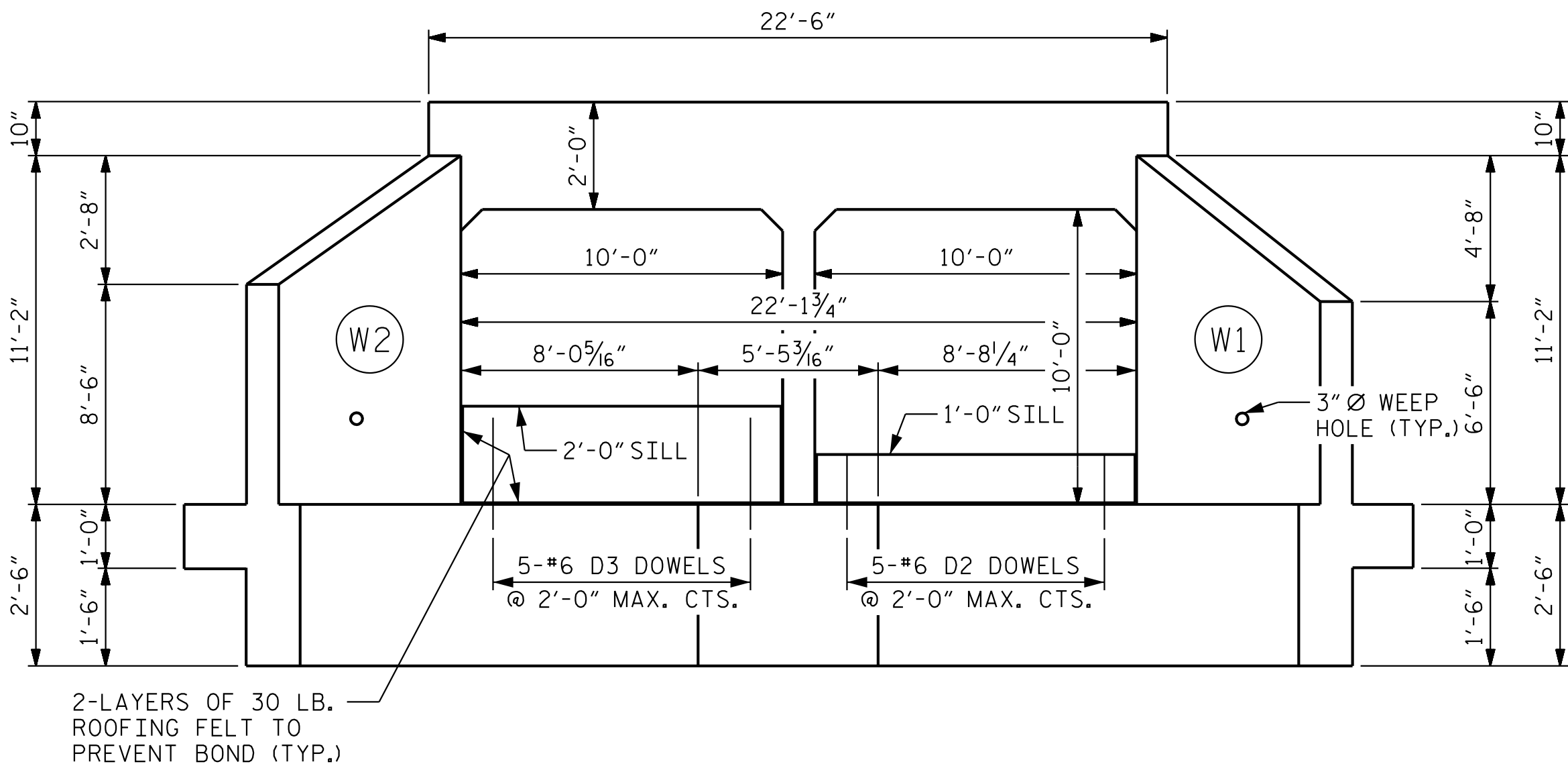
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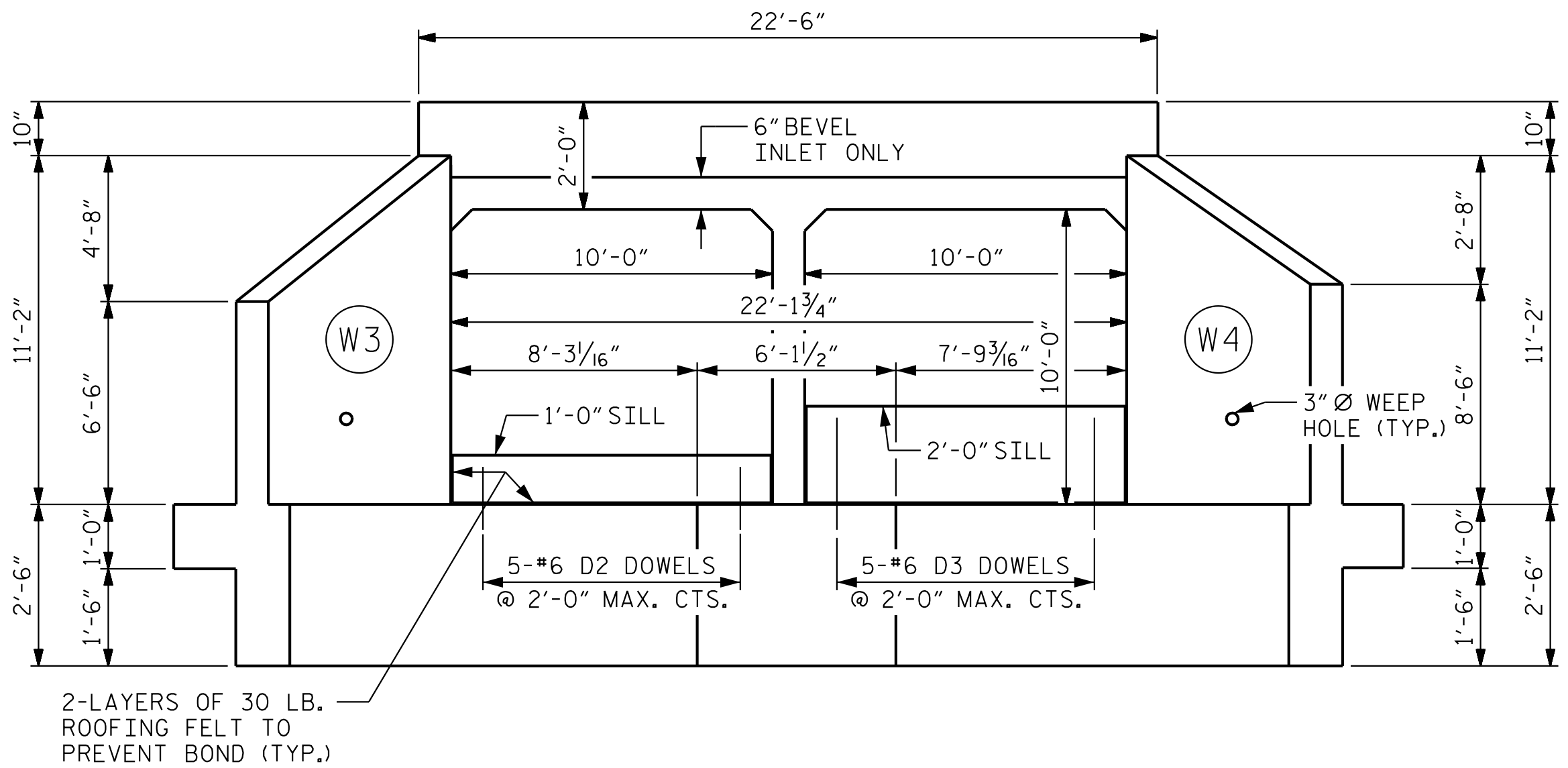
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CONCRETE BOX CULVERT
94° SKEW

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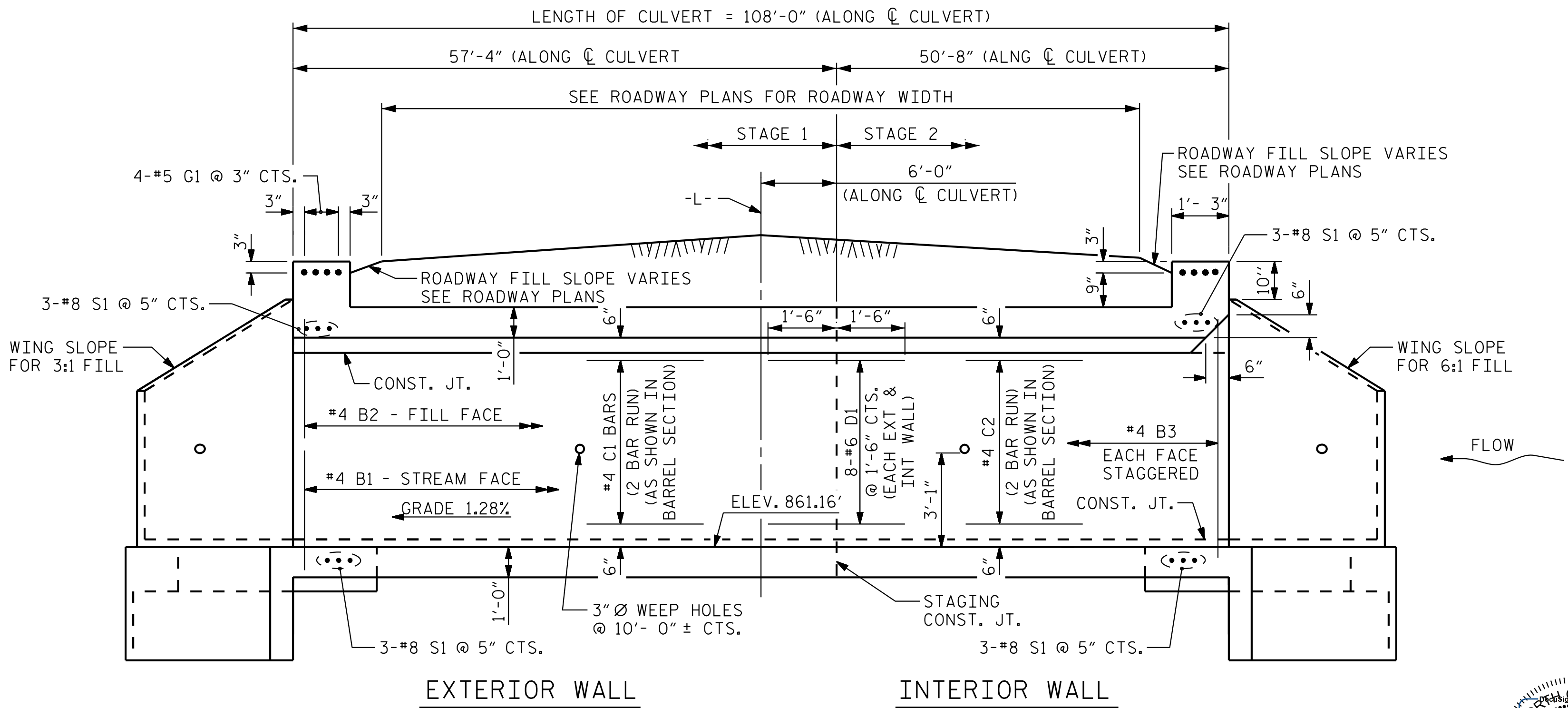
OUTLET END ELEVATION

(SEE SHEET C1-4 FOR SECTION THROUGH SILLS)



INLET END ELEVATION

(SEE SHEET C1-4 FOR SECTION THROUGH SILLS)

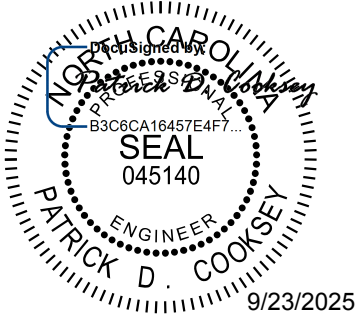


EXTERIOR WALL

INTERIOR WALL

CULVERT SECTION NORMAL TO ROADWAY

#8 S1 BARS AT STAGING CONST. JT. NOT SHOWN FOR CLARITY, SEE SHEET C1-6
SEE SHEET C1-2 FOR 18" & 24" RCP LOCATIONS & INVERTS



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FORSYTH COUNTY
STATION: 90+93.82 -L-

SHEET 3 OF 13

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RALEIGH

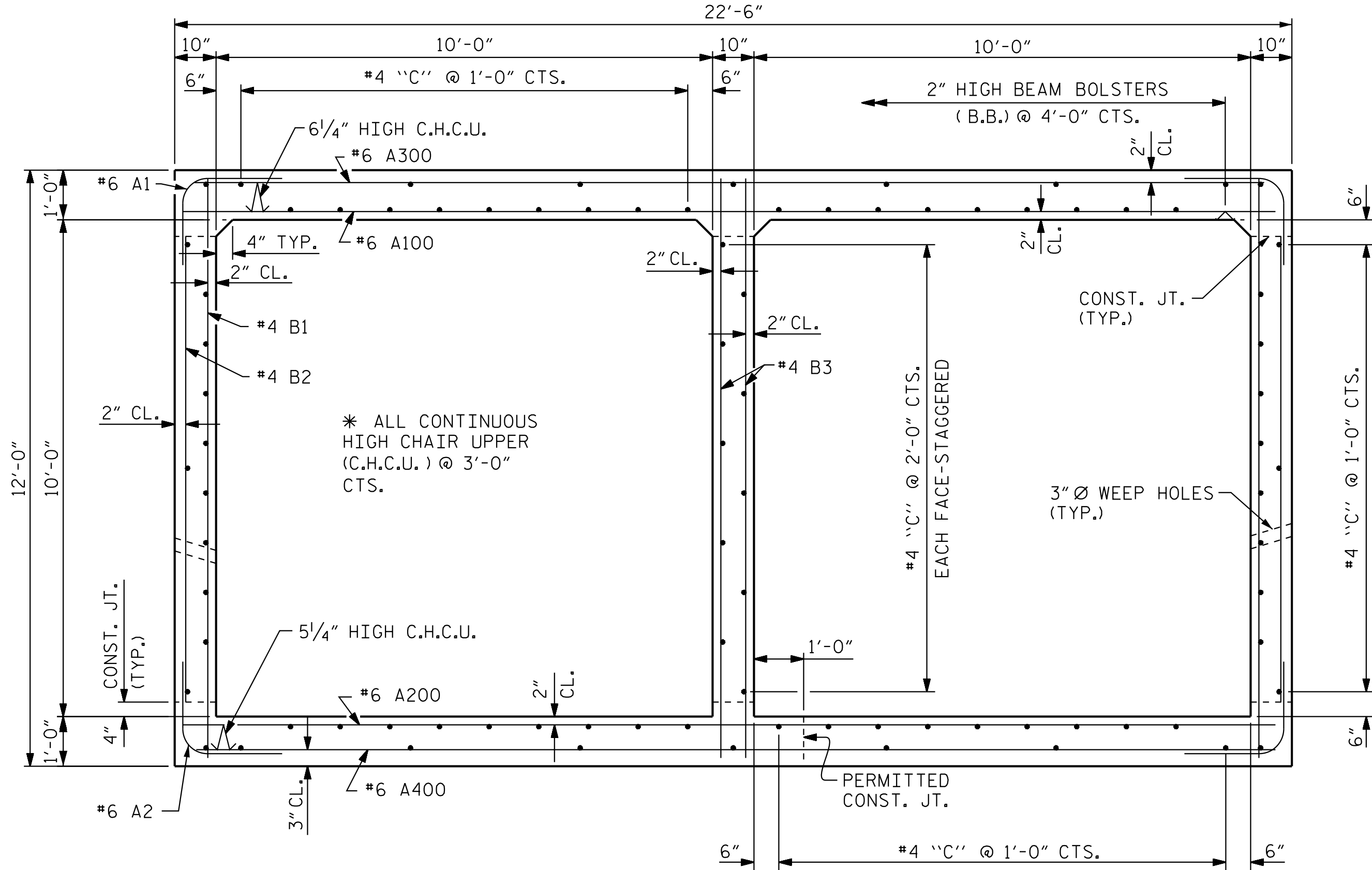
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2			4			13

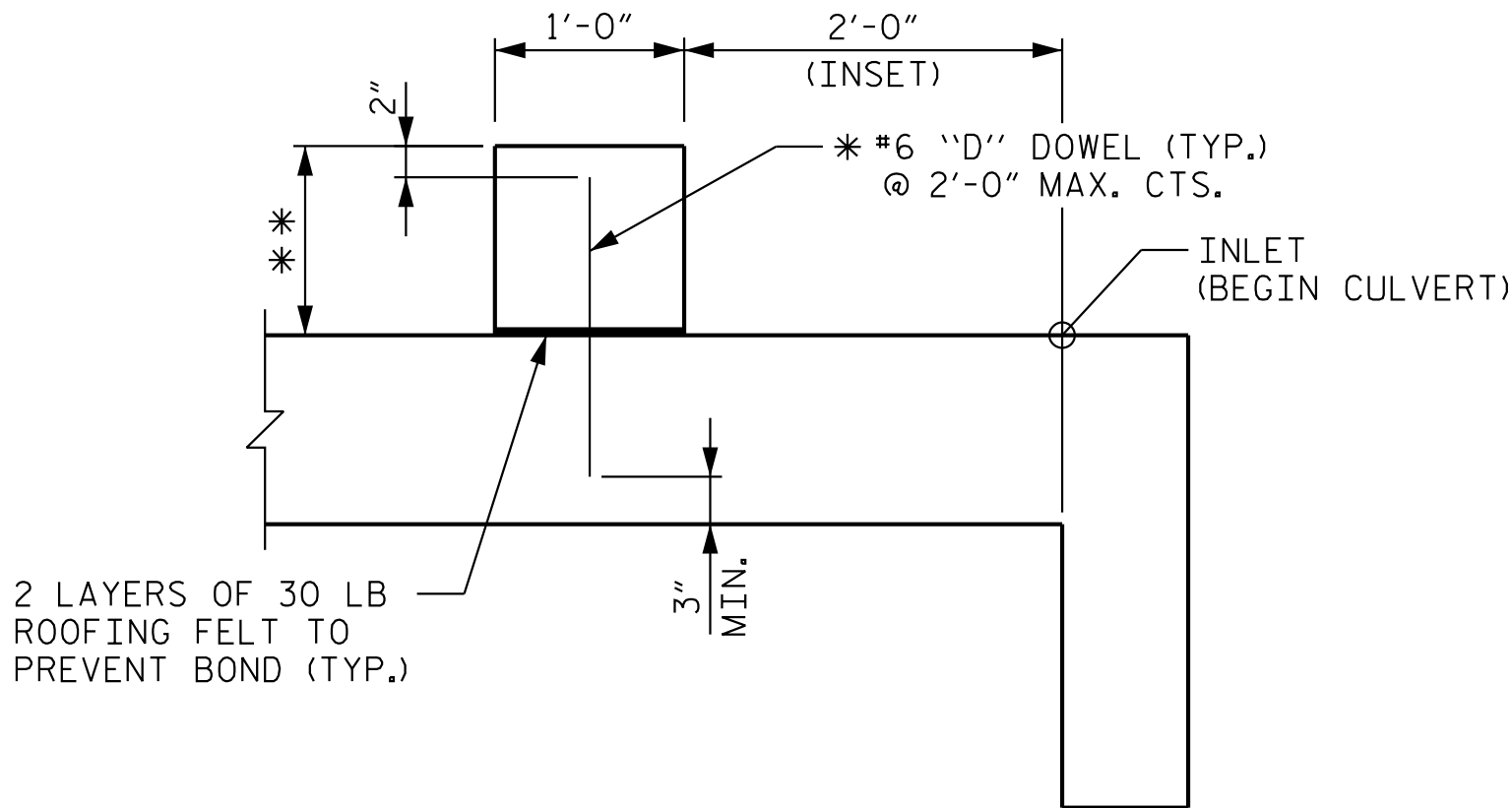
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RIGHT ANGLE SECTION OF BARREL
THERE ARE 86 "C" BARS IN SECTION OF BARREL



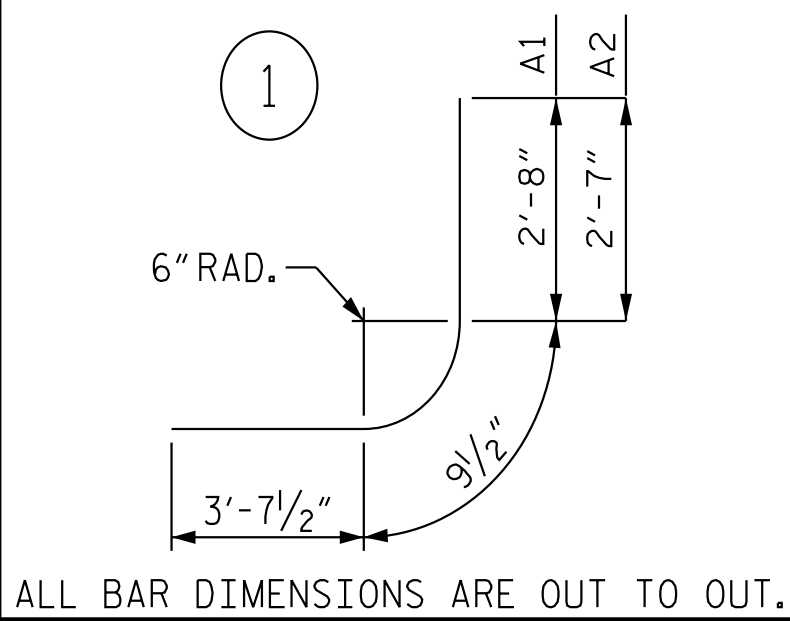
SECTION THROUGH SILL
(INLET SIDE SHOWN, OUTLET SIDE SIMLAR)

- * DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.
- ** 2'-0" FOR BARREL 2
- ** 1'-0" FOR BARREL 1

NOTE: SILLS ARE TO BE CAST NORMAL TO CULVERT WALLS.

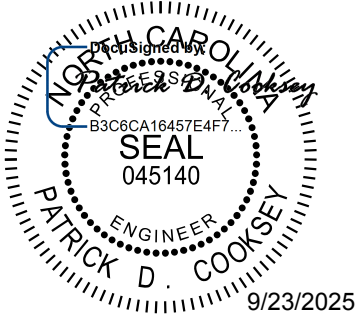
BILL OF MATERIAL						BILL OF MATERIAL					
STAGE 1						STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	228	6	1	7'-1"	2,426	A1	202	6	1	7'-1"	2,149
A2	228	6	1	7'-0"	2,397	A2	202	6	1	7'-0"	2,124
A100	114	6	STR	22'-2"	3,796	A100	101	6	STR	22'-2"	3,363
A200	114	6	STR	22'-2"	3,796	A200	101	6	STR	22'-2"	3,363
A300	114	6	STR	22'-2"	3,796	A300	101	6	STR	22'-2"	3,363
A400	114	6	STR	22'-2"	3,796	A400	101	6	STR	22'-2"	3,363
B1	228	4	STR	11'-7"	1,764	B1	202	4	STR	11'-7"	1,563
B2	228	4	STR	9'-8"	1,472	B2	202	4	STR	9'-8"	1,304
B3	228	4	STR	11'-7"	1,764	B3	202	4	STR	11'-7"	1,563
C1	172	4	STR	29-9"	3,418	C2	172	4	STR	26-5"	3,035
D1	46	6	STR	3'-0"	207	G1	4	5	STR	22'-2"	185
E1	16	5	STR	4'-0"	67	S1	6	8	STR	22'-2"	355
E2	16	5	STR	4'-5"	74						
G1	4	5	STR	22'-2"	92						
S1	6	8	STR	22'-2"	355						
REINFORCING STEEL LBS. 29,220						REINFORCING STEEL LBS. 25,637					
QUANTITIES						QUANTITIES					
STAGE 1						STAGE 2					
CLASS A CONCRETE						CLASS A CONCRETE					
BARREL @ 2,601 C.Y./FT. 149.1 C.Y.						BARREL @ 2,601 C.Y./FT. 131.8 C.Y.					
WINGS, ETC. 20.5 C.Y.						WINGS, ETC. 26.2 C.Y.					
SILLS 1.1 C.Y.						SILLS 1.1 C.Y.					
TOTAL 170.7 C.Y.						TOTAL 159.1 C.Y.					
REINFORCING STEEL						REINFORCING STEEL					
BARREL 29,220 LBS.						BARREL 25,637 LBS.					
WINGS, ETC 4,474 LBS.						WINGS, ETC 5,901 LBS.					
TOTAL 33,694 LBS.						TOTAL 31,538 LBS.					
CULVERT EXCAVATION LUMP SUM						CULVERT EXCAVATION LUMP SUM					
FOUNDATION COND. MATERIAL 108 TONS						FOUNDATION COND. MATERIAL 95 TONS					

SPLICE CHART	
BAR SIZE	SPLICE LENGTH
#6 A200	2'-9"
#6 A400	3'-7"
#4 B1	1'-10"
#4 B3	1'-10"
#4 "C"	2'-5"



PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 90+93.82 -L-

SHEET 4 OF 13



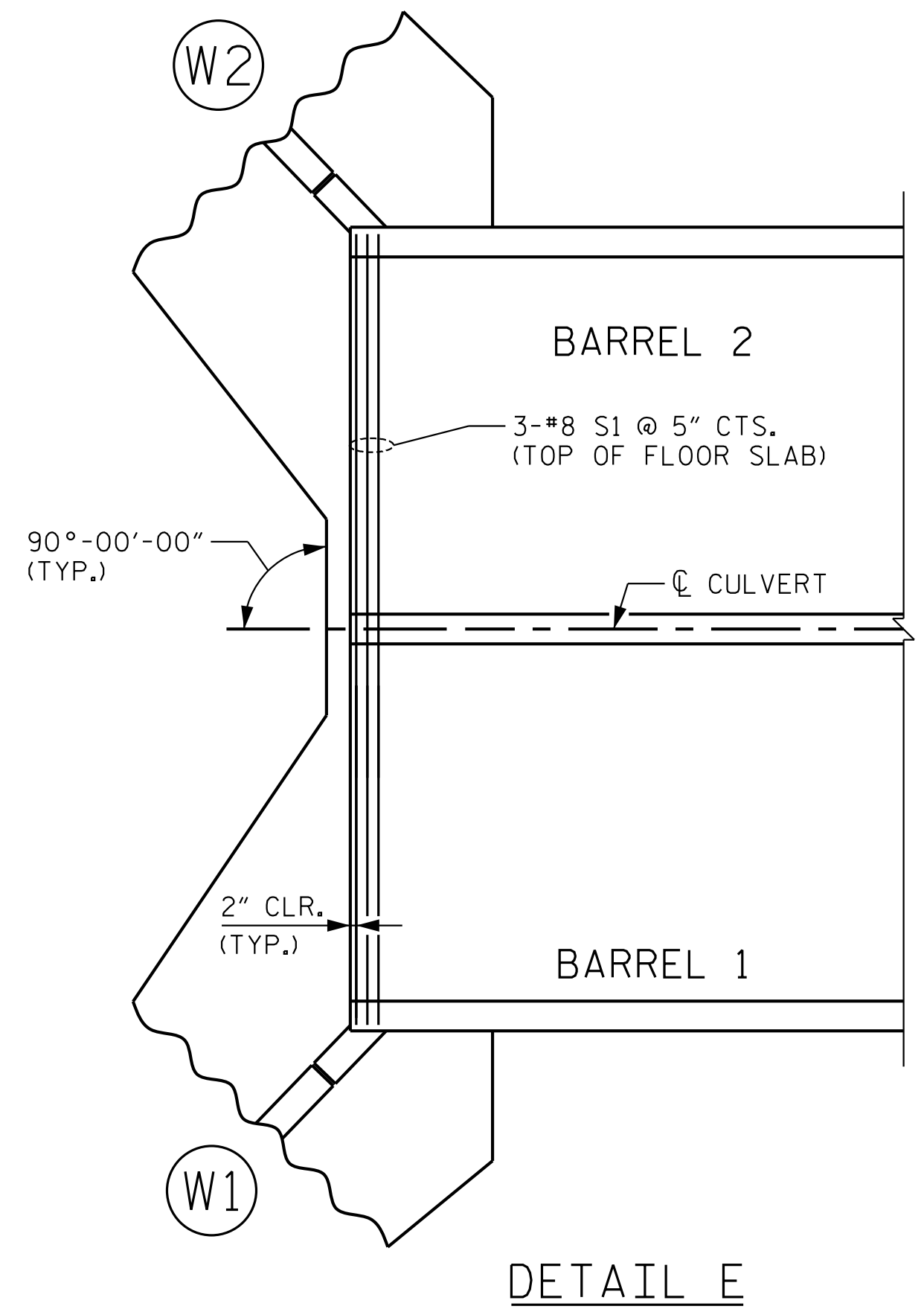
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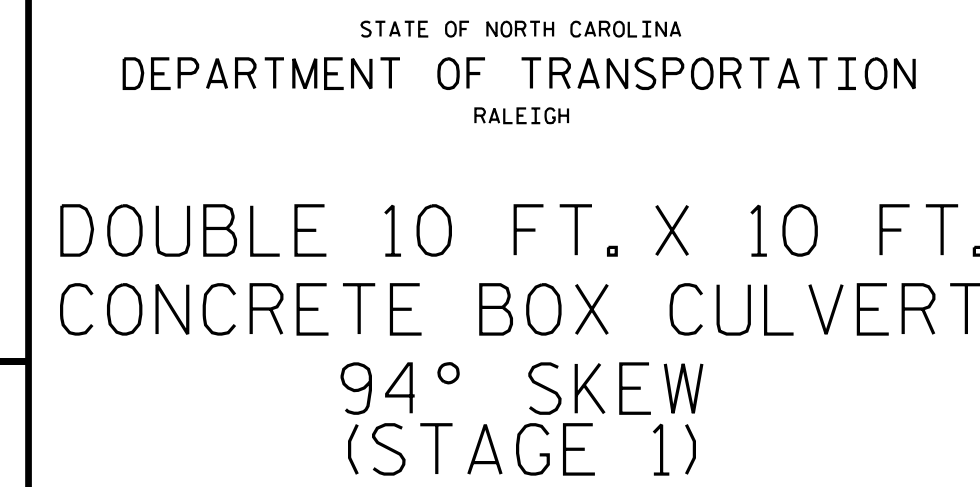
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DETAIL E

SHEET 5 OF 13



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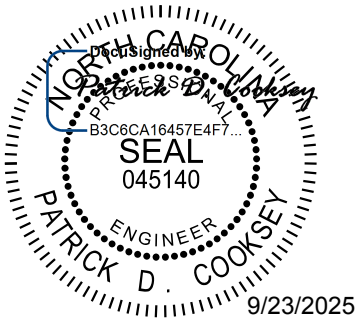


#6-D1 NOT SHOWN FOR CLARITY

DETAIL C

PROJECT NO. U-5760
FORSYTH COUNTY
 STATION: 90+93.82 -L-

SHEET 6 OF 13



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 10 FT. X 10 FT.
CONCRETE BOX CULVERT
94° SKEW
(STAGE 2)

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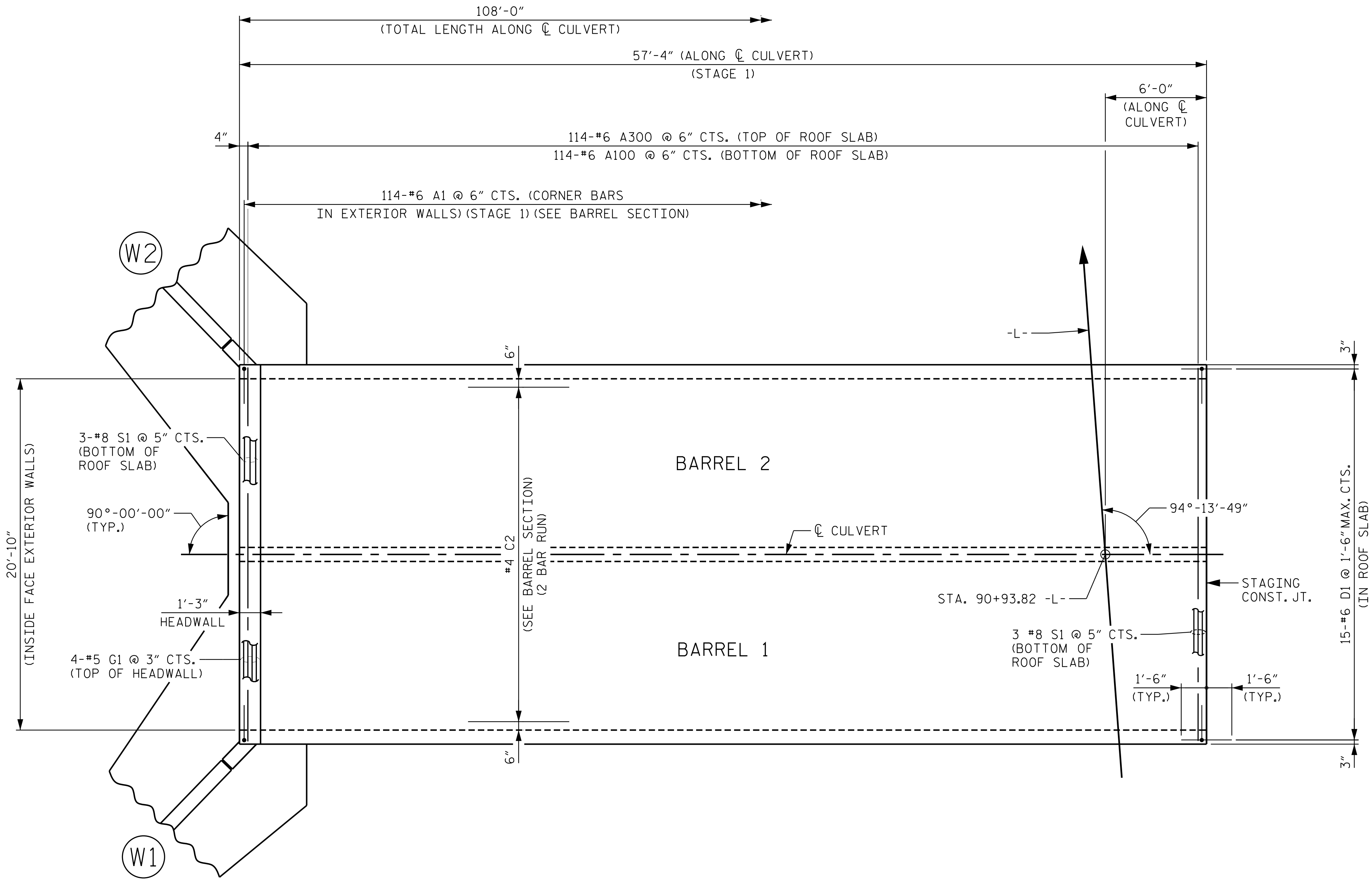
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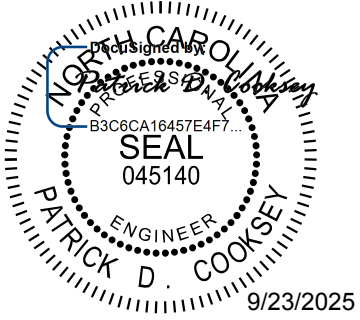
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ROOF SLAB PLAN - STAGE 1

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 90+93.82 -L-

SHEET 7 OF 13



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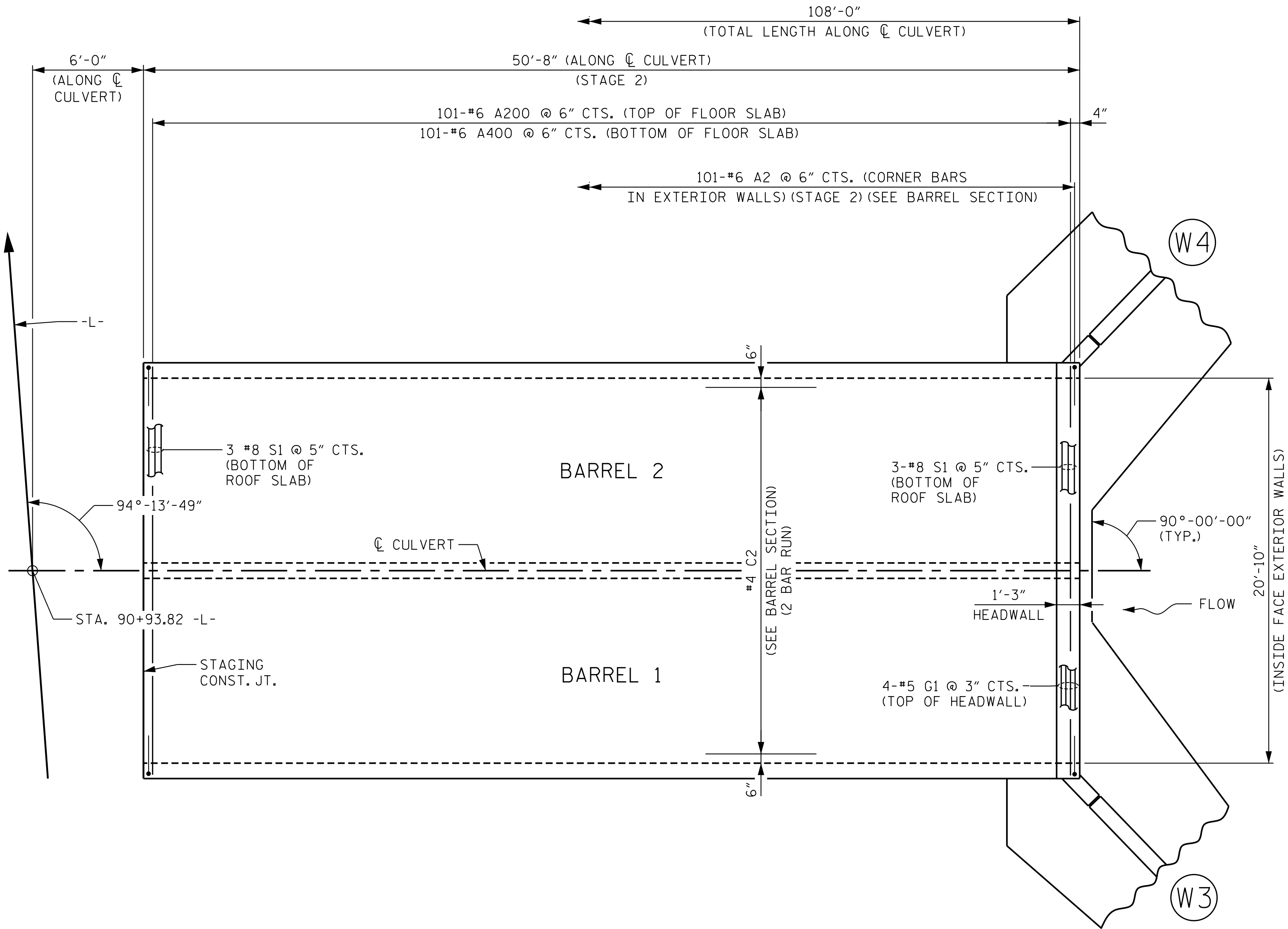
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CONCRETE BOX CULVERT
94° SKEW
(STAGE 1)

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ROOF SLAB PLAN - STAGE 2

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FORSYTH COUNTY
STATION: 90+93.82 -L-

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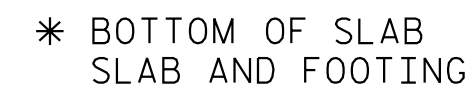
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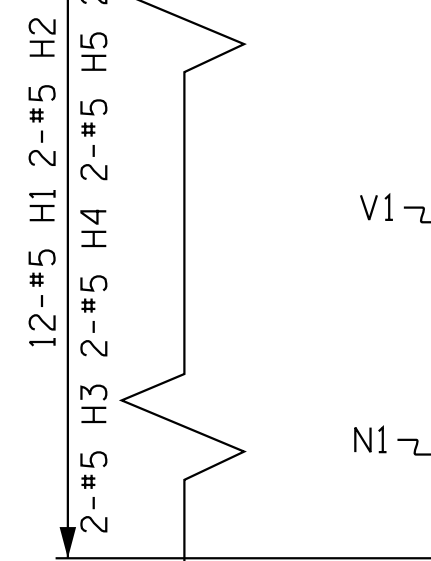
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CONCRETE BOX CULVERT
94° SKEW
(STAGE 2)

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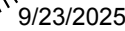
PLAN - W1



ELEVATION - W1



WING SECTION - W1



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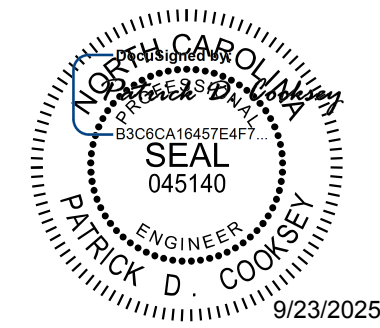
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2			4			



REINFORCING STEEL FOR 2 WINGS	4,484 LBS
CLASS A CONCRETE	
2 WINGS	19.1 CY
1 HEADWALLS	1.1 CY
1 END CURTAIN WALLS	0.3 CY
TOTAL	20.5 CY



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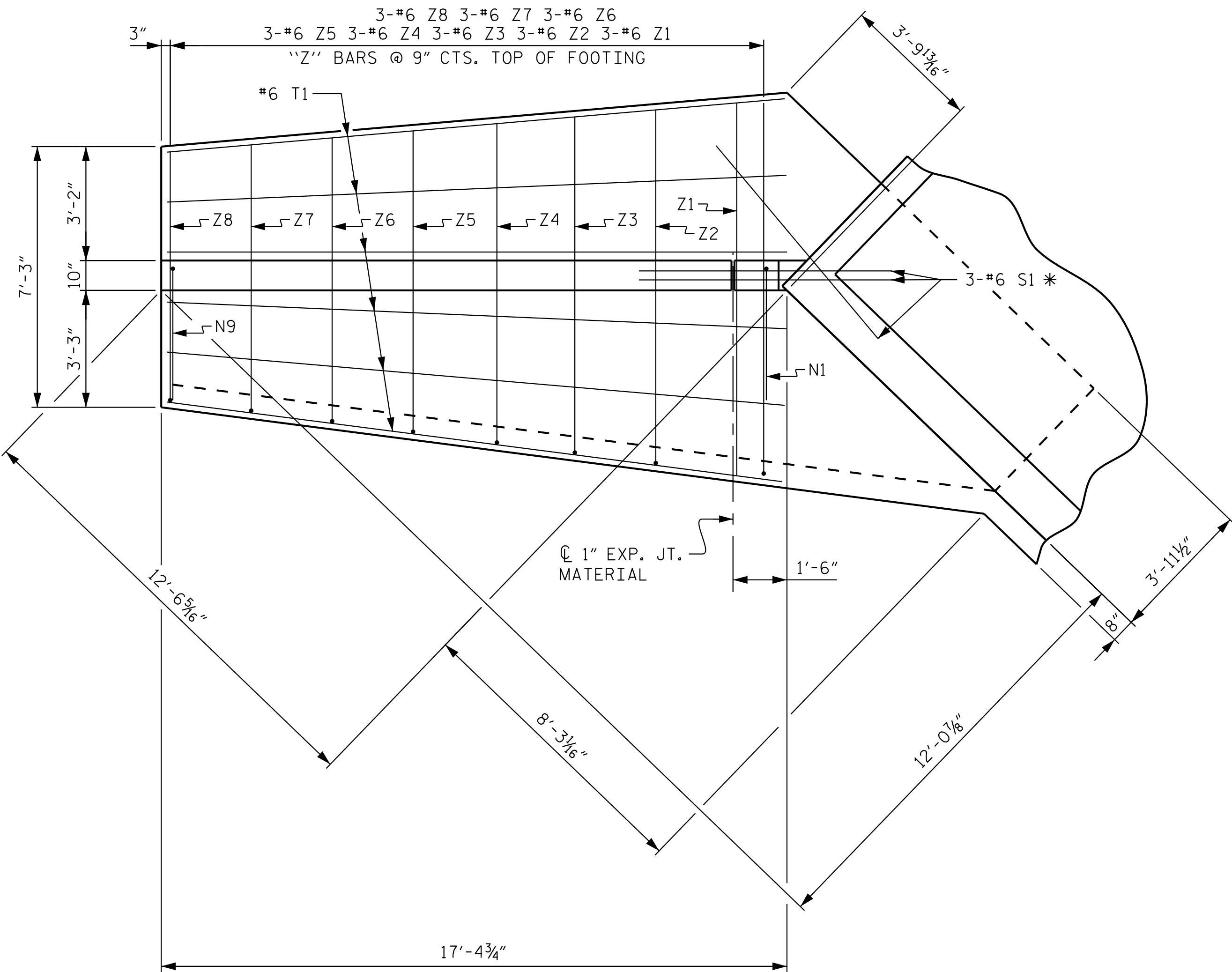
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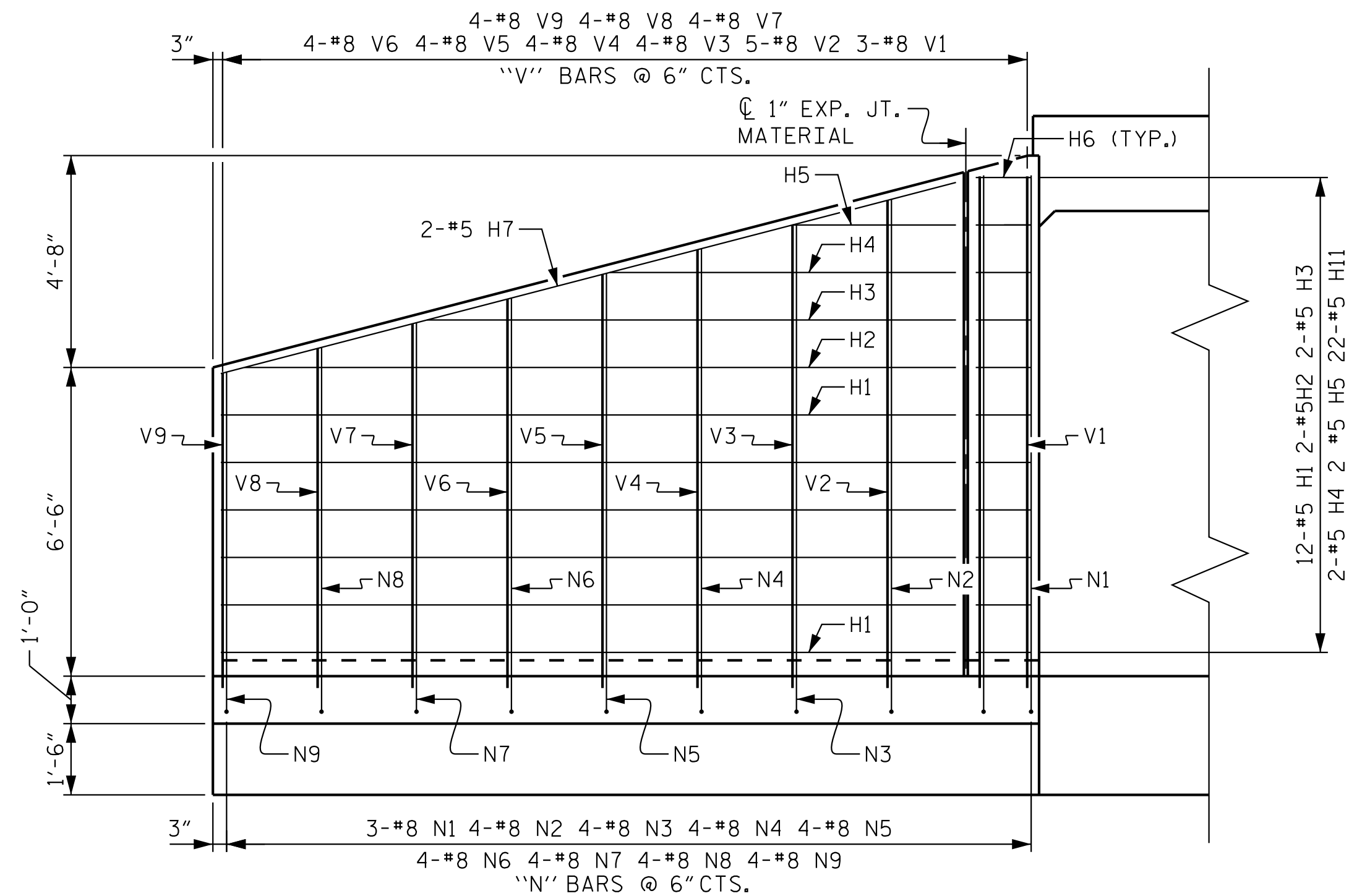
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
WINGWALL 2
FOR
CONCRETE BOX CULVERT
H = 11'-0" SLOPE = 2:1
90° SKEW

REVISIONS						SHEET NO. C1-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

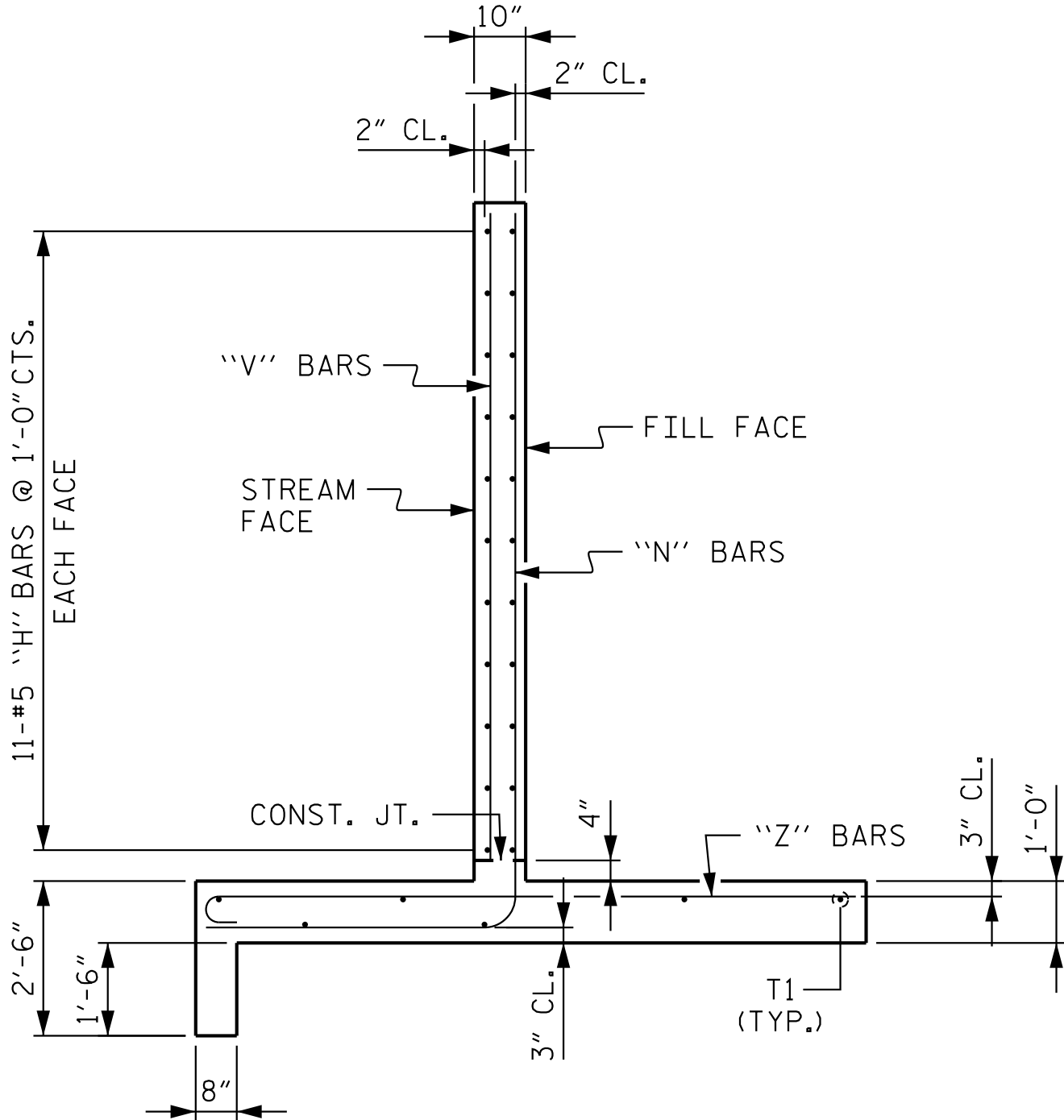
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PLAN - W3



ELEVATION - W3



WING SECTION - W3

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 90+93.82 -L-

SHEET 11 OF 13



Kimley»Horn

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Raleigh, NC 27601-1772
Phone (919) 677-2000 NC LICENSE # F-0102

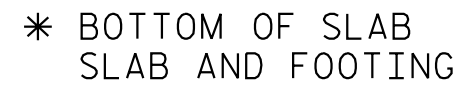
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
WINGWALL 3
FOR
CONCRETE BOX CULVERT
H = 11'-0" SLOPE = 2:1
90° SKEW

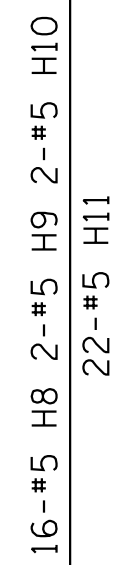
REVISIONS						SHEET NO. C1-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			13

DRAWN BY: D. D. LOWERY DATE: 09/25
CHECKED BY: A. L. PHILLIPS DATE: 09/25
DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 09/25

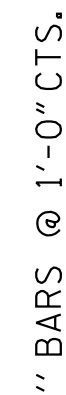
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PLAN - W4



ELEVATION - W4



WING SECTION - W4

	REINFORCING STEEL FOR 2 WINGS	5,901 LBS
	CLASS A CONCRETE	
	2 WINGS	24.8 CY
	1 HEADWALLS	1.0 CY
	1 END CURTAIN WALLS	0.4 CY
	TOTAL	26.2 CY

PROJECT NO. U-5760
FORSYTH COUNTY
 STATION: 90+93.82 -L-

SHEET 12 OF 13

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
WINGWALL 4
FOR
CONCRETE BOX CULVERT
H = 11'-0" SLOPE = 2:1
90° SKEW

REVISIONS						SHEET NO. C1-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

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F-01029

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9/23/2025 K:\RD1_Structures\Bridges\NC\01036312 - U-5760 Big Mill Form Road\Cad\Cad.dgn\Culvert-1 #1 (Sta 90+93.82 - L)-U-5760.SMU.C0013.330751.dgn

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS																
LOAD TYPE	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING Ⓢ	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE									COMMENT NUMBER	
						LIVE-LOAD FACTORS (γ LL)	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)		
DESIGN LOAD	HL-93 (INVENTORY)	N/A	Ⓢ1	1.17	—	1.75	1.75	1	TOP SLAB	5.83	1.17	1	TOP SLAB	10.83		
	HL-93 (OPERATING)	N/A		1.52	—	1.35	2.27	1	TOP SLAB	5.83	1.52	1	TOP SLAB	10.83		
	HS-20 (INVENTORY)	36.000	Ⓢ2	1.34	48.24	1.75	1.88	1	TOP SLAB	5.83	1.34	1	TOP SLAB	10.83		
	HS-20 (OPERATING)	36.000		1.73	62.28	1.35	2.44	1	TOP SLAB	5.83	1.73	1	TOP SLAB	10.83		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.80	51.30	1.40	4.11	1	TOP SLAB	5.83	3.80	1	TOP SLAB	10.83	
		SNGARBS2	20.000		3.51	70.20	1.40	3.84	1	TOP SLAB	5.83	3.51	1	TOP SLAB	10.83	
		SNAGRIS2	22.000		3.75	82.50	1.40	4.11	1	TOP SLAB	5.83	3.75	1	TOP SLAB	10.83	
		SNCOTTS3	27.250	Ⓢ3	1.83	49.87	1.40	3.01	1	INTERIOR WALL	11.25	1.83	1	TOP SLAB	10.83	
		SNAGGRS4	34.925		2.33	81.38	1.40	3.11	2	BOTTOM SLAB	11.67	2.33	1	TOP SLAB	10.83	
		SNS5A	35.550		2.12	75.37	1.40	3.03	2	BOTTOM SLAB	11.67	2.12	1	TOP SLAB	10.83	
		SNS6A	39.950		2.07	82.70	1.40	3.05	2	BOTTOM SLAB	11.67	2.07	1	TOP SLAB	10.83	
		SNS7B	42.000		2.07	86.94	1.40	3.08	2	BOTTOM SLAB	11.67	2.07	1	TOP SLAB	10.83	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		3.35	110.55	1.40	3.52	2	BOTTOM SLAB	11.67	3.35	1	TOP SLAB	10.83	
		TNT4A	33.075		2.19	72.43	1.40	3.58	1	INTERIOR WALL	11.25	2.19	1	TOP SLAB	10.83	
		TNT6A	41.600		2.11	87.78	1.40	3.06	2	BOTTOM SLAB	11.67	2.11	1	TOP SLAB	10.83	
		TNT7A	42.000		2.13	89.46	1.40	3.01	2	BOTTOM SLAB	11.67	2.13	1	TOP SLAB	10.83	
		TNT7B	42.000		2.14	89.88	1.40	3.14	2	BOTTOM SLAB	11.67	2.14	1	TOP SLAB	10.83	
		TNAGRIT4	43.000		2.09	89.87	1.40	3.46	2	BOTTOM SLAB	11.67	2.09	1	TOP SLAB	10.83	
		TNAGT5A	45.000		2.10	94.50	1.40	3.23	2	BOTTOM SLAB	11.67	2.10	1	TOP SLAB	10.83	
		TNAGT5B	45.000		2.05	92.25	1.40	2.67	2	BOTTOM SLAB	11.67	2.05	1	TOP SLAB	10.83	
EMERGENCY VEHICLE (EV)	EV2	28.750		2.50	71.88	1.30	2.90	1	TOP SLAB	5.83	2.50	1	TOP SLAB	10.83		
	EV3	43.000	Ⓢ4	1.53	65.79	1.30	2.51	2	BOTTOM SLAB	11.67	1.53	1	TOP SLAB	10.83		

LOAD FACTORS:

DESIGN LOAD RATING FACTORS		
LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTES:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATES.

COMMENTS:

-
-
-
-

⬡ CONTROLLING LOAD RATING

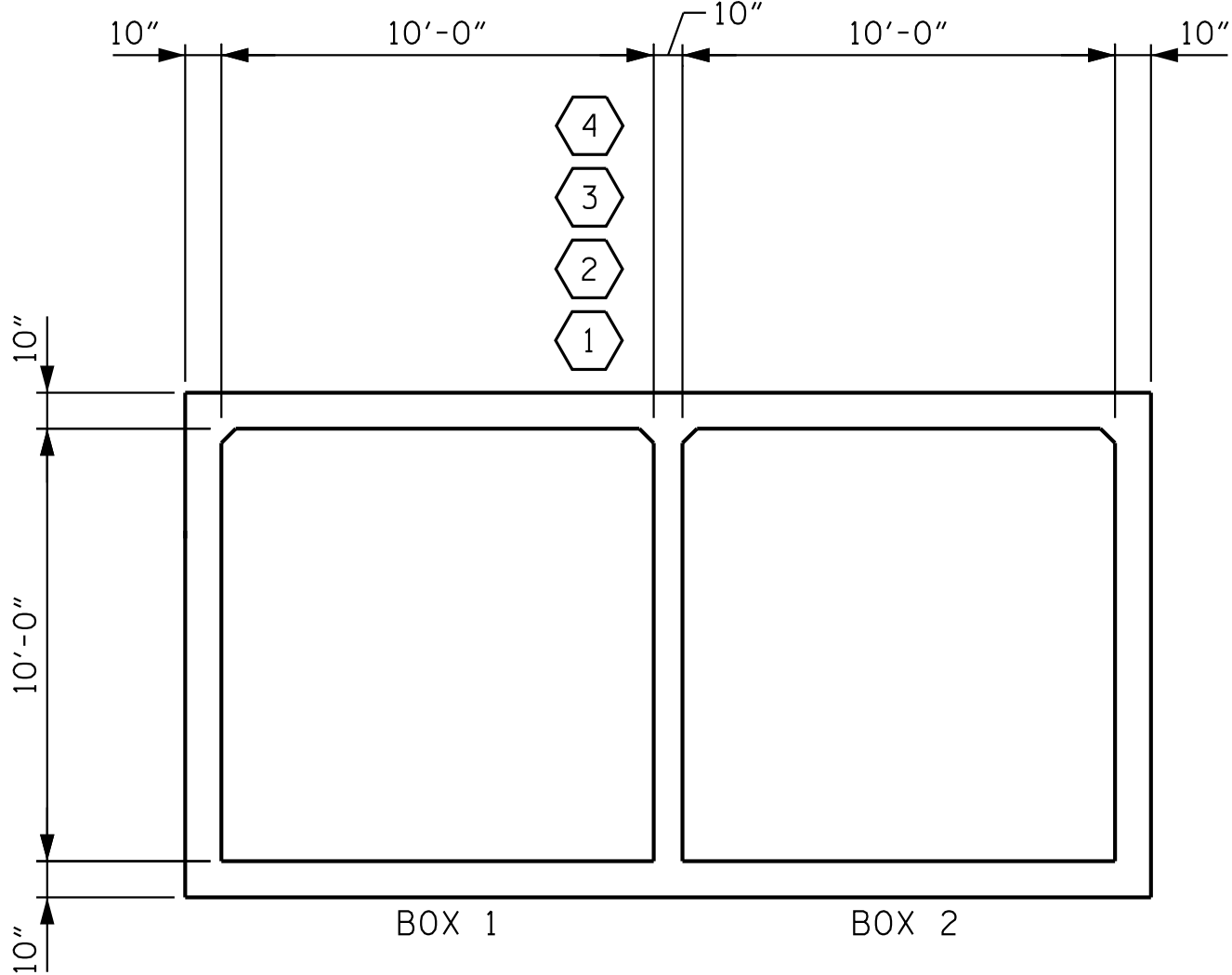
⬡1 DESIGN LOAD RATING (HL-93)

⬡2 DESIGN LOAD RATING (HS-20)

⬡3 LEGAL LOAD RATING **

⬡4 EMERGENCY VEHICLE LOAD RATING **

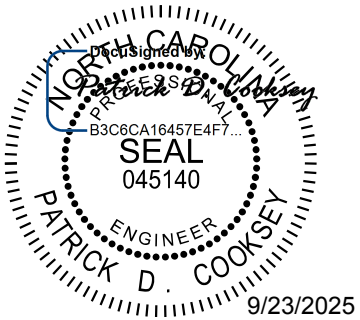
** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 27+37.26 -L-

SHEET 13 OF 13



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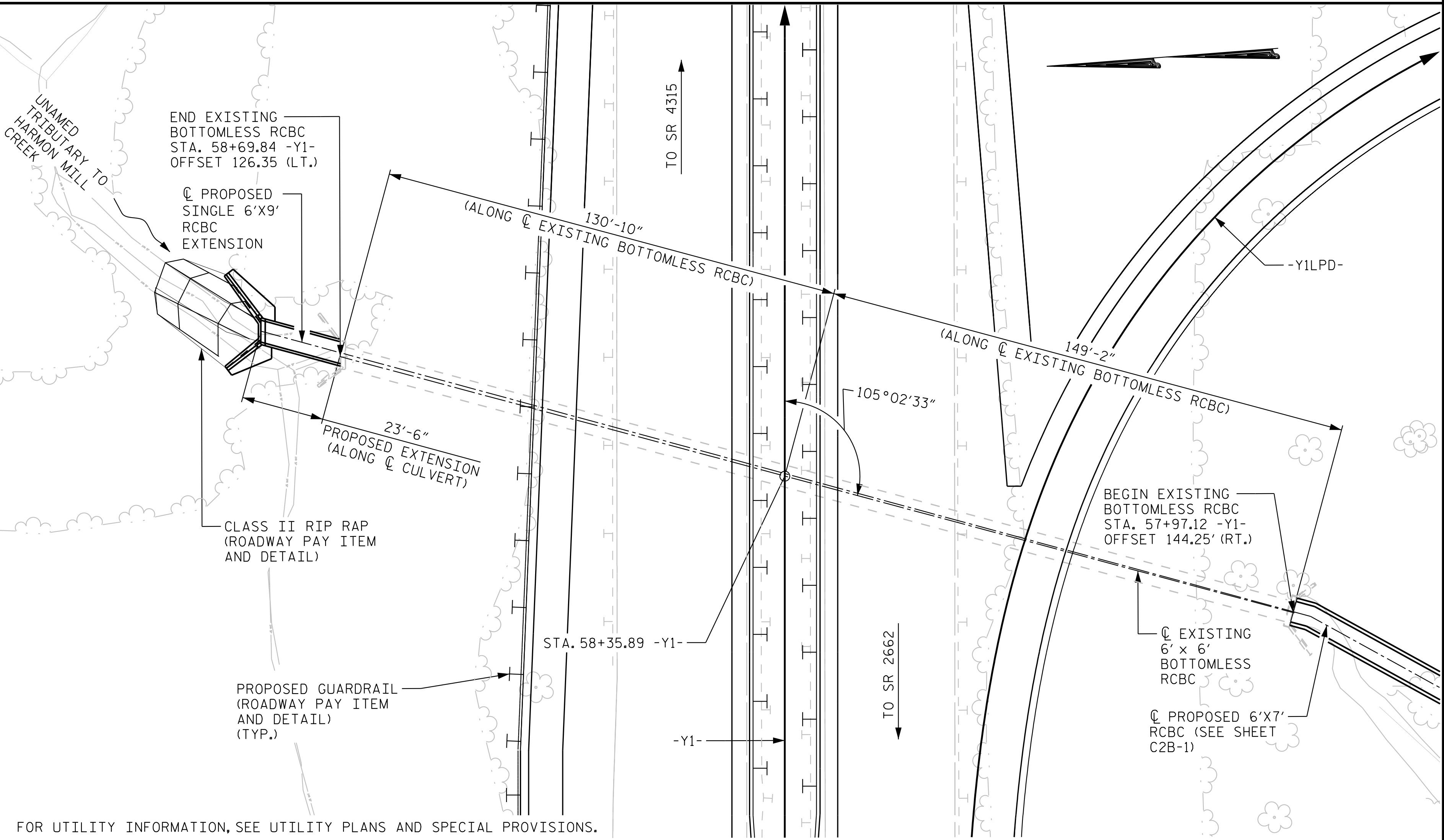
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
REINFORCED CONCRETE
BOX CULVERTS
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO. C1-13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

ASSEMBLED BY : D. D. LOWERY	DATE : 09/25
CHECKED BY : P. D. COOKSEY	DATE : 09/25
DRAWN BY : WMC	7/II
CHECKED BY : GM	7/II
REV. 10/1/II	MAA/GM
REV. 12/17	MAA/THC
REV. 04/23	BNB/AAI

9/23/2025 K:\B01-Structures\Bridges\N\01036312 - U-5760 Big Mill Form Road\Cadd\Drawn\Culvert.rvt *2A (Ext.) @ Sta. 58+35.89 -Y1- U-5760.SML\CU01.130751.dgn

BENCHMARK: -BM 2- 35+00, 145.51' (LT) -L-, EL. 924.97, RR SPIKE SET IN 24" POPLAR TREE



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE -----250 CFS
FREQUENCY OF DESIGN FLOOD -----50-YR.
DESIGN HIGH WATER ELEVATION-----883.3 FT.
DRAINAGE AREA -----.25 SQ. MI.
BASIC DISCHARGE (Q100)-----280 CFS
BASIC HIGH WATER ELEVATION-----884.0 FT.

OVERTOPPING FLOOD DATA

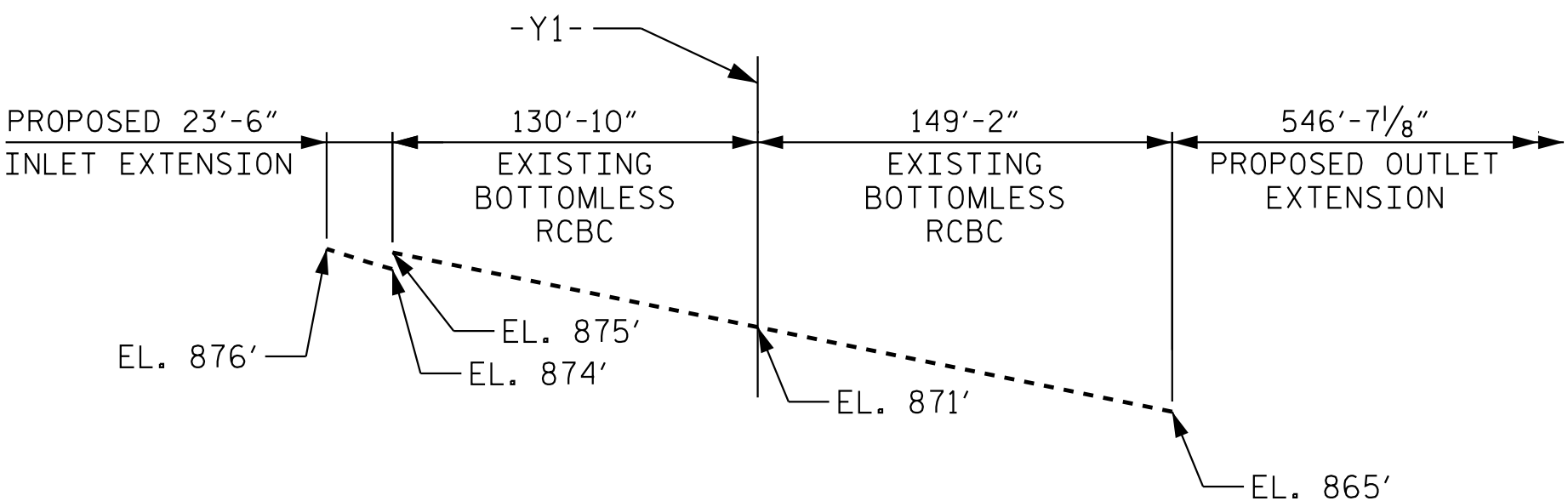
OVERTOPPING DISCHARGE -----800 CFS
FREQUENCY OF OVERTOPPING FLOOD --->500-YR.
OVERTOPPING FLOOD ELEVATION -----898.2 FT.
-Y1-: OVERTOPS TO ANOTHER DRAINAGE AREA @
APPROX. STA. 56+35 -Y1- LT AT
ELEVATION '917.1'.

ROADWAY DATA

GRADE POINT EL. @ STA. 58+35.89 -Y1- = 919.43'
BED ELEVATION @ STA. 58+35.89 -Y1- = 871.40'
ROADWAY SLOPES 2 : 1

-Y1LPD- HORIZONTAL CURVE DATA

PI STA. 14+33.87
 $\Delta = 90^{\circ}57'24.7''$ (RT.)
D = $24^{\circ}54'40.4''$
L = 365.12'
T = 233.87'
R = 230.00'



PROFILE ALONG Q CULVERT

NOTES

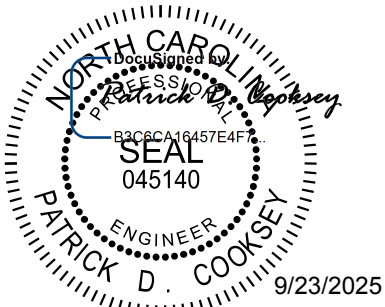
- ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING
- DESIGN FILL -----10'-6" (MAX.)
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- 3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS.
- THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
- CONCRETE IN THE CULVERT TO BE POURED IN THE FOLLOWING ORDER:
1. WING FOOTINGS, CURTAIN WALLS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.
- DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON THE WING SHEET.
- AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACES OF THE EXTERIOR WALLS ABOVE THE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- FOR BOX CULVERT EXCAVATION, SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.
- THE REINFORCED CONCRETE BOX CULVERT SHALL BE PLACED ON THE STANDARD 1.0 FOOT BLANKET OF FOUNDATION CONDITIONING MATERIAL.
- UNDERCUT SOFT/VERY LOOSE SOILS THAT MAY BE ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATION CONDITIONING MATERIAL. BACKFILL UNDERCUT AREAS WITH FOUNDATION CONDITIONING MATERIAL. IF MORE THAN 1 FT UNDERCUT IS REQUIRED, CONTACT THE OPERATIONS ENGINEER FOR APPROVAL.
- A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.
- NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.
- EXCAVATE A MINIMUM OF 1 FOOT BELOW CULVERT BEARING ELEVATION AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL PER SECTION 414 OF THE STANDARD SPECIFICATIONS.
- BACKFILL WITH SELECT MATERIAL, CLASS VI MEETING THE REQUIREMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS.
- DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTES REGARDING SETTING OF DOWELS, SEE SHEET SN.
- IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY USE THE EXISTING WINGS AS TEMPORARY SHORING FOR THE CONSTRUCTION OF THE CULVERT EXTENSIONS. IN THIS CASE, THE BOTTOM SLAB OF THE EXTENSION SHALL BE POURED AT LEAST 72 HOURS PRIOR TO CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES - INLET

CLASS A CONCRETE		
BARREL @	0.811	CY/FT 19.1 C.Y.
WINGS ETC.	14.6	C.Y.
SILLS	0.4	C.Y.
EDGE BEAMS	0.6	C.Y.
TOTAL	34.6	C.Y.
REINFORCING STEEL		
BARREL	4,376	LBS.
WINGS ETC.	978	LBS.
TOTAL	5,354	LBS.
CULVERT EXCAVATION STA. 58+35.89 -Y1- LUMP SUM		
FOUNDATION CONDITIONING MATERIAL 19 TONS		

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 58+35.89 -Y1-

SHEET 1 OF 6



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 6 FT. X 9 FT.
CONCRETE BOX CULVERT
INLET EXTENSION
105° SKEW

REVISIONS						SHEET NO. C2A-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

PERMANENT LOAD FACTORS:

DESIGN LOAD RATING FACTORS		
LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
WA	1.00	--

NOTES:

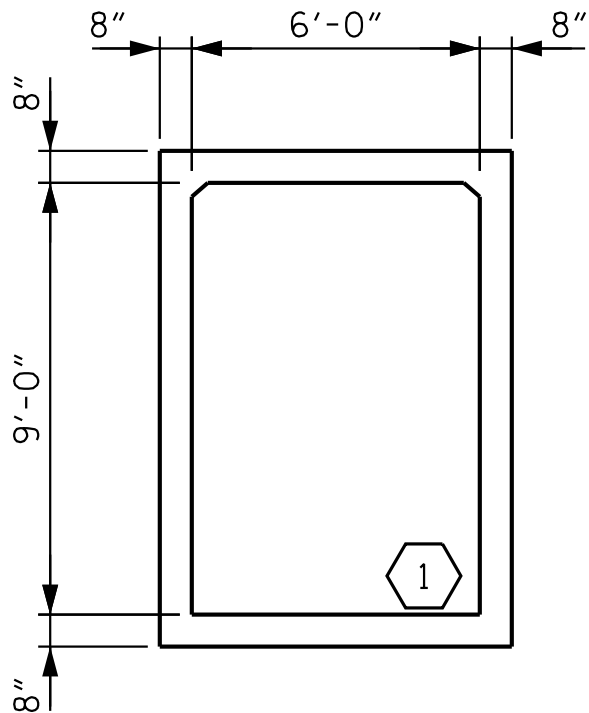
RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

THE EFFECTS OF LIVE LOAD ON DESIGN AND LOAD RATING MAY BE NEGLECTED FOR CULVERTS WITH CERTAIN FILL DEPTHS DESCRIBED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

CULVERTS WITH NEGLIGIBLE LIVE LOAD SHOULD BE LOAD RATED FOR PERMANENT LOADS ONLY IN ACCORDANCE WITH THE AASHTO MANUAL FOR BRIDGE EVALUATION.

LOAD AND RESISTANCE FACTOR RATING (LRFR)
SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

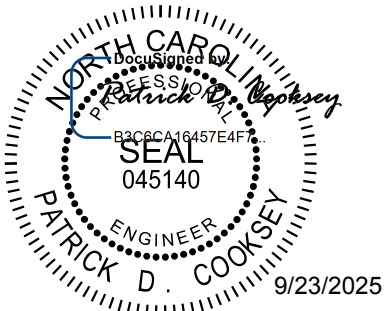
	CONTROLLING LOAD RATING	MINIMUM RATING FACTOR (RF)	STRENGTH I LIMIT STATE							
			MOMENT				SHEAR			
			RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)
PERMANENT LOAD RATING	①	1.18	1.33	1	EXTERIOR WALL	7	1.18	1	BOTTOM SLAB	6.67



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 58+35.89 -Y1-

SHEET 2 OF 6



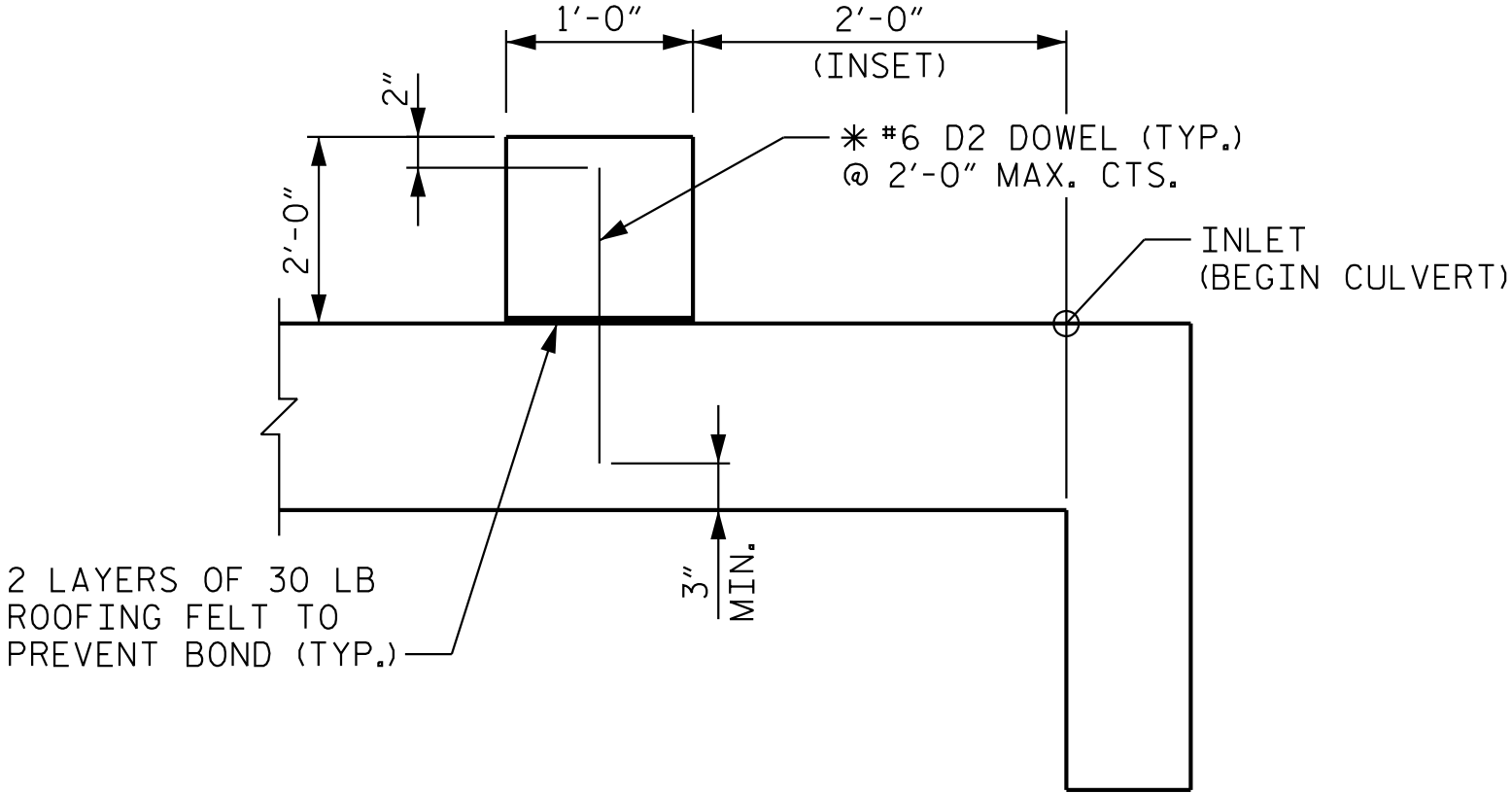
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. C2A-2		
STANDARD LRFR SUMMARY FOR PREINFORCED CONCRETE BOX CULVERTS (DEEP FILLS)						TOTAL SHEETS 6		
REVISIONS								
NO.	BY:	DATE:	NO.	BY:	DATE:			
①			③					
②			④					

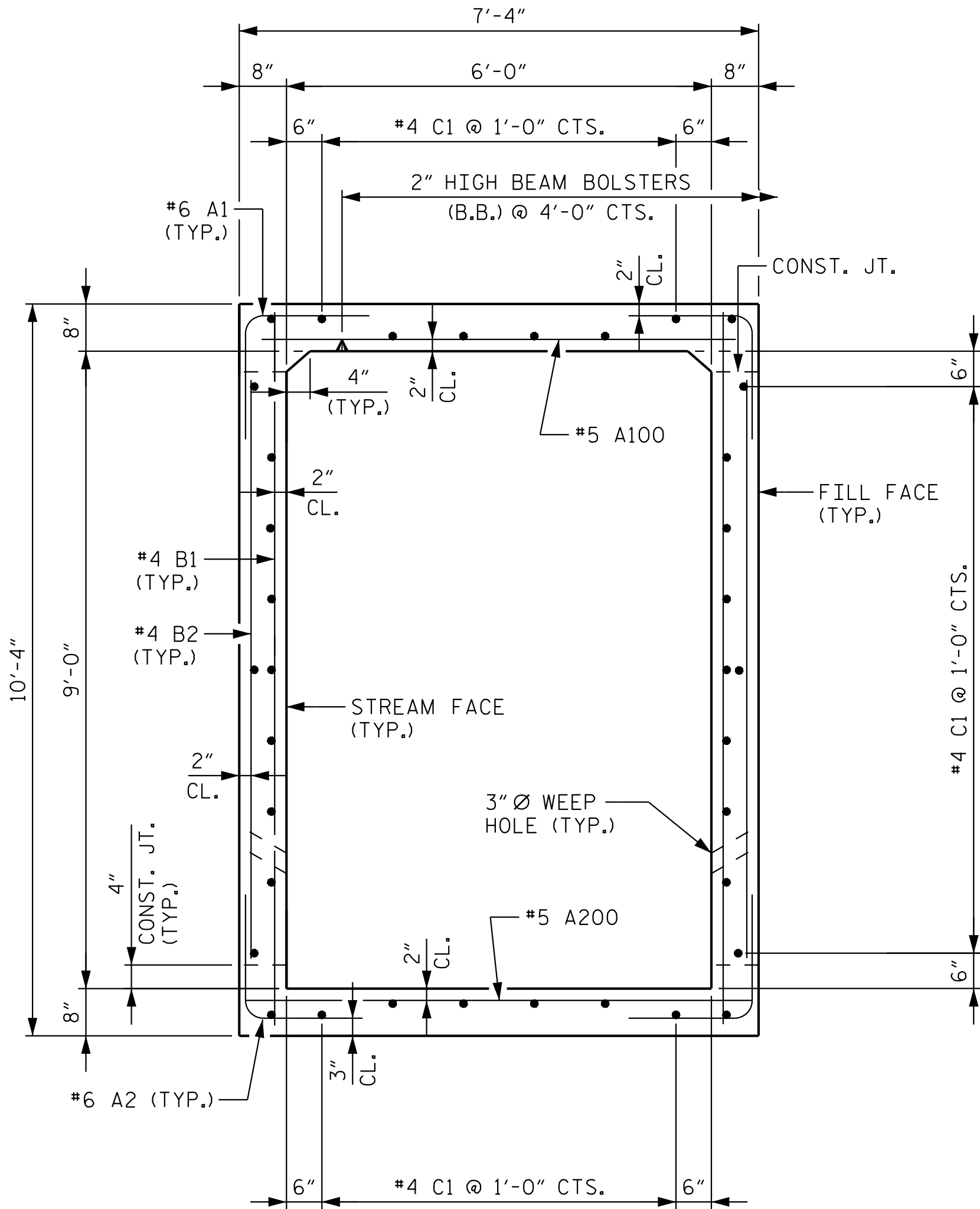
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SECTION THROUGH SILL

* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.

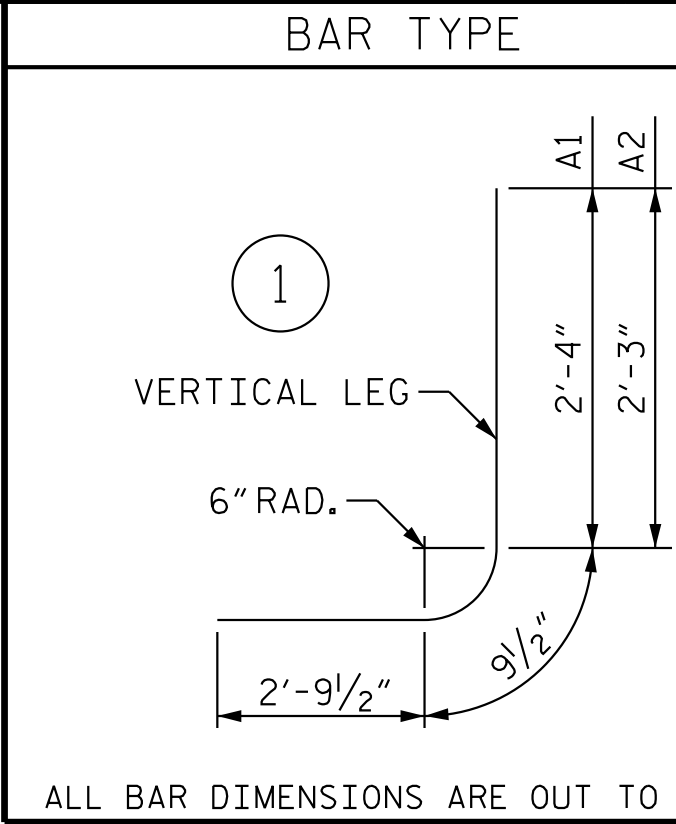
NOTE: SILLS ARE TO BE CAST NORMAL TO CULVERT WALLS.



RIGHT ANGLE SECTION OF BARREL - INLET

THERE ARE 36 C1 BARS IN SECTION OF BARREL

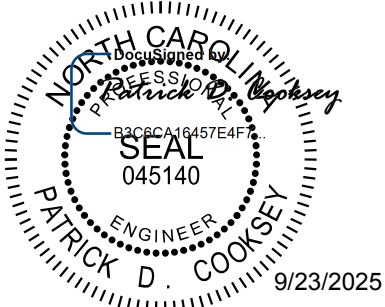
BAR TYPE		BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
A1	94	6	1	5'-11"	835		
A2	94	6	1	5'-10"	824		
A100	42	5	STR	7'-0"	307		
A101	2	5	STR	6'-7"	14		
A102	2	5	STR	4'-8"	10		
A103	6	5	STR	2'-10"	18		
A200	42	5	STR	7'-0"	307		
A201	2	5	STR	6'-7"	14		
A202	2	5	STR	4'-8"	10		
A203	6	5	STR	2'-10"	18		
B1	94	4	STR	9'-11"	623		
B2	94	4	STR	8'-4"	523		
C1	36	4	STR	23'-2"	557		
D1	16	6	STR	2'-6"	60		
D2	4	6	STR	2'-3"	14		
G1	2	4	STR	7'-3"	10		
S1	12	8	STR	7'-3"	232		
REINFORCING STEEL					LBS.	4,376	



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 58+35.89 -Y1-

SHEET 3 OF 6



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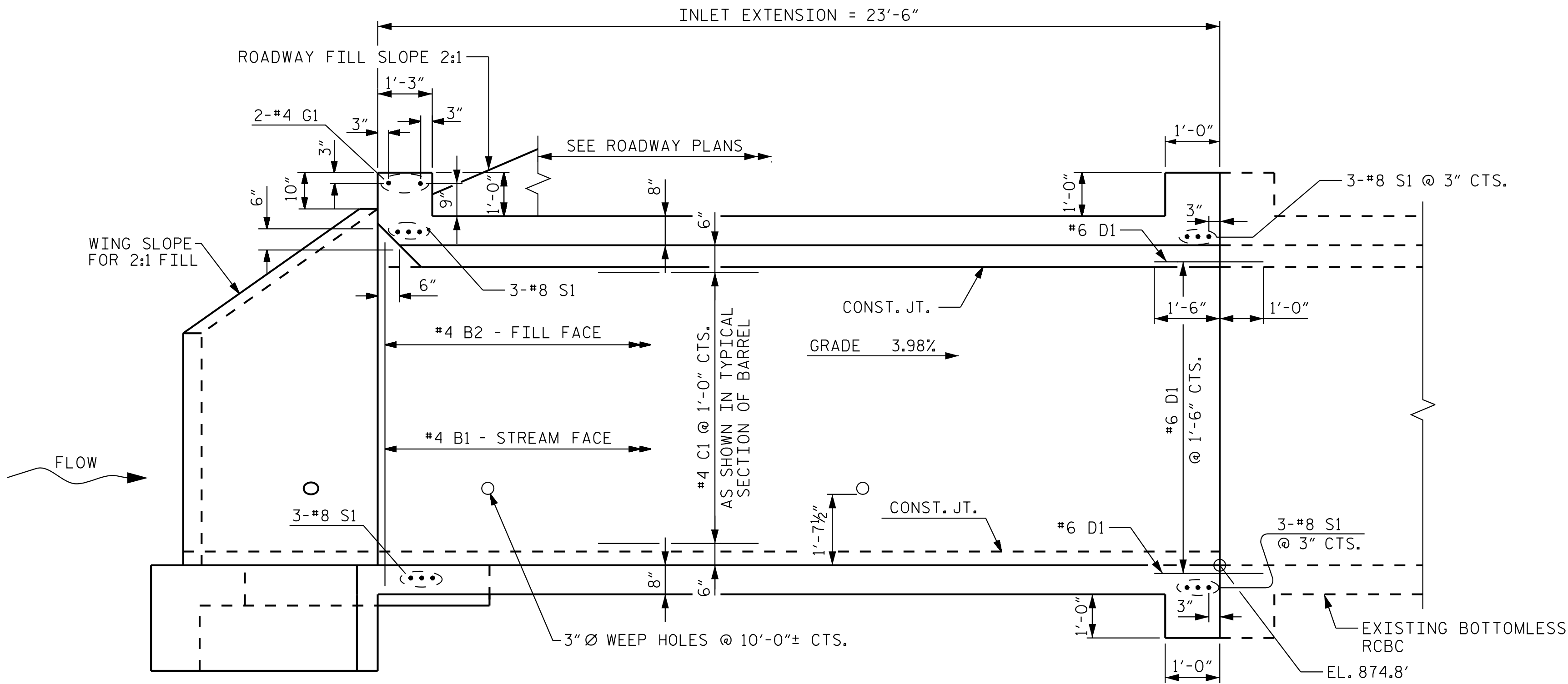
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

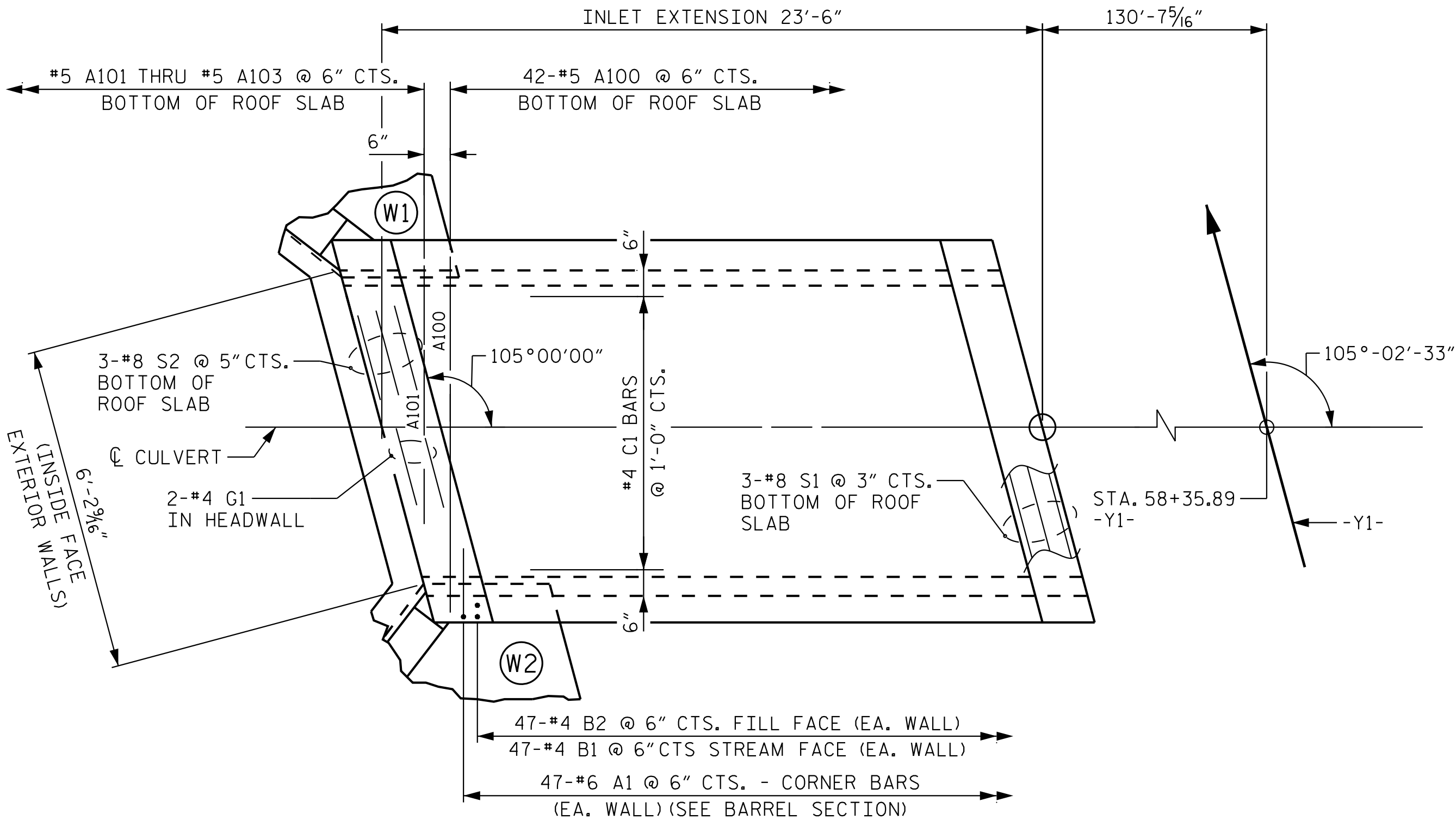
SINGLE 6 FT. X 9 FT.
CONCRETE BOX CULVERT
INLET EXTENSION
105° SKEW

REVISIONS						SHEET NO. C2A-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

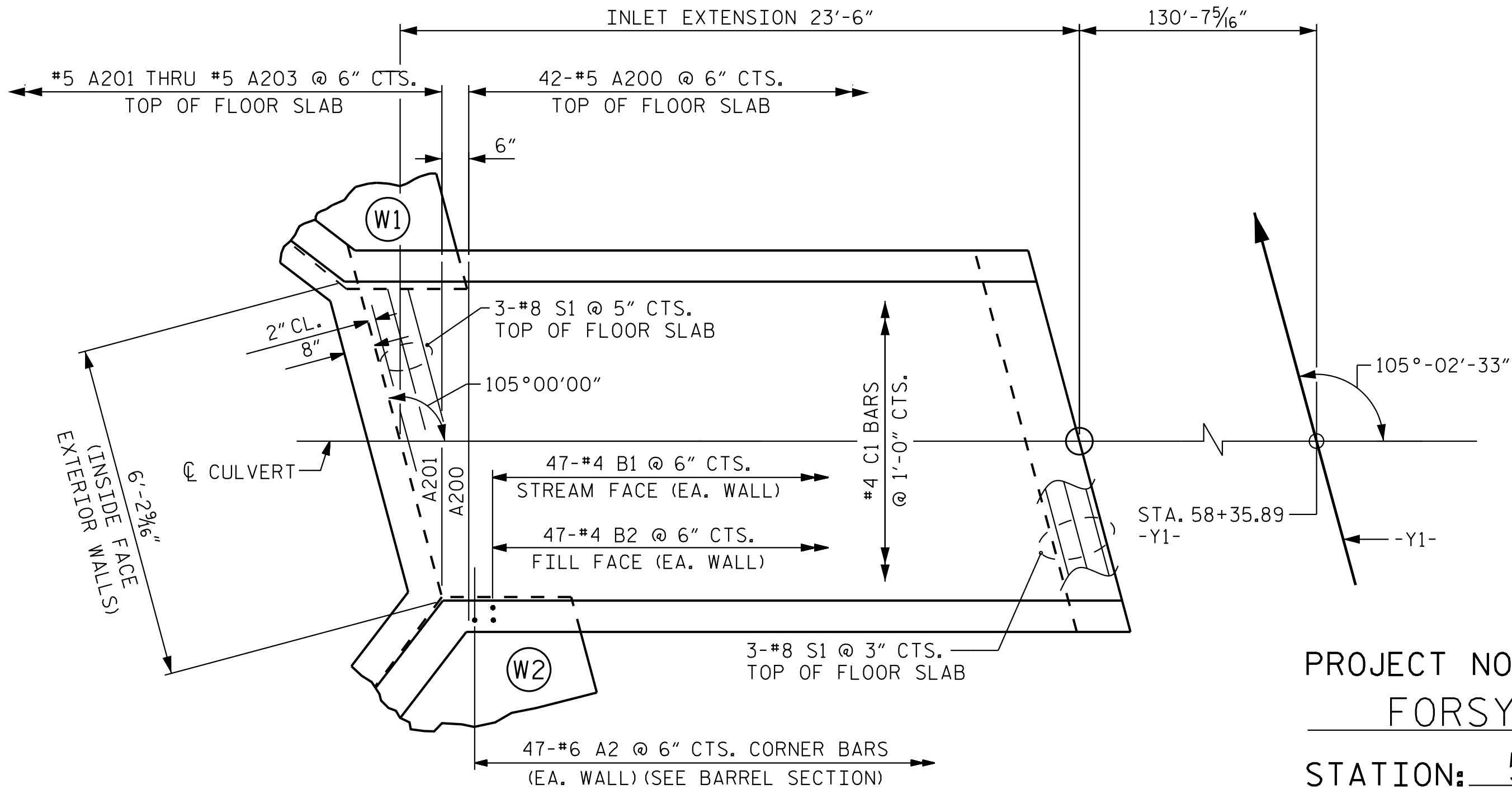
DRAWN BY: <u>D.D. LOWERY</u>	DATE: <u>09/25</u>
CHECKED BY: <u>A.L. PHILLIPS</u>	DATE: <u>09/25</u>
DESIGN ENGINEER OF RECORD: <u>P.D. COOKSEY</u>	DATE: <u>09/25</u>



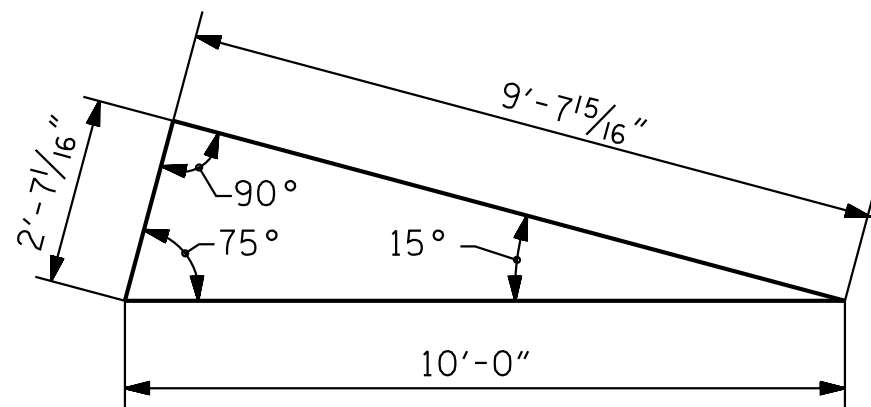
CULVERT SECTION NORMAL TO ROADWAY - INLET



ROOF SLAB PLAN - INLET



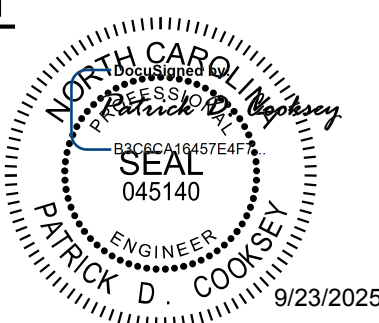
FLOOR SLAB PLAN - INLET



SKEW TRIANGLE

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 58+35.89 -Y1-

SHEET 4 OF 6



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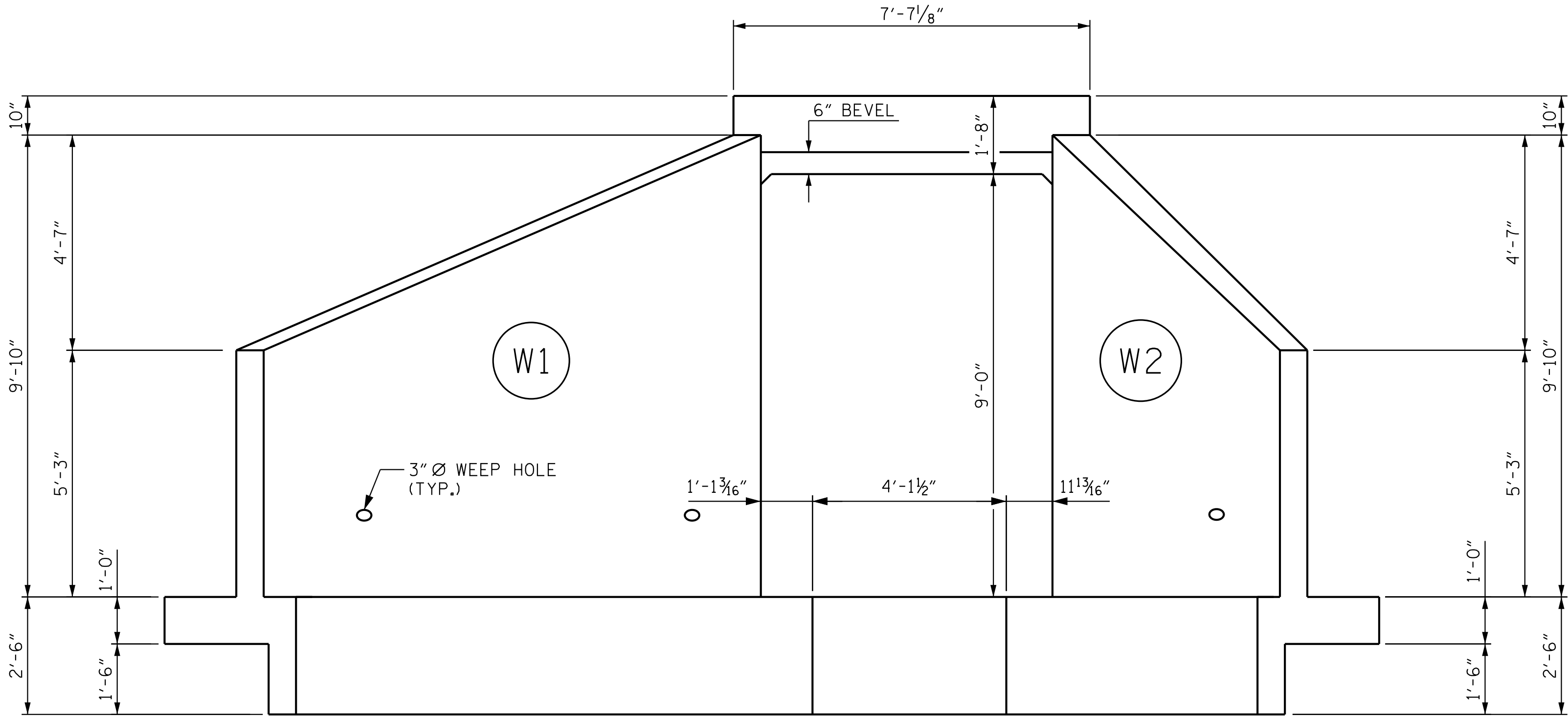
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 6 FT. X 9 FT.
CONCRETE BOX CULVERT
INLET EXTENSION
105° SKEW

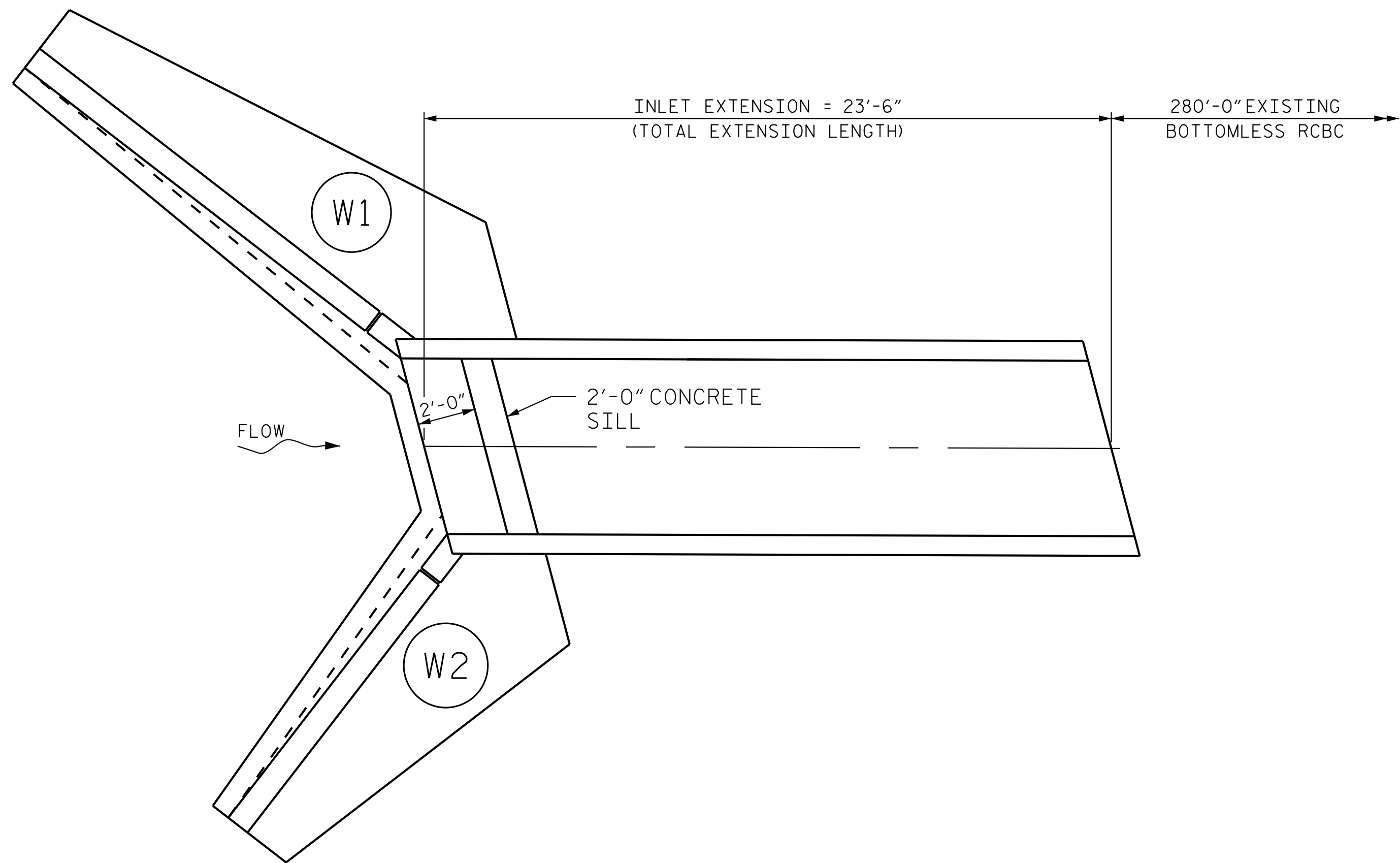
REVISIONS						SHEET NO. C2A-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

DRAWN BY: D. D. LOWERY DATE: 09/25
CHECKED BY: A. L. PHILLIPS DATE: 09/25
DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 09/25

9/23/2025 K:\RDT-Structures\Bridges\N\01036312 - U-5760 Big Mill Farm Road\Cadd\Drawn\Culvert #2A (Ext. @ Sta 58+35.89 -Y1)\U5760_SML_CU08_330751.dgn



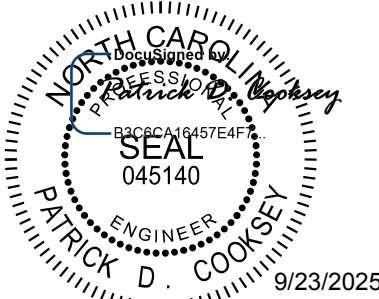
END ELEVATION NORMAL TO SKEW - INLET



CULVERT LAYOUT

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 58+35.89 -Y1-

SHEET 5 OF 6



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

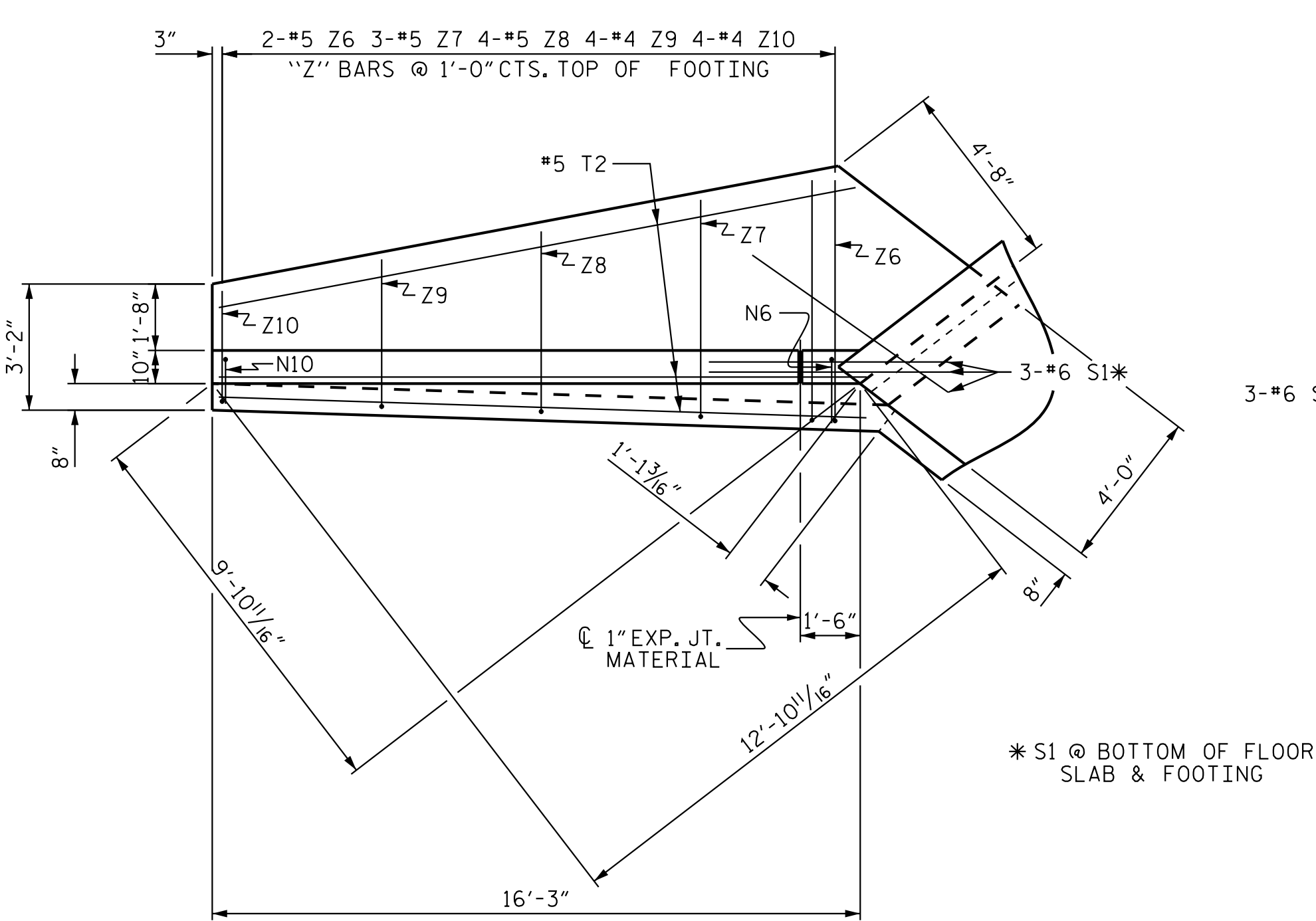
SINGLE 6 FT. X 9 FT.
CONCRETE BOX CULVERT
INLET EXTENSION
105° SKEW

REVISIONS						SHEET NO. C2A-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

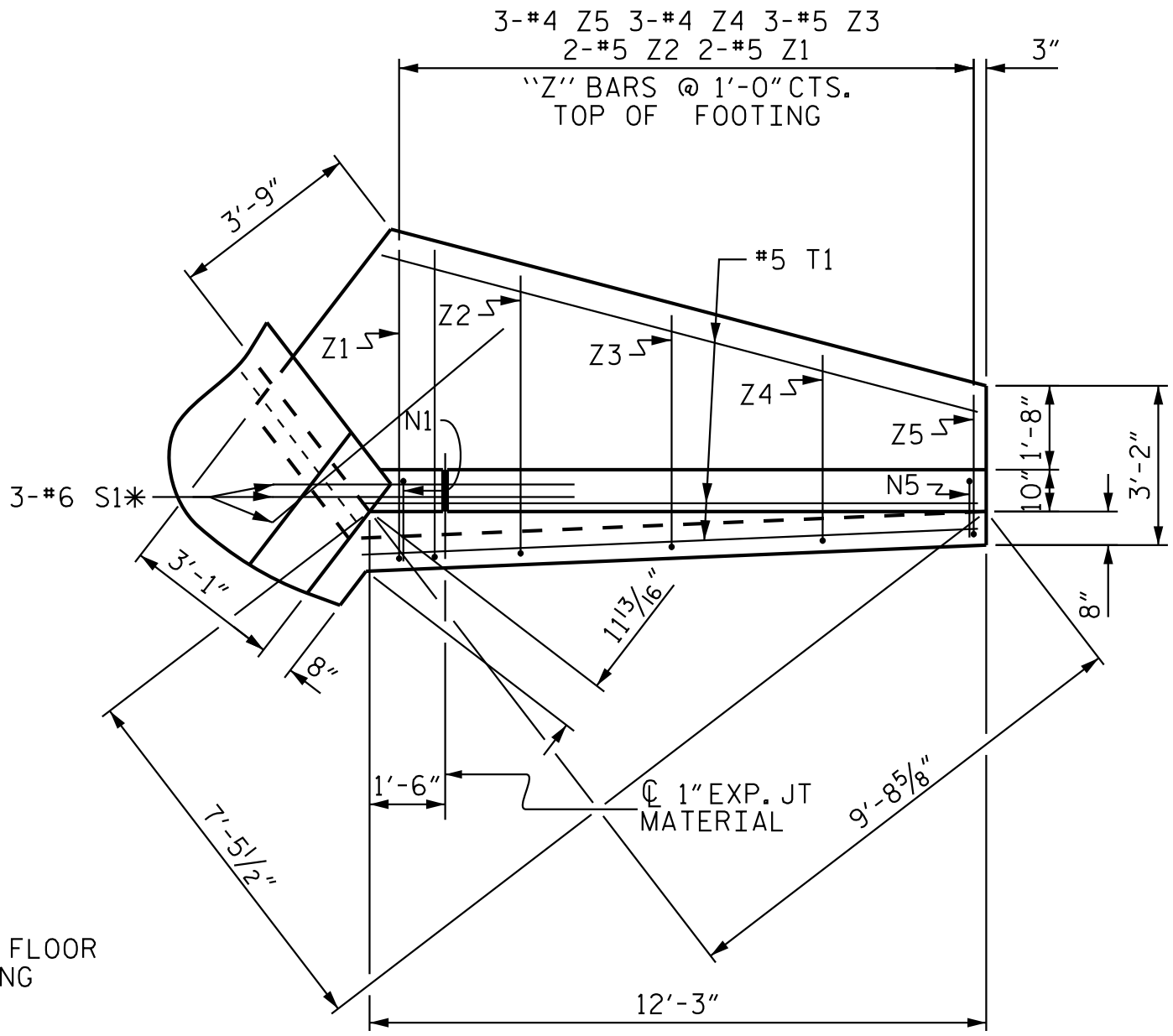
DRAWN BY: D. D. LOWERY DATE: 09/25
CHECKED BY: A. L. PHILLIPS DATE: 09/25
DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 09/25

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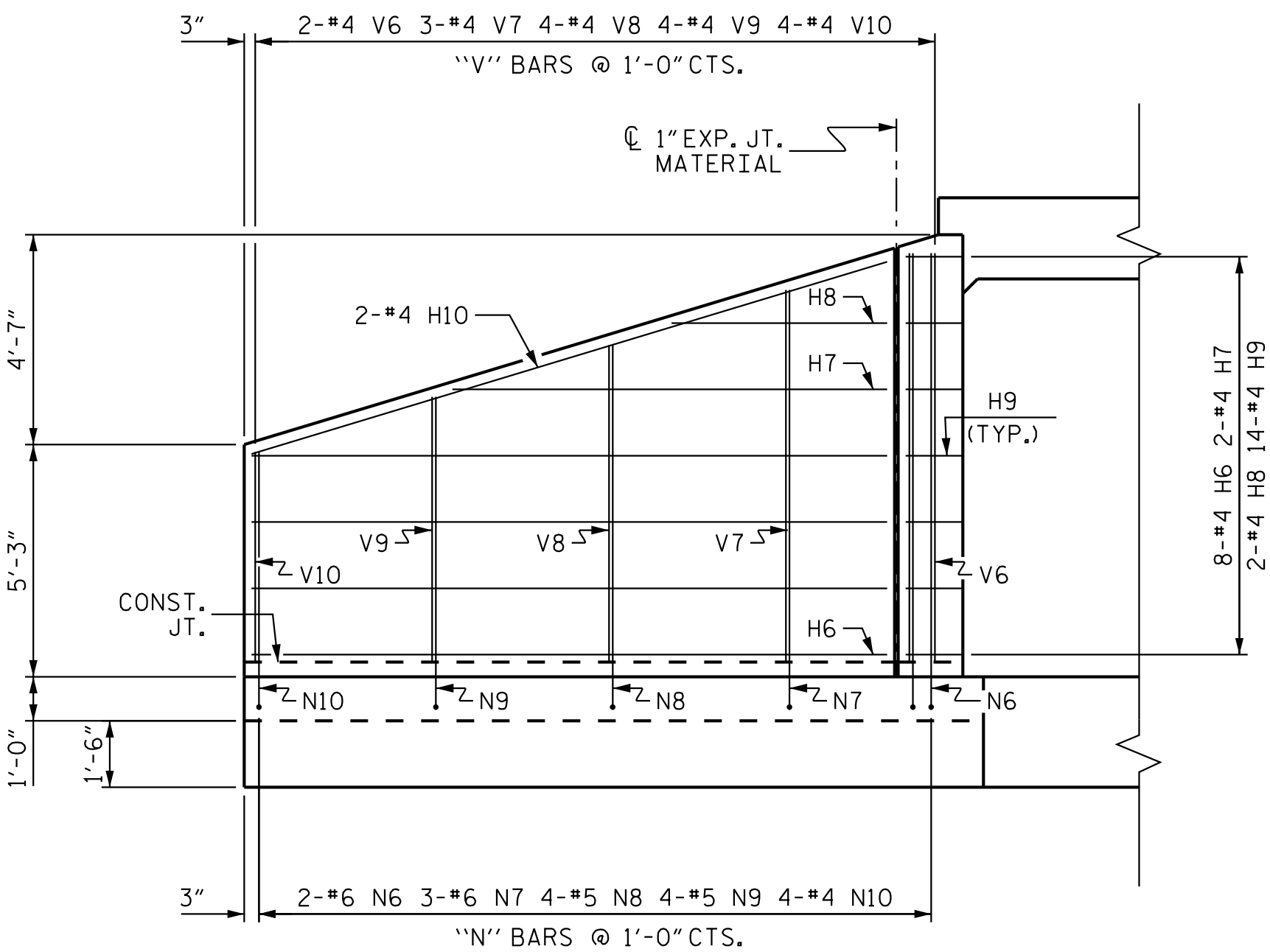
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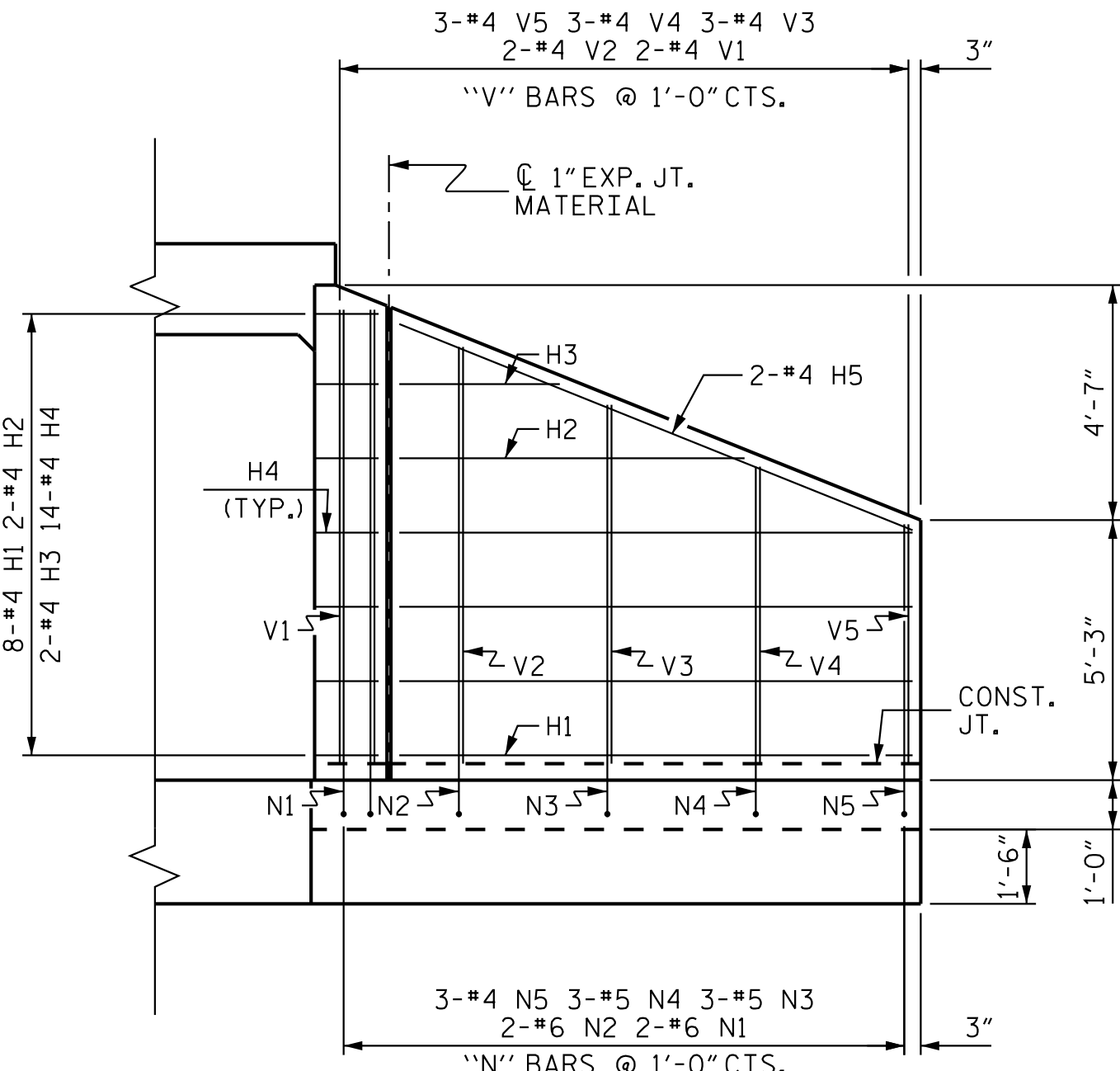
PLAN W1



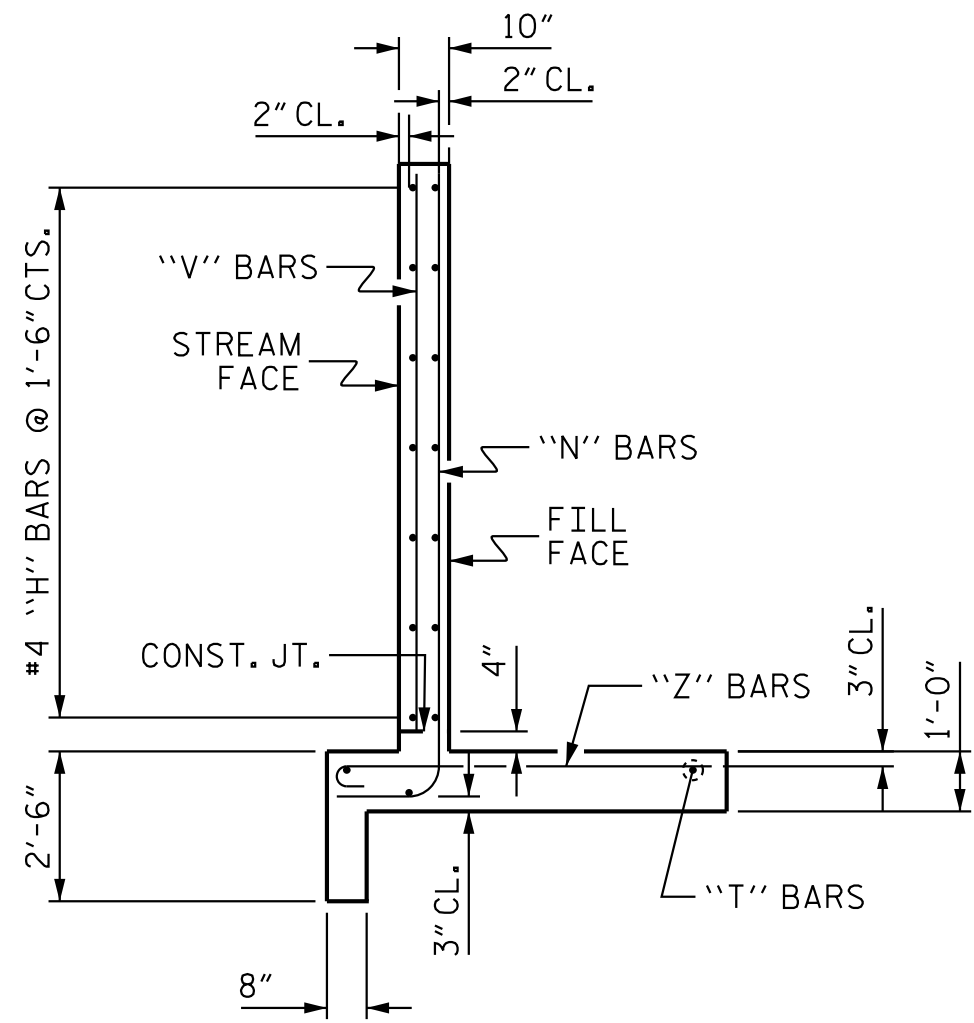
PLAN W2



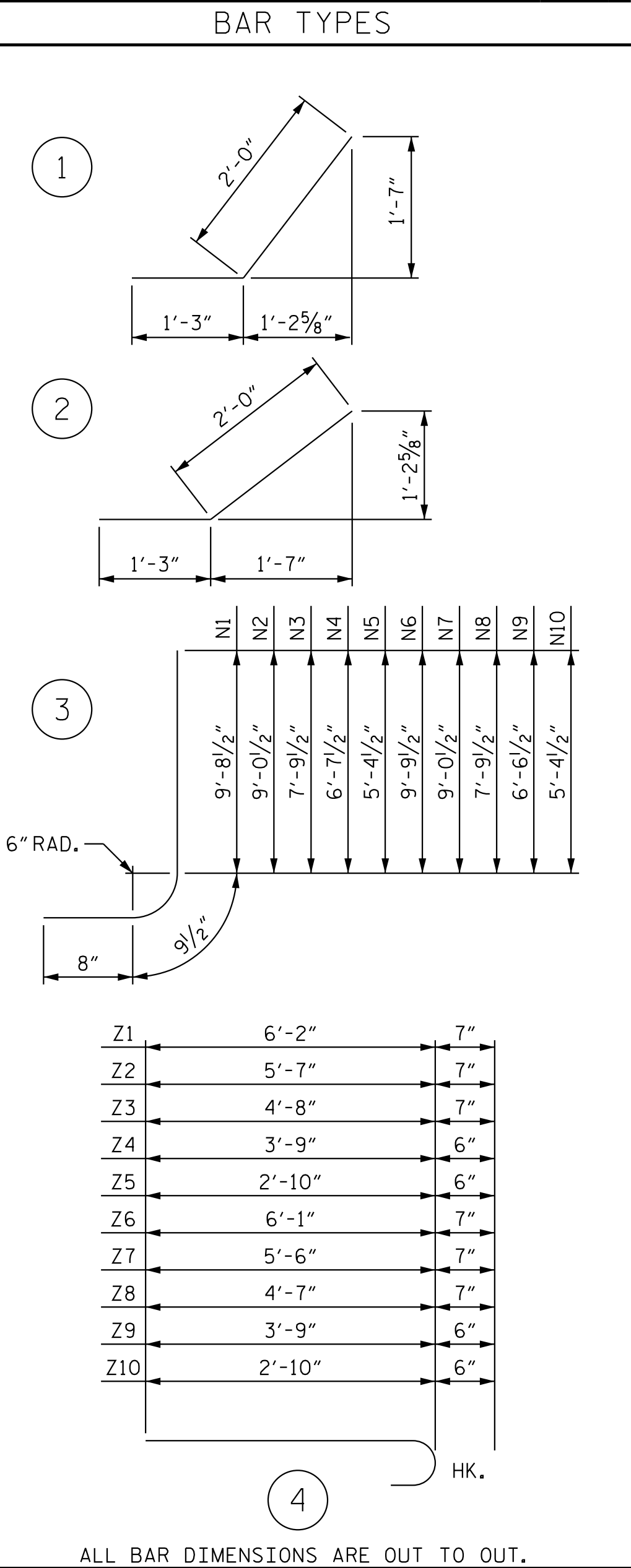
ELEVATION W1



ELEVATION W2



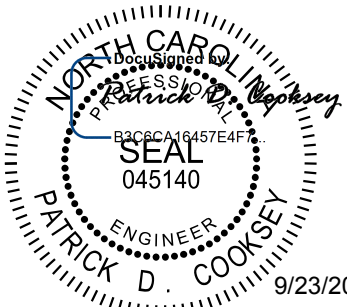
TYPICAL WING
SECTION



BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	#4	STR	10'-4"	55
H2	2	#4	STR	6'-11"	9
H3	2	#4	STR	3'-3"	4
H4	14	#4	1	3'-3"	30
H5	2	#4	STR	11'-2"	15
H6	8	#4	STR	14'-4"	77
H7	2	#4	STR	9'-10"	13
H8	2	#4	STR	4'-10"	6
H9	14	#4	2	3'-3"	30
H10	2	#4	STR	15'-0"	20
N1	2	#6	3	11'-2"	34
N2	2	#6	3	10'-6"	32
N3	3	#5	3	9'-3"	29
N4	3	#5	3	8'-1"	25
N5	3	#4	3	6'-10"	14
N6	2	#6	3	11'-3"	34
N7	3	#6	3	10'-6"	47
N8	4	#5	3	9'-3"	39
N9	4	#5	3	8'-0"	33
N10	4	#4	3	6'-10"	18
S1	6	#6	STR	6'-0"	54
T1	3	#5	STR	12'-3"	38
T2	3	#5	STR	16'-3"	51
V1	2	#4	STR	9'-2"	12
V2	2	#4	STR	8'-5"	11
V3	3	#4	STR	7'-3"	15
V4	3	#4	STR	6'-0"	12
V5	3	#4	STR	4'-10"	10
V6	2	#4	STR	9'-3"	12
V7	3	#4	STR	8'-5"	17
V8	4	#4	STR	7'-2"	19
V9	4	#4	STR	6'-0"	16
V10	4	#4	STR	4'-9"	13
Z1	2	#5	4	6'-9"	14
Z2	2	#5	4	6'-2"	13
Z3	3	#5	4	5'-3"	16
Z4	3	#4	4	4'-3"	9
Z5	3	#4	4	3'-4"	7
Z6	2	#5	4	6'-8"	14
Z7	3	#5	4	6'-1"	19
Z8	4	#5	4	5'-2"	22
Z9	4	#4	4	4'-3"	11
Z10	4	#4	4	3'-4"	9
REINFORCING STEEL FOR 2 WINGS				978	LBS
CLASS A CONCRETE					
2 WINGS				13.9	CY
1 HEADWALLS				0.4	CY
1 END CURTAIN WALLS				0.3	CY
TOTAL				14.6	CY

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 22+76.41 -L-

SHEET 6 OF 6



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD WINGS
FOR
CONCRETE BOX CULVERT
H = 9'-0" SLOPE = 2:1
105° SKEW

REVISIONS						SHEET NO. C2A-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

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PERMANENT LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
WA	1.00	--

NOTES:

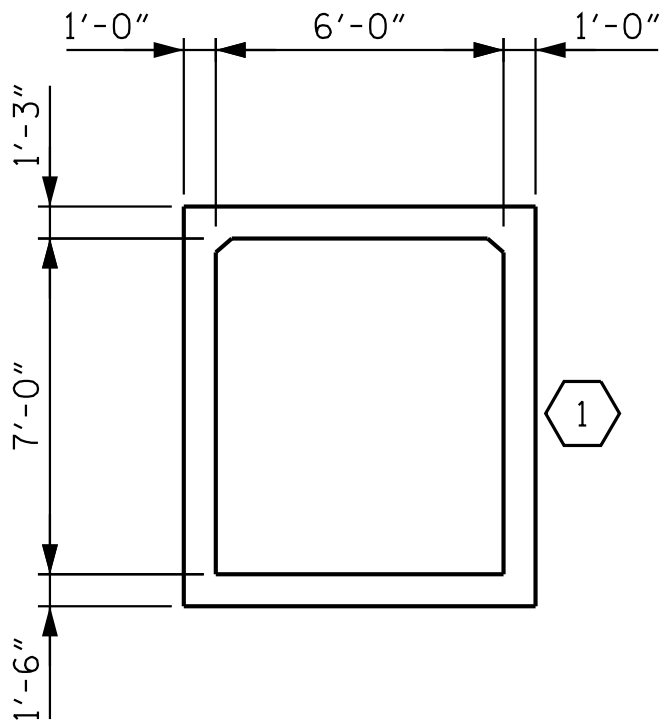
RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

THE EFFECTS OF LIVE LOAD ON DESIGN AND LOAD RATING MAY BE NEGLECTED FOR CULVERTS WITH CERTAIN FILL DEPTHS DESCRIBED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

CULVERTS WITH NEGLIGIBLE LIVE LOAD SHOULD BE LOAD RATED FOR PERMANENT LOADS ONLY IN ACCORDANCE WITH THE AASHTO MANUAL FOR BRIDGE EVALUATION.

LOAD AND RESISTANCE FACTOR RATING (LRFR)
SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

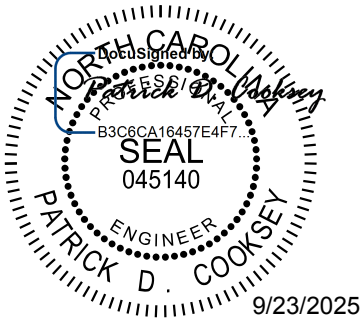
	CONTROLLING LOAD RATING	MINIMUM RATING FACTOR (RF)	STRENGTH I LIMIT STATE							
			MOMENT				SHEAR			
			RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)
PERMANENT LOAD RATING	1	1.05	1.05	1	EXTERIOR WALL	7.5	1.09	1	EXTERIOR WALL	7.5



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 22+76.41 -L-

SHEET 2 OF 6



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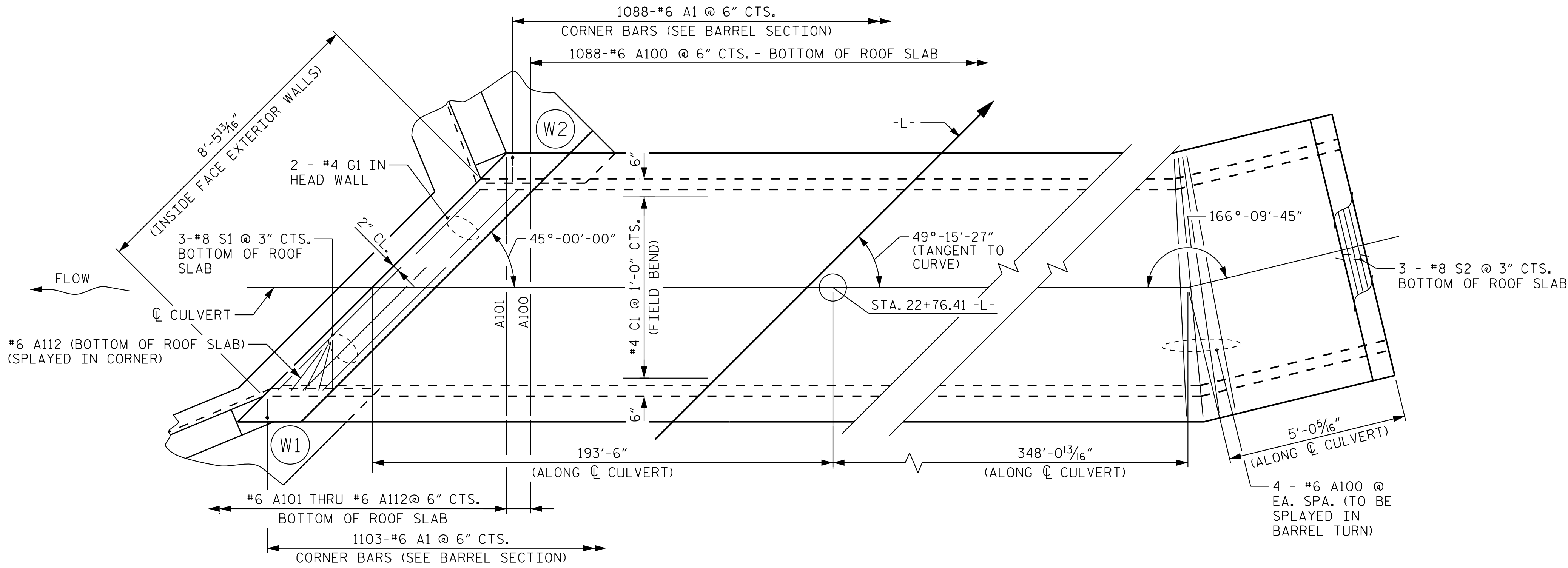
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS (DEEP FILLS)					
REVISIONS					SHEET NO. C2B-2
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 6

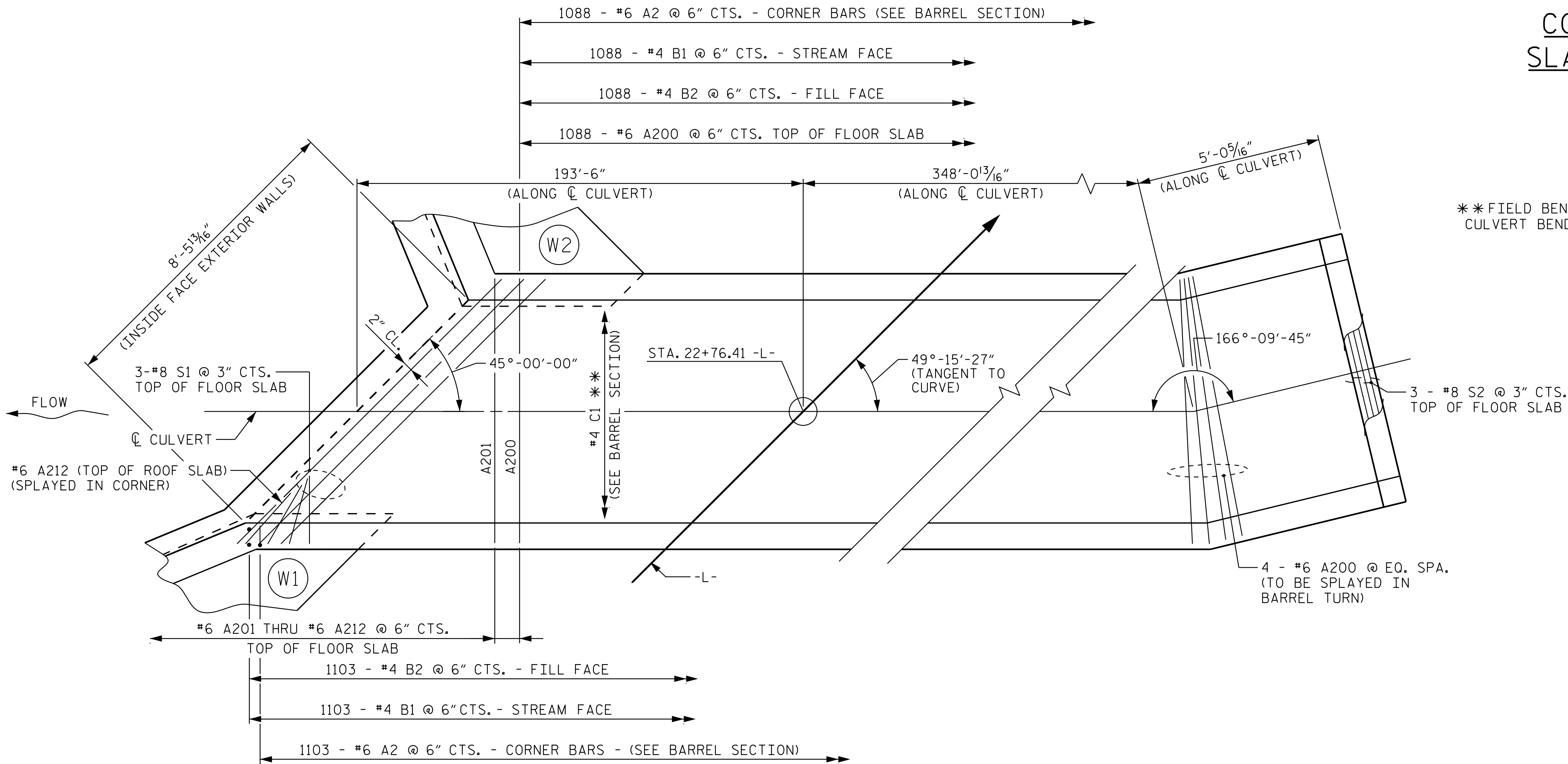
STD. NO. LRFR7

ASSEMBLED BY : D.L. HORTON	DATE : 09/25
CHECKED BY : R. M. KROL	DATE : 09/25
DRAWN BY : BNB 6/19	
CHECKED BY : THC 6/19	

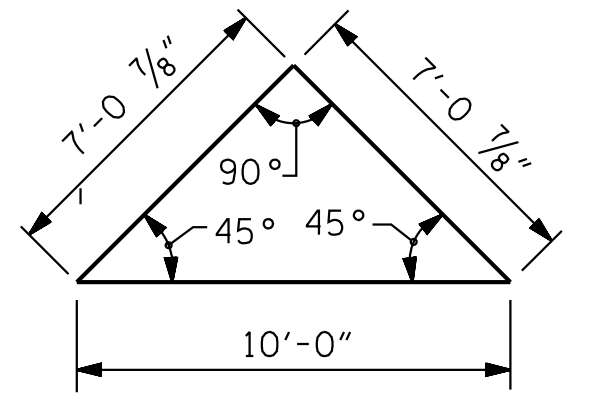
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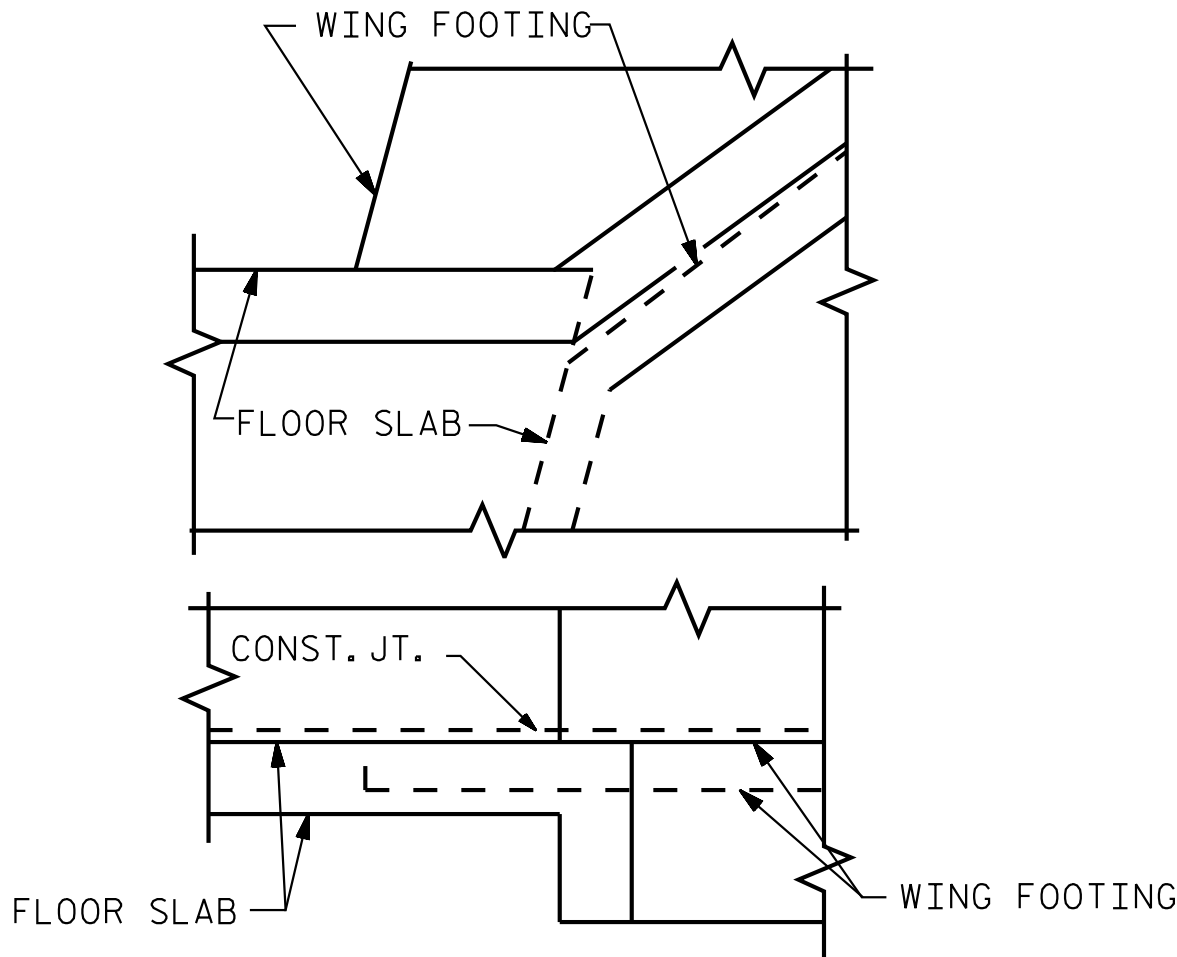
ROOF SLAB PLAN - OUTLET



FLOOR SLAB PLAN - OUTLET

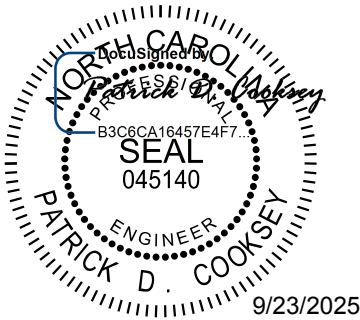


SKEW TRIANGLE



CONNECTION OF WING FOOTING AND FLOOR SLAB WHEN SLAB IS THICKER THAN FOOTING

**FIELD BEND #4 C1 BARS AT CULVERT BEND AS NECESSARY



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PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 22+76.41 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 6 FT. X 7 FT.
CONCRETE BOX CULVERT
OUTLET EXTENSION
45° SKEW

REVISIONS						SHEET NO. C2B-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

DRAWN BY: D. D. LOWERY DATE: 09/25
CHECKED BY: A. L. PHILLIPS DATE: 09/25
DESIGN ENGINEER OF RECORD: P. D. COOKSEY DATE: 09/25



SHEET 5 OF 6

SINGLE 6 FT. X 7 FT.
CONCRETE BOX CULVERT
OUTLET EXTENSION
45° SKEW

REVISIONS						SHEET NO. C2B-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			



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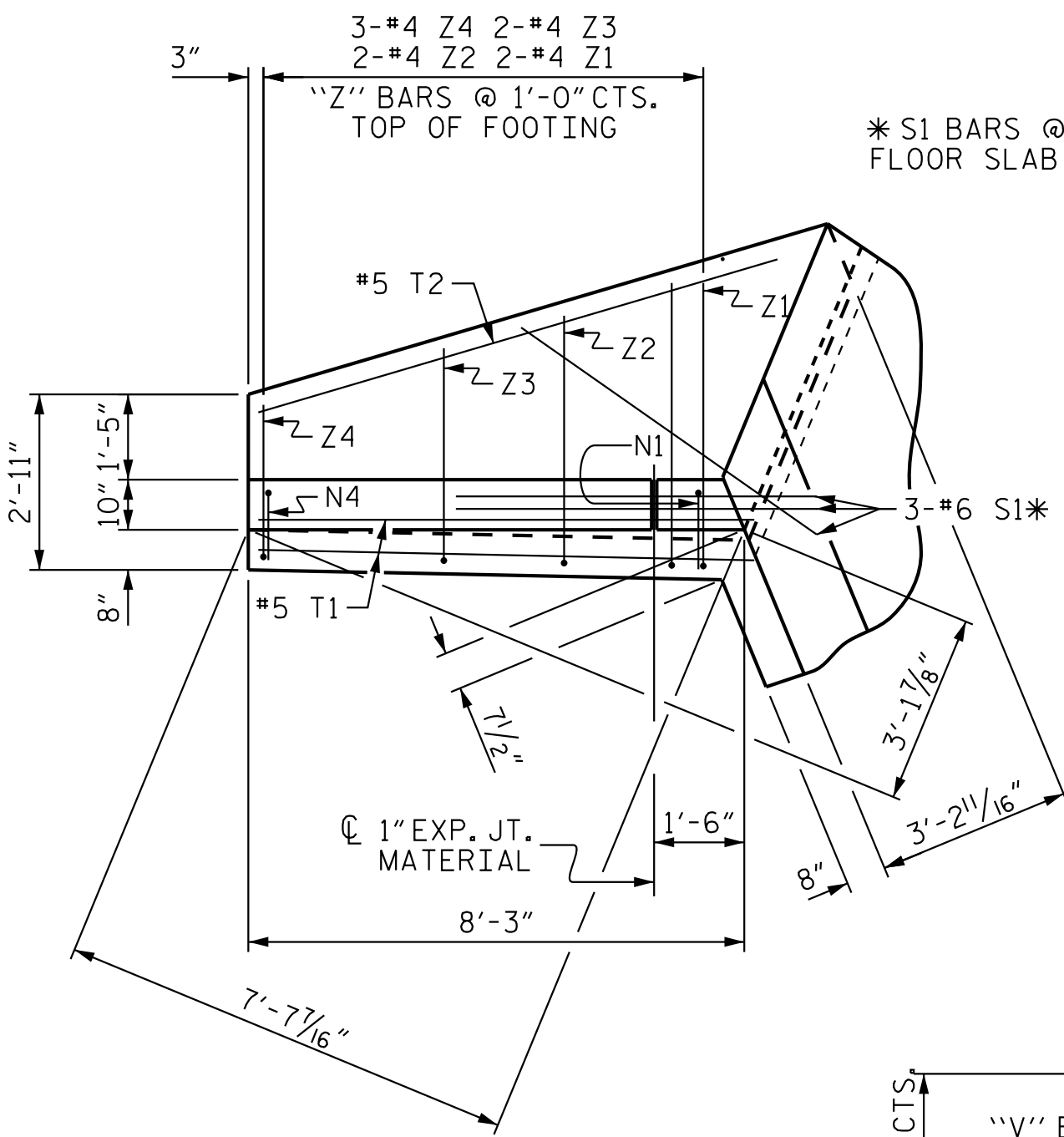
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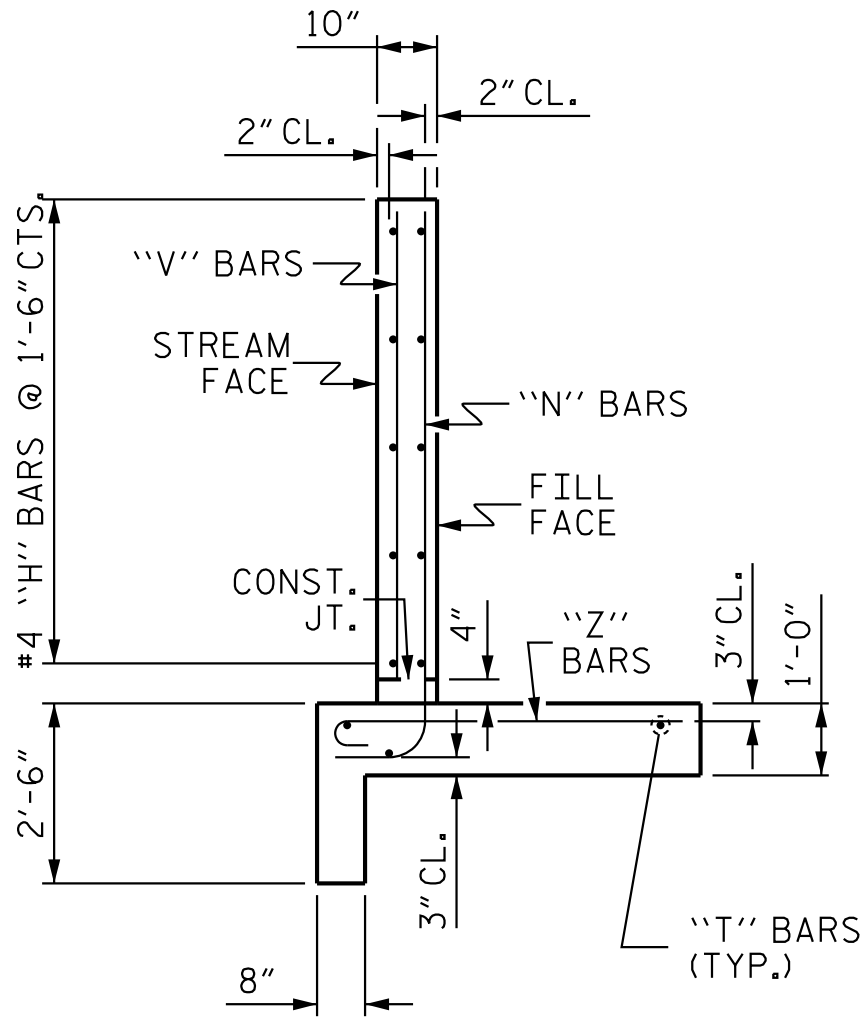
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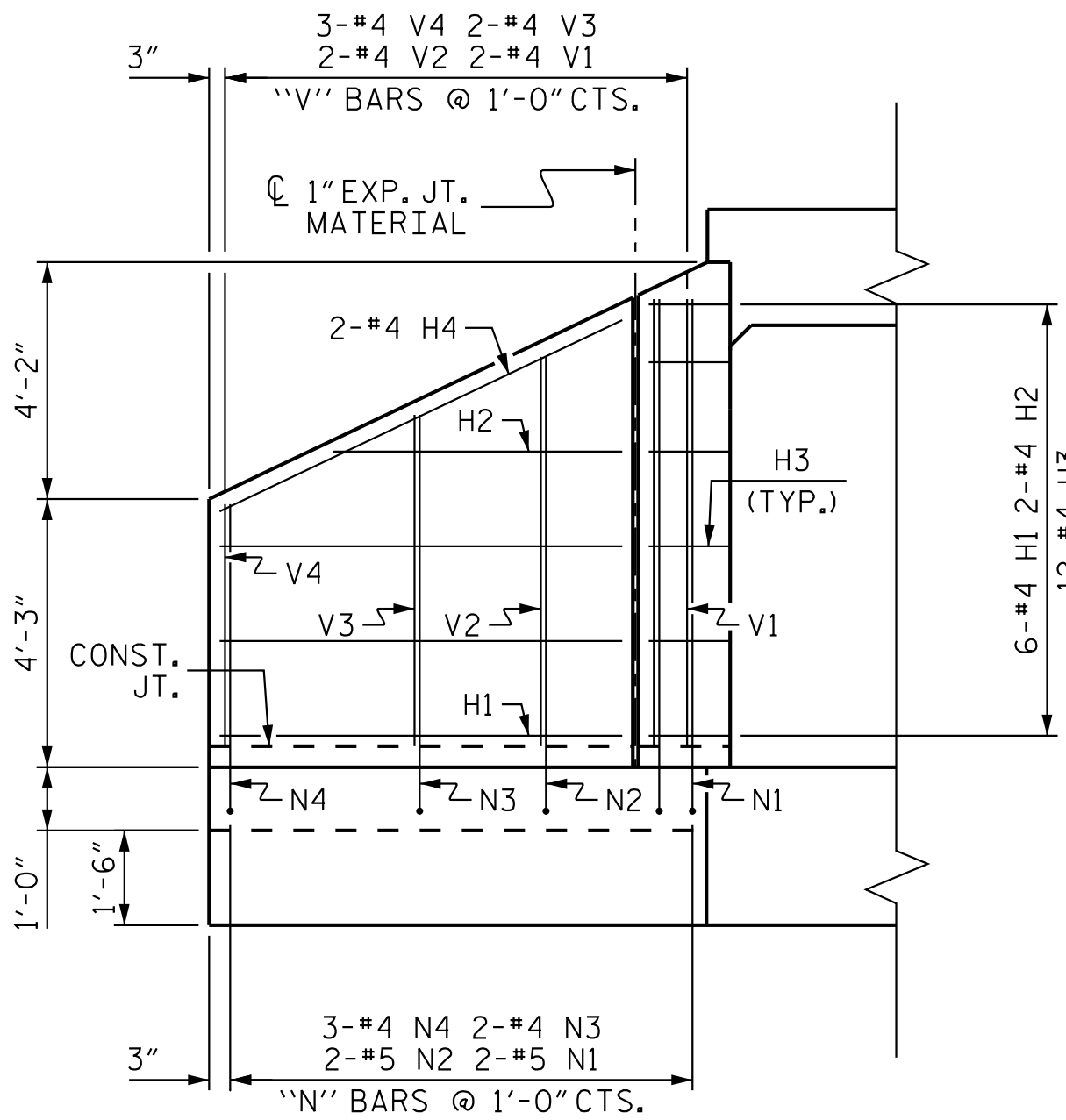
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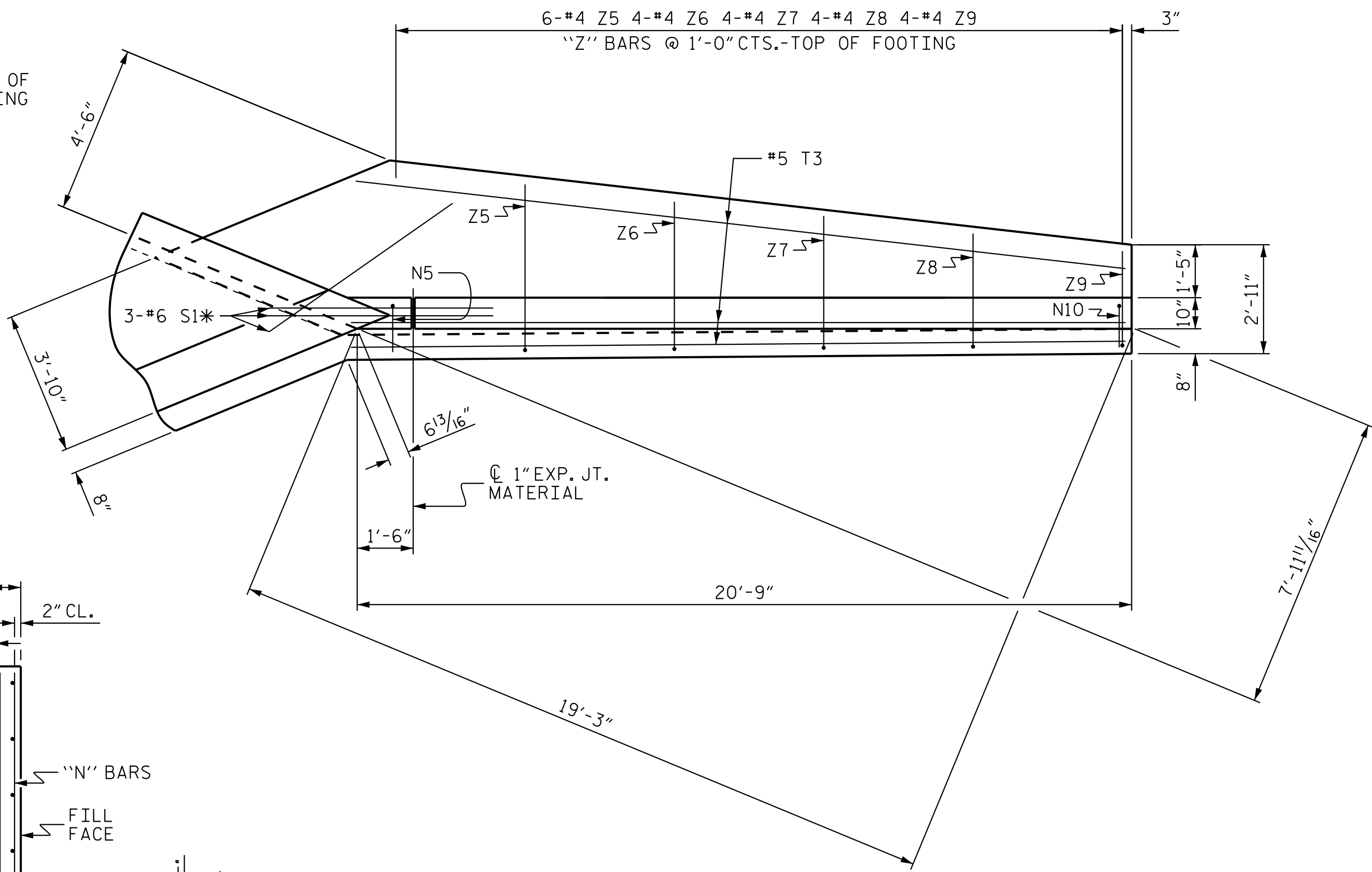
PLAN W2



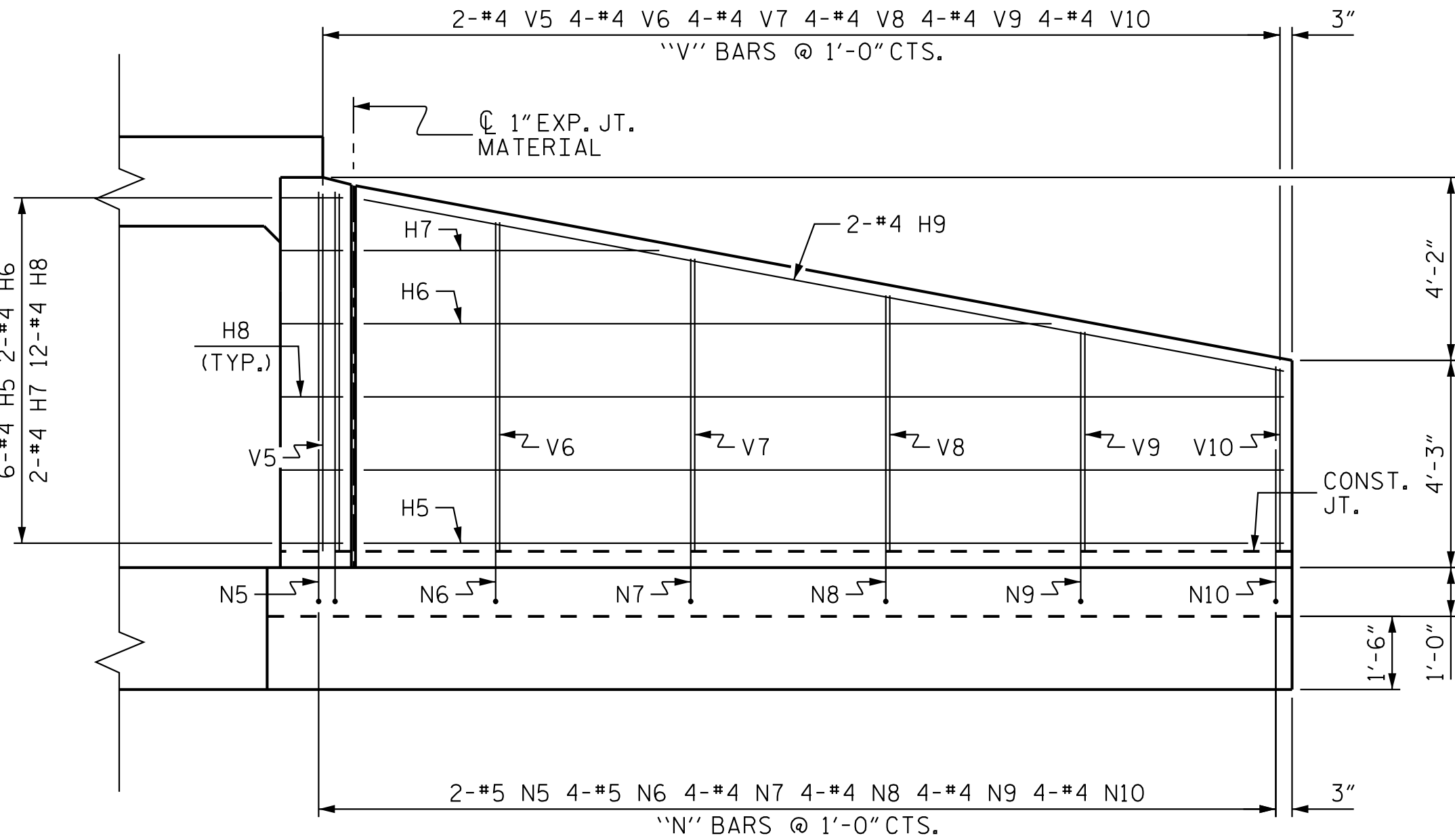
TYPICAL WING SECTION



ELEVATION W2



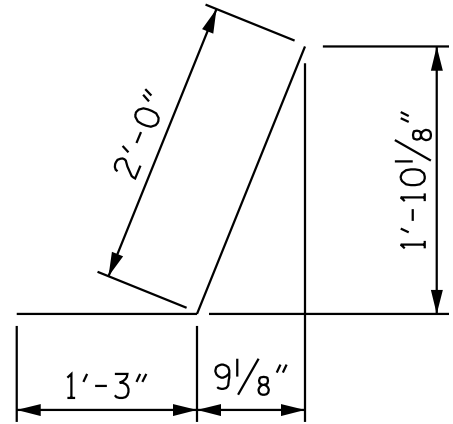
PLAN W1



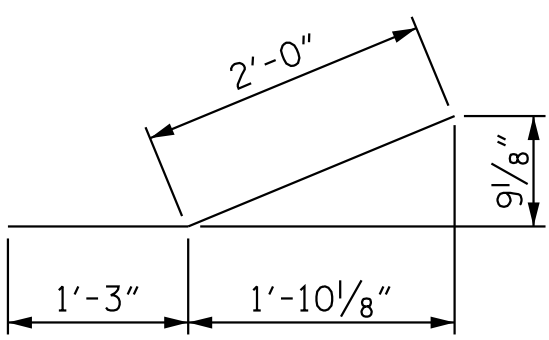
ELEVATION W1

BAR TYPES

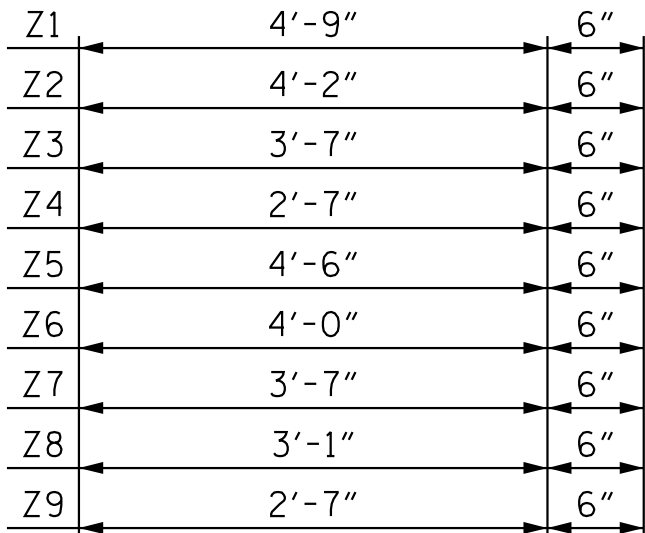
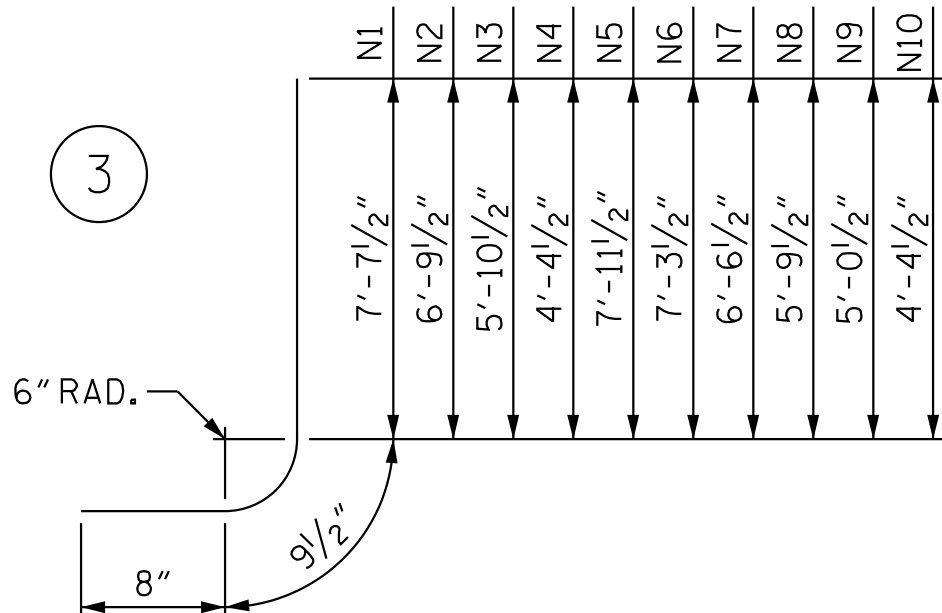
1



2



3



4



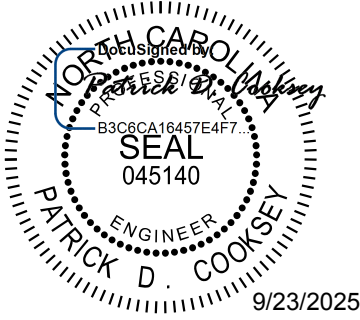
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	6	#4	STR	6'-4"	25
H2	2	#4	STR	4'-6"	6
H3	12	#4	1	3'-3"	26
H4	2	#4	STR	7'-0"	9
H5	6	#4	STR	18'-10"	75
H6	2	#4	STR	14'-1"	19
H7	2	#4	2	6'-0"	8
H8	12	#4	STR	3'-3"	26
H9	2	#4	STR	19'-2"	26
N1	2	#5	3	9'-1"	19
N2	2	#5	3	8'-3"	17
N3	2	#4	3	7'-4"	10
N4	3	#4	3	5'-7"	11
N5	2	#5	3	9'-5"	20
N6	4	#5	3	8'-9"	37
N7	4	#4	3	8'-0"	21
N8	4	#4	3	7'-3"	19
N9	4	#4	3	6'-6"	17
N10	4	#4	3	5'-10"	16
S1	6	#6	STR	6'-0"	54
T1	2	#5	STR	8'-3"	17
T2	1	#5	STR	9'-0"	9
T3	3	#5	STR	20'-9"	65
V1	2	#4	STR	7'-1"	9
V2	2	#4	STR	6'-2"	8
V3	2	#4	STR	5'-3"	7
V4	3	#4	STR	3'-9"	8
V5	2	#4	STR	7'-4"	10
V6	4	#4	STR	6'-9"	18
V7	4	#4	STR	6'-0"	16
V8	4	#4	STR	5'-3"	14
V9	4	#4	STR	4'-6"	12
V10	4	#4	STR	3'-9"	10
Z1	2	#4	4	5'-3"	7
Z2	2	#4	4	4'-8"	6
Z3	2	#4	4	4'-1"	5
Z4	3	#4	4	3'-1"	6
Z5	6	#4	4	5'-0"	20
Z6	4	#4	4	4'-6"	12
Z7	4	#4	4	4'-1"	11
Z8	4	#4	4	3'-7"	10
Z9	4	#4	4	3'-1"	8
REINFORCING STEEL				750 LBS	
FOR 2 WINGS					
CLASS A CONCRETE					
2 WINGS				11.8	CY
1 HEADWALLS				0.5	CY
1 END CURTAIN WALLS				0.6	CY
TOTAL				12.9	CY

PROJECT NO. U-5760
FORSYTH COUNTY
STATION: 22+76.41 -L-

SHEET 6 OF 6



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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

STD. NO. CW4507

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS -----	AASHTO (CURRENT)
LIVE LOAD -----	SEE PLANS
IMPACT ALLOWANCE-----	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36 ----	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ---	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50 ----	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60 -----	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION -----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR -----	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS ----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER -----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH -----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞"Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST ⅝" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY ⅛" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.