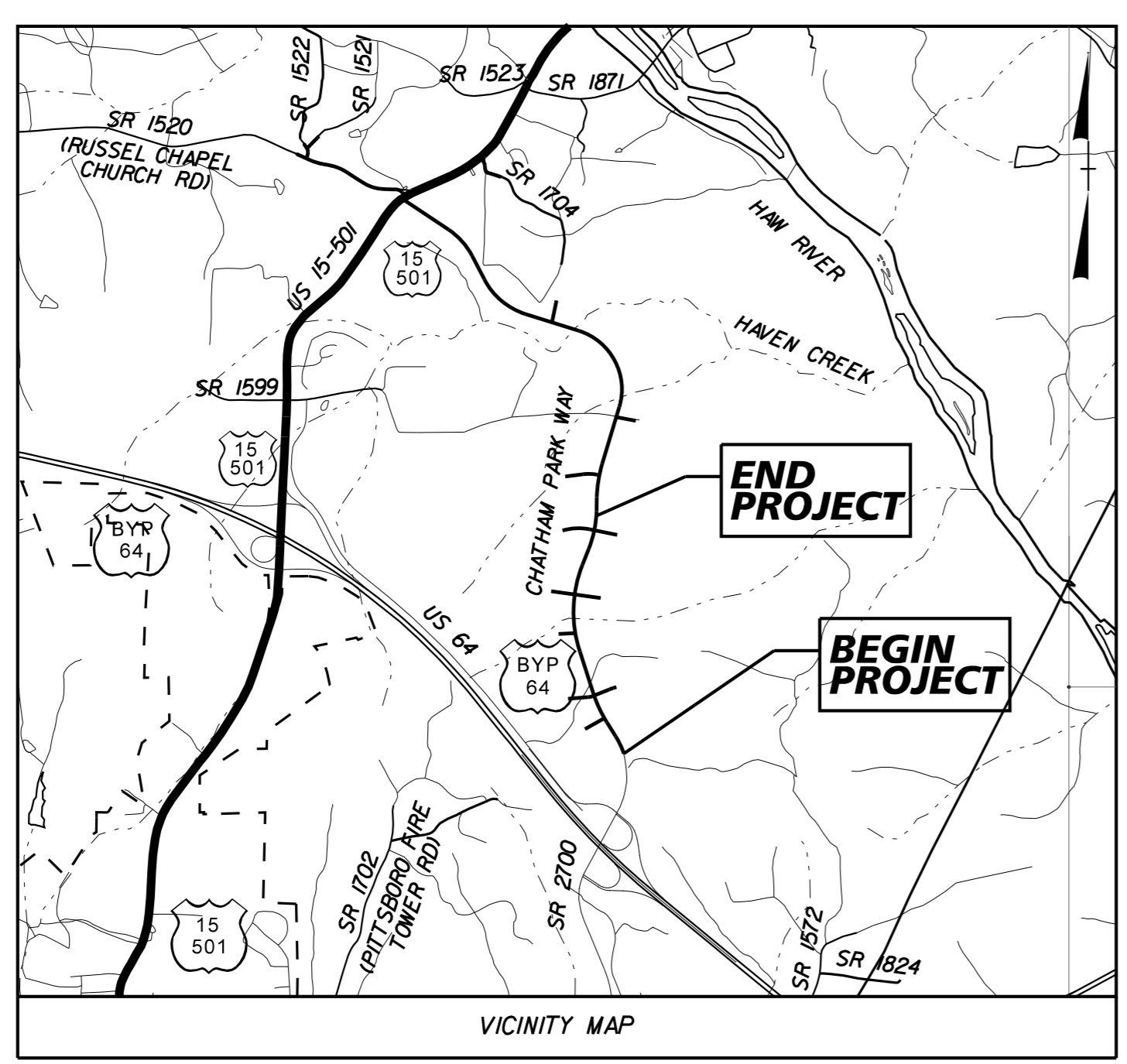


TIP PROJECT: R-5930A

CONTRACT: C204872



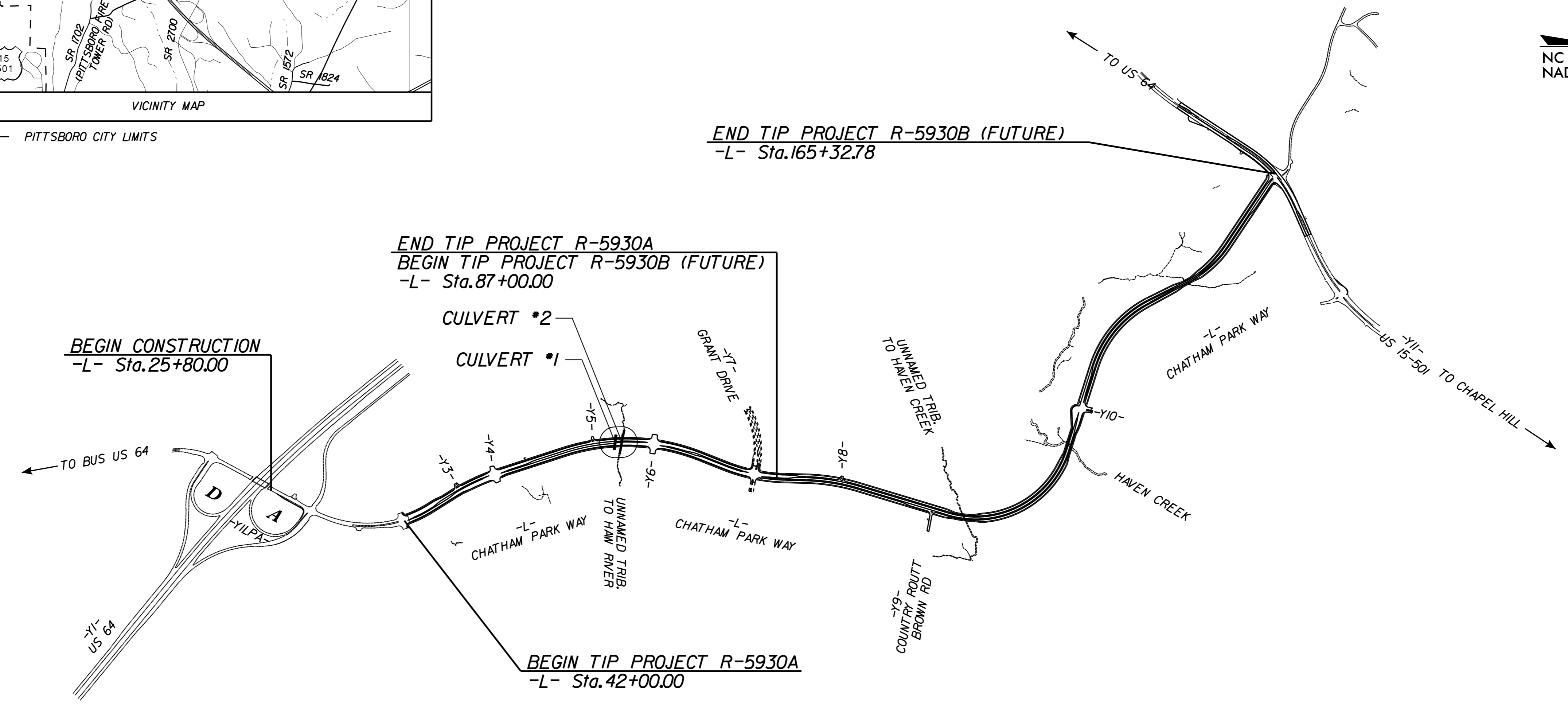
----- PITTSBORO CITY LIMITS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CHATHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5930A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48548.1.1		PE	
48548.2.1		RW	
48548.3.2		CONST.	

LOCATION: CHATHAM PARK WAY FROM NORTH OF US 64 TO NORTH OF FUTURE GRANT DRIVE

TYPE OF WORK: DRAINAGE, GRADING, PAVING, AND CULVERTS



STRUCTURES

R-5930A DESIGN DATA

ADT 2025 =	0
ADT 2045 =	30000
K =	8%
D =	65
T =	5%*
V =	50 MPH

* (TTST 2% + DUAL 3%)
FUNCTIONAL CLASSIFICATION:
URBAN ARTERIAL
SUB-REGIONAL TIER

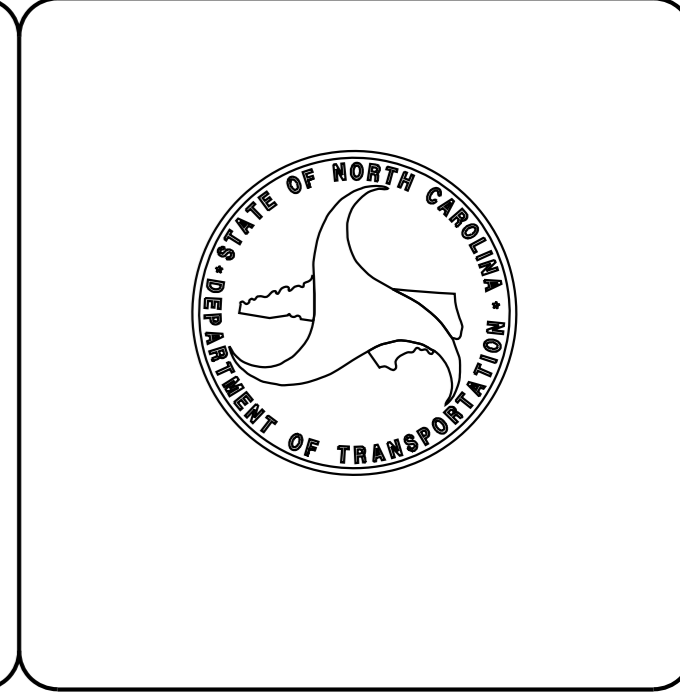
PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5930A	=	0.852 MILES
TOTAL LENGTH TIP PROJECT R-5930A	=	0.852 MILES

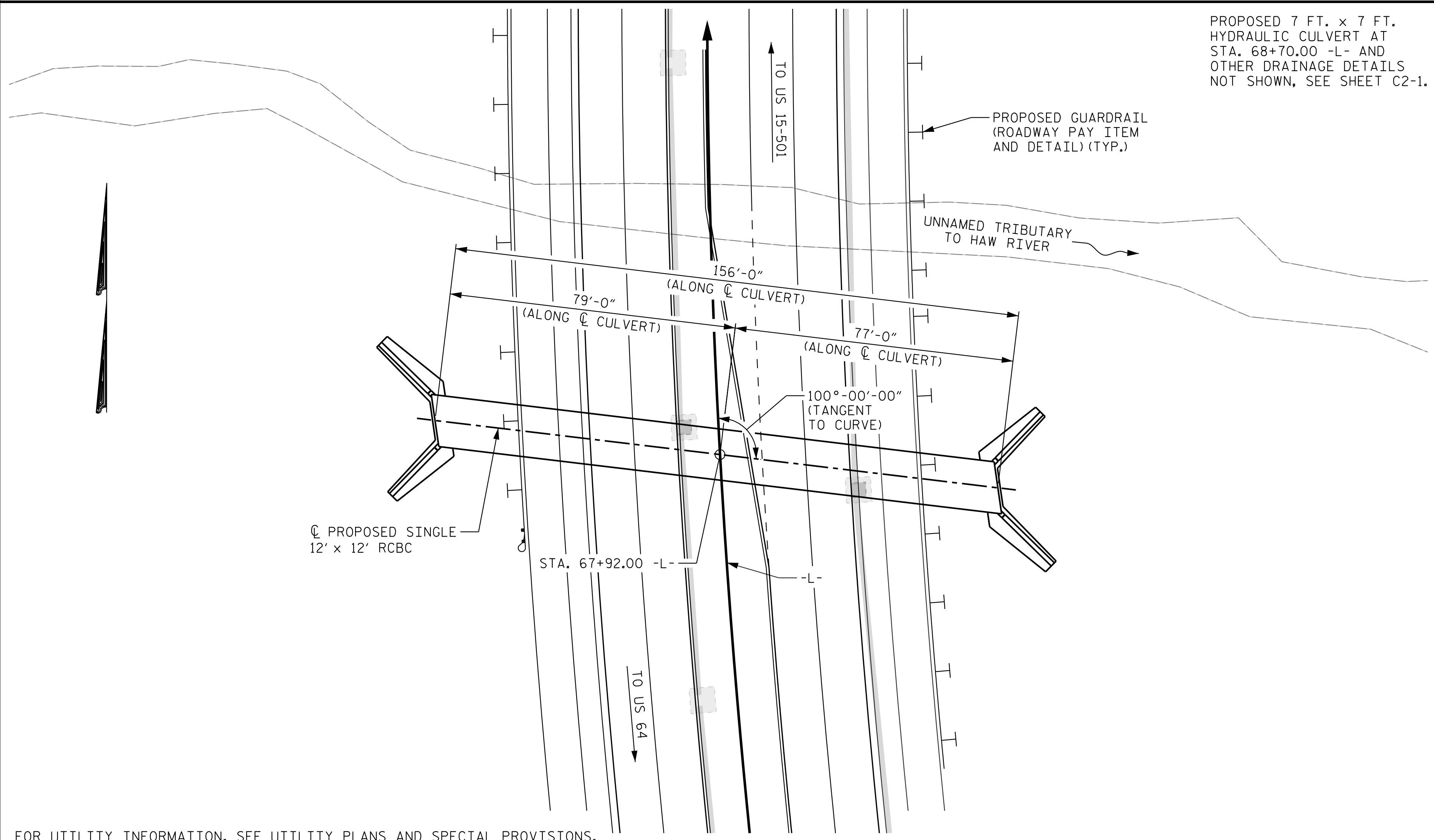
PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn
INCORPORATED
FAVORABLE STREET, SUITE 200
DURHAM, NORTH CAROLINA 27603
PHONE: (919) 497-2200

2018 STANDARD SPECIFICATIONS	ANDREW L. PHILLIPS, P.E. PROJECT ENGINEER
LETTING DATE: AUGUST 15, 2023	CLAY T. POOLE, P.E. PROJECT DESIGN ENGINEER



BENCHMARK: BM#5, STA. 66+65.51 -L-, 553.35' LT. RR SPIKE IN 12" PINE TREE, EL. 480.21', N 725736 E 1955112 NAD83



PROPOSED 7 FT. x 7 FT. HYDRAULIC CULVERT AT STA. 68+70.00 -L- AND OTHER DRAINAGE DETAILS NOT SHOWN, SEE SHEET C2-1.

PROPOSED GUARDRAIL (ROADWAY PAY ITEM AND DETAIL) (TYP.)

UNNAMED TRIBUTARY TO HAW RIVER

PROPOSED SINGLE 12' x 12' RCBC

STA. 67+92.00 -L-

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES

- ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING
- DESIGN FILL -----8'-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 SHEETS.
- 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.
- 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.
- UNDERCUT ANY SOFT/LOOSE ALLUVIAL SOILS THAT MAY BE ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATION CONDITIONING MATERIAL. BACKFILL UNDERCUT AREAS WITH FOUNDATION CONDITIONING MATERIAL (SELECT MATERIAL CLASS VI; NO. 57 STONE).
- INSTALL TYPE 4 GEOTEXTILE AT THE BOTTOM OF EXCAVATION PRIOR TO PLACING FOUNDATION CONDITIONING MATERIAL. THE GEOTEXTILE SHOULD BE PLACED AT THE BOTTOM OF THE EXCAVATION AND WRAPPED UP THE SIDE WALLS OF THE EXCAVATION.
- 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.

-L- HORIZONTAL CURVE DATA

PI STA. 70+27.00
 $\Delta = 39^\circ-35'-18.7"$ (RT)
 $D = 2^\circ-29'-28.0"$
 $L = 1,589.19'$
 $T = 827.79'$
 $R = 2,300.00'$

ROADWAY DATA

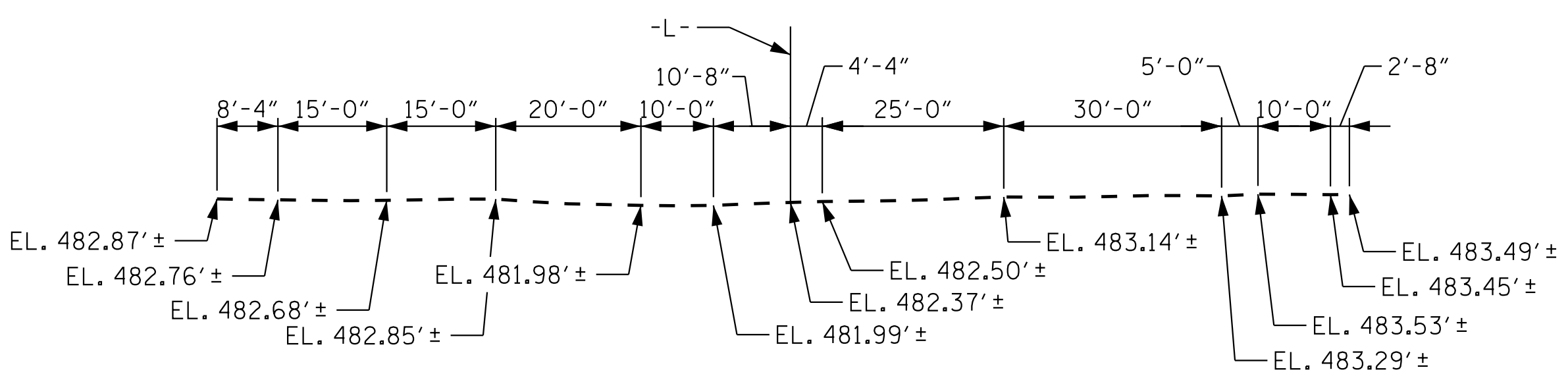
GRADE POINT EL. @ STA. 67+92.00 -L- = 500.38'
 BED ELEVATION @ STA. 67+92.00 -L- = 480.71'
 ROADWAY SLOPES 2 : 1

TOTAL STRUCTURE QUANTITIES

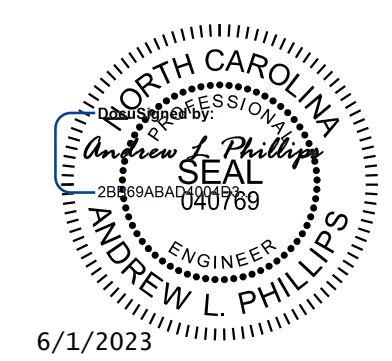
CLASS A CONCRETE	
BARREL @ 1.930 CY/FT	301.1 C.Y.
WINGS ETC.	66.0 C.Y.
TOTAL	367.1 C.Y.
REINFORCING STEEL	
BARREL	55,845 LBS.
WINGS ETC.	10,825 LBS.
TOTAL	66,670 LBS.
CULVERT EXCAVATION STA. 67+92.00 -L-	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	199 TONS

PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 67+92.00 -L-

SHEET 1 OF 6



PROFILE ALONG CULVERT



Kimley»Horn
 421 Fayetteville Street, Suite 600
 Raleigh, NC 27601-1772
 Phone (919) 677-2000 NC LICENSE # F-0102

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 12 FT. X 12 FT.
 CONCRETE BOX CULVERT
 100° SKEW
 (PEDESTRIAN)

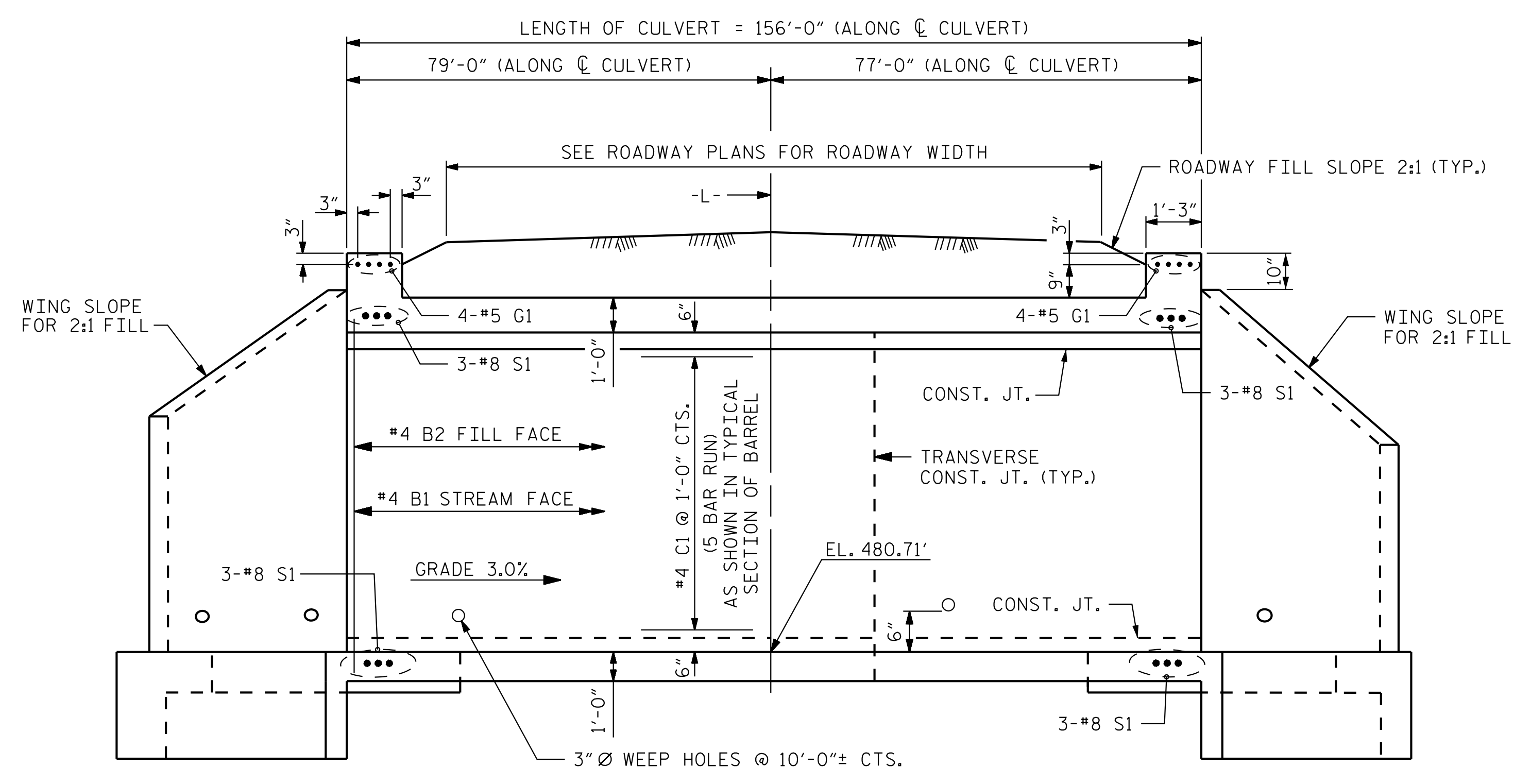
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-1
1			3			TOTAL SHEETS
2			4			6

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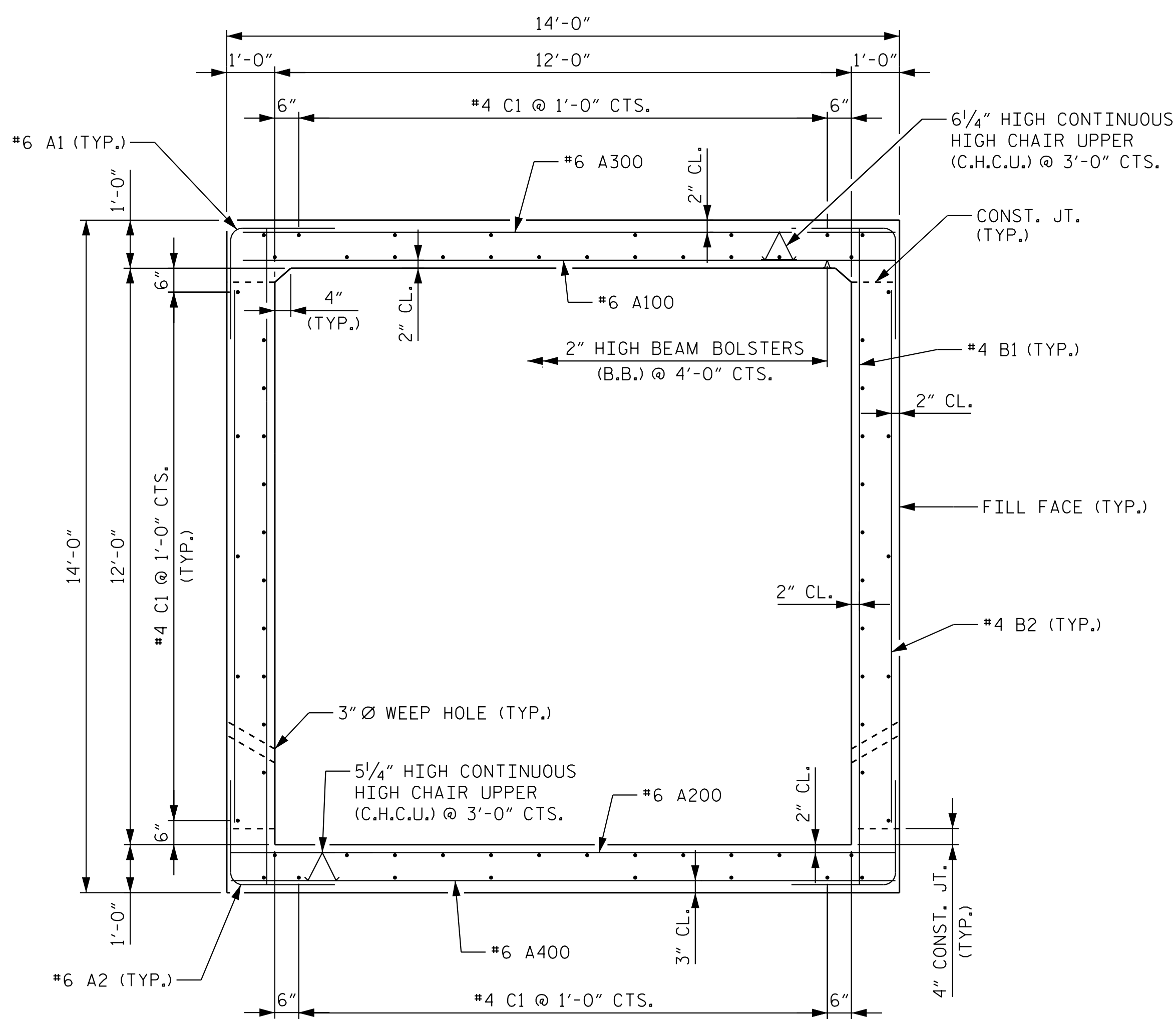
DRAWN BY: D. D. LOWERY DATE: 01/2023
 CHECKED BY: C. I. POOLE DATE: 01/2023
 DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023

CULVERT 42C001

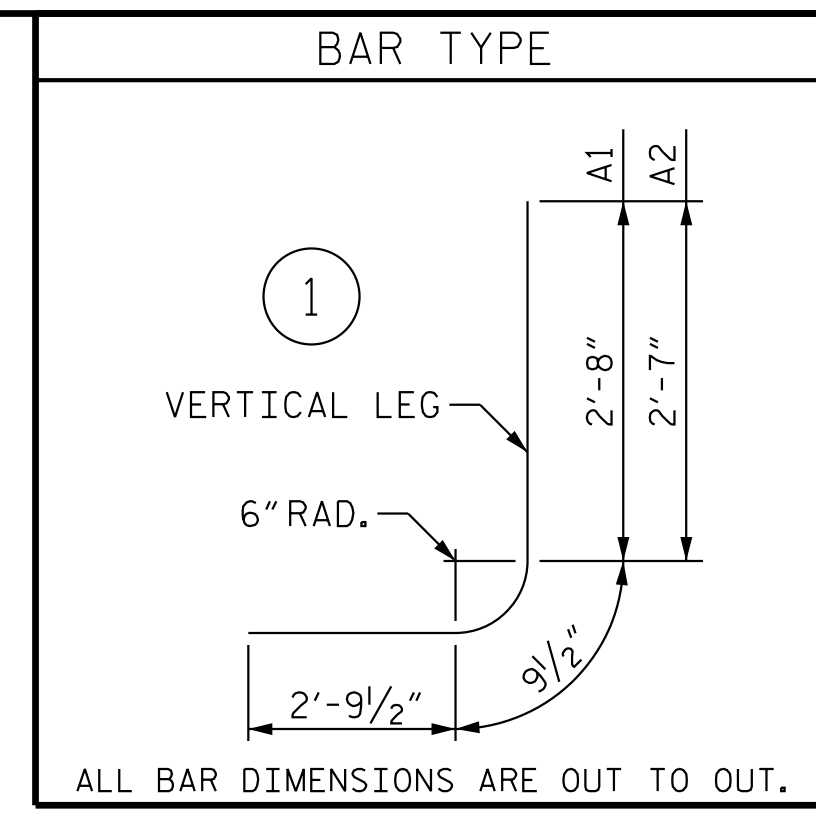
K:\BIDI_Structures\Culvert\A\NC\01036532 - R-5930 - North Carolina Dept. of Transportation - R-5930A-410-001-R5930A-SM-LC01.dgn



CULVERT SECTION NORMAL TO ROADWAY

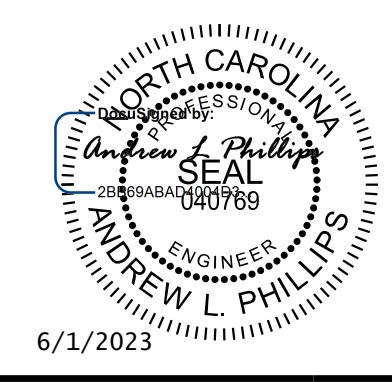


RIGHT ANGLE SECTION OF BARREL
THERE ARE 70 C1 BARS IN SECTION OF BARREL



BAR TYPE		BILL OF MATERIAL				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
A1	622	6	1	6'-3"	5,839	
A2	622	6	1	6'-2"	5,761	
A100	305	6	STR	13'-8"	6,261	
A101	2	6	STR	11'-9"	35	
A102	2	6	STR	9'-11"	30	
A103	2	6	STR	8'-0"	24	
A104	2	6	STR	6'-2"	19	
A105	2	6	STR	4'-3"	13	
A106	4	6	STR	2'-5"	15	
A200	305	6	STR	13'-8"	6,261	
A201	2	6	STR	11'-9"	35	
A202	2	6	STR	9'-11"	30	
A203	2	6	STR	8'-0"	24	
A204	2	6	STR	6'-2"	19	
A205	2	6	STR	4'-3"	13	
A206	4	6	STR	2'-5"	15	
A300	305	6	STR	13'-8"	6,261	
A301	2	6	STR	11'-9"	35	
A302	2	6	STR	9'-11"	30	
A303	2	6	STR	8'-0"	24	
A304	2	6	STR	6'-2"	19	
A305	2	6	STR	4'-3"	13	
A306	4	6	STR	2'-5"	15	
A400	305	6	STR	13'-8"	6,261	
A401	2	6	STR	11'-9"	35	
A402	2	6	STR	9'-11"	30	
A403	2	6	STR	8'-0"	24	
A404	2	6	STR	6'-2"	19	
A405	2	6	STR	4'-3"	13	
A406	4	6	STR	2'-5"	15	
B1	622	4	STR	13'-7"	5,644	
B2	622	4	STR	11'-4"	4,709	
C1	350	4	STR	33'-1"	7,735	
G1	8	5	STR	14'-1"	118	
S1	12	8	STR	14'-1"	451	
REINFORCING STEEL				LBS.	55,845	

BAR SIZE	SPLICE LENGTH
#4 B1	1'-10"
#4 C1	2'-5"



Kimley»Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601-1772
Phone (919) 677-2000 NC LICENSE # F-0102

PROJECT NO. R-5930A
CHATHAM COUNTY
STATION: 67+92.00 -L-

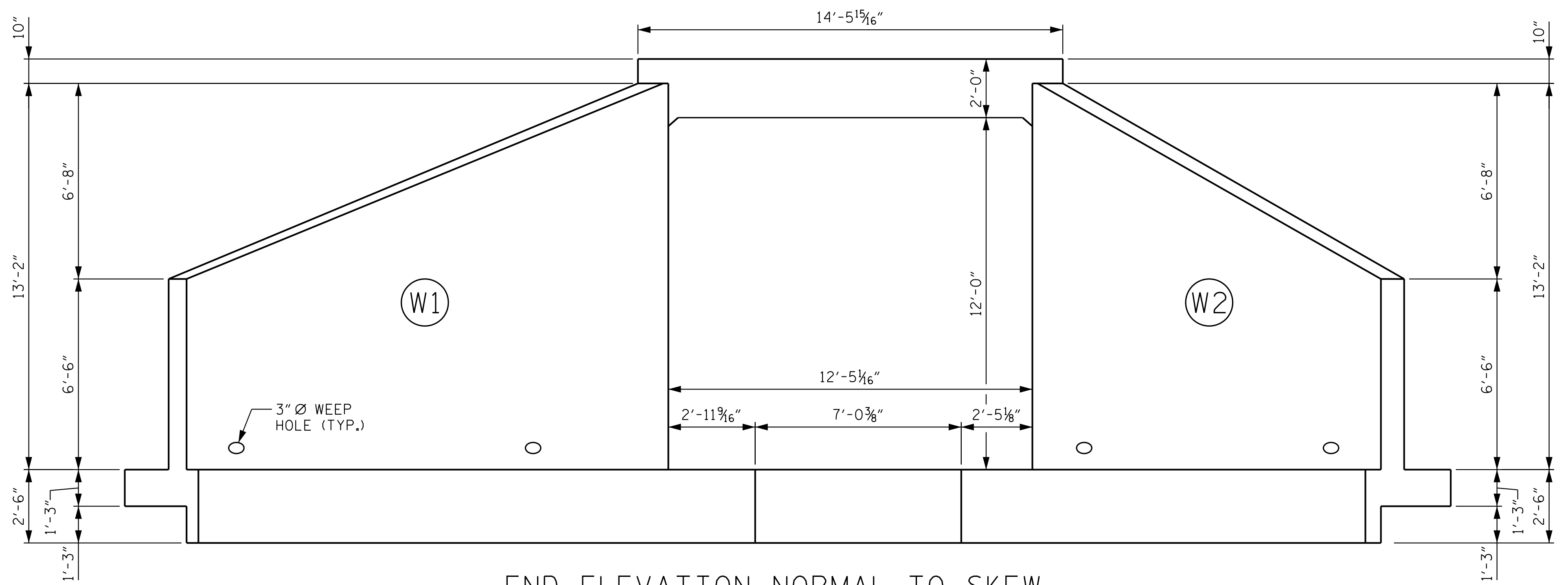
SHEET 2 OF 6
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SINGLE 12 FT. X 12 FT.
CONCRETE BOX CULVERT
100° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-2
1			3			TOTAL SHEETS
2			4			6

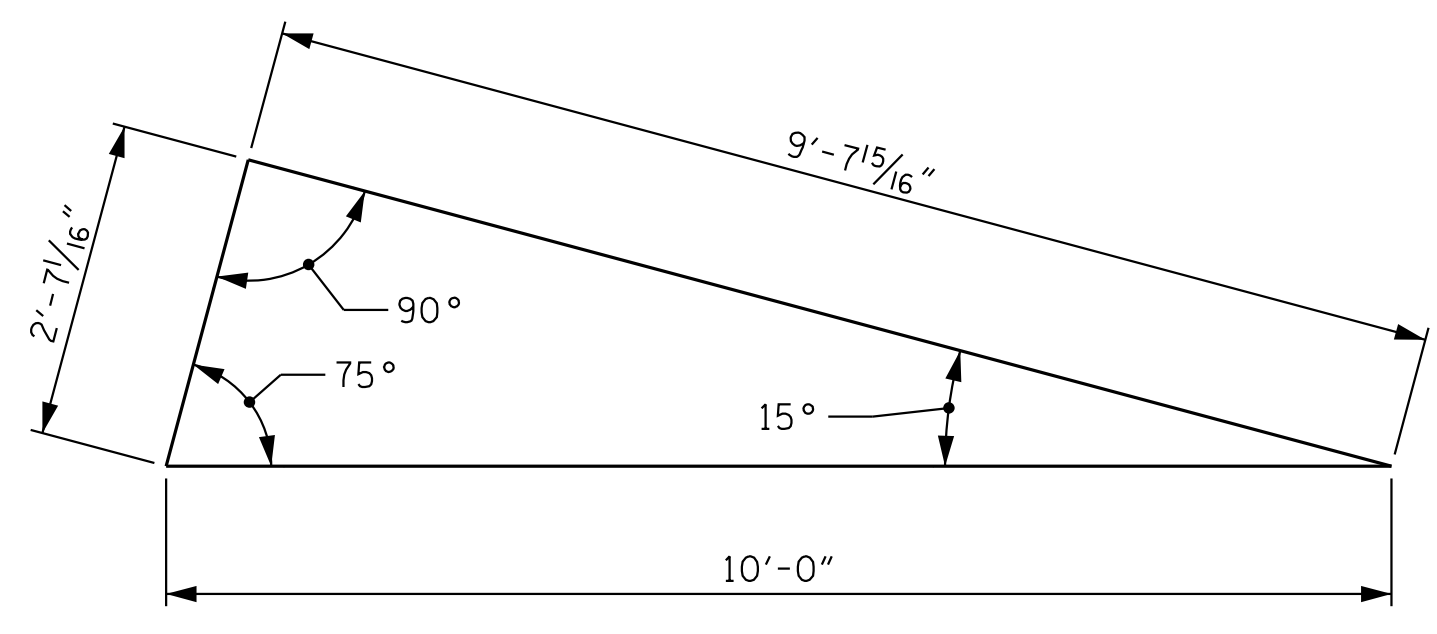
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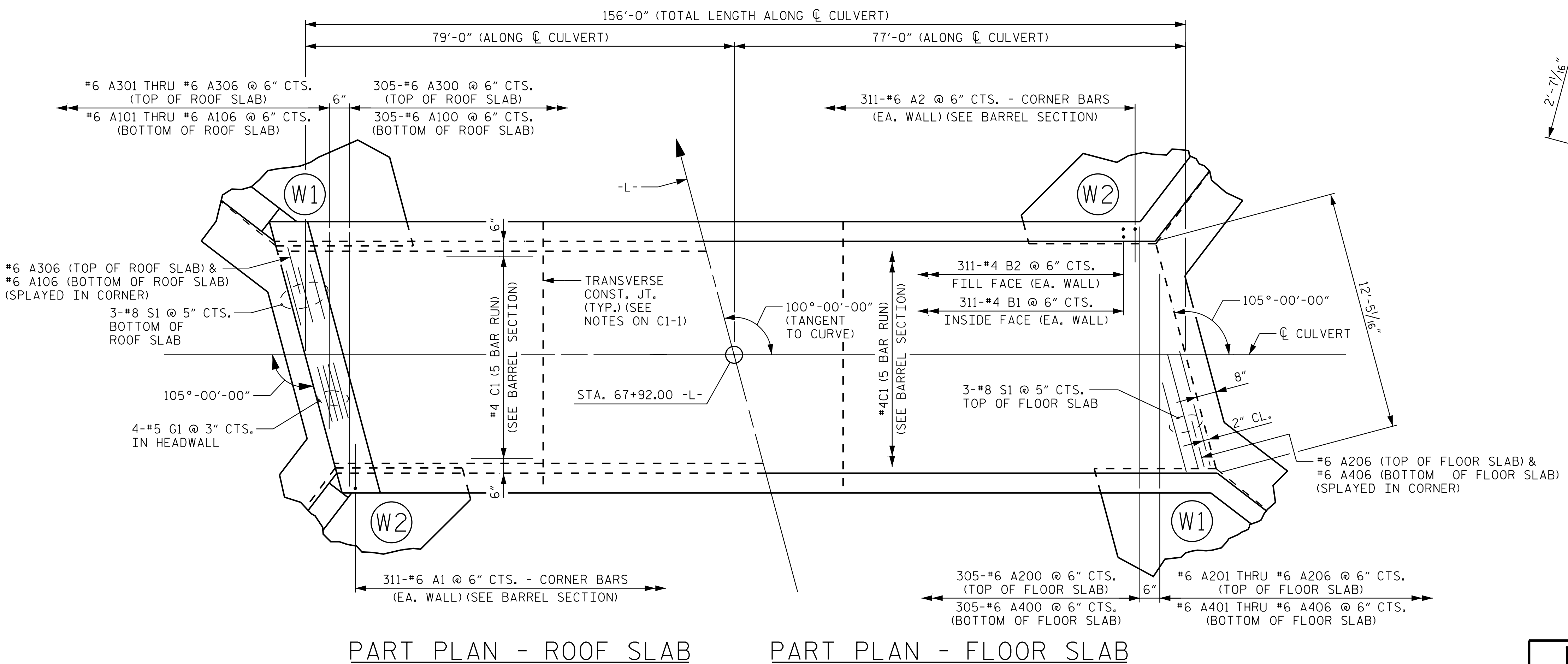
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CHECKED BY: C. I. POOLE DATE: 01/2023
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023



END ELEVATION NORMAL TO SKEW



SKEW TRIANGLE



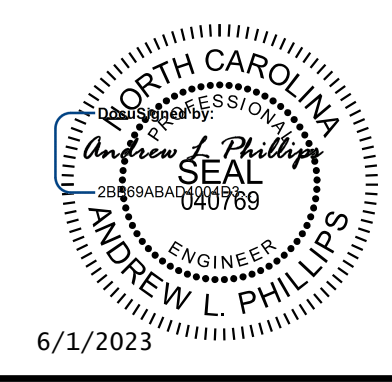
PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB

PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 67+92.00 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 12 FT. X 12 FT.
 CONCRETE BOX CULVERT
 100° SKEW



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 Raleigh, NC 27601-1772
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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			6

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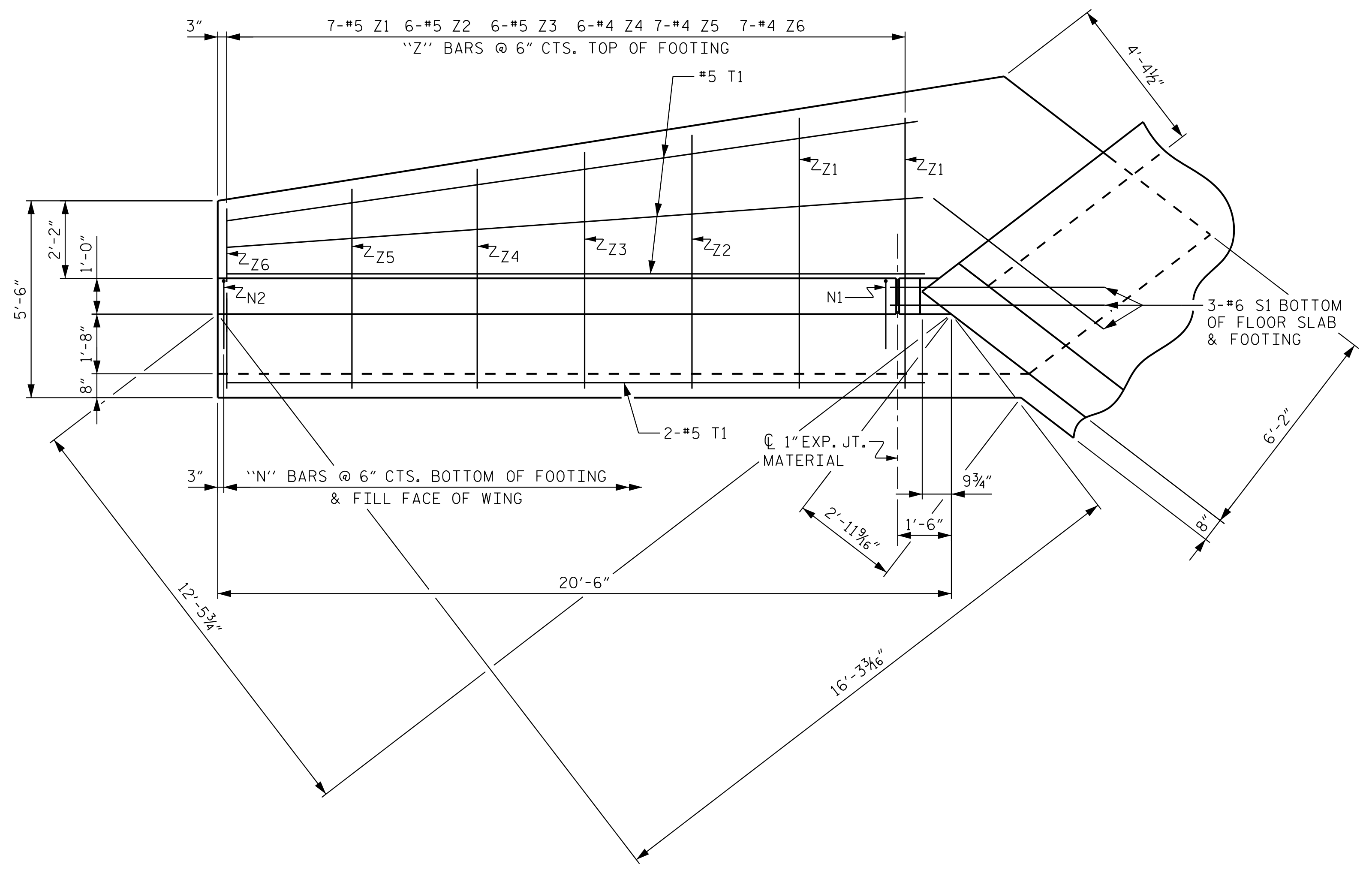
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 CHECKED BY: C. I. POOLE DATE: 01/2023
 DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023

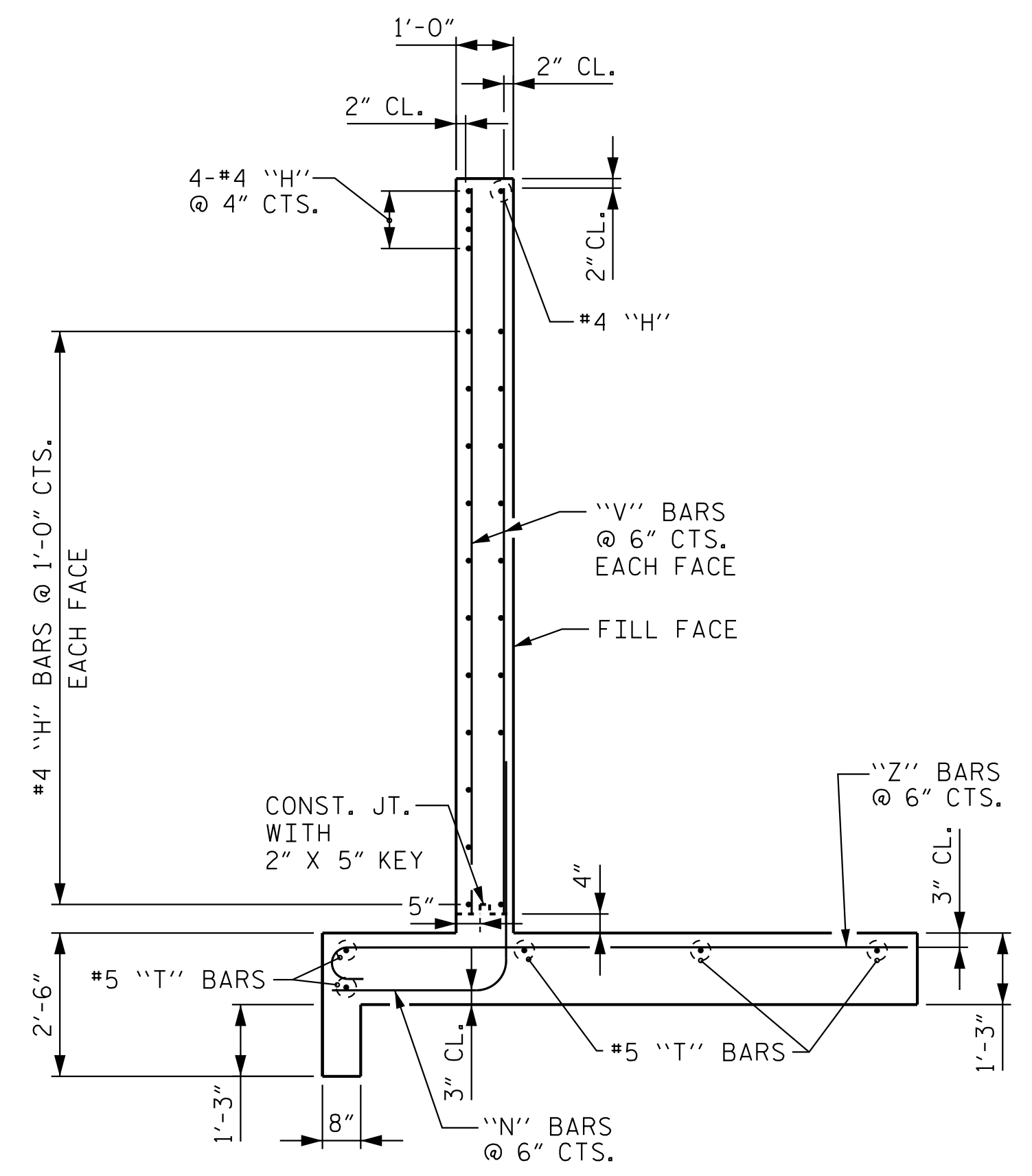
CULVERT 42C001

NOTES

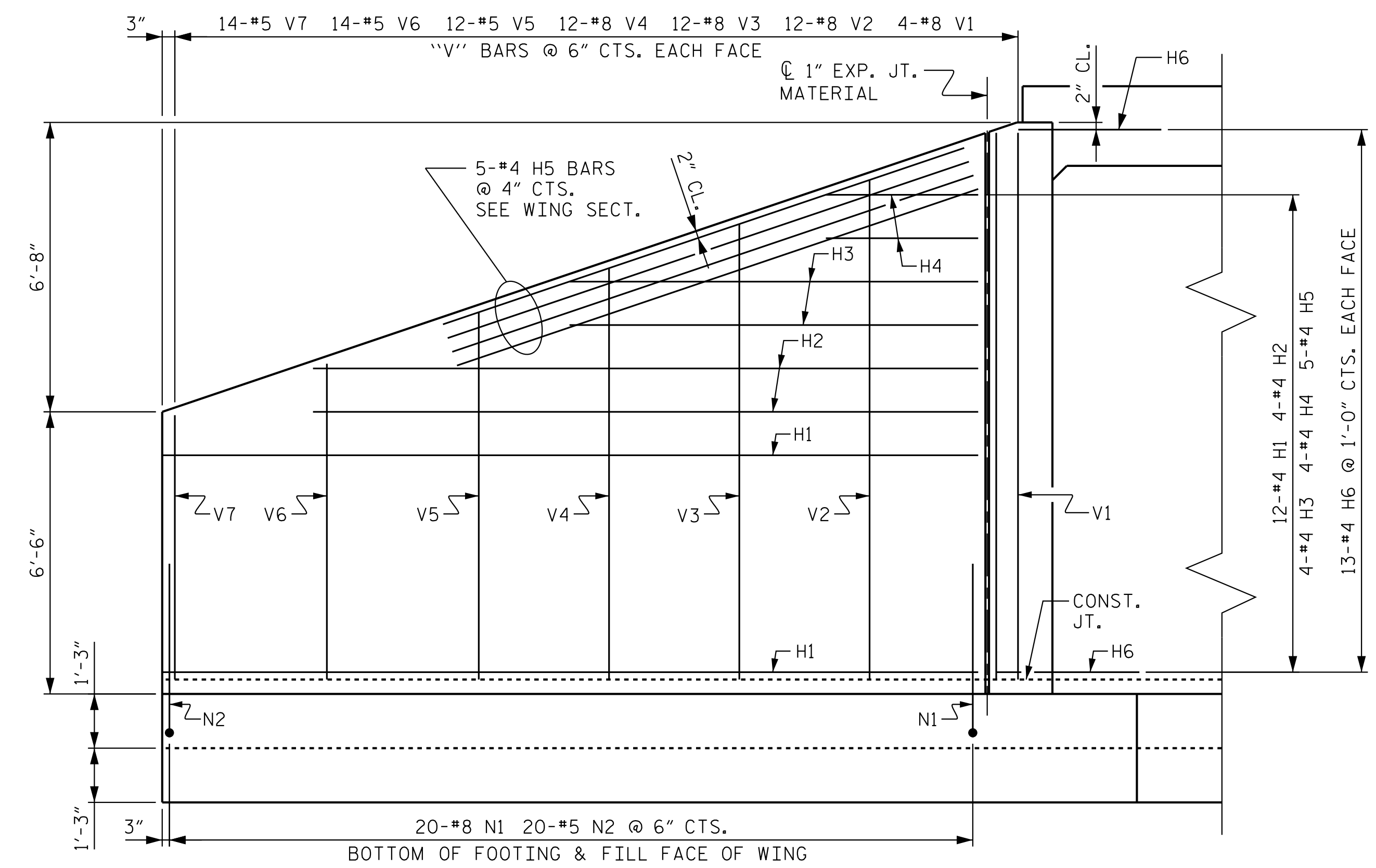
SEE SHEET C1-5 FOR BILL OF MATERIAL.



PLAN W1



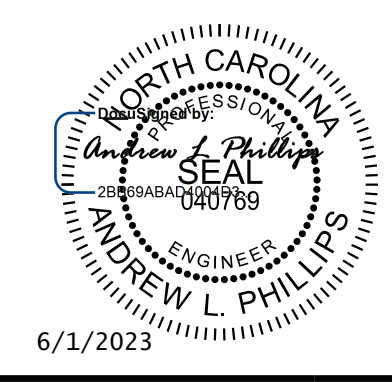
TYPICAL WING SECTION



ELEVATION W1

PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 67+92.00 -L-

SHEET 4 OF 6



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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

WING DETAILS FOR
 CONCRETE BOX CULVERT
 H = 12'-0" SLOPE = 2:1
 105° SKEW

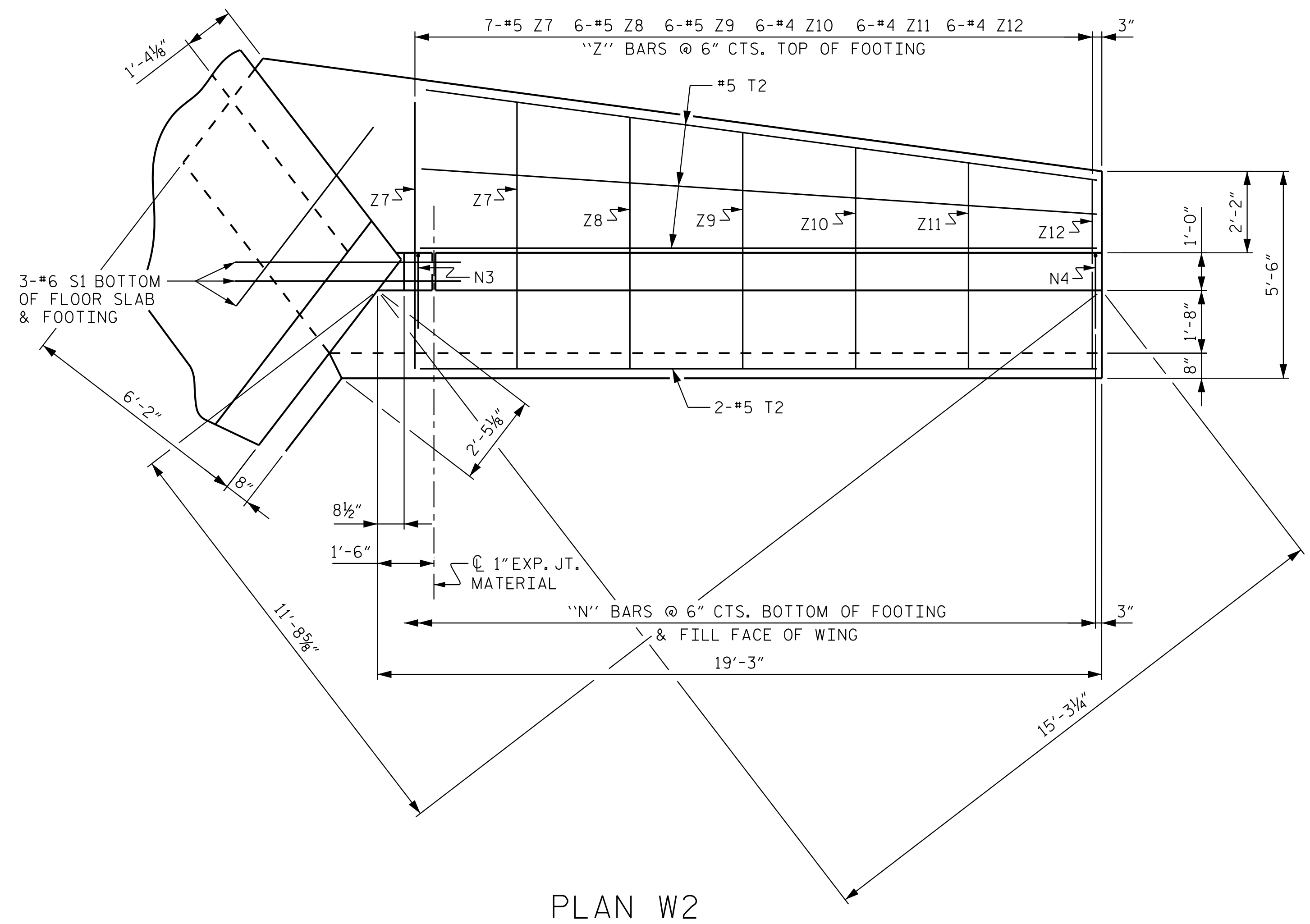
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NO.	BY:	DATE:	NO.	BY:	DATE:	C1-4
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2			4			6

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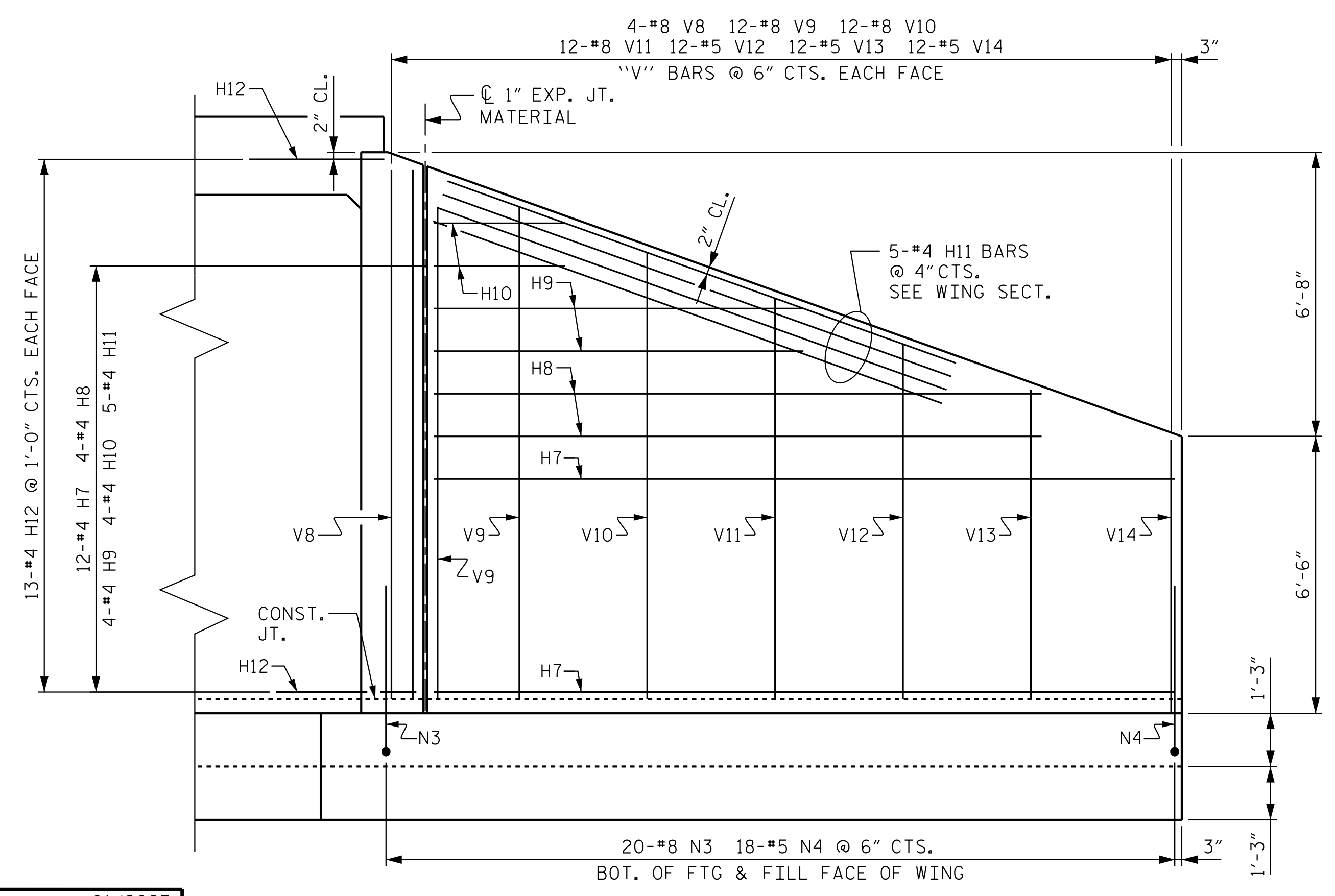
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K:\BIDI_Structures\Calver\NC\01036532 - R-5930 - North CPW\Calver\N-5930A\410-001_R5930A_SML_C104.dgn 5/31/2023

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 CHECKED BY: C. I. POOLE DATE: 01/2023
 DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023

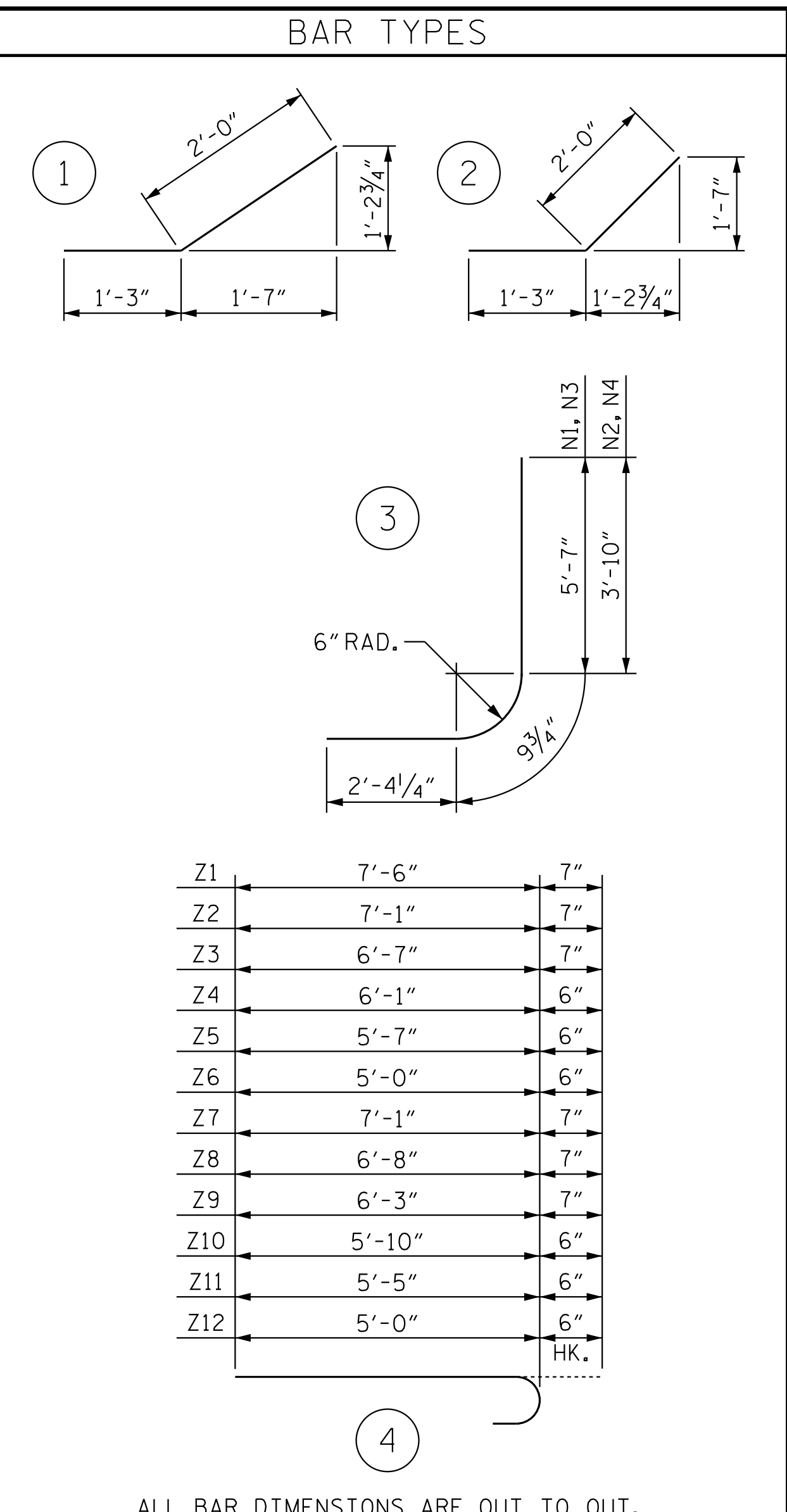


PLAN W2



ELEVATION W2

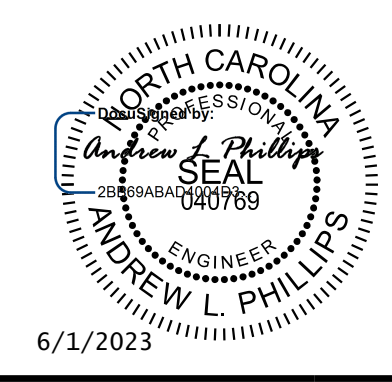
BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	24	4	STR	18'-7"	298
H2	8	4	STR	15'-3"	81
H3	8	4	STR	9'-4"	50
H4	8	4	STR	3'-6"	19
H5	10	4	STR	19'-8"	131
H6	52	4	1	3'-3"	113
H7	24	4	STR	17'-4"	278
H8	8	4	STR	14'-3"	76
H9	8	4	STR	8'-7"	46
H10	8	4	STR	3'-0"	16
H11	10	4	STR	18'-5"	123
H12	s	4	2	3'-3"	113
N1	40	8	3	8'-9"	935
N2	40	5	3	7'-0"	292
N3	40	8	3	8'-9"	935
N4	36	5	3	7'-0"	263
S1	12	6	STR	6'-0"	108
T1	10	5	STR	19'-6"	203
T2	10	5	STR	18'-0"	188
V1	8	8	STR	12'-7"	269
V2	24	8	STR	11'-6"	737
V3	24	8	STR	10'-5"	668
V4	24	8	STR	9'-5"	603
V5	24	5	STR	8'-5"	211
V6	28	5	STR	7'-3"	212
V7	28	5	STR	6'-1"	178
V8	8	8	STR	12'-5"	265
V9	24	8	STR	11'-5"	732
V10	24	8	STR	10'-4"	662
V11	24	8	STR	9'-3"	593
V12	24	5	STR	8'-2"	204
V13	24	5	STR	7'-1"	177
V14	24	5	STR	6'-0"	150
Z1	14	5	4	8'-1"	118
Z2	12	5	4	7'-8"	96
Z3	12	5	4	7'-2"	90
Z4	12	4	4	6'-7"	53
Z5	14	4	4	6'-1"	57
Z6	14	4	4	5'-6"	51
Z7	14	5	4	7'-8"	112
Z8	12	5	4	7'-3"	91
Z9	12	5	4	6'-10"	86
Z10	12	4	4	6'-4"	51
Z11	12	4	4	5'-11"	47
Z12	12	4	4	5'-6"	44
REINFORCING STEEL				10,825	LBS
FOR 4 WINGS					
CLASS A CONCRETE					
4 WINGS				63.8	CY
2 HEADWALL				1.3	CY
2 END CURTAIN WALL				0.9	CY
TOTAL				66.0	CY



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 67+92.00 -L-

SHEET 5 OF 6



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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

WING DETAILS FOR
 CONCRETE BOX CULVERT
 H = 12'-0" SLOPE = 2:1
 105° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-5
1			3			TOTAL SHEETS
2			4			6

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DRAWN BY: D. D. LOWERY DATE: 01/2023
 CHECKED BY: C. I. POOLE DATE: 01/2023
 DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023

CULVERT 42C001

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	--

NOTE:
RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS																
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (%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 RATING	HL-93 (INVENTORY)	N/A	①	1.92	--	1.75	2.23	1	BOTTOM SLAB	7.00	1.92	1	BOTTOM SLAB	13.00		
	HL-93 (OPERATING)	N/A		2.48	--	1.35	2.89	1	BOTTOM SLAB	7.00	2.48	1	BOTTOM SLAB	13.00		
	HS-20 (INVENTORY)	36.000	②	2.25	81.00	1.75	2.25	1	EXT WALL	0.50	2.41	1	BOTTOM SLAB	1.00		
	HS-20 (OPERATING)	36.000		2.92	105.12	1.35	2.92	1	EXT WALL	0.50	3.13	1	BOTTOM SLAB	1.00		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.81	37.94	1.40	2.81	1	EXT WALL	0.50	5.26	1	BOTTOM SLAB	1.00	
		SNGARBS2	20.000		2.81	56.20	1.40	2.81	1	EXT WALL	0.50	4.92	1	BOTTOM SLAB	1.00	
		SNAGRIS2	22.000		2.81	61.82	1.40	2.81	1	EXT WALL	0.50	5.26	1	BOTTOM SLAB	1.00	
		SNCOTTS3	27.250		2.45	66.76	1.40	2.81	1	EXT WALL	0.50	2.45	1	BOTTOM SLAB	1.00	
		SNAGGRS4	34.925		2.55	89.06	1.40	2.81	1	EXT WALL	0.50	2.55	1	BOTTOM SLAB	1.00	
		SNS5A	35.550		2.36	83.90	1.40	2.76	1	BOTTOM SLAB	7.00	2.36	1	BOTTOM SLAB	13.00	
		SNS6A	39.950		2.28	91.09	1.40	2.67	1	BOTTOM SLAB	7.00	2.28	1	BOTTOM SLAB	1.00	
		SNS7B	42.000	③	2.24	94.08	1.40	2.63	1	BOTTOM SLAB	7.00	2.24	1	BOTTOM SLAB	1.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.81	92.73	1.40	2.81	1	EXT WALL	0.50	3.52	1	BOTTOM SLAB	1.00	
		TNT4A	33.075		2.81	92.94	1.40	2.81	1	EXT WALL	0.50	2.83	1	BOTTOM SLAB	1.00	
		TNT6A	41.600		2.58	107.33	1.40	2.81	1	EXT WALL	0.50	2.58	1	BOTTOM SLAB	1.00	
		TNT7A	42.000		2.70	113.40	1.40	2.81	1	EXT WALL	0.50	2.70	1	BOTTOM SLAB	1.00	
		TNT7B	42.000		2.49	104.58	1.40	2.81	1	EXT WALL	0.50	2.49	1	BOTTOM SLAB	1.00	
		TNAGRIT4	43.000		2.74	117.82	1.40	2.81	1	EXT WALL	0.50	2.74	1	BOTTOM SLAB	1.00	
		TNAGT5A	45.000		2.74	123.30	1.40	2.81	1	EXT WALL	0.50	2.74	1	BOTTOM SLAB	13.00	
		TNAGT5B	45.000		2.76	124.20	1.40	2.81	1	EXT WALL	0.50	2.76	1	BOTTOM SLAB	1.00	

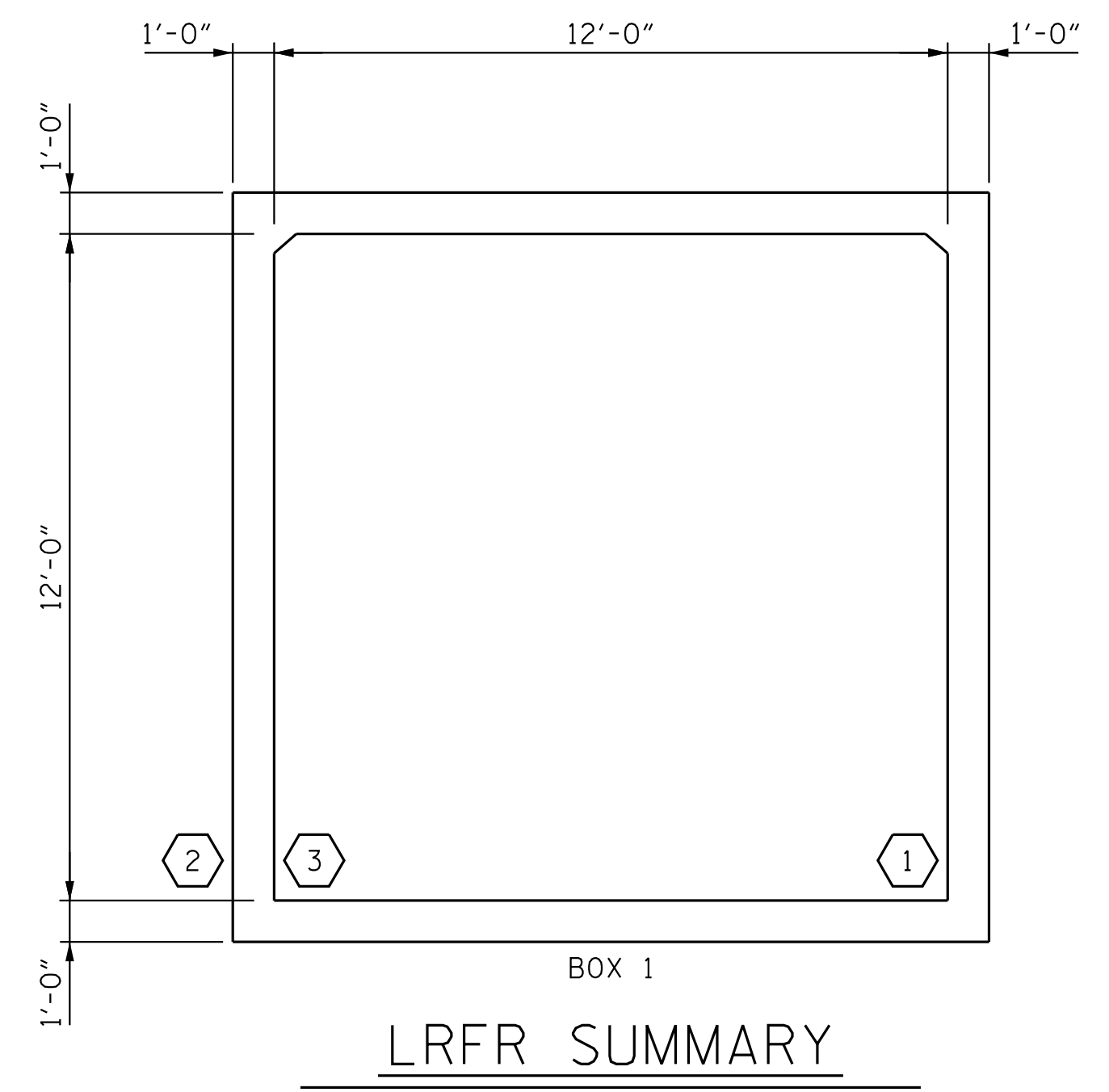
CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

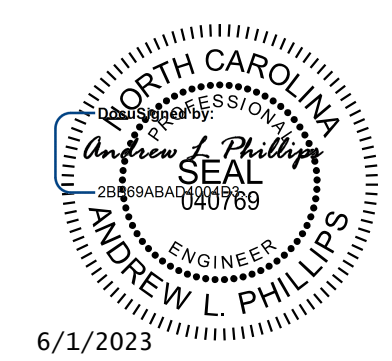


PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 67+92.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 REINFORCED CONCRETE
 BOX CULVERTS
 (NON-INTERSTATE TRAFFIC)



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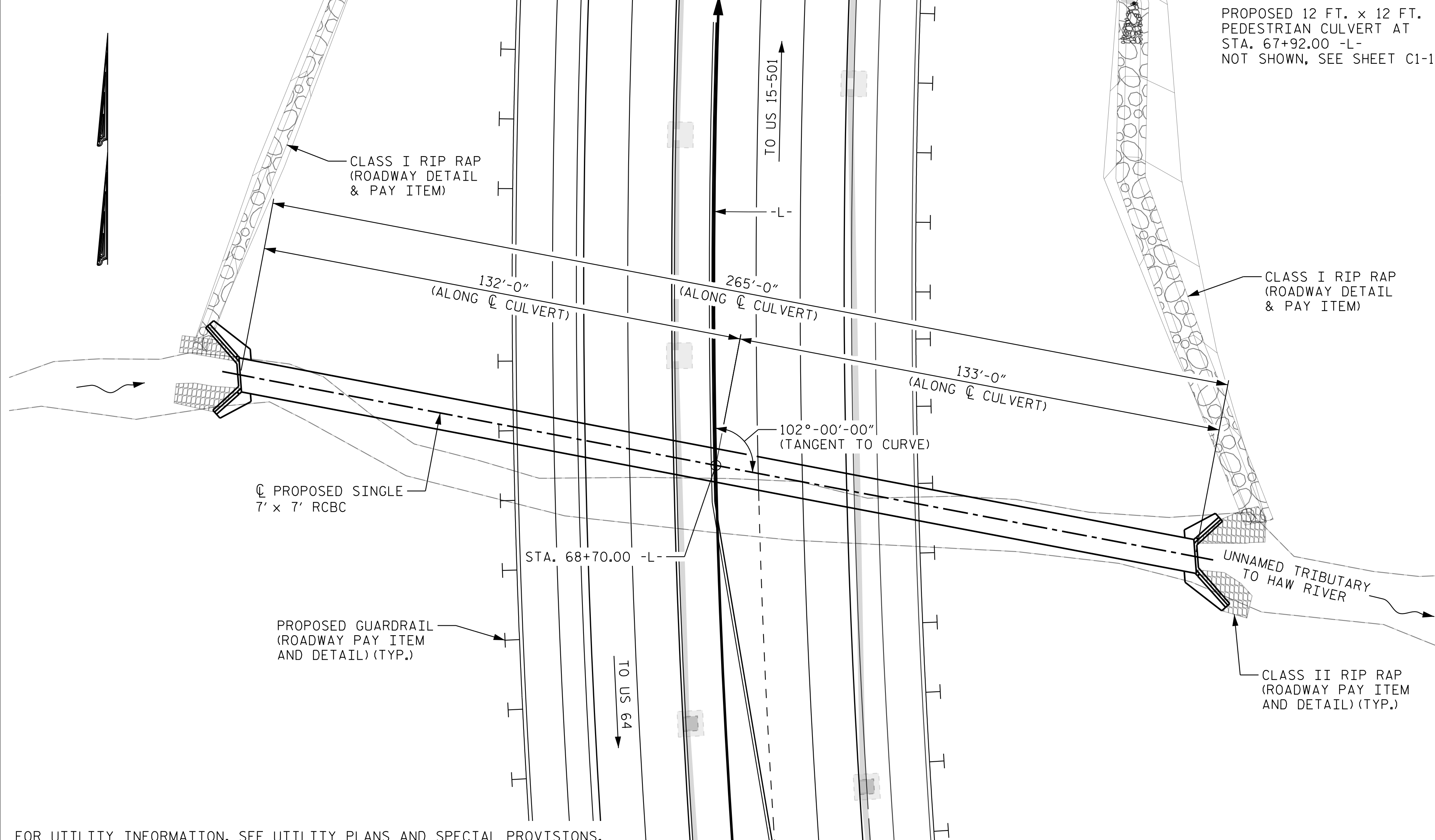
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C1-6
1			3			TOTAL SHEETS
2			4			6

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ASSEMBLED BY : D. D. LOWERY	DATE : 01/2023
CHECKED BY : C. T. POOLE	DATE : 01/2023
DRAWN BY : WMC 7/11	REV. 10/1/11 MAA/GM
CHECKED BY : GM 7/11	REV. 12/17 MAA/THC

BENCHMARK: BM#5, STA. 66+65.51 -L-, 553.35' LT. RR SPIKE IN 12" PINE TREE, EL. 480.21', N 725736 E 1955112 NAD83



LOCATION SKETCH

NOTES

- ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING
- DESIGN FILL ----- 34'-3" (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 SILLS/Baffles, 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.
- FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
- 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.
- THE ENGINEER, IN CONSULTATION WITH DEO STAFF, SHALL REVIEW ALL MATERIAL TO BE USED AS BACKFILL PRIOR TO CONDUCTING THE BACKFILL ACTIVITY. BACKFILL SHALL CONSIST OF NATIVE MATERIAL ONLY UNLESS THE ENGINEER, IN CONSULTATION WITH DEO STAFF, DETERMINES THAT (1) THE NATIVE MATERIAL IS UNSUITABLE, OR (2) ADDITIONAL MATERIAL IS REQUIRED TO SUPPLEMENT THE NATIVE MATERIAL. THE CHOSEN BACKFILL MATERIAL SHALL NOT HAVE ADVERSE EFFECTS TO AQUATIC LIFE, AQUATIC LIFE PASSAGE, OR WATER QUALITY. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION.
- THE ENTIRE COST OF WORK REQUIRED TO PLACE EXCAVATED OR SUPPLEMENTAL MATERIAL AS SHOWN ON THE PLANS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR CULVERT EXCAVATION.
- EXCAVATE A MINIMUM OF 1 FOOT BELOW CULVERT BEARING ELEVATION AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL PER SECTION 414 OF THE STANDARD SPECIFICATIONS.
- UNDERCUT ANY SOFT/LOOSE ALLUVIAL SOILS THAT MAY BE ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATION CONDITIONING MATERIAL. BACKFILL UNDERCUT AREAS WITH FOUNDATION CONDITIONING MATERIAL (SELECT MATERIAL CLASS VI; NO. 57 STONE).
- INSTALL TYPE 4 GEOTEXTILE AT THE BOTTOM OF EXCAVATION PRIOR TO PLACING FOUNDATION CONDITIONING MATERIAL. THE GEOTEXTILE SHOULD BE PLACED AT THE BOTTOM OF THE EXCAVATION AND WRAPPED UP THE SIDE WALLS OF THE EXCAVATION.
- 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.

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

HYDRAULIC DATA

DESIGN DISCHARGE -----189 CFS
 FREQUENCY OF DESIGN FLOOD -----50 YR.
 DESIGN HIGH WATER ELEVATION-----466.5
 DRAINAGE AREA -----106 ACRES
 BASE DISCHARGE (0100) -----204 CFS
 BASE HIGH WATER ELEVATION -----466.80

OVERTOPPING FLOOD DATA

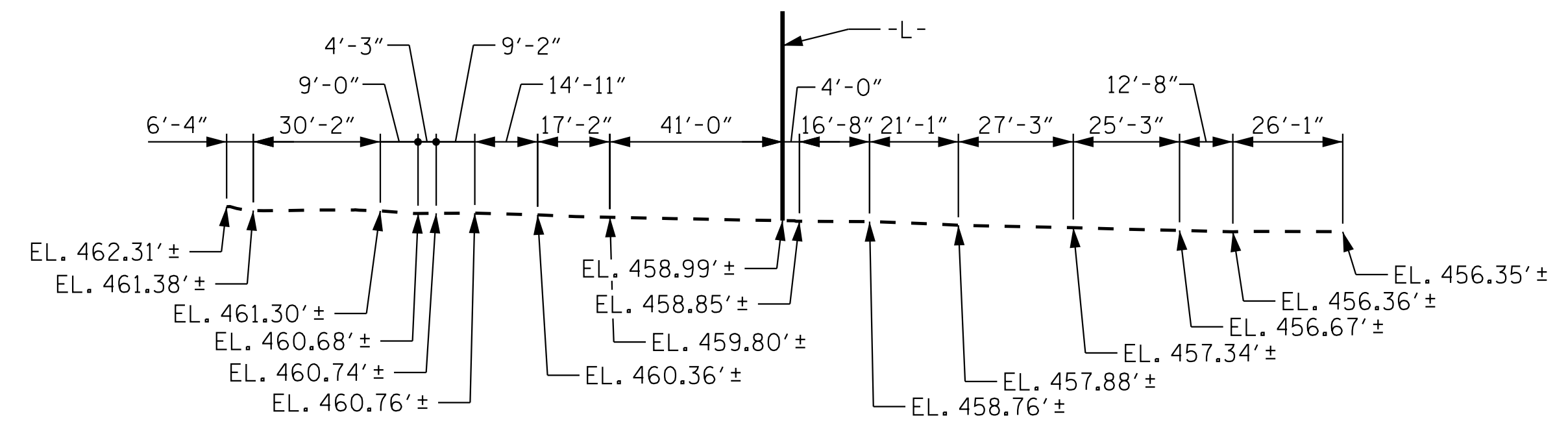
OVERTOPPING DISCHARGE -----1100 CFS
 FREQUENCY OF OVERTOPPING FLOOD --->500 YR.
 OVERTOPPING FLOOD ELEVATION -----498.3 *
 * OVERTOPPING WILL OCCUR AT STA. 70+27.28
 AND DOES NOT TAKE INTO ACCOUNT THE PEDESTRIAN CULVERT

ROADWAY DATA

GRADE POINT EL. @ STA. 68+70.00 -L- = 499.70'
 INVERT ELEVATION @ STA. 68+70.00 -L- = 458.20'
 ROADWAY SLOPES 2 : 1

-L- HORIZONTAL CURVE DATA

PI STA. 70+27.00
 $\Delta = 39^\circ-35'-18.7''$ (RT)
 $D = 2^\circ-29'-28.0''$
 $L = 1,589.19'$
 $T = 827.79'$
 $R = 2,300.00'$



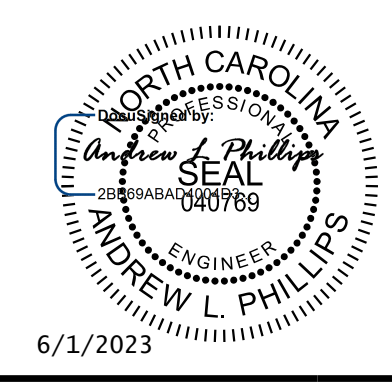
PROFILE ALONG CULVERT

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE	
BARREL @ 1.245 CY/FT	329.9 C.Y.
WINGS ETC.	20.2 C.Y.
SILLS	3.4 C.Y.
TOTAL	353.5 C.Y.
REINFORCING STEEL	
BARREL	66,759 LBS.
WINGS ETC.	1,277 LBS.
TOTAL	68,071 LBS.
CULVERT EXCAVATION STA. 68+70.00 -L-	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	243 TONS

PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 68+70.00 -L-

SHEET 1 OF 6



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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 7 FT. X 7 FT.
 CONCRETE BOX CULVERT
 102° SKEW

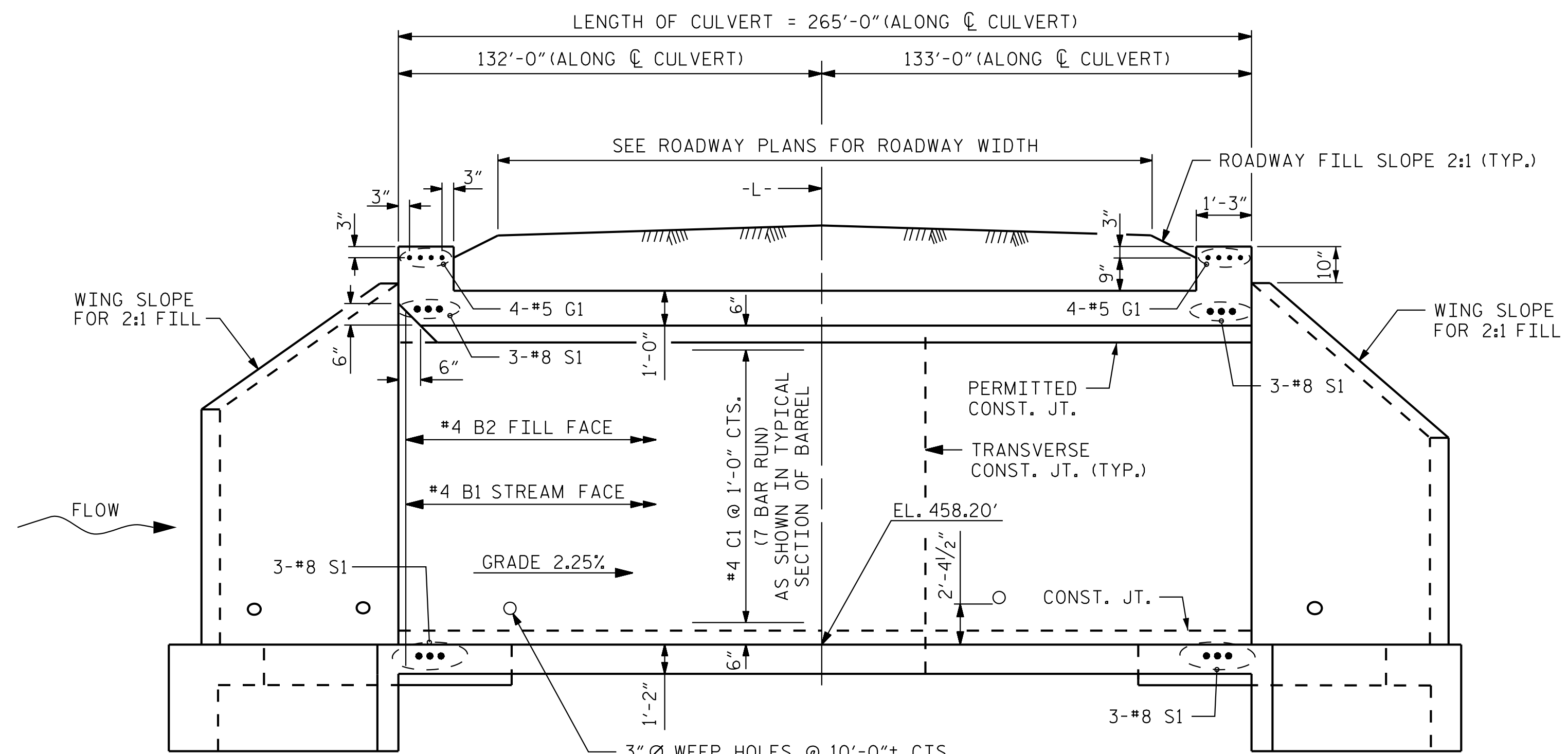
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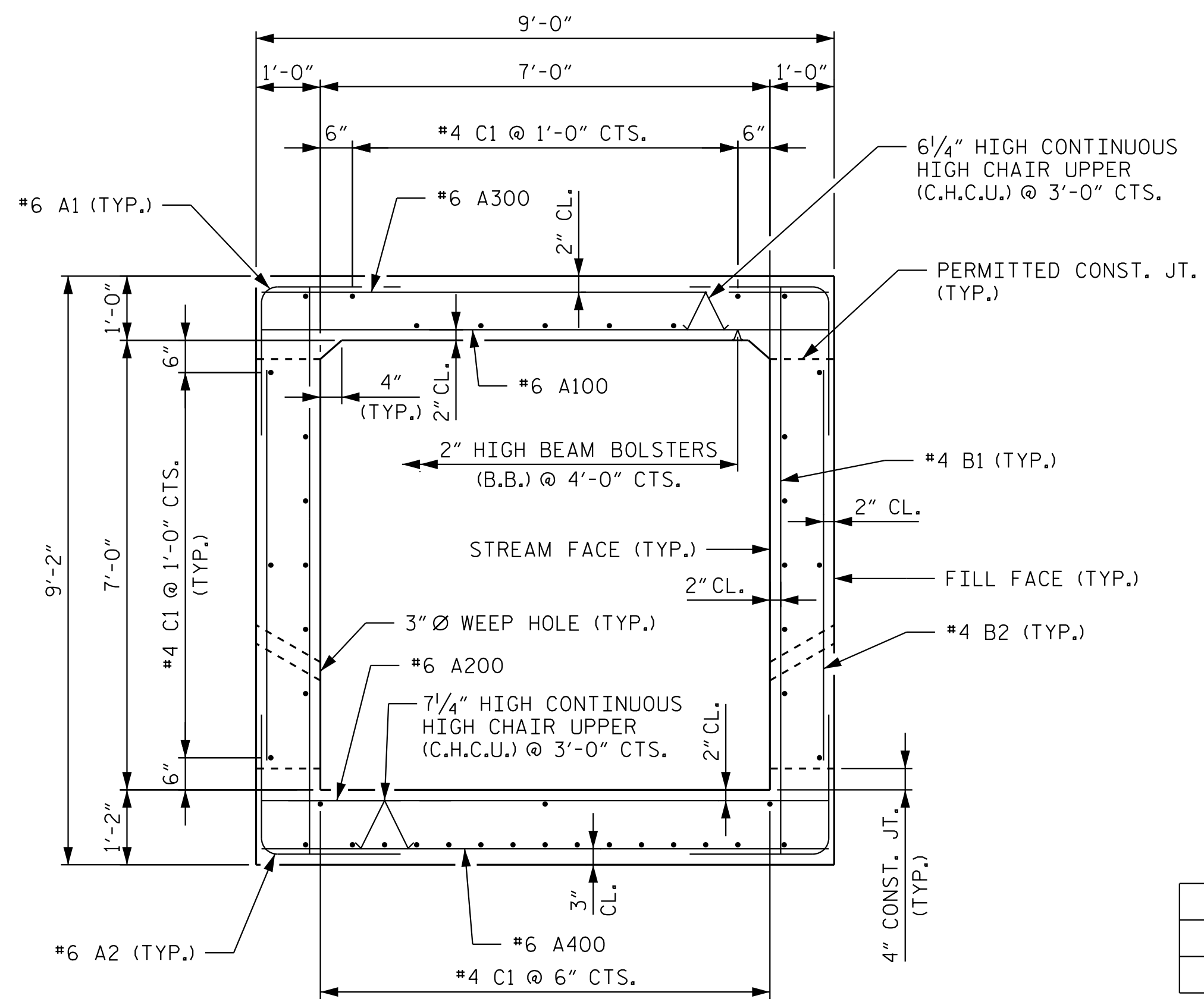
CULVERT 42C002

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 DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023



CULVERT SECTION NORMAL TO ROADWAY



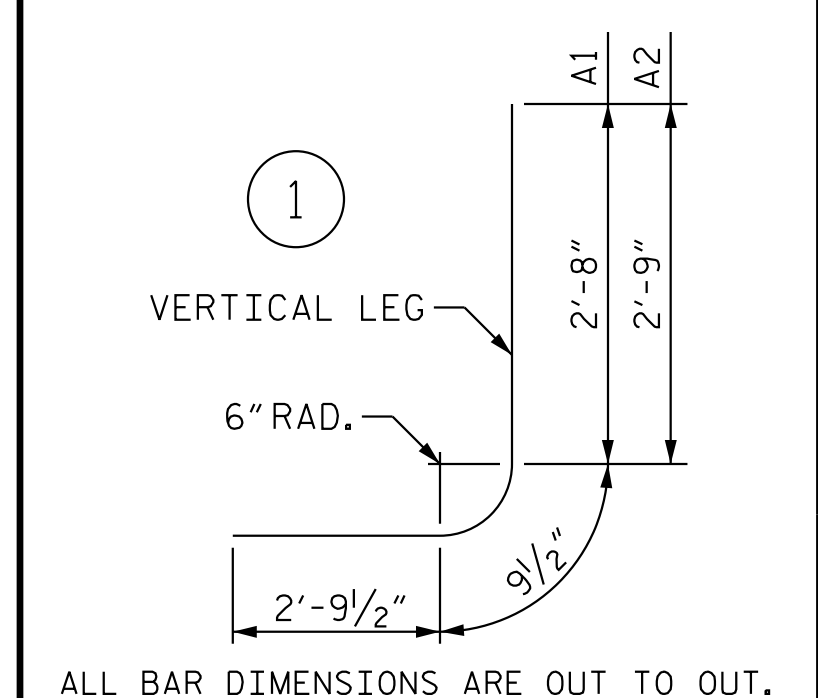
RIGHT ANGLE SECTION OF BARREL
THERE ARE 43 "C" BARS IN SECTION OF BARREL

BAR SIZE	SPLICE LENGTH
#4 B1	1'-10"
#4 C1	2'-5"

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	1058	6	1	6'-3"	9,932
A2	1058	6	1	6'-4"	10,064
A100	525	6	STR	8'-8"	6,834
A101	2	6	STR	7'-5"	22
A102	2	6	STR	5'-6"	17
A103	2	6	STR	3'-8"	11
A104	4	6	STR	1'-9"	11
A200	525	6	STR	8'-8"	6,834
A201	2	6	STR	7'-5"	22
A202	2	6	STR	5'-6"	17
A203	2	6	STR	3'-8"	11
A204	4	6	STR	1'-9"	11
A300	525	6	STR	8'-8"	6,834
A301	2	6	STR	7'-5"	22
A302	2	6	STR	5'-6"	17
A303	2	6	STR	3'-8"	11
A304	4	6	STR	1'-9"	11
A400	525	6	STR	8'-8"	6,834
A401	2	6	STR	7'-5"	22
A402	2	6	STR	5'-6"	17
A403	2	6	STR	3'-8"	11
A404	4	6	STR	1'-9"	11
B1	1058	4	STR	8'-9"	6,184
B2	1058	4	STR	6'-4"	4,476
C1	301	4	STR	39'-11"	8,026
D1	52	6	STR	1'-9"	137
G1	8	5	STR	8'-11"	74
S1	12	8	STR	8'-11"	286

REINFORCING STEEL LBS. 66,759

BAR TYPE

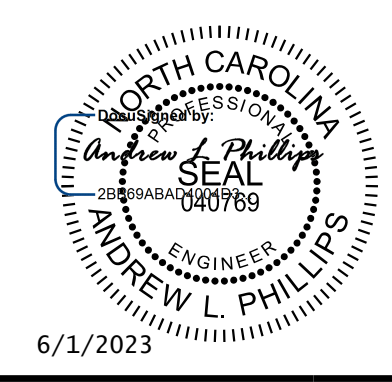


ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 68+70.00 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SINGLE 7 FT. X 7 FT.
 CONCRETE BOX CULVERT
 102° SKEW



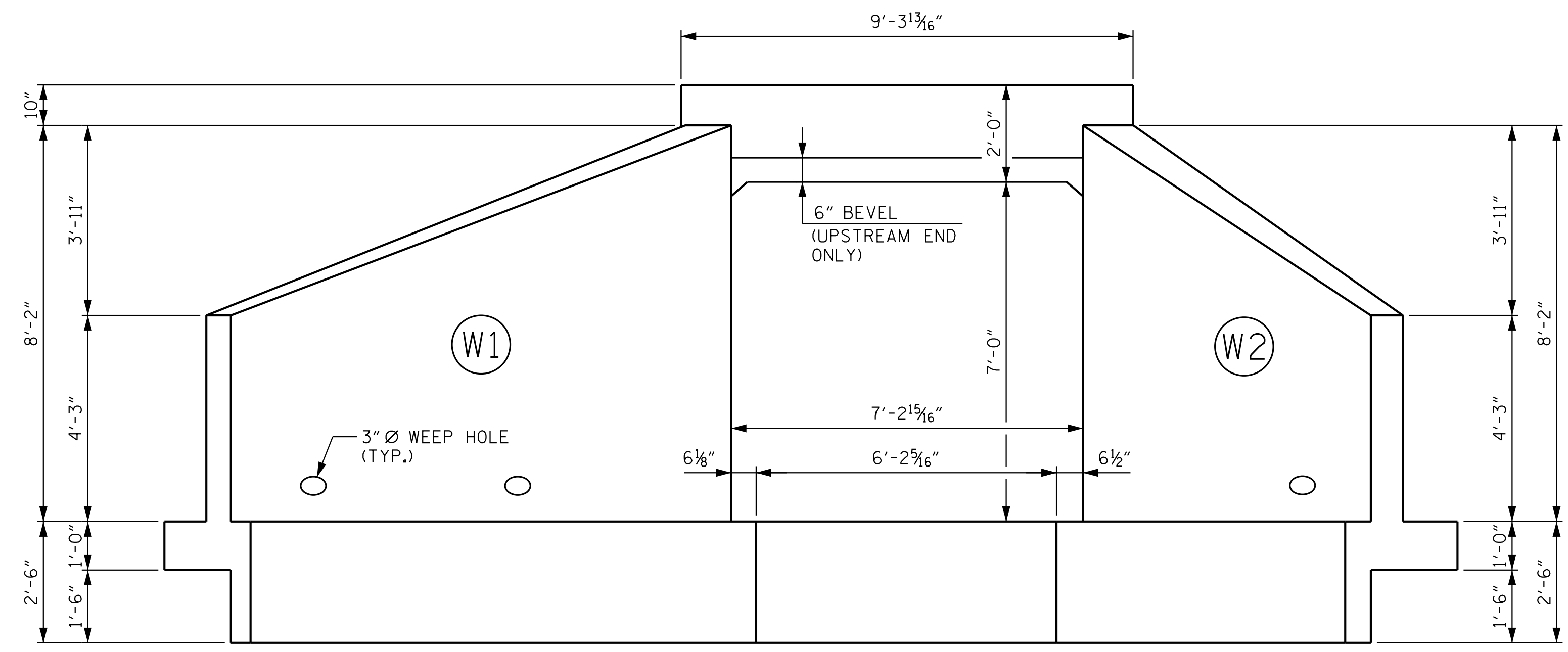
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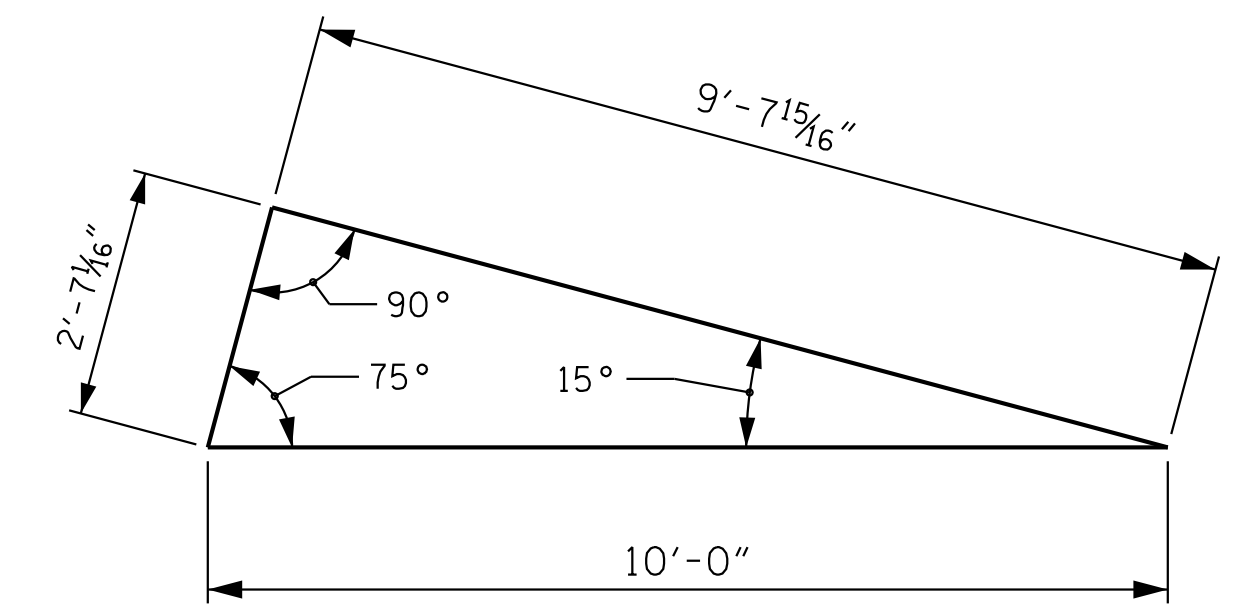
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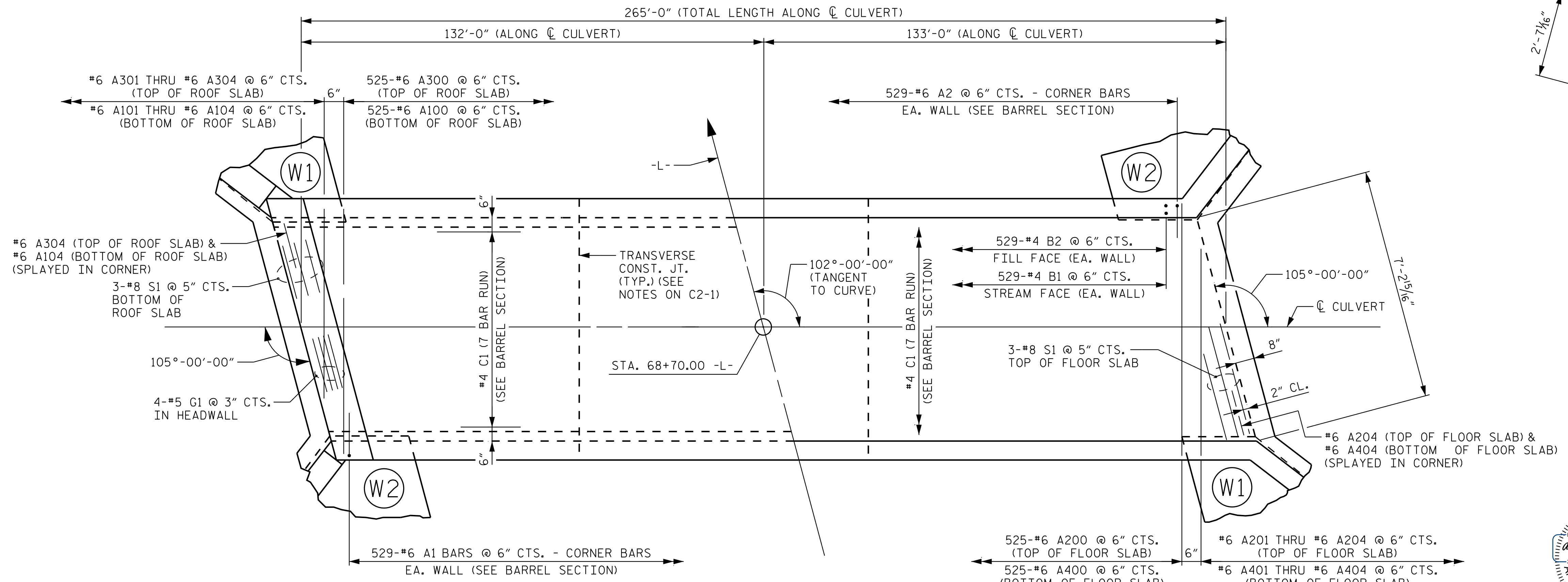
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 DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023



END ELEVATION NORMAL TO SKEW
(LOW FLOW SILL/BAFFLE NOT SHOWN FOR CLARITY, SEE SHEET C2-4 FOR DETAILS)



SKEW TRIANGLE



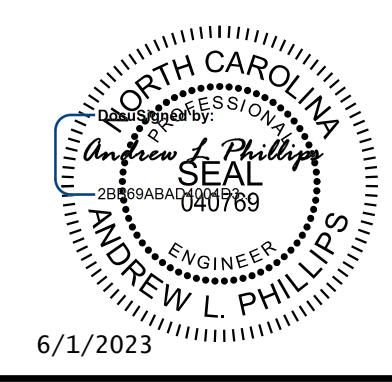
PART PLAN - ROOF SLAB

PART PLAN - FLOOR SLAB

PROJECT NO. R-5930A
CHATHAM COUNTY
STATION: 68+70.00 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SINGLE 7 FT. X 7 FT.
CONCRETE BOX CULVERT
102° SKEW



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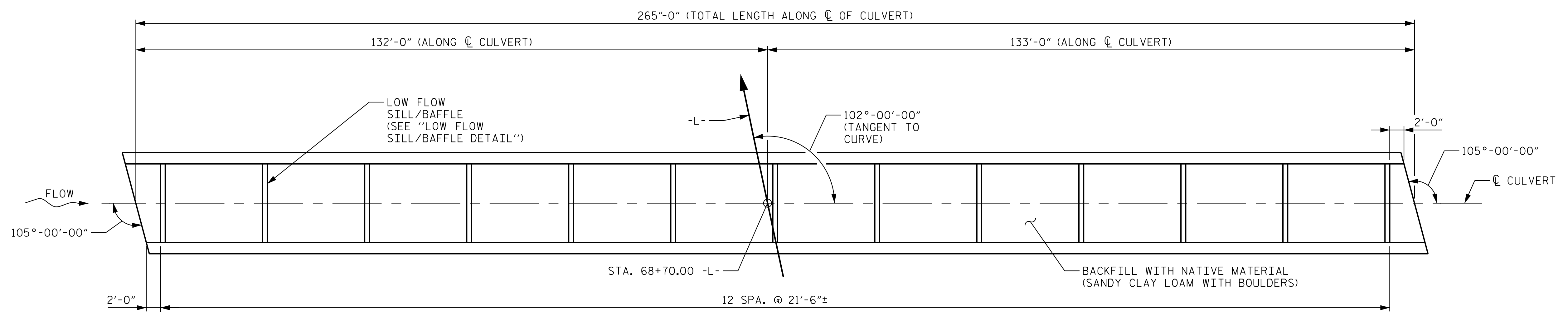
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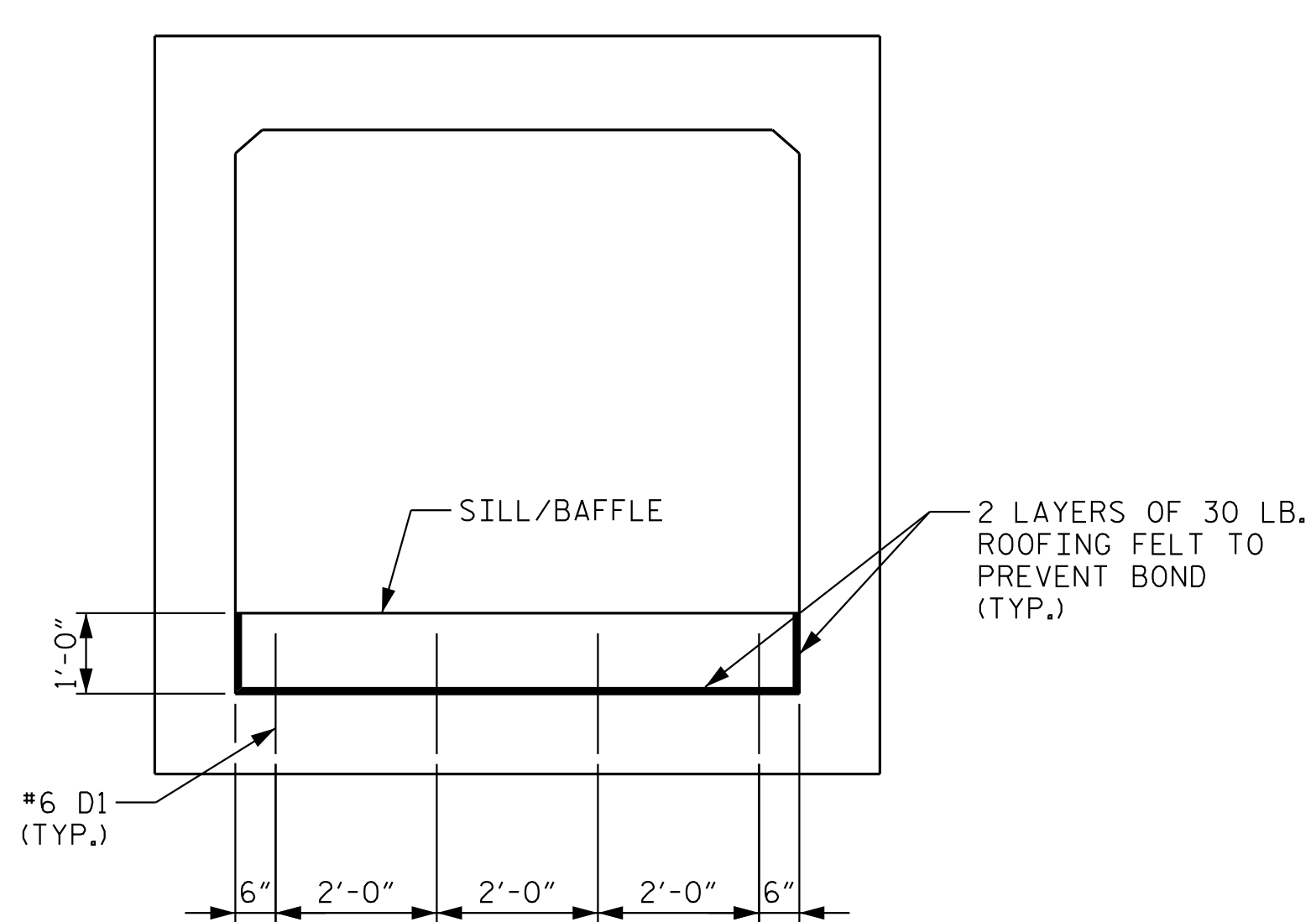
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DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023

CULVERT 42C002

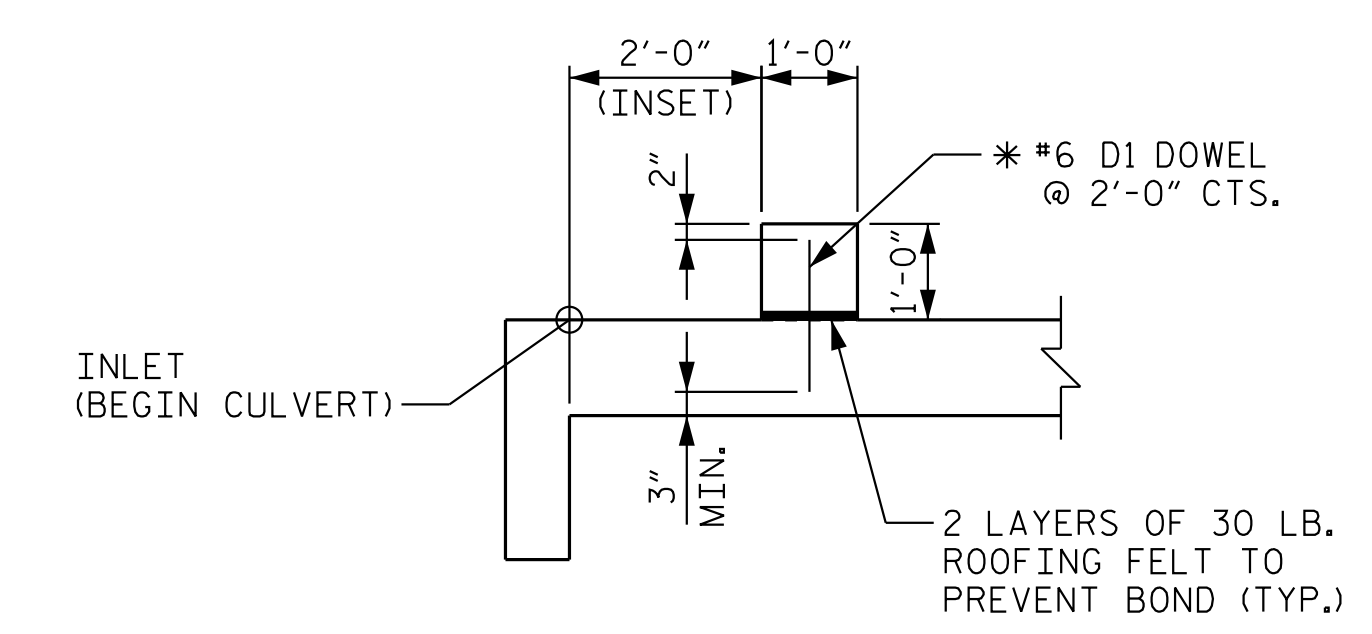


PLAN VIEW SHOWING SILL/BAFFLE LOCATIONS
(FOR BACKFILL BETWEEN SILLS/BAFFLES, SEE NOTES ON SHEET C2-1.)



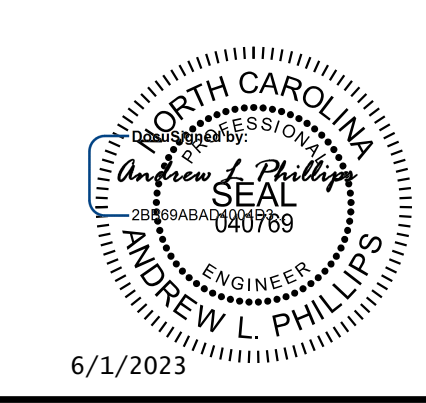
NOTE:
WING WALLS NOT
SHOWN FOR CLARITY.

SILL/BAFFLE DETAIL - ELEVATION
(LOOKING DOWNSTREAM)



* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.
NOTE: SILLS/BAFFLES ARE TO BE CAST NORMAL TO CULVERT WALLS.

SECTION THRU SILL
(INLET END SHOWN, OUTLET END SIMILAR)



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SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SINGLE 7 FT. X 7 FT.
CONCRETE BOX CULVERT
102° SKEW**

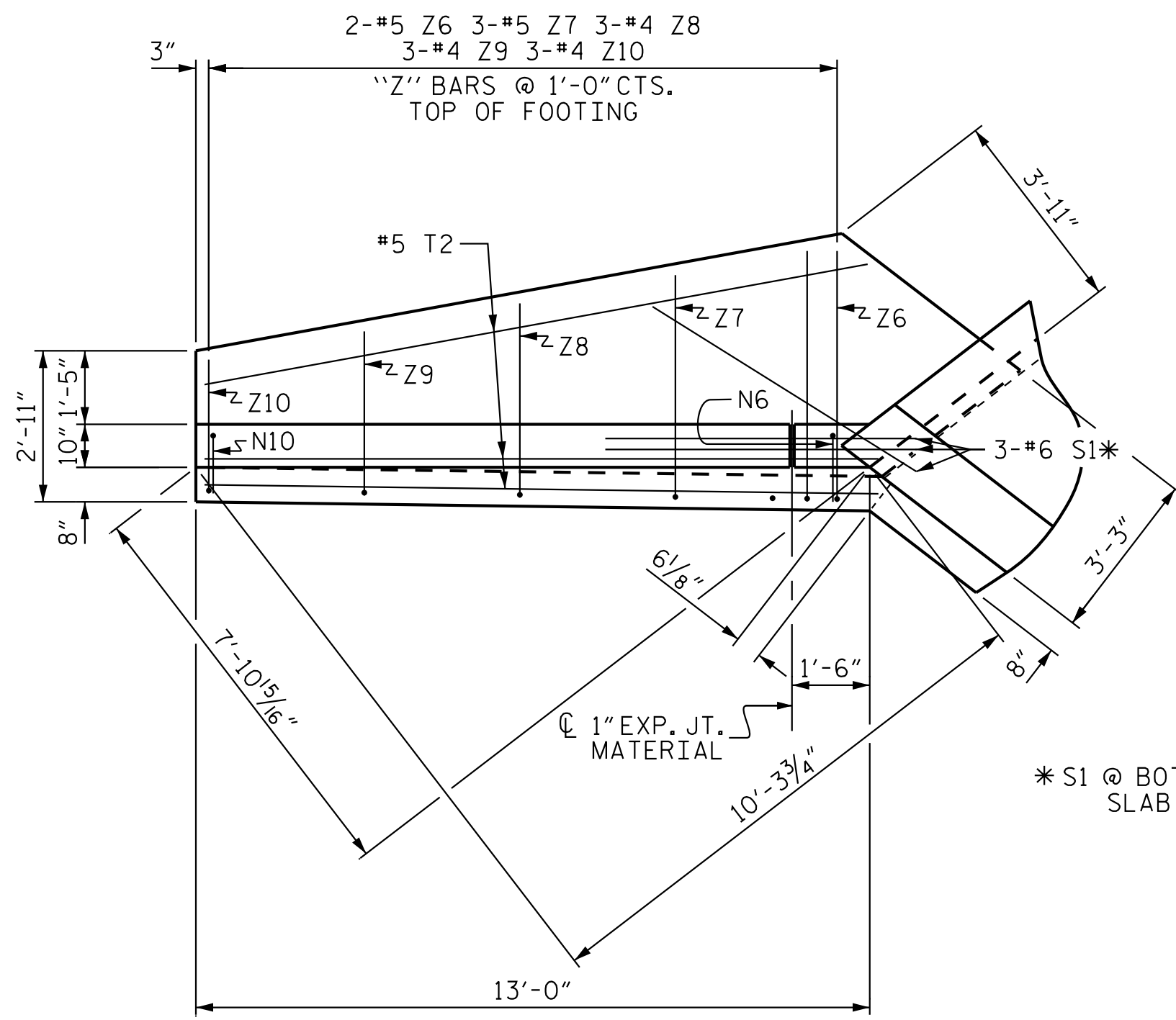
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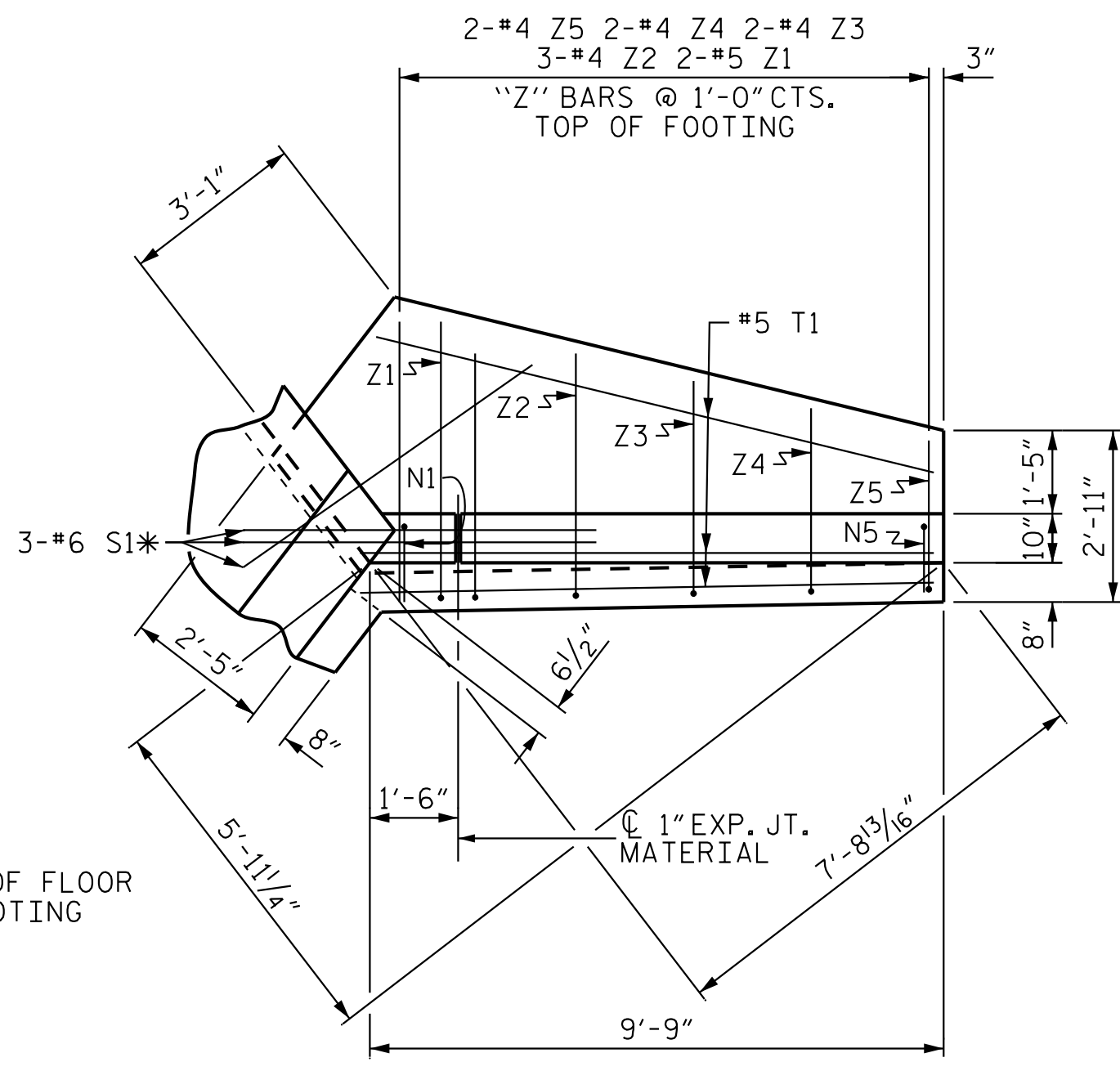
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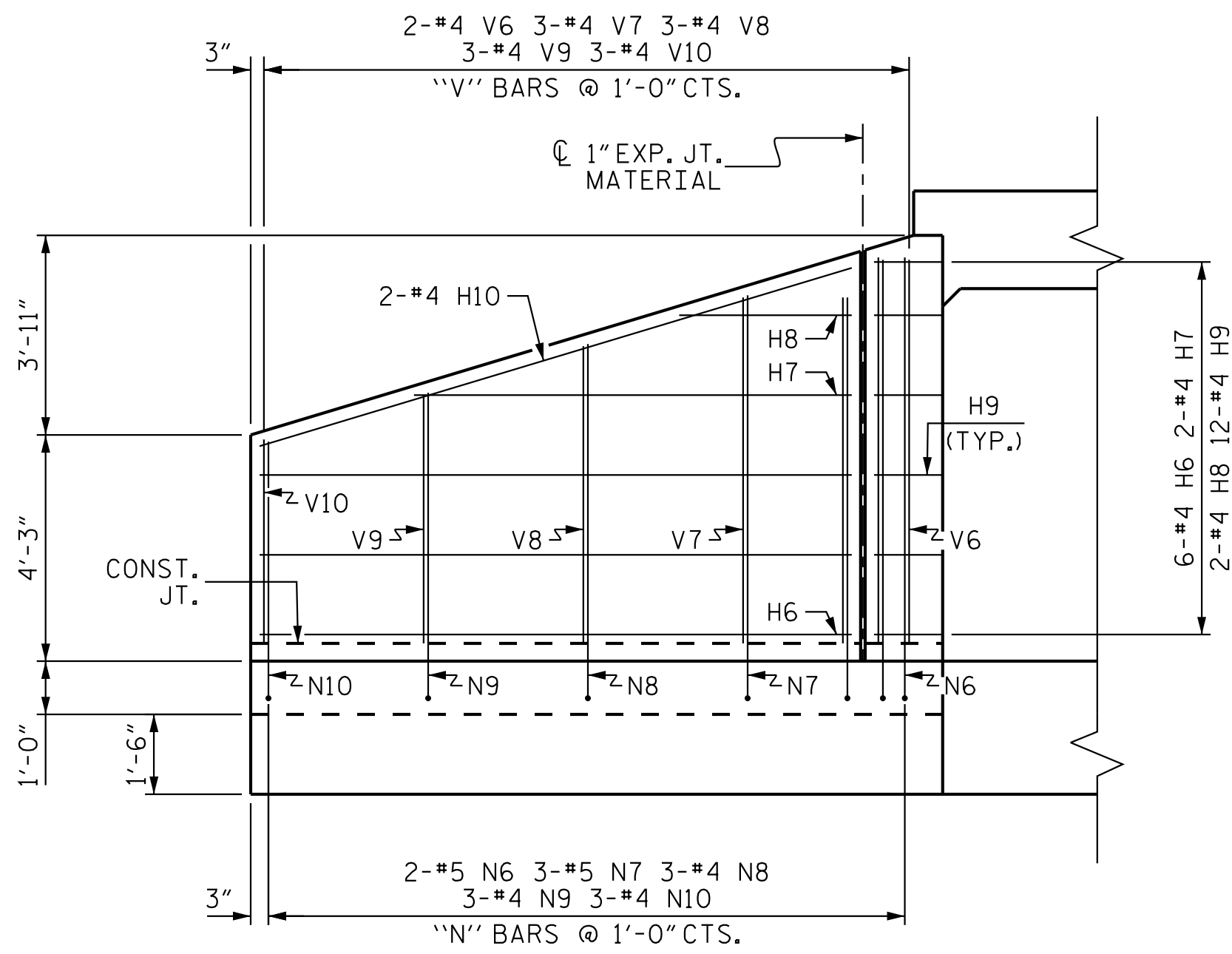
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CHECKED BY: C. I. POOLE DATE: 01/2023
DESIGN ENGINEER OF RECORD: A. L. PHILLIPS DATE: 01/2023



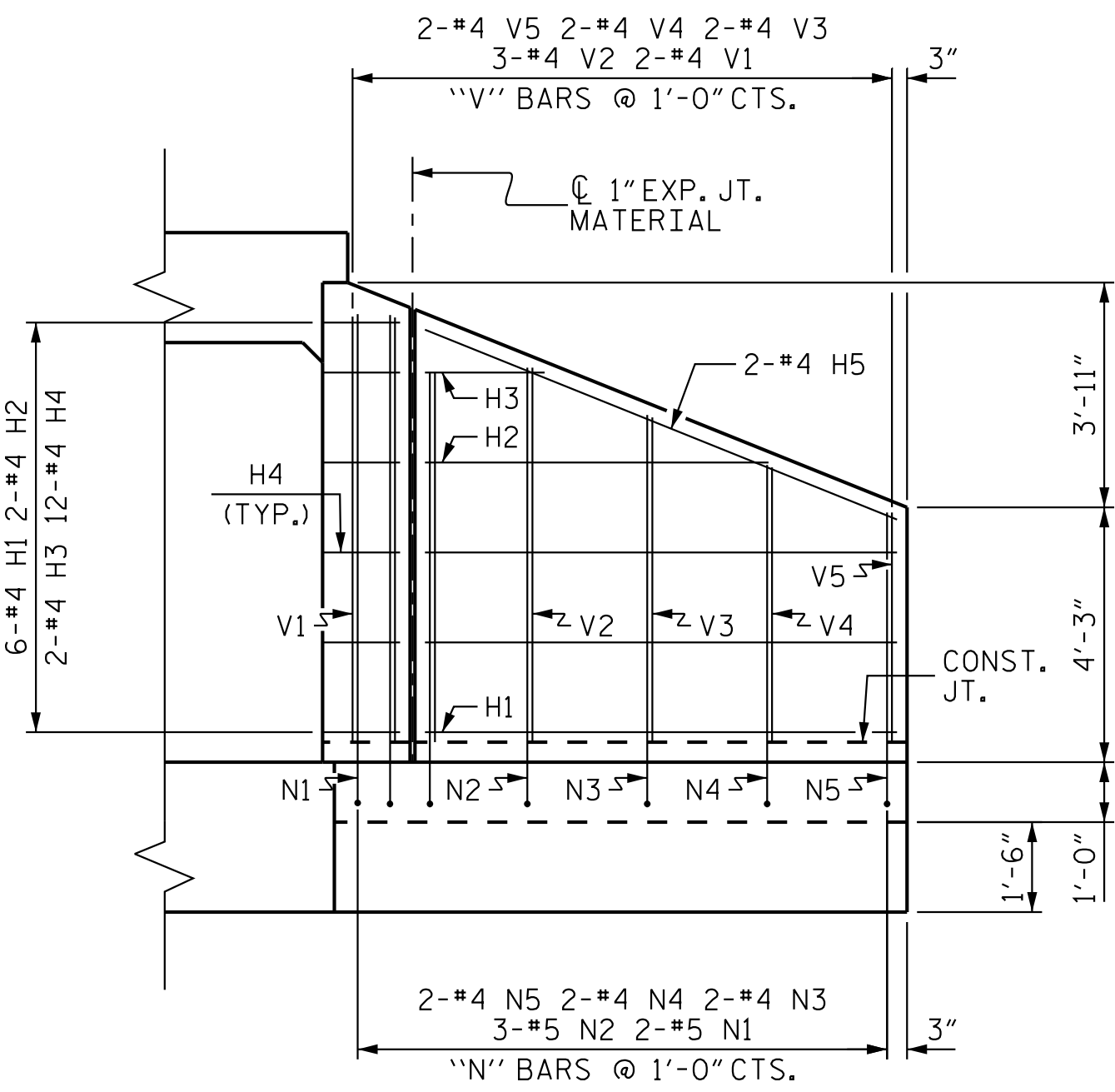
PLAN W1



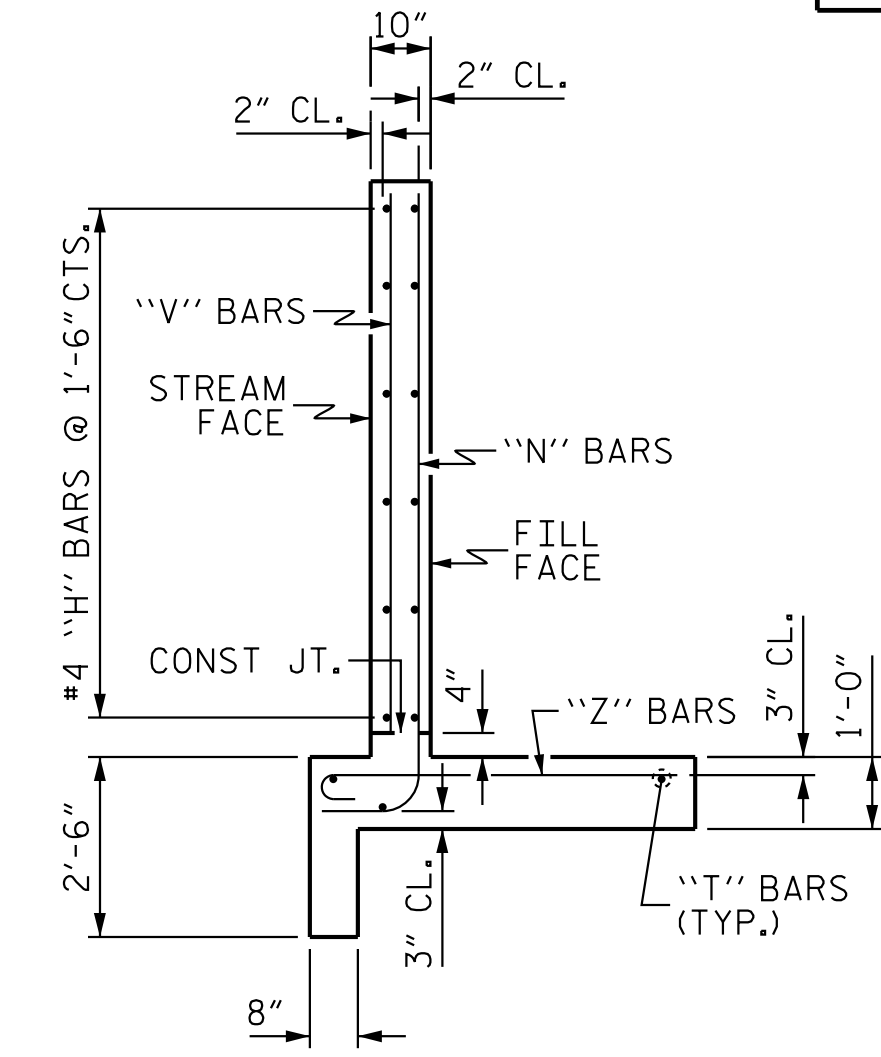
PLAN W2



ELEVATION W1

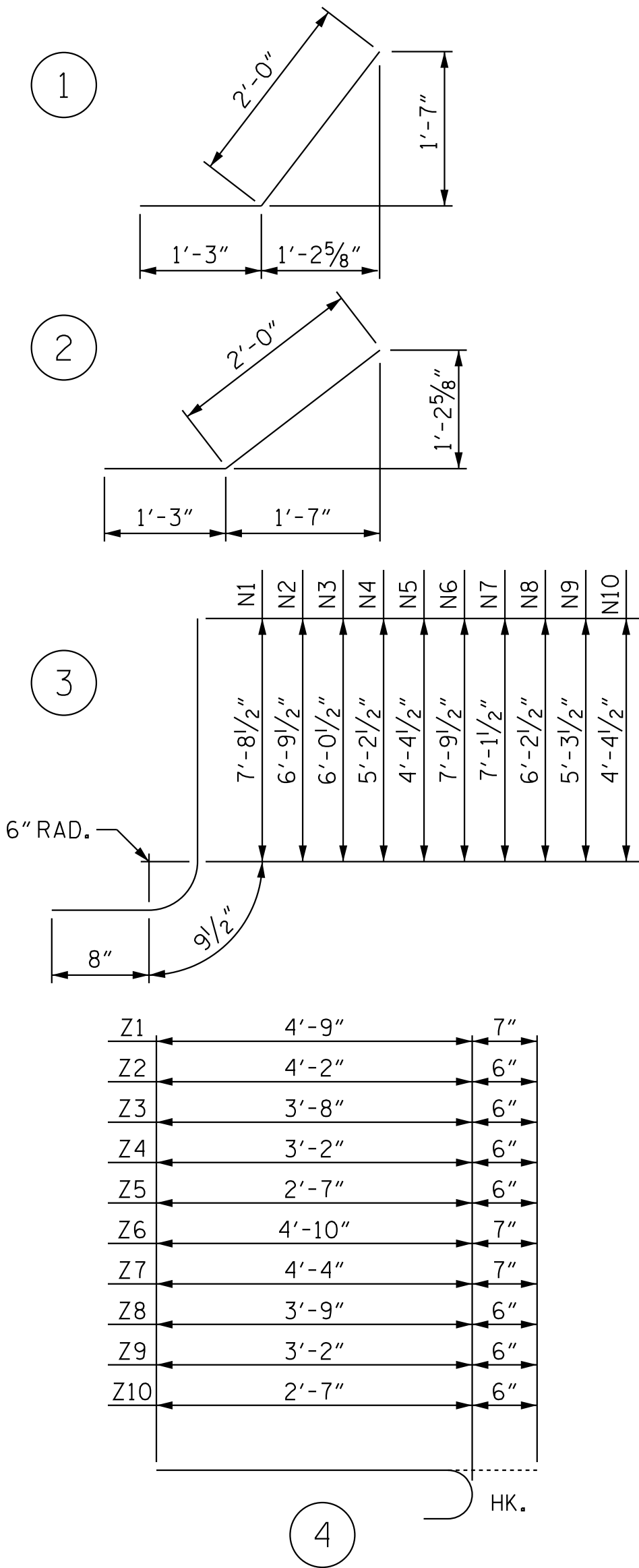


ELEVATION W2



TYPICAL WING SECTION

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

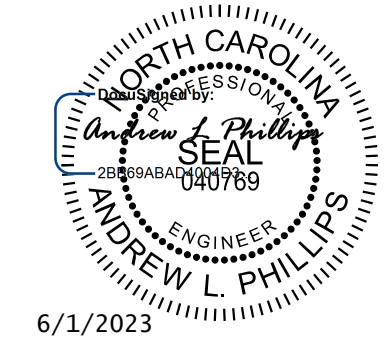
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	7'-10"	63
H2	4	#4	STR	5'-8"	15
H3	4	#4	STR	2'-0"	5
H4	24	#4	1	3'-3"	52
H5	4	#4	STR	8'-5"	22
H6	12	#4	STR	11'-1"	89
H7	4	#4	STR	8'-2"	22
H8	4	#4	STR	3'-3"	9
H9	24	#4	2	3'-3"	52
H10	4	#4	STR	11'-7"	31
N1	4	#5	3	9'-2"	38
N2	6	#5	3	8'-3"	52
N3	4	#4	3	7'-6"	20
N4	4	#4	3	6'-8"	18
N5	4	#4	3	5'-10"	16
N6	4	#5	3	9'-3"	39
N7	6	#5	3	8'-7"	54
N8	6	#4	3	7'-8"	31
N9	6	#4	3	6'-9"	27
N10	6	#4	3	5'-10"	23
S1	12	#6	STR	6'-0"	108
T1	6	#5	STR	9'-9"	61
T2	6	#5	STR	13'-0"	81
V1	4	#4	STR	7'-1"	19
V2	6	#4	STR	6'-3"	25
V3	4	#4	STR	5'-5"	14
V4	4	#4	STR	4'-7"	12
V5	4	#4	STR	3'-10"	10
V6	4	#4	STR	7'-3"	19
V7	6	#4	STR	6'-6"	26
V8	6	#4	STR	5'-7"	22
V9	6	#4	STR	4'-8"	19
V10	6	#4	STR	3'-10"	15
Z1	4	#5	4	5'-4"	22
Z2	6	#4	4	4'-8"	19
Z3	4	#4	4	4'-2"	11
Z4	4	#4	4	3'-8"	10
Z5	4	#4	4	3'-1"	8
Z6	4	#5	4	5'-5"	23
Z7	6	#5	4	4'-11"	31
Z8	6	#4	4	4'-3"	17
Z9	6	#4	4	3'-8"	15
Z10	6	#4	4	3'-1"	12

REINFORCING STEEL FOR 4 WINGS	1277 LBS
CLASS A CONCRETE	
4 WINGS	18.5 CY
2 HEADWALLS	0.9 CY
2 END CURTAIN WALLS	0.8 CY
TOTAL	20.2 CY

PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 68+70.00 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD WINGS FOR CONCRETE BOX CULVERT
 H = 7'-0" SLOPE = 2:1
 105° SKEW



Kimley»Horn
 421 Fayetteville Street, Suite 600
 Raleigh, NC 27601-1772
 Phone (919) 677-2000 NC LICENSE # F-0102

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C2-5
1			3			TOTAL SHEETS
2			4			6

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5/21/2023 K:\ARDI_Structures\Chatham\NC\01036532 - R-5930 North CPW\CD\Drawn\5930A\411_009_R5930A_SMU_CU05.dgn

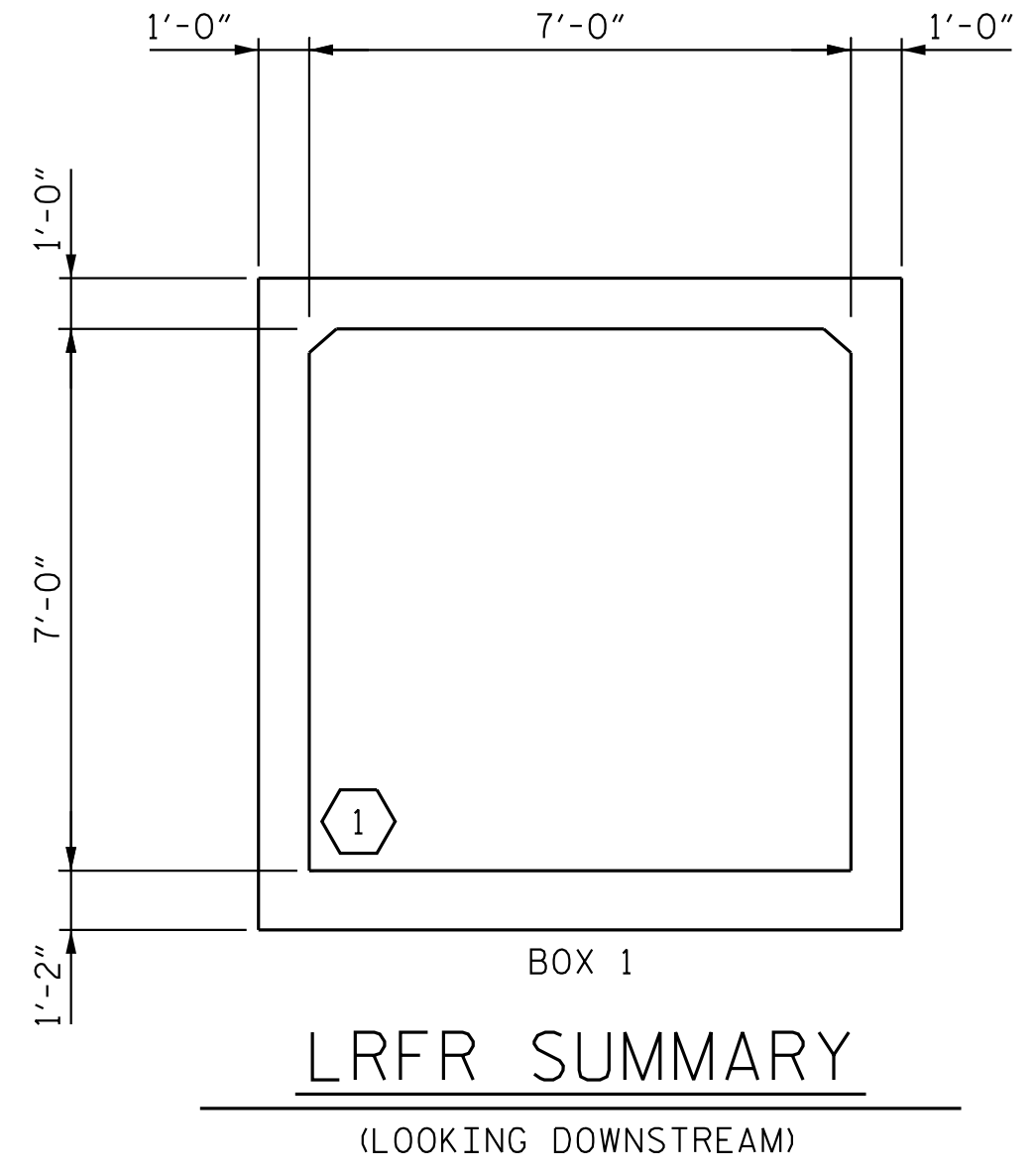
ASSEMBLED BY : D. D. LOWERY	DATE : 01/2023
CHECKED BY : C. T. POOLE	DATE : 01/2023
DRAWN BY : CCJ 12/99	REV. 6/19
CHECKED BY : RWW 03/00	MAA/THC

PERMANENT LOAD 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	--

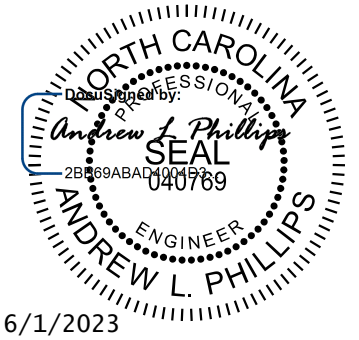
LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS										
	CONTROLLING LOAD RATING	MINIMUM RATING FACTOR (RF)	STRENGTH I LIMIT STATE							
			MOMENT				SHEAR			
			RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)
PERMANENT LOAD RATING	①	1.10	1.33	1	BOTTOM SLAB	0.58	1.10	1	BOTTOM SLAB	0.58

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.



PROJECT NO. R-5930A
CHATHAM COUNTY
 STATION: 68+70.00 -L-

SHEET 6 OF 6



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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.
NO.	BY:	DATE:	NO.	BY:	DATE:	C2-6
1			3			TOTAL SHEETS
2			4			6

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K:\RDI_Structures\Culvert\NC\01026532 - R-5930_Nor-th_CPM\Con\Dgn\A-R-5930A-V411_011_R5930A_SML_C006.dgn

ASSEMBLED BY : D. D. LOWERY	DATE : 01/2023
CHECKED BY : C. T. POOLE	DATE : 01/2023
DRAWN BY : BNB 6/19	
CHECKED BY : THC 6/19	

CULVERT 42C002 STD. NO. LRFR7

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
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 A.A.S.H.T.O.
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 2018 "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 3/4" WITH THE FOLLOWING EXCEPTIONS; TOP CORNERS OF CURBS MAY BE ROUNDED TO 1 1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" 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 1/4" 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 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" 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 3/16" 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 1/16" INCH 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.

ENGLISH

JANUARY, 1990