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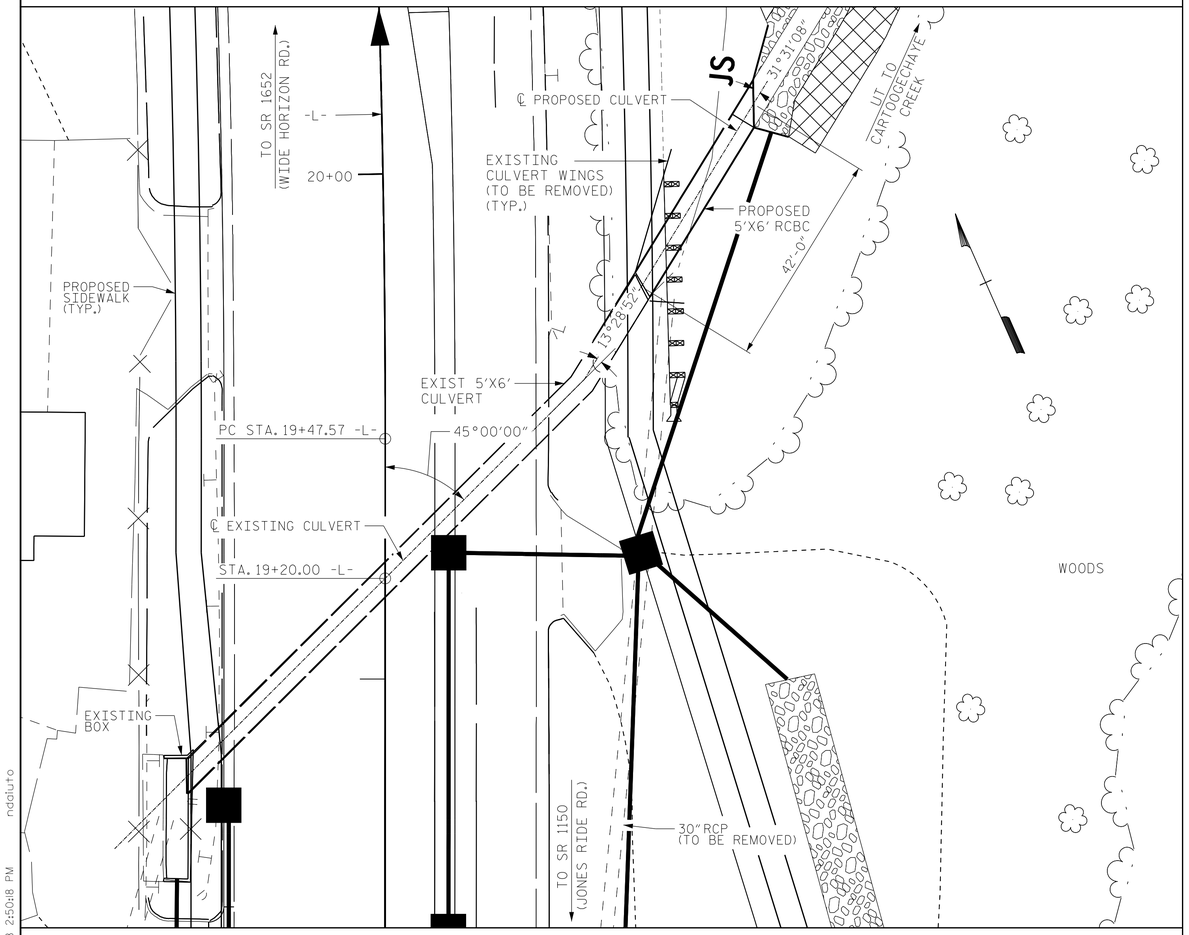
BM #1: 8" SPIKE IN BASE OF 8" VIRGINIA PINE, 75' RIGHT OF STA. 16+42.00 -L-, EL. 2071.27



LOCATION SKETCH

ROADWAY DATA

GRADE POINT EL. @ STA. 19+20.00 -L-	= 2047.56
BED ELEVATION @ STA. 19+20.00 -L-	= 2035.92
ROADWAY SLOPES	= 2:1

HYDRAULIC DATA

DESIGN DISCHARGE	= 240 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 5 YRS.
DESIGN HIGH WATER ELEVATION	= 2043.60
DRAINAGE AREA	= 312 ACRES
BASIC DISCHARGE (Q100)	= 650 C.F.S.
BASIC HIGH WATER ELEVATION	= 2046.90

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 310 C.F.S
FREQUENCY OF OVERTOPPING FLOOD	= < 10 YRS.
OVERTOPPING FLOOD ELEVATION	= 2046.5

TOTAL STRUCTURE QUANTITIES

FOUNDATION COND. MAT'L	16 TONS
CULVERT EXCAVTION	LUMP SUM
CLASS A CONCRETE	
BARREL @ 0.695 CY/FT	29.2 C.Y.
WINGS, ETC.	10.4 C.Y.
SILLS	0.40 C.Y.
BOX MODIFICATION	1.70 C.Y.
TOTAL	41.70 C.Y.
REINFORCING STEEL	
BARREL	2,978 LBS.
WINGS, ETC.	667 LBS.
BOX MODIFICATION	266 LBS.
TOTAL	3,911 LBS.

NOTES

ASSUMED LIVE LOAD -------- HL-93 OR ALTERNATE LOADING

DESIGN FILL ---------- 8.81 FT.

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS 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.

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

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.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

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.

SLOPE OF FILL APPROACHING WING WALLS SHALL BE GRADE TO DRAIN AND MEET THE TOP OF THE WING WALL FOR ITS ENTIRE LENGTH.

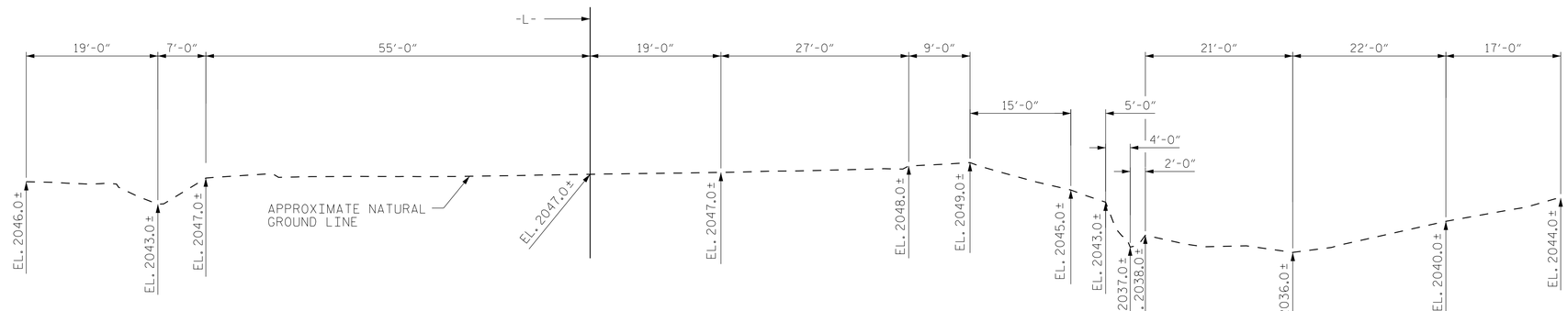
DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN (SHEET SNSM).

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 EARLLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

FOUNDATION RECOMMENDATIONS

EXCAVATE FOUNDATION A MINIMUM OF 1.0 FEET BELOW CULVERT BEARING ELEVATION.

PLACE 1.0 FEET OF CLASS VI FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.



PROFILE ALONG ℄ CULVERT

PROJECT NO. R-5734A

MACON COUNTY

STATION: 19+20.00 -L-

SHEET 1 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 5 FT. X 6 FT. CONCRETE BOX CULVERT

NORTH CAROLINA PROFESSIONAL SEAL 45237 ENGINEER NICHOLAS D'AIUTO

Nicholas D'Aiuto
D3C1506E7...
7/6/2018

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License No. F-0672

DRAWN BY : N. D'AIUTO DATE : 09/12/17
CHECKED BY : V. E. FRAGA DATE : 09/19/17
DESIGN ENGINEER OF RECORD: N.D'AIUTO DATE : 07/06/18

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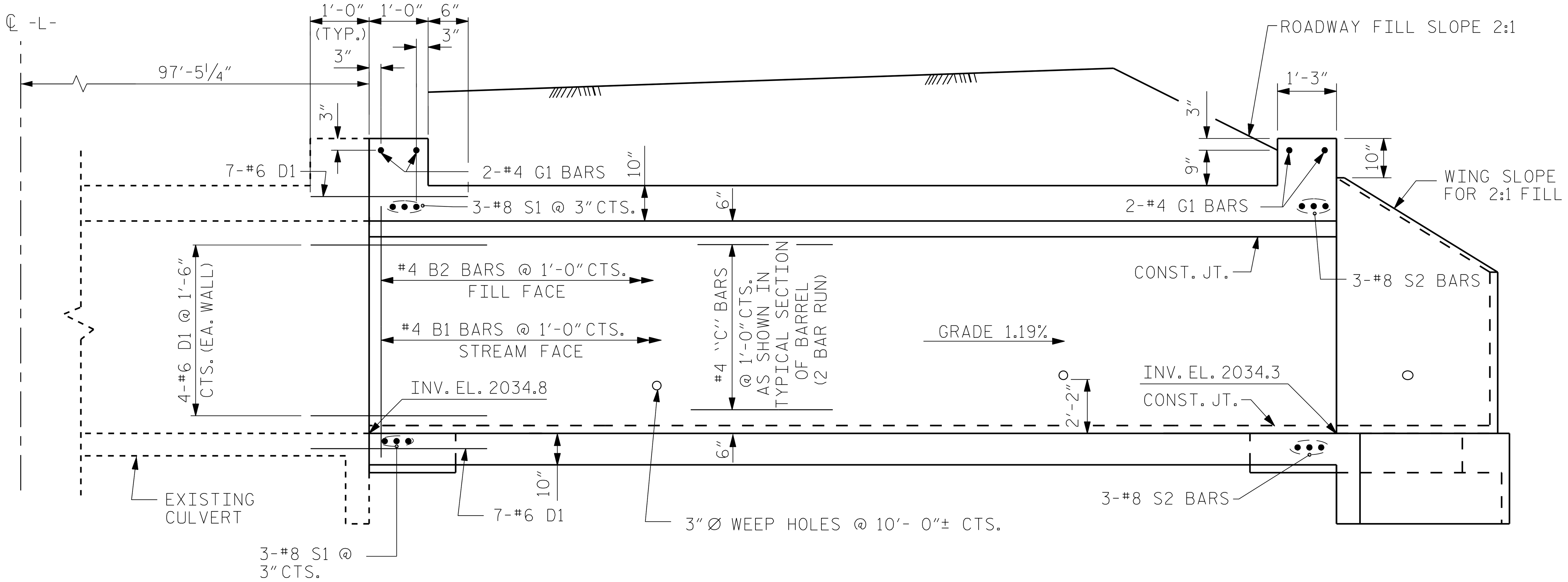
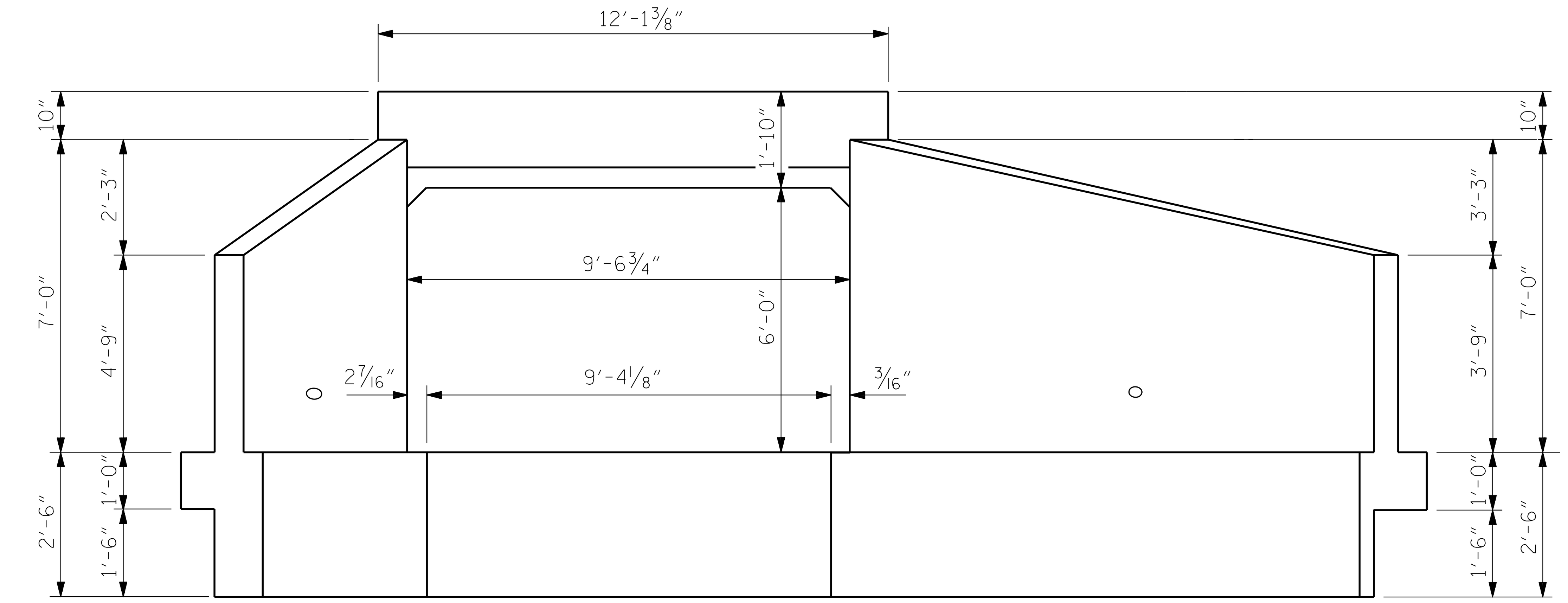
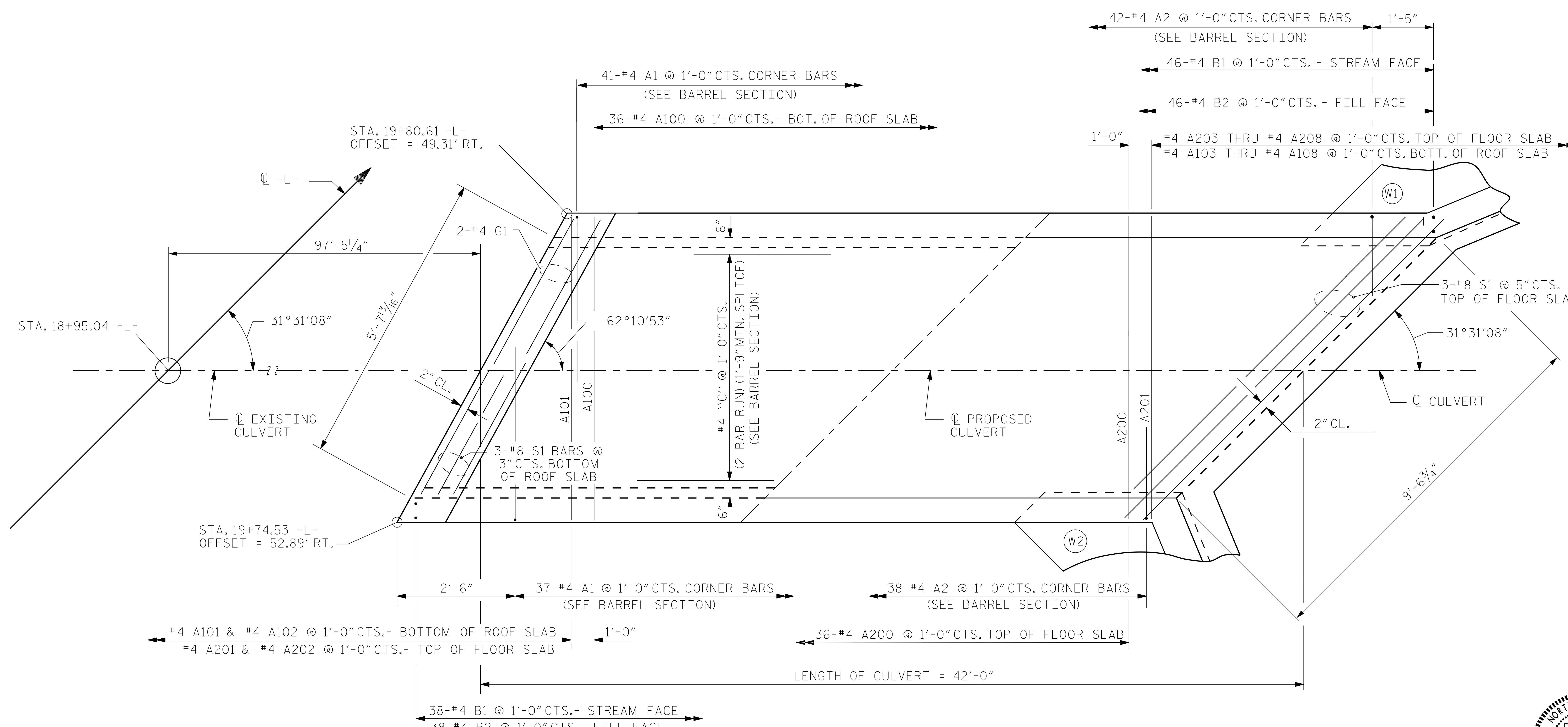


CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW

(LOOKING UPSTREAM)



PART PLAN - ROOF SLAB   PART PLAN - FLOOR SLAB

NOTE: CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS.
"D" BARS NOT SHOWN FOR CLARITY

PROJECT NO. R-5734A

MACON COUNTY

STATION: 19+20.00 -L-

SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 5 FT. X 6 FT. CONCRETE BOX CULVERT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 45237 NICHOLAS D'AIUTO

Nicholas D'Aiuto 7/6/2018

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CHECKED BY : V. E. FRAGA	DATE : 09/19/17		

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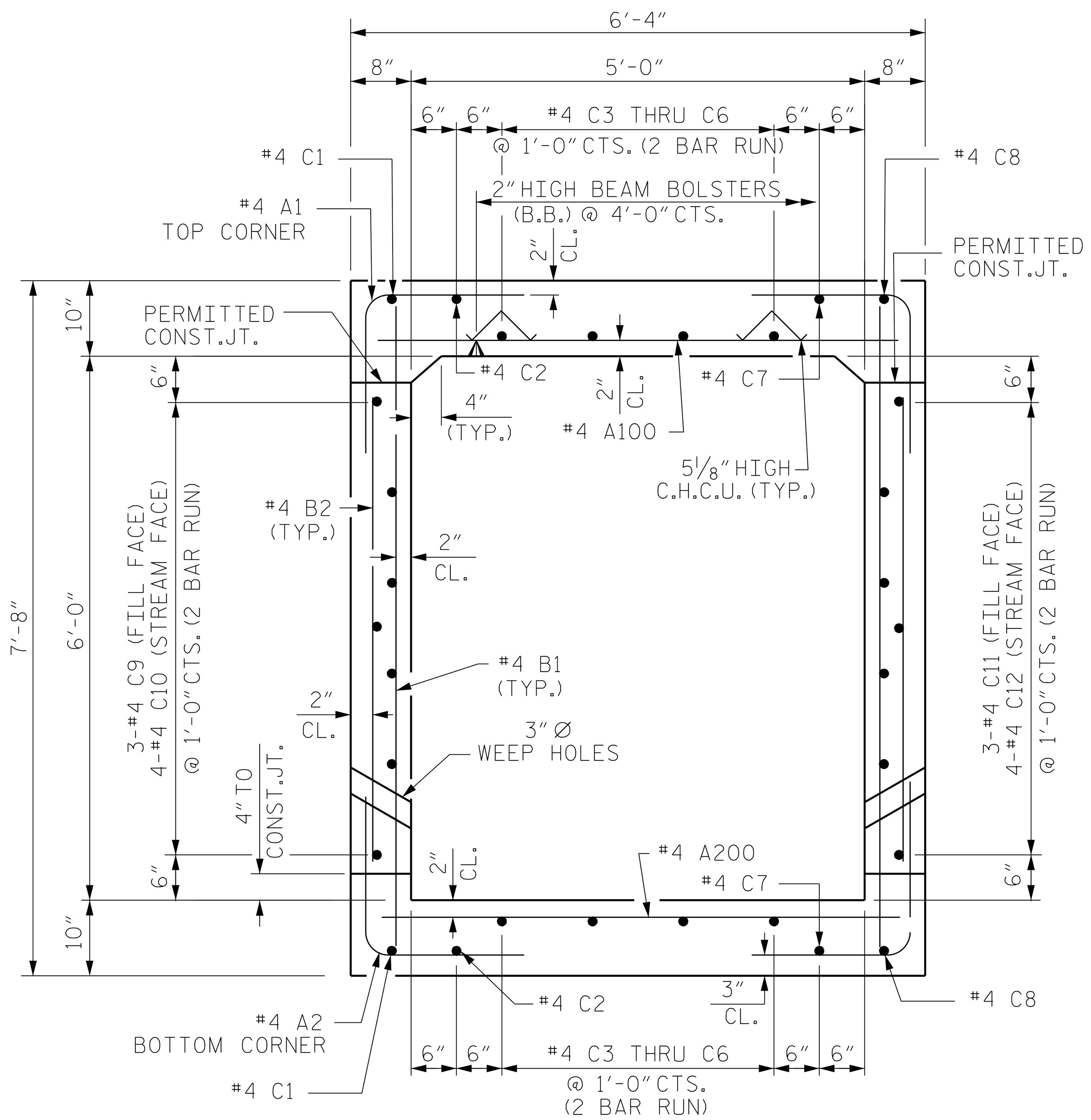
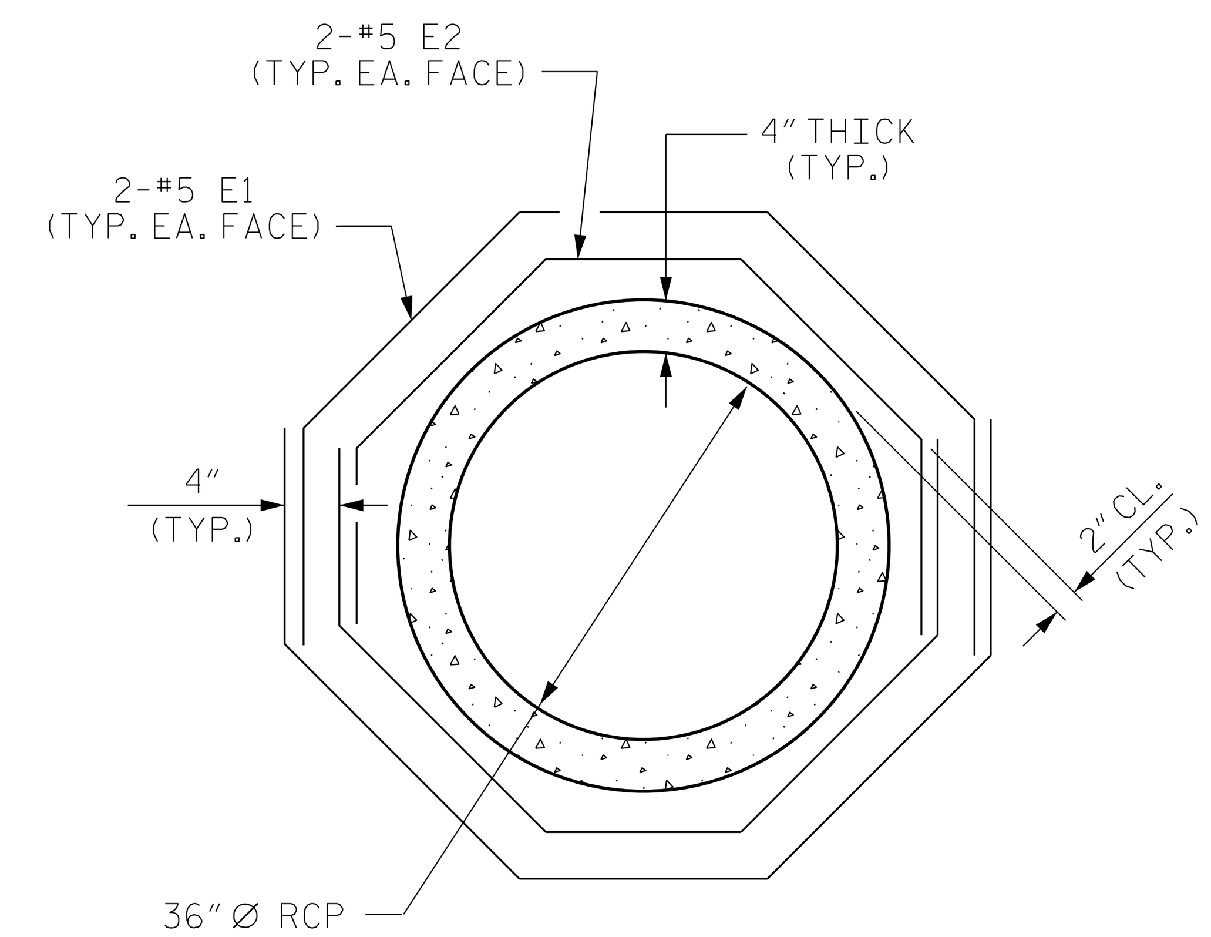


RIGHT ANGLE SECTION OF BARREL

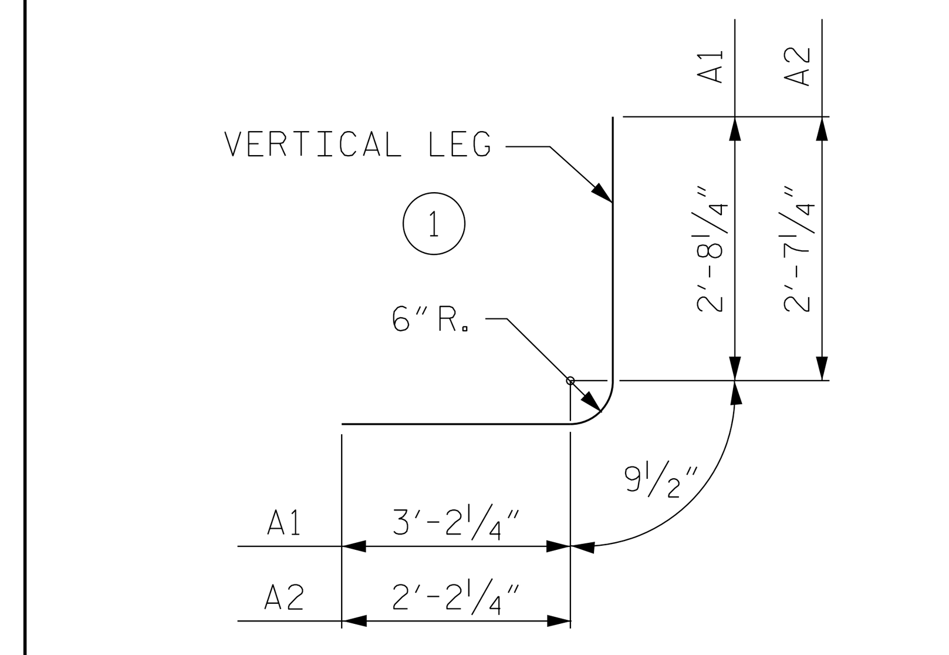
THERE ARE 30 "C" BARS IN SECTION OF BARREL
(LOOKING DOWNSTREAM)



DETAIL OF REINFORCING AROUND RCP

* THE REINFORCING STEEL SHALL BE FIELD BENT OR CUT AS NECESSARY TO CLEAR PIPE.

BAR TYPE



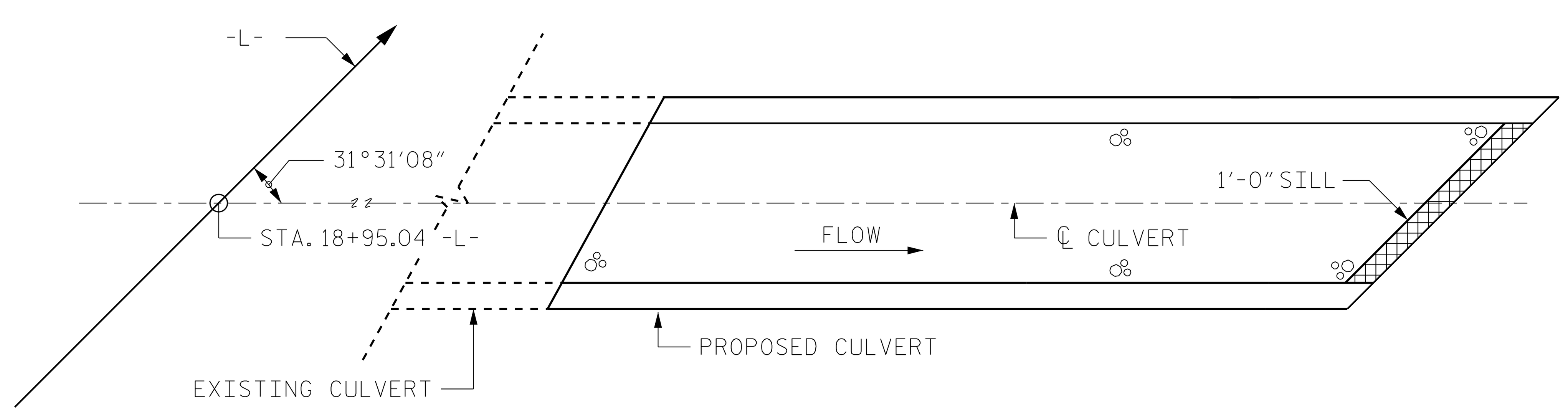
BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTH CHART

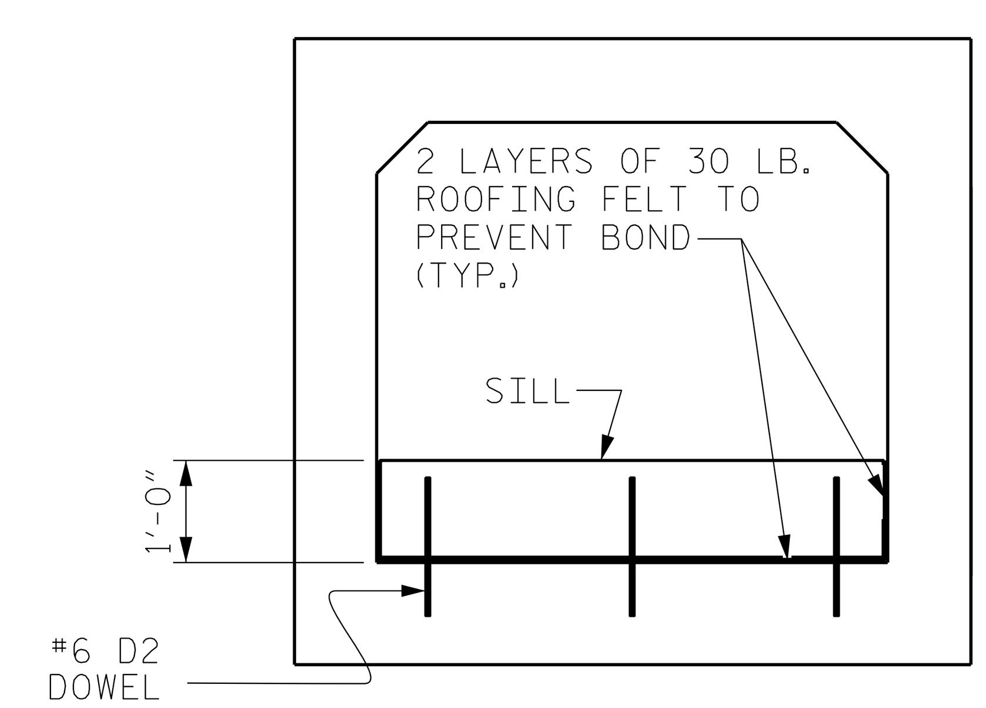
BAR	SIZE	SPLICE LENGTH
C1	#4	1'-11"

BILL OF MATERIAL

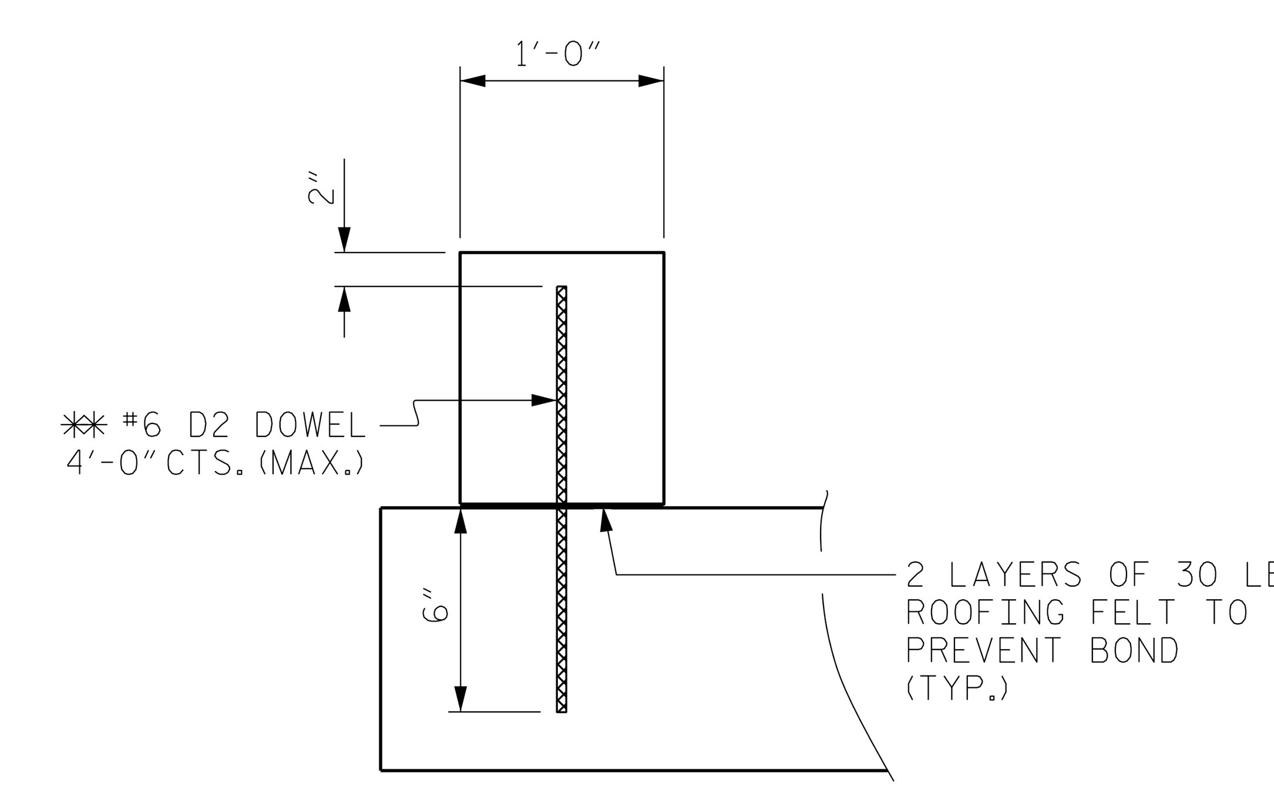
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	78	#4	1	6'-8"	347
A2	80	#4	1	5'-7"	298
A100	36	#4	STR	6'-0"	144
A101	1	#4	STR	4'-1"	3
A102	1	#4	STR	2'-2"	2
A103	1	#4	STR	5'-4"	4
A104	1	#4	STR	4'-9"	3
A105	1	#4	STR	4'-2"	3
A106	1	#4	STR	3'-6"	2
A107	1	#4	STR	2'-11"	2
A108	1	#4	STR	2'-3"	2
A200	36	#4	STR	6'-0"	144
A201	1	#4	STR	4'-1"	3
A202	1	#4	STR	2'-2"	2
A203	1	#4	STR	5'-4"	4
A204	1	#4	STR	4'-9"	3
A205	1	#4	STR	4'-2"	3
A206	1	#4	STR	3'-6"	2
A207	1	#4	STR	2'-11"	2
A208	1	#4	STR	2'-3"	2
B1	84	#4	STR	7'-4"	411
B2	84	#4	STR	5'-8"	318
C1	4	#4	STR	23'-3"	62
C2	4	#4	STR	22'-10"	61
C3	4	#4	STR	22'-7"	60
C4	4	#4	STR	22'-0"	59
C5	4	#4	STR	21'-5"	57
C6	4	#4	STR	20'-10"	56
C7	4	#4	STR	20'-7"	55
C8	4	#4	STR	20'-2"	54
C9	6	#4	STR	23'-5"	94
C10	8	#4	STR	23'-2"	124
C11	6	#4	STR	20'-0"	80
C12	8	#4	STR	20'-3"	108
D1	22	#6	STR	2'-6"	83
D2	3	#6	STR	1'-4"	6
G1	2	#4	STR	6'-9"	9
G2	2	#4	STR	11'-5"	15
S1	6	#8	STR	6'-9"	108
S2	6	#8	STR	11'-5"	183
TOTAL REINFORCING STEEL				LBS.	2,978



PLAN



ELEVATION



SECTION THROUGH SILL

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

SILL DETAILS

(OUTLET SHOWN)
SILL LOCATED AT OUTLET ONLY

PROJECT NO. R-5734A
MACON COUNTY
STATION: 19+20.00 -L-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SINGLE 5 FT. X 6 FT. CONCRETE BOX CULVERT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 45237 NICHOLAS D'AIUTO
Nicholas D'Aiuto
7/6/2018

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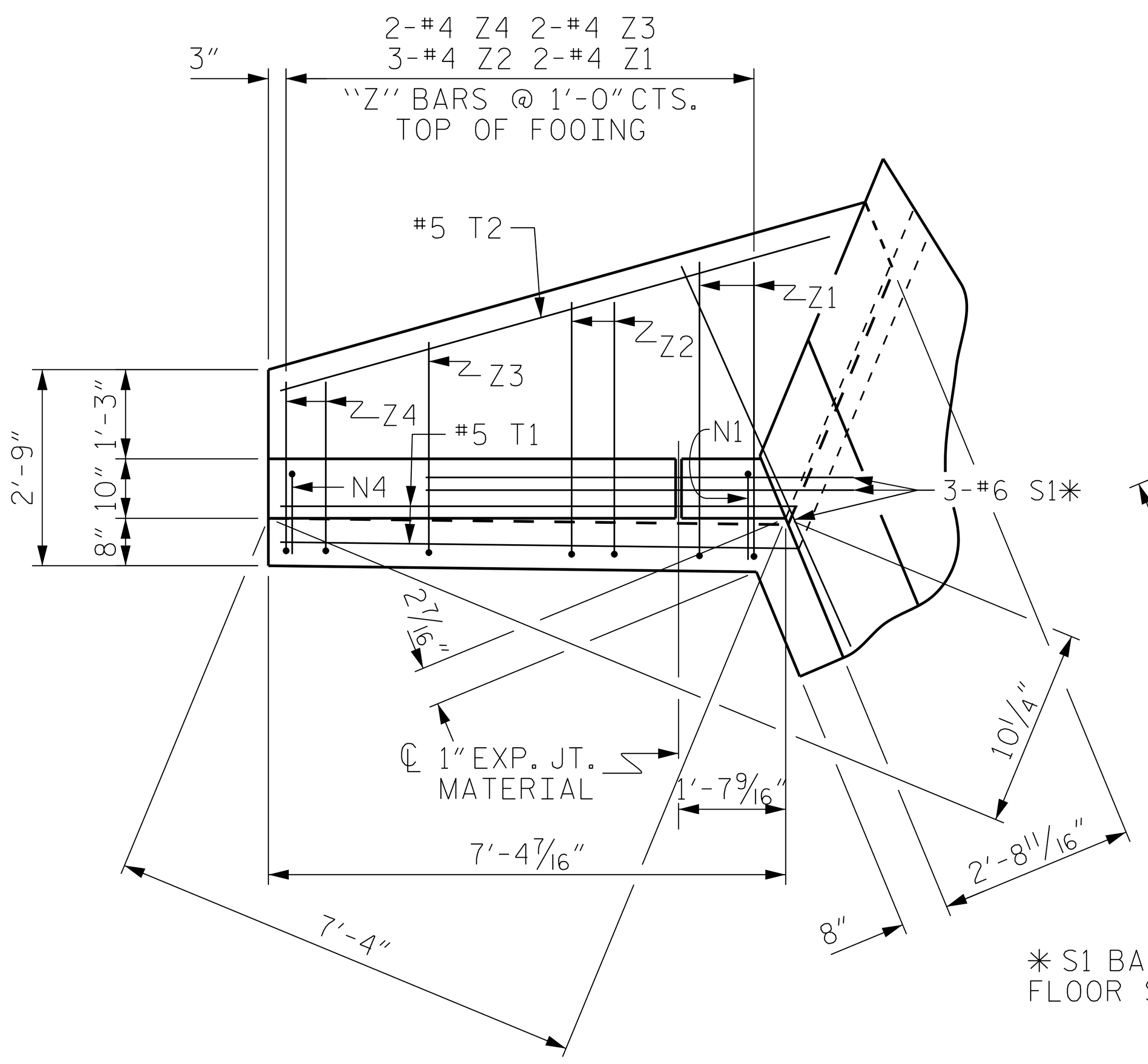
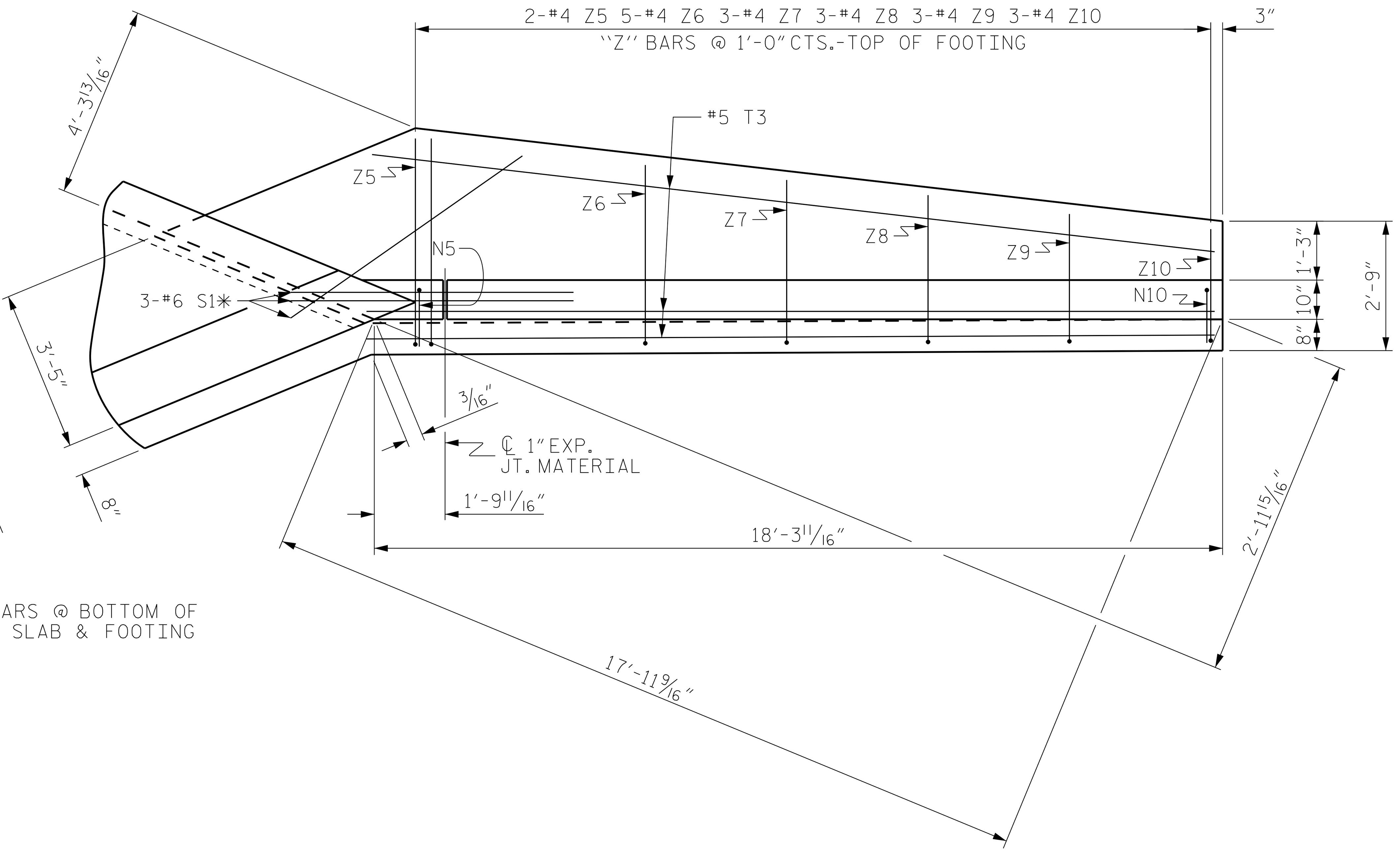


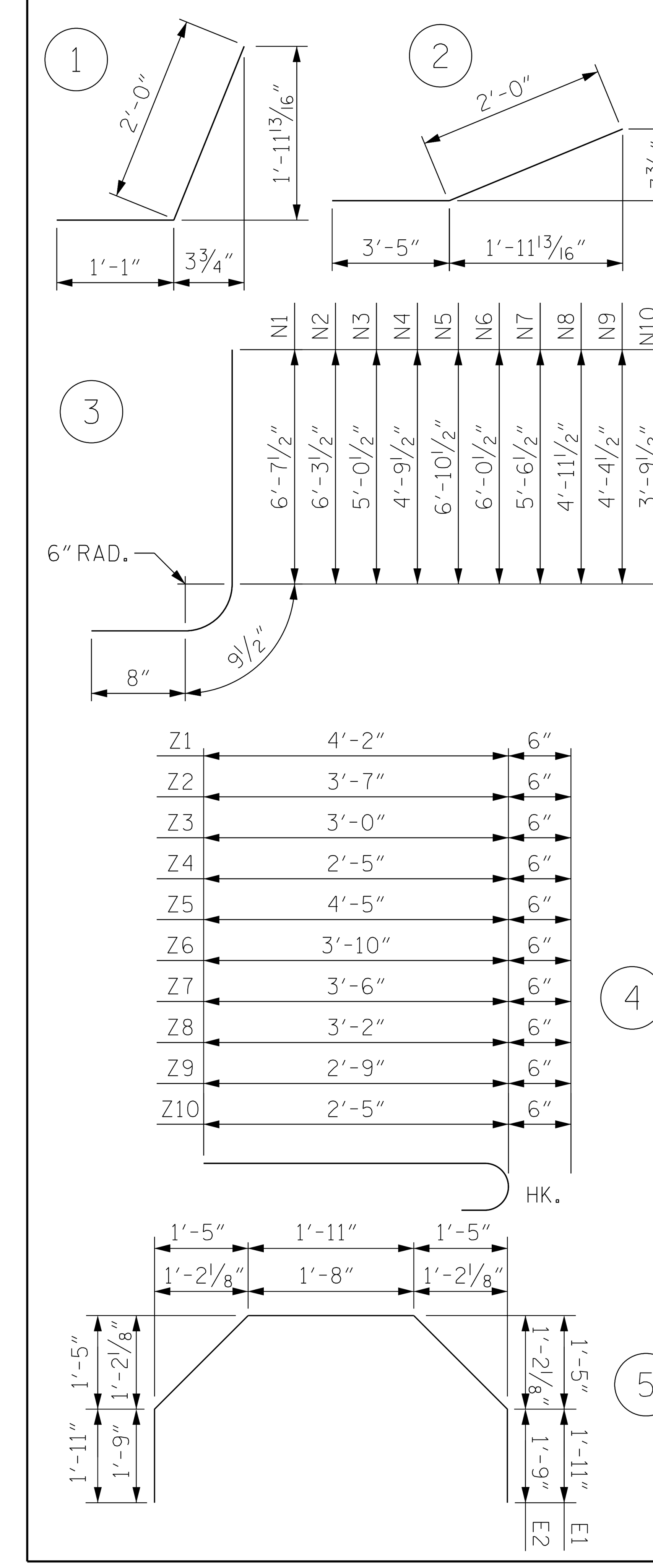
PLAN W2



PLAN W1

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



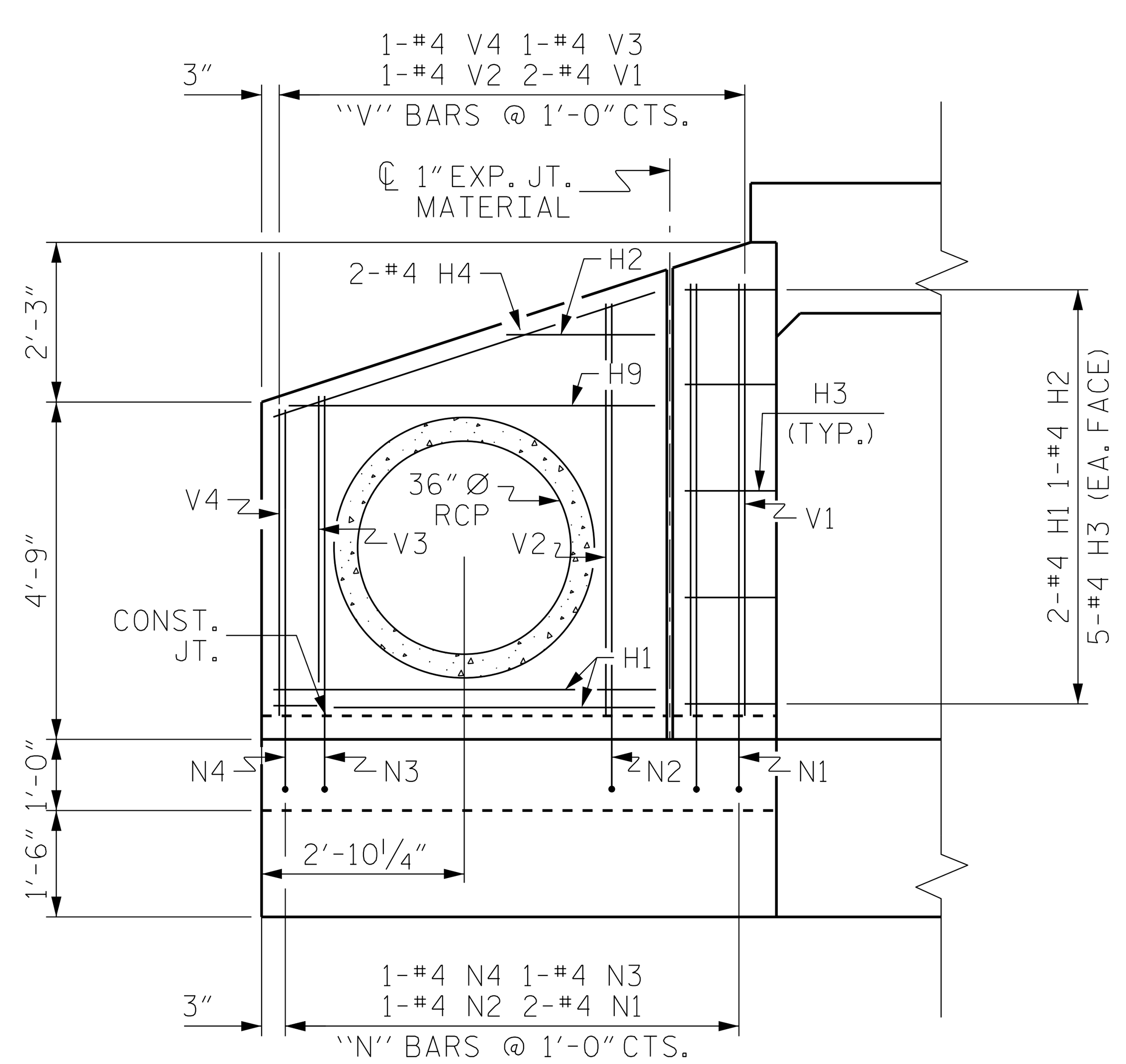
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
E1	4	#5	5	9'-9"	41
E2	4	#5	5	8'-6"	36
H1	4	#4	STR	5'-4"	15
H2	2	#4	STR	2'-1"	3
H3	10	#4	1	3'-1"	21
H4	2	#4	STR	5'-7"	8
H5	6	#4	STR	16'-1"	65
H6	2	#4	STR	8'-8"	12
H7	10	#4	2	5'-5"	36
H8	2	#4	STR	16'-4"	22
H9	2	#4	STR	5'-1"	7
N1	2	#4	3	8'-1"	11
N2	1	#4	3	7'-9"	5
N3	1	#4	3	6'-6"	5
N4	1	#4	3	6'-3"	5
N5	2	#4	3	8'-4"	11
N6	5	#4	3	7'-6"	25
N7	3	#4	3	7'-0"	14
N8	3	#4	3	6'-5"	13
N9	3	#4	3	5'-10"	12
N10	3	#4	3	5'-3"	11
S1	6	#6	STR	6'-0"	54
T1	2	#5	STR	7'-3"	15
T2	1	#5	STR	8'-0"	9
T3	3	#5	STR	18'-0"	57
V1	2	#4	STR	6'-1"	8
V2	1	#4	STR	5'-9"	4
V3	1	#4	STR	4'-6"	3
V4	1	#4	STR	4'-3"	3
V5	2	#4	STR	6'-3"	9
V6	5	#4	STR	5'-6"	19
V7	3	#4	STR	4'-11"	10
V8	3	#4	STR	4'-5"	9
V9	3	#4	STR	3'-10"	8
V10	3	#4	STR	3'-3"	7
Z1	2	#4	4	4'-8"	6
Z2	3	#4	4	4'-1"	8
Z3	2	#4	4	3'-6"	5
Z4	2	#4	4	2'-11"	4
Z5	2	#4	4	4'-11"	7
Z6	5	#4	4	4'-4"	15
Z7	3	#4	4	4'-0"	8
Z8	3	#4	4	3'-8"	8
Z9	3	#4	4	3'-3"	7
Z10	3	#4	4	2'-11"	6

REINFORCING STEEL FOR 2 WINGS — 667 LBS

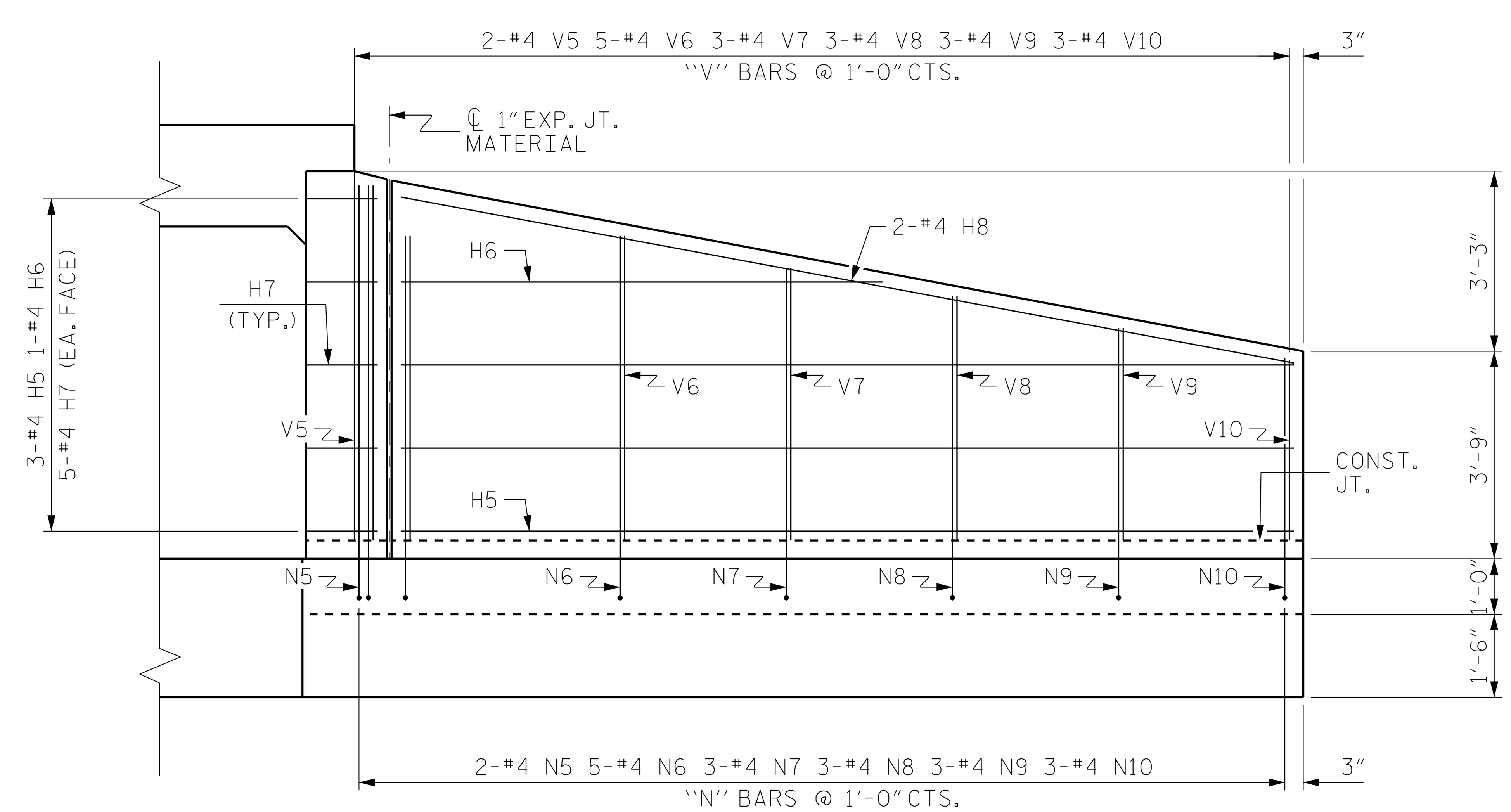
CLASS A CONCRETE

2 WINGS	8.90 CY
2 HEADWALLS	0.90 CY
1 END CURTAIN WALL	0.60 CY
TOTAL	10.4 CY

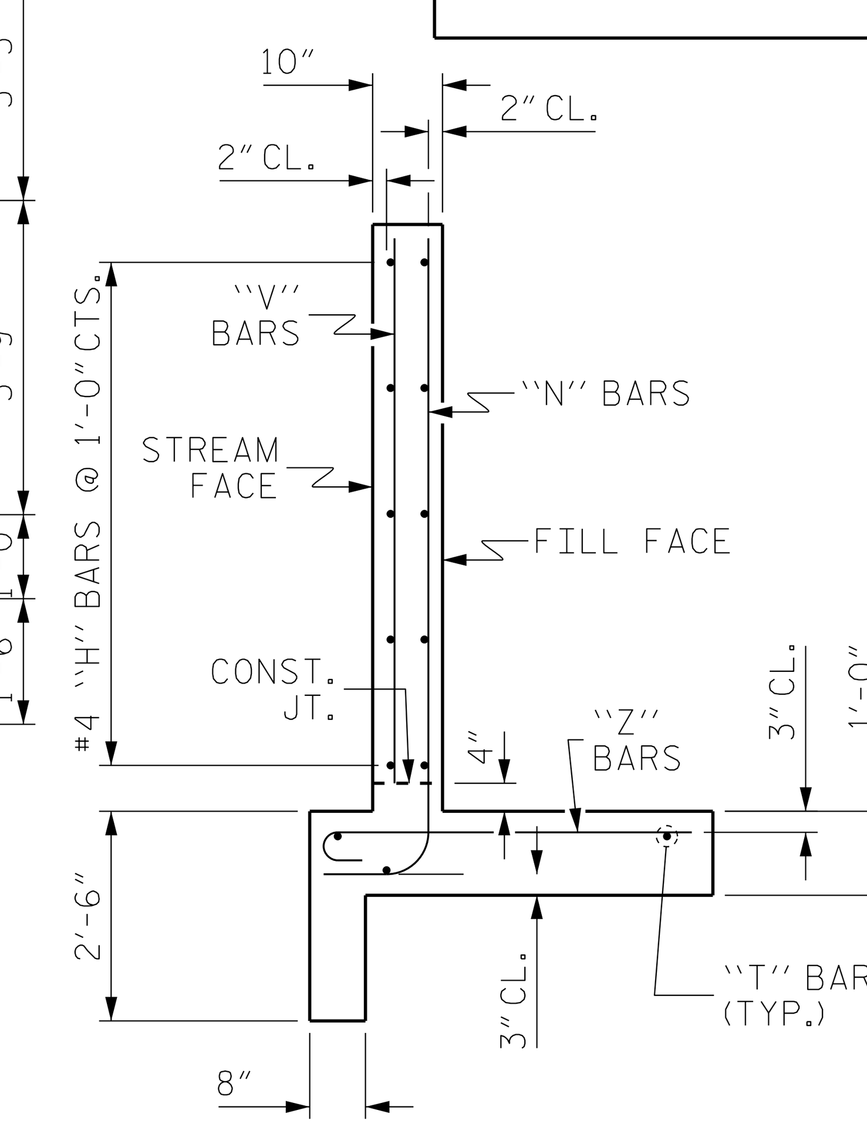


ELEVATION W2

(SEE DETAIL ON SHEET 3 OF 5 FOR REINFORCING DETAIL AROUND RCP)



ELEVATION W1



TYPICAL WING SECTION

PROJECT NO. R-5734A

MACON COUNTY

STATION: 19+20.00 -L-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WINGS FOR CONCRETE BOX CULVERT

H = 6'-0" SLOPE = 2:1

SEAL 45237 — NORTH CAROLINA PROFESSIONAL ENGINEER — NICHOLAS D'AIUTO — 7/6/2018

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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 (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 RATING		HL-93 (INVENTORY)	N/A	(1)	1.30	--	1.75	1.89	1	BOT. SLAB (MID)-INSIDE	3.17	5.80	1	BOT. SLAB (LEFT END)	0.00	2
		HL-93 (OPERATING)	N/A		1.68	--	1.35	2.45	1	BOT. SLAB (MID)-INSIDE	3.17	7.51	1	BOT. SLAB (LEFT END)	0.00	2
		HS-20 (INVENTORY)	36.000	(2)	1.89	46.80	1.75	1.30	1	BOT. SLAB (MID)-INSIDE	3.17	7.74	1	BOT. SLAB (LEFT END)	0.00	1
		HS-20 (OPERATING)	36.000		2.45	60.48	1.35	1.68	1	BOT. SLAB (MID)-INSIDE	3.17	10.04	1	BOT. SLAB (LEFT END)	0.00	1
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.43	46.31	1.40	3.43	1	BOT. SLAB (MID)-INSIDE	3.17	14.08	1	BOT. SLAB (LEFT END)	0.00	1
		SNGARBS2	20.000		3.21	64.20	1.40	3.21	1	BOT. SLAB (MID)-INSIDE	3.17	13.19	1	BOT. SLAB (LEFT END)	0.00	1
		SNAGRIS2	22.000		3.43	75.46	1.40	3.43	1	BOT. SLAB (MID)-INSIDE	3.17	14.08	1	BOT. SLAB (LEFT END)	0.00	1
		SNCOTTS3	27.250	(3)	1.62	44.15	1.40	1.62	1	BOT. SLAB (MID)-INSIDE	3.17	6.76	1	BOT. SLAB (LEFT END)	0.00	3
		SNAGGRS4	34.925		1.88	65.66	1.40	1.88	1	BOT. SLAB (MID)-INSIDE	3.17	7.72	1	BOT. SLAB (LEFT END)	0.00	3
		SNS5A	35.550		1.71	60.79	1.40	1.71	1	BOT. SLAB (MID)-INSIDE	3.17	7.25	1	BOT. SLAB (LEFT END)	0.00	3
		SNS6A	39.950		1.70	67.92	1.40	1.70	1	BOT. SLAB (MID)-INSIDE	3.17	7.24	1	BOT. SLAB (LEFT END)	0.00	3
		SNS7B	42.000		1.70	71.40	1.40	1.70	1	BOT. SLAB (MID)-INSIDE	3.17	7.24	1	BOT. SLAB (LEFT END)	0.00	3
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		3.13	103.29	1.40	3.13	1	BOT. SLAB (MID)-INSIDE	3.17	14.08	1	BOT. SLAB (LEFT END)	0.00	2
		TNT4A	33.075		1.93	63.83	1.40	1.93	1	BOT. SLAB (MID)-INSIDE	3.17	8.05	1	BOT. SLAB (LEFT END)	0.00	3
		TNT6A	41.600		1.81	75.30	1.40	1.81	1	BOT. SLAB (MID)-INSIDE	3.17	7.52	1	BOT. SLAB (LEFT END)	0.00	3
		TNT7A	42.000		1.87	78.54	1.40	1.87	1	BOT. SLAB (MID)-INSIDE	3.17	7.78	1	BOT. SLAB (LEFT END)	0.00	3
		TNT7B	42.000		1.81	76.02	1.40	1.81	1	BOT. SLAB (MID)-INSIDE	3.17	7.50	1	BOT. SLAB (LEFT END)	0.00	3
		TNAGRIT4	43.000		1.93	82.99	1.40	1.93	1	BOT. SLAB (MID)-INSIDE	3.17	8.05	1	BOT. SLAB (LEFT END)	0.00	3
		TNAGT5A	45.000		1.93	86.85	1.40	1.93	1	BOT. SLAB (MID)-INSIDE	3.17	8.05	1	BOT. SLAB (LEFT END)	0.00	3
		TNAGT5B	45.000		1.93	86.85	1.40	1.93	1	BOT. SLAB (MID)-INSIDE	3.17	8.05	1	BOT. SLAB (LEFT END)	0.00	3

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.

COMMENTS:

1. BOTH MOMENT AND SHEAR RATING FACTORS ARE CONTROLLED BY MINIMUM FILL.
2. BOTH MOMENT AND SHEAR RATING FACTORS ARE CONTROLLED BY MAXIMUM FILL.
3. MOMENT RATING FACTOR IS CONTROLLED BY MAXIMUM FILL, SHEAR RATING IS CONTROLLED BY MINIMUM FILL.

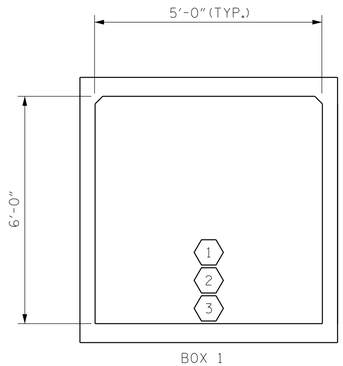
(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE



BOX 1

LRFR SUMMARY

(LOOKING DOWNSTREAM)

PROJECT NO. R-5734A

MACON COUNTY

STATION: 19+20.00 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

DRAWN BY : N. D'AIUTO DATE : 09/11/17
CHECKED BY : V.E.FRAGA DATE : 09/19/17

DESIGN ENGINEER OF RECORD: N.D'AIUTO DATE : 07/06/18

NORTH CAROLINA PROFESSIONAL SEAL 45237 ENGINEER NICHOLAS D'AIUTO

Nicholas D'Aiuto 7/6/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			7

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NOTES

SEE "BOX MODIFICATION DETAILS", SHEET 7 OF 7 FOR SECTIONS B-B AND C-C.

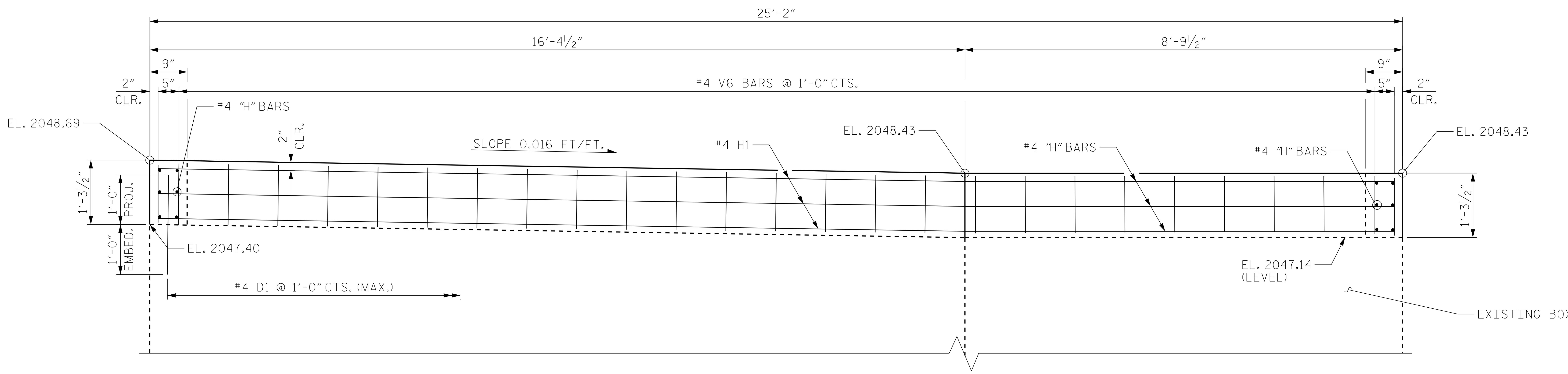
SEE "DETAIL OF PIPE HANDRAIL MOUNTED ON RETAINING WALL", ROADWAY SHEET FOR DETAILS ON PLACEMENT OF HANDRAIL ON BOX MODIFICATION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

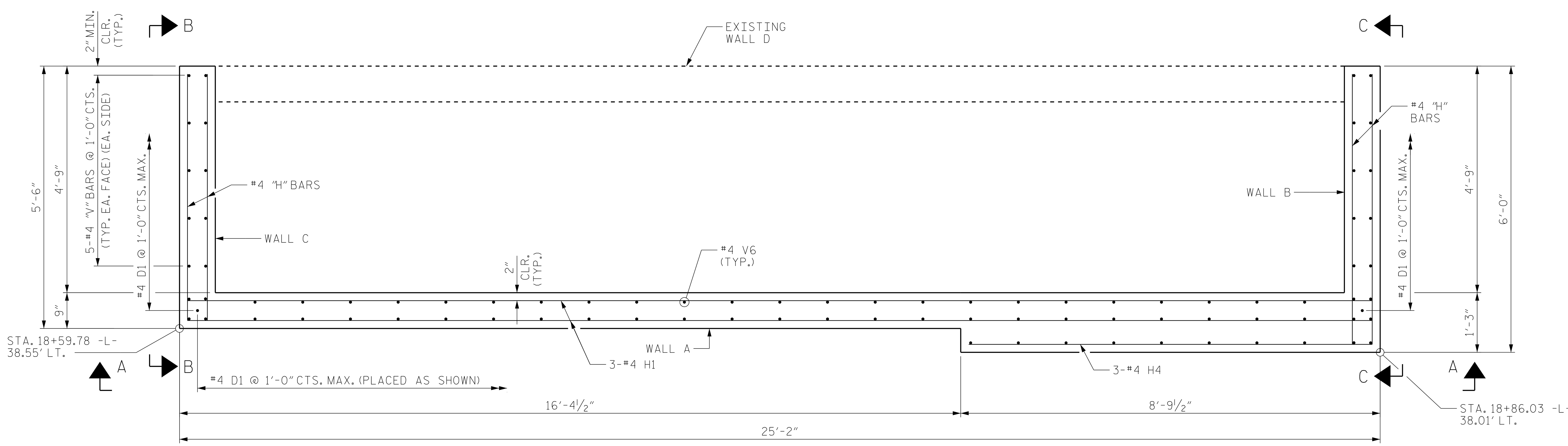
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.



SECTION A-A



PLAN

PROJECT NO. R-5734A

MACON COUNTY

STATION: 19+20.00 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BOX MODIFICATION DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 45237 ENGINEER NICHOLAS D'AIUTO

Nicholas D'Aiuto 7/6/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6
1			3			TOTAL SHEETS
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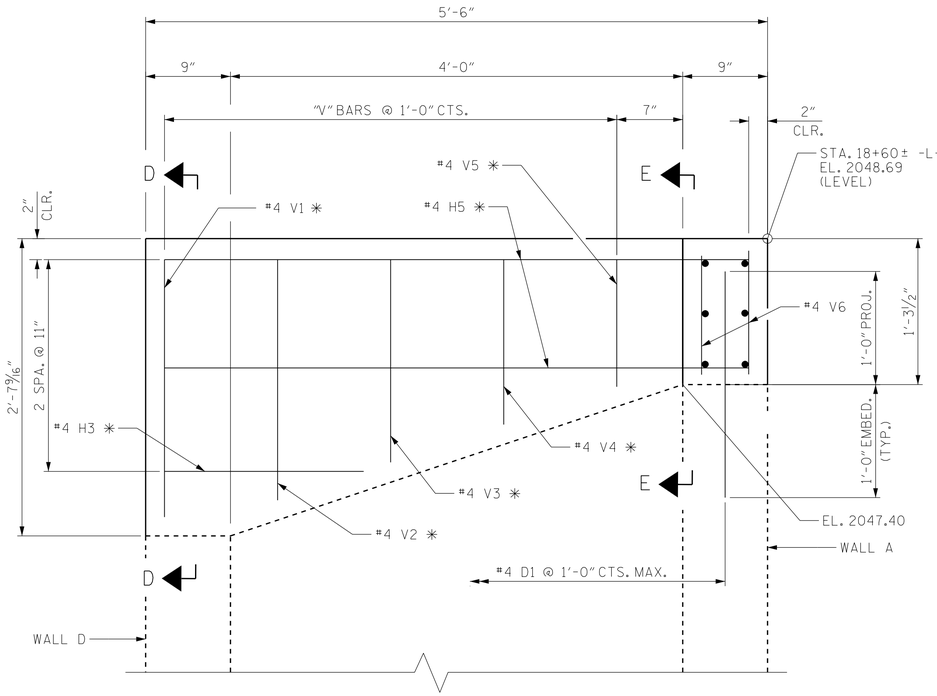
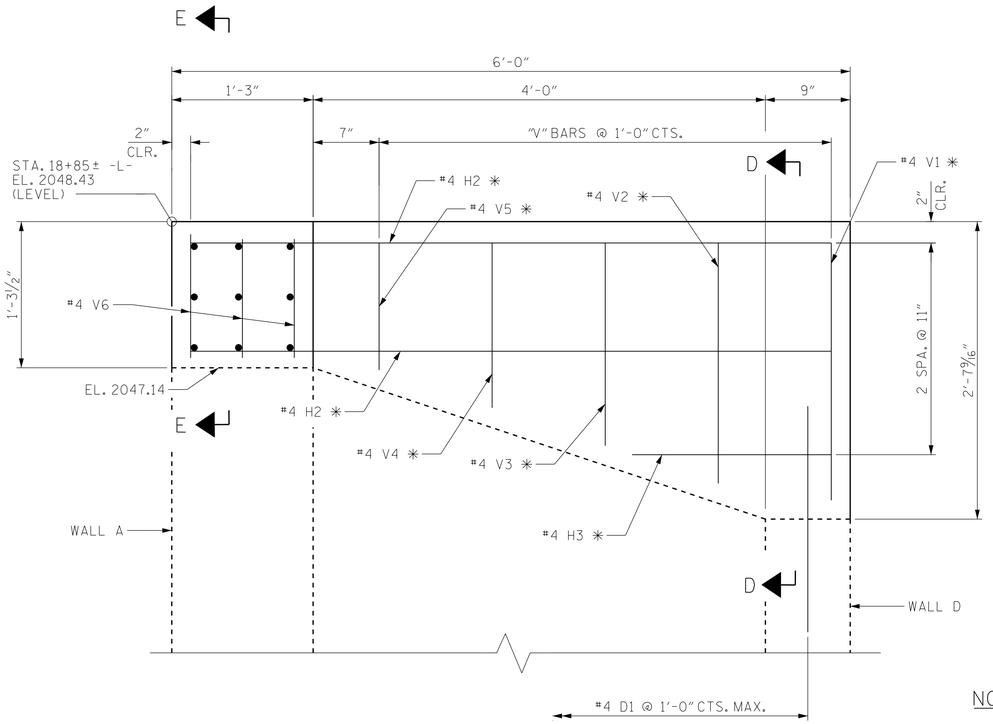




BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	36	#4	STR	2'-0"	48
H1	6	#4	STR	24'-10"	100
H2	4	#4	STR	5'-8"	15
H3	4	#4	STR	1'-9"	5
H4	3	#4	STR	8'-5"	17
H5	4	#4	STR	5'-2"	14
V1	4	#4	STR	2'-3"	6
V2	4	#4	STR	2'-1"	6
V3	4	#4	STR	1'-9"	5
V4	4	#4	STR	1'-5"	4
V5	4	#4	STR	1'-1"	3
V6	64	#4	STR	1'-0"	43
TOTAL REINFORCING STEEL				LBS.	266

CLASS A CONCRETE BREAKDOWN		
WALL A HEADWALL	C.Y.	1.10
WALL B WALL	C.Y.	0.30
WALL C WALL	C.Y.	0.30
TOTAL CLASS A CONCRETE	C.Y.	1.70

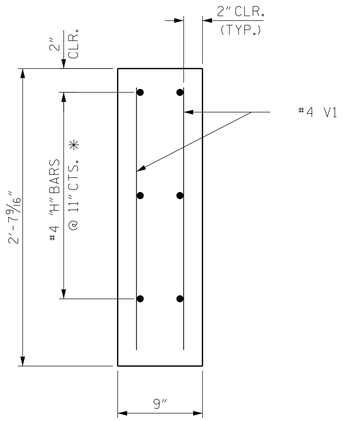
NOTES:

* DENOTES EA. FACE

DOWELS SHALL BE USED TO CONNECT THE BOX MODIFICATION TO THE EXISTING BOX. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEE SN (SHEET SNSM).

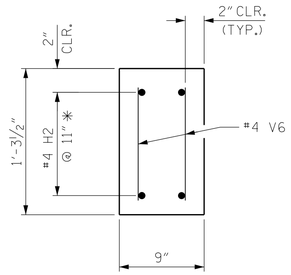
SECTION B-B

WALL C



SECTION C-C

WALL B



SECTION D-D

SECTION E-E

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Nicholas D'Aiuto 7/6/2018
D3C1506E7...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. R-5734A
MACON COUNTY
STATION: 19+20.00 -L-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BOX MODIFICATION DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-7
1			3			TOTAL SHEETS
2			4			7

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 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".

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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

STD. NO. SN

REV. 6-16-95	EEM	(/) RGW	REV. 5-7-03	RWW	(/) JTE	REV. 10-1-11	MAA	(/) GM
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STD. NO. SN

REV. 6-16-95 EEM (c) RGW REV. 5-7-03 RWW (c) JTE REV. 10-1-11 MAA (c) GM
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