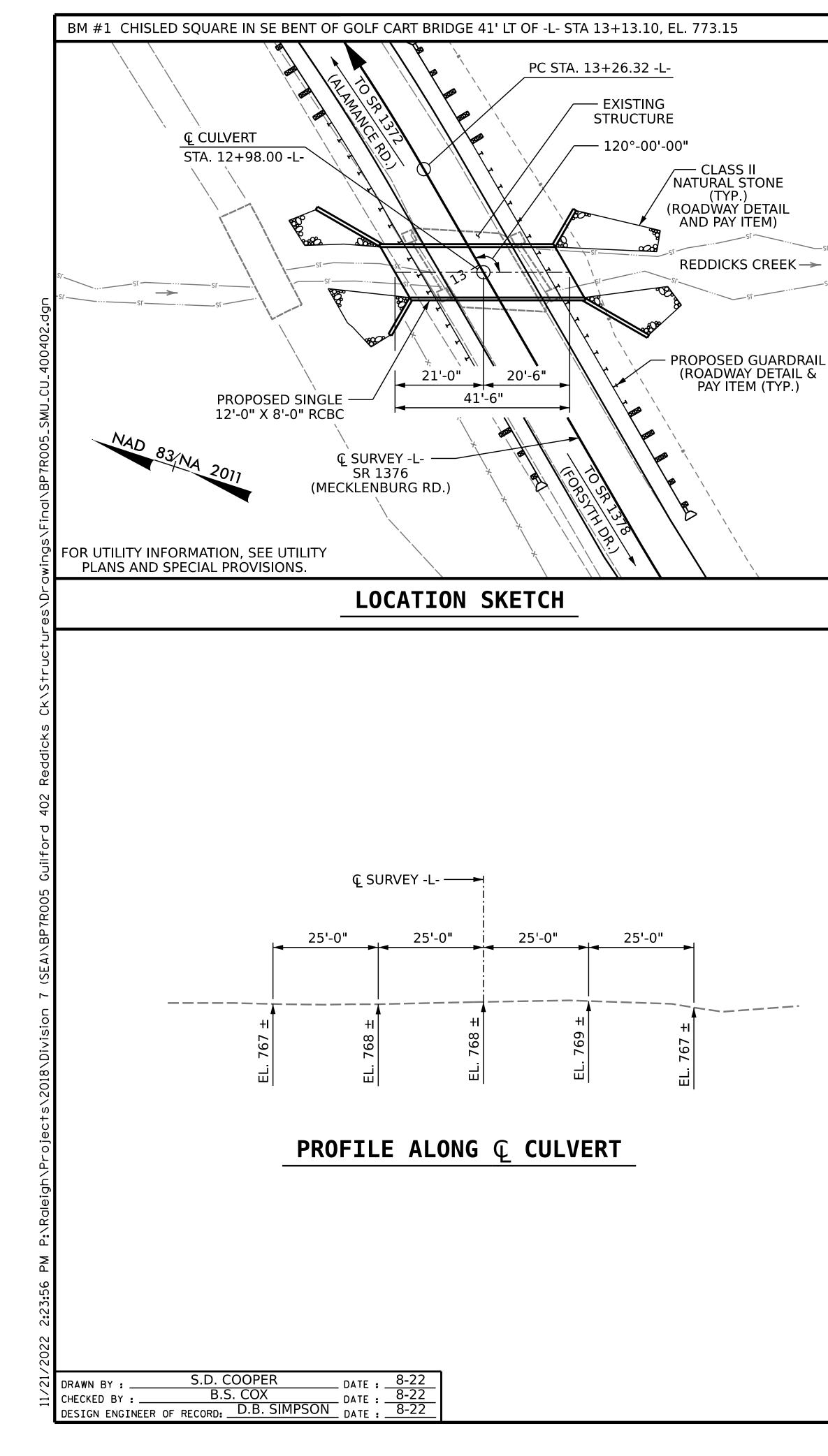
This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document -

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page. This file or an individual page shall not be considered a certified document.



NOTES:

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 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.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL 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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTION SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTS OF 1 SPAN @ 18'-2" WITH A CLEAR ROADWAY WIDTH OF 19'-10". THE SUPERSTRUCTURE CONSISTS OF A TIMBER DECK ON TIMBER JOIST. THE SUBSTRUCTURE CONSISTS OF RUBBLE MASONRY ABUTMENTS WITH TIMBER SEATS. THE EXISTING STRUCTURE, WHICH IS LOCATED AT THE SITE OF THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THE LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

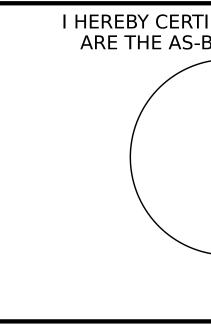
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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.

PROVISIONS.

CULVERT MUST BE CAST-IN-PLACE, PRECAST OPTION WILL NOT BE ALLOWED.





LICENSURE NO.

HYDRAULIC DATA:	
DESIGN DISCHARGE FREQUENCY OF DESIGN FLOOD DESIGN HIGH WATER ELEVATION DRAINAGE AREA BASE DISCHARGE (Q 100) BASE HIGH WATER ELEVATION	= 650 CFS = 25 YEAR = 776.8 = 1.0 SQ. MI. = 880 CFS = 777.4
OVERTOPPING FLOOD DATA:	
OVERTOPPING DISCHARGE FREQUENCY OF OVERTOPPING FLOOD OVERTOPPING FLOOD ELEVATION * * OVERTOPPING OCCURS AT ROADWAY SAG AT STA. 12+00 -L- AT EOP	= 625 CFS = 25 YEAR = 776.5 * *

GRADE DATA: GRADE POINT EL. @ STA. 12+98.00 -L- = EL. 777.41 BED EL. @ STA. 12+98.00 -L- = 766.80 ROADWAY SLOPE 2:1

TOTAL S	STRUCTURE	QUANTITIES
CLASS A CONCRE	TE	
BARREL @	1.510 CY	//FT62.7_CY
SILLS		<u>0.9</u> _CY
WING ETC		<u>26.6 </u> CY
TOTAL		<u>90.2_</u> CY
REINFORCING ST	EEL	
BARREL, SILLS		<u>8,655 LBS</u>
WINGS ETC		<u>1,661 LBS</u>
TOTAL		<u>10,316 LBS</u>
CULVERT EXCAVA	TION	LUMP SUM
FOUNDATION COI	NDITIONING MATERI	AL <u>51</u> TONS
REMOVAL OF EXIS	STING STRUCTURE	LUMP SUM
ASBESTOS ASSES	SMENT	LUMP SUM

FOUNDATION NOTES:

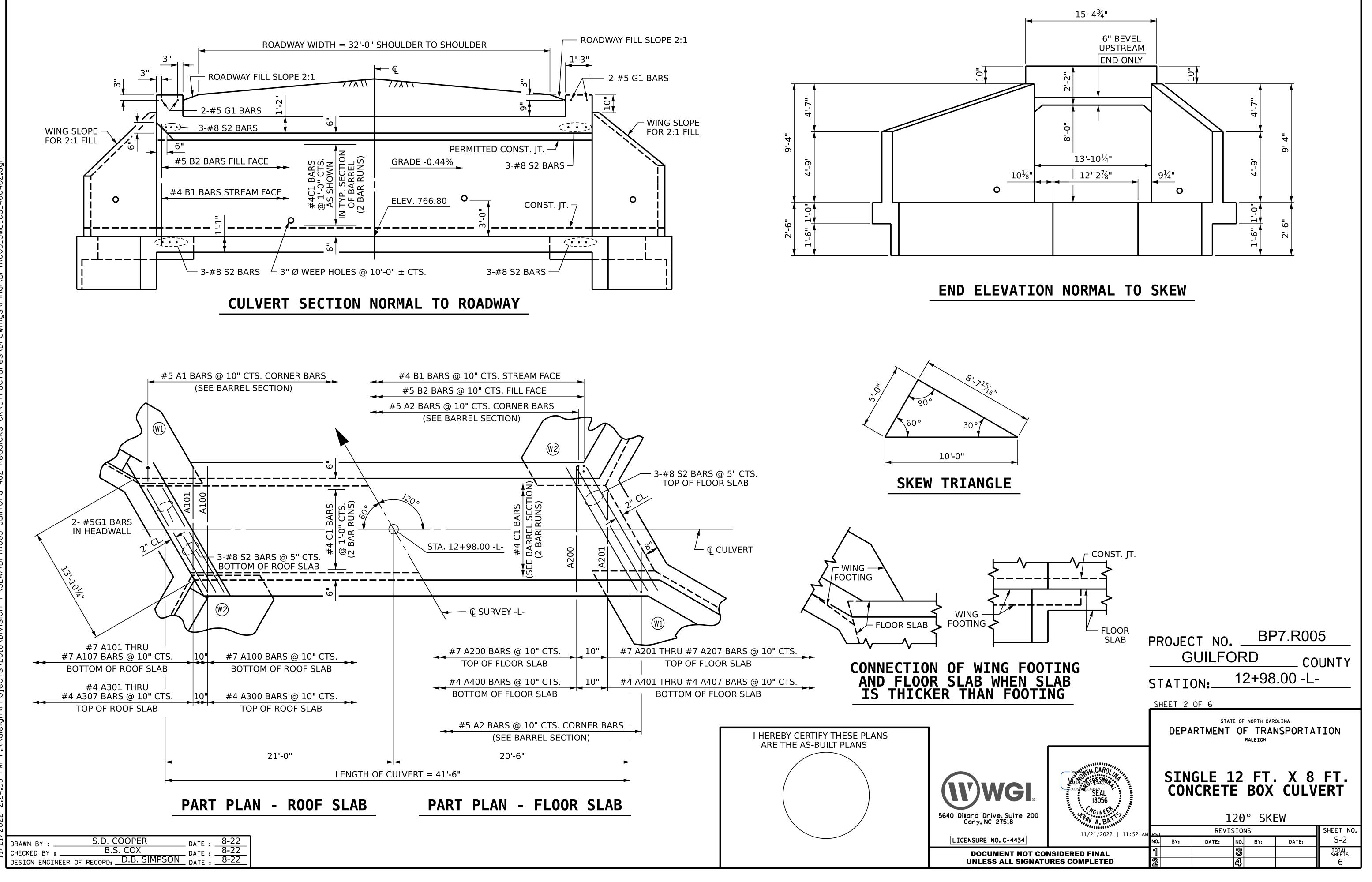
BACKFILL WITH SELECT MATERIAL, CLASS V OR VI MEETING THE REQUIRMENTS OF SECTION 1016 OF THE STANDARD SPECIFICATIONS. ASSUMED LIVE LOAD ------ HL-93 OR ALTERNATE LOADING.

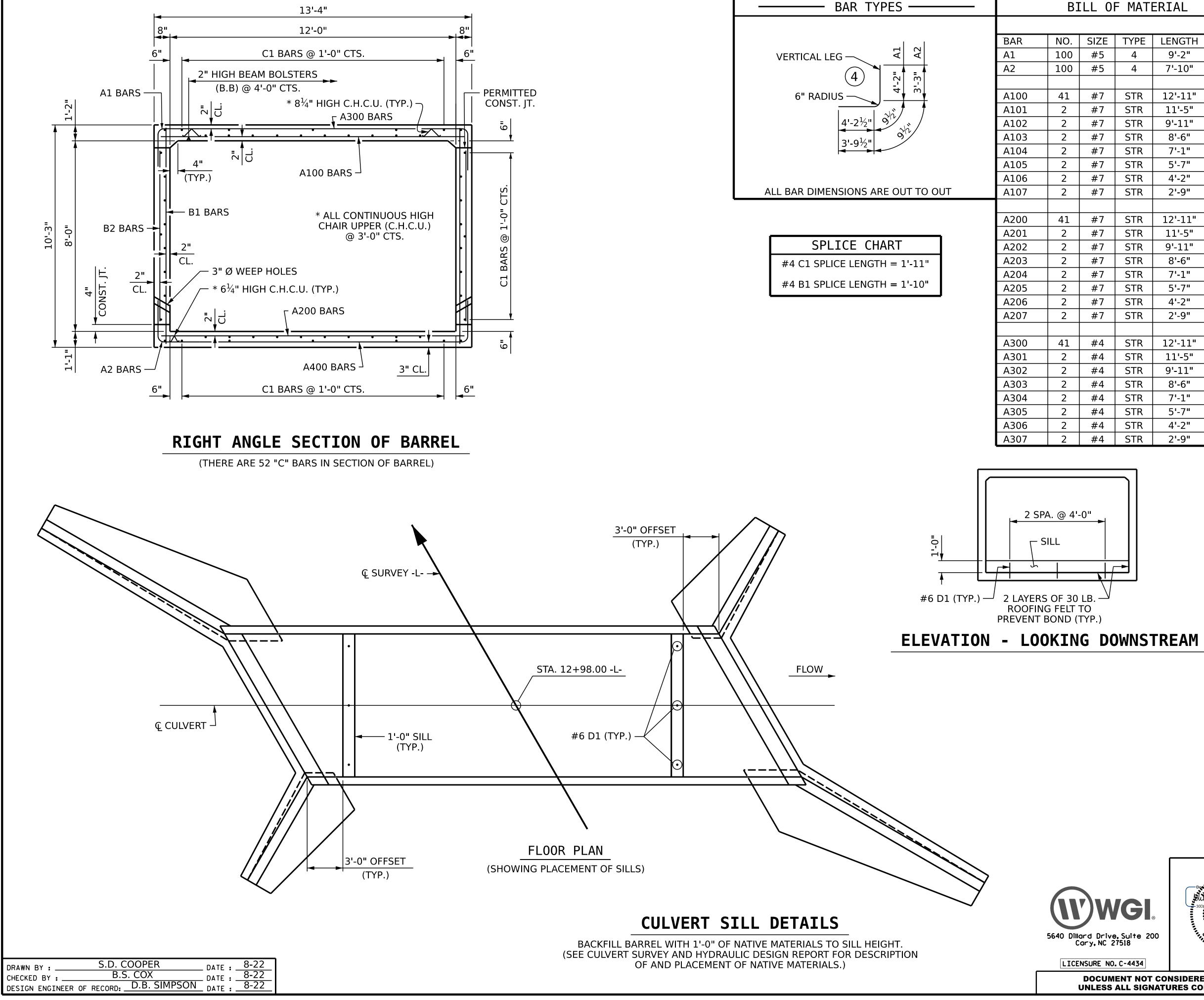
DESIGN FILL ------ 1'-9" (MIN.) AND 2'-9" (MAX.)

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL

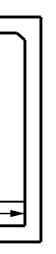
BY CERTIFY THESE PLANS						
		PROJEC	CT NO.	BF DRD		5 UNTY
		STATI	0N:	12+98	.00 -L-	
		SHEET 1	OF 6	RE	PLACES B	R.NO.402
		DEPA	-	E OF NORTH CAR OF TRAN RALEIGH		TION
WGI _®	JOULD DATE STORE		ICRETI	.2 FT. E BOX	CULV	
llard Drive, Suite 200 Cary, NC 27518	W A BAT		1 REVIS	20° SKE	EW	SHEET NO.
ENSURE NO.C-4434	11/21/2022 11:52 AM	NO. BY:	DATE:	NO. BY:	DATE:	S-1
DOCUMENT NOT CON UNLESS ALL SIGNATU		1 2		3 4		TOTAL SHEETS 6

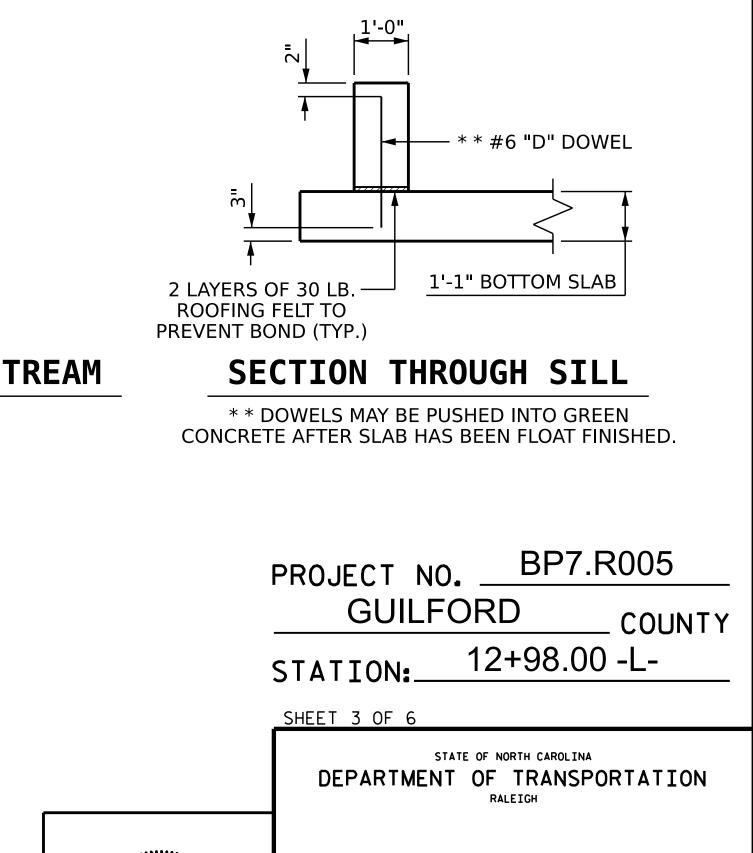




	B]	[LL 0	F MATI	ERIAL			B]	ILL OI	F MAT	ERIAL	
BAR	NÖ.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	100	#5	4	9'-2"	956	A400	41	#4	STR	12'-11"	354
A2	100	#5	4	7'-10"	817	A401	2	#4	STR	11'-5"	15
						A402	2	#4	STR	9'-11"	13
A100	41	#7	STR	12'-11"	1082	A403	2	#4	STR	8'-6"	11
A101	2	#7	STR	11'-5"	47	A404	2	#4	STR	7'-1"	ç
A102	2	#7	STR	9'-11"	41	A405	2	#4	STR	5'-7"	-
A103	2	#7	STR	8'-6"	35	A406	2	#4	STR	4'-2"	6
A104	2	#7	STR	7'-1"	29	A407	2	#4	STR	2'-9"	2
A105	2	#7	STR	5'-7"	23						
A106	2	#7	STR	4'-2"	17	B1	100	#4	STR	9'-9"	65
A107	2	#7	STR	2'-9"	11	B2	100	#5	STR	7'-4"	76
A200	41	#7	STR	12'-11"	1082	C1	104	#4	STR	21'-7"	1499
A201	2	#7	STR	11'-5"	47						
A202	2	#7	STR	9'-11"	41	D1	6	#6	STR	1'-8"	1
A203	2	#7	STR	8'-6"	35						
A204	2	#7	STR	7'-1"	29	G1	4	#5	STR	15'-0"	6
A205	2	#7	STR	5'-7"	23						
A206	2	#7	STR	4'-2"	17	S2	12	#8	STR	15'-0"	48
A207	2	#7	STR	2'-9"	11						
						TOTAL RE	INFOR	CING ST	EEL		8655 LI
A300	41	#4	STR	12'-11"	354						
A301	2	#4	STR	11'-5"	15	CLASS A	CONCR	ETE BR	EAKDOV	VN	
A302	2	#4	STR	9'-11"	13	BARREL					62.7 C
A303	2	#4	STR	8'-6"	11	SILLS					0.9 C`
A304	2	#4	STR	7'-1"	9						
A305	2	#4	STR	5'-7"	7						
A306	2	#4	STR	4'-2"	6						
A307	2	#4	STR	2'-9"	4						

BAR TYPES		BT	LL.
1 1	BAR	NO.	SIZ
VERTICAL LEG — 4	A1	100	#
	A2	100	#
6" RADIUS —	A100	41	#
4'-21/2" 91/2	A101	2	#
4'-2 ¹ /2" 9"	A102	2	#
4'-2 ⁴ 2" 3	A103	2	#
	A104	2	#
	A105	2	#
	A106	2	#
ALL BAR DIMENSIONS ARE OUT TO OUT	A107	2	#
	A200	41	#
	A201	2	#
SPLICE CHART	A202	2	#
#4 C1 SPLICE LENGTH = $1'-11''$	A203	2	#
	A204	2	#
#4 B1 SPLICE LENGTH = $1'-10''$	A205	2	#
	A206	2	#





SINGLE 12 FT. X 8 FT. CONCRETE BOX CULVERT

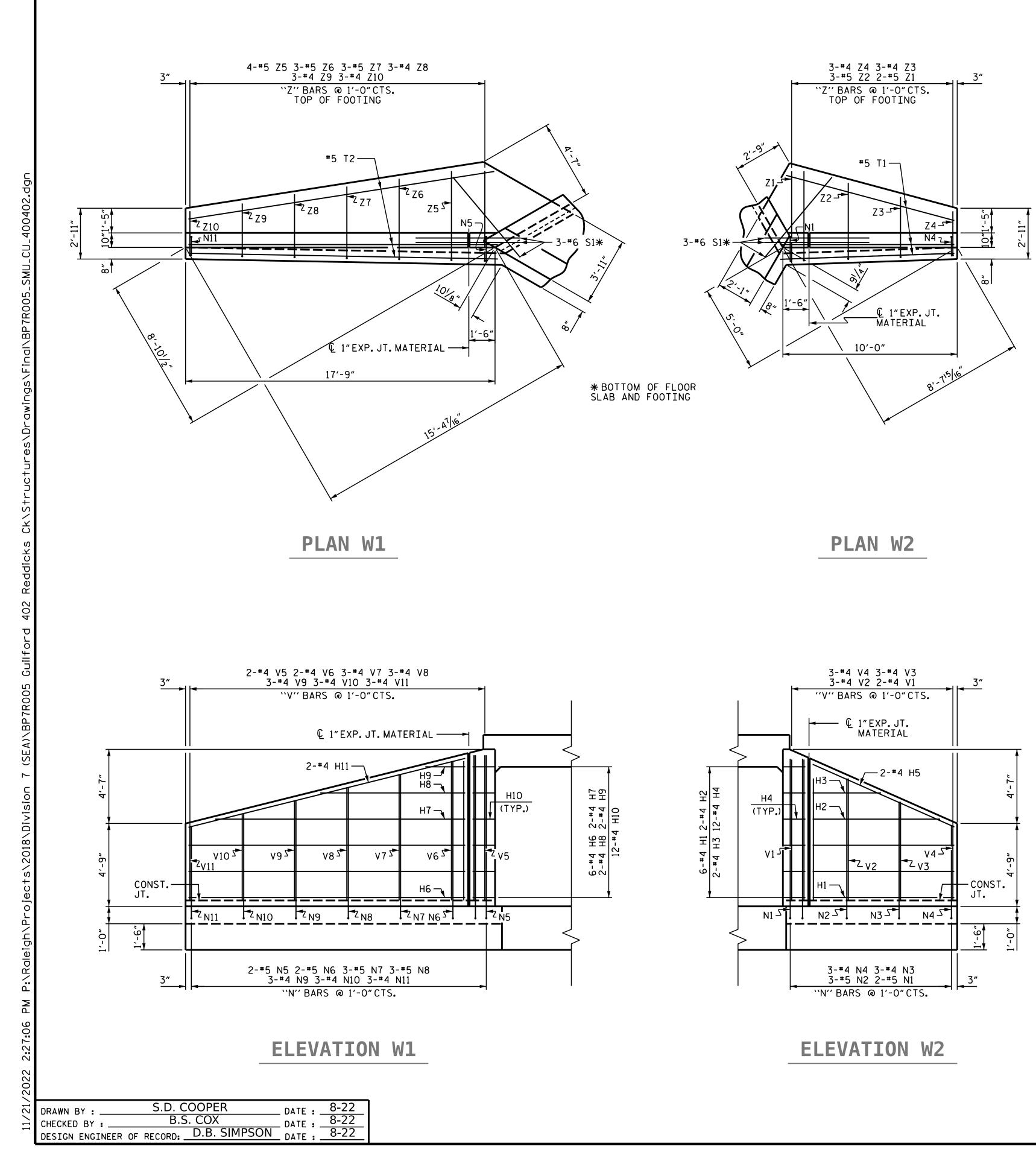
SHEET NO.

S-3

TOTAL SHEETS

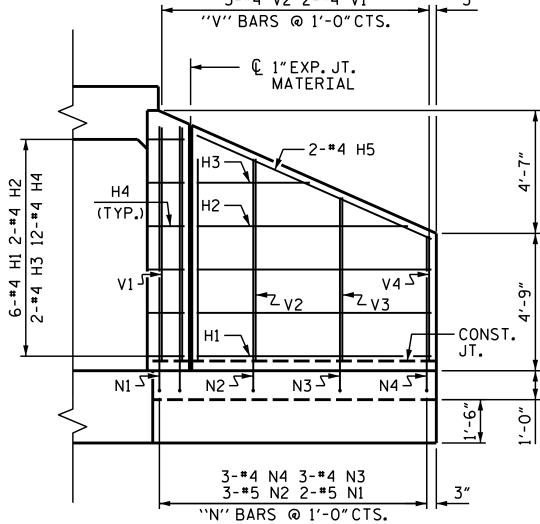
6

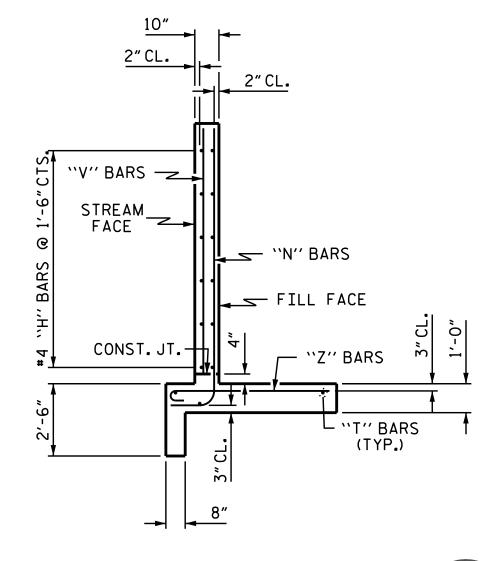
e 200	DoedSeptemb CAROL BUD USEBSIGO SODE OTBESSIGGO IBO56 MCINECS			GLE 1 ICRET	Ε		CUL	
	11/21/2022 11:52 AM	рст		REVI	SION	IS		
54	11/21/2022 11.52 AM	NO.	BY:	DATE:	N0.	BY:	DATE:	
ют со	NSIDERED FINAL	1			3			
IGNATU	IRES COMPLETED	2			4			



LICENSURE NO.

5640 Dillard Drive, Cary, NC 27



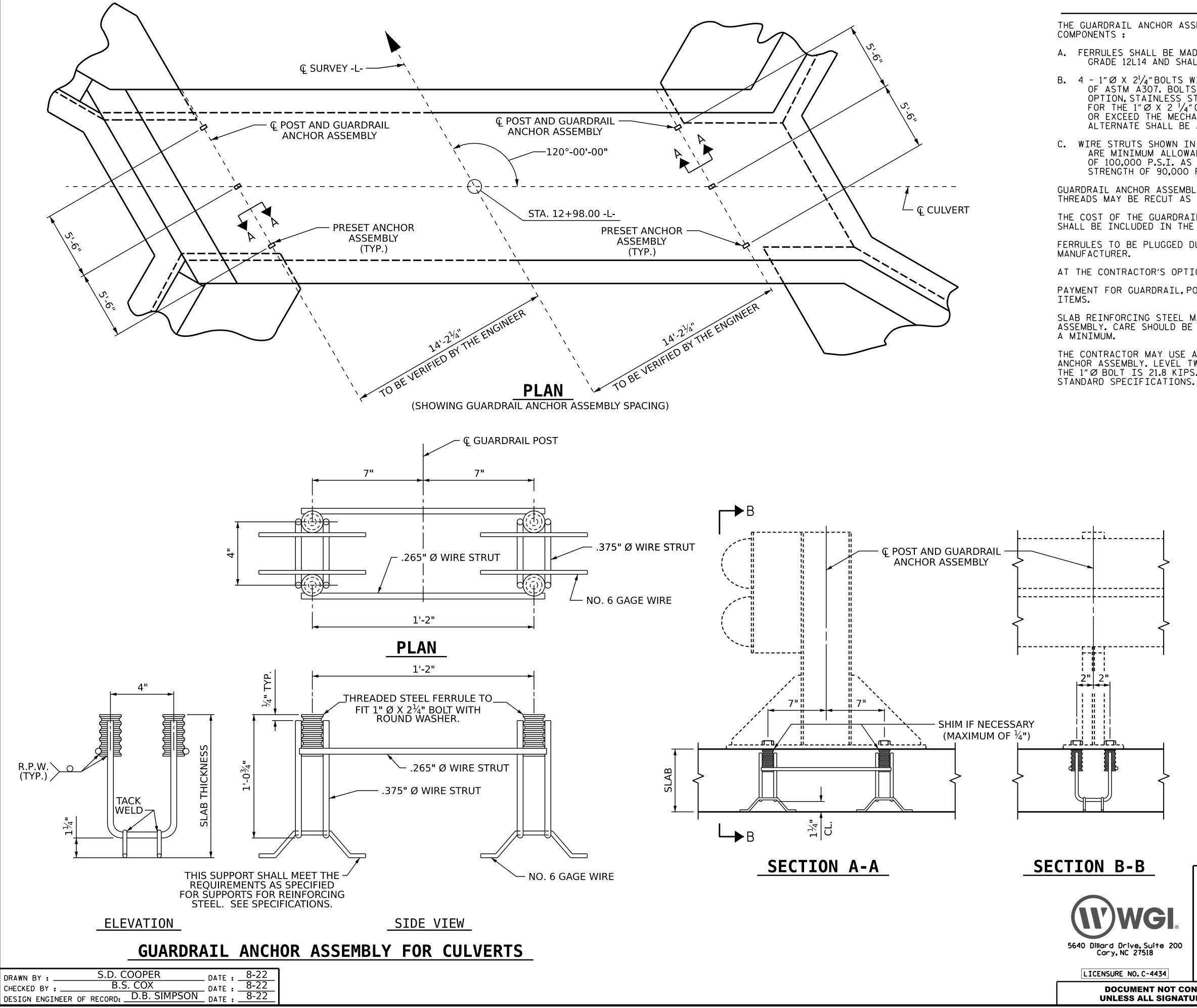


TYPICAL WING

SECTION

(2)3 6" RAD. — 8″ ____ _Z <u>Z3</u> <u>Z4</u> <u>Z5</u> Z6 Z7 _____Z8 <u>Z9</u> Z10

BAR TYPES					TERIAL	-
		BIL				WETOUT
	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
	H1	12	#4	STR	8'-1"	65
	H2	4	#4	STR	7'-3"	19
	H3	4	#4	STR	3'-11"	10
	H4	24	#4	1	3'-3"	52
			-			
1,-8 <u>3</u> , v,	H5	4	#4	STR	8'-10"	24
< / [−]	H6	12	#4	STR	15'-10"	127
	H7	4	#4	STR	14'-4"	38
	H8	4	#4	STR	8'-3"	22
1'-3" 1'-0"	Н9	4	#4	STR	2'-3"	6
	H10	24	#4	2	3'-3"	52
\frown	H11	4	#4	STR	16'-4"	44
(2)		+		511		
(2) $2^{\prime}-0^{\prime}$						
	N1	4	# 5	3	10'-2"	42
1,-0,	N2	6	# 5	3	9′-0″	56
	N3	6	#4	3	7′-8″	31
	N4	6	#4	3	6'-4"	25
	N5	4	# 5	3	10'-5"	43
1'-3" 1'-8¾"						
	N6	4	#5	3	10'-1"	42
	N7	6	# 5	3	9'-4"	58
N10 N9 N3 N3 N3 N3 N10 N9 N3 N3 N10	N8	6	# 5	3	8'-7"	54
	N9	6	#4	3	7′-10″	31
	N10	6	#4	3	7'-1"	28
(3)	N10	6	#4	3	6'-4"	25
	. ~			J		
8'-8 ^{1/2} " 8'-8 ^{1/2} " 7'-6 ^{1/2} " 6'-2 ^{1/2} " 8'-11 ^{1/2} " 8'-11 ^{1/2} " 8'-1 ^{1/2} " 6'-4 ^{1/2} " 5'-7 ^{1/2} "				C T C	<u> </u>	100
8'-8 /, 6'-2 /, 6'-2 /, 8'-1 /, 7'-10 / 5'-7 /, 5'-7 /,		12	# 6	STR	6'-0"	108
	T1	6	# 5	STR	10'-0"	63
6" RAD	T2	6	# 5	STR	17'-9″	111
<u>`\ v v v v v v v v v v v v v v v v v</u>	 					
	V1	4	#4	STR	8'-1"	22
	V1 V2	6	#4	STR	7'-0"	22
3/2					-	
8"	V3	6	#4	STR	5'-8"	23
	V4	6	#4	STR	4'-4"	17
Z1 5'-2" 7"	V5	4	#4	STR	8'-4"	22
	V6	4	#4	STR	8′-0″	21
<u>Z2</u> 4'-5" 7"	٧7	6	#4	STR	7'-3"	29
Z3 3'-6" 6"	V8	6	#4	STR	6'-6"	26
			#4		5'-9"	
Z4 2'-7" 6"	V9	6		STR		23
Z5 5'-2" 7"	V10	6	#4	STR	5'-0"	20
	V11	6	#4	STR	4'-3"	17
Z6 4'-8" 7"						
	Z1	4	# 5	4	5′-9″	24
	Z2	6	# 5	4	5'-0"	31
Z8 3'-8" 6"						
	Z3	6	#4	4	4'-0"	16
<u>Z9</u> <u>3'-1"</u> <u>6"</u>	<u>Z4</u>	6	#4	4	3'-1"	12
Z10 2'-7" [6"]	Z5	8	# 5	4	5'-9"	48
─── ├ ┥─── └ └	Z6	6	# 5	4	5′-3″	33
	Z7	6	# 5	4	4'-9"	30
	Z8	6	#4	4	4'-2"	17
\int_{1}^{1}						
НК.	Z9	6	#4	4	3'-7"	14
(\land)	Z10	6	#4	4	3'-1"	12
(4)	REIN	VFORCI	NG ST	EEL	16	61 LBS
(4)		4 WIN				
4			1117			
ALL BAR DIMENSIONS ARE OUT TO OUT.		SS A C	ONCRE	TE		
		SS A C 4 WIN	ONCRE	TE	24	1.3 CY
		4 WIN	ONCRE			1.3 CY 1.4 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S	1	
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	.4 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	1.4 CY 0.9 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	1.4 CY 0.9 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	1.4 CY 0.9 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	1.4 CY 0.9 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	1.4 CY 0.9 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	1.4 CY 0.9 CY
		4 WIN 2 HEA	CONCRE NGS DWALL	.S AIN W	1 VALLS C	1.4 CY 0.9 CY
		4 WIN 2 HEA	CONCRE NGS DWALL CURT	.S AIN W T	1 VALLS C OTAL 26	I.4 CY D.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	CLAS	4 WIN 2 HEA 2 END	CONCRE NGS DWALL CURT	.S AIN W T	1 VALLS C	I.4 CY D.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.		4 WIN 2 HEA 2 END	CONCRE NGS DWALL CURT	.S AIN W T	1 VALLS C OTAL 26	I.4 CY D.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N	4 WIN 2 HEA 2 END	CONCRE NGS DWALL CURT	.S AIN W T	NALLS C OTAL 26	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	CLAS	4 WIN 2 HEA 2 END	CONCRE NGS DWALL CURT	.S AIN W T	1 VALLS C OTAL 26	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL	4 WIN 2 HEA 2 END 2 END	CONCRE NGS DWALL CURT	BP7.	лация с отац 26 R005 _ СО U	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL	4 WIN 2 HEA 2 END 2 END	CONCRE NGS DWALL CURT	BP7.	NALLS C OTAL 26	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N	4 WIN 2 HEA 2 END 2 END	CONCRE NGS DWALL CURT	BP7.	лация с отац 26 R005 _ СО U	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL	4 WIN 2 HEA 2 END 2 END	CONCRE NGS DWALL CURT	BP7.	лация с отац 26 R005 _ СО U	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL	4 WIN 2 HEA 2 END 2 END	CONCRE NGS DWALL CURT	BP7.	лация с отац 26 R005 _ СО U	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6	4 WIN 2 HEA 2 END 2 END 1 5 TATE C	CONCRE NGS DWALL CURT CURT B RD 2+S	S AIN V T 8P7.	NALLS C OTAL 26 R005 COU 0 -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL	4 WIN 2 HEA 2 END 2 END 1 5 TATE C	CONCRE NGS DWALL CURT CURT B RD 2+S	S AIN V T 8P7.	NALLS C OTAL 26 R005 COU 0 -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6	4 WIN 2 HEA 2 END 2 END 1 5 TATE C	CONCRE NGS DWALL CURT CURT B RD 2+S	S AIN V T 8P7. 8.0 8.0	NALLS C OTAL 26 R005 COU 0 -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6	4 WIN 2 HEA 2 END 2 END 1 5 TATE C	CONCRE NGS DWALL CURT CURT B RD 2+S F NORTH F NORTH	S AIN V T 8P7. 8.0 8.0	NALLS C OTAL 26 R005 COU 0 -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6	4 WIN 2 HEA 2 END 2 END 1 5 TATE C	CONCRE NGS DWALL CURT CURT B RD 2+S F NORTH F NORTH	S AIN V T 8P7. 8.0 8.0	NALLS C OTAL 26 R005 COU 0 -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6 DEPARTME	4 WIN 2 HEA 2 END 10. FOF 1	CONCRE NGS DWALL CURT CURT B RD 2+9 F NORTH DF TR RALEIGH	S AIN V T 8P7. 8.0 8.0	ROO5 _ COU _ COU 0 -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6 DEPARTME	4 WIN 2 HEA 2 END 10. FOF 1 state of NT C	CONCRE NGS DWALL CURT CURT B CURT B CURT CURT CURT CURT CURT CURT CURT CURT	S AIN V T P7. 8P7. 8.0 8.0 8.0	ROO5 COTAL 26 ROO5 COU O -L-	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6 DEPARTME	4 WIN 2 HEA 2 END 10. FOF 1 state of NT C	CONCRE NGS DWALL CURT CURT B CURT B CURT CURT CURT CURT CURT CURT CURT CURT	S AIN V T P7. 8P7. 8.0 8.0 8.0	ROO5 COTAL 26 ROO5 COU O -L-	I.4 CY 0.9 CY 5.6 CY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6 DEPARTME	4 WIN 2 HEA 2 END 10. FOF 1 state of NT C	CONCRE NGS DWALL CURT CURT B CURT B CURT CURT CURT CURT CURT CURT CURT CURT	SP7. P7. 8P7. 800	ROO5 COTAL 26 ROO5 COU O -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6 DEPARTME	4 WIN 2 HEA 2 END 10. FOF 1 state of NT C	CONCRE NGS DWALL CURT CURT B CURT B CURT CURT CURT CURT CURT CURT CURT CURT	SP7. P7. 8P7. 800	ROO5 COTAL 26 ROO5 COU O -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6 DEPARTME	4 WIN 2 HEA 2 END 2 END 1 STATE O	CONCRE NGS DWALL CURT E CURT B CURT CURT B CURT CURT CURT CURT CURT CURT CURT	SP7. 8P7. 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.	ROO5 COTAL 26 ROO5 COU O -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	ROJECT N GUIL TATION:_ SHEET 4 OF 6 DEPARTME	4 WIN 2 HEA 2 END 2 END 1 STATE O	CONCRE NGS DWALL CURT CURT B CURT B CURT CURT CURT CURT CURT CURT CURT CURT	SP7. 8P7. 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.	ROO5 COTAL 26 ROO5 COU O -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	CLAS PROJECT N GUIL SHEET 4 OF 6 DEPARTME H = 8'-0"	4 WIN 2 HEA 2 END 2 END 1 STATE O	CONCRE NGS DWALL CURT CURT B RD 2+9 F NORTH F TR RALEIGH GS BO S S S S S S S S S S S S S S S S S S	SP7. 8P7. 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.	ROO5 COTAL 26 ROO5 COU O -L-	NTY
ALL BAR DIMENSIONS ARE OUT TO OUT.	CLAS PROJECT N GUIL TATION: SHEET 4 OF 6 DEPARTME H = 8'-0"	4 WIN 2 HEA 2 END 2 END NO. FOF 1 STATE O NT O WIN ETE 120 REVISIO	CONCRE NGS DWALL CURT CURT B RD 2+9 F NORTH F TR RALEIGH GS BO S DNS	SP7. 8P7. 8P7. 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.	ROO5 COTAL 26 ROO5 COU O -L- ORTATI	I.4 CY 0.9 CY 5.6 CY NTY ON
ALL BAR DIMENSIONS ARE OUT TO OUT.	CLAS PROJECT N GUIL TATION: SHEET 4 OF 6 DEPARTME H = 8'-0"	4 WIN 2 HEA 2 END 2 END 1 5 5 5 5 5 5 5 5 5 5 5 5 5	CONCRE NGS DWALL OCURT CURT B RD 2+9 F NORTH F	SP7. 8P7. 8P7. 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.	ROO5 COTAL 26 ROO5 COU O -L-	.4 СҮ 0.9 СҮ 5.6 СҮ NTY ON RT 2:1 HEET NO. S-4
ALL BAR DIMENSIONS ARE OUT TO OUT.	CLAS PROJECT N GUIL TATION: SHEET 4 OF 6 DEPARTME H = 8'-0"	4 WIN 2 HEA 2 END 2 END NO. FOF 1 STATE O NT O WIN ETE 120 REVISIO	CONCRE NGS DWALL CURT CURT B RD 2+9 F NORTH F NORTH F NORTH F TR RALEIGH GS BO S S S S S S S S S S S S S S S S S S	SP7. 8P7. 8P7. 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.	ROO5 COTAL 26 ROO5 COU O -L- ORTATI	.4 СҮ 0.9 СҮ 5.6 СҮ NTY ON RT 2:1



NOTES

THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF $2^{1}/_{2}$ ".

B. 4 - 1" Ø X 21/4" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" \emptyset X 2 $\frac{1}{4}$ " GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A $\frac{7}{16}$ % WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS "A" CONCRETE. FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE

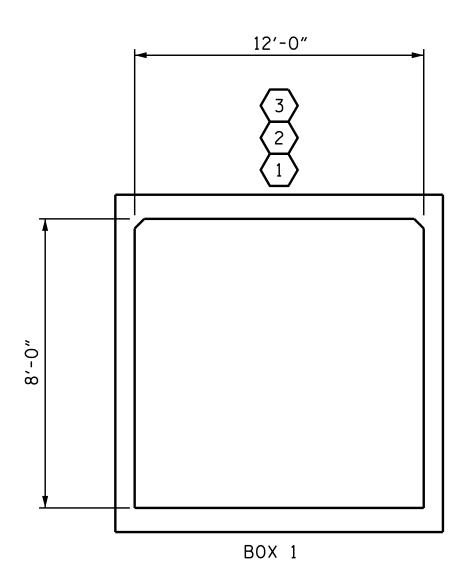
AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED. PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY

SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1"Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE

			CT NO. GUILFOF ON: 1	RD	P7.R00 CC .00 -L-	UNTY
		SHEET 5	OF 6			
B /GI e. Suite 200	DOPUSITIVE SCAROL JOLIN & E SURA 3012 E SURA 3012 E SURA SE AL 18056	A	STATE O ARTMENT O NCHORA FOR G ANCHOR FOR (GE D UARD ASS	NSPORTA DETAIL DRAIL SEMBL	LS
.1510	11/21/2022 11:52 AM	PST	REVISIO	NS		SHEET NO.
.C-4434		NO. BY:	DATE: NO		DATE:	S-5
	NSIDERED FINAL RES COMPLETED	1 2	<u>.</u> 3 අ			total sheets 6

							STRENGTH I LIMIT STATE									
										MOMENT				SHEAR		
LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING	MINIMUM RATING FACTORS (RF)	TONS = W × RF	LIVE-LOAD FACTORS (Y _{LL})	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (f†)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (f†)	COMMENT NIMBER
		HL-93 (INVENTORY)	N/A	$\langle 1 \rangle$	1.03		1.75	1.03	1	ROOF SLAB - MID	6.33	1.21	1	ROOF SLAB - LT END	0.33	
DESIGN		HL-93 (OPERATING)	N/A		1.34		1.35	1.34	1	ROOF SLAB - MID	6.33	1.57	1	ROOF SLAB - LT END	0.33	
LOAD RATING		HS-20 (INVENTORY)	36.000	2	1.07	38.5	1.75	1.07	1	ROOF SLAB - MID	6.33	1.26	1	ROOF SLAB - LT END	0.33	
		HS-20 (OPERATING)	36.000		1.39	49.9	1.35	1.39	1	ROOF SLAB - MID	6.33	1.63	1	ROOF SLAB - LT END	0.33	
		SNSH	13.500		1.81	24.4	1.40	1.81	1	ROOF SLAB - MID	6.33	2.19	1	ROOF SLAB - LT END	0.33	
	ш	SNGARBS2	20.000		1.69	33.8	1.40	1.69	1	ROOF SLAB - MID	6.33	2.05	1	ROOF SLAB - LT END	0.33	
	5	SNAGRIS2	22.000		1.81	39.8	1.40	1.81	1	ROOF SLAB - MID	6.33	2.19	1	ROOF SLAB - LT END	0.33	
	VEHI V)	SNCOTTS3	27.250	3	1.03	28.1	1.40	1.03	1	ROOF SLAB - MID	6.33	1.21	1	ROOF SLAB - LT END	0.33	
	ILE (S	SNAGGRS4	34.925		1.12	39.1	1.40	1.12	1	FLOOR SLAB - MID	6.33	1.17	1	FLOOR SLAB - LT END	0.33	
	SINGL	SNS5A	35.550		1.15	40.9	1.40	1.15	1	ROOF SLAB - MID	6.33	1.20	1	FLOOR SLAB - LT END	0.33	
		SNS6A	39.950		1.15	45.9	1.40	1.15	1	FLOOR SLAB - MID	6.33	1.20	1	FLOOR SLAB - LT END	0.33	
LEGAL LOAD		SNS7B	42.000		1.15	48.3	1.40	1.15	1	FLOOR SLAB - MID	6.33	1.20	1	FLOOR SLAB - LT END	0.33	
RATING	ER	TNAGRIT3	33.000		1.42	46.9	1.40	1.42	1	FLOOR SLAB - MID	6.33	1.43	1	FLOOR SLAB - LT END	0.33	
	RAIL	TNT4A	33.075		1.23	40.7	1.40	1.23	1	ROOF SLAB - MID	6.33	1.44	1	ROOF SLAB - LT END	0.33	
	EMI-T	TNT6A	41.600		1.16	48.3	1.40	1.16	1	ROOF SLAB - MID	6.33	1.25	1	FLOOR SLAB - LT END	0.33	
	ST ST	TNT7A	42.000		1.20	50.4	1.40	1.20	1	ROOF SLAB - MID	6.33	1.37	1	FLOOR SLAB - LT END	0.33	
	TOR (TT)	TNT7B	42.000		1.16	48.7	1.40	1.16	1	ROOF SLAB - MID	6.33	1.20	1	FLOOR SLAB - LT END	0.33	
	TRACTOF (T1	TNAGRIT4	43.000		1.23	52.9	1.40	1.23	1	ROOF SLAB - MID	6.33	1.43	1	FLOOR SLAB - LT END	0.33	
	TRUCK	TNAGT5A	45.000		1.23	55.4	1.40	1.23	1	ROOF SLAB - MID	6.33	1.44	1	ROOF SLAB - LT END	0.33	
	TRI	TNAGT5B	45.000		1.53	68.9	1.40	1.53	1	ROOF SLAB - MID	6.33	1.80	1	ROOF SLAB - LT END	0.33	



L	F	R	-	F	2
	(LC)0	K	11

\sim				
2022				
				0.22
21	DRAWN BY :	S.D. COOPER	_ DATE :	8-22
11/	CHECKED BY :	B.S. COX	DATE :	8-22
-		OF RECORD: D.B. SIMPSON	DATE :	8-22
	DESIGN ENGINEE		- DATE .	





LICENSURE NO. C-4434

LOAD FACTORS:

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
ΕV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	
WA	1.00	

DESIGN LOAD RATING FACTORS

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

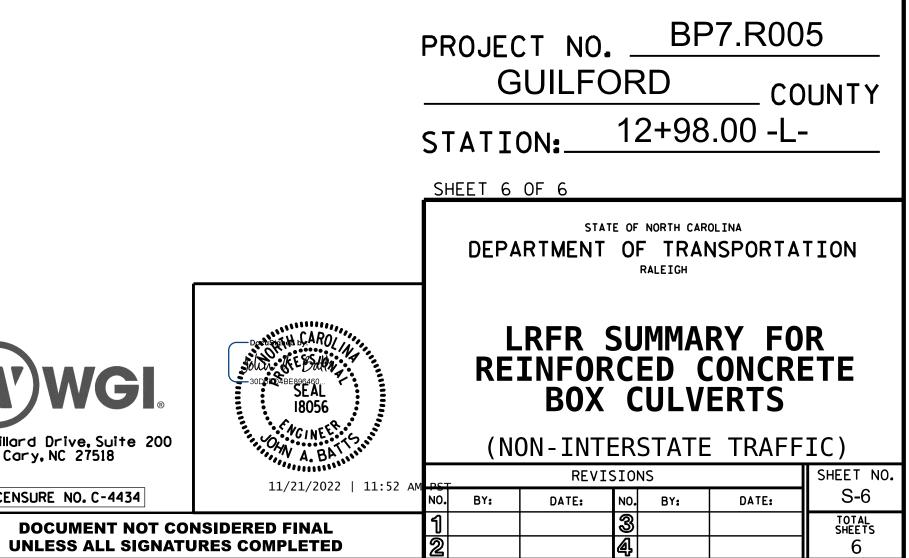


1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE



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 $1\frac{1}{2}$ 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 $\frac{1}{4}$ 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.

STANDARD NOTES

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 $\frac{7}{8}$ " Ø SHEAR STUDS FOR THE ¾″Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{1}{8}$ " Ø STUDS FOR 4 - $\frac{3}{4}$ " Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " Ø STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " Ø STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " Ø STUDS FOR 4 - $\frac{3}{4}$ " Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-O".

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 5/16" 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 VIGINCH 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. FINS 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