

LENGTH				PREPARED IN THE OFFICE O		Y T
				RS&H	RALEIGH, NC 27615 NC FIRM LICENSE No: F-0493	
T R 5777		0 3 7 7		FOR THE NORTH CAROLINA	DEPARTMENT OF TRANSPORTATION	STRUCTURAL EN
	_	0.377	/WILLS	2024 STANDARD SPECIFICATIONS		TH CAROL
T B-5777	_	0 029	MILES		STEVEN SHUMAN, PE PROJECT ENGINEER	SEAL
		0.027	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	$\begin{array}{c} RIGHT OF WAY DATE \\ \text{APRIL 30, 2024} \end{array}$	MICHAEL B. KHIN, PE	046966
5777	=	0.406	MILES		PROJECT DESIGN ENGINEER	Signed by: CHAEL B. KHI
				<i>LETTING DATE:</i> JUNE 17, 2025	RYAN NEWCOMB, PE	FG999EE755A94D0 SIGNATURE:
				l I		Y

	STATE	STAT	E PROJECT REFERENCE NO.	SHEET TOTAL NO. SHEETS		
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 21+50	1	I	22	 2+00	
FACE @ END BEN	<u>T 2</u>				
DE PT. EL. 789.47					
REINFORCEMEN TO BACKWALL (T STRAP ATTACHED FYP.)				
5		L L	L. 781.0±		
774.0+	- EL. 779.0±	APPROXIN GROUND	MATE EXISTING LINE		
2 12X53 STEEL PI	- FILL LES				
YP.)					
	h				
- W.P. #3					
STA. 21+39.27	-L-	ROACH SLAB			
		ГО SR 2101			
		TY CHURCH RE).		
		PROJECT		8-5777	,
	<u>`</u>		20+64	.02 -	OUNTY
	TEMPORARY SHORING	STATION:			-
	TH CAROLING				
- EXISTING	SGEAL by: MALOSEE B. Khing	GEN		RAWING	
JINUCIUKE	BB50B82E922F422	FOR	BRIDGE ON	NC 10	9
	RSch	SR	2266 AND	SR 2101	-
	RS&H Architects-Engineers-Planners, Inc.		REVISIONS		SHEET NO.
NOT CONSIDERED	8521 Six Forks Road, Suite 400 Raleigh, NC 27615 919-926-4100 FAX 919-846-9080 www.rsandh.com	NO. BY: DA	ATE: NO. BY:	DATE:	S-1 TOTAL SHEETS
	North Carolina License Nos. 50073 * F-0493 * C-28		ty		50

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END BENT 1

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOR PILE EXCAVACTION, MINIMUM EMBEDMENT OF 10 FEET BELOW TOP OF LEVELING PAD FOR SOIL NAIL WALL AND MSE ABUTMENT WALLS ARE REQUIRED AT END BENTS NOS. 1 AND 2.

FILL HOLES FOR PILE EXCAVATION AT END BENT NOS. 1 AND 2 WITH CONCRETE.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-9 OF THE STANDARD SPECIFICATIONS.

INSTALL PILES AT END BENT NO. 1 PRIOR TO SOIL NAIL WALL CONSTRUCTION.

EXCAVATE FOR MSE WALL AT END BENT NO. 2 PRIOR TO INSTALLING PILES.

DRAWN BY :	J. S	SCACCA	DATE :	08/2024
CHECKED BY :	1	DATE :	09/2024	
DESIGN ENGINE	ER OF RECORD:	M. KHIN	DATE :	02/2025

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FOUNDATION LAYOUT



END BENT 2

		PROJECT N DA STATION:	0E /IDSON 20+64	8-5777 C .02 -	0UNTY L-
		SHEET 2 OF 4			
	BBOBB2E922F422 WGINEE BBOBB2E922F422 WGINEE BBOBB2E92F422 BBOBB2E92F422 WGINEE BBOBB2E92F422 BBOBB2E92F42 BBOBB2E92F42 BBOBB2E9 BBOBBBBABABABABABABABABABABABABABABABAB	DEPARTM GEN FOR OVEI SR 2	STATE OF NORTH CAR IENT OF TRA RALEIGH BRIDGE ON R US 64 E 266 AND	OLINA NSPORTAT RAWIN(N NC 10 BETWEEN SR 2101	ION G 9 L
	RS&H Architects-Engineers-Planners, Inc.		REVISIONS		SHEET NO.
T CONSIDERED	8521 Six Forks Road, Suite 400 Raleigh, NC 27615	NO. BY: DATE	: NO. BY:	DATE:	S-2
ILESS ALL COMPLETED	919-926-4100 FAX 919-846-9080 www.rsandh.com North Carolina License Nos. 50073 * F-0493 * C-28	1	3 4		TOTAL SHEETS 30

(Blank entries indicate item is not applicable to structure)

						Driven Piles		Driven Piles		Predrilling for Piles **		Drilled-In Piles		
End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
End Bent No. 1, Piles 1-7	7	240		30			400					754.00	10	15
End Bent No. 2, Piles 1-7	7	240		30			400					754.00	6	4
TOTAL QUANTITY:													112	133

Factored Resistance + Factored Drag Load + Factored Dead Load + Nominal Drag Load Resistance + Nominal Resistance from Scourable Material * *RDR* = Dynamic Resistance Factor

** Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
End Bent No. 1, Piles 1-7	240			0.60		
End Bent No. 2, Piles 1-7	240			0.60		

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF SPREAD FOOTING INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Footing(s) #(-#) (e.g., "Bent 1, Footing 1-2")	Factored Bearing Resistance KSF	Footing Dimensions (Length x Width) FT x FT	Required Bearing Resistance KSF	Scour Critical Elevation FT	Minimum Bottom of Footing (Footing No Higher Than) Elevation FT
Bent No. 1, Footings 1-3	15	10 x 10	35		762.57

NOTES:

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1. The Pile Foundation and Spread Footing Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (MICHAEL H. STEPHENS, #028893) on 010-21-2024. 2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.

3. The Engineer may adjust the quantity for DPT Testing and Pipe Pile Plates when necessary.

DRAWN BY :	Ν.	DATE :	08/2024	
CHECKED BY :	N	DATE :	09/2024	
DESIGN ENGINE	ER OF RECORD:	M. KHIN	DATE :	02/2025

SUIMMARY OF PILE INFORMATION/INSTALLATION

		PROJEC	T NO. DAVI	B DSON	- 5777	
		STATI0	N :	20+64	.02 -	L-
		SHEET 3 OF	⁻ 4			
21-	séladov Rofession Besobezerazz Melles Basobezerazz Melles Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Basobezerazz Melles Melles Basobezerazz Melles Mell	DEPA	stat ARTMENT F0	TE OF NORTH CARO T OF TRAN RALEIGH PILE UNDATI TABLES	ISPORTAT	ION
	RS&H Architects-Engineers-Planners, Inc.		REVIS	IONS		SHEET NO.
OCUMENT NOT CONSIDERED FINAL UNLESS ALL	8521 SIx Forks Road, Sulte 400 Raleigh, NC 27615 919-926-4100 FAX 919-846-9080	NO. вү: 1	DATE:	NO. BY:	DATE:	S-3 TOTAL SHEETS
SIGNATURES COMPLETED	www.rsandh.com North Carolina License Nos. 50073 * F-0493 * C-28	2		4		30



					— то	FAL	BII	L OF	MA	TERIAL					
	REMOVAL OF EXISTING STRUCTURE @ STA. 20+64.02	ر ب L-	ASBESTOS SSESSMENT	FOUNDATION EXCAVATION FOR BENT 1 AT STA. 20+64.02 -L-	Pile Excava ⁻ IN So	TION IL	P EXCA NOT	PILE VATION IN SOIL	UN S EX STA.	CLASSIFIED TRUCTURE CAVATION @ 20+64.02 -L-	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL
	LUMP SUM		LUMP SUM	LUMP SUM	LIN. F	T.	LIN	N. FT.	L	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.
SUPERSTRUCTURE											6,698	7,630			
END BENT 1					105			70					47.7		6,333
BENT 1													69.4		11,079
END BENT 2					28			42					41.8		5,261
TOTAL	LUMP SUM		LUMP SUM	LUMP SUM	133		1	112	L	LUMP SUM	6,698	7,630	158.9	LUMP SUM	22,673
	SPIRAL COLUMN REINFORCING STEEL	45"	PRESTRESS CONCRETE GIRDERS	ED PILE DRIVING EQUIPMENT SET FOR HP 12X53 STEEL PILES	UP H 3 ST	P 12X EEL PI	53 LES	CONCRET BARRIEF RAIL	TE R	4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	STRIP SEAL EXPANSION JOINT			
	LBS.	NO.	LIN. FT	. EACH	NO.	LIN	I. FT.	LIN. FT.		SQ. YDS.	LUMP SUM	LUMP SUM			
SUPERSTRUCTURE		10	734.5					336.1							
END BENT 1				7	7	2	10			40					
BENT 1	1,091														
END BENT 2				7	7	2	10			14					
TOTAL	1,091	10	734.5	14	14	4	20	336.1		54	LUMP SUM	LUMP SUM			

DRAWN BY :	N	DATE :	09/2024	
CHECKED BY :		DATE :	10/2024	
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ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATIONS ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE DECK PANELS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 4 SHALL BE EXCAVATED FOR A DISTANCE OF 77.0 FT. LT. AND 72.0 FT. RT. OF -L- AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS @ 48'-6", 75'-6", AND 39'-6" ON REINFORCED CONCRETE DECK GIRDERS WITH A CLEAR ROADWAY WIDTH OF 26'-0" ON REINFORCED CONCRETE CAP ON CONCRETE COLUMNS AND LOCATED 50' WEST FROM PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

TEMPORARY SHORING WILL BE REQUIRED IN THE PLAN AREA INDICATED IN THE PLAN VIEW.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS, FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

FOR ASBESTOS ASSESMENT. SEE SPECIAL PROVISIONS.

NOTES

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

		PROJE	CT NO.	B	8-5777	/
			DAVI	DSON	C	OUNTY
		STATI	ON :	20+64	.02 -	L
		SHEET 4 C)F 4			
	A/1/2025	DE	STA PARTMEN GENER OR BRI OVER L SR 226	TE OF NORTH CARG T OF TRAN RALEIGH DGE ON JS 64 E 6 AND	NSPORTATI RAWIN(NC 10 BETWEEN SR 2101	ION G J
	RS&H Architects-Engineers-Planners, Inc.		REVIS	IONS		SHEET NO.
NSIDERED	8521 Six Forks Road, Suite 400 Raleigh, NC 27615	NO. BY:	DATE:	NO. BY:	DATE:	S-4
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	LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																							
										ST	RENG	STH I LIM	IT STA	ATE					SERV	CE III I		STATE		
										MC	DMEN ⁻	Г			SHE	AR			MOMENT					
LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W × RF	LIVE-LOAD FACTORS (7 LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (DISTRIBUTION FACTORS (DF)	RATING FACTOR	NAAS	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	COMMENT NUMBE
		HL-93 (INVENTORY)	N/A		1.08		1.75	0.80	1.49	A/B	E	36.06	0.97	1.26	A/B		14.02	0.80	0.76	1.08	A/B		36.06	
DESI	GN	HL-93 (OPERATING)	N/A		1.67		1.35	0.80	1.93	A/B	E	36.06	0.97	1.67	A/B		14.02	N/A						
LOA	D	HS-20 (INVENTORY)	36.000	2	1.41	50.76	1.75	0.80	1.94	A/B	E	36.06	0.97	1.57	A/B		58.09	0.80	0.76	1.41	A/B	I	36.06	
		HS-20 (OPERATING)	36.000		2.08	74.88	1.35	0.80	2.52	A/B	Е	36.06	0.97	2.08	A/B	I	14.02	N/A						
		SNSH	13.500		3.19	43.07	1.40	0.80	5.47	A/B	E	36.06	0.97	4.85	A/B	I	14.02	0.80	0.76	3.19	A/B	I	36.06	
	Ш	SNGARBS2	20.000		2.38	47.60	1.40	0.80	4.08	A/B	E	36.06	0.97	3.44	A/B		14.02	0.80	0.76	2.38	A/B	1	36.06	
	HIC	SNAGRIS2	22.000		2.25	49.50	1.40	0.80	3.87	A/B	E	36.06	0.97	3.19	A/B		58.09	0.80	0.76	2.25	A/B	1	36.06	
	VE V	SNCOTTS3	27.250		1.59	43.33	1.40	0.80	2.72	A/B	E	36.06	0.97	2.36	A/B	I	58.09	0.80	0.76	1.59	A/B	I	36.06	
	Ц (С	SNAGGRS4	34.925		1.33	46.45	1.40	0.80	2.28	A/B	Е	36.06	0.97	1.96	A/B		14.02	0.80	0.76	1.33	A/B	I	36.06	
	DNG NG	SNS5A	35.550		1.30	46.22	1.40	0.80	2.23	A/B	Е	36.06	0.97	1.99	A/B		14.02	0.80	0.76	1.30	A/B	I	36.06	
	SI	SNS6A	39.950		1.19	47.54	1.40	0.80	2.04	A/B	Е	36.06	0.97	1.81	A/B		14.02	0.80	0.76	1.19	A/B	I	36.06	
LEGAL		SNS7B	42.000		1.13	47.46	1.40	0.80	1.95	A/B	Е	36.06	0.97	1.79	A/B		58.09	0.80	0.76	1.13	A/B	I	36.06	
LOAD		TNAGRIT3	33.000		1.45	47.85	1.40	0.80	2.49	A/B	Е	36.06	0.97	2.18	A/B		14.02	0.80	0.76	1.45	A/B	I	36.06	
	A C R	TNT4A	33.075		1.46	48.29	1.40	0.80	2.50	A/B	E	36.06	0.97	2.11	A/B		58.09	0.80	0.76	1.46	A/B	I	36.06	
	CTC	TNT6A	41.600		1.19	49.50	1.40	0.80	2.05	A/B	E	36.06	0.97	1.93	A/B	l	58.09	0.80	0.76	1.19	A/B	I	36.06	
	RAI ST)	TNT7A	42.000		1.20	50.40	1.40	0.80	2.06	A/B	E	36.06	0.97	1.86	A/B	I	14.02	0.80	0.76	1.20	A/B	I	36.06	
		TNT7B	42.000		1.24	52.08	1.40	0.80	2.13	A/B	E	36.06	0.97	1.74	A/B		14.02	0.80	0.76	1.24	A/B	I	36.06	
	SEN SEN	TNAGRIT4	43.000		1.18	50.74	1.40	0.80	2.03	A/B	E	36.06	0.97	1.68	A/B		14.02	0.80	0.76	1.18	A/B	I	36.06	
	Т,	TNAGT5A	45.000		1.11	49.95	1.40	0.80	1.91	A/B	E	36.06	0.97	1.68	A/B	I	14.02	0.80	0.76	1.11	A/B	I	36.06	
		TNAGT5B	45.000	3	1.10	49.50	1.40	0.80	1.89	A/B	E	36.06	0.97	1.59	A/B		58.09	0.80	0.76	1.10	A/B		36.06	
EMERG	GENCY	EV2	28.750		1.68	48.30	1.30	0.80	3.11	A/B	E	36.06	0.97	2.57	A/B		14.02	0.80	0.76	1.68	A/B		36.06	
VEHICL	E (EV)	EV3	43.000	4	1.10	47.30	1.30	0.80	2.03	A/B	E	36.06	0.97	1.69	A/B		58.09	0.80	0.76	1.10	A/B	I	36.06	



LRFR SUMMARY

DRAWN BY :	N	. CUANY	DATE :	08/2024
CHECKED BY :		DATE :	09/2024	
DESIGN ENGINEE	R OF RECORD:	M. KHIN	DATE :	02/2025

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LOAD FACTORS:

DESIGN	LIMIT STATE	γDC	γdw
LOAD RATING FACTORS	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1	L.					
	2.					
3	3.					

4.

(#) C	ONTROLLING	LOAD	RATING
1 DE	SIGN LOAD RATIN	IG (HL-9	3)
2 DE	SIGN LOAD RATIN	IG (HS-2	0)
3 LEC	GAL LOAD RATING) * *	
4 EM	ERGENCY VEHICL	E LOAD	** RATING
* * SE	E CHART FOR VEH	HICLE TY	′PE
	GIRDER LO	CATIO	N
I - IN	TERIOR GIRDER (GIRDER	3)
E - EX	TERIOR GIRDER		



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M. KHIN

DESIGN ENGINEER OF RECORD:

02/2025

DATE :



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FOR STEEL DIAPHRAGM DETAILS, SEE "INTERMEDIATE STEEL DIAPHRAGMS FOR TYPE III PRESTRESSED CONCRETE GIRDERS" SHEET

DRAWN BY :	J. S	SCACCA	DATE :	08/2024
CHECKED BY :		DATE :	09/2024	
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150'-6" FILL FACE @ END BENT 1 TO FILL FACE @ END BENT 2

FRAMING PLAN

DRAWN BY :	N.	CUANY	DATE :	09/2024
CHECKED BY :		M. KHIN	DATE :	09/2024
DESIGN ENGIN	EER OF RECORD:	M. KHIN	DATE :	02/2025

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AT Q OF GIRDER

PARTIAL ELEVATION SHOWING INTERMEDIATE DIAPHRAGM

REINFORCING STEEL FOR ALL GIRDERS (FOR ALL EXTERIOR GIRDERS AND INTERIOR GIRDERS)

TH CARO

V. OFESSION

Michael B. Khin

	0.0	6"ø L.F	R. GRA	DE 27	0 STR	RANDS				
		AREA	ULT STR	TMATE ENGTH	A PRI	APPLIED ESTRESS				
	2) 11	SQUARE NCHES)	(PER S	LBS. STRAND)	PER	(LBS. STRAND)				
	(0.217	58	,600		43,950				
R	EIN	FORCING	G STEE	EL FOR	ONE	GIRDER				
F	BAR S1	NUMBER 38	SIZE #4	TYPE 1	LENGT 8'-10'	<u>H WEIGHT</u> 224				
	S2	20	#4	1	8'-8"	116				
┝	<u>53</u> 54	6 72	#6 #4	1	8'-8" 2'-9"	/8				
⊢	S5	10	#4	1	7'-2"	108				
	S6	4	#4	3	8'-8"	23				
	<u>S7</u>	2	#5	3	7'-2"	15				
	<u>58</u> 50	5	#4 #4		/'-0"	23				
⊢	29	Ζ	#4	5	9-0					
			BAR	TYPES						
	S3		c ¹ / u		8".	56				
	S5, S2,	S1	6 ⁷ 2		1'-6"	59				
						 57				
,	$\frac{2\frac{1}{2}}{11\frac{1}{2}}$	01	\bigcirc							
						↑ ↑				
1	<u>n</u> tu				(3)					
	_ 1_	$\int \int $				3- <u>5</u> -14-0				
	<u> </u>		, c	53 55						
		$\left \begin{array}{c} \mathbf{N} \right \frac{1}{3} \\ \frac{1}{2} \end{array} \right $		51 52						
	<u> </u>		<u>►</u> • `	<u>, , , , , , , , , , , , , , , , , , , </u>		S7 S9				
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		$-\langle \hat{\rangle}$	\overline{O}							
	₽Ū				אוח מאכ					
			-5	ARE	OUT-TC	D-OUT				
	Q	UANTIT	IES F	OR ON	E GIR	RDER				
		RE	INFORCI STEEL	NG 8,00	0 PSI	0.6" Ø L. R STRANDS				
			LB.		<u>.Y.</u>	No.				
	GIR	DER	732	1	0.6	28				
⊢	01111									
<u> </u>										
		10	/:	3'-5%"	/	34'-5%				
	PR	OJECT DA	NO	B- SON	577 ⁻	7				
	STATION: 20+64.02 -L-									
	<u>SHE</u> E	<u>T 1 OF 2</u>								
		DEPART	state of i MENT OI F SUPERS	NORTH CAROLIN, F TRANS RALEIGH	₄ PORTA ⁻ URE	ΓΙΟΝ				
		ΛΛΟ	нто	TVDE	: тт	т				
	F	PREST GIRD	RESS ER -	ED C	ONCF	ŘETE _AB				

	3/31/2025		PRE GJ	AASH STRE RDER	ГО SS -	TYP ED LI	PE II CONCF NK SL	I RETE .AB
	RS&H Architects-Engineers-Planners, Inc.			REV	ISIONS	5		SHEET NO.
	8521 Six Forks Road, Suite 400 Raleigh, NC 27615	NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
	919-926-4100 FAX 919-846-9080	1			3			TOTAL SHEETS
LETED	www.rsandh.com North Carolina License Nos, 50073 * F-0493 * C-28	2			4			30

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 \rightarrow 3_4 " BEVEL EDGE

SECTION "F"

(SEE NOTES)

		DEA	DL	OAD	DEF	LEC	TIO	ΝΤ	ABLI	E FC)R G	IRD	ERS								
									SP	AN A	AND	SPAN	B								
U.O Ø LUW RELAXATION		GIRDERS 1 AND 5																			
TWENTIETH POINTS	0.0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0
CAMBER (GIRDER ALONE IN PLACE)	0.000	0.026	0.052	0.076	0.098	0.118	0.135	0.148	0.158	0.164	0.166	0.164	0.158	0.148	0.135	0.118	0.098	0.076	0.052	0.026	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *	0.000	0.016	0.032	0.047	0.061	0.073	0.083	0.092	0.098	0.101	0.103	0.101	0.098	0.092	0.083	0.073	0.061	0.047	0.032	0.016	0.000
FINAL CAMBER	0	1/8	1/4	3/8	7/16	9/16	5/8	11/16	3/4	3/4	3/4	3/4	3/4	11/16	5/8	9/16	7/16	3/8	1/4	1/8	0
		GIRDERS 2 AND 4																			
TWENTIETH POINTS	0.0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0
CAMBER (GIRDER ALONE IN PLACE)	0.000	0.026	0.052	0.076	0.098	0.118	0.135	0.148	0.158	0.164	0.166	0.164	0.158	0.148	0.135	0.118	0.098	0.076	0.052	0.026	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *	0.000	0.018	0.035	0.051	0.065	0.078	0.089	0.098	0.105	0.109	0.110	0.109	0.105	0.098	0.089	0.078	0.065	0.051	0.035	0.018	0.000
FINAL CAMBER	0	1/8	3/16	5/16	3/8	1/2	9/16	5/8	5/8	11/16	11/16	11/16	5/8	5/8	9/16	1/2	3/8	5/16	3/16	1/8	0
		-								GI	RDER	3									
TWENTIETH POINTS	0.0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0
CAMBER (GIRDER ALONE IN PLACE)	0.000	0.026	0.052	0.076	0.098	0.118	0.135	0.148	0.158	0.164	0.166	0.164	0.158	0.148	0.135	0.118	0.098	0.076	0.052	0.026	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *	0.000	0.018	0.035	0.051	0.066	0.080	0.091	0.100	0.106	0.110	0.112	0.110	0.106	0.100	0.091	0.080	0.066	0.051	0.035	0.018	0.000
FINAL CAMBER	0	1/8	3/16	5/16	3/8	7/16	1/2	9/16	5/8	5/8	5/8	5/8	5/8	9/16	1/2	7/16	3/8	5/16	3/16	1/8	0

* INCLUDES FUTURE WEARING SURFACE IN SUPERIMPOSED DEAD LOAD. ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS SHOWN IN INCHES (FRACTION FORM).

DRAWN BY :	N.	CUANY	DATE :	08/2024
CHECKED BY :		DATE :	09/2024	
DESIGN ENGINEE	R OF RECORD:	M. KHIN	DATE :	02/2025

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ALL REINFORCING STEEL SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO BOTH SIDES AND BOTTOM OF END 2 FEET OF GIRDER AND END OF GIRDER SURFACES AS INDICATED IN ELEVATION VIEW.

SPECIFICATIONS.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 PSI.

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER SHALL BE RAKED TO A DEPTH OF 1/4" EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER AND EXCLUDING THE AREA SHOWN IN ELEVATION VIEW.

EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE III GIRDER

(2 REQ'D PER GIRDER)

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD

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PLATE DETAILS

-FOR BOLT CONNECTION, SEE TYPICAL BOLT WITH DTI ASSEMBLY DETAIL

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL AND CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL

TENSION ON THE ASTM A325 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TENSION ON THE ASTM A449 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL $\frac{1}{4}$ TURN.

THE PLATES, BENT PLATES, CHANNELS, AND ANGLES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR METALLIZATION, APPLY A THERMAL SPRAYED COATING WITH A SEAL COAT TO ALL STEEL DIAPHRAGM SURFACES IN ACCORDANCE WITH THE DEPARTMENTS THERMAL SPRAYED COATINGS (METALLIZATION) PROGRAM, THERMAL SPRAYED COATINGS SPECIAL PROVISION AND SECTION 442 OF THE STANDARD SPECIFICATIONS.

GALVANIZE THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE AN ASTM F436 HARDENED WASHER WITH STANDARD AND SLOTTED HOLES UNDER EACH BOLT HEAD AND NUT.

FOR BOLTS THROUGH THE GIRDER WEB, PROVIDE SUFFICIENT LENGTH OF THREADS ON ALL BOLTS TO ACCOMMODATE WASHERS AND THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST $\frac{1}{4}$ " PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

IN THE EXTERIOR BAYS, PLACE TEMPORARY STRUTS BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.

GIRDER TYPE	CHANNEL SIZE	DIM ``A''	DIM ``B''	DIM ``L''
III	MC 18 × 42.7	1'-5″	1'-2"	1'-6"

PROJECT NO.

STATION:

DAVIDSON

TABLE

B-5777

20+64.02 -L-

COUNTY

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DRAWN BY :	N. CUANY			08/2024	
CHECKED BY :	M. KHIN			09/2024	
DESIGN ENGINEER	OF RECORD:	M. KHIN	DATE :	02/2025	

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NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ¹/₂ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE STANDARD SPECIFICATIONS.

ALL SOLE PLATES SHALL BE AASHTO M270 GRADE 36.

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THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A $\frac{1}{4}$ " HOLD-DOWN PLATE AND $4 -\frac{7}{8}$ "Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REOUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE $\frac{7}{8}$ " \varnothing Galvanized Bolts, NUTS 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.)

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL

THE $1\frac{1}{4}$ " Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE $\frac{5}{8}$ " Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE $\frac{5}{8}$ " \varnothing BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL

NOTES

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* DIMENSION "B" BASED ON STEEL RETAINER RAIL TOP OFFSET TO FACE OF RAIL OF $\frac{1}{4}$ " MINIMUM. IF ACTUAL OFFSET IS GREATER ADJUST DIMENSION "B" AS REQUIRED.

	MOVEMENT AND SETTING AT JOINT											
END BENT	CKE/W	TOTAL		DIMENSION "A"			DIMENSION "B"					
NO. ANGLE MOVEMENT			PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR	PERPENDICULAR				
	TROLL	(ALONG & RDWY)	JOINT OPENING	JOINT OPENING	JOINT OPENING	JOINT OPENING	JOINT OPENING	JOINT OPENING				
			AT 45° F	AT 60° F	AT 90° F	AT 45° F	AT 60° F	AT 90° F				
1	77°-47'-22"	7⁄ ₁₆ "	2 ¹ ⁄ ₁₆ "	2"	1 ¹³ ⁄16"	2 [%] 16"	2½"	2 ⁵ ⁄ ₁₆ "				
2	77°-47'-22"	7⁄ ₁₆ "	2 ¹ ⁄ ₁₆ "	2"	1 ¹³ ⁄16"	2 ⁹ ⁄16"	2 ¹ ⁄2"	2 ⁵ ⁄ ₁₆ "				

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DATE: 02/2025

M. KHIN

DESIGN ENGINEER OF RECORD:

JOINT INSTALLATION PROCEDURE:

- INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMEND BY THE MANUFACTURER.
- 2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
- PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY 3. ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFA OF THE STEEL RETAINER RAILS.
- CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTL 4. WHEN NECESSARY.
- DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL 5. COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOIN ALIGNMENT IS SET.
- 6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED CONCRETE SPILLOVER DURING THE DECK POUR.
- 7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO AL MOVEMENT WHILE CONCRETE CURES.
- RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED 8. ON OPPOSITE SIDE OF JOINT.
- PLACE APPROACH/DECK SLAB CONCRETE. 9.
- 10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOT SIDES OF JOINT, STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
- 11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE ANI INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMEND BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.

	GENE	RAL	OTES			
FOR STR	RIP SEAL EXPANSION	JOINTS, S	SEE SPECIAL		ONS.	
STEEL R M270 G TO AASI CONCRE AASHTC	ETAINER RAILS AND (RADE 36 OR GRADE 5 HTO M169, GRADES 1 ETE INSERTS SHALL B M169, GRADE 12L14	COVER P 50 STEEL 1010 THF E CLOSE 4. TENSIL	LATES SHAL . ALL STUD U 1020 OR D END AND .E CAPACITY	L CONFO ANCHORS APPROVE SHALL CO SHALL B	RM TO AAS 5 SHALL CO D EQUAL. DNFORM T E 3000 LBS	SHTO ONFORM ALL O S. MIN.
ONLY ST PERMIT COMPOI CROSS-S	EEL RETAINER RAILS ED. STEEL RETAINE NENTS WELDED TOGI SECTIONAL SHAPE AF	OF ONE- R RAILS (ETHER T(RE NOT P	PIECE CONS CONSISTING D OBTAIN TI ERMITTED.	STRUCTIO i of two heir fina	N ARE OR MORE L	
Stud Ai End We	NCHORS SHALL BE SH LDED WITH COMPLE	HOP WEL TE FUSIO	DED AND S N.	HALL BE E		ARC
SURFAC GROUNI	ES COMING IN CONTA D SMOOTH PRIOR TO	ACT WITH METALLI	I STRIP SEA ZING.	L GLAND S	SHALL BE	
UPON C RAILS SI SEE SPE (METALL	OMPLETION OF SHOP HALL BE METALLIZED CIAL PROVISIONS FO IZATION).	P FABRICA AS SHO R THERM	TION, THE WN IN THE IAL SPRAYE	STEEL RE ^T "METALLIZ D COATING	Tainer Zing Deta Gs	IL".
INSTALL	ED STEEL RETAINER	RAILS SH	ALL FOLLO	N THE RO	ADWAY SL	OPE.
FIELD SI CONTRA LOCATIC ACCORE COATING	PLICES OF THE RETAIL CTOR SHALL FURNIS ONS FOR APPROVAL. I DANCE WITH THE SPE GS (METALLIZATION).	NER RAIL H DETAIL FINISHED CIAL PRO	S SHALL BE ED PLANS S WELDS SH OVISION FOI	E KEPT TO SHOWING ALL BE RE R THERMA	a minimu Propose Paired in L Sprayei	M. D SPLICE I D
NEOPRE JOINT AI FIELD SI	NE STRIP SEAL GLAN ND SHALL BE COMPAT PLICING THE GLAND I	ID SHALL FIBLE WI IS NOT PI	BE CONTIN TH THE STE ERMITTED.	IUOUS TH EL RETAIN	Roughou Ier Rails.	IT THE
NO ALTE SHOWN	RNATE JOINT DETAILS ON THESE PLANS.	S SHALL	BE PERMITT	ED IN LIE	U OF THOS	SE
THE CO ACCORE COATING	VER PLATES SHALL BI DANCE WITH THE STA GS (METALLIZATION),	e galvan Ndard S See Spe	NIZED OR M SPECIFICATI CIAL PROVI	ETALLIZEI ONS. FOR SIONS.) in Thermal	SPRAYED
THE COI BOLTS II LOAD O BONDIN	NTRACTOR MAY, AT H N PLACE OF CONCRE ^T F THE $\frac{3}{4}$ " Ø BOLT IS 1 G SYSTEM IS NOT RE	IIS OPTIC TE INSER .0 KIPS. F QUIRED.	N, USE ADH TS FOR CO\ IELD TESTII	IESIVELY A /ER PLATE NG OF THI	ANCHOREE S. THE YIE E ADHESIV	D ANCHOR LD /E
	SUR MET	FACE TO ALLIZED	BE TALLI	ZING	DETAI	 ∶L
		PROJ	ECT NO. DAVT	<u>рсои</u> В	-5///	
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	RS&H		JOIN	T DET	AILS	
ł	RS&H Architects-Engineers-Planners, Inc. 8521 Six Forks Road. Suite 400	NO PY	REVIS		DATE.	SHEET NO.
SIDERED LL ETED	Raleigh, NC 27615 919-926-4100 FAX 919-846-9080 www.rsandh.com	1 2		3	DATE:	TOTAL SHEETS 30
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02/2025

DATE :

M. KHIN

DESIGN ENGINEER OF RECORD:

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	SOLID DOUBLE	E YELLOW LINE C JOINT @ END BENT 2
INT @ BENT 1	SOLID WHITE EDG	E LINE
	GUTTERLINE	21/4
PAVEM	ENT MARKING	G ALIGNMENT
	CKOLT TOM	45° BEVEL SECTION B - B
		PROJECT NOB-5777 DAVIDSONCOUNTY
		STATION: 20+64.02 -L-
		SHEET 2 OF 2
	SEALby: MAGDESE B. KAIN WEINE BBSOBB2E922F422. WCHAEL B. KHININ 3/31/2025	DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE STRIP SEAL EXPANSION JOINT DETAILS FOR BARRIER RAIL
	RS&H Architects-Engineers-Planners, Inc. 8521 Six Forks Road, Suite 400 Raleigh, NC 27615	REVISIONS SHEET NO. NO. BY: DATE: NO. BY: DATE: S-18
UNLESS ALL ES COMPLETED	919-926-4100 FAX 919-846-9080 www.rsandh.com North Carolina License Nos. 50073 * F-0493 * C-28	1 3 TOTAL SHEETS 2 4 30

- SOLID WHITE EDGE LINE

10'-23/2

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R TYPE	ES		REINFORCI				RCING	G BAR SCHEDULE						
	1'-2"		BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
		-►	* A1	276	#5	STR	44'-11"	12930	A2	276	#5	STR	44'-11"	12930
-		I												
_		`	* A100	2	#5	STR	43'-5"	91	A200	2	#5	STR	43'-5"	91
10	(3)	* A101	2	#5	STR	41'-1"	86	A201	2	#5	STR	41'-1"	86
			* A102	2	#5	STR	38'-9"	81	A202	2	#5	STR	38'-9"	81
		— _	* A103	2	#5	STR	36'-6"	76	A203	2	#5	STR	36'-6"	76
			× A104	2	#5	STR	34'-2"	71	A204	2	#5	STR	34'-2"	71
		⊢	= * A105	2	#5	STR	31'-10"	66	A205	2	#5	STR	31'-10"	66
	↑		* A106	2	#5	STR	29'-7"	62	A206	2	#5	STR	29'-7"	62
			* A107	2	#5	STR	27'-3"	57	A207	2	#5	STR	27'-3"	57
	=		* A108	2	#5	STR	24'-11"	52	A208	2	#5	STR	24'-11"	52
	0 1 0 1		* A109	2	#5	STR	22'-7"	47	A209	2	#5	STR	22'-7"	47
		(4) =	* A110	2	#5	STR	20'-4"	42	A210	2	#5	STR	20'-4"	42
			* A111	2	#5	STR	18'-0"	38	A211	2	#5	STR	18'-0"	38
	Ţ		* A112	2	#5	STR	15'-8"	33	A212	2	#5	STR	15'-8"	33
			* A113	2	#5	SIR	13'-5"	28	A213	2	#5	SIR	13'-5"	28
8'-3"		8"	* A114	2	#5	SIR	11'-1"	23	A214	2	#5	SIR	11'-1"	23
		(TYP.)	* A115	2	#5	SIR	8'-9"	18	A215	2	#5	SIR	8'-9" CL 5"	18
		* A116	2	#5	SIR	6'-5''	13	A216	2	#5 #5		0'-5" 41 21	13	
			T ALL/	4	#J	SIR	4 -2	17	AZI/	4	# 3	SIR	4 - 2	1/
									* B1	188	#4	STR	25'-1"	3150
								* B2	47	#5	STR	<u>55'-2"</u>	2704	
	SUPER	SIRUCIUR		REINFORCING SIEEL				* B3	44	#5	STR	32'-8"	1499	
		ENGIHS A	RE BASE				-		B4	116	#5	STR	51'-8"	6251
	FOLLO	WING MIN	ITMOM SP	LICI	E LEN	IG I HS	5		B5	58	#4	STR	33'-3"	1288
									B6	58	#4	STR	16'-0"	620
							PARAPETS AND		B7	52	#4	STR	40'-0"	1389
			APPRO	ACH S	LABS									
SIZE	AND BARR	(IER RAILS)				BARRIER RAILS		* G1	2	#5	STR	45'-11"	96	
5120														
		UNCOATED			COATED	D EP	OXY COAT	ED	* K1	12	#8	2	22'-0"	705
	COATLD		COATLD						* K2	8	#8	1	14'-4"	306
#4	1'-11"	1'-7"	1'-11"		1'-7"		2'-6"		* K3	16	#6	STR	8'-0"	192
#5	2'-5"	2'-0"	2'-5"		2'-0"		3'-1"		* S 1	72	#4	3	3'-2"	152
#6	#6 2'-10" 2'-5" 3'-7" 2'-5"			3'-8"		* S2	72	#5	4	5'-6"	413			
#8	#2 2 2 #2 4 0 3 23			23,3	79 LBS.									
* EPOXY COATED REINFORCING STEEL 23,048 LB					48 LBS.									

GROOVING	BRIDGE	FLOORS
BRIDGE DECK		5747 SQ. FT.
APPROACH SLABS		1883 SQ. FT.
TOTAL		7630 SQ. FT.

TRANSVERSE CONSTRUCTION JOINT DET

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH JOINT.

	CLASS	AA	CONCRETE
POUR 1			103.4 C.Y.
POUR 2			128.5 C.Y.
TOTAL *	*		231.9 C.Y.

** QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED.

		PROJECT NO B-5777
		DAVIDSON COUNTY
		STATION: 20+64.02 -L-
TAIL	SGEALDY: MALESSE B. KAIN	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUPERSTRUCTURE
	3/31/2025	BILL OF MATERIAL
	RS&H Architects-Engineers-Planners, Inc.	REVISIONS SHEET NO.
OT CONSIDERED	8521 Six Forks Road, Suite 400 Raleigh, NC 27615 919-926-4100 FAX 919-846-9080	NO. BY: DATE: NO. BY: DATE: S-19 1 3 TOTAL SHEETS TOTAL
S COMPLETED	www.rsandh.com North Carolina License Nos. 50073 * F-0493 * C-28	2 4 30

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R TYPES	BILL OF MATERIAL					
	FOR BENT NO. 1					
	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
	B1	6	#11	1	37'-9"	1203
	B2	6	#11	1	15'-9"	502
	B3	6	#11	STR	43'-8"	1392
B2 $\left(\begin{array}{c} 1 \\ 2 \end{array} \right) \left(\begin{array}{c} 1 \\ 2 \end{array} \right) \left(\begin{array}{c} 1 \\ 2 \end{array} \right) \left(\begin{array}{c} 1 \\ 2 \\ 2 \end{array} \right) \left(\begin{array}{c} 1 \end{array} \right) \left(\begin{array}{c} 1 \\ 2 \end{array} \right) \left(\begin{array}{c} 1 \end{array} \right) \left(\begin{array}{c} 1 \\ 2 \end{array} \right) \left(\begin{array}{c} 1 \end{array} \right) \left($	B4	10	#5	STR	43'-8"	455
	B5	2	#5		10'-6"	22
	80 87	6	#4 #1	SIR	12-2 // 5"	98 18
	D7	0	#4		4-5	10
	M1	36	#9	6	11'-1"	1357
9'-6"						
	S1	17	#5	2	12'-9"	226
= 1	S2	37	#5	2	11'-7"	447
$111 \boxed{1} (6) \boxed{1}$						
	T1	114	#6	4	11'-0"	1884
<u>U2</u> 8" 9'-8" 8"	T2	60	#6	STR	9'-8"	871
	111	56	<u># Л</u>	2	7' 5"	777
		12	#4 #1	י ר ר	/ -5 6'_3"	<u> </u>
HK.	U3	4	#4	<u>ר</u> ז	<u> </u>	
_ 4 _	00		<i>n</i> 1		, 3	15
	V1	36	#9	1	18'-5"	2254
$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$ $- \frac{1}{2} EXTRA$						
	REINFO (FOR BE	RCING ENT NC	STEEL). 1)	-	11,0	79 LBS.
	SP-1	3	*	5	544'-7"	1,091
115'-9 2" Pl 15'-9	SPIRAL REINGF	COLUN ORCIN	1N G STEI	ΞL	1,	,091 LBS.
						1
	SHALL F	P-1 SP 3F W2(IRAL R) OR D	EINFU	RCING ST	EL N WIRF
1 ² EXTRA TURNS	OR #4 I	PLAIN	OR DE	FORME	ED BAR.	
4 SPACERS – (C	CLASS	A CON	CRETE	BREAKD	OWN
	POUR -	#1 (FC	OTING	SS)		30.6 C.Y
	POUR	#2 (CC	DLUMN	<u>S)</u>		12.2 C Y
 	POUR	#3 (CA	(P)			26.6 C.Y.
	TOTAL	CLASS	5 A CO	NCRET	E (69.4 C.Y.
ALL BAR DIMENSIONS ARE OUT TO OUT	FOUND	DATION	I EXCA	VATIO	N Ll	JMP SUM

PAN B		PROJE STATI	CT NO. DAVI ON:	DS01 20+6	B· 	- 577	7 COUNTY - L -
		SHEET 2 C)F 2				
PAN A	BB50B82E922F422 WGINEER 3/31/2025	DE	st≉ PARTMEN SUE D	T OF TH RALEIG BSTRU BENT		SPORTA JRE S	TION
	RS&H Architects-Engineers-Planners, Inc.		REVIS	SIONS			SHEET NO.
	8521 Six Forks Road, Suite 400 Ralelgh, NC 27615	NO. BY:	DATE:	NO. BY:		DATE:	S-24
JNLESS ALL ES COMPLETED	919-926-4100 FAX 919-846-9080 www.rsandh.com North Carolina License Nos 50073* F.0493* C-28	1		3 4			TOTAL SHEETS 30

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	PLAN OF WING W3	
	6-#4 V2 @ 1'-0" CTS. (EA. FACE) TOP OF WING X EL. 789.52 (LEVEL)	
POUR #2 UPPER PART OF WING & BACKWALL	- #4 V2 CONST. JT. (LEVEL)	6-#4 H1 (EA. FACE) 5 SPA. @ 1'-0" CTS. 12 BARS (EA. FACE)
POUR #1 CAP & LOWER POART OF WING		5-#4 H1 (EA. FACE) 4 SPA. @ 10" CTS. 11-#4 H
BOTTOM OF WING - EL. 780.13 (LEVEL) EL. 780.13 (LEVEL) E DRAWN BY : <u>N. CUANY</u> DATE : <u>09/202</u> 09/202	$\xrightarrow{3" \text{ HIGH B.B.}}{@ 5'-0" \text{ CTS.}} \longrightarrow X$ $LEVATION OF WING W3$ $\frac{4}{4}$	

#4 K2 SPACE AS SHOWN 2 SPA. 1'-0" CTS. ┌─ #4 H1 2" CLR. TO H1 BARS 6-#4 V2 @ 1'-0" CTS. (EA. FACE) 3" 6'-2¹⁄4"

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NOTES:

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF

BRIDGE @ STA. 20+64.02 -L-	4" SLOPE PROTECTION	* * WELDED WIRE FABRIC 60 INCHES WIDE		
	SQUARE YARDS	APPROX. L.F.		
END BENT 1	40	26		
END BENT 2	14	26		

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NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 AND TYPE 4A IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

BACKFILL MATERIAL SHALL BE THE SAME MATERIAL USED IN THE MSE REINFORCED ZONE.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK. AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED

TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

SECTION N-N

END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

DOCUMENT FINAL U SIGNATURE

		B4	4	#6	STR	9'-8"	58
		REINF	l FORCII	NG STE	EL *	* 4.(L)61 LBS.
		* EPO REIN	XY CC	ATED	EEL [;]	** 3,()47 LBS.
			S AA (EIE *	* 47	7 <u>.8</u> C.Y.
		** Q Al	UANTI RE NO	TIES FO T INCL	DR BAI UDED.	RRIER RAIL SEE SHEE	- T 2 OF 2.
#5 S1	$\frac{1'-7\frac{1}{2}"}{(LEVEL)} 4\frac{1}{4}"CL.$		SF BAR SIZE #4 #5 #6	PLICE EPC COA 1'-1 2'-! 3'-1	E LEN DXY U 1" 5" 7"	JGTHS JNCOATED 1'-7" 2'-0" 2'-5"	
SECTIO	N K-K		τ ΝΟ)	В	-5777	1
		INUSEC		י סחדי			
			UAV	TD2		CI	OUNTY
		STATI0	N:	20-	+64	.02 -	L
URB		SHEET 1 OF	2				
	BBSOBB2E022F422 WGINEE MALOSOB 3/31/2025	DEP/ BRII FOR	ARTMI	STATE OF NO ENT OF RA BESTER	ORTH CARO TRAN ALEIGH	ISPORTATI	ON LAB IENT
IT NOT CONSIDERED	RS&H Architects-Engineers-Planners, Inc. 8521 Six Forks Road, Suite 400 Raleigh, NC 27615 919-926-4100 FAX 919-846-9080 www.rsandh.com	NO. BY:	R DATE:	EVISIONS NO.	BY:	DATE:	SHEET NO. S-29 TOTAL SHEETS
URES COMPLETED	North Carolina License Nos. 50073 * F-0493 * C-28	2		<u>ا</u> طل			30

	RTI		F M	ATERT	ΔΙ
DILL UF MAIERIAL					
	RUAL	H SL			SENT I
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	24'-0"	802
A2	52	#4	STR	23'-10"	828
* B1	86	#5	STR	24'-7"	2205
B2	86	#6	STR	24'-7"	3175
* B3	4	#5	STR	9'-8"	40
<u>B4</u>	4	#6	STR	9'-8"	58
REIN	-ORCII	NG STE	EL *:	* 4,0	061 LBS.
		AIED		k * 30	AT IRS
	NFURC			r	147 LDJ.
CLAS					
ΔΡΡ	<u></u> ΒΟΔΟ		ΔΡ Δ		RENT 2
вкак			TYPF	LENGTH	WEIGHT
ΒΑΚ * Δ1	NO.	SIZE	TYPE	LENGTH	WEIGHT
BAR * A1 Δ2	NO. 50	SIZE #4 #4	TYPE STR STR	LENGTH 24'-0" 23'-10"	WEIGHT 802 828
ВАК * А1 А2	NO. 50 52	SIZE #4 #4	TYPE STR STR	LENGTH 24'-0" 23'-10"	WEIGHT 802 828
BAR * A1 A2 * B1	NO. 50 52 86	SIZE #4 #4	TYPE STR STR STR	LENGTH 24'-0" 23'-10" 24'-7"	WEIGHT 802 828 2205
BAR * A1 A2 * B1 B2	NO. 50 52 86 86	SIZE #4 #4 #5 #6	TYPE STR STR STR STR	LENGTH 24'-0" 23'-10" 24'-7" 24'-7"	WEIGHT 802 828 2205 3175
BAR * A1 A2 * B1 B2 * B3	NO. 50 52 86 86 4	SIZE #4 #4 #5 #6 #5	TYPE STR STR STR STR STR	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8"	WEIGHT 802 828 2205 3175 40
BAR * A1 A2 * B1 B2 * B3 B4	NO. 50 52 86 86 4 4	SIZE #4 #4 #5 #6 #5	TYPE STR STR STR STR STR STR	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8"	WEIGHT 802 828 2205 3175 40 58
BAR * A1 A2 * B1 B2 * B3 B4	NO. 50 52 86 86 4 4	SIZE #4 #5 #6 #5 #6	TYPE STR STR STR STR STR STR	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8"	WEIGHT 802 828 2205 3175 40 58
BAR * A1 A2 * B1 B2 * B3 B4	NO. 50 52 86 86 4 4 4	SIZE #4 #5 #6 #6	TYPE STR STR STR STR STR STR	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8"	WEIGHT 802 828 2205 3175 40 58
BAR * A1 A2 * B1 B2 * B3 B4	NO. 50 52 86 86 4 4 4	SIZE #4 #5 #6 #6	TYPE STR STR STR STR STR STR	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8"	WEIGHT 802 828 2205 3175 40 58
BAR * A1 A2 * B1 B2 * B3 B4 B4	NO. 50 52 86 86 4 4 4 	SIZE #4 #5 #6 #6	TYPE STR STR STR STR STR STR STR	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8"	WEIGHT 802 828 2205 3175 40 58 61 LBS.
BAR * A1 A2 * B1 B2 * B3 B4 	NO. 50 52 86 86 4 4 4 	SIZE #4 #5 #6 #5 #6 NG STE ATED	TYPE STR STR STR STR STR STR EL *	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8" * 4,0	WEIGHT 802 828 2205 3175 40 58 61 LBS.
BAR * A1 A2 * B1 B2 * B3 B4 B4 REINF * EPO REIN	NO. 50 52 86 86 4 4 4 	SIZE #4 #5 #6 #6 WG STE NG STE DATED	TYPE STR STR STR STR STR STR EL *	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8" * 4,0	WEIGHT 802 828 2205 3175 40 58 61 LBS.
BAR * A1 A2 * B1 B2 * B3 B4 B4 REINF * EPO REIN	NO. 50 52 86 86 4 4 4 	SIZE #4 #5 #6 #5 #6 NG STE NG STE NG STE	TYPE STR STR STR STR STR STR EL *	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8" * 4,0 * 3,0	WEIGHT 802 828 2205 3175 40 58 61 LBS.
BAR * A1 A2 * B1 B2 * B3 B4 B4 REINF * EPO REINF * EPO REINF	NO. 50 52 86 86 4 4 4 4 5 0RCII XY CC NFORC	SIZE #4 #4 #5 #6 #6 MG STE ATED CING ST	TYPE STR STR STR STR STR STR EL *	LENGTH 24'-0" 23'-10" 24'-7" 24'-7" 9'-8" 9'-8" * 4,0 * 3,0 * 47	WEIGHT 802 828 2205 3175 40 58 61 LBS. 061 LBS. 047 LBS.

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DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 11/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 1/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " Ø STUDS BASED ON THE RATIO OF 3 - $\frac{1}{16}$ " 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 $\frac{5}{16}$ " 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 1/16" 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.