

		STATE	STATE PR	ROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		N.C.	BF	R-0110		
		STATE PI	хој. No. 9.1.1	F. A. PROJ. NO.	DESCRIPT PE	ION
		4881	9.2.1	2020001	R/W, UTI	
		4001	7.3.1	2020001	CONSTRU	
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		Ni				
	NASN					
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		2011	/			
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	END TIP PROJ	ECT BR	2-0110		L	-
/	-L- STA.16+90	.00				
, ,						
POSSUM	TRACK RD.) TO NC HWY 33					
2 851						
				[
				UNLESS ALL SIGN	IATURES COMPL	ETED
	HYDRAULICS E	NGINEER		Ý		
		A STATE	TH CARO			
			SEAL 049338	RE OF	NORTH CAA	
	Erik hadland	THE REAL	ADDATINE			
PF	SIGNATURE:	<u> </u>	/19/2019			
<u>. </u>	ROADWAY DE	ESIGN	TH CAROL MAR			»//
			SEAL	A CANADA CANADA	TRANSPOR	
	DocuSigned by:		045983 Z			
	Jonathan Langston	<u>Р.Е.</u> 127	70 C. LANIN /19/2019			

DocuSign Envelope ID: 90BC17C6-A84B-4173-933B-C275D1333C4	4	
3/17/96		INDEX OF SHEETS
ω.	SHEET NUMBER	SHEET
	1	TITLE SHEET
	1 A	INDEX OF SHEETS, GENERAL NOTE
	1 B	CONVENTIONAL SYMBOLS
	2 A - 1	PAVEMENT SCHEDULE AND TYPICAL
	2C-1 THRU 2C-2	SPECIAL DETAIL SHEETS
	3B-1	ROADWAY SUMMARIES
	3D-1	DRAINAGE SUMMARIES
	3G-1	GEOTECHNICAL SUMMARIES
	4	PLAN AND PROFILE SHEET
	4 A	RIGHT OF WAY MARKER DETAIL SH
	RW2OC-1	SURVEY CONTROL SHEET
	RWO2D-1	PROPOSED ALIGNMENT CONTROL SH
	RWO2E-1 THRU RWO4	RIGHT OF WAY CONTROL SHEET
	TMP-1 THRU TMP-1A	TRANSPORTATION MANAGEMENT PLA
	PMP-1	PAVEMENT MARKING PLANS
	EC-1 THRU EC-5	EROSION CONTROL PLANS
	RF-1	REFORESTATION DETAIL SHEET
	UC-1 THRU UC-4	UTILITY CONSTRUCTION PLANS
	UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
	X-1 A	CROSS-SECTION SUMMARY SHEET
	X-1 THRU X-5	CROSS-SECTIONS
	S-1 THRU S-20	STRUCTURE PLANS
	GENERAL NOTES: Effective:	2018 SPECIFICATIONS 01-16-2018
	GRADING AND SU	RFACING:
	THE GRADE LINES ELEVATION OF TH POINTS SHOWN OF LINES MAY BE AN ENDING AND AT S ENGINEER IN ORM CLEARING:	S SHOWN DENOTE THE FINISHED HE PROPOSED SURFACING AT GRADE N THE TYPICAL SECTIONS. GRADE DJUSTED AT THEIR BEGINNING AND STRUCTURES AS DIRECTED BY THE DER TO SECURE A PROPER TIE-IN.
	CLEARING ON TH TO THE LIMITS I CLEARING LIMITS SLOPE WITH NO (SUPERFLEVATION	IS PROJECT SHALL BE PERFORMED ESTABLISHED BY METHOD II. S SHALL EXTEND 5' BEYOND TOE OF GRUBBING.
с Бр.	ALL CURVES ON IN ACCORDANCE OF SUPERELEVAT SUPERELEVATION POINTS SHOWN OF	• THIS PROJECT SHALL BE SUPERELEVA WITH STD. NO. 225.04 USING THE R ION AND RUNOFF SHOWN ON THE PLAN IS TO BE REVOLVED ABOUT THE GRA N THE TYPICAL SECTIONS.
	SHOULDER CONSTI	RUCTION:
-JAN-2020 -0110_rdy.p	ASPHALT, EARTH HIGH SIDE OF SU Accordance with	, AND SHOULDER CONSTRUCTION ON T JPERELEVATED CURVES SHALL BE IN H STD. NO 560.01.

NOTES, AND STANDARD DRAWINGS

ICAL SECTIONS

	SIDE ROADS:
SHEET	THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING
SHEET	CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.
PLANS	DRIVEWAYS:
	DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVEWAYS WILL BE AS SHOWNS IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
	GUARDRAIL:
Т	THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.
	SUBSURFACE PLANS: NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.
	END BENTS:
) E) E	THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.
·	UTILITIES:
)	UTILITY OWNERS ON THIS PROJECT ARE: Century link Duke engery Beaufort county
OF	ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.
EVATED HE RATE PLANS. GRADE	THE CONTRACTORS ATTENTION IS BROUGHT TO THE EXISTING UTILITY LINE NORTH OF THE BRIDGE APPROX. 20 FT FROM THE PROPOSED EDGE OF TRAVEL. THIS UTILITY IS TO REMAIN IN PLACE, AND REMAIN UNINTERRUPTED THROUGHOUT THE LIFE OF THE PROJECT.
	RIGHT OF WAY MARKERS:
)n the In	ALL RIGHT OF WAY MARKERS AND PERMANENT EASEMENT MARKERS ARE TO BE PLACED BY L&S. THE CONTRACT SURVEYOR WILL BE RESPONSIBLE FOR RESETTING ANY POINTS DISTURBED BY CONSTRUCTION.

	PREPARED IN The office of:	KCA	NC FIRM LICENSE No: C-1506 301 Fayetteville St.,	PROJECT REFERENCE NO	D. SHEET NO.
		KISINGER CAMPO & ASSOCIATES	Sulte 1500 Raleigh, NC 27601 (919)882-7839	BR-0110 ROADWAY DESIGN ENGINEER	/A HYDRAULICS ENGINEER
				1/30/2020	1/30/2020
				SEAL	SEAL
				5. 045983 7. MG INE E S. S.	1049338
				Jonathan Langston 994ABAC18BE4423	Evic lalland ABAB37AF578F4CE
0 ′	1-16-201	8		DOCUMENT NOT C UNLESS ALL SIGNA	ONSIDERED FINAL TURES COMPLETED
2()18 ROAD	WAY EN	GLISH STAN	IDARD DRAWIN	GS
TH	HE FOLLO	WING R	OADWAY STA	NDARDS AS	11
Ar H Oc	GHWAY D	ESIGN	BRANCH – N	I. C. DEPART	MENT
	ATED JAN	UARY, ECT AN	2018 ARE A	APPLICABLE T	0 ARF
Ċ	DNSIDERE	D A PA	RT OF THES	SE PLANS:	
S	FD.NO.	ΤΙΤ	LE		
D	IVISION	2 – EA	RTHWORK		
2()0.02	MET II.	HOD OF CLE SEE DETAI	ARING – MET L•	HOD
22	25.02	GUI SEC	DE FOR GRA ONDARY AND	ADING SUBGRA) LOCAL	DE -
22	25.04	ME T SLIP	HOD OF OBT	AINING IN — TWO I AN	F
		PAV	EMENT		
D	IVISION	3 – PI	PE CULVERT	S	
3(0.01	METHO	D OF PIPE	INSTALLATIO	Ν
D	I V I S I ON	4 – MA	JOR STRUCT	URES	
42	22.02	BR I F I L	DGE APPROA LS - TYPE	ACH II	
		MOD FIL	IFIED APPR	ROACH	
D	I V I S I ON	5 – SU Sh	BGRADE, BA Oulders	SES AND	
56	50.01	ME	THOD OF SH	IOULDER	
		CU SU ME	NSTRUCTION PERELEVATE THOD I	I – HIGH SID Id curve –	E UF
D	I V I S I ON	8 – IN	CIDENTALS		
84	10.00	C O D R	NCRETE BAS AINAGE STR	SE PAD FOR Ructures	
84	10.29	F R G R	AMES AND N Ates	IARROW SLOT	FLAT
84	10.35	tr In	AFFIC BEAR Let	RING GRATED	DROP
84	16.01	C D C U	NCRETE CUF RB AND GUT	RB, GUTTER A Ter	ND
84	16.04	DR Sh	OP INLET I Oulder ber	NSTALLATION Rm gutter	IN
86	52.01	GU	ARDRAIL PL	ACMENT	
86	52.02	GU	ARDRAIL IN	ISTALLATION	
86	52.03	ST	RUCTURE AN	ICHOR UNITS	
8-	76.02	GU OU	IDE FOR RI TLETS	P RAP AT PI	PE

BOUNDARIES AND PROPERTY:

County Line	
Township Line	
City Line	
Reservation Line	· ·
Property Line	
Existing Iron Pin	<u>O</u>
Computed Property Corper	EIP
Property Monument	
Parcel /Sequence Number	
Fuicting Farmer Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	—— ЕРВ ———
Existing Historic Property Boundary	нрв
Known Contamination Area: Soil	— - 💓 — s — 💓 -
Potential Contamination Area: Soil	— - XX — s — XX -
Known Contamination Area: Water	— - 💓 — W — 😿 -
Potential Contamination Area: Water	— – Ž?Ž — w — Ž?Ž -
Contaminated Site: Known or Potential —	
RUIIDINGS AND OTHER CUIT	TI RF.
DUILDINGS AND OTHER COLI	
Care Burner Marster LLC Tarely Care	_
Gas Pump Vent or U/G Tank Cap	— O
Gas Pump Vent or U/G Tank Cap Sign	
Gas Pump Vent or U/G Tank Cap Sign Well	— ○ ○ S W
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine	— ○ ♀ ♀ ☆
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building School	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building School Church	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building School Church Dam	
Gas Pump Vent or U/G Tank Cap	
Gas Pump Vent or U/G Tank Cap	
Gas Pump Vent or U/G Tank Cap	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building School Church Dam <i>HYDROLOGY:</i> Stream or Body of Water Hydro, Pool or Reservoir Jurisdictional Stream	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building School Church Dam HYDROLOGY: Stream or Body of Water Hydro, Pool or Reservoir Jurisdictional Stream Buffer Zone 1	
Gas Pump Vent or U/G Tank Cap	
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building School Church Dam HYDROLOGY: Stream or Body of Water Hydro, Pool or Reservoir Jurisdictional Stream Buffer Zone 1 Buffer Zone 2 Flow Arrow	$ \bigcirc \\ \bigcirc $
Gas Pump Vent or U/G Tank Cap Sign Well Small Mine Foundation Area Outline Cemetery Building School Church Dam HYDROLOGY: Stream or Body of Water Hydro, Pool or Reservoir Jurisdictional Stream Buffer Zone 1 Buffer Zone 2 Flow Arrow Disappearing Stream	$ \bigcirc \\ \bigcirc $
Gas Pump Vent or U/G Tank Cap	$ \bigcirc \bigcirc \\ $
Gas Pump Vent or U/G Tank Cap	$ \bigcirc \bigcirc$
Gas Pump Vent or U/G Tank Cap	$ \bigcirc \\ \bigcirc $
Gas Pump Vent or U/G Tank Cap	$ \bigcirc \\ \bigcirc $

RAILRO

Standard G RR Signal A Switch —— RR Abandoı **RR** Dismant

RIGHT

Secondary Primary H Primary Ho Exist Permo New Perm Vertical Be Existing Ri Existing Rig New Righ New Righ New Righ Concret New Cont Concret Existing Co New Cont Existing Ec New Tem New Tem New Perm New Perm New Perm New Tem New Aerie

ROADS

Existing E Existing C Proposed Proposed Proposed Existing A Proposed Existing C Proposed Equality S Pavement VEGET Single Tre Single Sh

Gauge		Hedge	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Nilepost	\bigcirc <i>MILEPOST</i> 35	Woods Line	
		Orchard	සි සි සි
oned		Vineyard	Vineyard
itled		EXISTING STRUCTURES:	
		MAJOR:	
OF WAY & PROJECT CO	NTROL:	Bridge, Tunnel or Box Culvert	CONC
/ Horiz and Vert Control Point	•	Bridge Wing Wall, Head Wall and End Wall –) CONC WW (
Ioriz Control Point		MINOR:	
loriz and Vert Control Point	۲	Head and End Wall	CONC HW
anent Easment Pin and Cap ———	\diamond	Pipe Culvert	
manent Easement Pin and Cap ——	$\langle \diamond \rangle$	Footbridge ————————————————————————————————————	≻−−−−−−
enchmark		Drainage Box: Catch Basin, DI or JB ———	СВ
ight of Way Marker	\bigtriangleup	Paved Ditch Gutter	
ight of Way Line		Storm Sewer Manhole	S
nt of Way Line		Storm Sewer	S
nt of Way Line with Pin and Cap—		UTILITIES:	
nt of Way Line with	-	POWER:	I
ntrol of Access Line with		Existing Power Pole	•
ete C/A Marker		Proposed Power Pole	Ŏ
Control of Access		Existing Joint Use Pole	
ntrol of Access		Proposed Joint Use Pole	-0-
asement Line	E	Power Manhole	(P)
porary Construction Easement –	E	Power Line Tower	\boxtimes
nporary Drainage Easement	TDE	Power Transformer	\swarrow
nanent Drainage Easement	PDE	U/G Power Cable Hand Hole	
nanent Drainage / Utility Easement	DUE	H–Frame Pole	••
nanent Utility Easement	PUE	U/G Power Line LOS B (S.U.E.*)	— — — P— — —
nporary Utility Easement	TUE	U/G Power Line LOS C (S.U.E.*)	——— — P — — —
ial Utility Easement	AUE	U/G Power Line LOS D (S.U.E.*)	PPP

Edge of Pavement	
Curb	
Slope Stakes Cut	<u>C</u>
Slope Stakes Fill	<u>F</u>
Curb Ramp	CR
Metal Guardrail	<u> </u>
Guardrail ———	<u> </u>
Cable Guiderail ————	
Cable Guiderail	
Symbol ———	\odot
t Removal	
CATION:	
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irub	හි

Existing Telephone Pole -•-Proposed Telephone Pole --0-Telephone Manhole— \bigcirc Telephone Pedestal —— Τ Telephone Cell Tower , T U/G Telephone Cable Hand Hole ------Η_Η U/G Fiber Optics Cable LOS C (S.U.E.*) - - - T FO - - -U/G Fiber Optics Cable LOS D (S.U.E.*) _____ T FO _____

	BR-0110
WATER.	
Water Manholo	
Water Meter	······
Water Valve	×
Water Hydrapt	—————————————————————————————————————
Water Hydrant	
U/G Water Line LOS B (S.U.E [*]) —	
U/G Water Line LOS C (S.U.E*)	
U/G Water Line LOS D (S.U.E*)	WA/G Water
Above Ground Water Line	
TV: TV Pedestal	C
TV Tower	🗙
U/G TV Cable Hand Hole	—————————————————————————————————————
U/G TV Cable LOS B (SILE*) —	
U/G = TV Cable = LOS G (S.U.E.)	
$U/G = TV C db = LOS C (S \cup E^*)$	Tv
U/G IV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*	·)
U/G Fiber Optic Cable LOS D (S.U.E.*	TV F0
GAS:	
Gas Valve	\
Gas Meter	\longrightarrow
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	G
Above Ground Gas Line	A/G Gas
SANITARY SEWER:	
Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	(†)
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary S
SS Forced Main Line LOS B (S.U.E.*)	——————————————————————————————————————
SS Forced Main Line LOS C (S.U.E.*)	——————————————————————————————————————
SS Forced Main Line LOS D (S.U.E.*)	FSS
MISCELLANEOUS:	_
	•
Utility Pole with Base	·
Utility Located Object	· · ·
Utility Trattic Signal Box	[S]
Utility Unknown U/G Line LOS B (S.U.	.E.*)?UTL
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Lo	C. (<u>UST</u>)
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	🚱
U/G Test Hole LOS A (S.U.E.*)	\
Abandoned According to Utility Record	ls —— AATUR
End of Information	



07/22/2019 FROM CLARK S. MORRISON, PhD, P.E.



SHOULDER BERM GUTTER (SBG) DETAIL TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 1

-L- STA. 12 + 82.52 TO -L- STA. 13 + 14.22 (RT) -L- STA. 14 + 33.95 TO -L- STA. 14 + 64.50 (RT)



DocuSign Envelope ID: 45E3010A-204A-4B21-85DB-9FA0A24D540C



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COMPUTED BY:	JWD	DATE:	03/18/19
CHECKED BY:	JCL	DATE:	03/19/19

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Removal and Breaking of Existing Pavement will be paid for at the contract lump sum price for "Grading."

	PAVEMENT REMOVAL SUMMARY IN SQUARE YARDS												
SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP						
-L-	11+80	13+50	LT/RT	456									
-L-	14+20	14+34	LT/RT	39									
-L-	14+34	14+92	LT/RT		144								
-L-	14+92	16+90	LT/RT	481									
		TOTAL:		976	144								
		SAY:		980	150								

"N" = DISTA			JMD JCL F GUARDRAIL		E: 8/28 E: 9/1	8/2019 19/19							DIV STAT	ISION E OF N	OF H IORT	IIGH H Ca	WA ARO	YS DLINA										PROJECT REFERENCE NO. SHEET NO. BR-0110
FLARE LENG	GTH = DISTANCE FF WDTH OF FLARE F	OM LAST SECTION ROM BEGINNING O	F TAPER TO END OF GU	RAIL TO END OF GU	ARDRAIL							G	UAR	DKA		SU		MA	KY								NG = NON-GATING IN	PACT ATTENUATOR TY PE 350
SURVEY					LENGTH		WARRAN	ΓΡΟΙΝΤ	"N" DIST.	TOTAL	FLARE	LENGTH	w					AN	ICHORS			Additional	IMPACT ATTENUATOR	SINGLE FACED	REMOVE	REMOVE & STOCKPILE		
LINE	BEG. STA.	END STA.	LOCATION	STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END	FROM E.O.L.	WIDTH	APPROACI END	H TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2 C	AT-1 AT-1	Type III SC	B-77 SC	Guardrall Posts	G NG	CONCRETE BARRIER	EXISTING GUARDRAIL	EXISTING GUARDRAIL		REMARKS
-L-	12+44.28	13+25.53	RT	81.25			12+44.28	Bridge	3.56	7.56	50		1		1		1											
-L-	12+44.28	13+25.53	LT	81.25			Bridge	12+44.28	3.56	7.56		50		1	1		1											
-L-	14+22.91	15+04.16	RT	81.25			Bridge	15+04.16	3.56	7.56		50		1	1		1											
-L-	14+22.91	15+04.16	LT	81.25			15+04.16	Bridge	3.56	7.56	50		1		1		1											
			SUBTOTAL:	325.00'									2	2	4		4					5						
				010100																								
		Less 4 GREU T	3 @ 50' Each	200.00'																								
		Less 4 Type III	@ 18.75' Each	75.00'																								
			PROJECT TOTALS:	50.00'					_				2	2	4		4				├ ─── ├	5						
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STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

5	SUMMARY OF EARTHWORK											
Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste							
-L- STA. 11+80	-L- STA 13+25.53 (BEGIN BRIDGE)	0	233	233								
-L- STA. 14+22.91 (END BRIDGE)	-L- STA. 16+90.00	6	409	403								
	· · · · · ·											
PROJECT S	UBTOTAL:	6	642	636								
	,		·									
PROJECT	TOTALS:	6	642	636								
REPLACE TOP SOIL C	N BORROW PIT (5%)			32								
GRAND 1	OTALS:	6	642	668								
SA	Y:	10		670								

SHOU	SHOULDER BERM GUTTER SUMMARY								
LINE	Station	Station	LENGTH						
L	12+82.52	13+14.22	31.7						
L	14+33.95	14+64.50	30.55						
		TOTAL:	62.25						
		SAY:	65						

OOC NLE	CUMEI ESS A	NT NO LL SIG	T CON NATUR	SIDI RES	RED FINAL
D IN ICE (0F :	KISINGE & ASS		NC F 3	IRM LICENSE No: C-1 D1 Fayetteville St. Suite 1500 Raleigh, NC 27601 (919)882-7839
	BR	-0110			<u>3</u> B-I
ROJ	IECT RE	FERENCE	NO.		SHEET NO.

	WNK	DATE	:	07/1	11/19	_															
CHECKED BY:	EAA	DATE	i:	07/1	2/19																
	COM	PUTED BY:	WNK	ί								_				0	DATE	:	7/11	/2019	1
	СН	ECKED BY:	EPA													0	DATE	:	9/20	/2019)
												-									
	Note: Inve	ert Elev	vatio	ons	indica	ated a	ire foi	r Bic	l Pi	irn	050	es	onl	v ai	nd	sh	allı	not	be	us	ed
									•	·· P			••••	,		••••					•••
_																					
	07471011			o.	~	NO	N						•								
	STATION			RE N('ATIOI	EVATI	EVATI	ITICA			(F	RCP,	S CSP,	CAA	P, HD	N PIF DPE, (or PV	/C)			
			1.		ELEV	TELE		E CR													
				STRI	TOP	VER	VER	SLOP													
		DFFSI				=	=														
_		1																			
	SIZE								12''	15''	18''	24''	30''	36"	42"	48''	Ь	ВР	AP	Ы	12'
																	SE R(SE C	SE CA	SE HD	
			N														IOT U	IOT U	OT U	ot u	4
			FRO	Ĭ													DO	DON	DON	DON	90.
_		1																			
			400) 401		18.0	17.9			12											
-	L 12+88	14 RT	400)	20.8	40.4	47.4			40								<u> </u>	<u> </u>		┞
-	L 12+48	14 RT	402	<u>2</u> 403 2	20.9	10.1	17.4			10											
	SHEET TOTALS									28											
	SHELTIOTALS				<u> </u>					20											
1																					



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

ed for project construction stakeout.

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

					.064	12''		
					.064	15''		
					.064	18''		
					.064	24''	C.S.	
					620.	30''	PIPE	
					620.	36''	E	
					.109	42''		
					.109	48''		
						12''		
						15''		
						18''		
						24''	R. CL	
						30''	C. PII ASS	
			-			36''	PE	
						42''		
						48''		
			-			12''		
						15''		
						18''		
						24''	R. CL	
						30''	C. PI ASS	
						36''	PE IV	
						42''		
		1				48''		
				**	R.C. PIPE (CLAS)	s V)		
				***	RC PIPE CULVER	TS, CONTR	ACTOR DESIGN	
				***	RC PIPE CULVER	TS, CONTR	ACTOR DESIGN	
				15"	SIDE DRAIN PIPE			
				18"	SIDE DRAIN PIPE			
					R.C.P.	CU. Y	ENDW STD.8 838.1 STD.8 (UNL NOTHER	
					C.S.P.	ARDS	ALLS 38.01 1 OR 38.80 ESS ED WISE)	
2	1		1	PER	EACH (0' THRU	5.0')	QUANTITIES FOR DRAINAGE	
				5.0'	THRU 10.0'	Α	STRUCTURES	
				10.0	' AND ABOVE	FT. B	<pre>*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')</pre>	
			$\left - \right $	ы С В	. STD. 840.01 OR 3	STD. 840.02		
				Е	T) C		F GF ANI STA 8	
				F	(PE O GRATE		RAME RATES D HOO NDAI 340.03	
			-	G	rF ≣		:, S, OD RD }	
				DRC	DP INLET		CONCRETE TRANSITIONAL	
				CAT	CH BASIN		SECTION	
		\vdash	╞	0 <u>0</u>	I. (N.S.) FRAME V	VITH TWO	SRATES STD. 840.29	

						PROJECT REFERENCE NO.				sheet no.
							BR-	0110		3D-1
						PREPARED I The office	IN E OF:	KCA KISINGER CAMPO & ASSOCIATES	NC FIRM L 301 Fay S Rale (9	ICENSE No: C-1500 /etteville St., uite 1500 igh, NC 27601 19)882-7839
						DO UNL	CUMEN LESS AL	T NOT CONS L SIGNATUR	SIDERE Res con	D FINAL MPLETED
					PROJEC	CT NO.	SH	EET NO.		
					BR-0	110		3D-1		
			0.71	2		<u>ABBR</u> C.B. N.D.I.	CATC NARROW			
T.B.D.I. STD. 840.35		SIDE DRAIN PIPE EL BOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	D.I. G.D.I. G.D.I.(N.S.) J.B. M.H. T.B.D.I. T.B.J.B.	DRC GRATED (NARF JUNC MA TRAFFI DRC TRAFFI JUNC	DP INLET DROP INLET ROW SLOT) TION BOX NHOLE IC BEARING DP INLET IC BEARING TION BOX		
1										
										1



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

OLDODADE/OTADULIZATION

'n	Station	Aggregate Type ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS	Select Granular Material
ENCY						300			300
		TOTAL	CY/TONS/SY:	0	0	300*	0	0	300

*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

SUMN	IARY C	FSUBS	URFAC	EDRAII	NAGE
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
	CONTIN	IGENCY		SD	200
				TOTAL LF:	200
*UD = Undero *BD = Blind D *SD = Subsur	Irain Drain face Drain				

& . []	NOT CON SIGNATU	³ NSII JRE	DERED FINAL S COMPLETED
		мс С	C FIRM LICENSE No: C-1506 301 Fayetteville St., Suite 1500 Raleigh, NC 27601
2/	0110		3G-1
RE	RENCE NO.		SHEET NO.







ATUM DESCRIPTION	Prepared in	the Office of:
OORDINATE SYSTEM DEVELOPED FOR THIS PROJECT HE STATE PLANE COORDINATES ESTABLISHED BY CDOT FOR GPS MONUMENT "BR110-2" 3/NA 2011 STATE PLANE GRID COORDINATES OF NG: 622590.1450(ft) EASTING: 2578182.3190(ft) ELEVATION: 24.83(ft) COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999985949 IE N.C. LAMBERT GRID BEARING AND	DIVIS LOCATION &	ION 2 & SURVEYS
ED HORIZONTAL GROUND DISTANCE FROM	2018 STANDARD SP	ECIFICATIONS
T GPS BR110-2" TO -L- STATION 11+80.00 IS S 81-21'06" W 1379.59(ft) ENSIONS ARE LOCALIZED HORIZONTAL DISTANCES TERTICAL DATUM USED IS NAVD 1988	RIGHT OF WAY DATE: 8/21/2019	<i>LETTING DA</i> 02/18/2020



E	BEARING	DIST	DELTA	D	L	Т	R
2576652.095							
	N 66*50′00.0" E	60.56					
2576707.775							
	N 70°06′00.0°E	373.13	06°32′00.0°(RT)	01°45′00.0°	373.33	186.87	3274.04
2577058.625							
	N 73*22′00.0" E	336.94					
2577381.470							

	NORTH	EAST	ELEVATION
 -3	622309.5931	2576561.8593	26.15
- 4	622453.2925	2576966.6434	19.34
-5	622623.4582	2577536.9886	20.79
0 - 1 -	622590.1450	2578182.3190	24.83
0-2"	622219.2949	2579287.9133	34.00

PROJECT REFERENCE NO.	SHEET NO.
BR–110	RW2C-01
Location and S	urveys
New Bern, N Phone: (252 Middlesboro, Phone: (606 Asheville, Nor Phone: (828) Charlotte, Nor Phone: (704) Vaughn & Melton Consultin	Jorth Carolina 28562) 631-5115 Kentucky 40965) 248-6600 (th Carolina 28806) 253-2796 (th Carolina 28217) 357-0488 g Engineers





ELEVATION · 20.08 BM1 N 622606 E 2577416 BRIDGE SPIKE SET IN POWER POLE

I. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION

	9	PROF
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REVISIO		
	с - р - р - р	
	seets/brØ110_LS_rw	
	015:32 AT S-299767 AT S-299767	
	21-AUG-2019 mcrhodes1	

POSED ALIGNMENT CONTROL SHEET BR-0

DESIGN ALIGNMENTS

TYPE	STATION	NORTH	EAST
POT	10.00.00	622313.8967	2576652.0951
PC	10.60.56	622337.7227	2576707.7746
PT	14.33.90	622464.7289	2577058.6253
POT	17.70.84	622561.1775	2577381.4698

NOTES:

THE LOCATION AND SURVEYS UNIT.

	PROJECT REFERENCE NO.	SHEET NO.
0110	BR–0110	RW02D-1
0110	Location and	Surveys
	DIVISION LOCATION & S	2 SURVEYS

I. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT

		667				
		6/2/				R
EVISIONS						
R						
		e- dgn				
		LS_rw03				
		\br@110_				
		Sheets				
		3110\RW 299767				
		DC::20 DS\BR-(AT S-				
		RIDGEJC nodes1				
	< (

RIGHT OF WAY CONTROL SHEET BR-0110

PROJECT REFERENCE NO. SHEET NO. BR-0110 RW02E-1 Location and Surveys DIVISION 2 LOCATION & SURVEYS PROJECT SURVEYOR SEAL L-4007 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED -DocuSigned by:

I, Robert J. Reigner, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, R/W Staking) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures. Ifurther certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individualdata sources. Ifurther certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. Lalso certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from existing survey controlprovided by others; that the depicted property data shown herein were surveyed by others; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (See deeds for final determination). Witness my original signature, registration number and seal this 14th day of August, 2019.

Seal

Docusigned by.
R.J. Reigner
D6C278535820460
ProfessionalLand Surveyor

L-4007 PLS #

ROW & EASEMENT POINTS

	ROW MA	RKER PERMAN	ENT EASEMENT-E	
ALIGN	STATION	OFFSET	NORTH	EAST
L	11.70.00	- 30.00	622407.0465	2576798.2139
L	12.71.00	-54.00	622465.1454	2576885.7579
L	14.50.00	42.00	622429.0959	2577086.0775
L	14.50.00	30.00	622440.5938	2577082.6425
L	14.68.00	42.00	622434.2483	2577103.3243
L	14.68.00	30.00	622445.7462	2577099.8893
L	15.11.00	-56.00	622540.4562	2577116.4729
L	16.17.00	-35.00	622550.6770	2577224.0486
L	16.17.00	- 30,00	622545,8862	2577225,4799

NOTES:

I. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.





IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

	PROJECT REFERENCE NO.	SHEET NO.
	BR-0110	RW04
in the state of North Carolina hereby that the following work item(s)(Base map	Location and S	urveys
ponsible charge meet NCDOT Survey Standards idelines and procedures.	DIVISION 2	
rom available surveys/mapping performed by certify to the accuracy or quality of the	LOCATION & SURV	EYS
manent easement points shown herein and ordinates,station/offset)have been checked of way and permanent easement points depicted		
y that the right of way and permanent onumented under my supervision from existing icted property data shown herein were surveyed at of way and easement boundaries at the time of right of way revisions (See deeds for final	PROJECT SURVE	EYOR
and sealthis 13th day of August, 2019.	L-4007 L-4007 SURVENO SURVENO	
Soci	DOCUMENT NOT CONS UNLESS ALL SIGNATURES	DERED FINAL S COMPLETED
260		





INDEX OF SHEETS

TITLE

TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, AND ROADWAY STANDARD DRAWINGS, LEGEND OFFSITE DETOUR, GENERAL NOTES, AND PHASING NOTES

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

TITLE

WORK ZONE ADVANCE WARNING SIGNS TEMPORARY ROAD CLOSURES 1101.11 TRAFFIC CONTROL DESIGN TABLES 1110.01 STATIONARY WORK ZONE SIGNS PORTABLE WORK ZONE SIGNS BARRICADES

LEGEND

TRAFFIC CONTROL DEVICES

CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

DOCUMENT NO UNLESS ALL SIG	OT CONSIDERED FINAL GNATURES COMPLETED
APPROVED:	
DATE:	12/4/2019 H CAROL
SEAL	SEAL 043777 Docusigned by OB H DUNING

V DB0042

0 R E RO

SHEET NO.

TMP-1



GENERAL NOTES











CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- C) STATE FORCES WILL BE RESPONSIBLE FOR SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

STATE FORCES WILL BE RESPONSIBLE FOR SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

USING OFF-SITE DETOUR, AS SHOWN ON TMP-1A, UNCOVER DETOUR SIGNS, CLOSE -L-D) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN (SR 1127 / POSSUM TRACK RD) TO TRAFFIC AND ROAD CLOSURE IS NOT IN OPERATION. CONSTRUCT PROPOSED BRIDGE AND ROADWAY UP TO COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE AND INCLUDING THE FINAL LAYER OF SURFACE DETOUR IS NOT IN OPERATION. COURSE PER ROADWAY AND BRIDGE PLANS.

E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- G) STATE FORCES WILL INSTALL AND MAINTAIN THE PROJECT DETOUR AND TYPE III BARRICADES AT THE PROJECT LIMITS. STATE FORCES WILL INSTALL MARKINGS AND MARKERS ON THE FINISHED PRODUCT. CONTACT JEFF DUNNING AT (252)-439-2950 TWO WEEKS PRIOR TO CLOSING THE ROAD FOR DETOUR INSTALLATION.

PAVEMENT MARKINGS AND MARKERS

H) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
(SR 1127) POSSUM TRACK RD	PAINT	NONE

I) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

LOCAL NOTES

- J) MAINTAIN TRAFFIC TO ALL RESIDENTS DURING LIFE OF PROJECT AND ALL PHASES OF CONSTRUCTION.
- K) SOUTHSIDE HIGH SCHOOL AND BEAUFORT COUNTY EMERGENCY SERVICES SHALL BE NOTIFIED OF PROJECT CONSTRUCTION AT LEAST ONE MONTH PRIOR TO BEGINNING OF CONSTRUCTION. CONTACT BEAUFORT COUNTY EMERGENCY SERVICES AT (252) 946-2046 AND SOUTHSIDE HIGH SCHOOL AT (252) 940-1881.
- L) ACCESS WILL BE MAINTAINED THROUGHOUT CONSTRUCTION FOR THE EDWARDS CEMETERY AND SOUTHSIDE HIGH SCHOOL TO THE WEST AND EAST OF THE PROJECT.

DOCUMENT NOT CONSIDER UNLESS ALL SIGNATURES C
DATE: DocuSigned by: Jacob H. Duke 12/5/2019
APPROVED:

PHASING NOTES

PROJ. REFERENCE NO.

BR-0110

SHEET NO.

TMP-1A

301 FAYETTEVILLE STREET

SUITE 1500

KISINGER CAMPO (919) 882-7839 & ASSOCIATES NC FIRM LICENSE: C-1506

RALEIGH, NC 27601

PHASE 1

STEP 1

PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE AND COVER OFF-SITE DETOUR SIGNS FOR POSSUM TRACK RD. (SR 1127), EDWARDS RD (SR 1137) NC HWY 33, AND DIXON RD. (SR 1138) AS SHOWN ON TMP-1A.

STEP 2

STEP 3

UPON COMPLETION OF BRIDGE AND ROADWAY CONSTRUCTION, PLACE FINAL PAVEMENT MARKINGS AND MARKERS IN ACCORDANCE WITH RSD 1205.01, 1205.02, 1205.12, 1250.01, 1251.01., AND PAVEMENT MARKING PLANS. REMOVE ALLSIGNS AND DEVICES, AND OPEN -L-(SR 1127 / POSSUM TRACK RD) TO TRAFFIC.



OFF-SITE DETOUR, GENERAL NOTES AND PHASING NOTES



	MENT MARKING
SYMBOL	DESCRIPTION
T1	WHITE EDGELINE (4", 90 MIL)
T13	YELLOW DOUBLE CENTER (4", 90 MIL)





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	PROJECT REFERENCE NO.	SHEET NO.
	BR-0110	PMP-I
	APPROVED:	
	DATE:	
	SEAL 12/4/2019 SEAL OFESS/ON SEAL 043777 MG INE CARO/ SEAL 043777 MG INE CARO/ SEAL 043777 MG INE CARO/ MG INE CARO/	
D)	DOCUMENT NOT CONSIL UNLESS ALL SIGNATURE	DERED FINAL S COMPLETED
OURATION OF THE PLAN		
OURATION OF THE PLAN AISED MARKERS		
OURATION OF THE PLAN AISED MARKERS RKER NE		
OURATION OF THE PLAN AISED MARKERS RKER NE VMENT MARKING LINES.		
OURATION OF THE PLAN AISED MARKERS AISED MARKERS AISED MARKERS WENT MARKING LINES. KINGS AND MARKERS.		

END TIP PROJECT BR-0110 -L- STA. 16+90.00 TIE TO EXISITING MARKINGS





			STAT	E PROJECT REFERENCE NO.		NO.	SHEETS
		.C.		BR-0110			
		STATE	PROJ. NO.	F. A. PROJ. NO.		DESCRIPT	'ION
		488	319.1.1 R19 2 1			PE R/W UTH	ITIES
		488	319.3.1	TBD	C	ONSTRU	
	EDUGIU	N		DIMENT CONT	ז∩מי	МГАС	IDFC
					NUL	MIL/AU S1	I NLY
	<u></u>	<u>Dese</u> Ten	c ription iporary Silt	Ditch		<u></u> TSD	<u></u>
	1630.05	Ten	nporary Dive	ersion	····· _	——————————————————————————————————————	
	1605.01	Ten	nporary Silt	Fence			
	1606.01	Spee	cial Sedimen	t Control Fence	\sim		
	1622.01 1630.02	l en Sil≁	nporary Ber Basin Tym	ms and Slope Drains • B		······ T	
	1633.01	Ten	nporary Roc	k Silt Check Type-		//// ·································	$\times\!\!\times\!\!\times$
		Ten	nporary Roc	k Silt Check Type-	A wit	h ×	
		Ma	tting and Po	olyacrylamide (PÅM)		(X	\overline{X}
	1633.02	Ten Wai	nporary Roc ttle∥Coir F	k Silt Check Type- 7iber Wattle	B		еw сғw
ות		Wa wif	ttle∥Coir F 1 Polvacrvla	Fiber Wattle amide (PAM)			
	1634.01	Ten	nporary Roc	k Sediment Dam Ty	pe - A		
	1634.02	Ten	nporary Roc	k Sediment Dam Ty	pe=B		14245
	1635.01	Roc	k Pipe Inle	et Sediment Trap Typ	e⁼A		
TURE	1635.02 1630 04	Roc	k Pipe Inle L: P ·	et Sediment Trap Ty _I	e=₿	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
	1630.04	Stil	iing Dasin	Basin			
	TAAAAAA	Rec	k Inlet Sed	iment Tran:		\square	
	1632.01		Туре А			A	
	1632.02		Type B			B	
	1632.03		Туре С			C	
	r	– Ski	mmer Basin				
	4	T <u>.</u>	nod Slim	» Racin	ſ		
-0110	L	\int_{-}^{1}	reu Skimme	r 19asin			
		Infi	Itration Bas	sin			
			Г	THIS PROJEC	CT C	ONTAIN	S
				EROSION CO	NTRO	DL PLAN	NS
				FOR CLEA		AND	
\wedge				GKUBBING CONSTI	РНА ГСТІ	SE UF ON	
/ X /			L				
NC' /V			Г	FNUIDON	MENY		
83 (1/1)				SENSITIVE A	VIEIN. AREA	IALLI (S) EX	IST
/ ^{' v4} 20//				ON THIS	5 PR	DJECT	
			-	Refer To E. C.	Specia	l Provisio	ons
				for Special	Consid	erations.	
				IHIS PKC REEN DES	JECT IGNF	НА 5 D ТО	
				SENSITIVE	WATH	ERSHED)
				STAN	DARD	S.	

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans. 1632.01 Rock Inlet Sediment Trap Type A 1604.01 Railroad Erosion Control Detail 1632.02 Rock Inlet Sediment Trap Type B 1605.01 Temporary Silt Fence 1606.01 Special Sediment Control Fence 1632.03 Rock Inlet Sediment Trap Type C 1607.01 Gravel Construction Entrance 1633.01 Temporary Rock Silt Check Type A 1622.01 Temporary Berms and Slope Drains 1633.02 Temporary Rock Silt Check Type B 1630.01 Riser Basin 1634.01 Temporary Rock Sediment Dam Type A 1630.02 Silt Basin Type B 1634.02 Temporary Rock Sediment Dam Type B 1630.03 Temporary Silt Ditch 1635.01 Rock Pipe Inlet Sediment Trap Type A 1635.02 Rock Pipe Inlet Sediment Trap Type B 1630.04 Stilling Basin 1630.05 Temporary Diversion 1640.01 Coir Fiber Baffle 1630.06 Special Stilling Basin 1645.01 Temporary Stream Crossing 1631.01 Matting Installation



COIR FIBER WATTLE BARRIER DETAIL

NOTES:

USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.

FILL SLOPE -

INSET A





PROJECT REFERENCE NO	D. SHEET NO.
BR-0110	EC-2
R/W SHEET N	١0.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL

TOP VIEW



SILT FENCE COIR FIBER WATTLE BREAK

NOTES:

LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED. INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A







D	ΞТ	Ά	Ι	L

PROJECT REFERENCE NO.		SHEET NO.
BR-0110		EC-2A
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND

SIDE VIEW



PROJECT REFERENCE NO.	SHEET NO.
BR-0110	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER





SITE DESCRIPTION

PERIMETER DIKES, SWALES, DITCHES AND

HIGH QUALITY WATER (HQW) ZONES

SLOPES STEEPER THAN 3:1

SLOPES 3:1 OR FLATTER

ALL OTHER AREAS WITH SLOPES FLATTER

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

	STABILIZATION TIME	7/
SLOPES	7 DAYS	NONE
	7 DAYS	NONE
	7 DAYS	IF SLOPE Not ste
	14 DAYS	7 DAYS Length.
R THAN 4:1	14 DAYS	NONE, EX

PROJECT REFERENCE NC). SHEET NO.
BR-0110	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MEFRAME EXCEPTIONS

ES ARE IO'OR LESS IN LENGTH AND ARE EEPER THAN 2:1, 14 DAYS ARE ALLOWED. FOR SLOPES GREATER THAN 50' IN

CEPT FOR PERIMETERS AND HQW ZONES.





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REFORESTATION

□ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATIONMIXTURE, TYPE, SIZE, AND FURNISH SHALL

25% LIRIODENDRON TULIPIFERA
25% PLATANUS OCCIDENTALIS
25% FRAXINUS PENNSYLVANICA
25% BETULA NIGRA

N.C.	BR-0110	RF-1
STATE PROJ.	NO. F. A. PROJ. NO.	DESCRIPTION

L CONFORM TO THE FOLLOWING:	
TULIP POPLAR	12 in – 18 in BR
AMERICAN SYCAMORE	12 in – 18 in BR
GREEN ASH	12 in – 18 in BR
RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

TS	WATER AND SEWER	PREPARED IN THE OFFICE OF
	OWNERS ON PROJECT	STV Engineers, In 900 West Trade St., Sui Charlotte, NC 28202
LOGY	(A) WATER – BEAUFORT COUNTY WATER DEPARTMENT	NC License Number F–0 (704) 372–1885 FAX: (704) 37.
RUCTION SHEET		ANDREW VANE, PE CONSULTANT CONTACT COLIN HUGHES, PE CONSULTANT CONTACT

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)
11 ¹ ⁄4 Degree Bend +++
221/2 Degree Bend $+++$
45 Degree Bend+×
90 Degree Bend+
Plug
Tee
Cross
Reducer
Gate Valve
Butterfly Valve
Tapping Valve
Line Stop
Line Stop with Bypass
Blow Off
Fire Hydrant
Relocate Fire Hydrant PFH
Remove Fire Hydrant
Water Meter
Relocate Water Meter
Remove Water Meter
Water Pump Station
RPZ Backflow Preventer
DCV Backflow Preventer
Relocate RPZ Backflow Preventer
Relocate DCV Backflow Preventer 🔤

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	12" SS
Force Main Sewer Line (Sized as Shown)	12" FSS
Manhole (Sized per Note)	
Sewer Pump Station	

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REV: 2/1/2012

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	Thrust Block
Telephone Pole	Air Release Valve
Joint Use Pole	Utility Vault
Telephone Pedestal	Concrete Pier
Utility Line by Others (Type as Shown)	Steel Pier
Trenchless Installation	Plan Note
Encasement by Open Cut	Pay Item Note
Encasement	PAY IIEM

EXISTING UTILITIES SYMBOLS

Power Pole	•
Telephone Pole	→
Joint Use Pole	- • -
Utility Pole	•
Utility Pole with Base	
H-Frame Pole	••
Power Transmission Line Tower	\boxtimes
Water Manhole	\otimes
Power Manhole	(\mathbb{P})
Telephone Manhole	\bigcirc
Sanitary Sewer Manhole	
Hand Hole for Cable	н
Power Transformer	\bowtie
Telephone Pedestal	Τ
CATV Pedestal	
Gas Valve	\diamond
Gas Meter	\Diamond
Located Miscellaneous Utility Object	\odot
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

*Underground	Power line	
*		
Underground	lelephone Cable	
*Underground	Telephone Conduit	
*Underground	Fiber Optics Telephone Cable	
*Underground	TV Cable	
*Underground	Fiber Optics TV Cable	
*Underground	Gas Pipeline	
Aboveground	Gas Pipeline	A/G Gas
*Underground	Water Line	
Aboveground	Water Line	A/G Water
*Underground	Gravity Sanitary Sewer Line.	SS
Aboveground	Gravity Sanitary Sewer Line.	A/G Sanitary Sewer
*Underground	SS Forced Main Line	
Underground	Unknown Utility Line	
SUE Test Ho	Le	٢
Water Meter		\Box
Water Valve		\otimes
Fire Hydrant	t	¢
Sanitary Sev	ver Cleanout	\oplus

PROJECT REFERENCE NO.

BR-0110

KISINGER CAMPO & ASSOCIATES

STV Engineers, Inc. 900 West Trade St., Suite 71 Charlotte, NC 28202 NC License Number F-0991

SHEET NO.

UC-2

sting Utilities	
Line Drawn from s Shown)	Record
ted Utility Line s Shown)	

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UTILITY CONSTRUCTION

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOT

1. PROPOSED WATER LINE FROM -WL1- LINE STA 10+00.00 TO -WL1- LINE STATION 15+29.07 SHALL 10" HDPE, IPS, SDR 9, 200 PSI INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING AND 8" DIF 350, MJ WITH GRIP RINGS. HDPE PIPE SHALL ME REQUIREMENTS, AS DEFINED IN ASTM D-3350, V MINIMUM CELL CLASSIFICATION OF PE 445574. T MATERIAL SHALL BE TESTED AND APPROVED FO WATER IN ACCORDANCE WITH NSF/ANSI 61. MIN WALL THICKNESS SHALL BE BASED ON AN SDR CONTRACTOR AND PIPE MANUFACTURER SHAL DETERMINE ACTUAL WALL THICKNESS REQUIRE STATIC AND DYNAMIC LOADS, WITH AN APPLIED SAFETY OF 2.5.

2. IN ADVANCE OF BEGINNING UTILITY WORK, SE DIGS SHALL BE PERFORMED BY CONTRACTOR ACTUAL WATER LINE DEPTH AND LOCATION AT TIE-IN LOCATIONS.

3. JOINTS OF HDPE PIPE SEGMENTS SHALL BE B FLUSH TO THE OUTSIDE DIAMETER OF THE PIPE PERFORMING THE FINAL HYDROSTATIC TEST, T PIPE SHALL BE PROVIDED WITH A DUCTILE IRON FLANGE, WITH A FLANGE CONNECTION TO THE FLANGED JOINTS SHALL MEET THE REQUIREME B16.1, CLASS 125.

4. ALL DUCTILE IRON FITTINGS AND GATE VALVE MECHANICAL JOINT AND INSTALLED WITH GRIPI

5. TRACER WIRE MUST BE ATTACHED TO ALL NE INSTALLED PIPE AS REQUIRED BY NC GENERAL CHAPTER 87-121G. DO NOT USE STRANDED WIR COUNTY WATER DEPARTMENT WILL CONDUCT A TEST ON ALL TRACER WIRE AFTER INSTALLATION

6. THE CONTRACTOR SHALL INSTALL THE HDPE HORIZONTALLY DRILLED, DIRECTIONALLY-CONT METHOD OF CONSTRUCTION. PIPE SHALL BE FIL POTABLE WATER AND NOT BE CONNECTED TO A OR FITTINGS FOR ONE WEEK FROM TIME OF INS

7. THE CONTRACTOR SHALL EMPLOY EXPERIEN PERSONNEL TO OPERATE THE DIRECTIONAL DF EQUIPMENT AND THE POSITION MONITORING AI STEERING EQUIPMENT. THE CONTRACTOR SHA CERTIFIED FUSING PERSONNEL APPROVED BY MANUFACTURER.

8. THE CONTRACTOR SHALL AT ALL TIMES, PROM MAINTAIN INSTRUMENTATION THAT WILL ACCUR LOCATE THE PILOT HOLE POSITION IN THE X, Y, AXES RELATIVE TO THE GROUND SURFACE. DR FLOW RATE AND PRESSURE SHALL ALSO BE MO THE CONTRACTOR SHALL MAINTAIN AND PROVI ENGINEER ACCESS TO THE DATA GENERATED E DOWNHOLE SURVEY TOOLS.

9. THE CONTRACTOR SHALL HAVE ACCURATE W GAUGES THAT REGISTER TENSILE FORCE BEING PULL THE PIPELINE BACK THROUGH THE REAME BOREHOLE.

10. DEVIATIONS FROM, AND CORRECTIONS TO, TO DESIGN CENTERLINE SHALL NOT EXCEED 2% OF DEPTH PER 100 FEET AND 2% HORIZONTALLY PI FEET. CONTRACTOR TO ENSURE NEWLY CONST UTILITIES ARE ENTIRELY WITHIN RIGHT-OF-WAY UTILITY EASEMENT.

KCA	NC FIRM LICENSE No: C-1506 301 Favetteville St	PROJECT REFERENCE	NO, SHEET NO,
KISINGER CAMPO	Suite 1500 Raleigh, NC 27601	BR-0110	UC-3
& ASSOCIATES	(919)882-7839	DESIGNED BY: CTH	
	STV Engineers Inc	DRAWN BY: CTH	HINTH CARO
$ \mathbf{\nabla} \mathbf{S} \mathbf{\Gamma} \mathbf{V} $	100 900 West Trade St., Suite 715	CHECKED BY: ASV	to bobusigned by
Je Ue	ATS Charlotte, NC 28202 NC License Number F-0991		E andrew S. Hane
		AFFRUVED BI.	70257221 eD4F1.
		REVISED:	
		NORTH CAROLINA	NGINEE
		TRANSPORTATION	WOREWS. VANCING
		UTILITIES ENGINEERING SEC.	1/29/2020
		PHONE: (919)707-6690	UTILITY CONSTRUCTION
ES.		FAX:(919)250-4151	PLANS UNLT
		UTILITY CO	NSTRUCTION
ATION			UNSIDERED FINAL
L BE			
	11. THE HORIZON	TAL DIRECTIONAL DE	RILLING
P CLASS	OPERATION SHAL	I BE CONDUCTED IN	A MANNER TO
	THE CONSTRUCT	ION PROCESS. THE	JUNTRACTOR
OR POTABLE	SHALL IMMEDIATE	ELY CONTAIN AND CI	_EAN UP ANY
NIMUM PIPE	INADVERTENT RE	TURNS. THE CONTR.	ACTOR SHALL
OF 9.	ALSO PROVIDE E	QUIPMENT AND PRO	CEDURES TO
	MAXIMIZE THE RE	CIRCULATION OR RE	FUSE OF
			SPOSAL
			י ווסר
	12. AFIER INSTAL		
	CONTRACTOR TO	DIG DOWN, CUT PIP	'E AND INSTALL
OFT	FITTINGS REQUIR	RED TO COMPLETE C	ONNECTION.
TO VERIFY			
PROPOSED	13. CONTRACTOR		SECTION 1530
		MOVE ITII ITIES" EO	R
		DE FIFE, UNLESS UIF	
BUTT-WELDED	SPECIFIED.		
E. PRIOR TO			
THE ENDS OF	14. A 2" OR GREA	TER TEMPORARY BL	OW OFF SHALL
N BLIND	BE INSTALLED FO	R THE PURPOSE OF	DISCHARGING
HDPE PIPE.	SUPER-CHI ORINA	ATED WATER, ALL DI	SCHARGE SHALL
INTS OF ANSI			
			SAL BI
	CONTRACTOR.		
ES ARE TO BE	15. ERICK JENNIN	IGS, WATER SYSTEM	S MANAGER
PING RINGS.	FOR BEAUFORT C	COUNTY WATER DEP.	ARTMENT, WILL
	SERVE AS THE UT	FILITY OWNER CONT	ACT ON THIS
	PROJECT CONTR	PACTOR AS REQUIRE	D BY STANDARD
	SPECIFICATION S	SECTION 1500-2, SHAL	
KE. BEAUFORI	HIW AT (252) 402-6	5547.	
A CONTINUITY			
ON.	16. BEAUFORT CC	DUNTY WATER DEPA	RTMENT
	REPRESENTATIVE	ES SHALL BE THE ON	ILY PERSONNEL
PIPE BY THE	ALLOWED TO OPE	ERATE WATER LINE \	/ALVES.
	SHALL TAKE PLAC		
STALLATION.	REFN NOTILIED A	MINIMUM OF 24 HOL	JKS IN
	ADVANCE. NOTIC	E OF INTERRUPTION	SHALL BE
NCED	PREPARED BY TH	IE PUBLIC WORKS OF	FICE ON
RILLING	OFFICIAL LETTFR	HEAD. CONTRACTOR	R TO CONTACT
ND	ERICK JENNINGS	1 MONTH IN ADVANC	E OF ANY
	SHALL BE THE RE	SPONSIBILITY OF TH	
VIDE AND	CONTRACTOR UN	IDER THE DIRECTION	NOF THE PUBLIC
RATELY	WORKS OFFICE.		
AND Z			
	18 BEAUFORT CO		тан
	PROJECTS, A BEA		
BY IHF	SHALL BE PRESE	NI FUR THE PRESSU	IKE IESI,
	CHLORINATION, A	AND FLUSHING OF AL	L NEW WATER
	LINES.		
VORKING			
G USED TO	19 BEAUFORT CC	OUNTY SHALL BE PRO	OVIDED WITH
FD			
		THE SOLVETED AOD	
		UND OF THE SIZE AN	
THE	MATERIAL INSTAL	LED; GPS COORDIN	ATED OF ALL
FTHE	FITTINGS, UTILITY	CONTROLS, AND TH	IE I
'ER 100	HORIZONTAL AND	VERTICAL LOCATIO	NS OF THE
TRUCTED	PIPING. PROVIDE	BORING LOGS FROM	TRENCHLESS
Y OR			

PROJECT TYPICAL DETAILS

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	PROJECT REFERENCE NO. SHEET NO.
50 100 150 2	DESIGNED BY: CTH DRAWN BY: CTH CHECKED BY: ASV APPROVED BY: REVISED: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919.) 707-6690
	FAX: (919)250-4151 IITTI TTV CONSTRUCTION
	DOCUMENT NOT CONSIDERED FINAL
	KISINGER CAMPO & ASSOCIATES ALL SIGNATORES COMPLETED NC FIRM LICENSE No: C-1506 301 Fayetteville St., Suite 1500 Raleigh, NC 27601 (919)882-7839
	STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991
8" WATER LINE KING (SEE NOTE 3) +29.07 1.37 (15.77' LT.) NAD NOT NAD NOT	
ERLINE	
F 8" UTILITY PIPE	
	50
	40
	30
"WATER LINE DEPTH	30
" WATER LINE DEPTH <u>E CONSTRUCTION (-WL1-)</u>	30 20 10
" WATER LINE DEPTH E CONSTRUCTION (-WL1-) 8" WATER LINE 29.07	30 20 10
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<pre>"WATER LINE DEPTH E CONSTRUCTION (-WL1-) 8" WATER LINE +29.07 1.37 (15.77 LT.) R LINE) 7</pre>	30 20 10 0 -10 -20 -30

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SHEET NO.

BR-0110

UO-1

NOTE: ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
RED IN THE OFFICE OF: NC FIRM LICENSE No: C-1506 301 Fayettville St., Suite 1500 Raleigh, NC 27601 (919)882-7839	OF TRAUSTRAL	DIVISION OF HIGHWAYS UTILITIES UNIT 1555 MAIL SERVICES CENTER RALEIGH NC 27699–1555 PHONE (919) 707–6690 FAX (919) 250–4151
UTILITY PROJECT MANAGER PROJECT UTILITY COORDINATOR	BO HEMPHILL, PE DAVID KRAMER KYLE PLEASANT	UTILITIES REGIONAL ENGINEER UTILITIES ENGINEER UTILITIES AREA COORDINATOR
)		UTILITIES COORDINATOR

PROJECT REFERENCE NO. BR-0110

SHEET NO. U0-2

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS

COMPUTED BY:	JMD	DATE:	07/30/19
CHECKED BY:	JCL	DATE:	07/30/19

	CROSS-SECTION SUMMARY														
Station	Uncl. Exc.	Undercut	Embt	Station	Uncl. Exc.	Undercut	Embt	Station	Uncl. Exc.	Undercut	Embt	Station	Uncl. Exc.	Undercut	Embt
-L-	(cu. yd.)	(cu. yd.)	(cu. yd.)	-L-	(cu. yd.)	(cu. yd.)	(cu. yd.)	-L-	(cu. yd.)	(cu. yd.)	(cu. yd.)	-L-	(cu. yd.)	(cu. yd.)	(cu. yd.)
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12+00.00	0		3												
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13+00.00	0		81												
13+25.53	0		53												
14+22.91	0		0												
14+50.00	0		75												
15+00.00	0		138												
15+50.00	0		66												
16+00.00	0		18												
16+50.00	3		10												
16+90.00	3		7												

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Breaking/Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

Note: Embankment column does not include backfill for undercut.

PROJECT REFERENCE NO.SHEET NO. $BR = O/IO$ $X = IA$	PROJECT R
PREPARED IN THE OFFICE OF: KISINGER CAMPO & ASSOCIATES	PREPARED IN The office of:
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	DOCUME UNLESS A

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KISINGER CAMPO & ASSOCIATES	NC FIRM LICENSE No: C 301 Fayetteville Stre Suite 1500 Raleigh, NC 27601 (919)882-7839	1506 et, O	5 10	PRC	J. REFERENCE BR-0110	NO.	SHEET NO. X-1
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	REMOVAL O EXISTING STRUCTURE STA. 13+74.2	ASBESTOS @ ASSESSMEN 23	PDA t testing	UNCLASSIFIED STRUCTURE EXCAVATION @ STA.13+74.23	CLASS CONCRE (BRIDG	A E TE AF E) STA	BRIDGE PROACH SLABS .13+74.23	REINFORCING STEEL (BRIDGE)	PILE DRIN EQUIPME SETUP FOR PRESTRES CONCRET PILES	VING NT 20″ SED TE	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	PRE: CC	20″ STRESSED NCRETE PILES	HP Stei	12 X 53 El PILES	PILE REDRIVES
	LUMP SUM	1 LUMP SUM	EA.	LUMP SUM	CU.YDS	S. LL	MP SUM	LBS.				No.	LIN.FT.	No.	LIN.FT.	EA.
SUPERSTRUCTURE																
END BENT No.1					14.2			2115			7			7	420	4
BENT No.1					12.3			2311	7			7	385			4
END BENT No.2					14.4			2115			7			7	420	4
TOTAL	LUMP SUM	1 LUMP SUM	1	LUMP SUM	40.9	LL	MP SUM	6541	7		14	7	385	14	840	12
				1 1												
	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-O") THICK	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-O"X 1 PRESTRES CONCRE CORED SL	7-97 37- SED PR TE C ABS CO	O"X 2'-0' Estressei Oncrete Red SLABS	<pre>FIBER OPT CONDUIT SY AT STATI S 13+74.23 -</pre>	FIC STEM <u>F</u> ON <u>1</u>	OUN . f	IDATION NO	DTE sect	S: Ion 450	OF TI	he stand	ARD SPECIF
	LIN.FT.	TONS.	SQ. YDS.	LUMP SUM	No. LIN.	FT. No	. LIN.FT	. LIN.FT.	. 2	р. Р л	PILES AT END B	ENT r pt	1 AND END) BEN	IT 2 ARE	DESIGNED F
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END BENT No.1		130	145							Δ	ND 120 TONS PE	ER P	ILE, RESPI	ECTI	VELY.	
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DRAWN BY :	DIEGO A.AGUIRRE	DATE :	9/25/19
CHECKED BY :	JACOB H.DUKE	DATE :	9/25/19
DESIGN ENGINEER	OF RECORD:JACOB H. DUKE	DATE :	9/25/19

190.5

END BENT No.2

TOTAL

12/4/2019 BR-0110_SMU_GD04_060072.dgn

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305

LUMP SUM

140

270

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# GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING. THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS IN SEISMIC ZONE 1.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED TO THE LIMITS SHOWN ON SHEET S-1 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.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW. AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.EXISTING AND REMNANT PILES SHALL BE REMOVED BY PULLING THE PILES OUT OF THE GROUND COMPLETELY, IF POSSIBLE. ALTERNATIVELY, EXISTING AND REMNANT PILES SHALL BE REMOVED/CUT TO THE MUDLINE.

THE EXISTING STRUCTURE CONSISTING OF THREE SEVENTEEN FOOT SPANS, WITH A CLEAR ROADWAY WIDTH OF TWENTY- EIGHT FEET HAVING A REINFORCED CONCRETE FLOOR ON TIMBER CAPS AND PILES LOCATED ZERO FEET DOWNSTREAM OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY 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.

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NOT ADDITIONAL COST TO THE CONTRACTOR. ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY 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. FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS. FOR FIBER OPTIC CONDUIT SYSTEM, SEE SPECIAL PROVISIONS. COMPLETELY REMOVE ALL EXISTING AND REMNANT PILES.

# HYDRAULIC DATA

DESIGN DISCHARGE FREQUENCY OF DESIGN FLOOD DESIGN HIGH WATER ELEVATION DRAINAGE AREA BASE DISCHARGE (Q100) BASE HIGH WATER ELEVATION

FIBER OPTIC CONDUIT SYSTEM AT STATION 13+74.23 -L-
LIN.FT.
98
98

FICATIONS.

- FOR A FACTORED RESISTANCE OF 51 TONS PER PILE
- QUIRED DRIVING RESISTANCE OF 85 TONS PER PILE
- STANCE OF 123 TONS PER PILE.
- 5. DRIVE PILES AT BENT 1 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG OR SCOUR.
- INSTALL PILES AT BENT 1 TO A TIP ELEVATION NO HIGHER THAN -27 FT.
- 7. THE SCOUR CRITICAL ELEVATION FOR BENT 1 IS ELEVATION -4 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- 8. TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT 1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DOCUMENT	NOT	CON	ISIDERED
FINAL	UNL	ESS	ALL
SIGNATU	RES	COM	PLETED

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

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".

![](_page_41_Picture_34.jpeg)

& ASSOCIATES			SHEET NO.				
301 FAYETTEVILLE ST., SUITE 1500	NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
RALEIGH, NC 27601 (919) 882-7839	1			3			TOTAL SHEETS
NC FIRM LICENSE: C-1506	2			4			20

		LOAD AN	D RE	SIS ⁻	fance	E FA(	CTOR	RAT	ING	(LRF	D) S	UMMA	RY F	OR F	PRES	TRES	SSED	CON	CRET	EGI	rdef	25	
								STRENGTH I LIMIT STATE							SE	SERVICE III LIMIT STATE							
										MOMENT					SHEAR						MOMENT		
LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING Load rating	MINIMUM RATING FACTORS (RF)	TONS = W X RF	LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)
		HL-93(Inv)	NZA	1	1.037		1.75	0.283	1.83	30′	EL	14.5	0.574	1.04	30′	EL	1.45	0.80	0.283	1.58	30′	EL	14.5
DESIGN		HL-93(0pr)	N/A		1.344		1.35	0.283	2.38	30′	EL	14.5	0.574	1.34	30′	EL	1.45	N/A					
LOAD		HS-20(Inv)	36.000	2	1.183	42.587	1.75	0.283	2.53	30′	EL	11.6	0.574	1.18	30′	EL	1.45	0.80	0.283	2.20	30′	EL	11.6
		HS-20(0pr)	36.000		1.533	55.205	1.35	0.283	3.28	30′	EL	11.6	0.574	1.53	30′	EL	1.45	N/A					
		SNSH	13.500		2.895	39.081	1.4	0.283	5.18	30′	EL	14.5	0.574	2.89	30′	EL	1.45	0.80	0.283	3.56	30′	EL	14.5
		SNGARBS2	20.000		2.240	44.792	1.4	0.283	4.53	30′	EL	11.6	0.574	2.24	30′	EL	1.45	0.80	0.283	3.15	30′	EL	11.6
		SNAGRIS2	22.000		2.157	47.463	1.4	0.283	4.6	30′	EL	11.6	0.574	2.16	30′	EL	1.45	0.80	0.283	3.20	30′	EL	11.6
		SNCOTTS3	27.250		1.462	39.849	1.4	0.283	2.6	30′	EL	14.5	0.574	1.46	30′	EL	1.45	0.80	0.283	1.79	30′	EL	14.5
	S	SNAGGRS4	34.925		1.346	46.999	1.4	0.283	2.5	30′	EL	14.5	0.574	1.35	30′	EL	1.45	0.80	0.283	1.72	30′	EL	14.5
		SNS5A	35.550		1.427	50.733	1.4	0.283	2.42	30′	EL	14.5	0.574	1.43	30′	EL	1.45	0.80	0.283	1.67	30′	EL	14.5
		SNS6A	39.950		1.341	53.59	1.4	0.283	2.29	30′	EL	14.5	0.574	1.34	30′	EL	1.45	0.80	0.283	1.58	30′	EL	14.5
LEGAL		SNS7B	42.000		1.369	57.505	1.4	0.283	2.23	30′	EL	14.5	0.574	1.37	30′	EL	1.45	0.80	0.283	1.53	30′	EL	14.5
LOAD		TNAGRIT3	33.000		1.593	52.58	1.4	0.283	2.97	30′	EL	14.5	0.574	1.59	30′	EL	1.45	0.80	0.283	2.04	30′	EL	14.5
NATINO		TNT4A	33.075		1.483	49.043	1.4	0.283	2.82	30′	EL	14.5	0.574	1.48	30′	EL	1.45	0.80	0.283	1.94	30′	EL	14.5
		TNT6A	41.600		1.433	59.622	1.4	0.283	2.56	30′	EL	14.5	0.574	1.43	30′	EL	1.45	0.80	0.283	1.76	30′	EL	14.5
	L S T	TNT7A	42.000		1.363	57.264	1.4	0.283	2.64	30′	EL	14.5	0.574	1.36	30′	EL	1.45	0.80	0.283	1.82	30′	EL	14.5
		TNT7B	42.000		1.331	55.915	1.4	0.283	2.49	30′	EL	14.5	0.574	1.33	30′	EL	1.45	0.80	0.283	1.72	30′	EL	14.5
		TNAGRIT4	43.000		1.287	55.356	1.4	0.283	2.58	30′	EL	14.5	0.574	1.29	30′	EL	1.45	0.80	0.283	1.78	30′	EL	14.5
		TNAGT5A	45.000		1.381	62.151	1.4	0.283	2.5	30′	EL	14.5	0.574	1.38	30′	EL	1.45	0.80	0.283	1.72	30′	EL	14.5
		TNAGT5B	45.000	3	1.212	54.54	1.4	0.283	2.41	30′	EL	11.6	0.574	1.21	30′	EL	1.45	0.80	0.283	1.66	30′	EL	11.6

PRELIMINARY PLANS NOT USE FOR CONSTRUCTION  $\bigcirc$ 

+

![](_page_42_Figure_3.jpeg)

DESIGN ENGINEER	OF RECOF	RD:
JACO	3 H.DUKE	DATE : <u>9/25/19</u>
ASSEMBLED BY :	DAA	DATE : 9/25/19
CHECKED BY :	JHD	DATE : 9/25/19
DRAWN BY : CVC CHECKED BY : DNS	6710 6710	

LRFR SUMMARY FOR SPAN `A'

### LOAD FACTORS:

DESIGN	LIMIT STATE	$\gamma_{\text{DC}}$	$\gamma_{\sf DW}$
LOAD RATING	STRENGTH I	1.25	1.50
FACTORS	SERVICE III	1.00	1.00

### NOTES:

 $\simeq$ 

COMMENT

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.

<u>COMME</u> 1.	NTS:
2.	
3. 4.	
	(#) CONTROLLING LOAD RATING
	1 DESIGN LOAD RATING (HL-93)
	2 DESIGN LOAD RATING (HS-20)
	<pre>3 LEGAL LOAD RATING **</pre>
	* * SEE CHART FOR VEHICLE TYPE
	GIRDER LOCATION
	I - INTERIOR GIRDER
	ER – EXTERIOR LEFT GIRDER ER – EXTERIOR RIGHT GIRDER
	PROJECT NO. <u>BR-0110</u>
	BEAUFORTCOUNT
	STATION: <u>13+74.23</u> -L-
12/3/201	9 SHEET 1 OF 2
ANT HOR	TH CAROLINA DEPARTMENT OF TRANSPORTATION
	SEAL STANDARD
DocuStane	LRFR SUMMARY FOR
Jacob H	90° SKFW
K	(NON-INTERSTATE TRAFFIC)
KISING	

STD.NO.21LRFR1_90S_30L

DATE:

NO. BY:

NO. BY:

DATE:

S-3

total sheets 20

		LOAD AN	D RES	SIST	- ANCE	E FAC	TOR	RAT	ING	(LRF	D) SI	JMMA	RY F	OR	PRES	TRE	SSED	CON	CRET	EGI	RDEF	25	
										STRE	ENGTH	I LIN	NIT ST	ATE				SE	ERVICE	CE III LIMIT STATE			
										MOMENT					SHEAR						MOMENT		
LEVEL		VEHICLE		WEIGHT (W) (TONS) CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (f+)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (f+)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (f+)
		HL-93(Inv)	NZA	1	1.018		1.75	0.274	1.05	65′	EL	32	0.513	1.2	65′	EL	6.4	0.80	0.274	1.02	65′	EL	32
DESIGN		HL-93(0pr)	NZA		1.358		1.35	0.274	1.36	65′	EL	32	0.513	1.56	65′	EL	6.4	N/A					
LOAD		HS-20(Inv)	36.000	2	1.306	47.014	1.75	0.274	1.34	65′	EL	32	0.513	1.48	65′	EL	6.4	0.80	0.274	1.31	65′	EL	32
		HS-20(0pr)	36.000		1.742	62.706	1.35	0.274	1.74	65′	EL	32	0.513	1.92	65′	EL	6.4	N/A					
		SNSH	13.500		2.868	38.725	1.4	0.274	3.69	65′	EL	32	0.513	4.33	65′	EL	6.4	0.80	0.274	2.87	65′	EL	32
		SNGARBS2	20.000		2.171	43.424	1.4	0.274	2.79	65′	EL	32	0.513	3.11	65′	EL	6.4	0.80	0.274	2.17	65′	EL	32
		SNAGRIS2	22.000		2.071	45.552	1.4	0.274	2.66	65′	EL	32	0.513	2.89	65′	EL	6.4	0.80	0.274	2.07	65′	EL	32
		SNCOTTS3	27.250		1.428	38.924	1.4	0.274	1.84	65′	EL	32	0.513	2.17	65′	EL	6.4	0.80	0.274	1.43	65′	EL	32
	$\sim$	SNAGGRS4	34.925		1.206	42.136	1.4	0.274	1.55	65′	EL	32	0.513	1.81	65′	EL	6.4	0.80	0.274	1.21	65′	EL	32
		SNS5A	35.550		1.179	41.911	1.4	0.274	1.52	65′	EL	32	0.513	1.85	65′	EL	6.4	0.80	0.274	1.18	65′	EL	32
		SNS6A	39.950		1.087	43.43	1.4	0.274	1.4	65′	EL	32	0.513	1.69	65′	EL	6.4	0.80	0.274	1.09	65′	EL	32
LEGAL		SNS7B	42.000		1.035	43.489	1.4	0.274	1.33	65′	EL	32	0.513	1.67	65′	EL	6.4	0.80	0.274	1.04	65′	EL	32
		TNAGRIT3	33.000		1.327	43.8	1.4	0.274	1.71	65′	EL	32	0.513	2.01	65′	EL	6.4	0.80	0.274	1.33	65′	EL	32
RAIING		TNT4A	33.075		1.335	44.142	1.4	0.274	1.72	65′	EL	32	0.513	1.95	65′	EL	6.4	0.80	0.274	1.33	65′	EL	32
		TNT6A	41.600		1.096	45.613	1.4	0.274	1.41	65′	EL	32	0.513	1.8	65′	EL	6.4	0.80	0.274	1.10	65′	EL	32
	ST	TNT7A	42.000		1.105	46.4	1.4	0.274	1.42	65′	EL	32	0.513	1.74	65′	EL	6.4	0.80	0.274	1.10	65′	EL	32
		TNT7B	42.000		1.15	48.298	1.4	0.274	1.48	65′	EL	32	0.513	1.62	65′	EL	6.4	0.80	0.274	1.15	65′	EL	32
		TNAGRIT4	43.000		1.089	46.815	1.4	0.274	1.4	65′	EL	32	0.513	1.57	65′	EL	6.4	0.80	0.274	1.09	65′	EL	32
		TNAGT5A	45.000		1.024	46.084	1.4	0.274	1.32	65′	EL	32	0.513	1.57	65′	EL	6.4	0.80	0.274	1.02	65′	EL	32
		TNAGT5B	45.000	3	1.01	45.431	1.4	0.274	1.3	65′	EL	32	0.513	1.49	65′	EL	6.4	0.80	0.274	1.01	65′	EL	32

![](_page_43_Figure_2.jpeg)

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![](_page_43_Figure_3.jpeg)

LRFR SUMMARY

FOR SPAN `B'

DESIGN ENGINEEF	R OF REC	CORD:
JACC	) <u>b h.duk</u>	Ke date : <u>9/25/19</u>
ASSEMBLED BY :	DAA	DATE : 9/25/19
CHECKED BY :	JHD	DATE : 9/25/19
DRAWN BY : CVC CHECKED BY : DNS	6710 6710	

### LOAD FACTORS:

DESIGN	LIMIT STATE	$\gamma_{\text{DC}}$	$\gamma_{\sf DW}$
LOAD RATING	STRENGTH I	1.25	1.50
FACTORS	SERVICE III	1.00	1.00

### NOTES:

12/3/2019

NUMBER

COMMENT

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.

	ТС
LOMMEN 1.	5:
2.	
3. 4.	
	(#) CONTROLLING LOAD RATING
	1 DESIGN LOAD RATING (HL-93)
	2 DESIGN LOAD RATING (HS-20)
	<pre>3 LEGAL LOAD RATING **</pre>
	** SEE CHART FOR VEHICLE TYPE
	GIRDER LOCATION
	I - INTERIOR GIRDER
	ER - EXTERIOR RIGHT GIRDER
	PROJECT NO. <u>BR-0110</u>
	BEAUFORTCOUNTY
	STATION: <u>13+74.23</u> -L-

![](_page_43_Picture_16.jpeg)

STD.NO.24LRFR1_90S_65L

![](_page_44_Figure_0.jpeg)

![](_page_44_Figure_1.jpeg)

2/11/2020 BR-0110_SMU_CS01_060072.dgn iduke

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![](_page_45_Figure_0.jpeg)

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![](_page_45_Figure_1.jpeg)

^{2/11/2020} BR-0110_SMU_CS02_060072.dgn jduke

STD. NO. 24PCS4_33_90S

![](_page_46_Figure_1.jpeg)

10/25/2019 BR-0110_SMU_CS03_060072.dgn jduke

REV. 12/5/11 MAA/AAC REV. 8/14 MAA/TMG

DRAWN BY : DGE 3/09 Checked by : Bch 3/09

![](_page_46_Figure_6.jpeg)

![](_page_46_Picture_7.jpeg)

SPAN ``A'' SHEET NO REVISIONS S-7 DATE: BY: DATE: NO. BY: TOTAL SHEETS 20

30'-10'' CLEAR ROADWAY

90°SKEW

STD. NO. 21" PCS_33_90S_30L

+

![](_page_47_Figure_1.jpeg)

DESIGN ENGINEER OF REG JACOB_H.DUK	CORD: K <u>e</u> dat	E: _9	/25/19
ASSEMBLED BY : DAA	D A	TE: 9	/25/19
CHECKED BY : JHD	D A	TE: 9	/25/19
DRAWN BY : MAA 6/10	REV. 12/5	1/11 N	1AA/AAC
Checked by : MKT 7/10	REV. 8/	14 1	MAA/TMG

12/3/2019	PROJEC B STATIC	CT NO. <u>EAUF</u> DN:1	<u>BI</u> ORT 3+74	<u>R-011(</u> co <u>.23</u> -	) UNTY L –
SEAL 043777 DocustoperCob H DUCTION Jacob H. VWec	depa P 30'-	stat RTMENT LAN 10″CI 9C SF	e of north caf OF TRA raleigh OF 65 _EAR 0° SK	NSPORTA 5' UNI ROAE EW B''	tion T WAY
KISINGER CAMPO & ASSOCIATES		REVIS	SIONS		SHEET NO.
301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839	NO. BY:	DATE:	NO. BY:	DATE:	S-8 total
NC FIRM LICENSE: C-1506	2		থ 4		sheets 20

STD. NO. 24PCS_33_90S_65L

![](_page_48_Figure_0.jpeg)

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![](_page_48_Figure_1.jpeg)

10/25/2019 BR-0110_SMU_CS05_060072.dgn iduke

# NOTEC

NUTES
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.
ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.
RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.
THE 2½″Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.
THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER.SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.
WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS.AT LEAS SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMI TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.
ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.
GROOVED CONTRACTION JOINTS, $\frac{1}{2}^{\prime\prime}$ IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.
FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE ``CONCRETE RELEASE STRENGTH'' TABLE.
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.
THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-O"CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.
THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.
FOR FIBER OPTIC CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.
ECTION AND CAMBER         3'-0"×1'-9"         0.6"ØL.R.         STRAND         IN PLACE)         1/4"             IN PLACE             1000000000000000000000000000000000000
OAD*** 1/8″ ↓ PROJECT NO. <u>BR-0110</u>
WEARING SURFACEBEAUFORTCOUNTY
STATION: <u>13+74.23</u> -L-
12/3/2019 SHEET 5 OF 6
DEPARTMENT OF TRANSPORTATION
NDS
"ØL.R.       Jacob H. Within         0.217       Jacob H. Within         900053ADC66006400       PRESTRESSED CONCRETE         8 600       CORED SLAB UNIT
$\frac{3950}{3950}$

SPAN 'A' SHEET NO. REVISIONS S-9 DATE: DATE: BY: NO. BY: TOTAL SHEETS 20

43,950

**KISINGER CAMPO** 

301 FAYETTEVILLE ST., SUITE 1500

RALEIGH, NC 27601 (919) 882-7839

NC FIRM LICENSE: C-1506

& ASSOCIATES

STD. NO. 21" PCS3_33_90S

![](_page_49_Figure_0.jpeg)

-

![](_page_49_Figure_1.jpeg)

10/25/2019 BR-0110_SMU_CS06_060072.dgn

STD. NO. 24PCS3_33_90S

![](_page_50_Figure_0.jpeg)

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![](_page_50_Figure_1.jpeg)

10/25/2019 BR-0110_SMU_GR_060072.dgn iduke

REV. 5/18

MAA/THC

![](_page_50_Figure_3.jpeg)

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS 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.

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

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

### NOTES

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

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

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

![](_page_50_Figure_17.jpeg)

![](_page_51_Figure_1.jpeg)

10/25/2019 BR-0110_SMU_E01_060072.dgn jduke

# NOTES

TOP ELEV	OF PILE /ATIONS
	18.72
2	18.48
3	18.24
4	18.00
5	17.76
6	17.52
(7)	17.28

STD. NO. EB_33_90S

![](_page_52_Figure_1.jpeg)

FINAL UNLESS ALL SIGNATURES COMPLETED

# NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

TOP ELEV	OF PILE /ATIONS
	18.50
2	18.26
3	18.02
4	17.78
5	17.54
6	17.30
(7)	17.06

![](_page_52_Picture_14.jpeg)

STD. NO. EB_33_90S

![](_page_53_Figure_0.jpeg)

PRELIMINARY PLANS Not use for construction

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![](_page_53_Figure_1.jpeg)

10/25/2019 BR-0110_SMU_E03_060072.dgn jduke

![](_page_53_Figure_5.jpeg)

![](_page_53_Figure_6.jpeg)

![](_page_53_Figure_7.jpeg)

	END BENT WING DETAILS										
		SHEET N									
UITE 1500	N0.	BY:	DATE:	NO.	BY:	DATE:	S-14				
882-7839	1			I			TOTAL SHEETS				
	2			4			20				
			STD. N	10.	EB_3	33_90S					

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້ SEAL 043777

MGINE S

![](_page_54_Figure_0.jpeg)

TEMPORARY DRAINAGE AT END BENT

![](_page_54_Figure_3.jpeg)

DESIGN ENGINEER JA	OF RECO COB H.D	RD: DUKE	DATE :	9/25/19
ASSEMBLED BY : CHECKED BY :	DAA JHD		DATE : DATE :	9/25/19 9/25/19
DRAWN BY : DGE Checked by : Mkt	12/09 01/10	REV.	4/17	MAA/THC

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PRELIMINARY PLANS NOT USE FOR CONSTRUCTION

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		ВT	LL ()	F M.	ATERIA	<u> </u>
		 F(			RENT	1
<u> </u>	BAR	NO.	SIZF	TYPE	LENGTH	   weight
	<u>B1</u>	8	#9	1	41'-0"	1115
	B2	16	#4	STR	20'-7"	220
7'-2"	<u> </u>	10	#4	SIR	2'-5"	16
	D1	22	#6	STR	1'-6"	50
	H1	24	#4	2	7'-10"	126
	K1	12	#4	STR	2'-11"	23
$  \frac{4^{1/2}}{2^{\prime}-5^{\prime\prime}} + \frac{4^{1/2}}{2^{\prime}-5^{\prime\prime}}  $			· ·			
	51 52	50 50	#4 #4	<u> </u>	('-5" 3'-2"	248
$\square \land \land$	S3	14	#4	5	6'-6"	61
	V1	48	#4	STR	4'-8"	150
	REIN	 Forci	 Ng ste	eel		
	(FOR	ONE E	END BE	NT)		2115 LBS.
	CLASS	SAC( (FOR (	ONCRET One en	E BREA D BEN	AKDOWN T)	
	POUR	#1 C 0	AP,LOV F WIN(	ver pa GS & (	ART Collars	12.4 C.Y
2'-5"	POUR	#2 U	PPER F	PART C	)F	1.8 C.Y.
	TOTAL	W _ CLAS	INGS SS A C	ONCRE	TE	14.2 C.Y.
LL BAR DIMENSIONS ARE OUT TO OUT.		F(			RENT	2
BENT NO.1 END BENT NO.2	BAR	NO.	SIZF	TYPE	LENGTH	   weight
3 STEEL PILES HP 12 X 53 STEEL PILES	B1	8	#9	1	41'-0"	1115
LIN.FT.= 420 NO:7 LIN.FT.= 420	B2 B3	16 10	#4 #4	STR STR	20'-7" 2'-5"	220 16
EQUIPMENT PILE DRIVING EQUIPMENT FOR SETUP FOR	[) 1	22	#6	STR	1'-6"	50
TEEL PILES HP 12 X 53 STEEL PILES NO: 7	H1	24	#4	2	7'-10"	126
S NO:4 PILE REDRIVES NO:4	<u>.</u> 	12	циника и конструкции и констру и конструкции и конструкции и конструкции и конструкции и конструкции и конструкции и констру и конструпни и конструпни и конструпни и конструпни и конструпни и конструпни и констру и конструпни и констри		2'-11"	27
			··· 4			
	S1	50	#4 #1	3	7'-5"	248
	52 S3	14	#4	5	6'-6"	61
	\/ 1	ΔR	# 1	STD	Δ′-Ω″	150
	REIN (FOR	FORCI One e	NG STE END BE	EEL NT)		2115 LBS
	CLASS	A CO	ONCRET		AKDOWN	
D1 DOWEL	POUR	#1 C	AP, LOV	VER PA	ART	12.4 C.Y
		U # ~ · · ·	r WIN(		JULLAKS	
<b>F</b>	FOUR	#2 U W	PPER F Ings	aki C	J⊢	2.U C.Y.
B2 @ 4''CTS. VER PILES	TOTAL	_ CLAS	ss a c	ONCRE	TE	14.4 C.Y.
#4 S3						
	),JF (^ ⁻	T NI	0_	BF	R-011	С
	R			γ T		
	υC	_ A U				UNIY
<u>2-#9 B1</u> STA	TIO	N:	13-	- (4,	.23 -	<u> </u>
-3'' HIGH B.B. 12/3/2019 SHEE	T 4 OF	4				
THE CAROLINE		· <b>- ·</b> · · - ·	STATE OF N	IORTH CAR		TTON
OFESS /OF	UEPAR	IMEN	NI OF	IRAN Aleigh	NSPORTA	ITON
SEAL 043777		SI	JBSTI	RUCT	URE	
Docusinger H DUNIN						
Jacob H. Vule 9CD53ADC66D6400	ENC	) B	ENT	No	o.1 &	2
			DET	AIL	S	
RITY. ES DETAIL.'')					,	1
OCLIMENT NOT CONSTREEDED 301 FAYETTEVILLE ST., SUITE 1500	BY:	RE DATE:	VISIONS	BY:	DATE:	SHEET NO
FINAL UNLESS ALL       Raleigh, NC 27601 (919) 882-7839         SIGNATURES COMPLETED			3			TOTAL SHEETS 20

STD. NO. EB_33_90S

PRELIMINARY PLANS NOT USE FOR CONSTRUCTION

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![](_page_55_Figure_1.jpeg)

DESIGN ENGINEER OF RECO JACOB H.D	_ DATE :	9/25/19	
ASSEMBLED BY: DAA CHECKED BY: JHD		DATE : DATE :	9/25/19 9/25/19
DRAWN BY: DGE 06/10 Checked by: Mkt 06/10	REV.	6/17	MAA/THC

10/25/2019 BR-0110_SMU_B01_060072.dgn jduke

STD.NO. 20" PS_BT_33_90S_<60'

![](_page_56_Figure_1.jpeg)

DESIGN ENGINEER OF JACO	RECORD: B H.DUKE	DATE :.	9/25/19
ASSEMBLED BY : CHECKED BY :	DAA JHD	DATE : DATE :	9/25/19 9/25/19
DRAWN BY : DGE 05 CHECKED BY : MKT 05	/10 /10 REV.	6/17	MAA/THC

![](_page_56_Figure_4.jpeg)

		ΒI	L O	F MA	ATERIA	
			FOR	ONE	BENT	
1'-3'' LAP	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
	B1	4	#10	1	37′-10″	651
	B2	4	#10	STR	35′-2″	605
	B3	6	#5	STR	35′-2″	220
	B4	10	#4	STR	18′-10″	126
$\left(\begin{array}{c} (3) \end{array}\right)$	B5	9	#4	STR	3'-4"	20
		11	#6	стр	1′-6″	00
		44	" O	SIR	1 -0	33
	<u> </u>	32	#5	2	8'-6"	284
1′-5″ <u>U6</u>	51 52	14		्र र	9'-2"	86
3'-2" U1	52	1 7		5	J Z	
2'-0" U2		4	#4	4	6'-2"	16
3'-2" U3	U2	8	#4	4	5'-0"	26
<u>ه</u>	U3	2	#9	4	10'-6"	71
	U6	36	#4	4	4'-5"	107
	REINF(	DRCING ONF F	STEEL	1		2311   BS
	CLASS	A CON	CRETE E	BREAKDO	WN	
v v	(FUR	UNE E	ENI)			
	TOTAL	CLASS	A CONC	CRETE		12.3 C.Y.
Γ ΤΟ ΟΠΤ	20" PRE (FOR	ESTRES: ONE E	SED CON ENT)	ICRETE	PILES	
	NO	. 7			LIN.	FT. 385
	PILE E 20" PRE	ORIVIN	G EQUIF SED CON	°MENT S Icrete	ETUP FOR PILES	
		UNL L				NO.7
	PILE F	REDRIVI	ES			NO.4
J1	CON CON THE	ICRETE ICRETE CONCF	DISPLA Piles i Rete qui	CED BY HAS BEE ANTITY,	THE 20"PRE En deducted	ESTRESSED ) FROM

STD.NO.20"PS_BT_33_90S_<60'

![](_page_57_Figure_0.jpeg)

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![](_page_57_Figure_1.jpeg)

![](_page_57_Figure_3.jpeg)

### NOTES

PRESTRESSED CONCRETE STRENGTH : f'c = 7,500 PSI BUILD-UP CONCRETE STRENGTH : f'c = 7,500 PSI STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
1/2''	270 L.R.	0.153	41,300# Per strand	30,980# PER STRAND
0.6″	270 L.R.	0.217	58,600# Per strand	43,940# PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION,  $\frac{1}{2}$ " or 0.6" strands may be used IN THE STRAND CONFIGURATION SHOWN IN THE TYPICAL SECTION DETAIL. MIXING OF STRAND SIZE IS NOT ALLOWED.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN.FOR ANY NUMBER OF STRANDS, BURN IN OPPOSITE PAIRS AND SYMMETRICALLY ABOUT BOTH THE VERTICAL AND HORIZONTAL AXES, STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSIVE STRENGTH: f'c= 5,000 PSI

BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN  $\frac{1}{2}$ " clear to all EXISTING PRESTRESSING STRANDS IN THE CONCRETÉ PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS.DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.

		proje <u>B</u> stat	ect no <u>eauf</u> ion: <u>1</u>	) <u> </u>	R-0110 co .23 -	) UNTY 
		SHEET 3 C	)F 3			
_	12/3/2019 NORTH CARO/ OFESS/OW SEAL 043777 MGINEER Jacob H. Wee 9CD53ADC66D6400	DEPA	sta RTMENT ST 20'' PI CONC	te of north cai OF TRAN raleigh ANDAR[ RESTR RETE	rolina NSPORTAT D RESSEE PILE	TION )
	KISINGER CAMPO & ASSOCIATES	REVISIONS				SHEET NO.
CONSIDERED SS ALL OMPLETED	301 FAYETTEVILLE ST., SUITE 1500 RALEIGH, NC 27601 (919) 882-7839 NC FIRM LICENSE: C-1506	NO. ВҮ: 1 2	DATE:	NO.         BY:           З	DATE:	S-18 Total Sheets 20

STD. NO. PCP3

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PRELIMINARY PLANS NOT USE FOR CONSTRUCTION

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![](_page_58_Figure_1.jpeg)

NOTES : FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

ESTIMATED QUANTITIES			
BRIDGE @ STA.13+74.23 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE For drainage	
	TONS	SQUARE YARDS	
END BENT 1	130	145	
END BENT 2	140	160	

GROUND LINE	project no. <u>BR-0110</u> <u>BEAUFORT</u> county station: <u>13+74.23</u> -L-
12/3/2019 NTH CARO/ OFESS/ON SEAL 043777 Jacob H. Vulce	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD RIP RAP DETAILS
OT CONSIDERED NESS ALL S COMPLETED	REVISIONS       SHEET NO.         NO.       BY:       DATE:       NO.       BY:       DATE:       S-19         1       3

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![](_page_59_Figure_1.jpeg)

^{10/25/2019} BR-0110_SMU_AS_060072.dgn iduke

SPECIFICATIONS SECTION 1056.

APPROACH SLAB GROOVING IS NOT REQUIRED.

![](_page_59_Figure_10.jpeg)

![](_page_59_Figure_12.jpeg)

![](_page_59_Figure_13.jpeg)

![](_page_59_Figure_17.jpeg)

CURB DETAILS

SPL	ICE LE	NGTHS
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"
-		

STD.NO.BAS_33_90S

### DESIGN DATA:

DocuSign Envelope ID: F6982E7F-BA94-4642-88AD-98D1B33FEC3

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  $\frac{3}{4}$ " 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  $\frac{1}{4}$  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 FÁLSEWORK, 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  $\frac{7}{8}$ "  $\varnothing$  shear studs for the  $\frac{3}{4}$ " Ø studs specified on the plans. This substitution shall be made at THE RATE OF 3 -  $\frac{7}{8}$ " 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 5/6" 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  $V_{16}$ INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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.

![](_page_60_Picture_32.jpeg)