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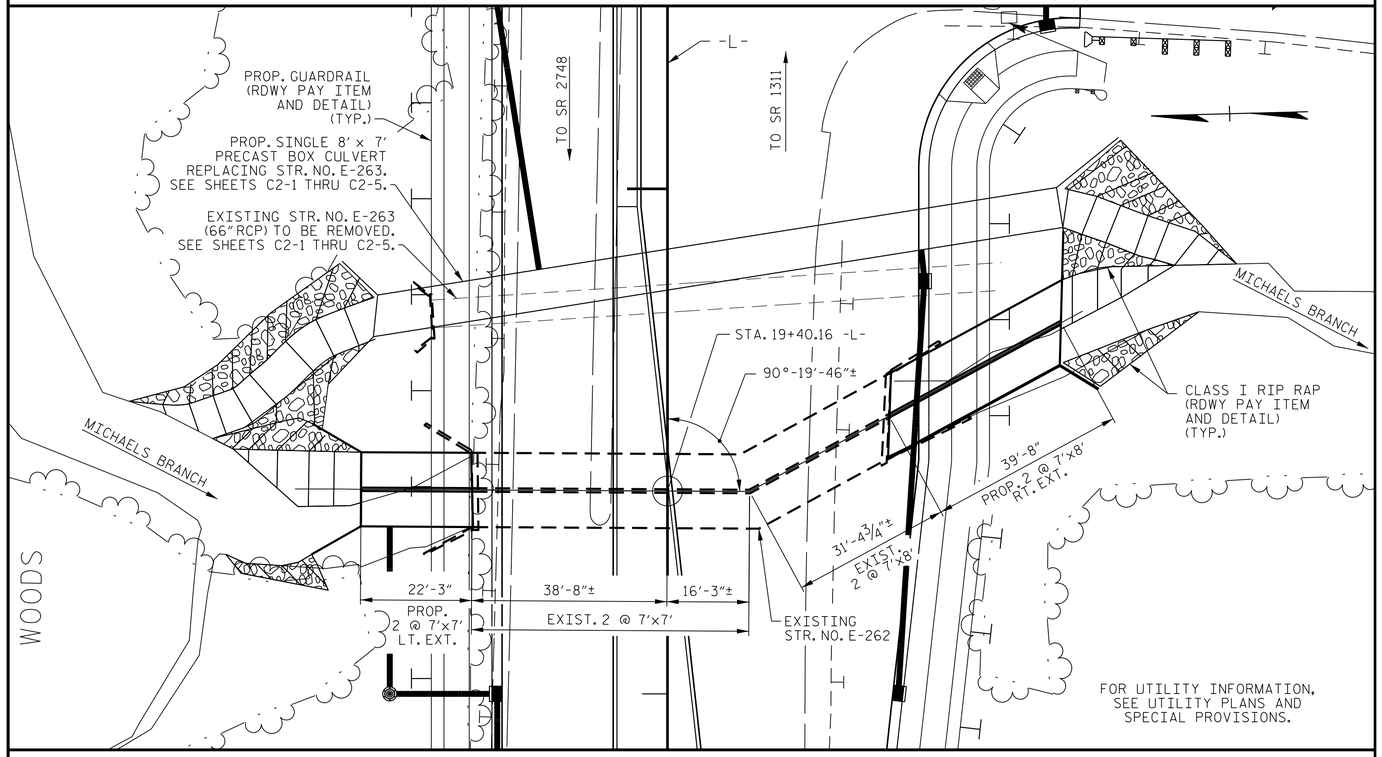
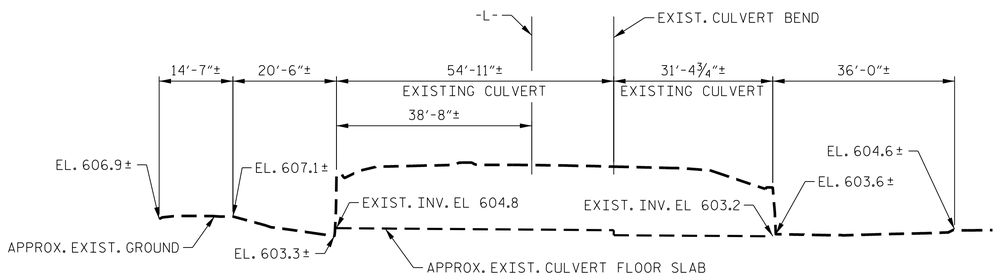
BM #2, X-CUT IN LIGHTPOLE BASE, STA. 20+69.57 -L-, 140.71' RIGHT, ELEV. 619.33 FT., N878474.48 E1844081.81



LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

ROADWAY DATA

GRADE POINT ELEV. @ STA. 19+40.16 -L-	= 618.83
BED ELEV. @ STA. 19+40.16 -L-	= 604.6±
ROADWAY SLOPES	= 2:1

HYDRAULIC DATA

DESIGN DISCHARGE	= 1520 CFS
FROQUENCY OF DESIGN FLOOD	= 50 YEARS
DESIGN HIGH WATER ELEVATION	= 615.4
DRAINAGE AREA	= 1.65 SQ. MI.
BASIC DISCHARGE (Q100)	= 1700 CFS
BASIC HIGH WATER ELEVATION	= 616.9

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 2080 CFS
FROUENCY OF OVERTOPPING FLOOD	= >100 YEARS
OVERTOPPING FLOOD ELEVATION	= 618.5

OVERTOPS S.P. AT STA. 20+45.28 -L- LT.

NOTE:
STR. NO. E-262 BEING EXTENDED, AND STR. NO. E-263 (PROP. PRECAST BOX CULVERT REPLACING EXISTING 66"Ø RCP) HAVE COMMON HEADWATER ELEVATIONS SINCE THEY CONVEY THE SAME STREAM UNDER -L-.

NOTES:

ASSUMED LIVE LOAD ----------HL93 OR ALTERNATE LOADING.

DESIGN FILL: 5.6 FT. @ LT. EXT, 5.9 FT. @ RT. EXT.

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

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

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.

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

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE 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 THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

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 REACH A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

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

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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES

LEFT EXTENSION		RIGHT EXTENSION	
CLASS A CONCRETE		CLASS A CONCRETE	
BARREL @ 1.489 CY/FT	33.1 C.Y.	BARREL @ 1.564 CY/FT	62.0 C.Y.
WINGS ETC.	11.6 C.Y.	WINGS ETC.	8.2 C.Y.
TOTAL	44.7 C.Y.	TOTAL	70.2 C.Y.
REINFORCING STEEL		REINFORCING STEEL	
BARREL	4,338 LBS.	BARREL	8,462 LBS.
WINGS ETC.	576 LBS.	WINGS ETC.	397 LBS.
TOTAL	4,914 LBS.	TOTAL	8,859 LBS.
CULVERT EXCAVATION	LUMP SUM	CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MATERIAL	32 TONS	FOUNDATION COND. MATERIAL	56 TONS

PROJECT NO. U-6010
ALAMANCE COUNTY
STATION: 19+40.16 -L-

SHEET 1 OF 9

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 7' X 7' RCBC LEFT EXT. @ 90°SKEW AND DOUBLE 7' X 8' RCBC RIGHT EXT. @ 60°SKEW

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-1
1			3			TOTAL SHEETS
2			4			9

FILE: J:\U-6010\Structures\CADD\STRI_RCBC_EXS\U-6010_smu_str1_culv.dgn
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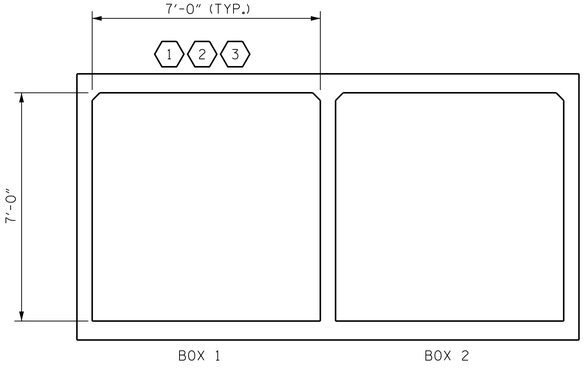
LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

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⟩	2.24	--	1.75	2.24	1	ROOF SLAB	3.50	2.55	1	ROOF SLAB	7.00	
		HL-93 (OPERATING)	N/A		2.90	--	1.35	2.90	1	ROOF SLAB	3.50	3.30	1	ROOF SLAB	7.00	
		HS-20 (INVENTORY)	36.000	⟨2⟩	2.24	80.64	1.75	2.24	1	ROOF SLAB	3.50	2.55	1	ROOF SLAB	7.00	
		HS-20 (OPERATING)	36.000		2.90	104.40	1.35	2.90	1	ROOF SLAB	3.50	3.30	1	ROOF SLAB	7.00	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.62	35.37	1.40	2.62	1	EXT WALL	3.50	3.68	1	EXT WALL	0.00	
		SNGARBS2	20.000		2.62	52.40	1.40	2.62	1	EXT WALL	3.50	3.66	1	EXT WALL	0.00	
		SNAGRIS2	22.000		2.62	57.64	1.40	2.62	1	EXT WALL	3.50	3.68	1	EXT WALL	0.00	
		SNCOTTS3	27.250	⟨3⟩	2.36	64.31	1.40	2.36	1	ROOF SLAB	3.50	2.67	1	ROOF SLAB	7.00	
		SNAGGRS4	34.925		2.52	88.01	1.40	2.52	1	FLOOR SLAB	7.00	2.76	1	FLOOR SLAB	7.00	
		SNS5A	35.550		2.62	93.14	1.40	2.62	1	EXT WALL	3.50	3.08	1	FLOOR SLAB	7.00	
		SNS6A	39.950		2.62	104.67	1.40	2.62	1	EXT WALL	3.50	3.24	1	FLOOR SLAB	7.00	
		SNS7B	42.000		2.62	110.04	1.40	2.62	1	EXT WALL	3.50	3.38	1	FLOOR SLAB	7.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.62	86.46	1.40	2.62	1	EXT WALL	3.50	3.47	1	FLOOR SLAB	7.00	
		TNT4A	33.075		2.62	86.66	1.40	2.62	1	EXT WALL	3.50	3.22	1	FLOOR SLAB	7.00	
		TNT6A	41.600		2.62	108.99	1.40	2.62	1	EXT WALL	3.50	2.98	1	FLOOR SLAB	7.00	
		TNT7A	42.000		2.62	110.04	1.40	2.62	1	EXT WALL	3.50	3.24	1	FLOOR SLAB	7.00	
		TNT7B	42.000		2.62	110.04	1.40	2.62	1	EXT WALL	3.50	3.08	1	FLOOR SLAB	7.00	
		TNAGRIT4	43.000		2.62	112.66	1.40	2.62	1	EXT WALL	3.50	2.97	1	FLOOR SLAB	7.00	
		TNAGT5A	45.000		2.62	117.90	1.40	2.62	1	FLOOR SLAB	7.00	2.97	1	FLOOR SLAB	7.00	
		TNAGT5B	45.000		2.55	114.75	1.40	2.55	1	FLOOR SLAB	7.00	2.86	1	FLOOR SLAB	7.00	



LRFR SUMMARY - LEFT EXTENSION

(LOOKING DOWNSTREAM)

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.

2.

3.

4.

⟨#⟩ 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. U-6010

ALAMANCE COUNTY

STATION: 19+40.16 -L-

SHEET 2 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-2
1			3			TOTAL SHEETS
2			4			9

STD. NO. LRFR5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

ASSEMBLED BY : JBT DATE : 08/21
CHECKED BY : DWG DATE : 08/21

DRAWN BY : CCJ 10/99
CHECKED BY : RWW 03/00
REV. 6/19 MAA/THC

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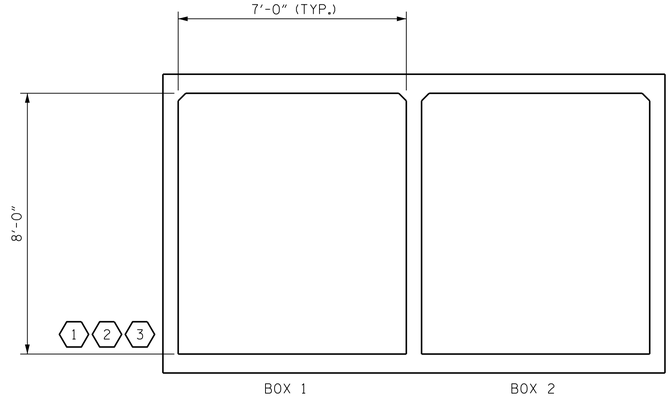
LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

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⟩	2.06	--	1.75	2.06	1	EXT WALL	0.00	2.75	1	ROOF SLAB	7.00	
		HL-93 (OPERATING)	N/A		2.68	--	1.35	2.68	1	EXT WALL	0.00	3.57	1	ROOF SLAB	7.00	
		HS-20 (INVENTORY)	36.000	⟨2⟩	2.06	74.16	1.75	2.06	1	EXT WALL	0.00	2.75	1	ROOF SLAB	7.00	
		HS-20 (OPERATING)	36.000		2.68	96.48	1.35	2.68	1	EXT WALL	0.00	3.57	1	ROOF SLAB	7.00	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.10	28.35	1.40	2.10	1	EXT WALL	0.00	2.69	1	EXT WALL	0.00	
		SNGARBS2	20.000		2.06	41.20	1.40	2.06	1	EXT WALL	0.00	2.68	1	EXT WALL	0.00	
		SNAGRIS2	22.000		2.07	45.54	1.40	2.07	1	EXT WALL	0.00	2.69	1	EXT WALL	0.00	
		SNCOTTS3	27.250	⟨3⟩	1.89	51.50	1.40	1.89	1	EXT WALL	0.00	2.63	1	EXT WALL	0.00	
		SNAGGRS4	34.925		1.95	68.10	1.40	1.95	1	EXT WALL	0.00	2.66	1	EXT WALL	0.00	
		SNS5A	35.550		2.00	71.10	1.40	2.00	1	EXT WALL	0.00	2.68	1	EXT WALL	0.00	
		SNS6A	39.950		2.02	80.70	1.40	2.02	1	EXT WALL	0.00	2.68	1	EXT WALL	0.00	
		SNS7B	42.000		2.03	85.26	1.40	2.03	1	EXT WALL	0.00	2.69	1	EXT WALL	0.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.04	67.32	1.40	2.04	1	EXT WALL	0.00	2.69	1	EXT WALL	0.00	
		TNT4A	33.075		1.95	64.50	1.40	1.95	1	EXT WALL	0.00	2.65	1	EXT WALL	0.00	
		TNT6A	41.600		1.98	82.37	1.40	1.98	1	EXT WALL	0.00	2.73	1	EXT WALL	0.00	
		TNT7A	42.000		2.01	84.42	1.40	2.01	1	EXT WALL	0.00	2.71	1	EXT WALL	0.00	
		TNT7B	42.000		2.00	84.00	1.40	2.00	1	EXT WALL	0.00	2.68	1	EXT WALL	0.00	
		TNAGRIT4	43.000		1.94	83.42	1.40	1.94	1	EXT WALL	0.00	2.65	1	EXT WALL	0.00	
		TNAGT5A	45.000		1.94	87.30	1.40	1.94	1	EXT WALL	0.00	2.69	1	EXT WALL	0.00	
		TNAGT5B	45.000		1.93	86.85	1.40	1.93	1	EXT WALL	0.00	2.65	1	EXT WALL	0.00	



LRFR SUMMARY - RIGHT EXTENSION

(LOOKING DOWNSTREAM)

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.

2.

3.

4.

⟨#⟩ 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. U-6010

ALAMANCE COUNTY

STATION: 19+40.16 -L-

SHEET 3 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-3
1			3			TOTAL SHEETS
2			4			9

STD. NO. LRFR5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

ASSEMBLED BY : JBT DATE : 08/21
CHECKED BY : DWG DATE : 08/21

DRAWN BY : CCJ 10/99
CHECKED BY : RWW 03/00
REV. 6/19 MAA/THC

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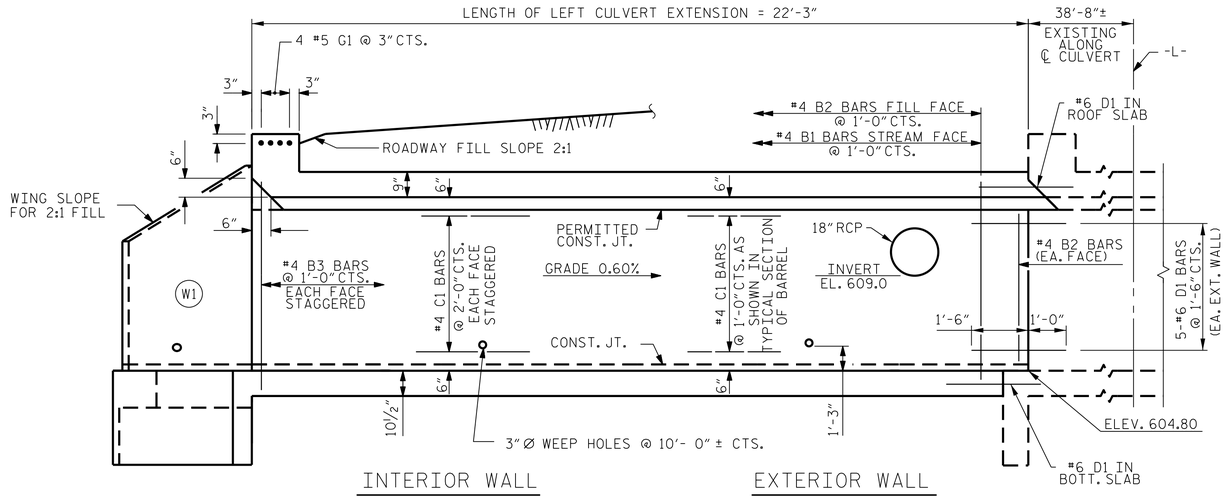
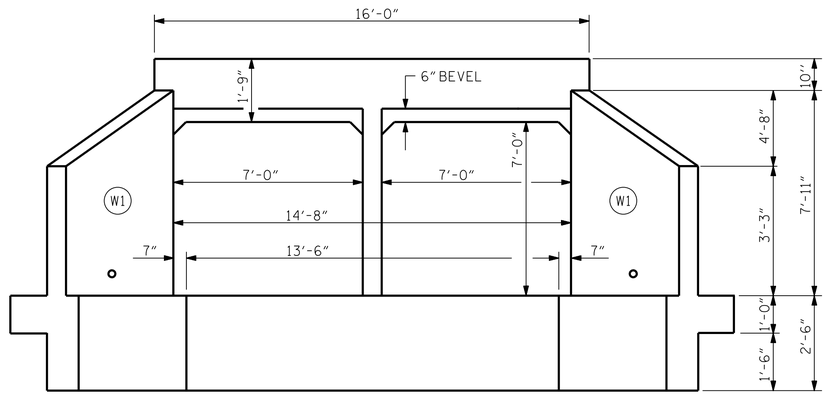
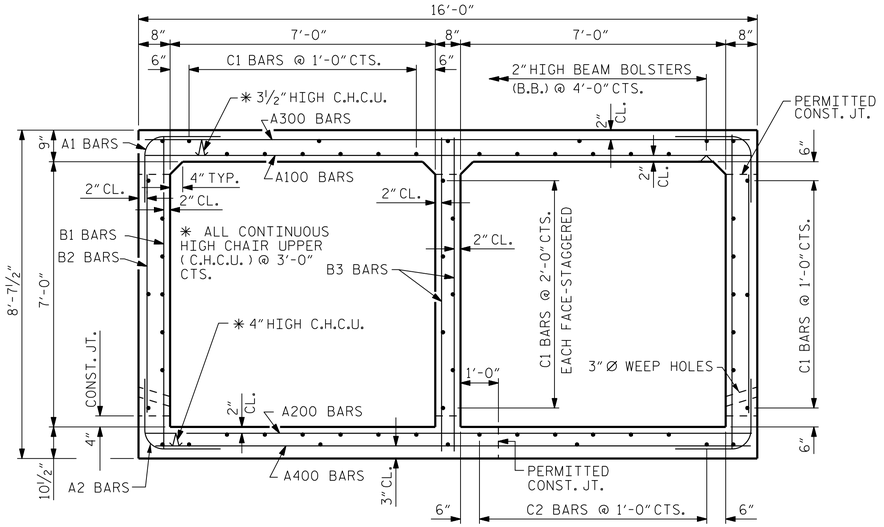


LEFT CULVERT EXTENSION SECTION NORMAL TO ROADWAY

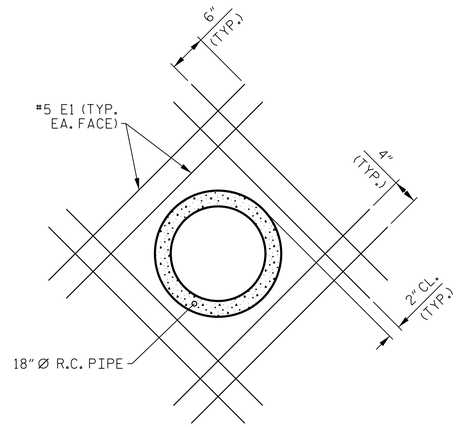


END ELEVATION



RIGHT ANGLE SECTION OF BARREL

THERE ARE 61 "C" BARS IN SECTION OF BARREL.



DETAIL OF REINFORCING AROUND 18" Ø PIPE

THE 18" DIA. RCP THROUGH THE EXTERIOR WALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. FIELD CUT AND BEND "B" AND "C" BARS AS NEEDED TO CLEAR PIPE

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+40.16 -L-

SHEET 4 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 7 FT. X 7 FT. CONCRETE BOX CULVERT LEFT EXTENSION 90°SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-4
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

FILE: J:\U-6010\Structures\CADD\STRI_RCBC_EXS2\U-6010_smu_str1_culv4.dgn
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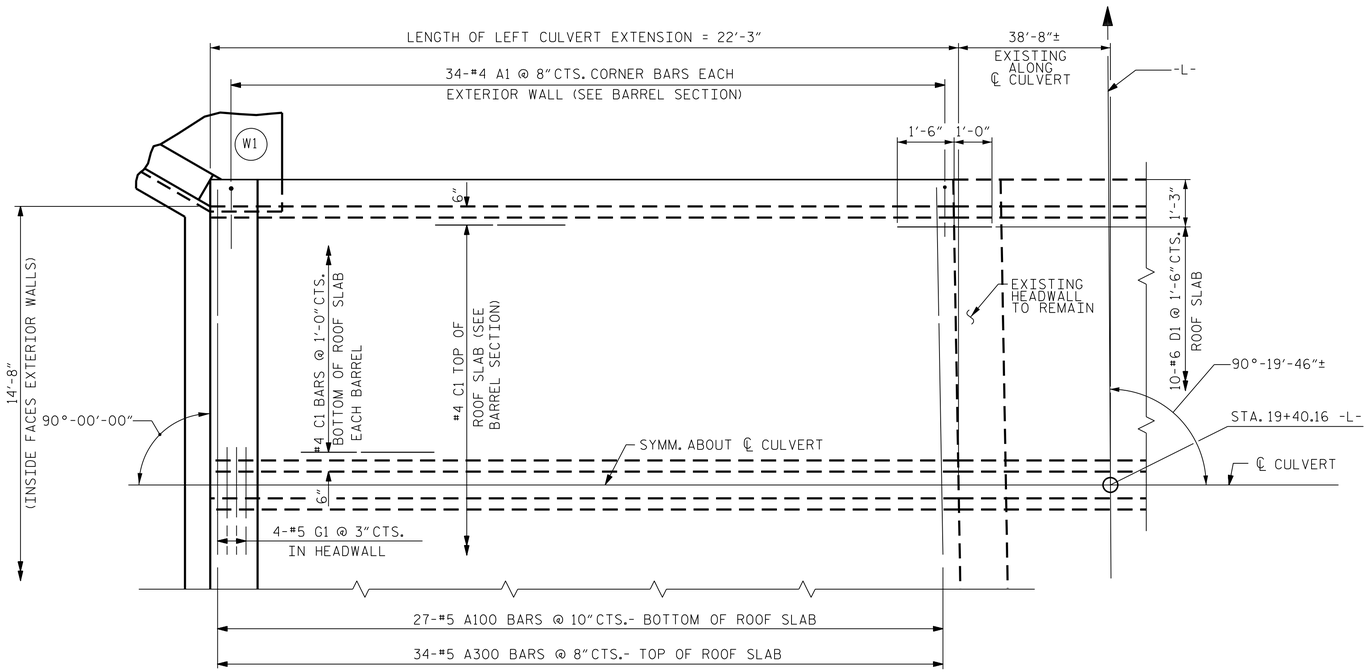
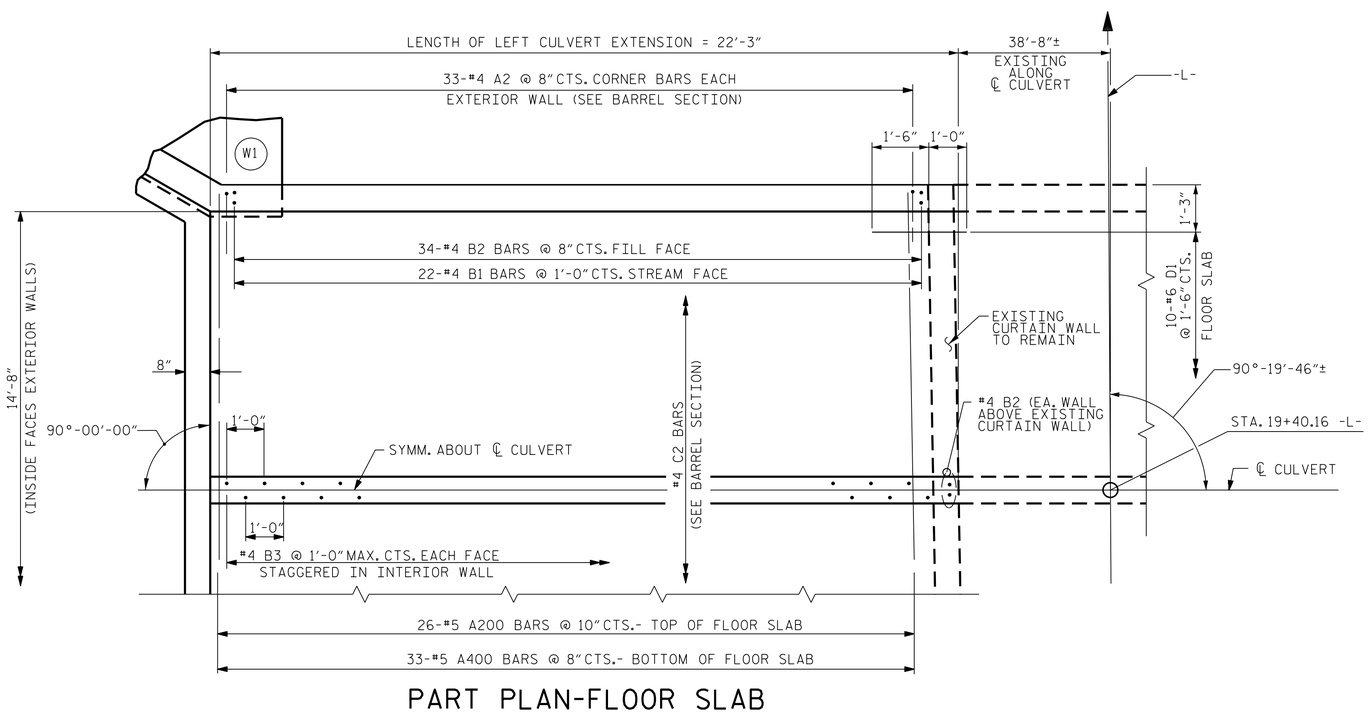


PART PLAN-ROOF SLAB



PART PLAN-FLOOR SLAB

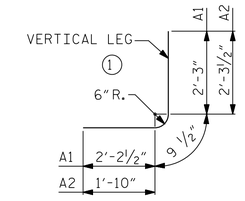
BILL OF MATERIAL

LEFT EXTENSION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	68	#4	1	5'-3"	238
A2	66	#4	1	4'-11"	217
A100	27	#5	STR	15'-8"	441
A200	26	#5	STR	15'-8"	425
A300	34	#5	STR	15'-8"	556
A400	33	#5	STR	15'-8"	539
B1	44	#4	STR	8'-3"	242
B2	74	#4	STR	6'-4"	313
B3	43	#4	STR	8'-3"	237
C1	42	#4	STR	21'-11"	615
C2	19	#4	STR	21'-3"	270
D1	30	#6	STR	2'-6"	113
E1	16	#5	STR	4'-0"	67
G1	4	#4	STR	15'-8"	65

REINFORCING STEEL 4,338 LBS

BAR TYPES



BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+40.16 -L-

SHEET 5 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 7 FT. X 7 FT. CONCRETE BOX CULVERT LEFT EXTENSION 90°SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

DRAWN BY :	JBT	DATE :	8-21
CHECKED BY :	DWG	DATE :	8-21
DESIGN ENGINEER :	JBT	DATE :	8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

REVISIONS

No.	BY:	DATE:	No.	BY:	DATE:
1			3		
2			4		

SHEET No. C1-5

TOTAL SHEETS 9

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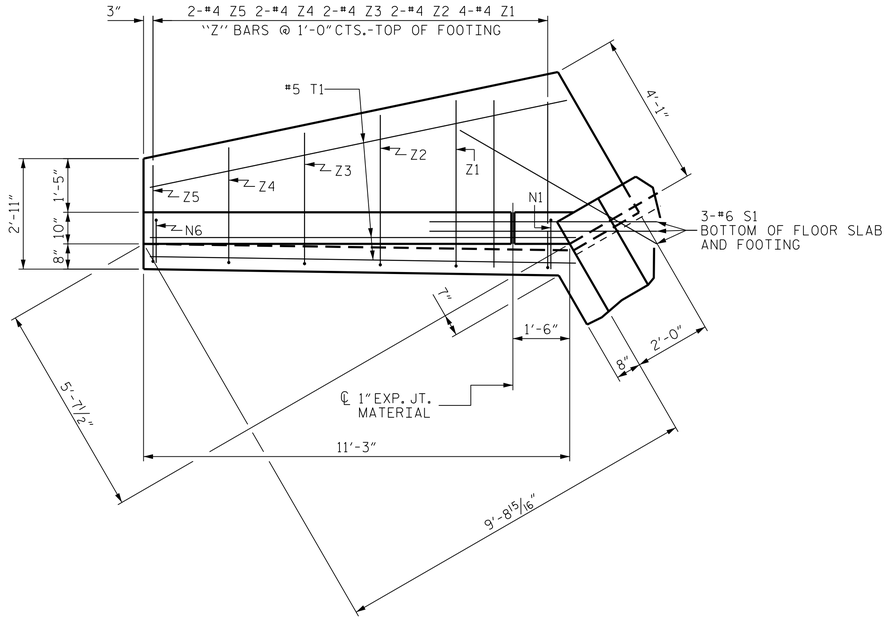
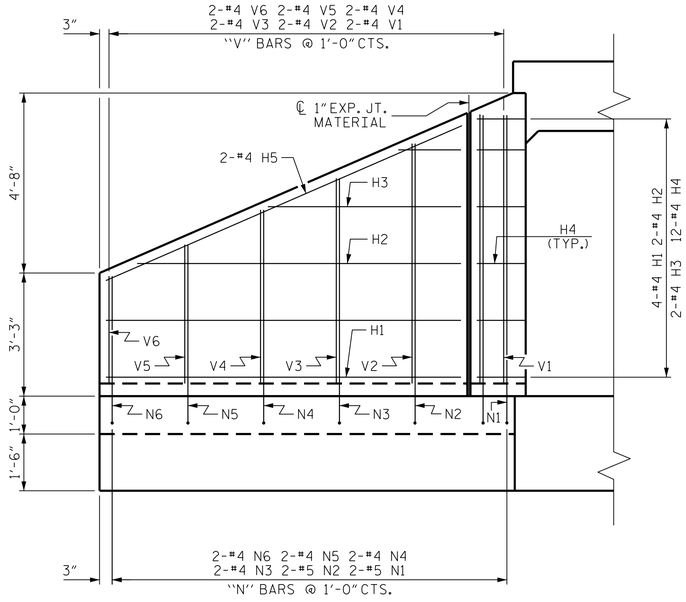
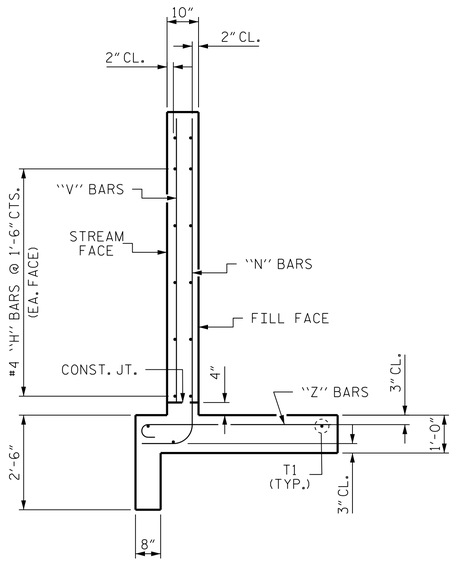


PLAN - WING W1

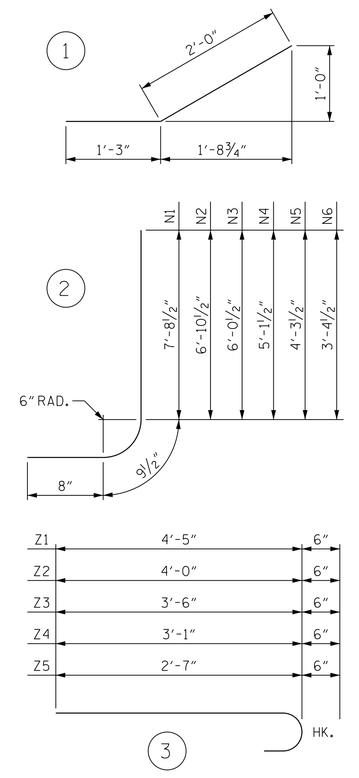


ELEVATION - WING W1



TYPICAL WING SECTION

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	#4	STR	9'-4"	50
H2	4	#4	STR	8'-6"	23
H3	4	#4	STR	5'-1"	14
H4	24	#4	1	3'-3"	52
H5	4	#4	STR	10'-3"	27
N1	4	#5	2	9'-2"	38
N2	4	#5	2	8'-4"	35
N3	4	#4	2	7'-6"	20
N4	4	#4	2	6'-7"	18
N5	4	#4	2	5'-9"	15
N6	4	#4	2	4'-10"	13
S1	6	#6	STR	6'-0"	54
T1	6	#5	STR	11'-3"	70
V1	4	#4	STR	7'-1"	19
V2	4	#4	STR	6'-4"	17
V3	4	#4	STR	5'-5"	14
V4	4	#4	STR	4'-7"	12
V5	4	#4	STR	3'-8"	10
V6	4	#4	STR	2'-10"	8
Z1	8	#4	3	4'-11"	26
Z2	4	#4	3	4'-6"	12
Z3	4	#4	3	4'-0"	11
Z4	4	#4	3	3'-7"	10
Z5	4	#4	3	3'-1"	8

TOTAL REINFORCING STEEL
FOR 2 WINGS 576 LBS

CLASS A CONCRETE
2 WINGS 8.6 CY
1 HEADWALL 0.7 CY
1 END CURTAIN WALL 2.3 CY
TOTAL 11.6 CY

PROJECT NO. U-6010
ALAMANCE COUNTY
STATION: 19+40.16 -L-

SHEET 6 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD INLET WINGS FOR CONCRETE BOX CULVERT

H = 7'-0" SLOPE = 2:1
90° SKEW

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-6
1			3			TOTAL SHEETS
2			4			9

STD. NO. CW9007

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NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY :	JBT	DATE : 8-21
CHECKED BY :	DWG	DATE : 8-21
DESIGN ENGINEER :	JBT	DATE : 8-21

ASSEMBLED BY :	JBT	DATE :	03/20
CHECKED BY :	DWG	DATE :	03/20
DRAWN BY : CCJ	10/99	REV. 6/19	MAA/THC
CHECKED BY : RWW	03/00		

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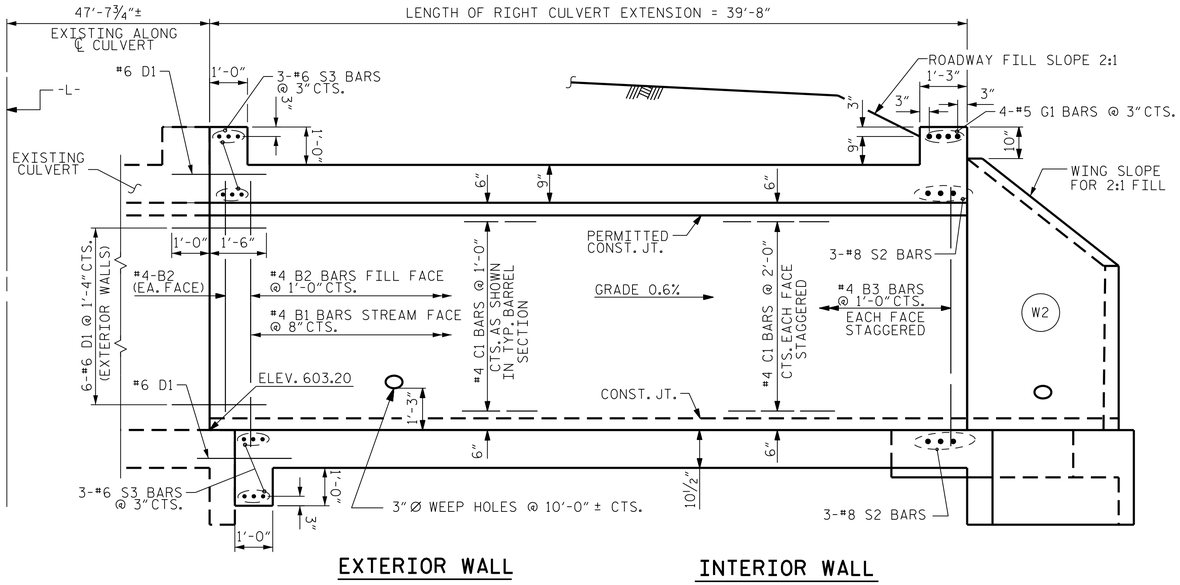
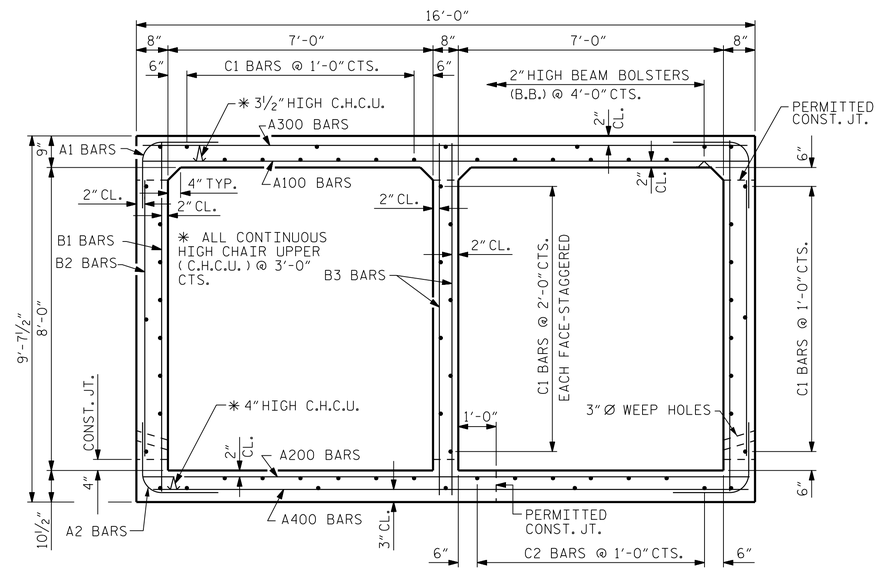
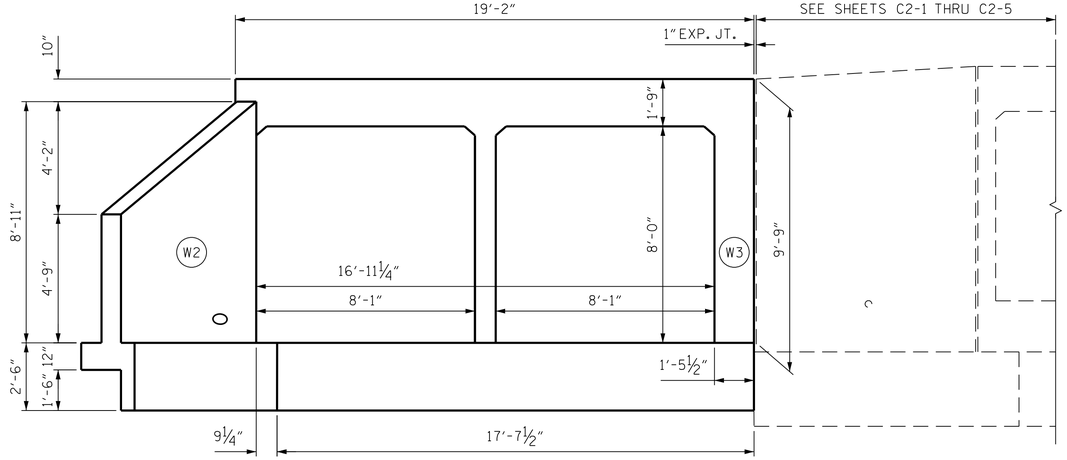


RIGHT CULVERT EXTENSION SECTION ALONG CENTERLINE CULVERT



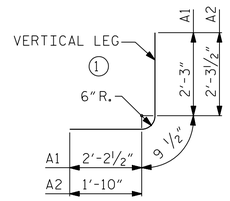
RIGHT ANGLE SECTION OF BARREL

THERE ARE 64 "C" BARS IN SECTION OF BARREL.



OUTLET END ELEVATION NORMAL TO SKEW

BAR TYPES



BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL - RIGHT EXTENSION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	118	#4	1	5'-3"	414
A2	116	#4	1	4'-11"	381
A100	37	#5	STR	15'-8"	605
A101	2	#5	STR	14'-4"	30
A102	2	#5	STR	12'-11"	27
A103	2	#5	STR	11'-6"	24
A104	2	#5	STR	10'-0"	21
A105	2	#5	STR	8'-7"	18
A106	2	#5	STR	7'-2"	15
A107	2	#5	STR	5'-8"	12
A108	2	#5	STR	4'-3"	9
A109	2	#5	STR	2'-10"	6
A110	2	#5	STR	1'-4"	3
A200	36	#5	STR	15'-8"	588
A201	2	#5	STR	14'-5"	30
A202	2	#5	STR	13'-0"	27
A203	2	#5	STR	11'-6"	24
A204	2	#5	STR	10'-1"	21
A205	2	#5	STR	8'-8"	18
A206	2	#5	STR	7'-2"	15
A207	2	#5	STR	5'-9"	12
A208	2	#5	STR	4'-4"	9
A209	2	#5	STR	2'-10"	6
A210	2	#5	STR	1'-5"	3
A300	46	#5	STR	15'-8"	752
A301	2	#5	STR	15'-1"	31
A302	2	#5	STR	13'-11"	29
A303	2	#5	STR	12'-9"	27
A304	2	#5	STR	11'-7"	24
A305	2	#5	STR	10'-5"	22
A306	2	#5	STR	9'-4"	19
A307	2	#5	STR	8'-2"	17
A308	2	#5	STR	7'-0"	15
A309	2	#5	STR	5'-10"	12
A310	2	#5	STR	4'-8"	10
A311	2	#5	STR	3'-6"	7
A312	2	#5	STR	2'-4"	5
A313	2	#5	STR	1'-3"	3
A400	45	#5	STR	15'-8"	735
A401	2	#5	STR	15'-0"	31
A402	2	#5	STR	13'-10"	29
A403	2	#5	STR	12'-8"	26
A404	2	#5	STR	11'-6"	24
A405	2	#5	STR	10'-4"	22
A406	2	#5	STR	9'-3"	19
A407	2	#5	STR	8'-1"	17
A408	2	#5	STR	6'-11"	14
A409	2	#5	STR	5'-9"	12
A410	2	#5	STR	4'-7"	10
A411	2	#5	STR	3'-5"	7
A412	2	#5	STR	2'-3"	5
A413	2	#5	STR	1'-2"	2
B1	116	#4	STR	9'-3"	717
B2	122	#4	STR	7'-4"	598
B3	80	#4	STR	9'-3"	494
C1	42	#4	STR	39'-4"	1,104
C2	19	#4	STR	38'-7"	490
D1	32	#6	STR	2'-6"	120
G1	4	#5	STR	18'-10"	79
S2	6	#8	STR	18'-1"	290
S3	12	#6	STR	18'-1"	326

REINFORCING STEEL 8,462 LBS

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+40.16 -L-

SHEET 7 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 7 FT. X 8 FT.
CONCRETE BOX CULVERT
RIGHT EXTENSION
60° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-7
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
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Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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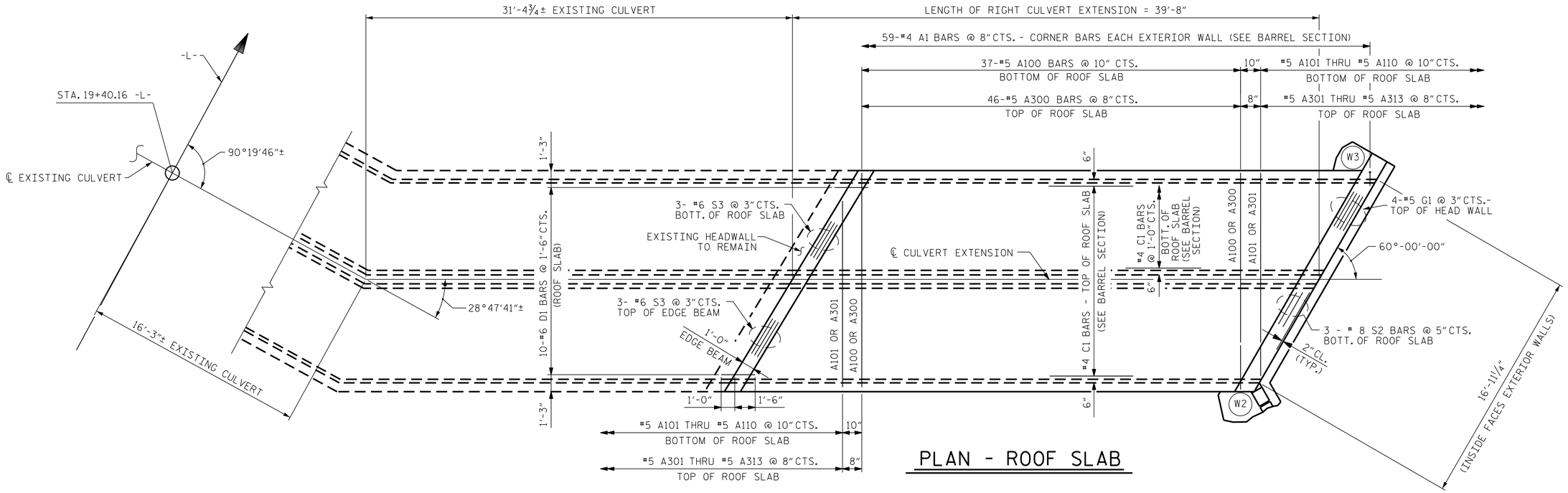
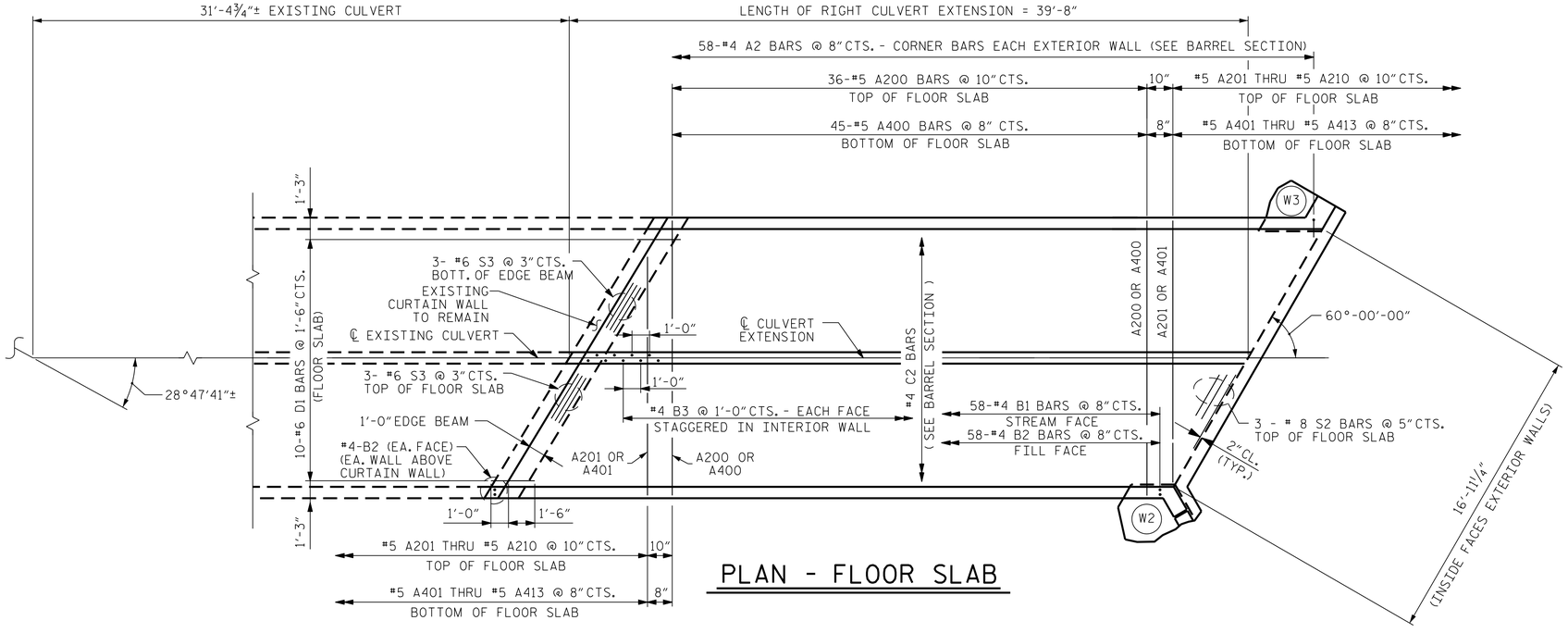
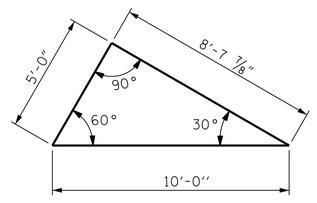


PLAN - ROOF SLAB



PLAN - FLOOR SLAB



SKEW TRIANGLE

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+40.16 -L-

SHEET 8 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 7 FT. X 8 FT.
CONCRETE BOX CULVERT
RIGHT EXTENSION
60°SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-8
1			3			TOTAL SHEETS
2			4			9

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CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
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Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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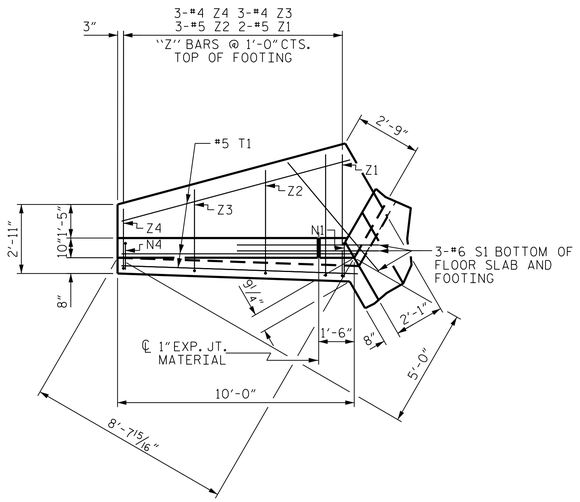
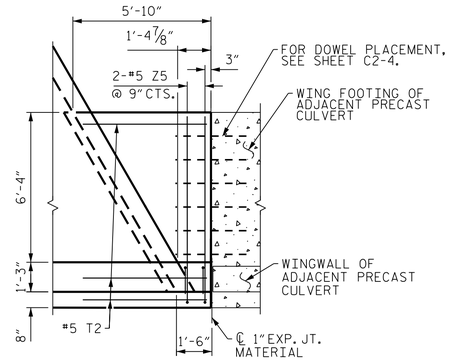


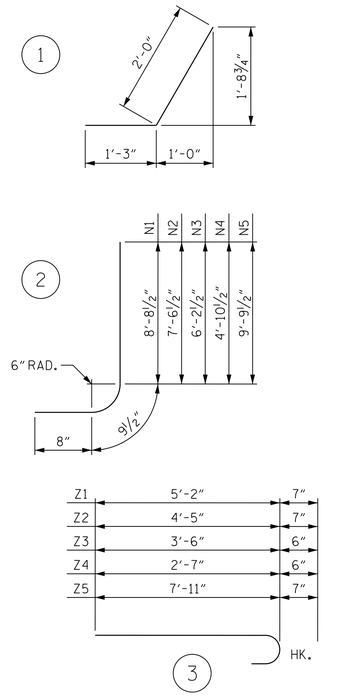
PLAN W2



PLAN W3

NOTE: COORDINATE FOOTING DOWEL PLACEMENT WITH ADJACENT PRECAST CULVERT CONSTRUCTION

BAR TYPES

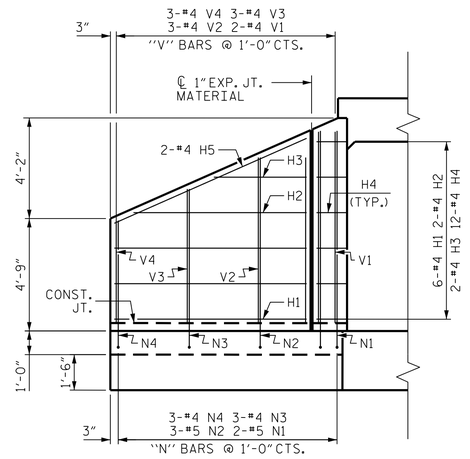


ALL BAR DIMENSIONS ARE OUT TO OUT.

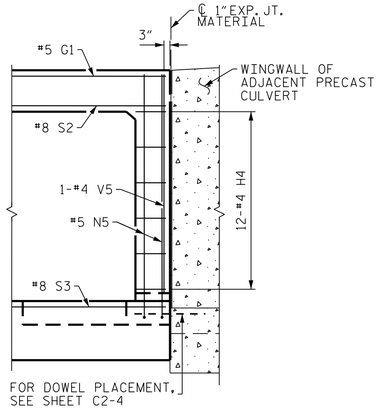
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	6	#4	STR	8'-1"	32
H2	2	#4	STR	7'-3"	10
H3	2	#4	STR	3'-11"	5
H4	24	#4	1	3'-3"	52
H5	2	#4	STR	8'-10"	12
N1	2	#5	2	10'-2"	21
N2	3	#5	2	9'-0"	28
N3	3	#4	2	7'-8"	15
N4	3	#4	2	6'-4"	13
N5	2	#5	2	11'-3"	23
S1	3	#6	STR	6'-0"	27
T1	3	#5	STR	10'-0"	31
T2	3	#5	STR	5'-4"	17
V1	2	#4	STR	8'-1"	11
V2	3	#4	STR	7'-0"	14
V3	3	#4	STR	5'-8"	11
V4	3	#4	STR	4'-4"	9
V5	1	#4	STR	9'-3"	6
Z1	2	#5	3	5'-9"	12
Z2	3	#5	3	5'-0"	16
Z3	3	#4	3	4'-0"	8
Z4	3	#4	3	3'-1"	6
Z5	2	#5	3	8'-6"	18

REINFORCING STEEL	397	LBS
FOR 2 WINGS		
CLASS A CONCRETE		
2 WINGS	5.5	CY
1 HEADWALL	0.9	CY
1 END CURTAIN WALL	1.8	CY
TOTAL	8.2	CY

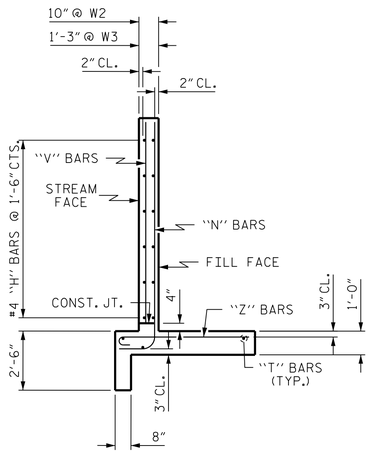


ELEVATION W2



ELEVATION W3

NOTE: FOR BARS G1, S2 AND S3, SEE BARREL SHEETS.



TYPICAL WING SECTION

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+40.16 -L-

SHEET 9 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OUTLETS WINGS FOR CONCRETE BOX CULVERT

H = 8'-0" SLOPE = 2:1

60° SKEW

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C1-9
1			3			TOTAL SHEETS
2			4			9

STD. NO. CW6008 MODIFIED

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NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

PLANS PREPARED BY :
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5540 Centerview Drive, Suite 217
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NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY :	JBT	DATE : 8-21
CHECKED BY :	DWG	DATE : 8-21
DESIGN ENGINEER :	JBT	DATE : 8-21

ASSEMBLED BY :	JBT	DATE : 03/20
CHECKED BY :	DWG	DATE : 03/20
DRAWN BY : CCJ	11/99	REV. 6/19 MAA/THC
CHECKED BY : RWW	03/00	

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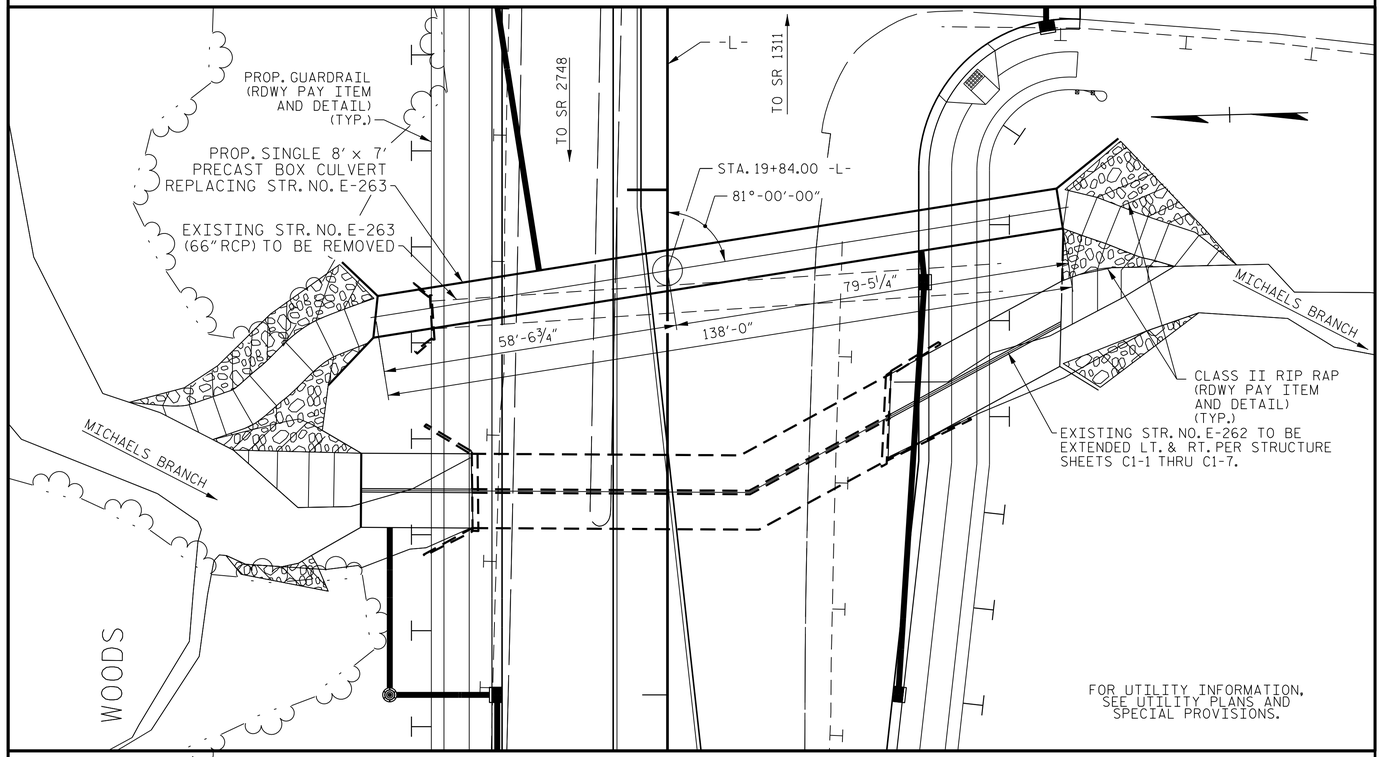
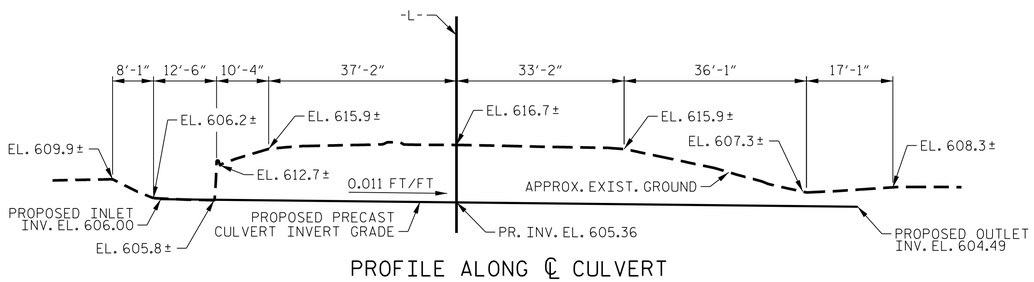
DATE: 9/2/2021 11:00:09 AM

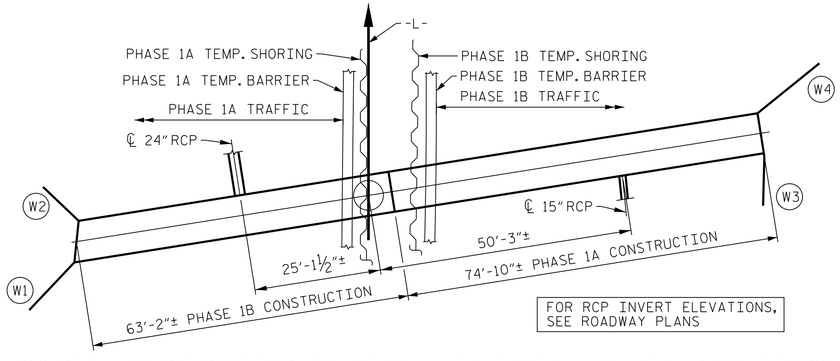
BM #2, X-CUT IN LIGHTPOLE BASE, STA. 20+69.57 -L-, 140.71' RIGHT, ELEV. 619.33 FT., N878474.48 E1844081.81



LOCATION SKETCH



PROFILE ALONG ℄ CULVERT



CULVERT CONSTRUCTION PHASING & INTERSECTING PIPE LOCATIONS

NOTES

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

FOR OTHER STANDARD DATA AND NOTES SEE SHEET S-N.

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

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

THE CONCRETE FOR THE PRECAST UNITS SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5000 P.S.I.. THE CONCRETE FOR THE HEADWALLS, WINGS AND END CURTAIN WALLS SHALL BE CLASS "A" CONCRETE AS PER THE STANDARD SPECIFICATIONS.

CAST-IN-PLACE CONCRETE SHALL BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS, AND CURTAIN WALL.
2. HEADWALLS, WING WALLS.

CONSTRUCTION PHASE IA COMBINED WINGWALL FOOTING SHALL BE POURED PRIOR TO PLACEMENT OF PHASE 1A PRECAST UNITS.

ALL CONSTRUCTION PHASE IB PRECAST UNITS SHALL BE PLACED PRIOR TO POURING THE PHASE 1B WINGS, END CURTAIN WALLS AND HEADWALLS. THE EXTERIOR PRECAST UNITS SHALL BE UNDERMINED TO PROVIDE FOR THE WING FOOTINGS TO BE POURED TO THE DEPTH AND DIMENSIONS AS SHOWN ON PLAN SHEET 2 OF 5.

FOUNDATION CONDITIONING MATERIAL SHALL HAVE A THICKNESS OF AT LEAST 1'-0" BELOW THE BOTTOM OF THE PRECAST UNITS. THE MATERIAL SHALL BE FORMED AND SCREEDED TO THE PROPER ELEVATION AT LEAST 1'-0" BEYOND THE SIDES OF THE PRECAST UNITS.

THE PRECAST UNITS SHALL BE CAREFULLY POSITIONED ON THE PREPARED FOUNDATION CONDITIONING MATERIAL, FEMALE END UPGRADE WITH THE MALE END FULLY INSERTED AND EACH JOINT CHECKED FOR ALIGNMENT PRIOR TO JACKING THE UNIT INTO PLACE. SATISFACTORY FITTING AND PROPER GRADE SHALL BE MAINTAINED AS THE WORK PROCEEDS.

WHEN ANY PRECAST UNIT IS DAMAGED DURING HANDLING, THE ENGINEER AT HIS DISCRETION SHALL REJECT THE UNIT AS BEING UNFIT FOR INSTALLATION AND THE CONTRACTOR SHALL REMOVE SUCH REJECTED UNIT FROM THE PROJECT. MINOR DAMAGE TO THE UNIT MAY BE REPAIRED BY THE CONTRACTOR WHEN PERMITTED BY THE ENGINEER.

CARE SHALL BE TAKEN DURING BACKFILL AND COMPACTION OPERATION TO MAINTAIN ALIGNMENT AND PREVENT DAMAGE TO THE JOINTS. UNITS WHICH BECOME MISALIGNED, SHOW EXCESSIVE SETTLEMENT, OR HAVE OTHERWISE BEEN DAMAGED BY THE CONTRACTOR'S OPERATION SHALL AT THE DISCRETION OF THE ENGINEER BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT OF TRANSPORTATION.

CONCRETE CHAMFERS ON EXTERIOR LONGITUDINAL EDGES OF THE PRECAST UNITS MAY BE AS PER THE FABRICATORS RECOMMENDATION, HOWEVER ALL WORKMANSHIP SHALL PROVIDE CONCRETE COVER OVER THE WELDED WIRE FABRIC AS SPECIFIED ON THE PLANS AND THE CONCRETE CHAMFERS CHOSEN SHALL IN NO WAY FUNCTIONALLY LESSEN THE DESIGN SHOWN ON THE PLANS.

DESIGN EARTH COVER = 4.65' MIN., 6.05' MAX.

FOR PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

RATING OF PRECAST REINFORCED CONCRETE BOX CULVERT IN ACCORDANCE WITH THE CURRENT EDITION OF AASHTO MANUAL FOR BRIDGE EVALUATION IS REQUIRED

THE COST FOR REMOVAL OF THE EXISTING 66"DIAMETER RCP SHALL BE INCLUDED IN THE PAY ITEM FOR "CULVERT EXCAVATION".

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

PRECAST REINFORCED CONCRETE BOX CULVERT @ STA. 19+84.00 -L-	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL BOX CULVERT	146 TONS

ROADWAY DATA

GRADE POINT ELEV. @ STA. 19+84.00 -L-	= 618.38
BED ELEV. @ STA. 19+84.00 -L-	= 605.36
ROADWAY SLOPES	= 2:1

HYDRAULIC DATA

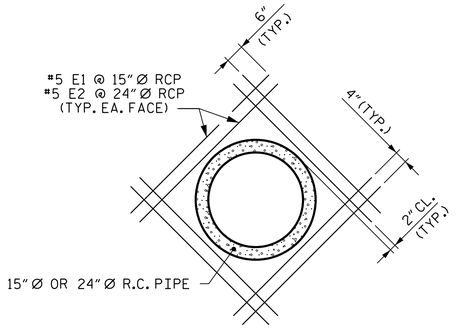
DESIGN DISCHARGE	= 1520 CFS
FROUENCY OF DESIGN FLOOD	= 50 YEARS
DESIGN HIGH WATER ELEVATION	= 615.4
DRAINAGE AREA	= 1.65 SQ. MI.
BASIC DISCHARGE (Q100)	= 1700 CFS
BASIC HIGH WATER ELEVATION	= 616.9

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= >2080 CFS
FROUENCY OF OVERTOPPING FLOOD	= >100 YEARS
OVERTOPPING FLOOD ELEVATION	= 618.5

OVERTOPS S.P. AT STA. 20+45.28 -L- LT.

NOTE:
EXISTING STR. NO. E-262 AND PROPOSED PRECAST STR. NO. E-263 HAVE COMMON HEADWATER ELEVATIONS SINCE THEY CONVEY THE SAME STREAM UNDER -L-.



DETAIL OF REINFORCING AROUND 15"Ø OR 24"Ø PIPE

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+84.00 -L-

SHEET 1 OF 5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD PRECAST REINFORCED CONCRETE BOX CULVERT SINGLE 8 FT.X 7 FT. 81° SKEW

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

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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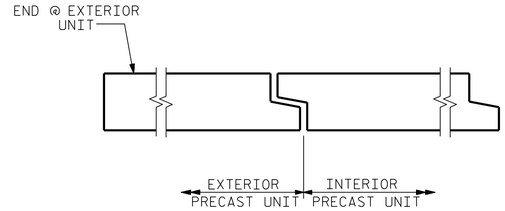
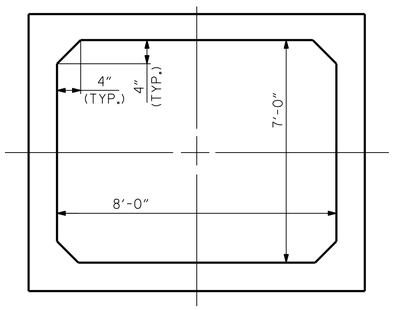


SECTION THRU TOP SLAB

(BOTTOM SLAB JOINT SIMILAR)

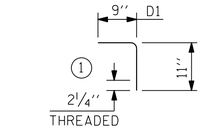
DETAIL A

** STRUCTURAL CONNECTION INSERTS 2 STRUT OR EQUAL; LENGTH = 4 1/2", INSERT WIDTH = 2", DIA. = 3/4". NO. REQUIRED 18

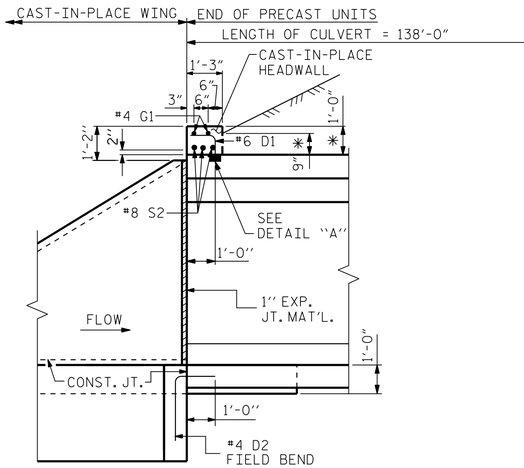


TYPICAL SECTION

BAR SCHEDULE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	18	#6	1	1'-8"	45
D2	9	#4	STR	3'-4"	20
D3	9	#4	STR	2'-7"	16
E1	16	#5	STR	3'-8"	61
E2	16	#5	STR	4'-7"	76
G1	3	#4	STR	9'-2"	18
G2	3	#4	STR	9'-0"	18
S2	2	#8	STR	9'-2"	49
S3	2	#8	STR	9'-0"	48
TOTAL				LBS.	351



BAR TYPE

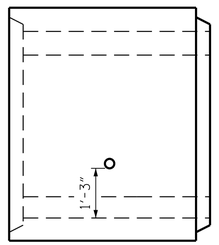


SECTION B-B

(SHOWING INLET END UNIT)

NOTE: NO END UNIT SHALL BE LESS THAN 3'-0".

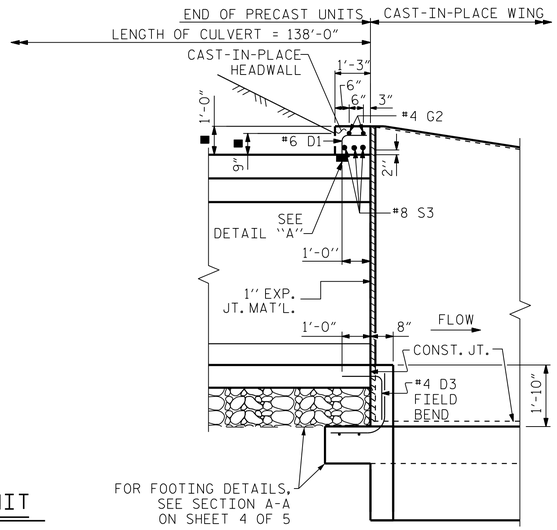
* 8" ROOF SLAB THICKNESS ASSUMED. FIELD ADJUST TOP OF HEADWALL TO MAINTAIN 1'-2" MAX. TO TOP OF WING FOR ROOF SLAB THICKNESS GREATER THAN 8".



TYPICAL PRECAST UNIT

(INTERIOR UNIT SHOWN)

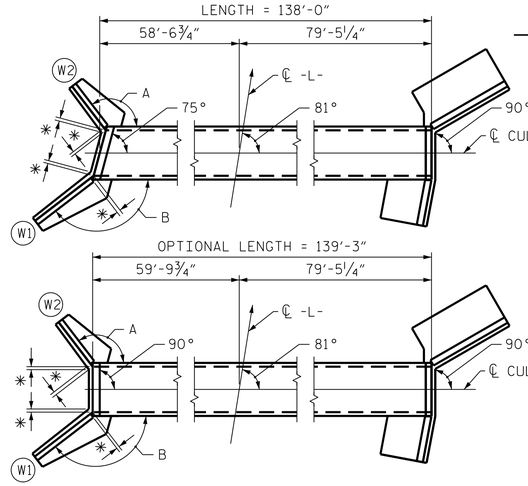
ELEVATION



SECTION C-C

(SHOWING OUTLET END UNIT)

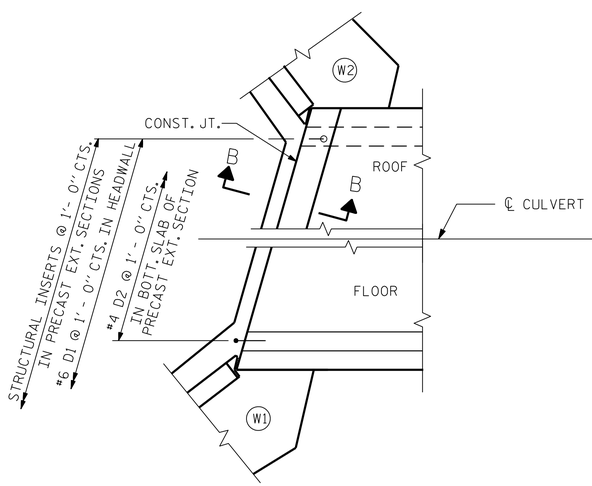
■ 8" ROOF SLAB THICKNESS ASSUMED. FIELD ADJUST TOP OF HEADWALL TO ALIGN WITH TOP OF WING FOR ROOF SLAB THICKNESS GREATER THAN 8".



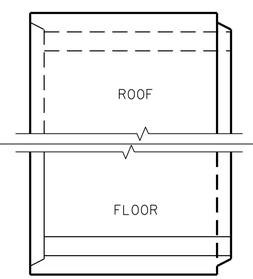
THE CONTRACTOR, AT HIS OPTION, MAY USE LEFT END OF PRECAST BOX AT 90°SKEW WITH OPTIONAL LENGTH SHOWN. ANY ADDITIONAL COST DUE TO THE USE OF THE OPTION WILL BE PAID FOR BY THE CONTRACTOR.

IF THE OPTION OF 90°SKEWED LEFT END OF THE PRECAST BOX IS USED, DIMENSIONS MARKED WITH AN ASTERISK WILL NEED ADJUSTMENT.

ANGLES "A" AND "B" SHALL BE MAINTAINED.

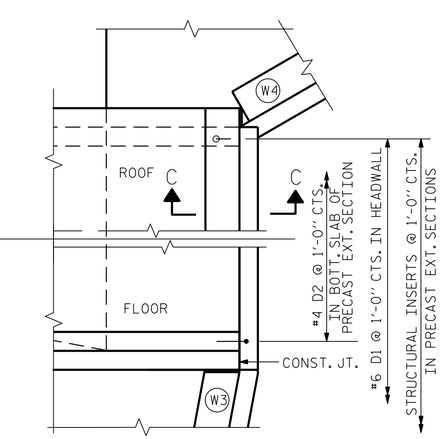


PLAN - INLET END UNIT



PLAN - TYPICAL PRECAST UNIT

(INTERIOR UNIT SHOWN)



PLAN - OUTLET END UNIT

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+84.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD PRECAST REINFORCED CONCRETE BOX CULVERT SINGLE 8 FT. X 7 FT. 81° SKEW

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY :	JBT	DATE :	8-21
CHECKED BY :	DWG	DATE :	8-21
DESIGN ENGINEER :	JBT	DATE :	8-21

ASSEMBLED BY :	JBT	DATE :	03/20
CHECKED BY :	DWG	DATE :	03/20
DRAWN BY : FCJ 8/22/89	REV. 2/02		RWW/JTE
CHECKED BY : CRK 8/22/89	REV. 7/08		MAA/GM
	REV. 6/19		MAA/THC

STD. NO. PBCI MODIFIED

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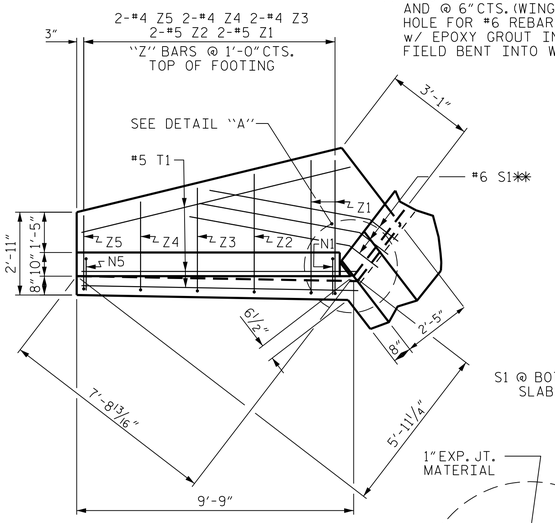
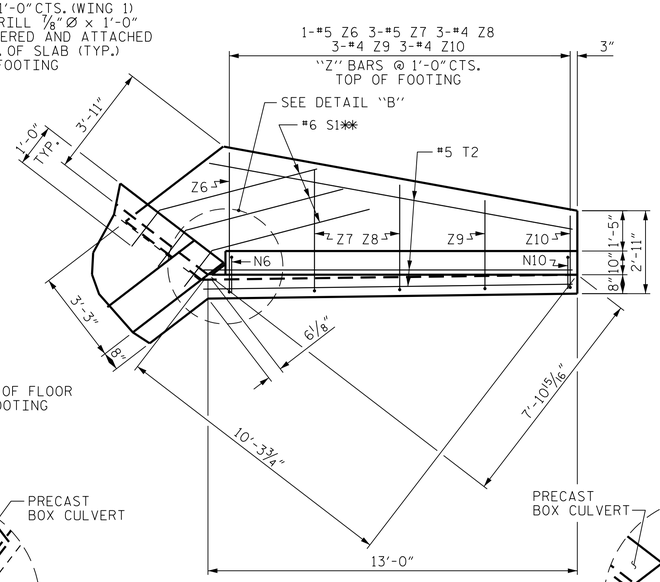


PLAN W2

✱✱ 3-#6 S1 BARS x 6'-0" @ 1'-0" CTS. (WING 1) AND @ 6" CTS. (WING 2). DRILL ⅞" Ø x 1'-0" HOLE FOR #6 REBAR CENTERED AND ATTACHED w/ EPOXY GROUT IN BOT. OF SLAB (TYP.) FIELD BENT INTO WING FOOTING

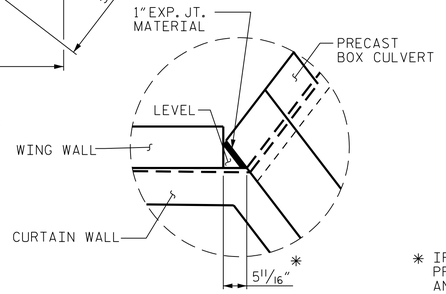
S1 @ BOTTOM OF FLOOR SLAB & FOOTING



PLAN W1

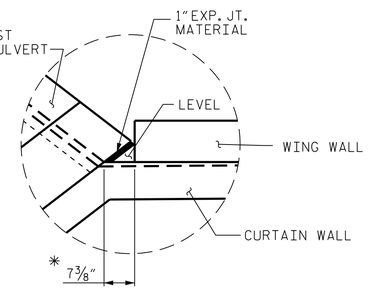
NOTE:

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.



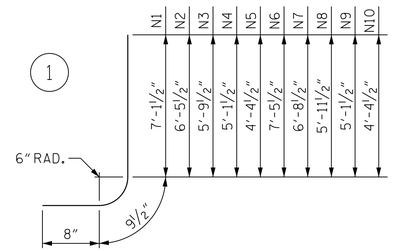
DETAIL "A"

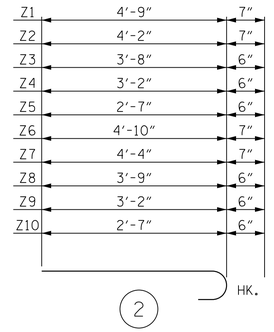
✱ IF THE OPTION OF 90° SKEWED ENDS OF THE PRECAST BOX IS USED, DIMENSIONS MARKED WITH AN ASTERISK WILL NEED ADJUSTMENT.



DETAIL "B"

BAR TYPES



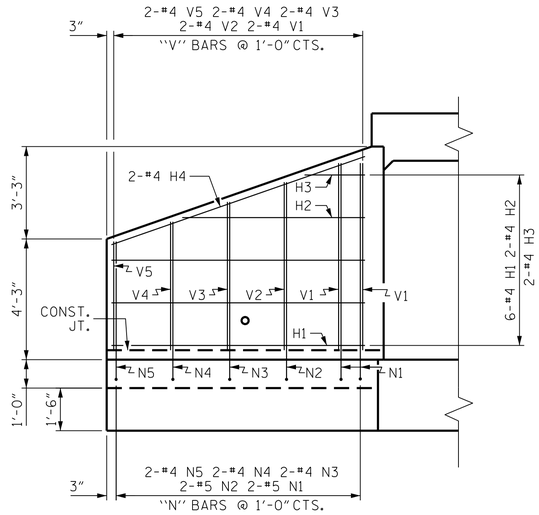


ALL BAR DIMENSIONS ARE OUT TO OUT.

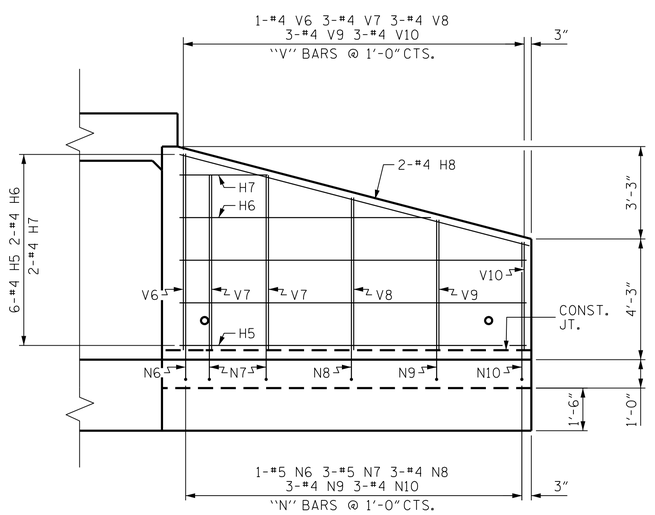
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	6	#4	STR	8'-11"	36
H2	2	#4	STR	6'-5"	9
H3	2	#4	STR	2'-1"	3
H4	2	#4	STR	9'-5"	13
H5	6	#4	STR	12'-2"	49
H6	2	#4	STR	8'-10"	12
H7	2	#4	STR	3'-1"	4
H8	2	#4	STR	12'-8"	17
N1	2	#5	1	8'-7"	18
N2	2	#5	1	7'-11"	17
N3	2	#4	1	7'-3"	10
N4	2	#4	1	6'-7"	9
N5	2	#4	1	5'-10"	8
N6	1	#5	1	8'-11"	9
N7	3	#5	1	8'-2"	26
N8	3	#4	1	7'-5"	15
N9	3	#4	1	6'-7"	13
N10	3	#4	1	5'-10"	12
S1	6	#6	STR	6'-0"	54
T1	3	#5	STR	9'-9"	31
T2	3	#5	STR	13'-0"	41
V1	2	#4	STR	6'-7"	9
V2	2	#4	STR	5'-11"	8
V3	2	#4	STR	5'-3"	7
V4	2	#4	STR	4'-6"	6
V5	2	#4	STR	3'-10"	5
V6	1	#4	STR	6'-11"	5
V7	3	#4	STR	6'-2"	12
V8	3	#4	STR	5'-4"	11
V9	3	#4	STR	4'-7"	9
V10	3	#4	STR	3'-10"	8
Z1	2	#5	2	5'-4"	11
Z2	2	#5	2	4'-9"	10
Z3	2	#4	2	4'-2"	6
Z4	2	#4	2	3'-8"	5
Z5	2	#4	2	3'-1"	4
Z6	1	#5	2	5'-5"	6
Z7	3	#5	2	4'-11"	15
Z8	3	#4	2	4'-3"	9
Z9	3	#4	2	3'-8"	7
Z10	3	#4	2	3'-1"	8

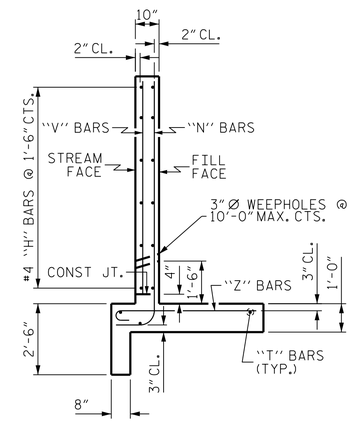
REINFORCING STEEL FOR 2 WINGS		565 LBS
CLASS A CONCRETE		
2 WINGS	9.1	CY
1 HEADWALL	0.4	CY
1 END CURTAIN WALL	1.3	CY
TOTAL	10.8	CY



ELEVATION W2



ELEVATION W1



TYPICAL WING SECTION

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+84.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STD. INLET WINGS MODIFIED FOR PRECAST CONCRETE BOX CULVERT

H = 7'-0" SLOPE = 2:1

75° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

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

ASSEMBLED BY :	JBT	DATE :	08/21
CHECKED BY :	DWG	DATE :	08/21
DRAWN BY : CCJ	12/99	REV. 6/19	MAA/THC
CHECKED BY : RWW	03/00		

DRAWN BY :	JBT	DATE :	8-21
CHECKED BY :	DWG	DATE :	8-21
DESIGN ENGINEER :	JBT	DATE :	8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STD. NO. CW7507 MODIFIED

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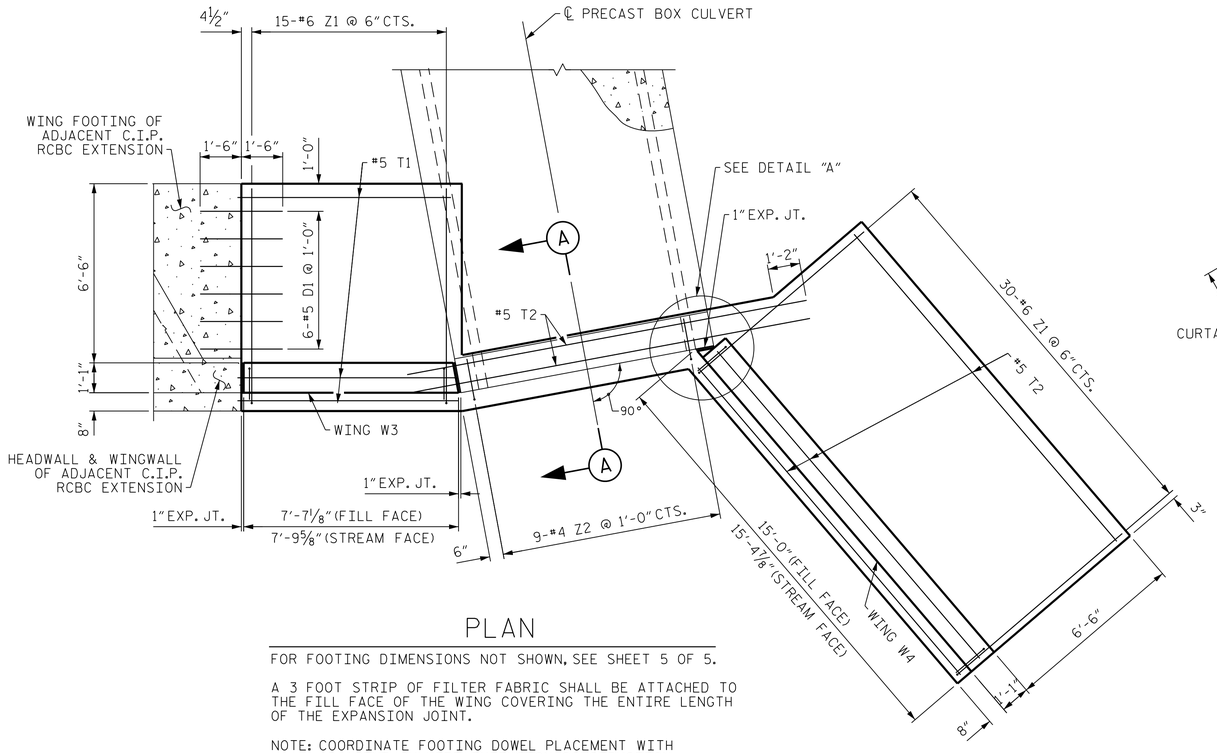
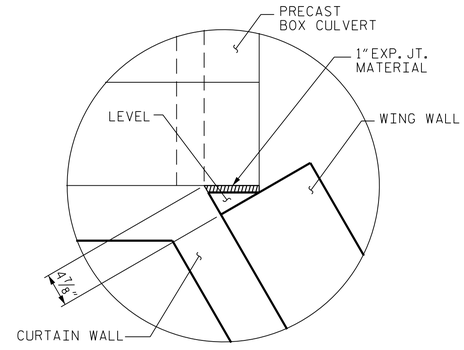


PLAN

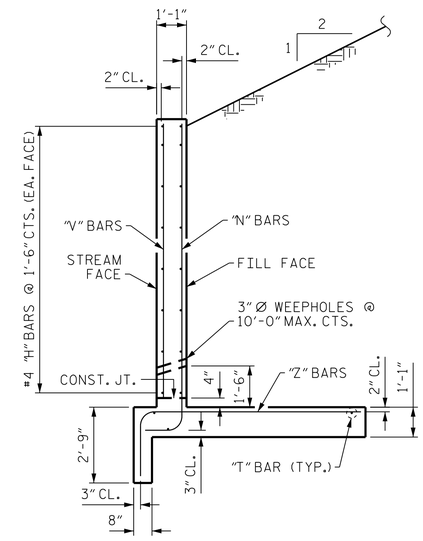
FOR FOOTING DIMENSIONS NOT SHOWN, SEE SHEET 5 OF 5.

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.

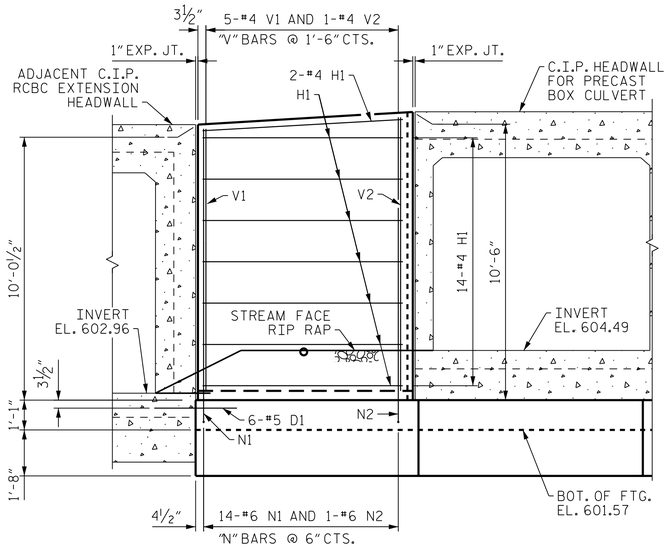
NOTE: COORDINATE FOOTING DOWEL PLACEMENT WITH ADJACENT CULVERT EXTENSION CONSTRUCTION



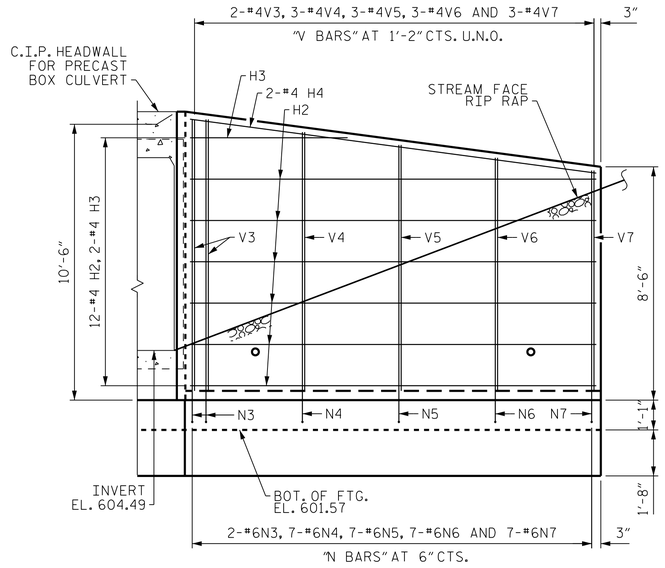
DETAIL "A"



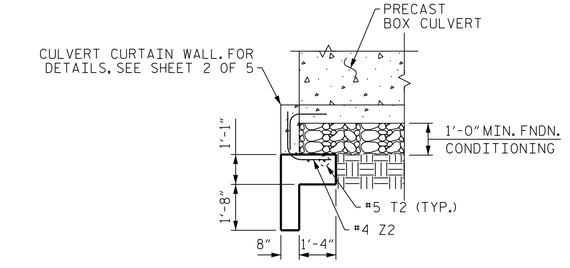
TYPICAL WING SECTION



ELEVATION - W3



ELEVATION - W4



SECTION A-A

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 19+84.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OUTLET WINGS PRECAST CONCRETE BOX CULVERT

H = 7'-0" SLOPE = 2:1

90° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

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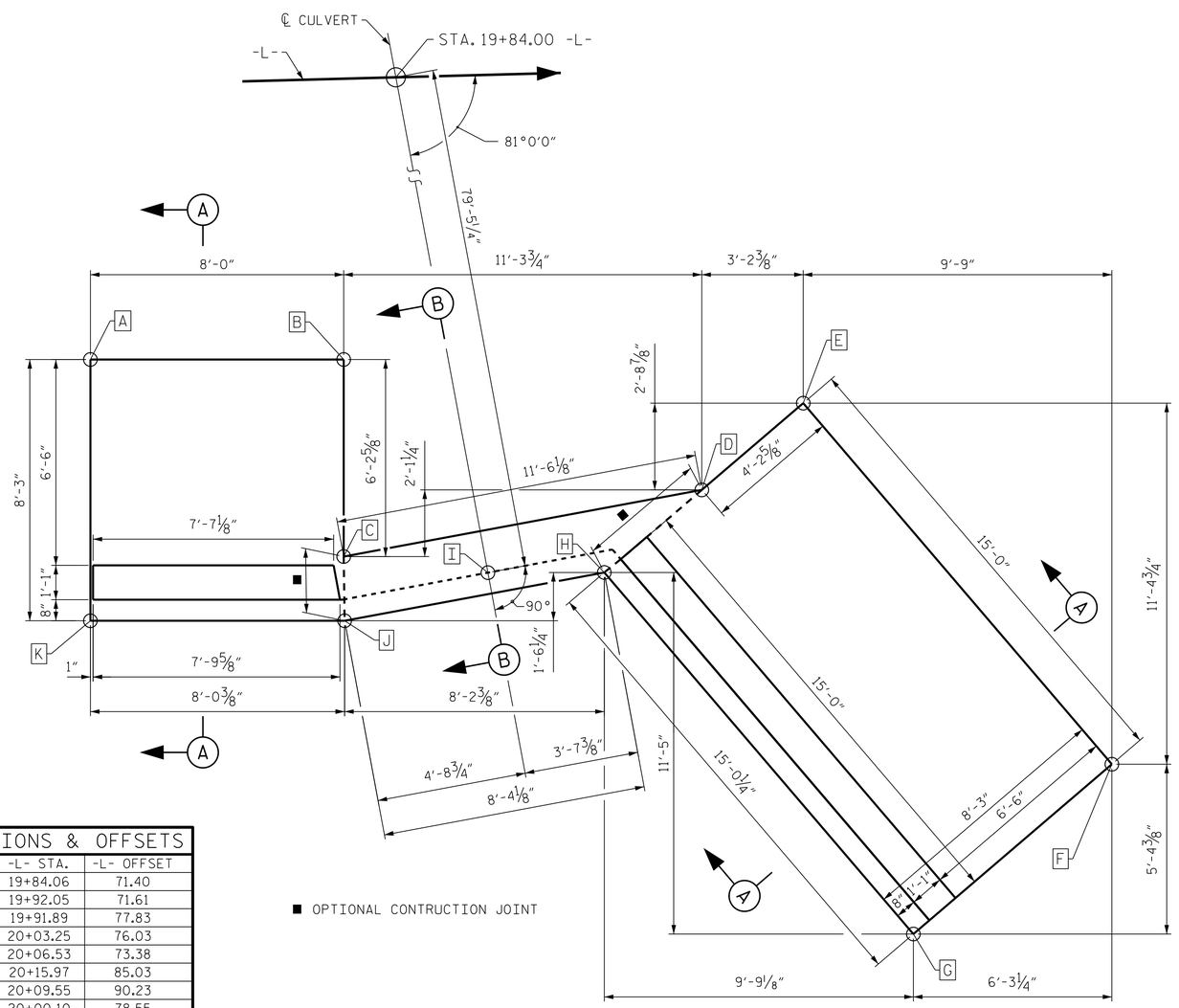
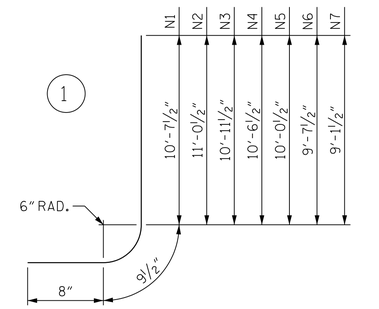
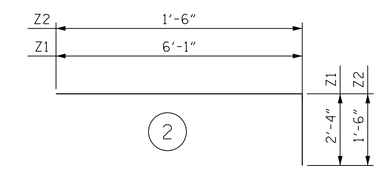


■ OPTIONAL CONTRUCTION JOINT

STATIONS & OFFSETS		
POINT	-L- STA.	-L- OFFSET
A	19+84.06	71.40
B	19+92.05	71.61
C	19+91.89	77.83
D	20+03.25	76.03
E	20+06.53	73.38
F	20+15.97	85.03
G	20+09.55	90.23
H	20+00.10	78.55
I	19+96.43	78.46
J	19+91.86	79.86
K	19+83.83	79.64

BAR TYPES





ALL BAR DIMENSIONS ARE OUT TO OUT.

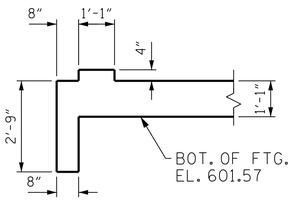
BILL OF MATERAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	6	#5	STR	3'-0"	19
H1	16	#4	STR	7'-3"	77
H2	12	#4	STR	14'-8"	118
H3	2	#4	STR	5'-7"	7
H4	2	#4	STR	14'-9"	20
N1	14	#6	1	12'-1"	254
N2	1	#6	1	12'-6"	19
N3	2	#6	1	12'-5"	37
N4	7	#6	1	12'-0"	126
N5	7	#6	1	11'-6"	121
N6	7	#6	1	11'-1"	117
N7	7	#6	1	10'-7"	111
T1	3	#5	STR	7'-8"	24
T2	5	#5	STR	14'-8"	76
V1	5	#4	STR	9'-6"	32
V2	1	#4	STR	9'-11"	7
V3	2	#4	STR	9'-10"	13
V4	3	#4	STR	9'-4"	19
V5	3	#4	STR	8'-11"	18
V6	3	#4	STR	8'-5"	17
V7	3	#4	STR	8'-0"	16
Z1	45	#6	2	8'-5"	569
Z2	9	#4	2	3'-0"	18

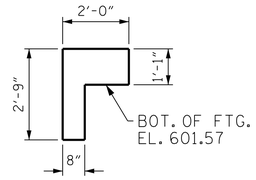
REINFORCING STEEL
FOR 2 WINGS 1835 LBS

CLASS A CONCRETE
1 FOOTING 10.0 CY
2 WING STEMS 8.8 CY
TOTAL 18.8 CY

PLAN - WINGS W3 & W4 COMBINED FOOTING LAYOUT



SECTION A-A



SECTION B-B

PROJECT NO. U-6010
ALAMANCE COUNTY
STATION: 19+84.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OUTLET WINGS COMBINED FOOTING

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

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

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

FILE: J:\U-6010\Structures\CADD\STR2_PCRC\U-6010_smu_str2_cul5.dgn
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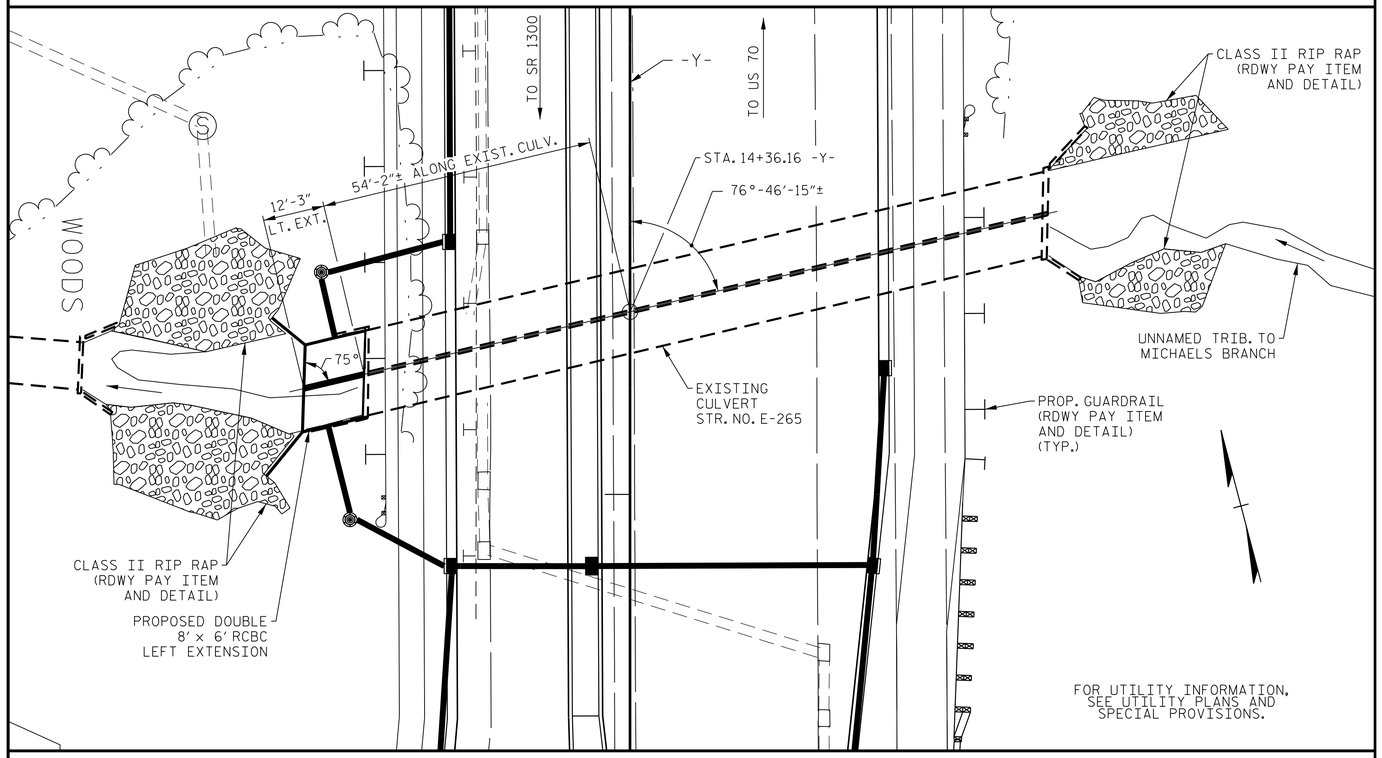
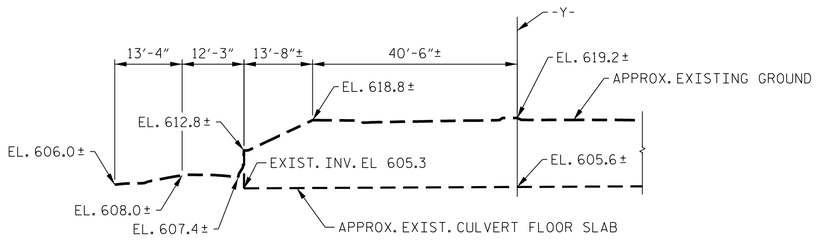
BM #2, X-CUT IN LIGHTPOLE BASE, STA. 15+54.69 -Y-, 188.64' LEFT, ELEV. 619.33 FT., N878474.48 E1844081.81



LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

ROADWAY DATA

GRADE POINT ELEV. @ STA. 14+36.16 -Y-	= 619.56
BED ELEV. @ STA. 14+36.16 -Y-	= 605.6±
ROADWAY SLOPES	= 2:1

HYDRAULIC DATA

DESIGN DISCHARGE	= 370 CFS
FROQUENCY OF DESIGN FLOOD	= 25 YEARS
DESIGN HIGH WATER ELEVATION	= 612.2
DRAINAGE AREA	= 0.35 SQ. MI.
BASIC DISCHARGE (Q100)	= 400 CFS
BASIC HIGH WATER ELEVATION	= 612.3

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1400 CFS
FROQUENCY OF OVERTOPPING FLOOD	= >500 YEARS
OVERTOPPING FLOOD ELEVATION	= 619.2

OVERTOPS S.P. AT STA. 13+85.42 -Y- RT.

TOTAL STRUCTURE QUANTITIES

LEFT EXTENSION

CLASS A CONCRETE	
BARREL @ 1.65 CY/FT	20.2 C.Y.
WINGS ETC.	12.3 C.Y.
TOTAL	32.5 C.Y.
REINFORCING STEEL	
BARREL	3,411 LBS.
WINGS ETC.	466 LBS.
TOTAL	3,877 LBS.
CULVERT EXCAVATION	LUMP SUM
FOUNDATION COND. MATERIAL	19 TONS

NOTES:

ASSUMED LIVE LOAD ----------HL93 OR ALTERNATE LOADING.

DESIGN FILL: 5.9 FT.

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

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

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.

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

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE 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 THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

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 REACH A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

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

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 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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 14+36.16 -Y-

SHEET 1 OF 5

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 8 FT. X 6 FT. CONCRETE BOX CULVERT EXTENSION 75° SKEW

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C3-1
1			3			TOTAL SHEETS
2			4			5

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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⟩	2.26	--	1.75	2.26	1	FLOOR SLAB	8.00	2.79	1	ROOF SLAB	8.00	
		HL-93 (OPERATING)	N/A		2.93	--	1.35	2.93	1	FLOOR SLAB	8.00	3.61	1	ROOF SLAB	8.00	
		HS-20 (INVENTORY)	36.000	⟨2⟩	2.26	81.36	1.75	2.26	1	FLOOR SLAB	8.00	2.79	1	ROOF SLAB	8.00	
		HS-20 (OPERATING)	36.000		2.93	105.48	1.35	2.93	1	FLOOR SLAB	8.00	3.61	1	ROOF SLAB	8.00	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.98	53.73	1.40	3.98	1	ROOF SLAB	4.00	4.72	1	ROOF SLAB	8.00	
		SNGARBS2	20.000		3.73	74.60	1.40	3.73	1	ROOF SLAB	4.00	4.37	1	ROOF SLAB	8.00	
		SNAGRIS2	22.000		3.79	83.38	1.40	3.79	1	FLOOR SLAB	8.00	4.60	1	ROOF SLAB	8.00	
		SNCOTTS3	27.250		2.33	63.49	1.40	2.33	1	FLOOR SLAB	8.00	2.93	1	ROOF SLAB	8.00	
		SNAGGRS4	34.925		2.31	80.68	1.40	2.31	1	FLOOR SLAB	8.00	2.93	1	FLOOR SLAB	8.00	
		SNS5A	35.550		2.48	88.16	1.40	2.48	1	FLOOR SLAB	8.00	3.11	1	FLOOR SLAB	8.00	
		SNS6A	39.950		2.58	103.07	1.40	2.58	1	FLOOR SLAB	8.00	3.25	1	FLOOR SLAB	8.00	
		SNS7B	42.000		2.67	112.14	1.40	2.67	1	FLOOR SLAB	8.00	3.36	1	FLOOR SLAB	8.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.90	95.70	1.40	2.90	1	FLOOR SLAB	8.00	3.66	1	FLOOR SLAB	8.00	
		TNT4A	33.075		2.54	84.01	1.40	2.54	1	FLOOR SLAB	8.00	3.29	1	FLOOR SLAB	8.00	
		TNT6A	41.600		2.48	103.17	1.40	2.48	1	FLOOR SLAB	8.00	3.14	1	FLOOR SLAB	8.00	
		TNT7A	42.000		2.69	112.98	1.40	2.69	1	FLOOR SLAB	8.00	3.40	1	FLOOR SLAB	8.00	
		TNT7B	42.000		2.48	104.16	1.40	2.48	1	FLOOR SLAB	8.00	3.12	1	FLOOR SLAB	8.00	
		TNAGRIT4	43.000		2.31	99.33	1.40	2.31	1	FLOOR SLAB	8.00	2.95	1	FLOOR SLAB	8.00	
		TNAGT5A	45.000		2.30	103.50	1.40	2.30	1	FLOOR SLAB	8.00	2.95	1	FLOOR SLAB	8.00	
		TNAGT5B	45.000	⟨3⟩	2.18	98.10	1.40	2.18	1	FLOOR SLAB	8.00	2.76	1	FLOOR SLAB	8.00	

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.

2.

3.

4.

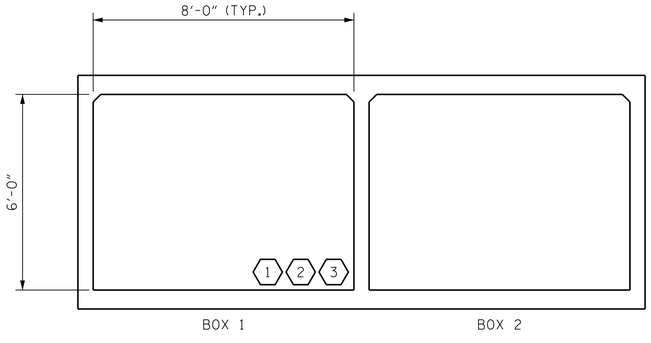
⟨#⟩ CONTROLLING LOAD RATING

⟨1⟩ DESIGN LOAD RATING (HL-93)

⟨2⟩ DESIGN LOAD RATING (HS-20)

⟨3⟩ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY

(LOOKING DOWNSTREAM)

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 14+36.16 -Y-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C3-2
1			3			TOTAL SHEETS
2			4			5

STD. NO. LRFR5

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NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

ASSEMBLED BY : JBT DATE : 08/21
CHECKED BY : DWG DATE : 08/21

DRAWN BY : CCJ 10/99
CHECKED BY : RWW 03/00
REV. 6/19 MAA/THC

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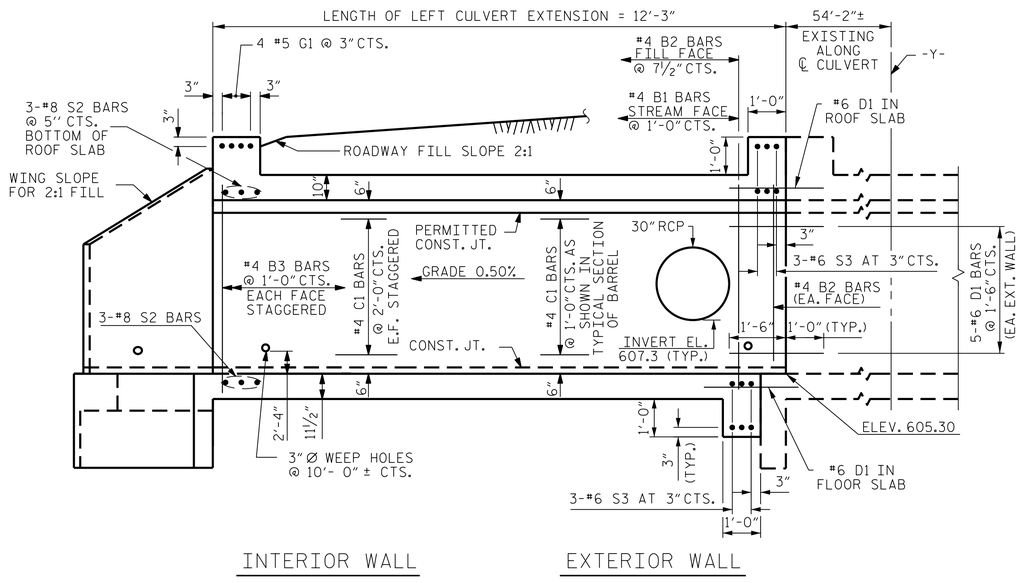
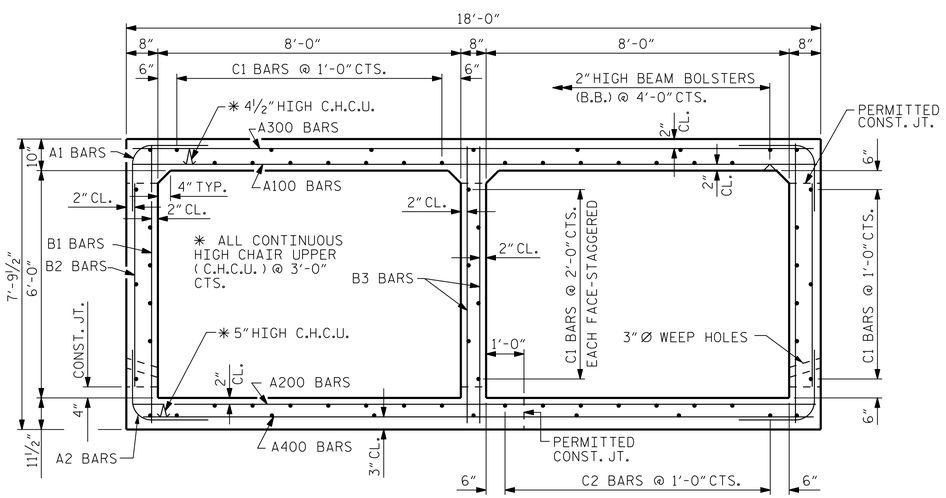
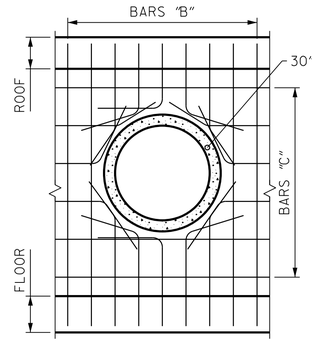


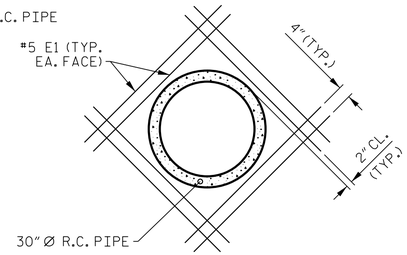
LEFT CULVERT EXTENSION SECTION NORMAL TO ROADWAY



RIGHT ANGLE SECTION OF BARREL

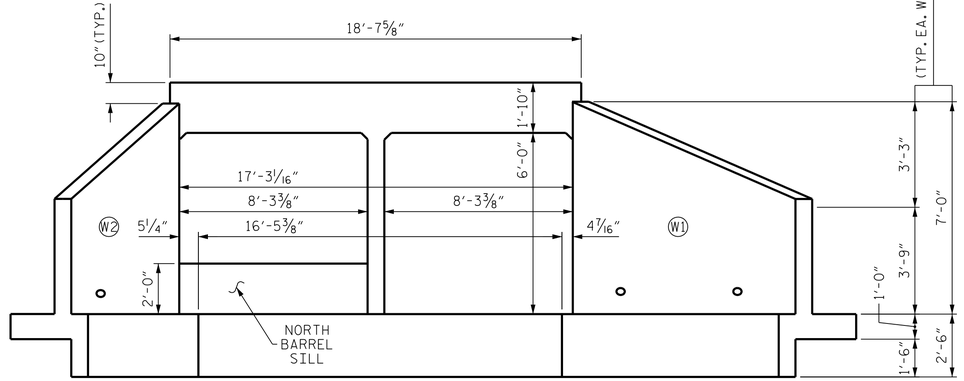
THERE ARE 66 "C" BARS IN SECTION OF BARREL.





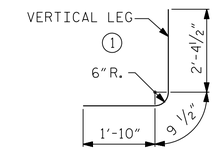
DETAILS OF REINFORCING AROUND 30"Ø PIPE

THE 30"Ø PIPE THROUGH THE EXTERIOR WALL OF THE CULVERT SHALL BE LOCATED BY THE ENGINEER. FIELD CUT AND BEND BARS "B" AND "C" AS NECESSARY TO CLEAR PIPE. INSTALL BARS "E".



END ELEVATION NORMAL TO SKEW

BAR TYPES



DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	38	#4	1	5'-0"	127
A2	36	#4	1	5'-0"	120
A100	10	#5	STR	17'-8"	184
A101	2	#5	STR	15'-8"	33
A102	2	#5	STR	12'-10"	27
A103	2	#5	STR	10'-1"	21
A104	2	#5	STR	7'-3"	15
A105	2	#5	STR	4'-5"	9
A106	2	#5	STR	1'-8"	3
A200	9	#5	STR	17'-8"	166
A201	2	#5	STR	15'-9"	33
A202	2	#5	STR	13'-0"	27
A203	2	#5	STR	10'-2"	21
A204	2	#5	STR	7'-4"	15
A205	2	#5	STR	4'-7"	10
A206	2	#5	STR	1'-9"	4
A300	12	#5	STR	17'-8"	221
A301	2	#5	STR	15'-11"	33
A302	2	#5	STR	13'-7"	28
A303	2	#5	STR	11'-3"	23
A304	2	#5	STR	8'-11"	19
A305	2	#5	STR	6'-7"	14
A306	2	#5	STR	4'-3"	9
A307	2	#5	STR	1'-11"	4
A400	11	#5	STR	17'-8"	203
A401	2	#5	STR	15'-9"	33
A402	2	#5	STR	13'-5"	28
A403	2	#5	STR	11'-1"	23
A404	2	#5	STR	8'-9"	18
A405	2	#5	STR	6'-6"	14
A406	2	#5	STR	4'-1"	9
A407	2	#5	STR	1'-9"	4
B1	24	#4	STR	7'-5"	119
B2	42	#4	STR	5'-4"	150
B3	23	#4	STR	7'-5"	114
C1	43	#4	STR	11'-11"	342
C2	23	#4	STR	11'-3"	173
D1	39	#6	STR	2'-6"	146
E1	32	#5	STR	5'-2"	172
G1	4	#5	STR	18'-3"	76
S2	6	#8	STR	18'-3"	292
S3	12	#6	STR	18'-3"	329
REINFORCING STEEL					3,411 LBS

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 14+36.16 -Y-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 8 FT. X 6 FT. CONCRETE BOX CULVERT EXTENSION 75° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

DRAWN BY :	JBT	DATE :	8-21
CHECKED BY :	DWG	DATE :	8-21
DESIGN ENGINEER :	JBT	DATE :	8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C3-3
1			3			TOTAL SHEETS
2			4			5

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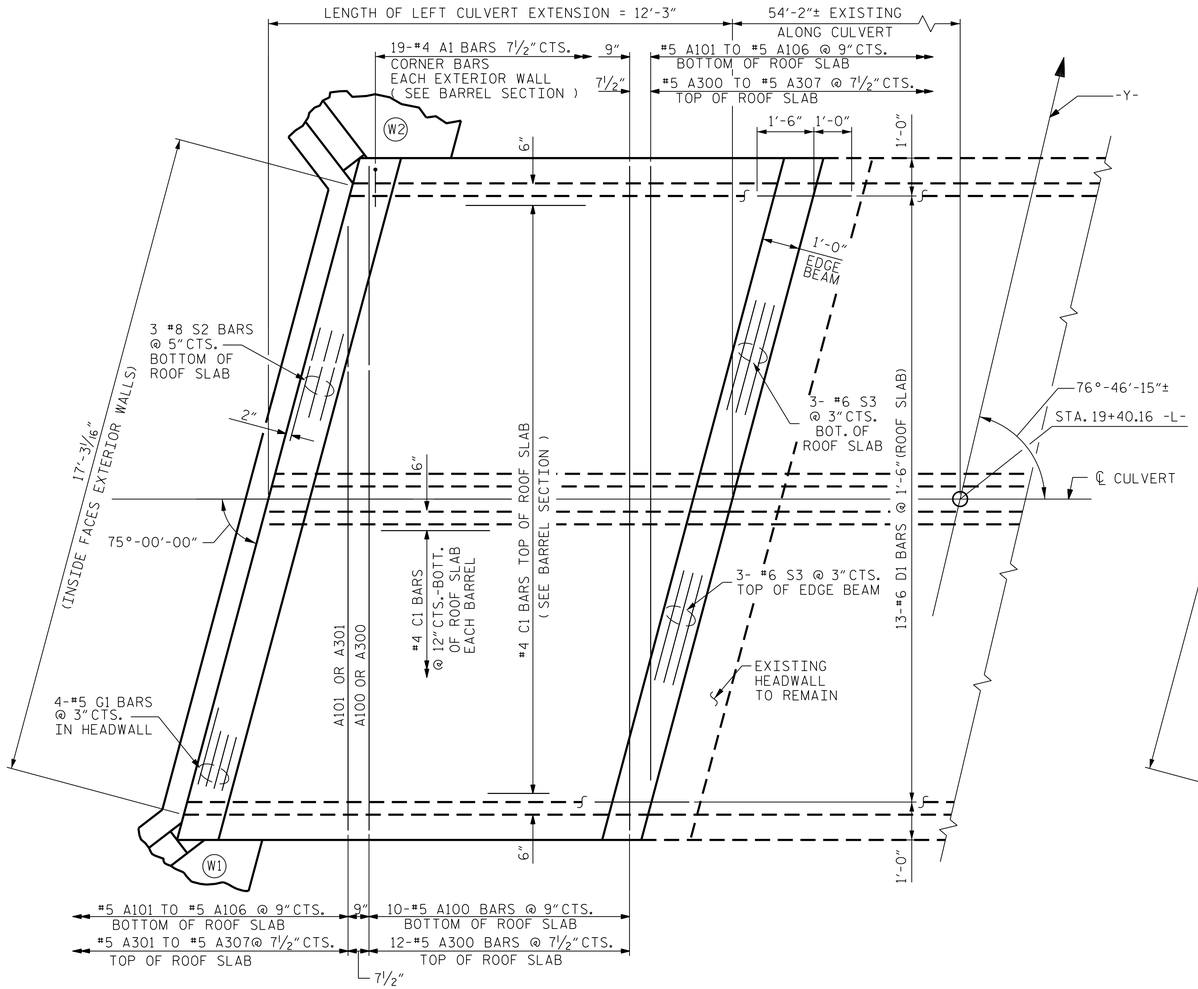
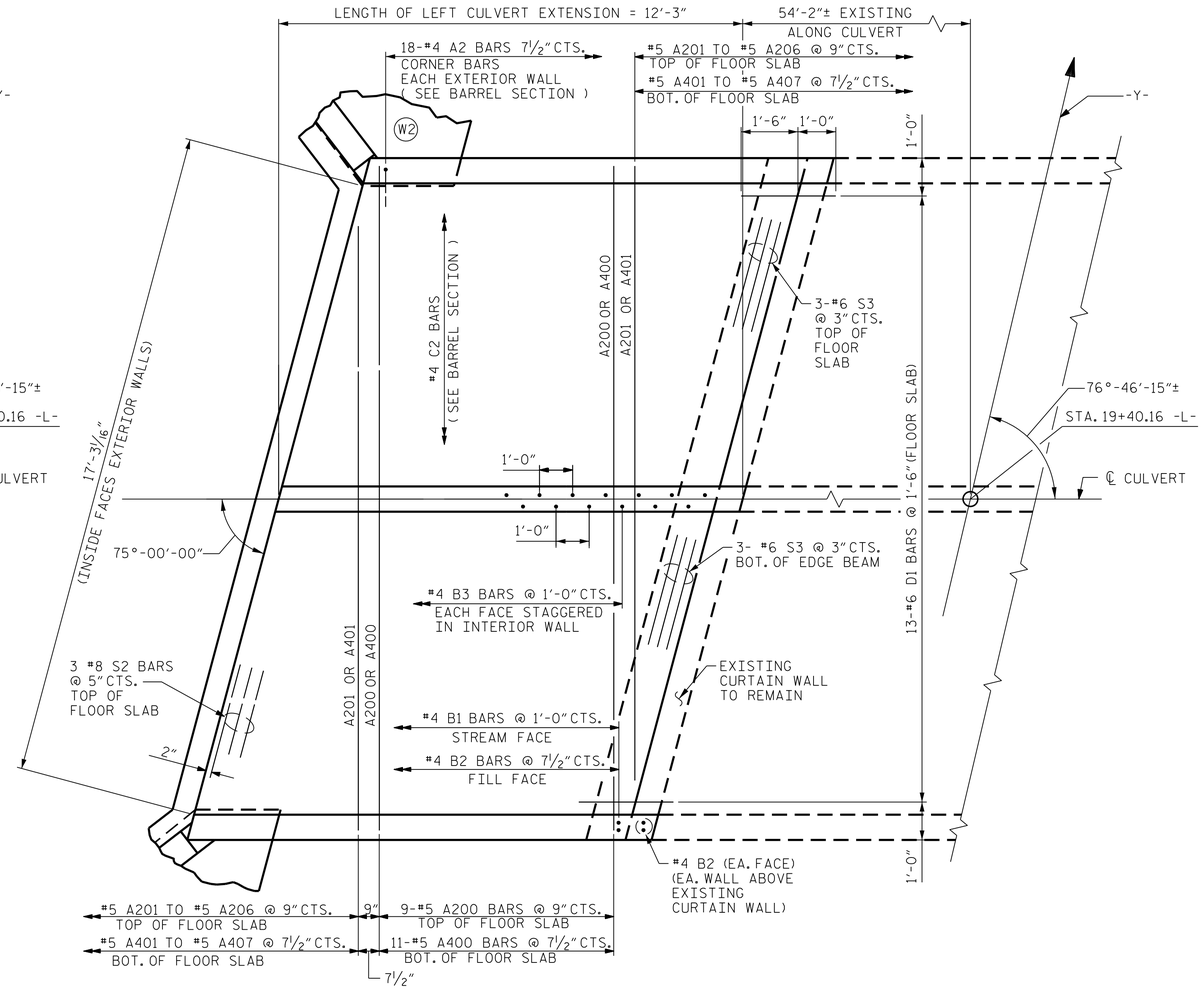
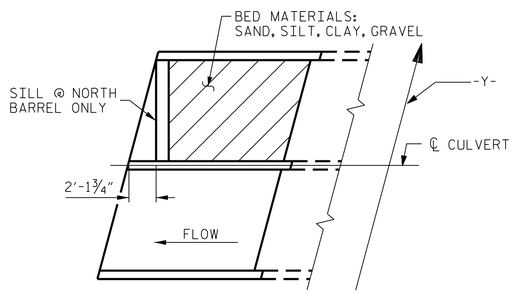


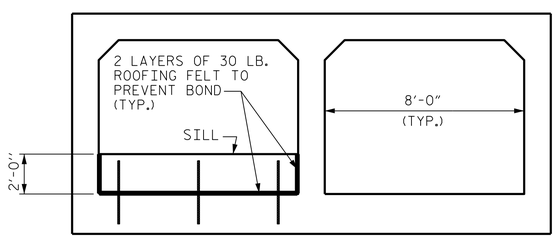
PLAN-ROOF SLAB



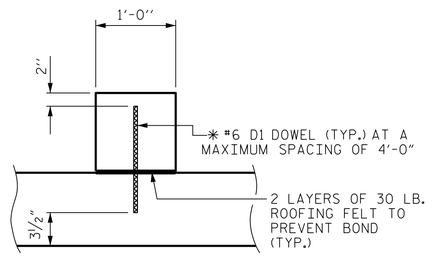
PLAN-FLOOR SLAB



SILL LOCATION PLAN

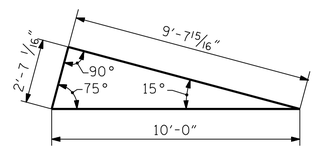


OUTLET ELEVATION



SECTION THROUGH SILL

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



SKEW TRIANGLE

CULVERT SILL DETAILS

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 14+36.16 -Y-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DOUBLE 8 FT. X 6 FT. CONCRETE BOX CULVERT EXTENSION 75° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

DRAWN BY : JBT DATE : 8-21
CHECKED BY : DWG DATE : 8-21
DESIGN ENGINEER : JBT DATE : 8-21

PLANS PREPARED BY :
PARSONS
5540 Centerview Drive, Suite 217
Raleigh, NC 27606-3386
NC LICENSE No. F-0246
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C3-4
1			3			TOTAL SHEETS
2			4			5

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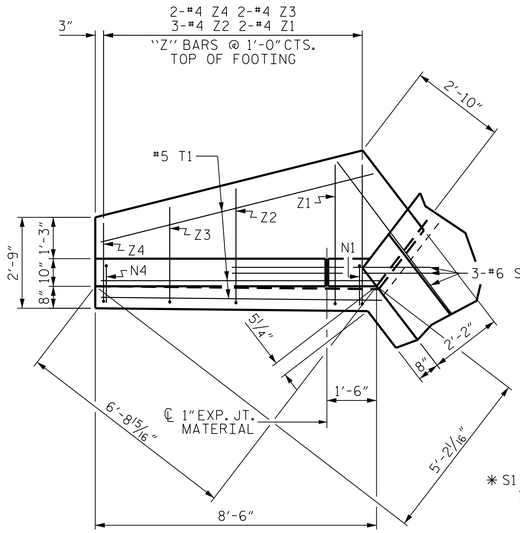
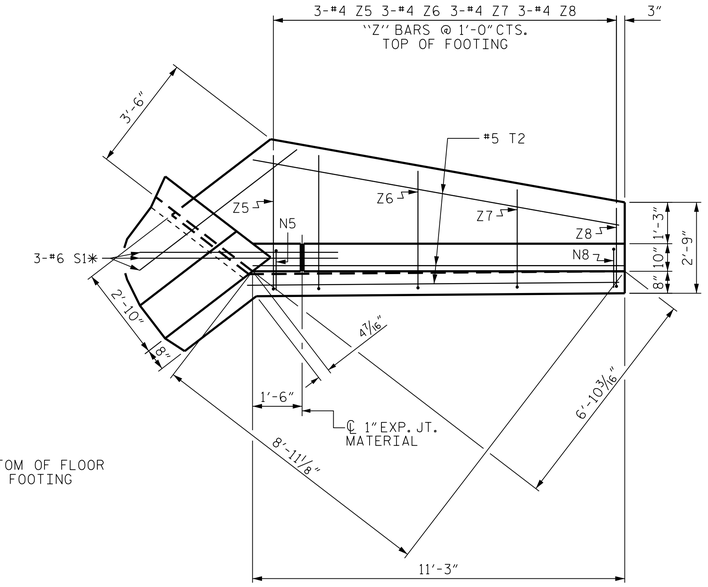
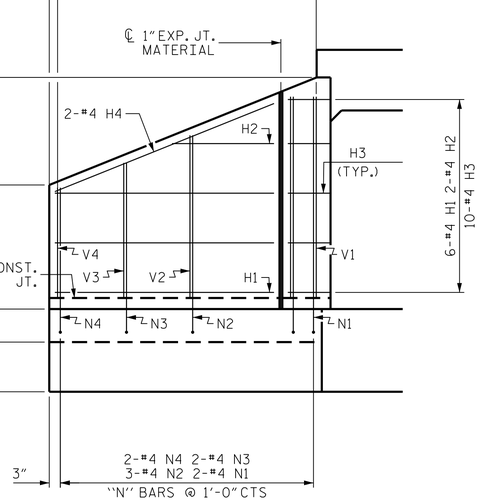


PLAN W2

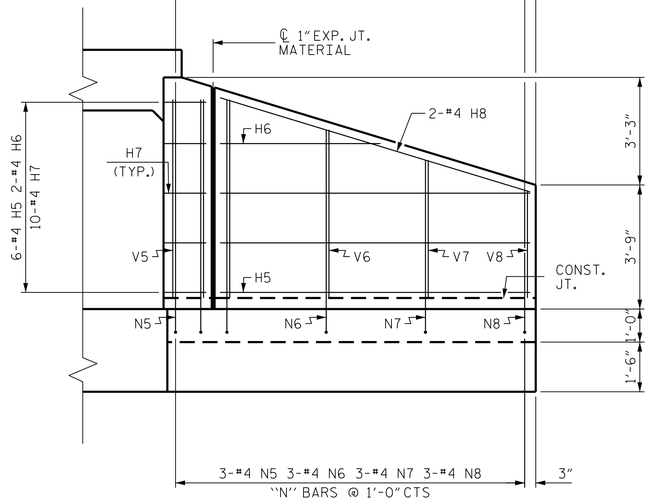


PLAN W1

* S1 @ BOTTOM OF FLOOR SLAB & FOOTING

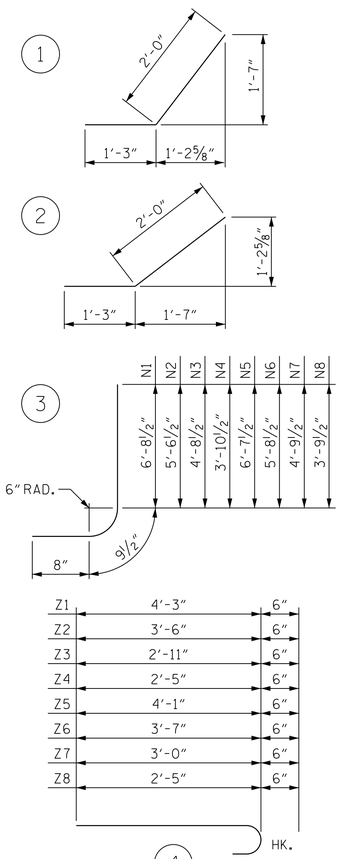


ELEVATION W2



ELEVATION W1

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

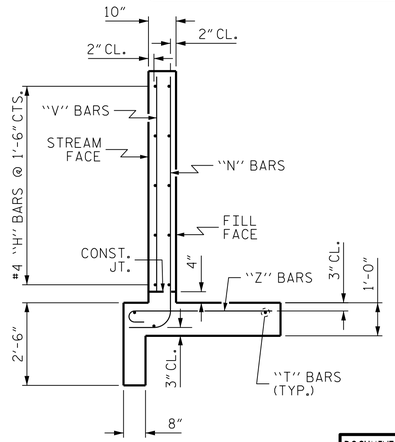
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	6	#4	STR	6'-7"	26
H2	2	#4	STR	3'-1"	4
H3	10	#4	1	3'-3"	22
H4	2	#4	STR	7'-1"	9
H5	6	#4	STR	9'-4"	37
H6	2	#4	STR	4'-10"	6
H7	10	#4	2	3'-3"	22
H8	2	#4	STR	9'-9"	13
N1	2	#4	3	8'-2"	11
N2	3	#4	3	7'-0"	14
N3	2	#4	3	6'-2"	8
N4	2	#4	3	5'-4"	7
N5	3	#4	3	8'-1"	16
N6	3	#4	3	7'-2"	14
N7	3	#4	3	6'-3"	13
N8	3	#4	3	5'-3"	11
S1	6	#6	STR	6'-0"	54
T1	3	#5	STR	8'-6"	27
T2	3	#5	STR	11'-3"	35
V1	2	#4	STR	6'-1"	8
V2	3	#4	STR	4'-11"	10
V3	2	#4	STR	4'-1"	5
V4	2	#4	STR	3'-4"	4
V5	3	#4	STR	6'-0"	12
V6	3	#4	STR	5'-1"	10
V7	3	#4	STR	4'-2"	8
V8	3	#4	STR	3'-3"	7
Z1	2	#4	4	4'-9"	6
Z2	3	#4	4	4'-0"	8
Z3	2	#4	4	3'-5"	5
Z4	2	#4	4	2'-11"	4
Z5	3	#4	4	4'-7"	9
Z6	3	#4	4	4'-1"	8
Z7	3	#4	4	3'-6"	7
Z8	3	#4	4	2'-11"	6

REINFORCING STEEL 466 LBS
FOR 2 WINGS

CLASS A CONCRETE

2 WINGS	7.1	CY
1 HEADWALL	0.9	CY
1 END CURTAIN WALL	2.3	CY
2 EDGE BEAMS	1.4	CY
1 SILL	0.6	CY
TOTAL	12.3	CY



TYPICAL WING SECTION

PROJECT NO. U-6010

ALAMANCE COUNTY

STATION: 14+36.16 -Y-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD WINGS FOR CONCRETE BOX CULVERT

H = 6'-0" SLOPE = 2:1
75° SKEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 033698 ENGINEER JOSHUA B. TAYLOR

REVISIONS						SHEET No.
No.	BY:	DATE:	No.	BY:	DATE:	C3-5
1			3			TOTAL SHEETS
2			4			5

ASSEMBLED BY :	JBT	DATE : 08/21
CHECKED BY :	DGW	DATE : 08/21
DRAWN BY : CCJ	12/99	REV. 6/19 MAA/THC
CHECKED BY : RWW	03/00	

DRAWN BY :	JBT	DATE : 8-21
CHECKED BY :	DWG	DATE : 8-21
DESIGN ENGINEER :	JBT	DATE : 8-21

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Raleigh, NC 27606-3386
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FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STD. NO. CW7506

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