STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4488	1	

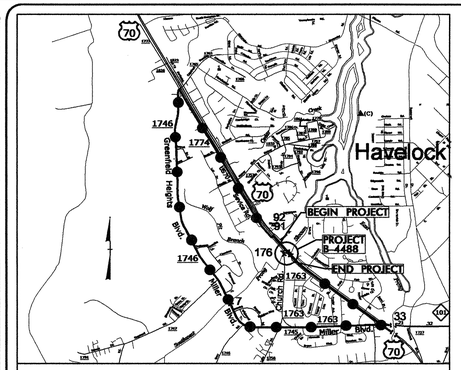
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33725.1.2	BRSTP–1763(4)	PE
33725.2.1	BRSTP–1763(4)	RW
33725.3.1	BRSTP–1763(4)	CONST

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

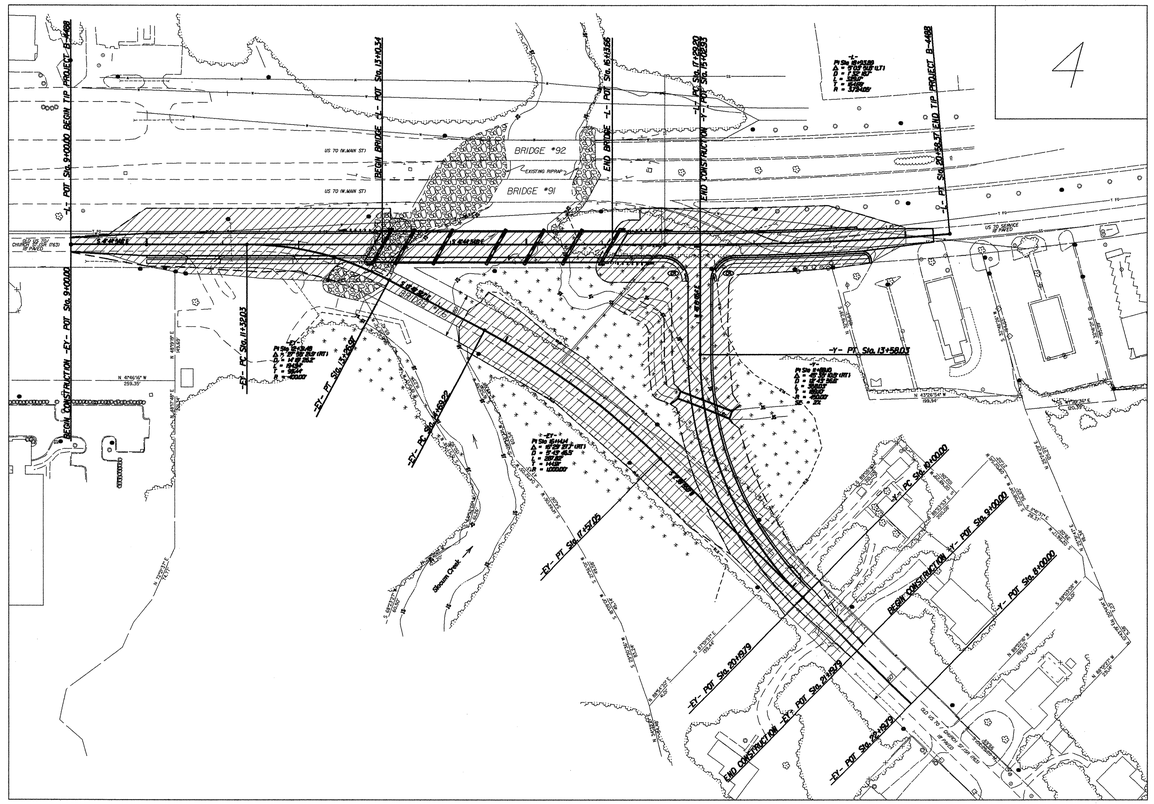
CRAVEN COUNTY

LOCATION: (SR 1763) CHURCH ROAD
BRIDGE # 176 OVER SLOCUM CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



See Sheet 1-A For Index of Sheets



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2010 = 1900
ADT 2035 = 2500
DHV = 10 %
D = 60 %
T = 6 % *
V = 40 MPH
TTST =1% DUAL 2%
SUB–REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4488 = 0.162 MILES
LENGTH STRUCTURE TIP PROJECT B–4488 = 0.057 MILES
TOTAL LENGTH TIP PROJECT B–4488 = 0.219 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1704 N. Greene St. Greenville, NC 27834

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 2012

LETTING DATE:
AUGUST 21, 2012

DWAYNE ALLIGOOD
PROJECT ENGINEER

LANG JONES
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD
SIGNATURE: Dwayne H. Alligood P.E. 07/18/2012

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD
SIGNATURE: Dwayne H. Alligood P.E. 07/18/2012

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

TIP PROJECT: B–4488

CONTRACT: C202845

09-JUL-2012 08:26
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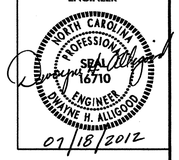
PROJECT REFERENCE NO.	SHEET NO.
B-4488	1A

ROADWAY DESIGN ENGINEER



01/18/2012

INDEX OF SHEETS

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this projectand by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.05	Curb Ramp - Proposed Curb & Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

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: CITY OF NEW BERN ELECTRIC, CRAVEN COUNTY WATER, PROGRESS ENERGY, PIEDMONT NATURAL GAS, CENTURYLINK AND CITY OF HAVELOCK.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD 848.05 AND/OR 848.06.

8/13/99

PROJECT REFERENCE NO.	SHEET NO.
B-4488	1B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence 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 — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Wetland Boundary — WLB
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (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 Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
J	PROP. APPROX. 6" AGGREGATE BASE COURSE
R1	PROPOSED 2' - 6" CONCRETE CURB AND GUTTER
T	EARTH MATERIAL.
U1	CONCRETE CORED SLABS
S1	PROPOSED CONCRETE SIDEWALK

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PROJECT REFERENCE NO.	SHEET NO.
B-4488	2

ROADWAY DESIGN ENGINEER

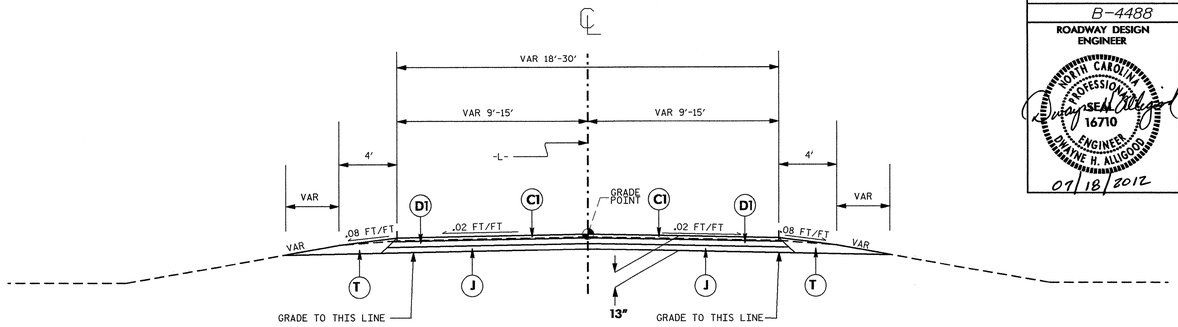
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD

07/18/2012

PAVEMENT DESIGN ENGINEER

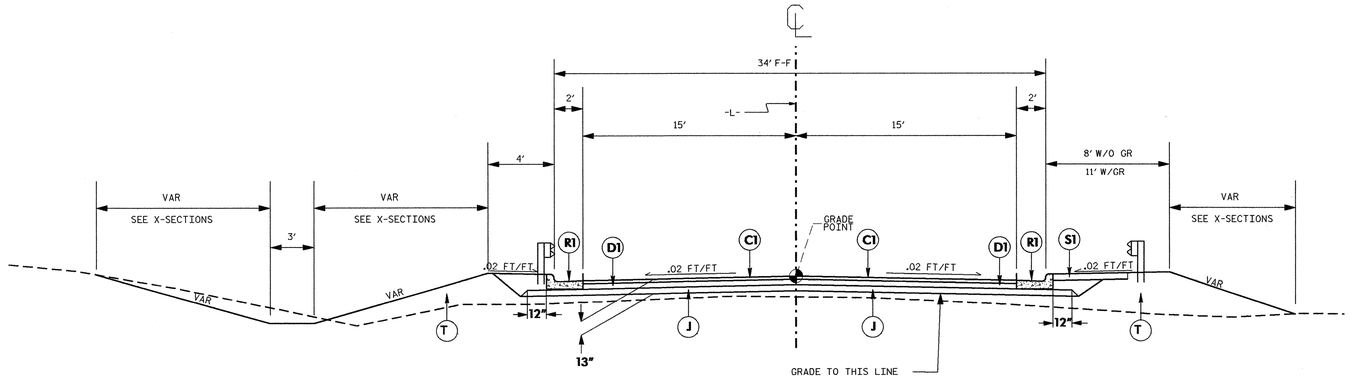
NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD

07/18/2012



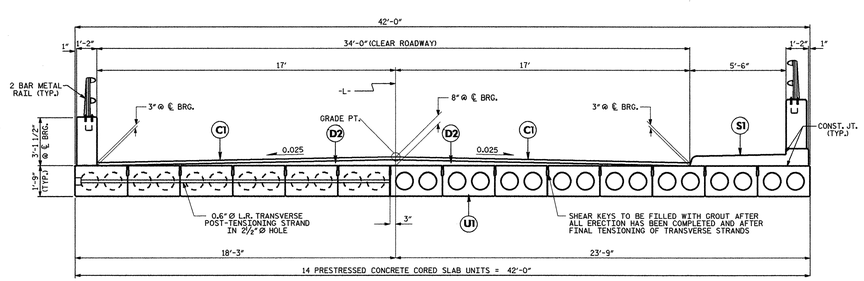
USE TYPICAL SECTION #1

-L- 9+00.00 - 10+00.00
-L- 19+36.61 - 20+36.61



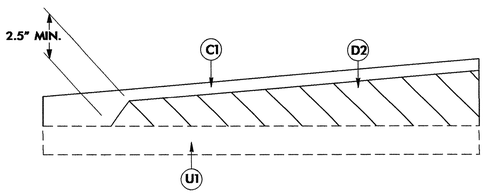
USE TYPICAL SECTION #2

-L- 10+00.00 - 13+12.00
-L- 16+12.00 - 19+36.61



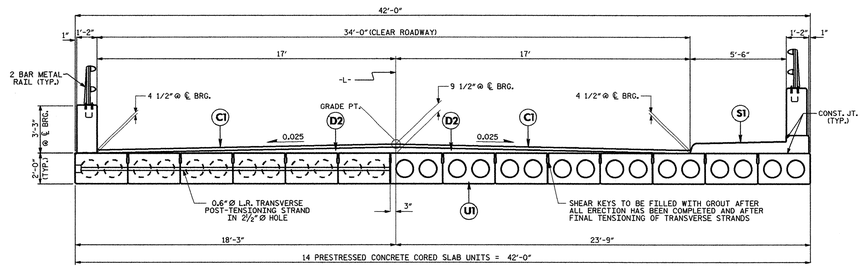
USE TYPICAL SECTION #3

-L- 13+10.34 - 13+91.86
-L- 14+62.00 - 16+13.66



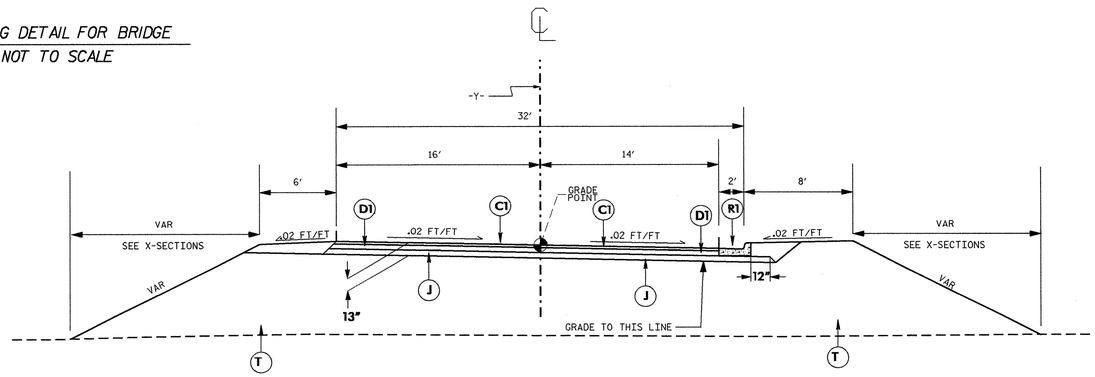
WEDGING DETAIL FOR BRIDGE

NOT TO SCALE



USE TYPICAL SECTION #4

-L- 13+91.86 - -L- 14+62.00



USE TYPICAL SECTION #5

-Y- 10+00.00 - 14+52.28

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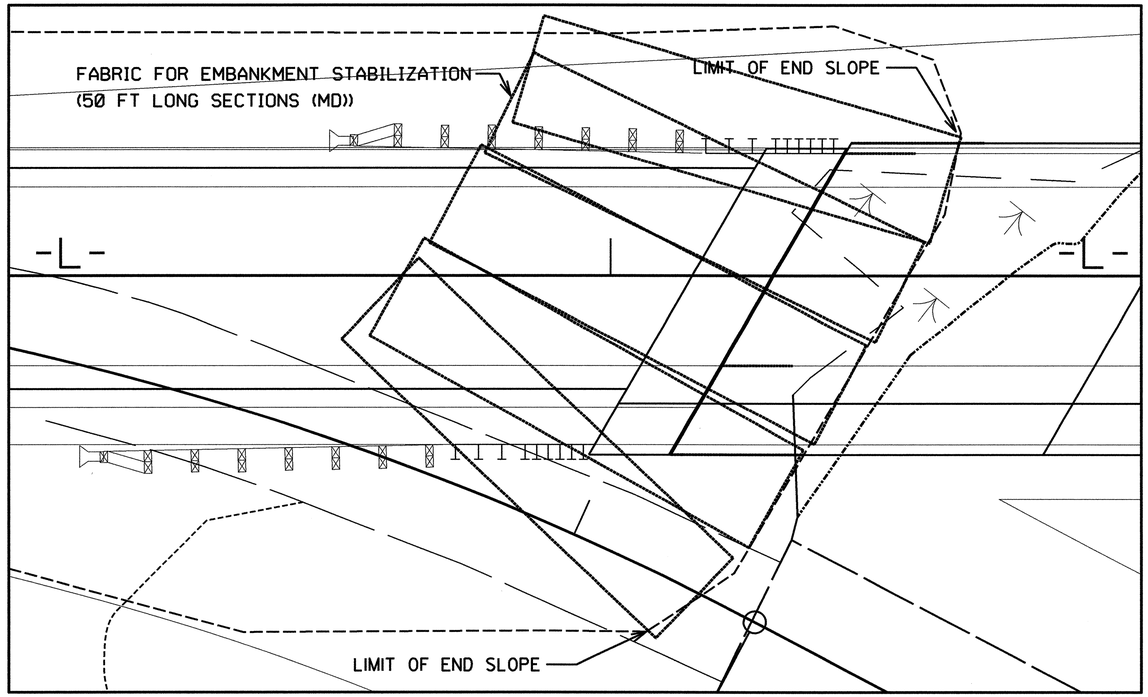
PROJECT REFERENCE NO.	SHEET
B-4488, CRAVEN COUNTY	2a

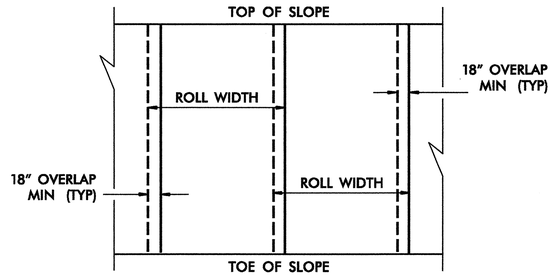
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 036278 ENGINEER MAJID KHAZAEI

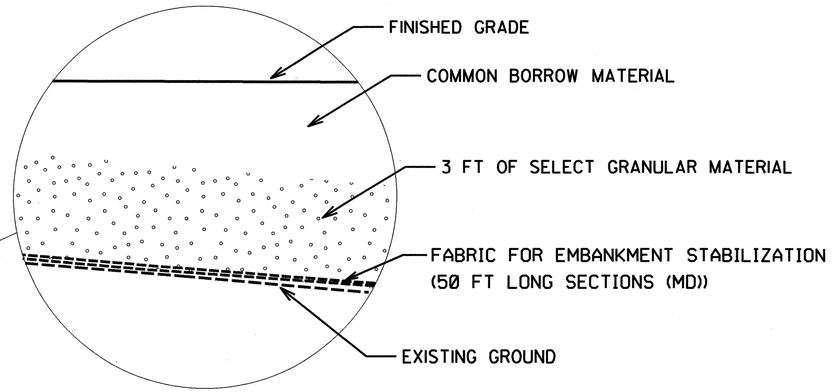
SIGNATURE 6-6-12 DATE

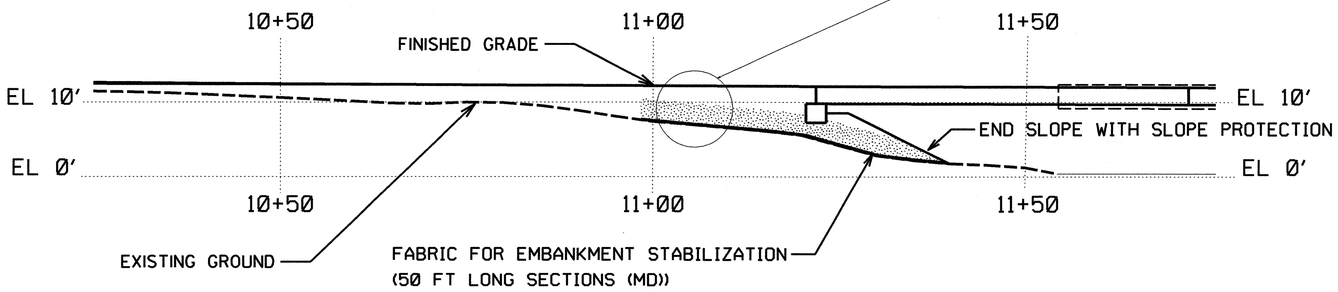


CONCEPTUAL LAYOUT FOR FABRIC (MD PERPENDICULAR TO THE SLOPE STAKE LINE)
END BENT NO. 1, PLAN VIEW (N.T.S.)



FABRIC OVERLAP DETAIL
(PLAN VIEW)





HIGH STRENGTH FABRIC LAYOUT PROFILE ALONG -L- LINE
END BENT NO. 1 (N.T.S.)

NOTES ON PLANS:

1. *INSTALL ALL HIGH STRENGTH FABRIC IN ACCORDANCE WITH THIS PLAN AND THE FABRIC FOR EMBANKMENT STABILIZATION SPECIAL PROVISION.*

ESTIMATED QUANTITIES
FABRIC FOR EMBANKMENT STABILIZATION.....500 SY (HIGH STRENGTH FABRIC)

PREPARED BY: M. KHAZAEI	DATE: 10/11	
REVIEWED BY: C.A. KREIDER	DATE: 10/11	

GEOTECHNICAL ENGINEERING UNIT

■ *EASTERN REGIONAL OFFICE*
□ *WESTERN REGIONAL OFFICE*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1, FABRIC FOR EMBABKMENT STABILIZATION

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	-		3	-	-
2	-	-	4	-	-

PROJECT REFERENCE NO.	SHEET NO.
B-4488	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202845

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (14+62.00-L-)
0036000000-E	225	9,900	CY	UNDERCUT EXCAVATION
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0134000000-E	240	150	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	15,830	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	1,200	SY	GEOTEXTILE FOR SOIL STABILIZATION
0199000000-E	SP	3,820	SF	TEMPORARY SHORING
0241000000-E	SP	500	SY	GENERIC GRADING ITEM FABRIC FOR EMBANKMENT STABILIZATION
0318000000-E	300	80	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	230	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	527	LF	15" DRAINAGE PIPE
0335300000-E	305	136	LF	18" DRAINAGE PIPE
0995000000-E	340	265	LF	PIPE REMOVAL
1121000000-E	520	1,931	TON	AGGREGATE BASE COURSE
1220000000-E	545	50	TON	INCIDENTAL STONE BASE
1498000000-E	610	1,420	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	990	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	130	TON	ASPHALT BINDER FOR PLANT MIX
2022000000-E	815	22.4	CY	SUBDRAIN EXCAVATION
2026000000-E	815	100	SY	GEOTEXTILE FOR SUBSURFACE DRAINS
2036000000-E	815	16.8	CY	SUBDRAIN COARSE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2286000000-N	840	12	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	4.36	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.16
2374000000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	5	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2549000000-E	846	1,640	LF	2'-6" CONCRETE CURB & GUTTER
2556000000-E	846	11	LF	SHOULDER BERM GUTTER
2591000000-E	848	300	SY	4" CONCRETE SIDEWALK
2605000000-N	848	2	EA	CONCRETE CURB RAMP
2612000000-E	848	70	SY	6" CONCRETE DRIVEWAY
2830000000-N	858	1	EA	ADJUSTMENT OF MANHOLES
3030000000-E	862	12.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	37.5	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3345000000-E	864	103	LF	REMOVE & RESET EXISTING GUARDRAIL
3628000000-E	876	130	TON	RIP RAP, CLASS I
3656000000-E	876	225	SY	GEOTEXTILE FOR DRAINAGE
5319000000-E	1505	2	CY	CLASS B CONCRETE FOR ENCASING UTILITY LINES
5325800000-E	1510	469	LF	8" WATER LINE
5326000000-E	1510	22	LF	10" WATER LINE
5546000000-E	1515	1	EA	8" VALVE
5552000000-E	1515	2	EA	10" VALVE
5804000000-E	1530	465	LF	ABANDON 12" UTILITY PIPE
5828000000-N	1530	2	EA	REMOVE UTILITY MANHOLE
6000000000-E	1605	1,500	LF	TEMPORARY SILT FENCE
6009000000-E	1610	10	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	20	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	3	ACR	TEMPORARY MULCHING
6018000000-E	1620	225	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.9	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	100	LF	SAFETY FENCE
6036000000-E	1631	5,100	SY	MATTING FOR EROSION CONTROL
6042000000-E	1632	350	LF	1/4" HARDWARE CLOTH
6048000000-E	SP	25	SY	FLOATING TURBIDITY CURTAIN
6071010000-E	SP	150	LF	WATTLE
6071020000-E	SP	5	LB	POLYACRYLAMIDE (PAM)
6084000000-E	1660	4.6	ACR	SEEDING & MULCHING
6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
6117000000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL

8/17/99

REVISIONS

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4/04/06

COMPUTED BY: VT	DATE: 4-15-12
CHECKED BY: LJ	DATE: 4-15-12

PROJECT REFERENCE NO.	SHEET NO.
B-4488	3A

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)											
SIZE								12"	15"	18"	24"	30"	36"	42"	48"				
THICKNESS OR GAUGE		FROM	TO													DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- 9+20.24	RT	1		16.00	12.50														
-L- 11+11.00	RT	2		13.44	10.65														
-L- 10+14.87	RT	1	2		12.50	10.65			190								*	*	
-L- 11+11.00	LT	3		13.44	10.55	10.50				16							*	*	
-L- 11+11.00	CL	2	3		10.65	10.55				30							*	*	
-L- 12+79.34	RT	4		11.77	8.45														
-L- 12+96.66	LT	5		11.70	8.17	8.03				14							*	*	
-L- 12+88.00	CL	4	5		8.45	8.17			35								*	*	
-L- 16+27.34	LT	6		10.69	5.36	1.40				41							*	*	
-L- 16+44.66	RT	7		10.63	5.50														
-L- 16+36.00	CL	6	7		5.50	5.36				35							*	*	
-L- 17+31.18	LT	8		10.42	6.09	7.60			116								*	*	
-L- 16+87.92	LT	7	8		6.09	4.92			84								*	*	
-Y- 14+58.59	RT	9		9.57	3.90	1.40			25								*	*	
-Y- 14+58.59	LT	10		9.57	4.00														
-Y- 14+58.59	CL	9	10		4.00	3.90			31								*	*	
-Y- 12+97.64	RT	11		7.90	1.57	1.40			24								*	*	
-Y- 11+50.00	RT	12		9.30	2.97	2.90			22								*	*	
TOTALS									527	136									

STATION	CORRUGATED ALUMINUM PIPE							R.C. PIPE (CLASS III)							R.C. PIPE (CLASS IV)								*** R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE
SIZE	12"	15"	18"	24"	36"	42"	48"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"					
THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.109	.109																				
-L- 9+20.24																											
-L- 11+11.00																											
-L- 10+14.87																											
-L- 11+11.00																											
-L- 11+11.00																											
-L- 12+79.34																											
-L- 12+96.66																											
-L- 12+88.00																											
-L- 16+27.34																											
-L- 16+44.66																											
-L- 16+36.00																											
-L- 17+31.18																											
-L- 16+87.92																											
-Y- 14+58.59																											
-Y- 14+58.59																											
-Y- 14+58.59																											
-Y- 12+97.64																											
-Y- 11+50.00																											
TOTALS																											

STATION	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS.		QUANTITIES FOR DRAINAGE STRUCTURES	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT.		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE				CONCRETE TRANSITIONAL SECTION		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.29	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
	R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE		E	F	G		CATCH BASIN	DROP INLET											
-L- 9+20.24			1										1	1									
-L- 11+11.00			1			1		1														50	
-L- 10+14.87																						100	
-L- 11+11.00			1			1			1														
-L- 11+11.00																						50	
-L- 12+79.34			1			1		1															
-L- 12+96.66			1			1			1														
-L- 12+88.00																							
-L- 16+27.34			1	0.33		1		1															
-L- 16+44.66			1	0.13		1			1														
-L- 16+36.00																							
-L- 17+31.18			1			1	1															65	
-L- 16+87.92																							
-Y- 14+58.59			1	0.67		1		1															
-Y- 14+58.59			1	0.57		1			1														
-Y- 14+58.59																							
-Y- 12+97.64			1	1.33		1	1																
-Y- 11+50.00			1	1.33		1		1															
TOTALS			12	4.36		11	2	5	4				1	1								265	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND RESET EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE 350	TYPE III	CAT-1							NO.	PERMITTED G	PERMITTED NG				
-L-	12+53.06	13+21.81	LT	68.75				13+21.81	5	9.5		50		1	1	1														
-L-	12+38.37	12+99.01	RT	37	37		12+99.01		10.5	16.5						1	1													
-L-	16+21.60	16+92.22	LT	68.75				16+21.60	5	9.5	50		1		1	1														
-L-	15+97.49	16+67.76	RT	68.75			15+97.49		10.5	16.5		50		1	1	1														
-L-	15+79.13	16+80.47	LT																										103	US 70 EBL RIGHT TRAILING (BRIDGE 91)
	LESS ANCHOR DEDUCTIONS																													
	TYPE 350 (3 @ 50.00') =			150																										
	TYPE III (4 @ 18.75') =			75																										
	CAT-1 (1@ 6.25') =			6.25																										
TOTAL				12	37										3	4	1												103	

ADDITIONAL GUARDRAIL POSTS = 5

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PROJECT REFERENCE NO.	SHEET NO.
B-4488	3B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L– 9+00 – 13+00	254		1,128	874	
–L– 16+33 – 19+50	400	2,181	5,619	5,219	2181
–Y– 9+00 – 14+50	729	4,717	12,315	11,586	4717
–EY– 14+50 – 19+00	5991				
ADDITIONAL UNDERCUT		3,000	3,900	3,900	3,000
MATERIAL FOR SHOULDER CONSTRUCTION			1,300	1,300	
WASTE IN LIEU OF BORROW				–5,991	
SELECT GRANULAR MATERIAL IN LIEU OF BORROW			–15,830	–15,830	
EST. 5% TO REPLACE TOPSOIL ON PIT				53	
TOTAL	7,374	9,898	8,432	1,111	9,898
SAY	7,380	9,900	8,500	1,200	9,900

PAVEMENT REMOVAL SUMMARY
IN SQUARE YARDS

LINE	STATION – STATION	LOCATION	REMOVAL (SY)
–EY–	–EY– 9+00.00 – 21+19.79	CL	2808
–L–	–L– 15+80.15 – 20+36.61	LT	711
		SAY	3520

APPROXIMATE QUANTITIES ONLY, UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

EARTHWORK QUANTITIES ARE CALCULATED BY DIVISION 2. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

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PROJECT REFERENCE NO.	SHEET NO.
B-4488	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER JWAINE H. ALLIGOOD
08/13/2012

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER JWAINE H. ALLIGOOD
08/13/2012

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SCALE

REVISIONS
8/17/99

TEMPORARY SHORING NOTES:

1. TEMPORARY SHORING WILL CROSS A SANITARY SEWER LINE AT APPROXIMATELY -L- STA. 16+80+/-. DESIGN TEMPORARY SHORING TO PASS OVER THE SANITARY SEWER LINE WITHOUT CONFLICTING WITH IT.
2. A SANITARY SEWER LINE AND MANHOLE EXIST WITHIN THE UNDERCUT VOLUME AT APPROXIMATELY -L- STA. 16+80+/-. LIMIT UNDERCUT IN THE VICINITY OF THIS SANITARY SEWER LINE AND MANHOLE SO AS TO NOT DAMAGE THEM.
3. AN OVERHEAD POWER LINE MAY RESTRICT TYPICAL TEMPORARY SHORING DESIGN AND INSTALLATION AT APPROXIMATELY -L- STA. 16+18+/- TO 17+05+/-. DESIGN TEMPORARY SHORING THAT IS CONSTRUCTABLE GIVEN THIS RESTRICTION.

UTILITY NOTES:

1. CONTRACTOR TO TAKE 8" WATER LINE OUT OF SERVICE BEFORE UNDERCUTTING.
2. NEW 8" WATER LINE IS TO BE INSTALLED AFTER ROUGH GRADING OF LINE -Y-.

NOTE:
FOR -L- & -Y- PROFILE, SEE SHEET 5.
FOR STRUCTURE PLANS, SEE SHEETS S-1 TO S-41.
FOR CULVERT PLANS, SEE SHEETS C-1 TO C-4.

-L- POT Sta. 9+00.00 BEGIN TIP PROJECT B-4488
-L- POT Sta. 13+10.34 BEGIN BRIDGE
-L- POT Sta. 16+13.66 END BRIDGE
-L- PC Sta. 17+29.20 END CONSTRUCTION
-Y- POT Sta. 15+02.93
-L- PT Sta. 20+58.37 END TIP PROJECT B-4488

BRIDGE #92
BRIDGE #91
BRIDGE #176
EXISTING RIPRAP
REMOVE AND RESET GUARDRAIL
ADJUST SS MH
TYPE-III (TYP)
TYPE-350(TYP)
TYPE-III SHOP CURVE
PROP. 6" CONC. DRIVEWAY
OLD US 70 CHURCH ST.(SR 1763) 18' PAVED
US 70 SERVICE 18' PAVED
US 70 (W.MAIN ST)
REMOVE
S 41°44'54.6" E
S 15°48'32.7" E
RIP RAP CLASS B (2 TON) GEOTEXTILE (7 SY)
RIP RAP CLASS II (310 TONS)
RIP RAP CLASS II (280 TONS)
RIP RAP CLASS B (2 TON) GEOTEXTILE (7 SY)
RIP RAP CLASS I (45 TONS) FILTER FABRIC (80 SY)
RIP RAP CLASS I (55 TONS) FILTER FABRIC (105 SY)
RIP RAP CLASS B (1 TON) GEOTEXTILE (5 SY)
CAT-1
DRAINAGE DITCH EXCAVATION = 150 CY
PROPOSED 10' x 6' RCBC -Y- STA 12+91.63
PROP. 8" WL (SEE UC PLANS)
ENERGY DISSIPATOR STD. 876.02 (TYP.)
RIP RAP CLASS B (1 TON) GEOTEXTILE (5 SY)
REMOVE AND DISCARD EXIST. WL & SS (SEE UC PLANS)
PROP. 6" CONC. DRIVEWAY
Slocum Creek
S 7°39'50" W
PROPOSED EDGE OF PAVEMENT
ISLANDS
BEGIN CONSTRUCTION -Y- POT Sta. 8+00.00
-Y- POT Sta. 9+00.00
-Y- PC Sta. 10+00.00
-Y- PT Sta. 13+58.03
-EY- PC Sta. 11+32.03
-EY- PT Sta. 13+20.97
-EY- PT Sta. 17+57.05
-EY- POT Sta. 20+19.79
-EY- POT Sta. 21+19.79
END CONSTRUCTION -EY- POT Sta. 22+19.79
-L- PI Sta 18+93.89 Δ = 5°03'51.8" (LT) D = 1°32'18" L = 329.17 T = 164.69 R = 3,724.05'
-EY- PI Sta 12+31.48 Δ = 27°55'21.9" (RT) D = 14°19'26.2" L = 194.94' T = 99.44' R = 400.00'
-EY- PI Sta 16+14.14 Δ = 16°29'27.7" (RT) D = 5°43'46.5" L = 287.82' T = 144.91' R = 1000.00'
-Y- PI Sta 11+89.10 Δ = 45°35'10.5" (RT) D = 12°43'56.6" L = 358.03' T = 189.10' R = 450.00' SE = 2%

1 CITY OF HAVELOCK
PO BOX 368
HAVELOCK, NC 28532
DB 1796, PG 908
6.70 ACRES

2 KENNETH GRIMM
104 E SADDLE LANE
HAVELOCK, NC 28532
DB 1253, PG 880
1.33 ACRES

3 MARCUS KNEALE AND SYBIL CANADY INNIS
3023 FAIRWAY RD MOREHEAD CITY 28557
DB 2262, PG 470 3.20 ACRES

4 REALTY VANC LLC
263 WAGNER PL
MEMPHIS, TN 38103
DB 2984, PG 184
0.869 ACRES

5 RAYMOND W. & GOLDSBOROUGH BURNS
110 WYNNE RD APT D
HAVELOCK, NC 28532
DB 2990, PG 889
0.553 ACRES

6 FETZER PROPERTIES INC-B
329 OSCAR HILL RD
NEWPORT, NC 28570
DB 3023, PG 303
0.486 ACRES

7 DUSTIN A. & NICOLE BROWN
117 CHURCH RD
HAVELOCK, NC 28532
DB 3010, PG 476
1.227 ACRES

8 REGINA ANN GENT
105 BACKFIELD DR
NEWPORT, NC 28570
DB 2464, PG 874
2.086 ACRES

9 SHELTON EARL HARVELL
119 CHURCH RD
HAVELOCK, NC 28532
DB 2762, PG 831
0.56 ACRES

10 H2 ASSOCIATES OF CRAVEN COUNTY LLC
101 DRAKEWOOD PL
CARY, NC 27518
DB 2398, PG 868
0.881 ACRES

LEGEND:

EXISTING PAVEMENT REMOVAL

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4488-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 422676.858 (ft) EASTING: 2622017.692 (ft)
ELEVATION: 25.17 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998966799
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4488-1" TO -L- STATION 9+00.00 IS
S 40°26'12" E 598.9405'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

EXISTING STREAM BED
PROPOSED STREAM BED
VAR. 3:1 TO EXIST.
10'

SECTION A-A

SECTION B-B

SECTION C-C

LEGEND FOR SECTIONS A,B & C
CHANNEL EXCAVATION
PROPOSED ROADWAY EMBANKMENT

BEGIN APPROACH SLAB -L- 12+99.49
END APPROACH SLAB -L- 16+24.51
TYPE-III
BEGIN BRIDGE -L- POT 13+10.34
END BRIDGE -L- POT 16+13.66

BRIDGE SKETCH

NC GRID
NAD 83/NSRS 2007

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PROJECT REFERENCE NO.	SHEET NO.
B-4488	4A
R/W SHEET NO.	/

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD — 08/13/2012

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD — 08/13/2012

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SCALE

8/17/99

REVISIONS

-L- POT Sta. 9+00.00 BEGIN TIP PROJECT B-4488

-L- POT Sta. 13+10.34 BEGIN BRIDGE

-L- POT Sta. 16+33.66 END BRIDGE

-Y- POT Sta. 17+29.20 END CONSTRUCTION

-L- PT Sta. 20+58.37 END TIP PROJECT B-4488

BRIDGE #92

BRIDGE #91

EXISTING RIPRAP

US TO (W.MAIN ST)

OLD US 70/ CHURCH ST.(SR 1763) 18' PAVED

US TO SERVICE 18' PAVED

-L- PI Sta 18+93.89
Δ = 5°03' 51.8" (LT)
D = 1° 32' 18.7"
L = 329.17'
T = 164.69'
R = 3724.05'

-EY- 10+37.11 30.00 RT

-EY- 10+37.10 40.00 RT

-EY- 12+77.20 30.00 RT

-EY- 13+48.19 30.00 LT

-L- 13+52.15 30.00 RT

-EY- 14+69.22 30.00 LT

-EY- 14+59.23 30.05 RT

-EY- 14+65.08 40.01 RT

-EY- 17+57.05 30.00 LT

-L- 17+29.20 30.00 RT

-L- 17+83.54 45.00 RT

-L- 19+03.29 45.00 RT

-L- 18+99.79 30.00 RT

-Y- 13+58.03 55.00 RT

-Y- 14+58.33 55.00 RT

-Y- PT Sta. 13+58.03

-EY- PC Sta. 11+32.03

-EY- PT Sta. 13+26.97

-EY- PI Sta 12+31.48
Δ = 27° 55' 21.9" (RT)
D = 14° 19' 26.2"
L = 194.94'
T = 99.44'
R = 400.00'

-EY- PC Sta. 14+69.22

-EY- PI Sta 15+14.14
Δ = 16° 29' 27.7" (RT)
D = 5° 43' 46.5"
L = 287.82'
T = 144.91'
R = 1,000.00'

-Y- PI Sta 11+89.10
Δ = 45° 35' 10.5" (RT)
D = 12° 43' 56.6"
L = 358.03'
T = 189.10'
R = 450.00'
SE = 2%

-Y- PC Sta. 10+00.00

-Y- 10+55.25 55.00 RT

-Y- 10+50.78 27.85 RT

-EY- 18+66.84 40.00 RT

-EY- 18+66.84 30.00 RT

-EY- 19+72.25 30.00 LT

-EY- PT Sta. 17+57.05

-EY- POT Sta. 20+19.79

-EY- POT Sta. 21+19.79

-EY- POT Sta. 22+19.79

-Y- POT Sta. 9+00.00

-Y- POT Sta. 8+00.00

BEGIN CONSTRUCTION

END CONSTRUCTION

Stream Center

(1) CITY OF HAVELOCK
PO BOX 368
HAVELOCK, NC 28532
DB 1796, PG 908
6.70 ACRES

(2) KENNETH GRIMM
104 E SADDLE LANE
HAVELOCK, NC 28532
DB 1253, PG 880
1.33 ACRES

(3) MARCUS KNEALE AND SYBIL CANADY INNIS
3023 FAIRWAY RD MOREHEAD CITY 28557
DB 2262, PG 470 3.20 ACRES

(4) REALTY VANC LLC
263 WAGNER PL
MEMPHIS, TN 38103
DB 2984, PG 184
0.869 ACRES

(5) RAYMOND W. & GOLDSBOROUGH BURNS
110 WYNNE RD APT D
HAVELOCK, NC 28532
DB 2990, PG 889
0.553 ACRES

(6) FETZER PROPERTIES INC-B
329 OSCAR HILL RD
NEWPORT, NC 28570
DB 3023, PG 303
0.486 ACRES

(7) DUSTIN A. & NICOLE BROWN
117 CHURCH RD
HAVELOCK, NC 28532
DB 3010, PG 476
1.227 ACRES

(8) REGINA ANN GENT
105 BACKFIELD DR
NEWPORT, NC 28570
DB 2464, PG 874
2.086 ACRES

(9) SHELTON EARL HARVELL
119 CHURCH RD
HAVELOCK, NC 28532
DB 2762, PG 831
0.56 ACRES

(10) H2 ASSOCIATES OF CRAVEN COUNTY LLC
101 DRAKEWOOD PL
CARY, NC 27518
DB 2398, PG 868
0.881 ACRES

RIGHT OF WAY AREA SUMMARY

PARCEL NO.	PROPERTY OWNER NAME	LOCATION	TOTAL PARCEL AREA [ACRES]	AREA TO BE DEDICATED (CONST. EASEMENT) [ACRES]	AREA TO BE PURCHASED (RIGHT OF WAY) [ACRES]	PARCEL AREA REMAINING [ACRES]
1	CITY OF HAVELOCK	RT	6.70	0.06		6.64
2	KENNETH GRIMM	RT	1.33	0.09		1.24
3	MARCUS & SYBIL INNIS	LT/RT	3.20		1.53	1.67

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4488-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 422676.858 (ft) EASTING: 2622017.692 (ft)
ELEVATION: 25.17 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998966799
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4488-1" TO -L- STATION 9+00.00 IS
S 40°26'12" E 598.9405'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NC GRID
NAD 83/NSRS 2007

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dgnlibs\GENERIC.itl

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4488	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD

07/18/2012

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16710 ENGINEER DWAYNE H. ALLIGOOD

07/18/2012

BEGIN GRADE -Y- STA 10+00
ELEVATION 12.70

PI = 13+00.00
EL = 6.97'
VC = 300'
K = 77

END GRADE -Y- STA 15+02.93 ELEV 12.80

(-)11.9100%

(+)11.97 11%

UNDERCUT EXCAVATION

—Y—

20 10 0 –10 –20 –30 –40

12.70 11.74 10.79 9.83 9.04 8.57 8.43 8.60 9.10 9.93 10.91

9 10 11 12 13 14 15

HYDRAULIC DATA

DESIGN DISCHARGE	=	290	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN ELEVATION	=	3.6	FT
DRAINAGE AREA	=	0.18	SQ. MI.
BASE FLOOD DISCHARGE	=	410	CFS
BASE FLOOD FREQUENCY	=	100	YRS
BASE FLOOD ELEVATION	=	4.9	FT
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	8.75	FT

BEGIN GRADE -L- STA 9+00
ELEVATION 18.38

PI = 11+50.00
EL = 12.70'
VC = 300'
K = 153

PI = 17+50.00
EL = 10.86'
VC = 100'
K = 102

END GRADE -L- STA 20+36.61
ELEVATION 12.80

(-)2.2720%

(-)2.2720%

(-)0.3067%

(-)0.3067%

(-)0.3067%

(+)0.6769%

(+)0.6769%

BM: B4488-1
N= 422676.858
E= 2622017.692
ELEV.= 25.17

UNDERCUT EXCAVATION

—L—

PERFORMANCE CURVE DATA @ RS 5530.7

FREQUENCY (YR)	Q (cfs)	WS ELEV (ft.)		
		NATURAL	EXISTING	PROPOSED
10	1300	1.4	2.3	2.2
25	1700	2.3	3.2	3.2
100 (FEMA)	2242	3.38	4.29	4.26
100	2600	3.8	4.8	4.8
500	3600	5.2	6.2	6.1
>500	-	-	-	11.2

DRAINAGE AREA = 25.4 SQ. MI.
*NOTE: ELEVATIONS FROM HEC-RAS v. 4.1.0

20 10 0 –10 –20 –30

18.38 17.24 16.11 15.05 14.16 13.44 12.87 12.48 12.24 12.09 11.93 11.78 11.63 11.47 11.32 11.17 11.01 10.98 11.20 11.54 11.88 12.21 12.55

8 9 10 11 12 13 14 15 16 17 18 19 20

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