

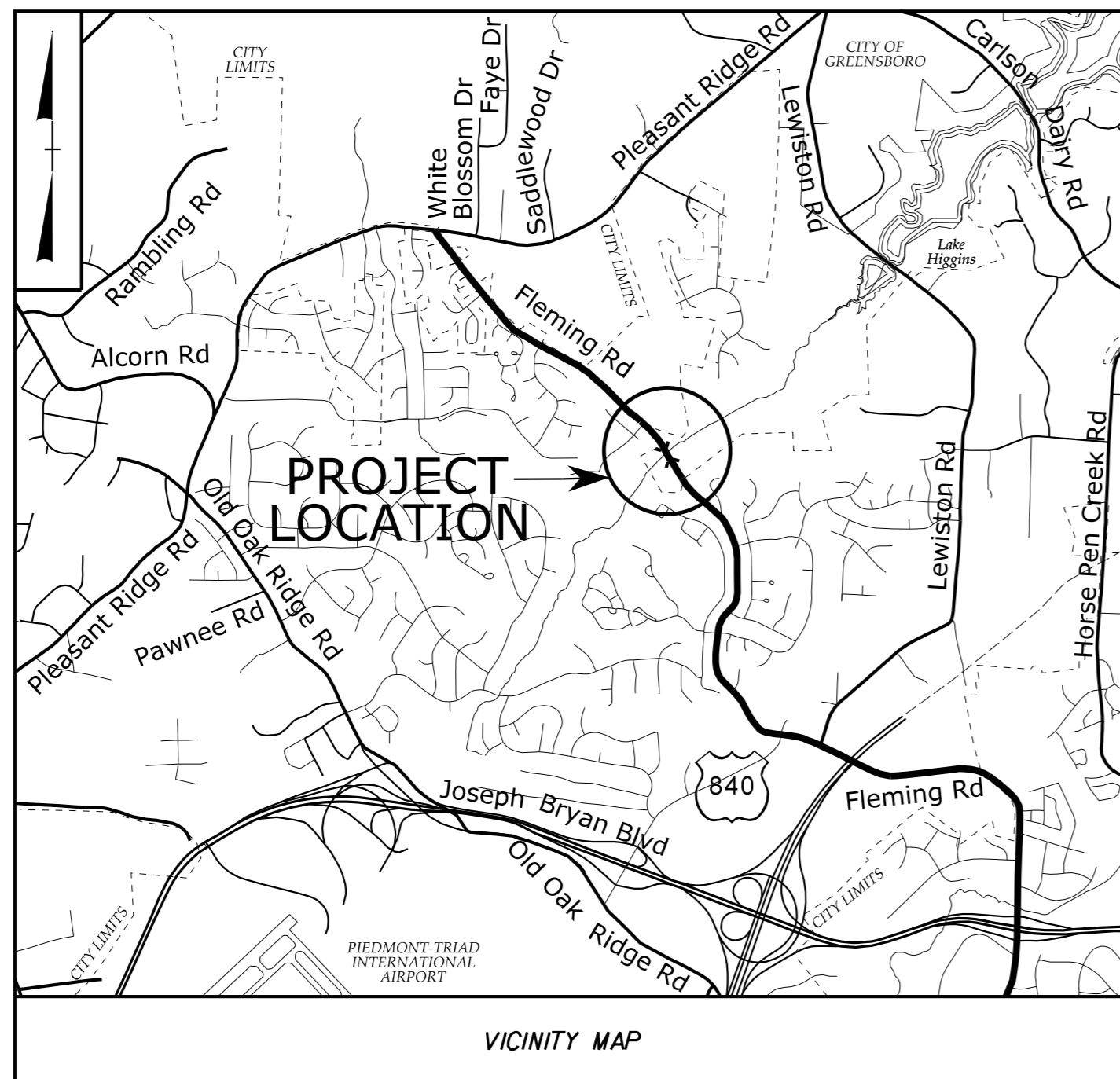
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with their signature on that page.**

**This file or an individual page
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TIP PROJECT: B-5345

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

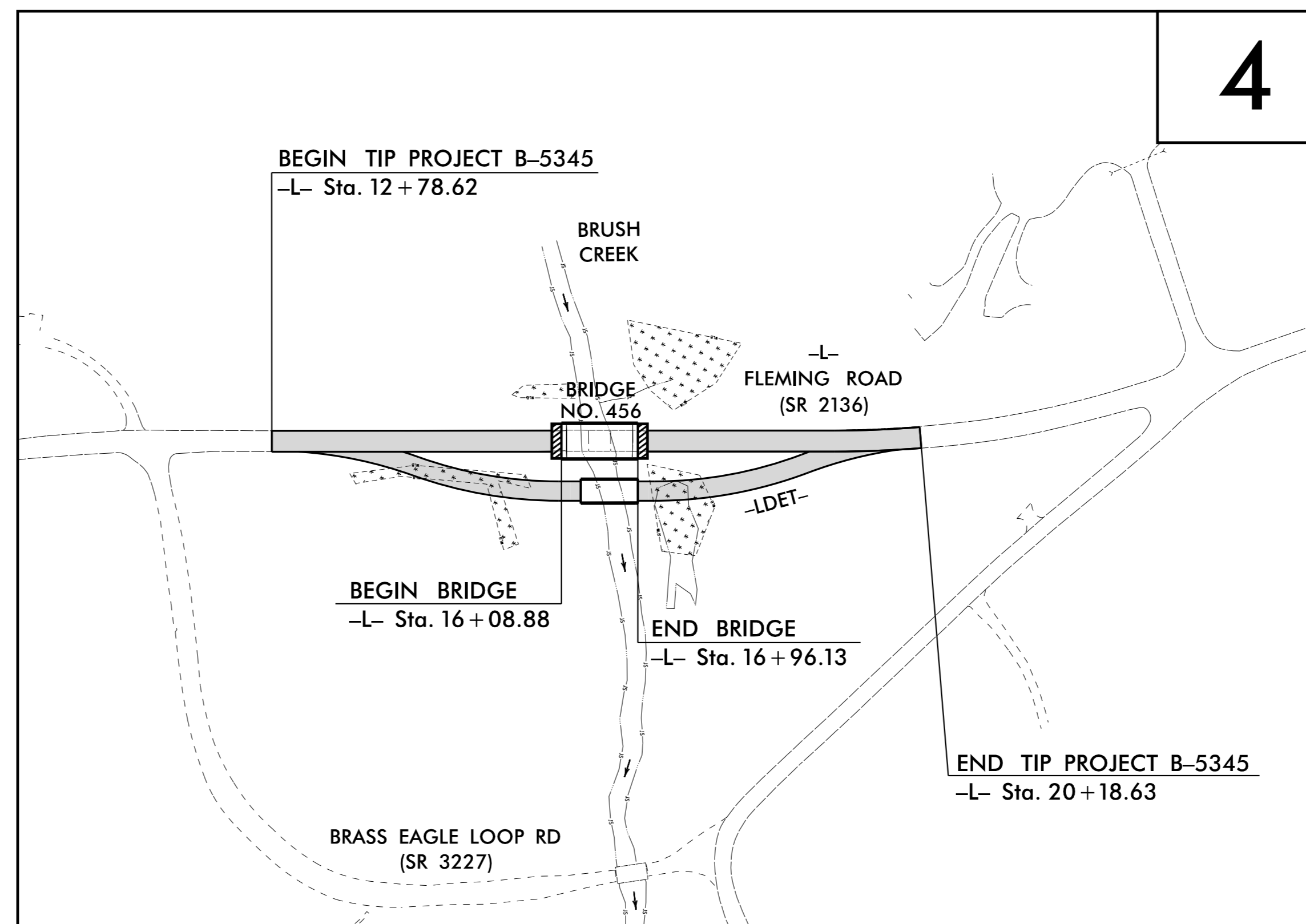
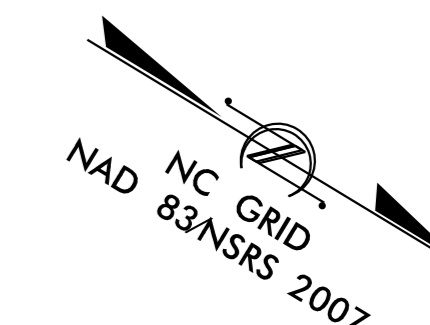
GUILFORD COUNTY

LOCATION: BRIDGE NO. 456 OVER BRUSH CREEK
ON SR 2136 (FLEMING ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

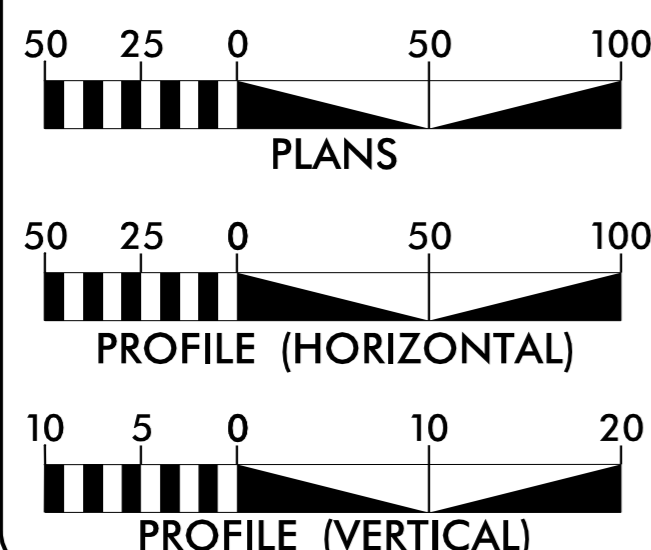
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5345	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46059.1.1	BRSTP-2136(5)	P.E.	
46059.2.1	N/A	RIGHT-OF-WAY	
46059.2.1	N/A	UTILITIES	
46059.3.1	N/A	CONSTRUCTION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 6450 vpd
ADT 2037 = 9450 vpd
K = 11%
D = 60%
T = 3%*
V = 50 MPH
VDET = 40 MPH
*TTST = 1% DUAL = 2%
FUNC CLASS = RURAL LOCAL
"SUBREGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5345 = 0.123 MILES
LENGTH STRUCTURE TIP PROJECT B-5345 = 0.017 MILES
TOTAL LENGTH TIP PROJECT B-5345 = 0.140 MILES

PLANS PREPARED FOR
THE NCDOT BY:

Kimley & Horn

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

JUNE 17, 2016

LETTING DATE:

JUNE 20, 2017

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

CATHERINE A. MURRELL, P.E.
PROJECT DESIGN ENGINEER

GARY LOVERING, P.E.
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER



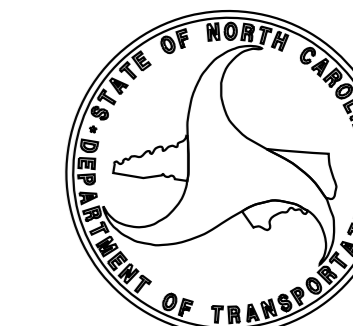
4/17/2017

SIGNATURE:
ROADWAY DESIGN ENGINEER



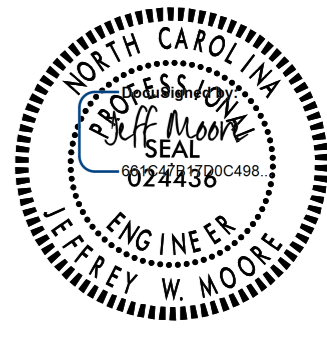
4/17/2017

SIGNATURE:
P.E.



CONTRACT: C203947

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. <i>B-5345</i>	SHEET NO. <i>1A</i>
ROADWAY DESIGN ENGINEER	
	
4/17/2017	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

GENERAL NOTES

2012 SPECIFICATIONS

EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADE LINE:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

EFF. 01-17-2012
REV. 10-30-2012

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 PROJECT AND 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.II BRIDGE APPROACH FILLS - SUB REGIONAL TIER

DIVISION 5 - SUBGRADE, BASES, AND SHOULDERS
560.01 METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I

DIVISION 8 - INCIDENTALS
840.00 CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.25 ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.29 FRAMES AND NARROW SLOT FLAT GRATES
840.35 TRAFFIC BEARING GRATED DROP INLET - FOR CAST IRON DOUBLE FRAME AND GRATES
840.46 TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE
840.66 DRAINAGE STRUCTURE STEPS
846.01 CONCRETE CURB, GUTTER AND CURB & GUTTER
846.04 DROP INLET INSTALLATION IN SHOULDER BERM GUTTER
862.01 GUARDRAIL PLACEMENT
862.02 GUARDRAIL INSTALLATION
876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS
876.04 DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

B-5345
GUILFORD COUNTY

SHEET NUMBER	SHEET	INDEX OF SHEETS
I	TITLE SHEET	
IA	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS	
IB	CONVENTIONAL SYMBOLS SHEET	
IC-1	SURVEY CONTROL SHEET	
2A-1 THRU 2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS	
2B-1	DETOUR PLAN SHEET	
2C-1	DETAIL FOR TYPE III STRUCTURE ANCHOR UNITS	
3B-1	SUMMARY OF EARTHWORK	
3B-2	SUMMARIES OF GUARDRAIL, SHOULDER BERM GUTTER, AND REMOVAL OF EXISTING ASPHALT PAVEMENT	
3D-1	SUMMARY OF DRAINAGE QUANTITIES	
3G-1	GEOTECHNICAL SUMMARIES	
4	PLAN SHEET	
5	PROFILE SHEET	
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLANS	
PMP-1	PAVEMENT MARKING PLAN	
EC-1 THRU EC-6	EROSION CONTROL PLANS	
RF-1	REFORESTATION PLANS	
SIGN-1 THRU SIGN-2	SIGNING PLANS	
UC-1 THRU UC-6	UTILITY CONSTRUCTION PLANS	
UO-1 THRU UO-3	UTILITIES BY OTHERS PLANS	
X-1A	CROSS-SECTION SUMMARY SHEET	
X-1 THRU X-9	CROSS-SECTIONS	
S-1 THRU S-19	STRUCTURE PLANS	

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.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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 GREENSBORO (WATER AND SEWER)
PIEDMONT NATURAL GAS
AT&T (TELEPHONE)

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

RIGHT-OF-WAY MARKERS:

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

K:\RAL_Roadway\01036275 - B-5345\Roadway\Proj\B5345_rdy_1stdgn

3/27/2017

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
Computed Property Corner	----->
Property Monument	□ ECM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
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
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	☠ S ☠
Potential Contamination Area: Soil	?? S ??
Known Contamination Area: Water	☠ W ☠
Potential Contamination Area: Water	?? W ??
Contaminated Site: Known or Potential	☠ ?

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	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	▲
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

Hedge	-----
Woods Line	-----
Orchard	-----
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	○
Storm Sewer	----- S

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	-----
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	----- P
U/G Power Line LOS C (S.U.E.*)	----- P
U/G Power Line LOS D (S.U.E.*)	----- P

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	□
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	----- T
U/G Telephone Cable LOS C (S.U.E.*)	----- T
U/G Telephone Cable LOS D (S.U.E.*)	----- T
U/G Telephone Conduit LOS B (S.U.E.*)	----- TC
U/G Telephone Conduit LOS C (S.U.E.*)	----- TC
U/G Telephone Conduit LOS D (S.U.E.*)	----- TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- T FO

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	----- W
U/G Water Line LOS C (S.U.E.*)	----- W
U/G Water Line LOS D (S.U.E.*)	----- W
Above Ground Water Line	----- A/G Water

TV:

TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	----- TV
U/G TV Cable LOS C (S.U.E.*)	----- TV
U/G TV Cable LOS D (S.U.E.*)	----- TV
U/G Fiber Optic Cable LOS B (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*)	----- TV FO

GAS:

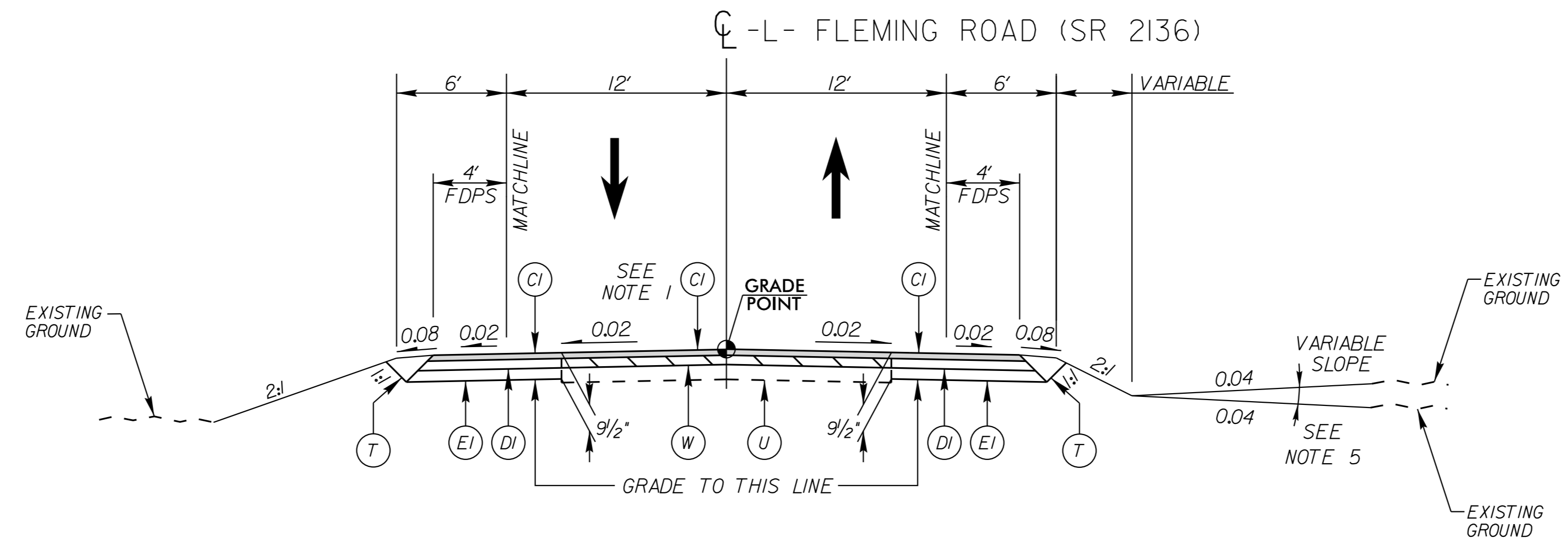
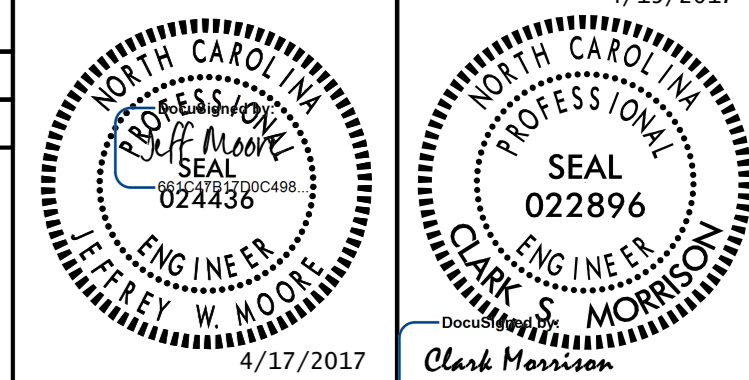
Gas Valve	◇
Gas Meter	◇
U/G Gas Line LOS B (S.U.E.*)	----- G
U/G Gas Line LOS C (S.U.E.*)	----- G
U/G Gas Line LOS D (S.U.E.*)	----- G
Above Ground Gas Line	----- A/G Gas

SANITARY SEWER:

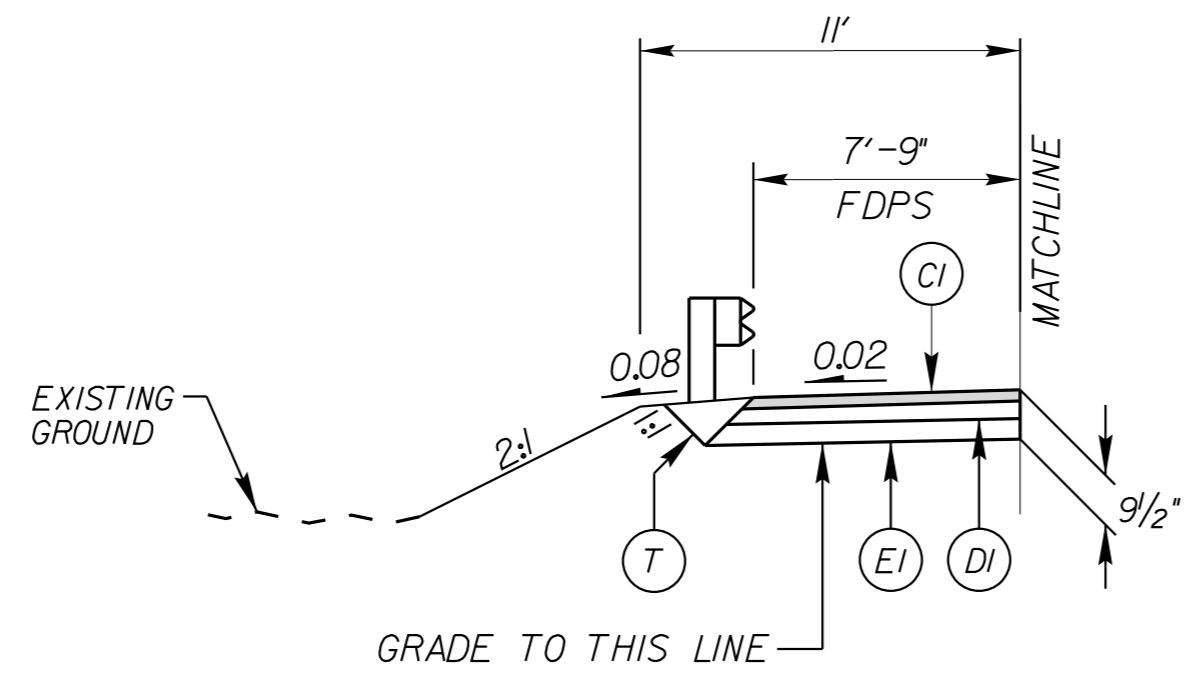
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*)	----- FSS
SS Forced Main Line LOS C (S.U.E.*)	----- FSS
SS Forced Main Line LOS D (S.U.E.*)	----- FSS

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- ?UL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



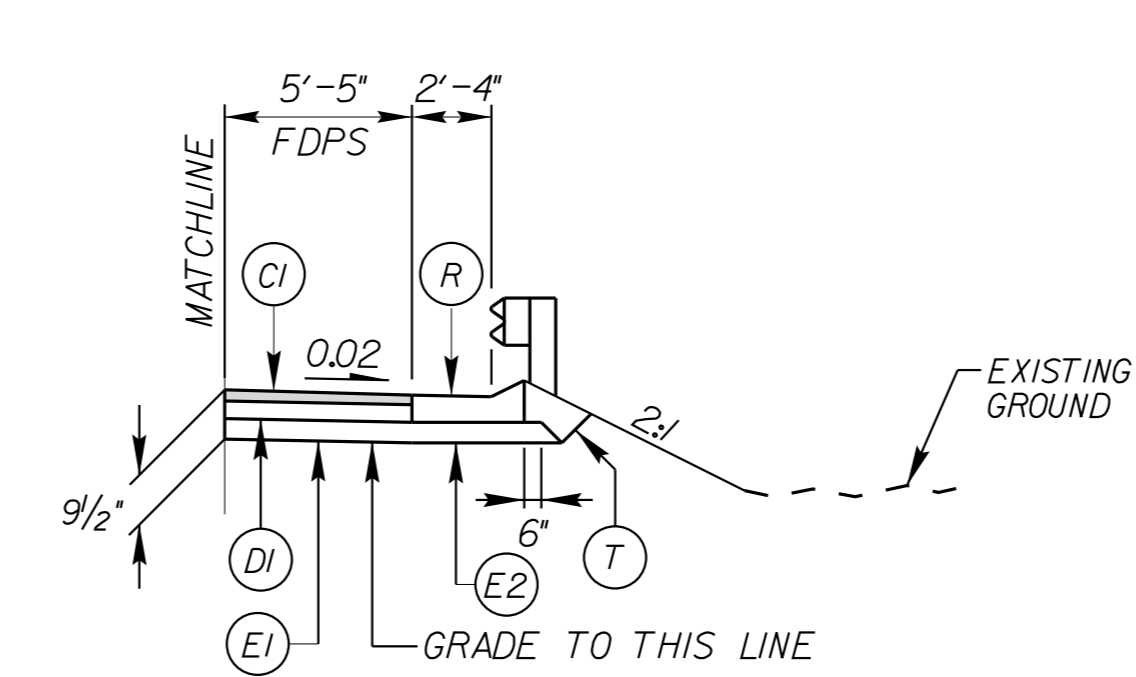
TYPICAL SECTION NO. 1
 -L- STA 13+56.00 TO STA 16+08.88 (BEGIN BRIDGE)
 -L- STA 16+96.13 (END BRIDGE) TO STA 18+77.00



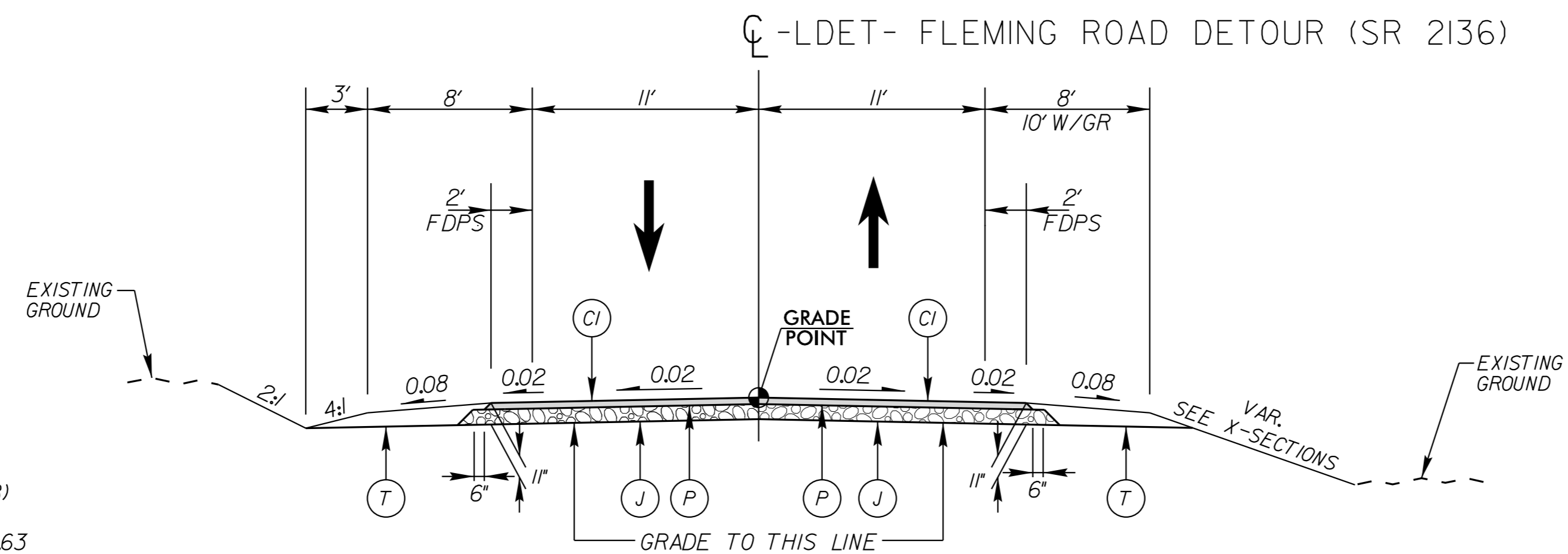
TYPICAL SECTION NO. 1A
 USE IN CONJUNCTION WITH GUARDRAIL LOCATIONS AS FOLLOWS:

- L- STA 15+27.63 TO STA 16+08.88 (LT)
- L- STA 15+27.63 TO STA 16+08.88 (RT)
- L- STA 16+96.13 TO STA 18+02.38 (LT)
- L- STA 16+96.13 TO STA 18+02.38 (RT)

NOTE: TRANSITION FROM 6' TO 11' SHOULDERS IN THE AREAS OF 8:1 TAPERS



TYPICAL SECTION NO. 1B
 -L- STA 17+07.00 TO STA 17+40.00 (LT)
 -L- STA 17+07.00 TO STA 17+40.00 (RT)

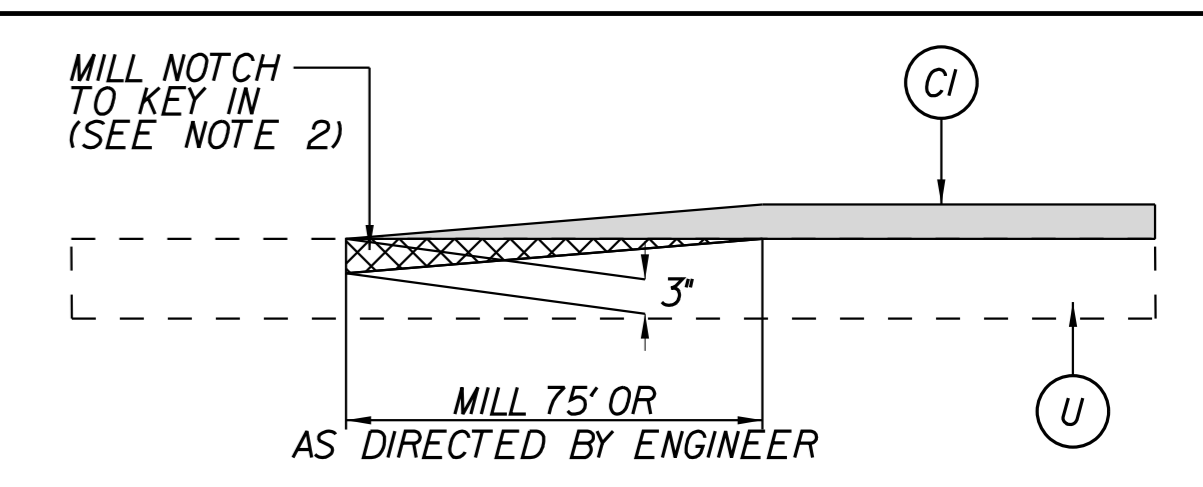


TYPICAL SECTION NO. 2
 -LDET- STA 11+09.00 TO STA 13+59.00 (BEGIN BRIDGE)
 -LDET- STA 14+24.00 (END BRIDGE) TO STA 16+65.00

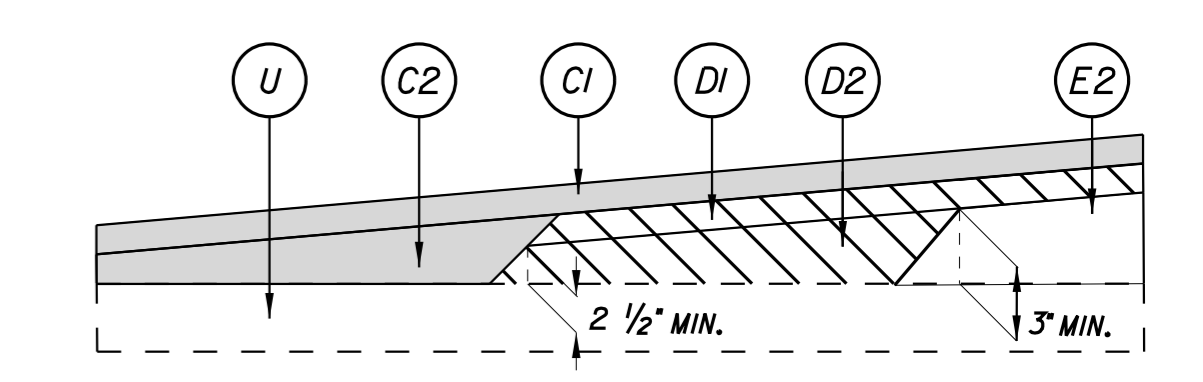
- NOTES:
- OVERLAY FROM -L- STA 12+78.62 TO STA 13+56.00 AND FROM -L- STA 18+77.00 TO STA 20+18.63 (3" S9.5B)
 - MILL NOTCH TO KEY-IN S9.5B FROM -L- STA 12+78.62 TO STA 13+53.62 AND -L- STA 19+43.63 TO STA 20+18.63
 - TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2
 -LDET- STA 10+00.00 TO STA 11+09.00
 - TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING
 -LDET- STA 16+65.00 TO STA 17+54.00
 - EXCAVATE DETOUR EMBANKMENT AS SHOWN ON DITCH DETAILS (SHEET 4) AND CROSS SECTIONS.
 - PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

FINAL PAVEMENT DESIGN

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
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH
J	8" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ. YD.
R	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL BELOW)



PROFILE KEY-IN DETAIL (INCIDENTAL MILLING)



WEDGING DETAIL FOR RESURFACING

REVISIONS

K:\RAL_Roadway\01036275 - B-5345\Roadway\Proj\B5345_rdy_tpy.dgn
 3/27/2017

Kimley » Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

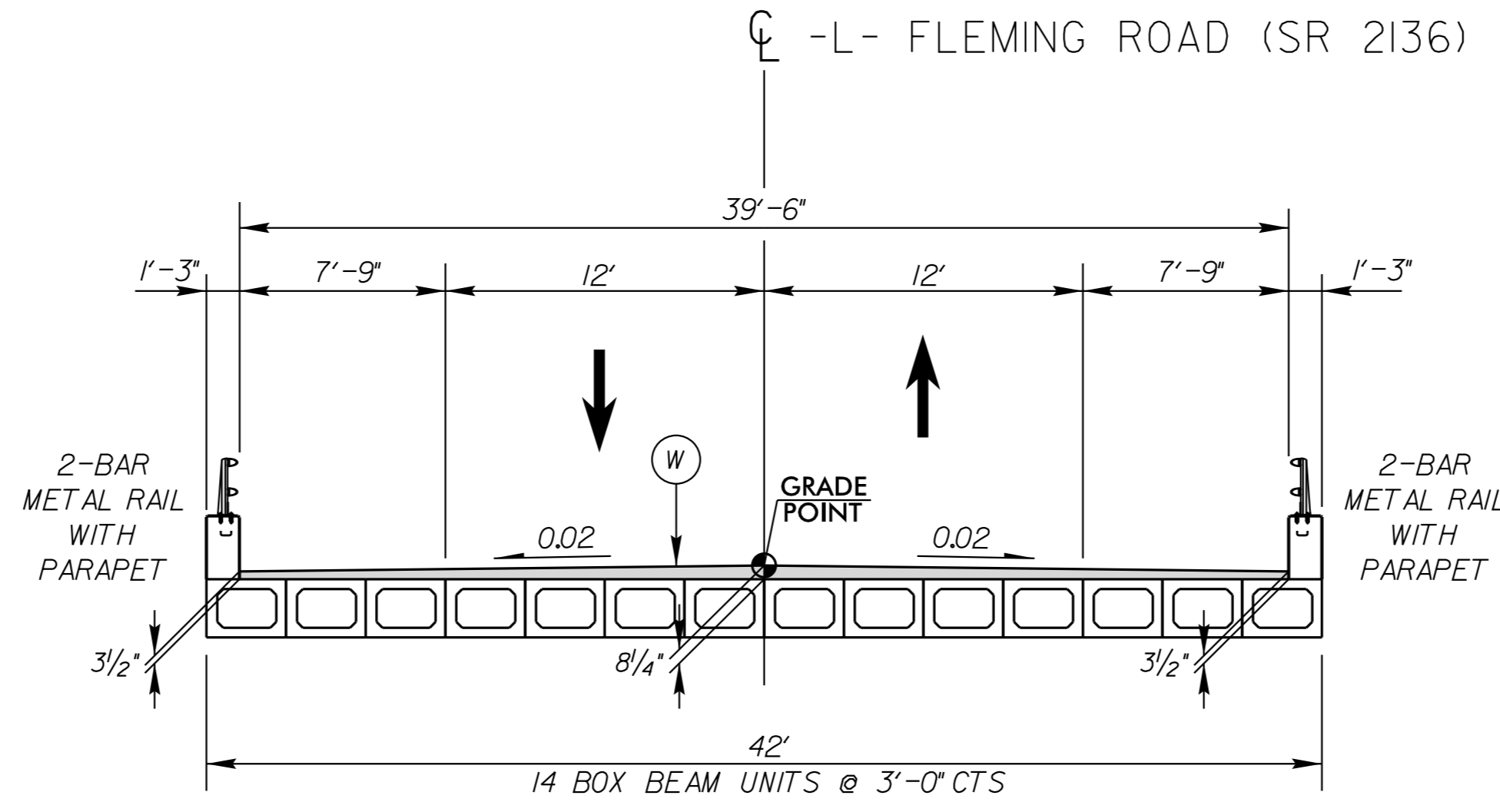
PROJECT REFERENCE NO. B-5345	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

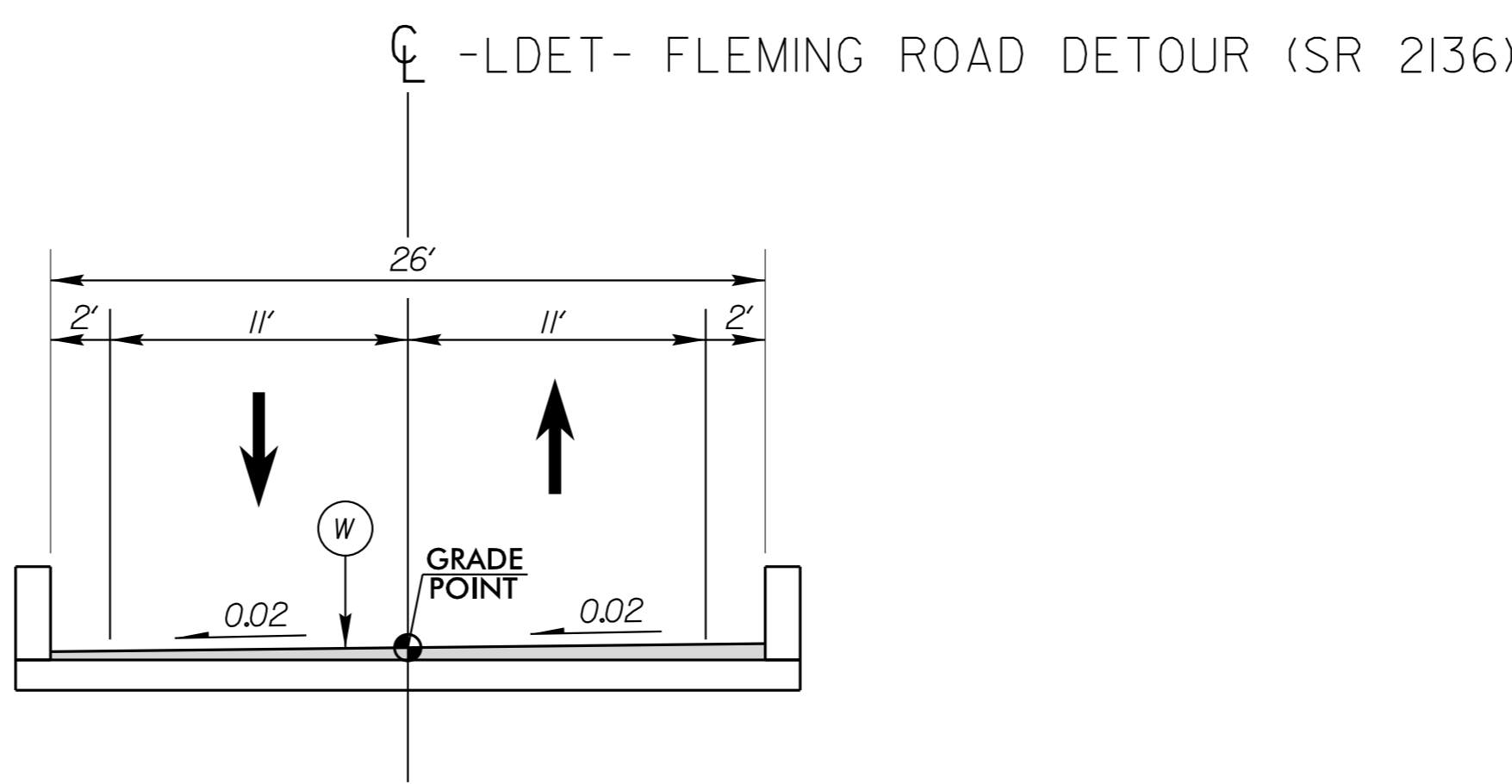
FINAL PAVEMENT DESIGN

C1	3" S9.5B
C2	VAR. DEPTH S9.5B
D1	2.5" I19.0B
D2	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
J	8" AGGREGATE BASE COURSE
P	PRIME COAT
R	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT

REVISIONS



BRIDGE TYPICAL SECTION NO. 1
 -L- STA 16+08.88 TO STA 16+96.13



BRIDGE TYPICAL SECTION NO. 2
 -LDET- STA 13+59.00 TO STA 14+24.00

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3/27/2017

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

STATION	STATION	EXCAVATION		EMBANKMENT	BORROW	WASTE
		TOTAL UNCLASSIFIED	UNDERCUT	EMBANKMENT + %		TOTAL
PHASE I (DETOUR)						
SUMMARY NO. 1						
-LDET- 10+00.00	-LDET- 13+59.00	63		2570	2507	
-LDET- 14+24.00	-LDET- 17+54.00	324		1562	1238	
-LDET- ESTIMATED SHOULDER MATERIAL				200	200	
TOTAL SUMMARY NO. 1						
SUBTOTAL		387		4332	3945	
PHASE II (MAINLINE)						
SUMMARY NO. 2						
-L- 12+78.62	-L- 16+08.88	65		685	620	
-L- 16+96.13	-L- 20+18.63	50		361	311	
TOTAL SUMMARY NO. 2						
SUBTOTAL		115		1046	931	
PHASE III (REMOVE DETOUR)						
SUMMARY NO. 3						
-LDET- 10+00.00	-LDET- 13+59.00	1736		94		1642
-LDET- 14+24.00	-LDET- 17+54.00	1255		392		863
-LDET- SHOULDER REMOVAL		167				167
TOTAL SUMMARY NO. 3						
SUBTOTAL		3158		486		2672
SUMMARY TOTAL		3660		5864	4876	2672
LOSS DUE TO CLEARING & GRUBBING		-100			100	
PROJECT TOTAL		3560		5864	4976	2672
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT					249	
GRAND TOTAL		3560		5864	5225	2672
SAY		3600			5300	
ESTIMATED DRAINAGE DITCH EXCAVATION			70 CY			
ESTIMATED UNDERCUT EXCAVATION			450 CY			
ESTIMATED SELECT GRANULAR MATERIAL			300 CY			
ESTIMATED GEOTEXTILE FOR SOIL STABILIZATION			300 SY			
ESTIMATED STABILIZER AGGREGATE			1750 TON			

K:\RAL_Roadway\01036275 - B-5345\Roadway\Proj\B5345_rdy_sum.dgn

3/28/2017

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

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

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS



"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

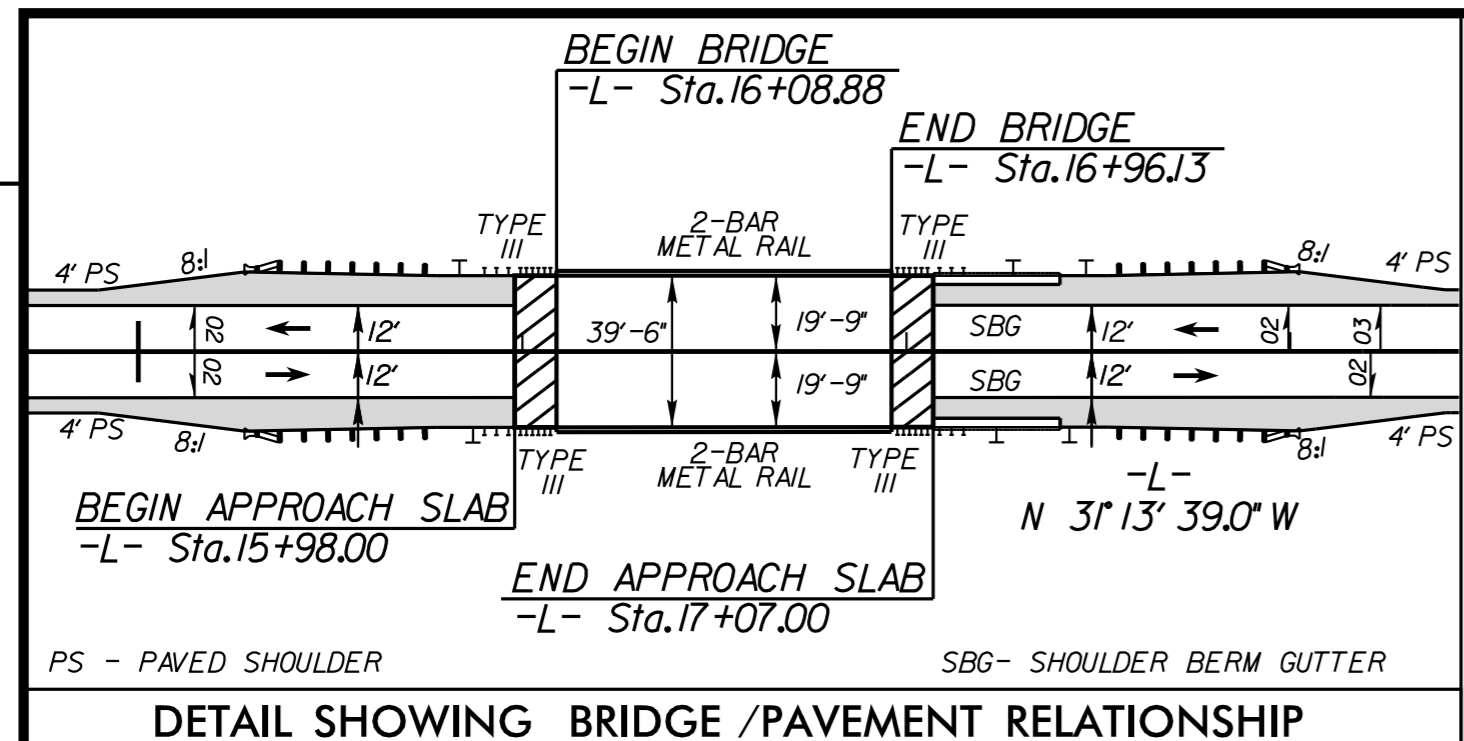
SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE 350			TERMINAL SECTIONS	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	TEMP GRAU 350	TYPE III	TEMP TYPE III	EA	G	NG					
-L-	15+27.63	16+08.88	LT	81.25				16+08.88	7'-9"	11'	50		1	1		1										
-L-	15+27.63	16+08.88	RT	81.25			16+08.88		7'-9"	11'	50		1	1		1										
-L-	16+96.13	18+02.38	LT	106.25			16+96.13		7'-9"	11'	50		1	1		1										
-L-	16+96.13	18+02.38	RT	106.25			16+96.13		7'-9"	11'	50		1	1		1										
			SUBTOTAL	375.00																						
			LESS ANCHOR DEDUCTIONS																							
	GRAU 350	4 @ 50'	=	200.00																						
	TYPE III	4 @ 18.75'	=	75.00																						
			TOTAL	100.00												4										
			SAY	100																						
-LDET-	12+77.75	13+59.00	LT	81.25				13+59.00	2'	10'	50		1	1		1										TEMPORARY GUARDRAIL
-LDET-	12+77.75	13+59.00	RT	81.25			13+59.00		2'	10'	50		1	1		1										TEMPORARY GUARDRAIL
-LDET-	14+24.00	15+05.25	LT	81.25			14+24.00		2'	10'	50		1	1		1										TEMPORARY GUARDRAIL
-LDET-	14+24.00	15+05.25	RT	81.25			14+24.00		2'	10'	50		1	1		1										TEMPORARY GUARDRAIL
			SUBTOTAL	325.00																						
			LESS ANCHOR DEDUCTIONS																							
	TEMP GRAU 350	4 @ 50'	=	200.00																						
	TEMP TYPE III	4 @ 18.75'	=	75.00																						
			TOTAL	50.00												4										
			SAY	50																						

ADDITIONAL GUARDRAIL POSTS = 5 EA

LINE	STATION TO STATION	LOCATION	LENGTH (LF)
-L-	17+07 TO 17+40	LT	33
-L-	17+07 TO 17+40	RT	33
	TOTAL		66
	SAY		70

LINE	STATION TO STATION	LOCATION	SQ. YDS.
-L-	15+98 TO 16+15	LT/RT	42
-L-	16+90 TO 17+07	LT/RT	44
	TEMP PAVEMENT		
-LDET-	11+09 TO 13+59	LT/RT	716
-LDET-	14+24 TO 16+65	LT/RT	715
	TOTAL		1,517
	SAY		1,520

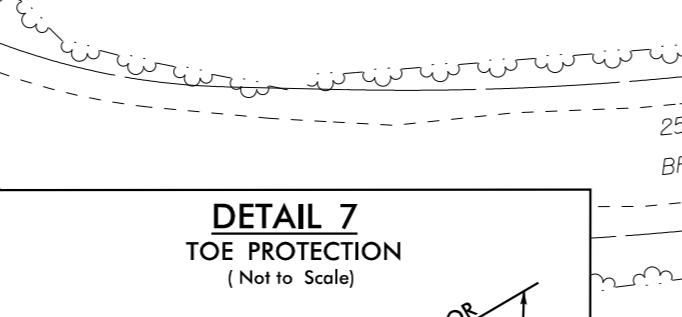
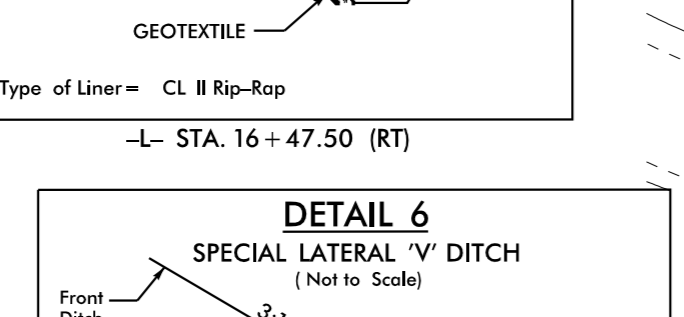
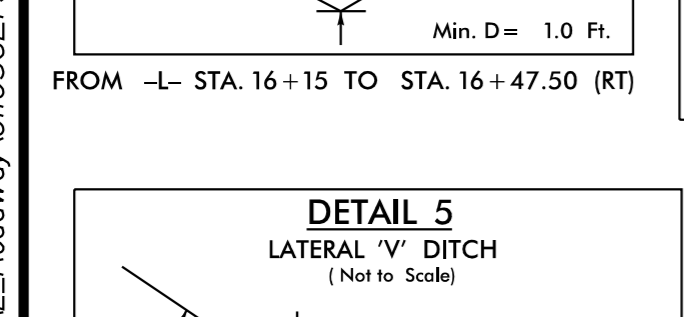
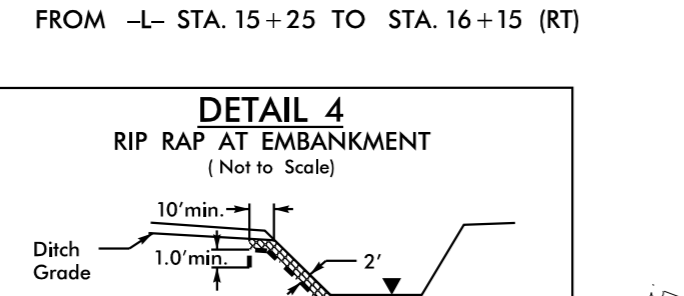
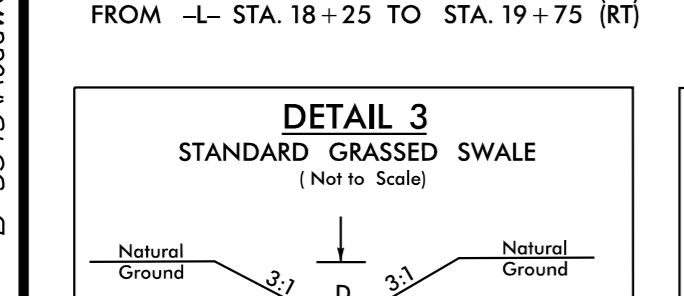
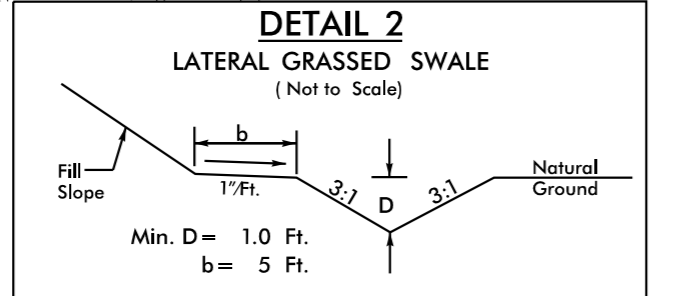
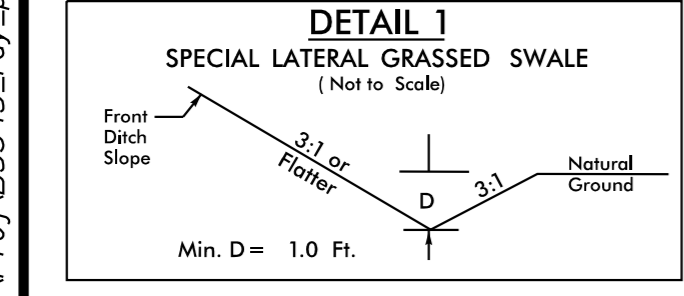
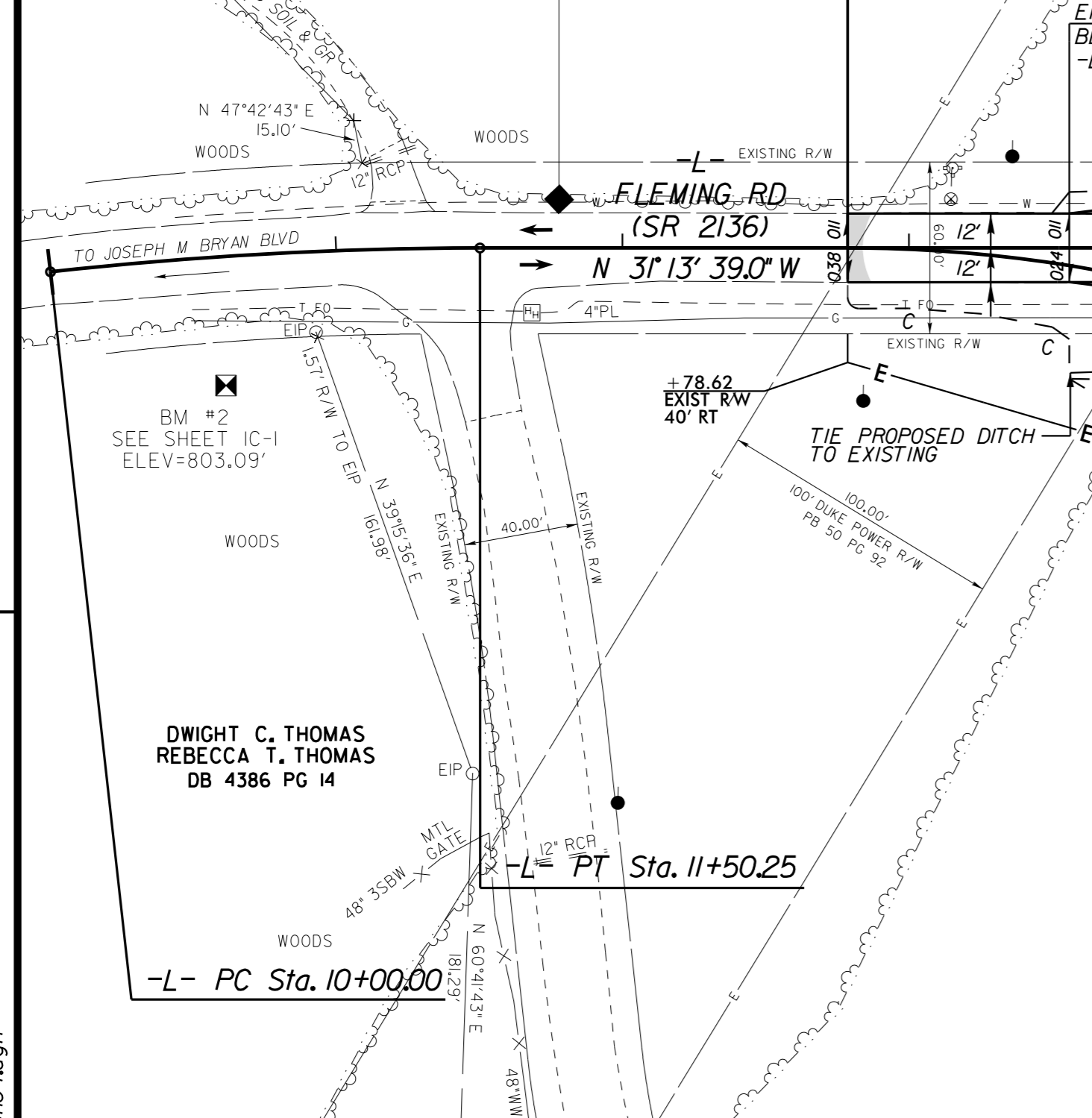
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REVISIONS

1
CITY OF GREENSBORO
DB 1655 PG 430
DB 2654 PG 529
DB 1654 PG 583

BEGIN TIP PROJECT B-5345
BEGIN CONSTRUCTION
-L- Sta. 12+78.62
BEGIN OVERLAY
-BL- 5



1
CITY OF GREENSBORO
DB 1655 PG 430
DB 2654 PG 529
DB 1654 PG 583

1
CITY OF GREENSBORO
DB 1655 PG 430
DB 2654 PG 529
DB 1654 PG 583

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CITY OF GREENSBORO
DB 1655 PG 430
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DB 1655 PG 430
DB 2654 PG 529
DB 1654 PG 583

1
CITY OF GREENSBORO
DB 1655 PG 430
DB 2654 PG 529
DB 1654 PG 583

PI Sta 10+75.20
 $\Delta = 6' 20'' 21''$ (RT)
 $D = 4' 13'' 08.9''$
 $L = 150.25'$
 $T = 75.20'$
 $R = 1,358.00'$
 $DS = 50$ MPH
 $SE =$ EXIST
 $RO =$ EXIST

PI Sta 21+21.45
 $\Delta = 19' 00'' 48.2''$ (LT)
 $D = 4' 46'' 28.7''$
 $L = 398.22'$
 $T = 200.96'$
 $R = 1,200.00'$
 $DS = 50$ MPH
 $SE =$ EXIST
 $RO =$ EXIST

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. B-5345
SHEET NO. 4

ROADWAY ENGINEER
HYDRAULICS ENGINEER

4/17/2017

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

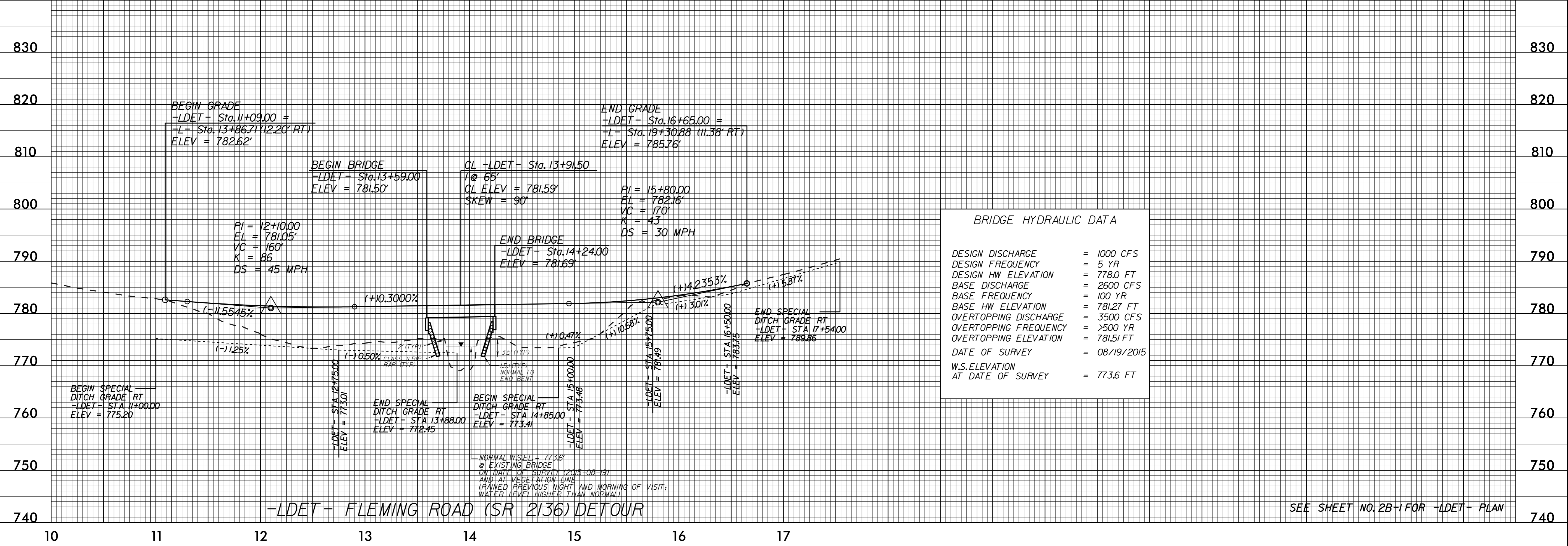
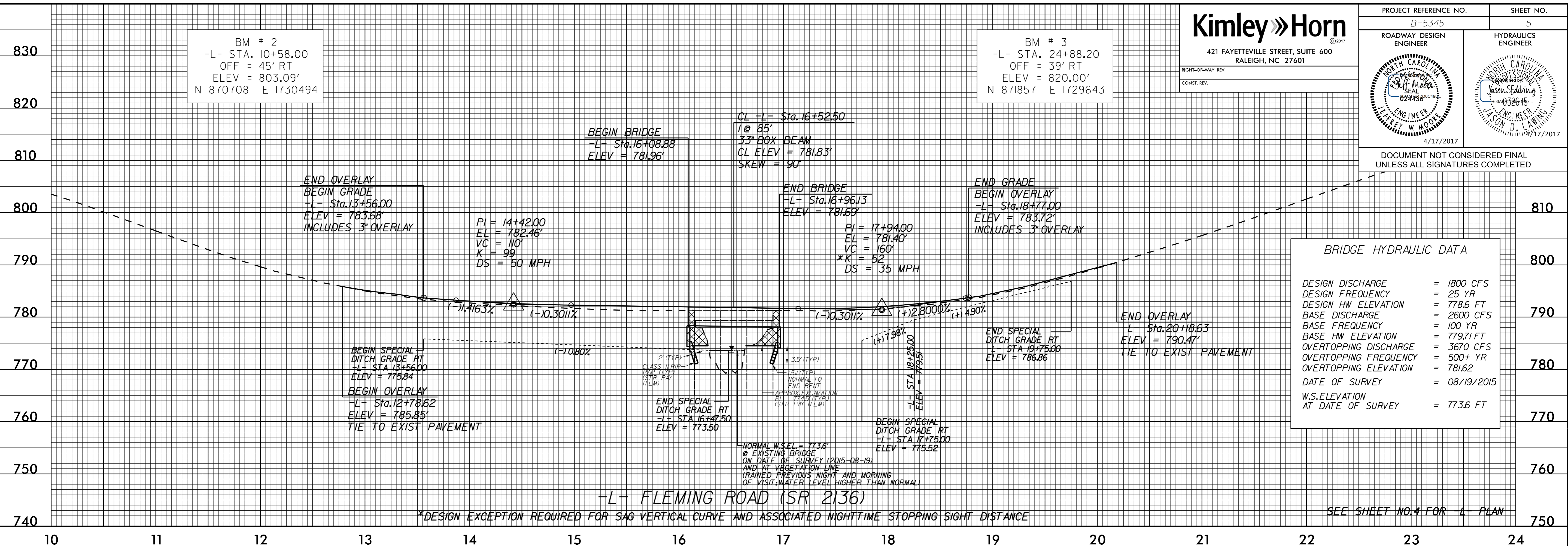
THERESA ANN WEISS
DOUGLAS C. WEISS
DB 6665 PG 143

RALPH W. GUFFEY
PATRICIA A. GUFFEY
(GUFFEY PROPERTY MANAGEMENT - TAX LISTING)
DB 4328 PG 1078

SEE SHEET 2B-1 FOR DETOUR
SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-19 FOR STRUCTURE PLANS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



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 3/7/2017