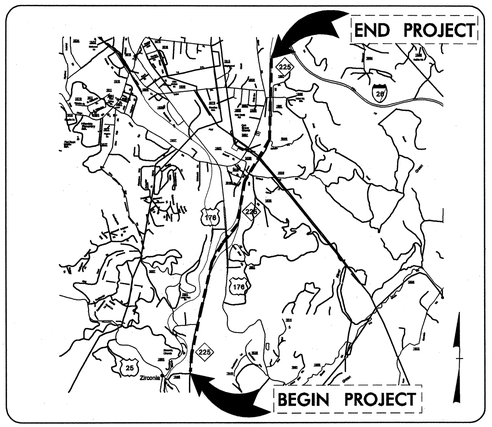
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Coventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

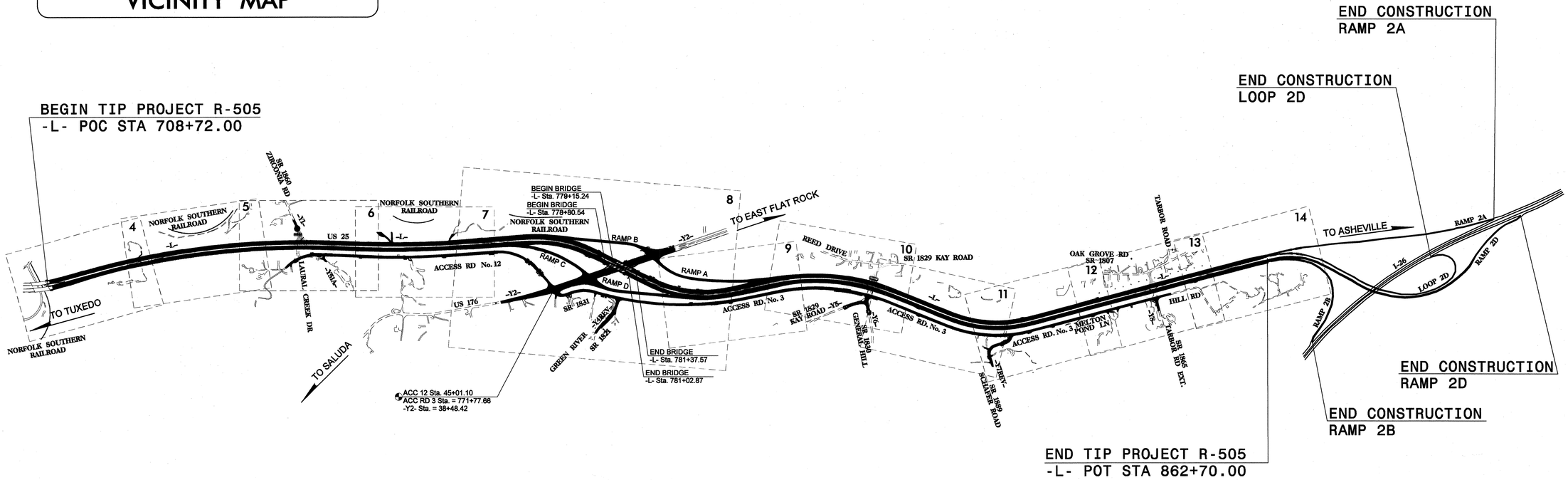
LOCATION: NC 225–US 25/I–26 CONNECTOR FROM US 25 AT ZIRCONIA TO I–26

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES, GUARDRAIL, NOISE WALL, RETAINING WALL, MILL, RESURFACE AND REHABILITATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-505	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34334.1.1	APD-1954 (1)	P.E.
34334.3.1	APD-1954 (1)	R/W, UTILITIES
34334.2.3	APD-0025 (21)	CONST.

NAD 83/95



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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 2009 = 11,000
ADT 2029 = 17,000
DHV = 10 %
D = 60 %
T = 18 % *
V = 60 MPH
* TTST 12 * DUAL 6%
FUNC CLASS RURAL FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-505 = 2.874 MILES
LENGTH STRUCTURE TIP PROJECT R-505 = 0.042 MILES
TOTAL LENGTH TIP PROJECT R-505 = 2.916 MILES

NCDOT CONTACT: B. DOUG TAYLOR, PE
PROJECT ENGINEER ROADWAY DESIGN

Prepared In the Office of:
PARSONS BRINCKERHOFF

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 19, 2007

LETTING DATE: MAY 19, 2009

DANIEL BRIDGES, PE
PROJECT ENGINEER

CHRIS DAVIS, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
2/5/09
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
2-5-09
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
P.E.
STATE HIGHWAY DESIGN ENGINEER

TIP PROJECT: R-505

CONTRACT: C202087

09/08/99

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, STANDARD DRAWINGS, GENERAL NOTES
1B	COVENTIONAL PLAN SHEET SYMBOLS
1C	SURVEY CONTROL SHEET
2, 2A-2E	TYPICAL SECTIONS
2F	NOISEWALL
2G	CROSSOVER NO. 1 ALIGNMENT
2H	CROSSOVER NO. 2 ALIGNMENT
2I	JUNCTION BOX DETAIL
2J	ROCK PLATING DETAILS
2K	ANCHORAGE FOR FRAMES DETAIL
2L	MODIFIED CONCRETE FLUME
2M	REINFORCED CONCRETE ENDWALL FOR 96" DIA. PIPE
3 (2 SHEETS)	SUMMARY OF QUANTITIES
3A-3G	SUMMARY OF DRAINAGE
3H	SUMMARY OF GUARDRAIL
3I	SUMMARY OF EARTHWORK, WIRE WOVEN FENCE, AND PAVEMENT REMOVAL
3J	PARCEL INDEX SHEET
4 THRU 14	PLAN SHEETS
15 THRU 31	PROFILE SHEETS
TCP-1 THRU TCP- 28	TRAFFIC CONTROL PLANS
PM-1 THRU PM-3	PAVEMENT MARKINGS PLANS
EC-1 THRU EC-26	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
SIGN-1 THRU SIGN-25	SIGNING PLANS
UC-1 THRU UC-3	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-5	UTILITIES BY OTHERS
S-1 THRU S-54	STRUCTURE PLANS
W-1 THRU W-2	RETAINING WALL PLANS
W-3 THRU W-4	NOISE WALL PLANS
X-1A	CROSS SECTIONS INDEX
X-1B THRU X-1G	CROSS-SECTION SUMMARY
X-1 THRU X-256	CROSS SECTIONS

ROADWAY STANDARD DRAWINGS

2006 ROADWAY ENGLISH STANDARD DRAWINGS
EFF. 07-18-06
REV. 01-02-07

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 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
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
225.07	Grading for False Cut at Grade Separations
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
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
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.03	Guide for Paving Shoulders Under Bridges - Method III
654.01	Pavement Repairs
665.01	Milled Rumble Strips - Asphalt Pavements
DIVISION 8 - INCIDENTALS	
808.01	Concrete Right-of-Way Marker
808.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 skew
838.21	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.51	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.28	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.41	Spring Box - Concrete or Brick
840.45	Precast Drainage Structures
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
850.11	Guide for Berm Drainage Outlet - 24" and 30" Pipe
862.01	Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced

GENERAL NOTES

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

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.

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 OR 225.05 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 OR 560.02.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS 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 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:
DUKE ENERGY CORPORATION (DISTRIBUTION)
DUKE ENERGY CORPORATION (TRANSMISSION)
AT&T OF NC
MEDIA COMMUNICATIONS (CATV)
CITY OF HENDERSONVILLE (WATER & SEWER)

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 CONTRACT.

PROJECT REFERENCE NO.	SHEET NO.
R-505	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
2-5-09

PB PARSONS BRINCKERHOFF

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3/15/06

PROJECT REFERENCE NO.	SHEET NO.
R-505	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
- 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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- 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:

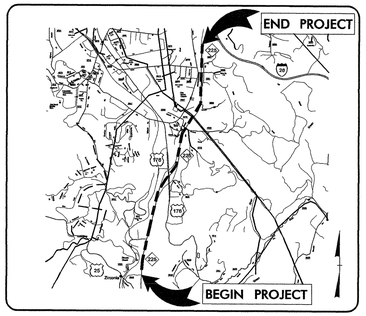
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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.

PROJECT REFERENCE NO.	SHEET NO.
R-0505	1-C

SURVEY CONTROL SHEET R-0505



VICINITY MAP

NC GRID NAD 83/95

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT HTTP://WWW.NCDOT.ORG/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/ THE FILE TO BE FOUND IS R0505_LS_CONTROL_050217.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	GPS-1	559883.4540	981389.2400	2195.28	OUTSIDE PROJECT LIMITS	
2	GPS-2	560773.6490	981388.7280	2181.33	719+57.83	2.98 LT
BL3	BL3	561575.7387	981458.6889	2164.92	727+62.84	5.49 LT
BL4	BL4	562103.7315	981540.7425	2154.40	732+96.87	7.69 LT
BL5	BL5	562752.0835	981713.4609	2142.85	739+67.81	19.64 RT
BL6	BL6	563199.3558	981811.0932	2132.06	744+25.06	8.65 LT
BL7	BL7	563767.5098	981981.3521	2120.20	750+18.40	9.38 LT
BL8	BL8	564622.1369	982203.0561	2103.28	759+01.50	6.66 RT
3	GPS-3	565615.6120	982395.6850	2109.88	769+13.44	2.06 LT
4	GPS-4	566447.9040	982906.0160	2119.57	778+99.79	9.13 LT
BL9	BL9	566936.4589	983337.4950	2138.25	785+52.83	7.23 LT
BL10	BL10	567716.8150	983628.2310	2172.74	793+97.09	6.67 RT
BL11	BL11	568263.8075	983667.3112	2193.45	799+45.37	12.15 RT
BL12	BL12	568812.3979	983672.8702	2211.41	804+82.54	70.41 LT
BL13	BL13	569426.5165	983916.3967	2216.15	811+25.97	79.25 LT
BL14	BL14	570039.9041	984439.4991	2192.46	819+21.39	8.45 LT
BL15	BL15	570434.2768	984717.4578	2181.36	824+05.22	7.82 LT
BL16	BL16	570922.2629	984897.4020	2185.09	829+29.79	0.95 LT
5	GPS-5	571729.4060	984920.0900	2198.53	837+38.21	4.10 LT
6	GPS-6	572647.9280	984929.8850	2188.54	846+56.76	2.09 RT
BL17	BL17	573255.5843	984927.2487	2165.27	852+64.32	2.93 LT

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
BY21	BY2-1	567660.9491	982876.5511	2113.43	18+53.38	38.12 RT
BY22	BY2-2	566931.6936	982917.0378	2107.16	25+83.75	41.88 RT
BY23	BY2-3	566447.9040	982906.0160	2119.57	30+65.98	82.19 RT
BY24	BY2-4	566172.6914	982897.0937	2106.08	33+40.15	107.77 RT
BY25	BY2-5	565614.4090	983112.1412	2117.25	39+07.73	76.78 LT
BY26	BY2-6	564930.0930	982995.7866	2092.81	OUTSIDE PROJECT LIMITS	

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	Y4R STATION	OFFSET
BY44	BY4-4	565614.4090	983112.1412	2117.25	14+70.22	697.01 RT
BY43	BY4-3	566045.6291	983121.9835	2115.40	OUTSIDE PROJECT LIMITS	
BY42	BY4-2	566357.8715	983382.5097	2084.63	10+56.84	21.83 RT
BY41	BY4-1	565954.1293	983748.7296	2070.09	OUTSIDE PROJECT LIMITS	

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
BY53	BY5-3	569426.5165	983916.3967	2216.15	OUTSIDE PROJECT LIMITS	
BY52	BY5-2	569291.2527	984171.4699	2204.28	12+78.22	5.81 LT
BY51	BY5-1	568659.3809	984245.3368	2240.30	OUTSIDE PROJECT LIMITS	

BY6

POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
BY62	BY6-2	569291.2527	984171.4699	2204.28	10+80.51	28.89 RT
BY61	BY6-1	569238.5550	984646.0310	2156.14	OUTSIDE PROJECT LIMITS	

BY7

POINT	DESC.	NORTH	EAST	ELEVATION	RY7 STATION	OFFSET
BY73	BY7-3	570922.2629	984897.4020	2185.09	OUTSIDE PROJECT LIMITS	
BY72	BY7-2	570763.2883	985013.8817	2169.55	10+34.82	51.50 RT
BY71	BY7-1	570580.7963	985189.8348	2123.49	13+32.61	13.23 RT

BY8

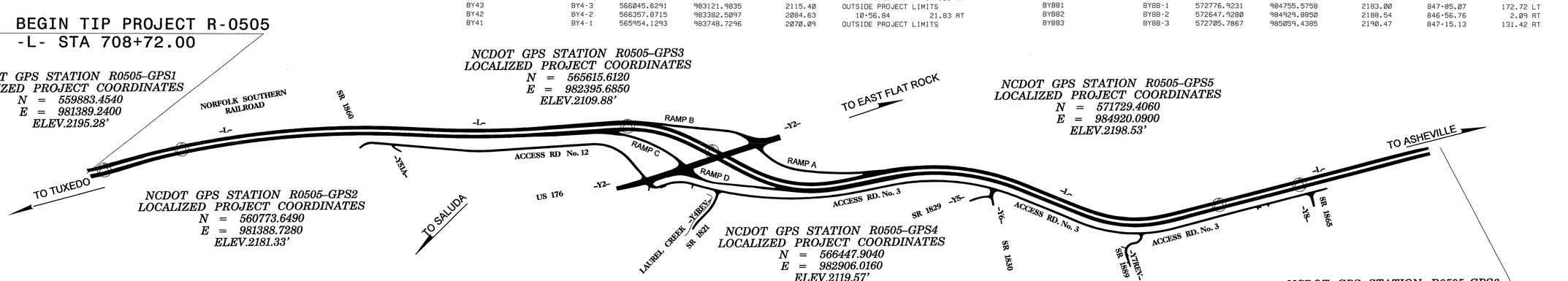
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BY81	BY8-1	572080.9364	985037.7047	2203.17	840+90.20	112.14 RT
BY82	BY8-2	572705.7867	985059.4385	2190.47	847+15.13	131.42 RT
BY83	BY8-3	573025.9726	985025.5353	2175.81	850+35.18	96.26 RT

BY8A

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BYA81	BY8A-1	572116.7294	984555.3101	2183.30	841+24.09	370.39 LT
BYA82	BY8A-2	572776.9231	984755.5758	2183.00	847+85.07	172.72 LT
BYA83	BY8A-3	573347.3547	984581.5463	2186.84	853+54.81	348.99 LT

BY8B

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BYB81	BY8B-1	572776.9231	984755.5758	2183.00	847+85.07	172.72 LT
BYB82	BY8B-2	572647.9280	984929.8850	2188.54	846+56.76	2.09 RT
BYB83	BY8B-3	572705.7867	985059.4385	2190.47	847+15.13	131.42 RT

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*************************************
TBMA1       ELEVATION = 2132.90
N 573926      E 984857
L STATION 859+35 76 LEFT
RAILROAD SPIKE IN 24 INCH MAPLE
*************************************

*************************************
TBMB1       ELEVATION = 2186.96
N 572673      E 984799
L STATION 846+81 129 LEFT
RAILROAD SPIKE IN 22 INCH POPLAR
*************************************

*************************************
TBMC1       ELEVATION = 2177.30
N 571017      E 984843
L STATION 830+18 67 LEFT
RAILROAD SPIKE IN 17 INCH POPLAR
*************************************

*************************************
TBMD1       ELEVATION = 2222.88
N 569419      E 983885
L STATION 811+05 103 LEFT
RAILROAD SPIKE IN 26 INCH OAK
*************************************

*************************************
TBME1       ELEVATION = 2186.88
N 568048      E 983524
L STATION 797+21 118 LEFT
RAILROAD SPIKE IN 20 INCH OAK
*************************************

*************************************
TBMF1       ELEVATION = 2120.85
N 566899      E 983156
L STATION 784+07 127 LEFT
RAILROAD SPIKE IN 15 INCH POLPAR
*************************************

*************************************
TBMG1       ELEVATION = 2107.61
N 565784      E 982521
L STATION 771+16 64 RIGHT
RAILROAD SPIKE IN 17 INCH POPLAR
*************************************

*************************************
TBMH1       ELEVATION = 2109.19
N 564608      E 982090
L STATION 758+65 101 LEFT
RAILROAD SPIKE IN 24 INCH POPLAR
*************************************

*************************************
TBMI1       ELEVATION = 2135.24
N 563171      E 981830
L STATION 744+03 17 RIGHT
RAILROAD SPIKE IN 21 INCH OAK
*************************************

*************************************
TBMJ1       ELEVATION = 2154.05
N 562262      E 981483
L STATION 734+40 95 LEFT
RAILROAD SPIKE IN 30 INCH OAK
*************************************

*************************************
TBMK1       ELEVATION = 2164.45
N 561067      E 981328
L STATION 722+45 82 LEFT
RAILROAD SPIKE IN 32 INCH DOUBLE POPLAR
*************************************

*************************************
TBML1       ELEVATION = 2198.31
N 559701      E 981369
L STATION 711+81
 S 2° 38' 37.6" W  DIST    296.54
CHISLED "X" IN CONCRETE HEADWALL OF
BRIDGE AT NORTHEAST CORNER OF
SOUTHBOUND LANE
*************************************
```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "I4400-BL47"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 604761.2980(ft) EASTING: 968222.3850(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977884
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "I4400-BL47" TO -L- STATION 708+72.00 IS
S 16°15'55.59" E 46,952.32'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

6/2/99
02-FEB-2009 12:09
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PROJECT REFERENCE NO.	SHEET NO.
R-505	2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
4-22-09

PAVEMENT DESIGN ENGINEER

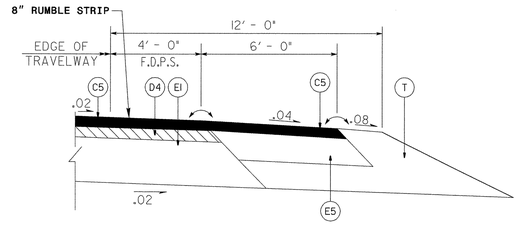
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
4/21/09

PARSONS BRINCKERHOFF

PAVEMENT SCHEDULE

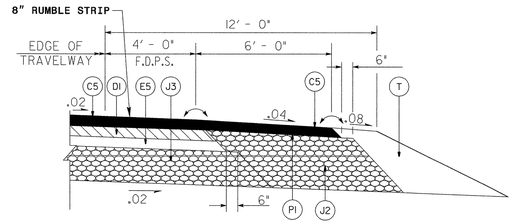
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C4	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.
C5	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C6	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C7	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C8	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, 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. 3 " ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½ " IN DEPTH OR GREATER THAN 4" IN DEPTH.
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 8.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 484.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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 5½" IN DEPTH.
E5	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E6	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 5½" IN DEPTH.
J1	PROP. 10" AGGREGATE BASE COURSE.
J2	PROP. VARIABLE DEPTH AGGREGATE BASE COURSE.
J3	PROP. 8" AGGREGATE BASE COURSE.
P1	PRIME COAT AT THE RATE OF .50 GAL. PER SQ. YARD.
R1	PRECAST REINFORCED CONCRETE BARRIER
R2	5" CONCRETE MONOLITHIC ISLAND
R3	SHOULDER BERM GUTTER
R4	HIGH TENSION CABLE BARRIER SYSTEM WITH SOCKETS
R5	EXPRESSWAY GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W2)
W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W3)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE



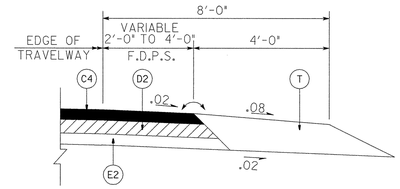
PAVED SHOULDER DETAIL No. 1

USE IN CONJUNCTION WITH
TYPICAL SECTION No. IA, I, & 4



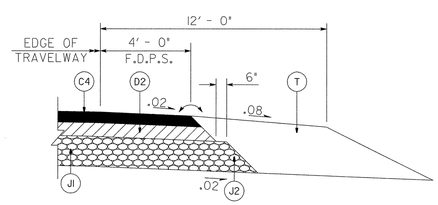
PAVED SHOULDER DETAIL No. 2

USE IN CONJUNCTION WITH
TYPICAL SECTION No. I, 2 & 4



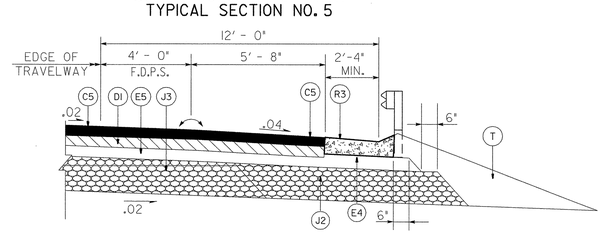
PAVED SHOULDER DETAIL No. 3

USE IN CONJUNCTION WITH
TYPICAL SECTION NO. 9 & 10



PAVED SHOULDER DETAIL No. 4

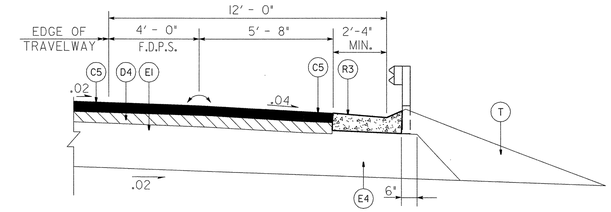
USE IN CONJUNCTION WITH
TYPICAL SECTION NO. 5



SHOULDER BERM GUTTER DETAIL No. 5

USE IN CONJUNCTION WITH
TYPICAL SECTION NO. I, 2, & 4

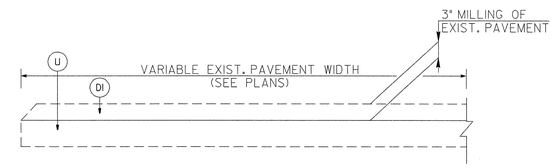
-L- STA. 721+50.00 TO -L- STA. 733+50.00 RT.
-L- STA. 759+00.00 TO -L- STA. 762+00.00 LT.
-L- STA. 787+50.00 TO -L- STA. 790+50.00 LT.



SHOULDER BERM GUTTER DETAIL No. 6

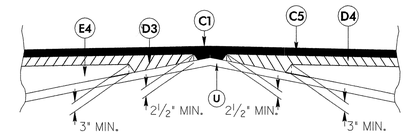
USE IN CONJUNCTION WITH
TYPICAL SECTION NO. I, 2, & 4

-L- STA. 721+50.00 TO -L- STA. 733+50.00 RT.
-L- STA. 759+00.00 TO -L- STA. 762+00.00 LT.
-L- STA. 787+50.00 TO -L- STA. 790+50.00 LT.

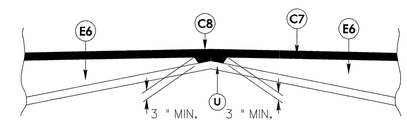


MILLING EXISTING PAVEMENT DETAIL No. 7

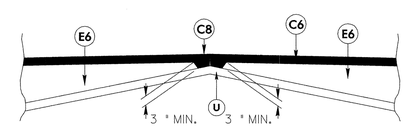
LOCATION- AS DIRECTED BY ENGINEER



DETAIL SHOWING METHOD OF WEDGING No. W1



DETAIL SHOWING METHOD OF WEDGING No. W2



DETAIL SHOWING METHOD OF WEDGING No. W3

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PROJECT REFERENCE NO.	SHEET NO.
R-505	2-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 03924 ENGINEER DANIEL H. BRIDGER 4-22-09

PAVEMENT DESIGN ENGINEER

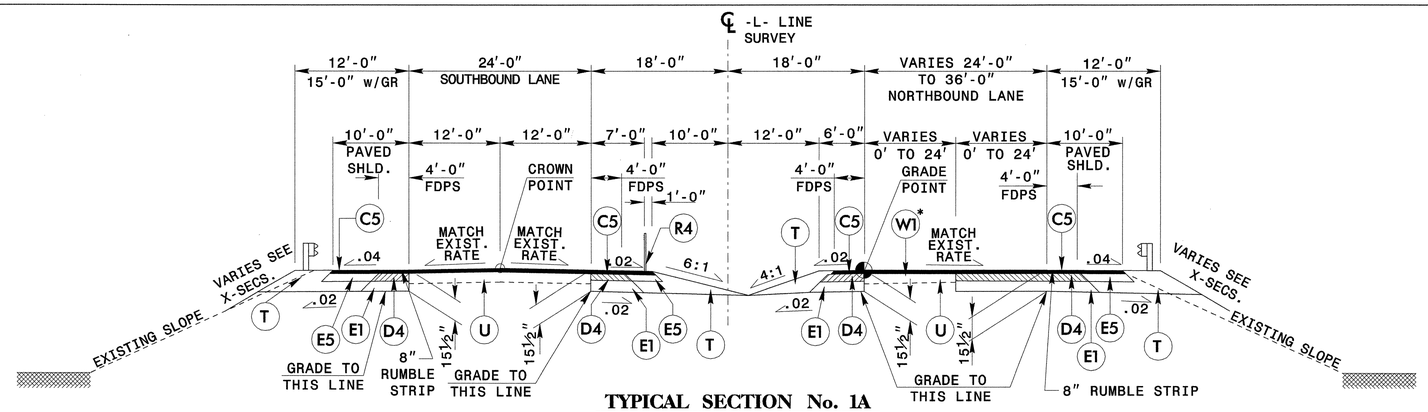
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 4/22/09

PB PARSONS BRINCKERHOFF

PAVEMENT SCHEDULE

C1	VARIABLE DEPTH TYPE S9.5C	E5	5½" TYPE B25.0C
C2	1½" TYPE SF9.5A	E6	VARIABLE DEPTH TYPE B25.0B
C3	2" TYPE S9.5C	J1	10" ABC
C4	3" TYPE S9.5B	J2	VARIABLE DEPTH ABC
C5	3" TYPE S9.5C	J3	8" ABC
C6	2½" TYPE SF9.5A	P1	PRIME COAT
C7	3" TYPE SF9.5A	R1	PRECAST REINFORCED CONCRETE BARRIER
C8	VARIABLE DEPTH TYPE SF9.5A	R2	5" CONCRETE MONOLITHIC ISLAND
D1	3" TYPE I19.0C	R3	SHOULDER BERM GUTTER
D2	3" TYPE I19.0B	R4	HIGH TENSION CABLE BARRIER SYSTEM WITH SOCKETS
D3	VARIABLE DEPTH TYPE I19.0C	R5	EXPRESSWAY GUTTER
D4	4" TYPE I19.0C	T	EARTH MATERIAL
E1	8½" TYPE B25.0C	U	EXISTING PAVEMENT
E2	5" TYPE B25.0B	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W1)
E3	4" TYPE B25.0B	W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W2)
E4	VARIABLE DEPTH TYPE B25.0C	W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W3)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE

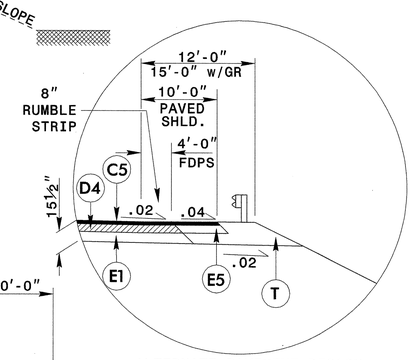


TYPICAL SECTION No. 1A

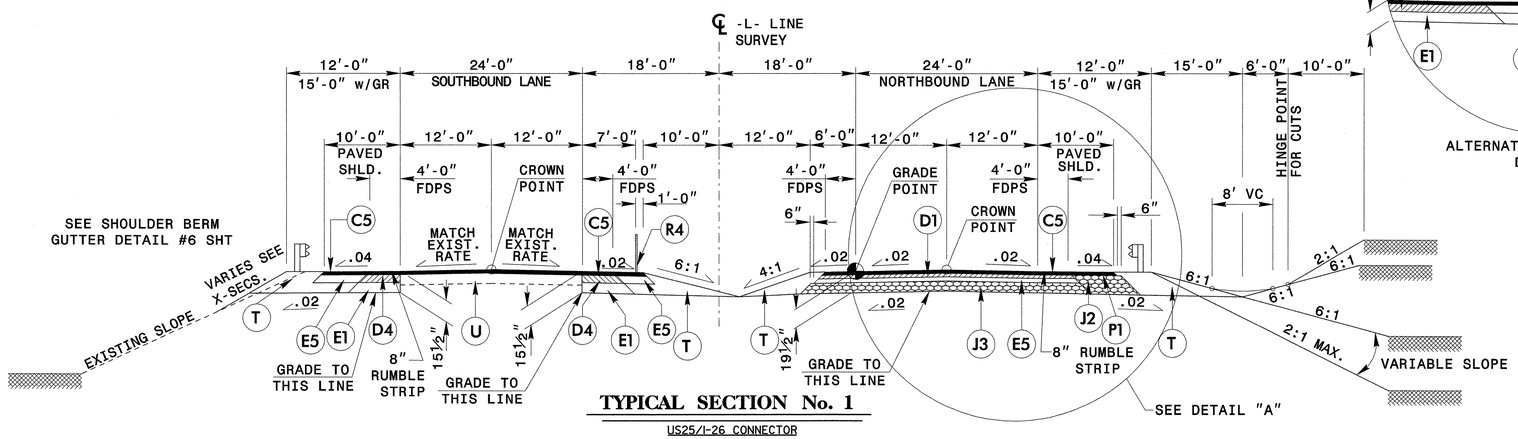
US25/I-26 CONNECTOR

USE TYPICAL SECTION No. 1A FOR THE FOLLOWING

-L- STA. 708+87.00 TO -L- STA. 715+00.00
*TRANSITION FROM TYPICAL SECTION NO.1A TO TYPICAL SECTION NO.1 FROM -L- STA. 715+00.00 TO -L- STA. 721+00.00



ALTERNATE PAVEMENT DESIGN DETAIL "A"

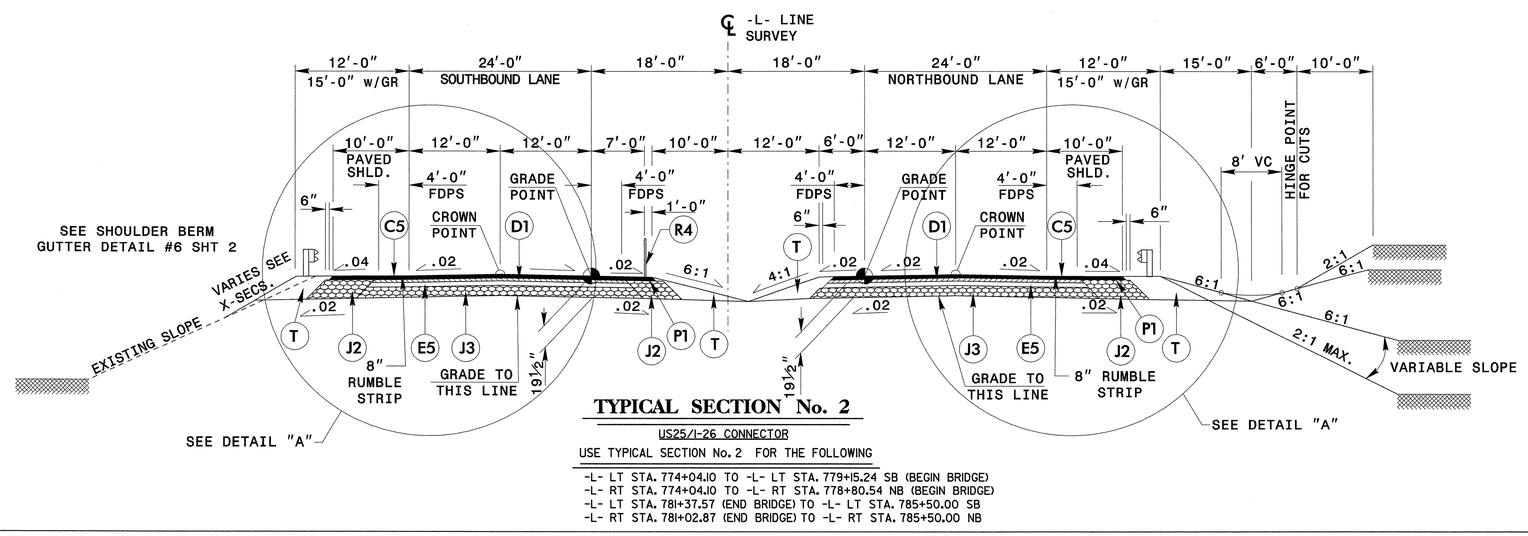


TYPICAL SECTION No. 1

US25/I-26 CONNECTOR

USE TYPICAL SECTION No. 1 FOR THE FOLLOWING

-L- STA. 721+00.00 TO -L- STA. 774+04.10
-L- STA. 791+50.00 TO -L- STA. 861+42.25

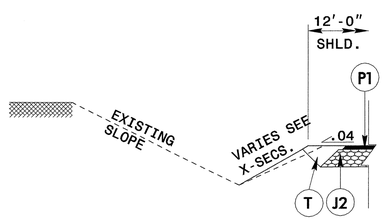


TYPICAL SECTION No. 2

US25/I-26 CONNECTOR

USE TYPICAL SECTION No. 2 FOR THE FOLLOWING

-L- LT STA. 774+04.10 TO -L- LT STA. 779+15.24 SB (BEGIN BRIDGE)
-L- RT STA. 774+04.10 TO -L- RT STA. 778+80.54 NB (BEGIN BRIDGE)
-L- LT STA. 781+37.57 (END BRIDGE) TO -L- LT STA. 785+50.00 SB
-L- RT STA. 781+02.87 (END BRIDGE) TO -L- RT STA. 785+50.00 NB



PARTIAL TYPICAL SECTION NO. P1

USE IN CONJUNCTION WITH TYPICAL SECTION No.'s 1, 2 &4
USE PARTIAL TYPICAL NO. P1 FOR THE FOLLOWING

-L- STA. 715+00.00 TO -L- STA. 720+00.00
-L- STA. 726+50.00 TO -L- STA. 731+50.00
-L- STA. 734+50.00 TO -L- STA. 748+50.00
-L- STA. 751+50.00 TO -L- STA. 758+50.00
-L- STA. 762+50.00 TO -L- STA. 774+50.00
-L- STA. 792+50.00 TO -L- STA. 820+00.00
-L- STA. 822+00.00 TO -L- STA. 825+00.00
-L- STA. 831+50.00 TO -L- STA. 837+50.00
-L- STA. 844+00.00 TO -L- STA. 854+50.00
-L- STA. 857+50.00 TO -L- STA. 858+50.00
-L- STA. 860+00.00 TO -L- STA. 861+42.26

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PROJECT REFERENCE NO.	SHEET NO.
R-505	2-B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES 4-22-09

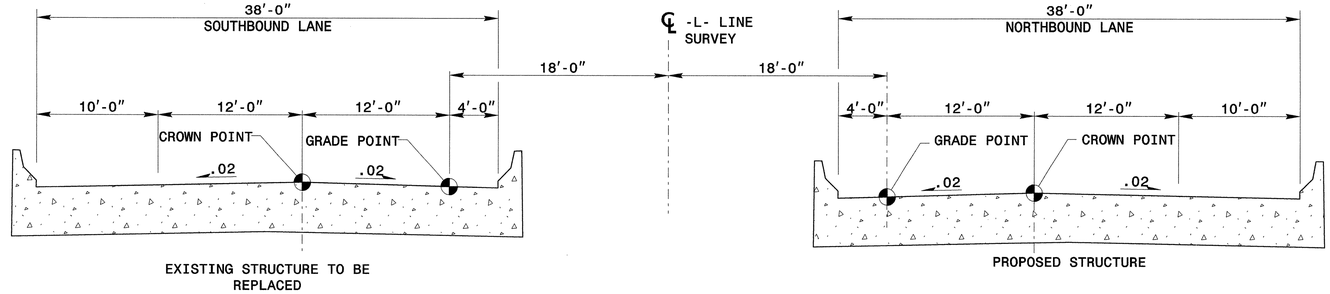
PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 4/24/09

PARSONS BRINCKERHOFF

PAVEMENT SCHEDULE

C1	VARIABLE DEPTH TYPE S9.5C	E5	5½" TYPE B25.0C
C2	1½" TYPE SF9.5A	E6	VARIABLE DEPTH TYPE B25.0B
C3	2" TYPE S9.5C	J1	10" ABC
C4	3" TYPE S9.5B	J2	VARIABLE DEPTH ABC
C5	3" TYPE S9.5C	J3	8" ABC
C6	2½" TYPE SF9.5A	P1	PRIME COAT
C7	3" TYPE SF9.5A	R1	PRECAST REINFORCED CONCRETE BARRIER
C8	VARIABLE DEPTH TYPE SF9.5A	R2	5" CONCRETE MONOLITHIC ISLAND
D1	3" TYPE I19.0C	R3	SHOULDER BERM GUTTER
D2	3" TYPE I19.0B	R4	HIGH TENSION CABLE BARRIER SYSTEM WITH SOCKETS
D3	VARIABLE DEPTH TYPE I19.0C	R5	EXPRESSWAY GUTTER
D4	4" TYPE I19.0C	T	EARTH MATERIAL
E1	8½" TYPE B25.0C	U	EXISTING PAVEMENT
E2	5" TYPE B25.0B	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W1)
E3	4" TYPE B25.0B	W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W2)
E4	VARIABLE DEPTH TYPE B25.0C	W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W3)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE

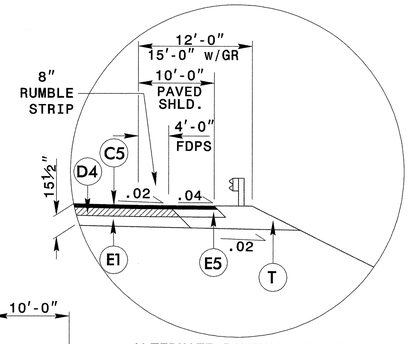


TYPICAL SECTION No. 3

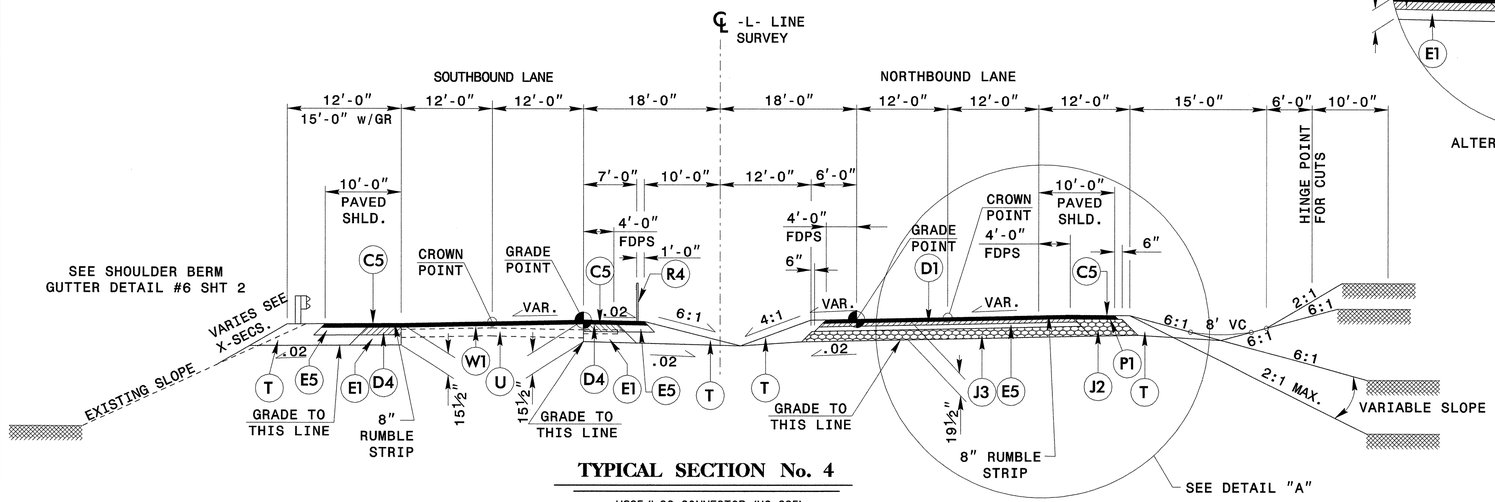
US25/I-26 CONNECTOR

USE TYPICAL SECTION No. 3 FOR THE FOLLOWING

-L- LT STA. 779+15.24 TO -L- LT STA. 781+37.57 SB
-L- RT STA. 778+80.54 TO -L- RT STA. 781+02.87 NB



ALTERNATE PAVEMENT DESIGN DETAIL "A"

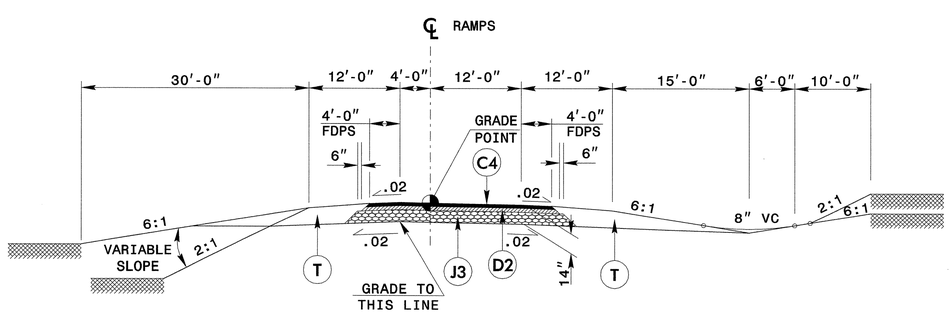


TYPICAL SECTION No. 4

US25/I-26 CONNECTOR (NC 225)

USE TYPICAL SECTION No. 4 FOR THE FOLLOWING

-L- STA. 785+50.00 TO -L- STA. 791+50.00

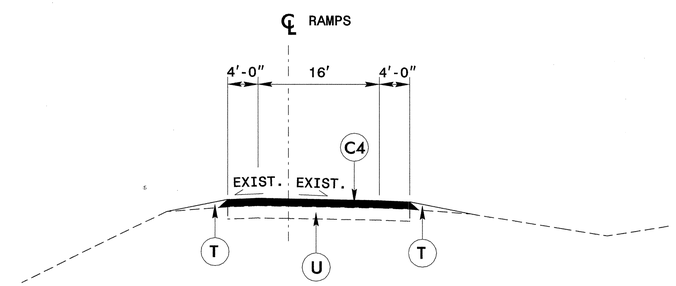


TYPICAL SECTION No.5

PROPOSED RAMPS C AND D

USE TYPICAL SECTION No. 5 FOR THE FOLLOWING

-RAMP C- STA. 2+47.76 TO STA. 8+66.18
-RAMP D- STA. 1+01.13 TO STA. 9+00.00



TYPICAL SECTION No.6

RESURFACING RAMPS

USE TYPICAL SECTION No. 6 FOR THE FOLLOWING

RAMP "A" FROM TIE TO -L- TO TIE WITH -Y2-
RAMP "B" FROM TIE TO -L- TO TIE WITH -Y2-
RAMP "C" STA. 8+66.18 TO TIE WITH -Y2-
RAMP "D" STA. 9+00.00 TO STA. 14+84.60

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coombs A1 W CHL CIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	2-C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGERS 4-22-09

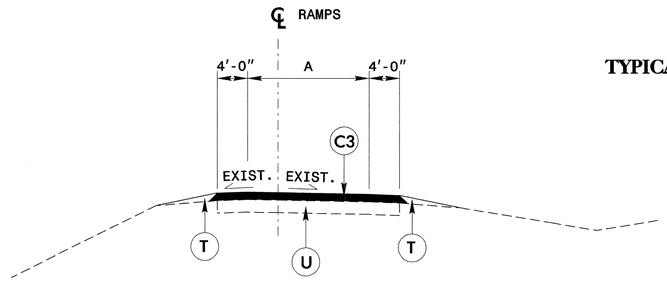
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON 4/24/09

PARSONS BRINCKERHOFF

PAVEMENT SCHEDULE

C1	VARIABLE DEPTH TYPE S9.5C	E5	5½" TYPE B25.0C
C2	1½" TYPE SF9.5A	E6	VARIABLE DEPTH TYPE B25.0B
C3	2" TYPE S9.5C	J1	10" ABC
C4	3" TYPE S9.5B	J2	VARIABLE DEPTH ABC
C5	3" TYPE S9.5C	J3	8" ABC
C6	2½" TYPE SF9.5A	P1	PRIME COAT
C7	3" TYPE SF9.5A	R1	PRECAST REINFORCED CONCRETE BARRIER
C8	VARIABLE DEPTH TYPE SF9.5A	R2	5" CONCRETE MONOLITHIC ISLAND
D1	3" TYPE I19.0C	R3	SHOULDER BERM GUTTER
D2	3" TYPE I19.0B	R4	HIGH TENSION CABLE BARRIER SYSTEM WITH SOCKETS
D3	VARIABLE DEPTH TYPE I19.0C	R5	EXPRESSWAY GUTTER
D4	4" TYPE I19.0C	T	EARTH MATERIAL
E1	8½" TYPE B25.0C	U	EXISTING PAVEMENT
E2	5" TYPE B25.0B	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W1)
E3	4" TYPE B25.0B	W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W2)
E4	VARIABLE DEPTH TYPE B25.0C	W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W3)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE



TYPICAL SECTION No.6A

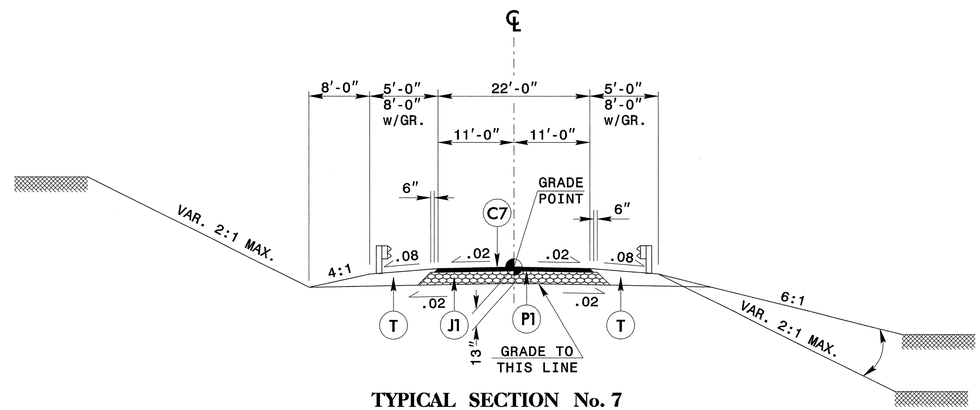
RESURFACING RAMPS

USE TYPICAL SECTION No. 6A FOR THE FOLLOWING

RAMP 2A TO TIE GORE WITH I-26
RAMP 2B TO TIE GORE WITH I-26
RAMP 2D TO TIE GORE WITH I-26
LOOP 2D TO TIE GORE WITH I-26

TYPICAL SECTION No. 6A WIDTHS

RAMP	A	LENGTH
RAMP 2A	16'-21'	0.49 mi.
RAMP 2B	20'-21'	0.29 mi.
RAMP 2D	23'-24'	0.56 mi.
LOOP 2D	15'	0.49 mi.

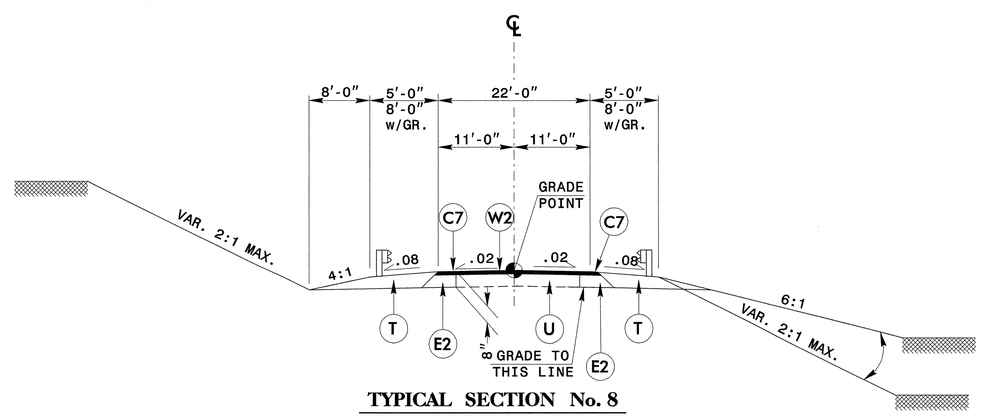


TYPICAL SECTION No. 7

ACC. RD. NO. 3, ACC RD. NO. 12

USE TYPICAL SECTION No. 7 FOR THE FOLLOWING

ACC. RD. NO. 3 STA. 777+75.00 TO ACC. RD. NO. 3 STA. 843+75.00
ACC. RD. NO. 12 STA. 10+50.00 TO ACC. RD. NO. 12 STA. 44+64.93



TYPICAL SECTION No. 8

ACC. RD. NO. 3, ACC RD. NO. 12

USE TYPICAL SECTION No. 7 FOR THE FOLLOWING

ACC. RD. NO. 3 STA. 772+15.41 TO ACC. RD. NO. 3 STA. 777+75.00
ACC. RD. NO. 3 STA. 843+75.00 TO ACC. RD. NO. 3 STA. 849+41.65
ACC. RD. NO. 12 STA. 10+00.00 TO ACC. RD. NO. 12 STA. 10+50.00

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combs AT W-CHL-CIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	2-D
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGERS
4-22-09

PAVEMENT DESIGN ENGINEER

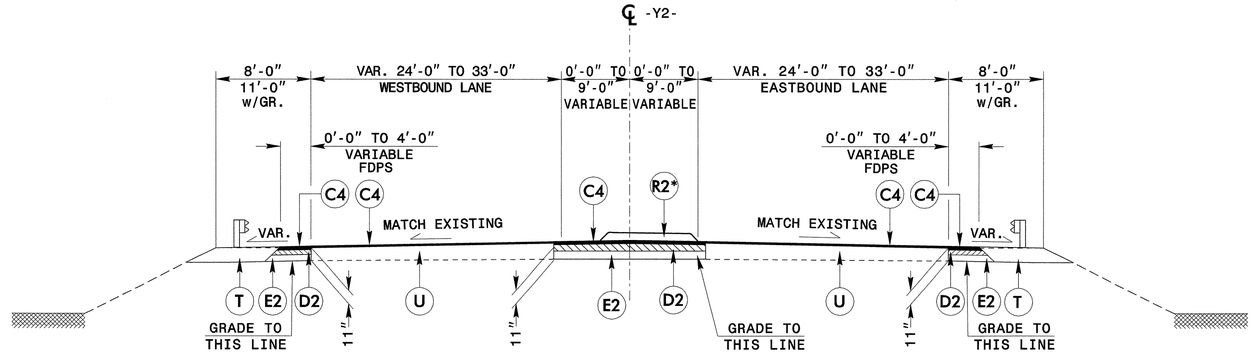
NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON
4/24/09

PB PARSONS BRINCKERHOFF

PAVEMENT SCHEDULE

C1	VARIABLE DEPTH TYPE S9.5C	E5	5½" TYPE B25.0C
C2	1½" TYPE SF9.5A	E6	VARIABLE DEPTH TYPE B25.0B
C3	2" TYPE S9.5C	J1	10" ABC
C4	3" TYPE S9.5B	J2	VARIABLE DEPTH ABC
C5	3" TYPE S9.5C	J3	8" ABC
C6	2½" TYPE SF9.5A	P1	PRIME COAT
C7	3" TYPE SF9.5A	R1	PRECAST REINFORCED CONCRETE BARRIER
C8	VARIABLE DEPTH TYPE SF9.5A	R2	5" CONCRETE MONOLITHIC ISLAND
D1	3" TYPE I19.0C	R3	SHOULDER BERM GUTTER
D2	3" TYPE I19.0B	R4	HIGH TENSION CABLE BARRIER SYSTEM WITH SOCKETS
D3	VARIABLE DEPTH TYPE I19.0C	R5	EXPRESSWAY GUTTER
D4	4" TYPE I19.0C	T	EARTH MATERIAL
E1	8½" TYPE B25.0C	U	EXISTING PAVEMENT
E2	5" TYPE B25.0B	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W1)
E3	4" TYPE B25.0B	W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W2)
E4	VARIABLE DEPTH TYPE B25.0C	W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W3)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE



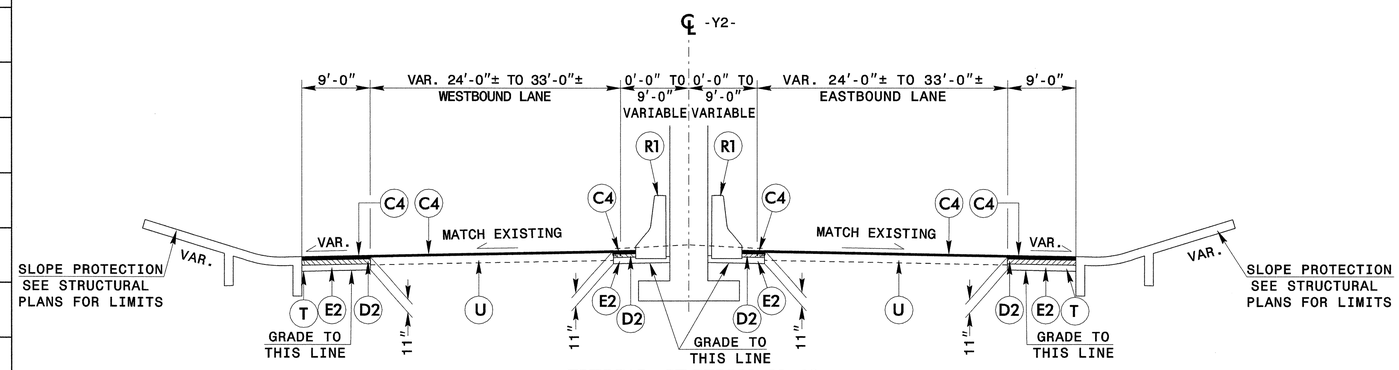
TYPICAL SECTION No.9

-Y2-

USE TYPICAL SECTION No. 9 FOR THE FOLLOWING

-Y2- STA. 23+00.00 TO -Y2- STA. 28+70.00 LT. (STA. 29+30.00 RT.)
-Y2- STA. 30+70.00 TO -Y2- STA. 45+16.22 LT. (STA. 31+50.00 RT.)

• SEE PLANS FOR VARIABLE WIDTH OF CONC. ISLAND

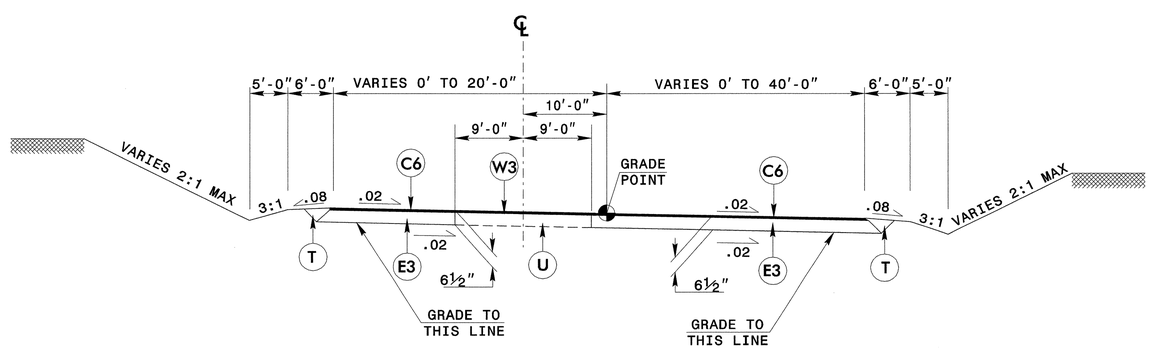


TYPICAL SECTION No.10

-Y2-

USE TYPICAL SECTION No. 10 FOR THE FOLLOWING

-Y2- STA. 28+70.00 TO STA. 30+70.00 LT.
-Y2- STA. 29+30.00 TO STA. 31+50.00 RT.



TYPICAL SECTION No. 11

-Y1- (CUL-DE-SAC)

USE TYPICAL SECTION No. 11 FOR THE FOLLOWING

-Y1- STA. 10+15.00 TO -Y1- STA. 11+60.00

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PROJECT REFERENCE NO.	SHEET NO.
R-505	2-E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES 4-22-09

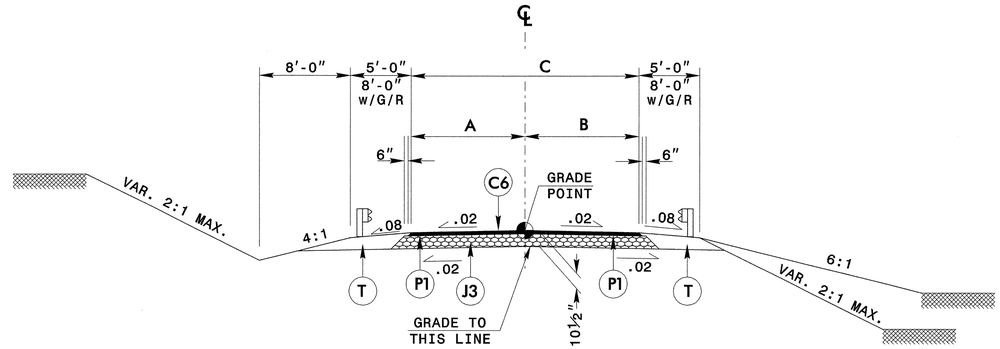
NORTH CAROLINA PROFESSIONAL SEAL 22898 ENGINEER CLARK S. MORRISON 4/21/09

PARSONS BRINCKERHOFF

PAVEMENT SCHEDULE

C1	VARIABLE DEPTH TYPE S9.5C	E5	5½" TYPE B25.0C
C2	1½" TYPE SF9.5A	E6	VARIABLE DEPTH TYPE B25.0B
C3	2" TYPE S9.5C	J1	10" ABC
C4	3" TYPE S9.5B	J2	VARIABLE DEPTH ABC
C5	3" TYPE S9.5C	J3	8" ABC
C6	2½" TYPE SF9.5A	P1	PRIME COAT
C7	3" TYPE SF9.5A	R1	PRECAST REINFORCED CONCRETE BARRIER
C8	VARIABLE DEPTH TYPE SF9.5A	R2	5" CONCRETE MONOLITHIC ISLAND
D1	3" TYPE I19.0C	R3	SHOULDER BERM GUTTER
D2	3" TYPE I19.0B	R4	HIGH TENSION CABLE BARRIER SYSTEM WITH SOCKETS
D3	VARIABLE DEPTH TYPE I19.0C	R5	EXPRESSWAY GUTTER
D4	4" TYPE I19.0C	T	EARTH MATERIAL
E1	8½" TYPE B25.0C	U	EXISTING PAVEMENT
E2	5" TYPE B25.0B	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W1)
E3	4" TYPE B25.0B	W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W2)
E4	VARIABLE DEPTH TYPE B25.0C	W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL W3)

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS NOTED OTHERWISE

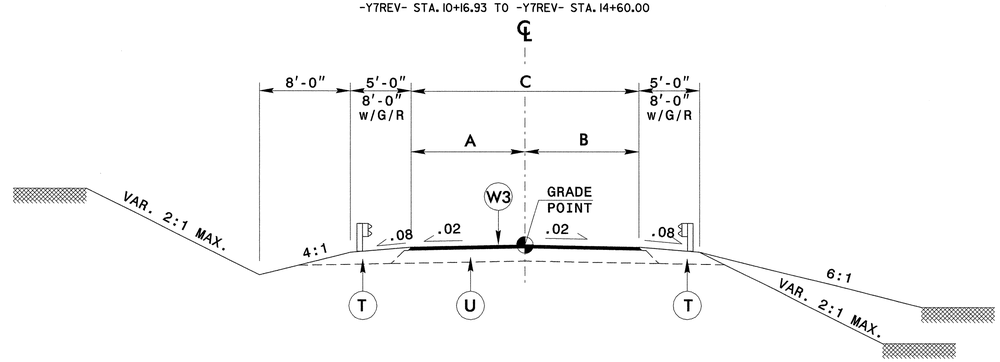


TYPICAL SECTION No. 12

SR 1821(-Y4REV-), SR 1829 (-Y5-), SR 1889 (-Y7REV-)

USE TYPICAL SECTION No. 12 FOR THE FOLLOWING

-Y4REV- STA. 10+11.00 TO -Y4REV- STA. 13+00.00
-Y5- STA. 11+00.00 TO -Y5- STA. 12+87.60
-Y6- STA. 10+11.00 TO -Y6- STA. 10+60.00
-Y7REV- STA. 10+16.93 TO -Y7REV- STA. 14+60.00

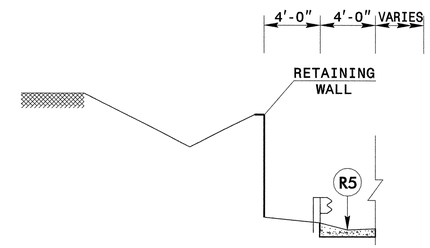


TYPICAL SECTION No.13

SR 1821(-Y4REV-), SR 1829 (-Y5-), SR 1830 (-Y6-), SR 1889 (-Y7REV-), SR 1865 (-Y8-)

USE TYPICAL SECTION No. 13 FOR THE FOLLOWING

-Y4REV.- STA. 13+00.00 TO -Y4REV- STA. 15+23.83
-Y5- STA. 10+12.00 TO -Y5- STA. 11+00.00
-Y6- STA. 10+60.00 TO -Y6- STA. 11+90.21
-Y6- STA. 11+90.21 TO -Y6- STA. 12+45.00 (RESURFACE WITH C2 AT EXISTING SUPER)
-Y7REV.- STA. 14+60.00 TO -Y7REV.- STA. 15+50.73
-Y8- STA. 10+11.00 TO -Y8- STA. 11+60.00 (RESURFACE WITH C2 AT EXISTING SUPER)



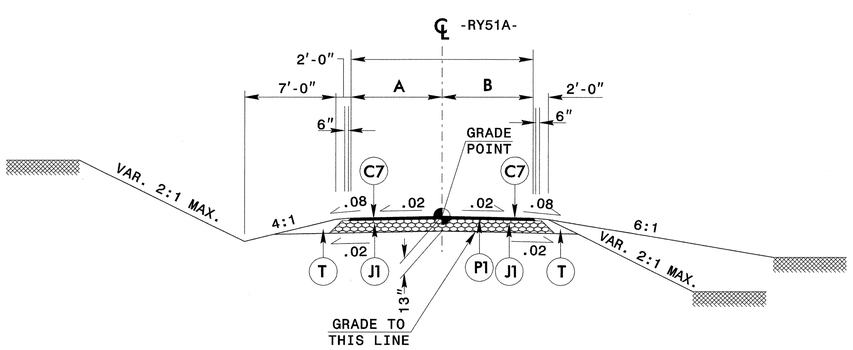
PARTIAL TYPICAL SECTION No. P2

USE IN CONJUNCTION WITH TYPICAL SECTION No. 12 & No. 13
USE PARTIAL TYPICAL NO. P2 FOR THE FOLLOWING

-Y4REV- STA. 11+80.00 LT. TO -Y4REV- STA. 14+35.00 LT.

TYPICAL SECTION No. 12, 13 & 14 WIDTHS

Y LINE	A	B	C
-Y4REV-	11'	11'	22'
-Y5-	10'	10'	20'
-Y6-	9'-11'	9'-11'	18'-22'
-Y7REV-	11'-15'	11'-15'	22'
-Y8-	9.6'-15'	8.8'-15'	18.4'-30'
-RY51A-	5'-10'	5'-10'	10'-20'

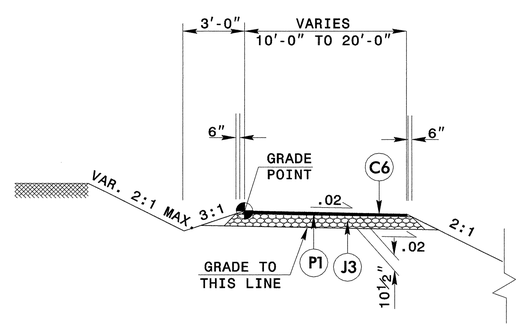


TYPICAL SECTION No. 14

-RY51A-

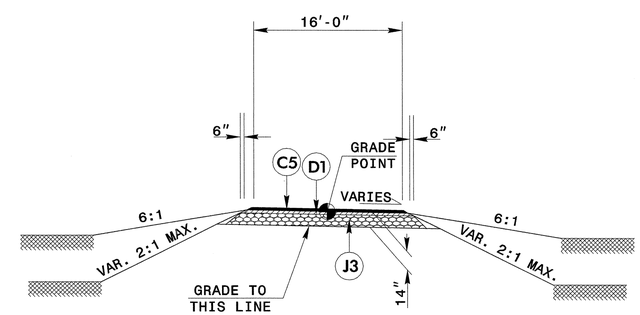
USE TYPICAL SECTION No. 14 FOR THE FOLLOWING

-RY51A- STA. 10+11.00 TO -RY51A- STA. 10+95.00



TYPICAL SECTION No. 15 -DRIVEWAY-

-Y4REV- STA. 11+29.27 TO -Y4REV- STA. 12+00.00



TYPICAL SECTION No.16

CROSSOVERS

USE TYPICAL SECTION No. 16 FOR THE FOLLOWING

-C01- STA. 10+00.00 TO STA. 17+51.93
-C02- STA. 10+00.00 TO STA. 17+02.29
TEMPORARY PAVEMENT AT RAMP A = 800'
TEMPORARY PAVEMENT AT RAMP B = 710'

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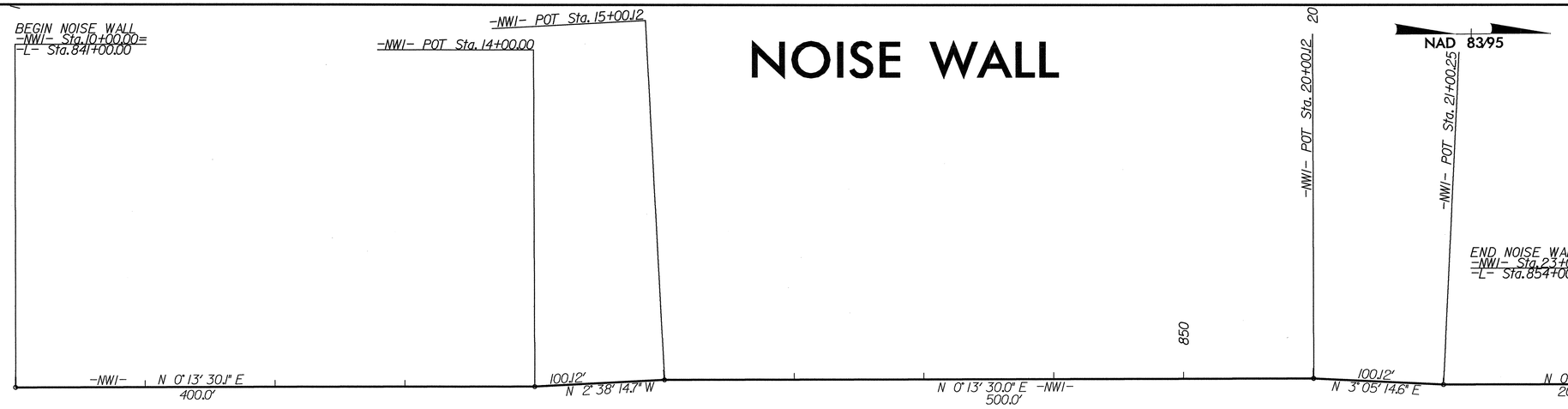
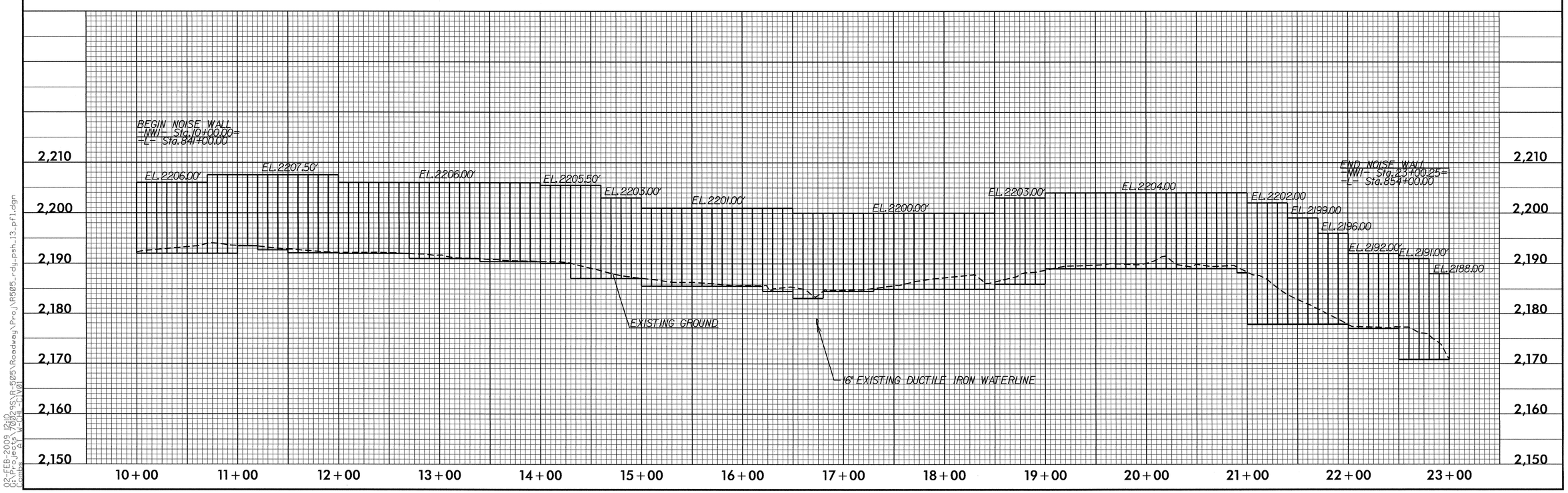
NOISE WALL



PROJECT REFERENCE NO.	SHEET NO.
R-505	2-F
ROADWAY DESIGN ENGINEER	STRUCTURAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
2-3-09

PARSONS BRINCKERHOFF
121 WEST TRADE STREET
SUITE 1950
CHARLOTTE, NC 28202



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cbowman
A1 W:24" C:1(2)

PROJECT REFERENCE NO.	SHEET NO.
R-505	2-G

ROADWAY DESIGN ENGINEER

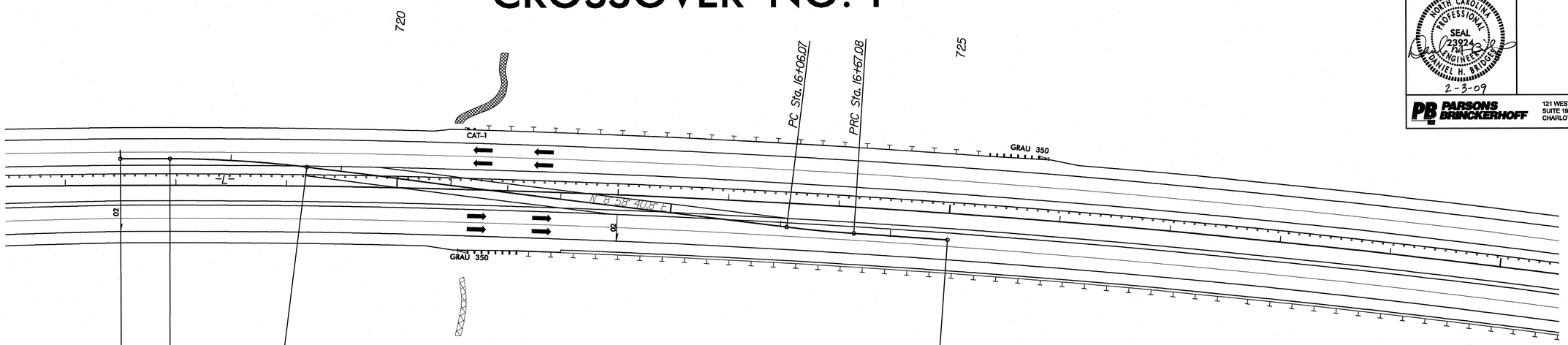
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

2-3-09

PB PARSONS BRINCKERHOFF
121 WEST TRADE STREET
SUITE 1950
CHARLOTTE, NC 28202

CROSSOVER NO. 1

NAD 83/95

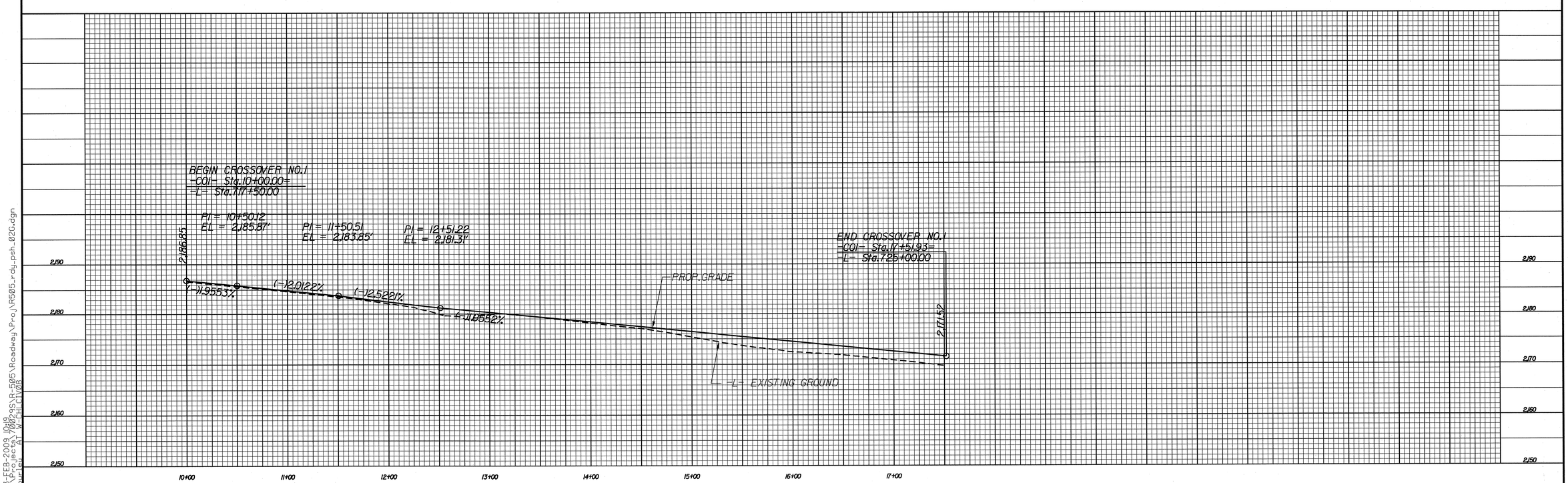


CROSSOVER NO.1

PI Sta 10+22.43	PI Sta 11+07.02
Δ = 0° 15' 39.7" (RT)	Δ = 7° 06' 49.0" (RT)
D = 0° 34' 54.9"	D = 5° 43' 46.5"
L = 44.86'	L = 124.16'
T = 22.43'	T = 62.16'
R = 9,846.13'	R = 1,000.00'

CROSSOVER NO.1

PI Sta 16+36.58	PI Sta 17+09.51
Δ = 3° 29' 45.0" (LT)	Δ = 0° 29' 46.3" (RT)
D = 5° 43' 46.5"	D = 0° 35' 05.1"
L = 61.01'	L = 84.85'
T = 30.52'	T = 42.43'
R = 1,000.00'	R = 9,798.13'



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CROSSOVER NO. 2

NAD 83/95

PROJECT REFERENCE NO.	SHEET NO.
R-505	2-H

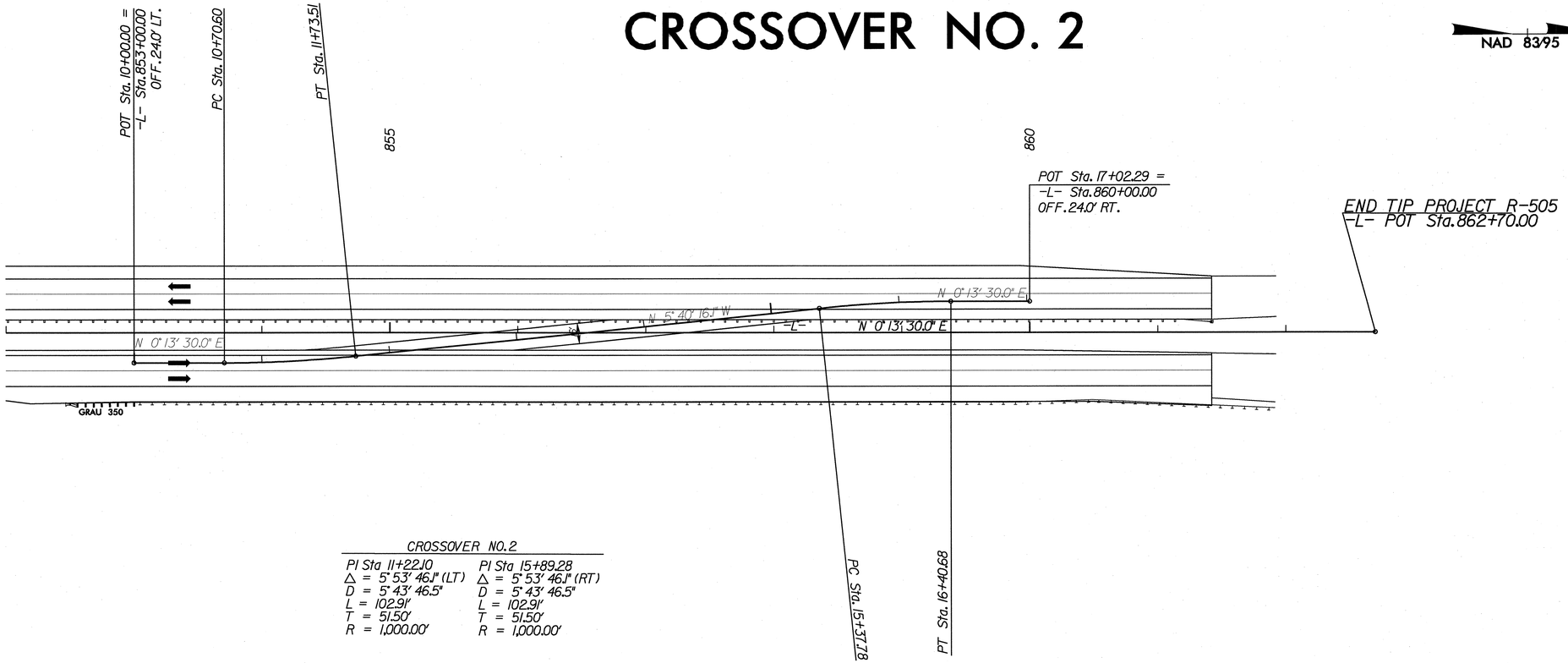
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

2-3-09

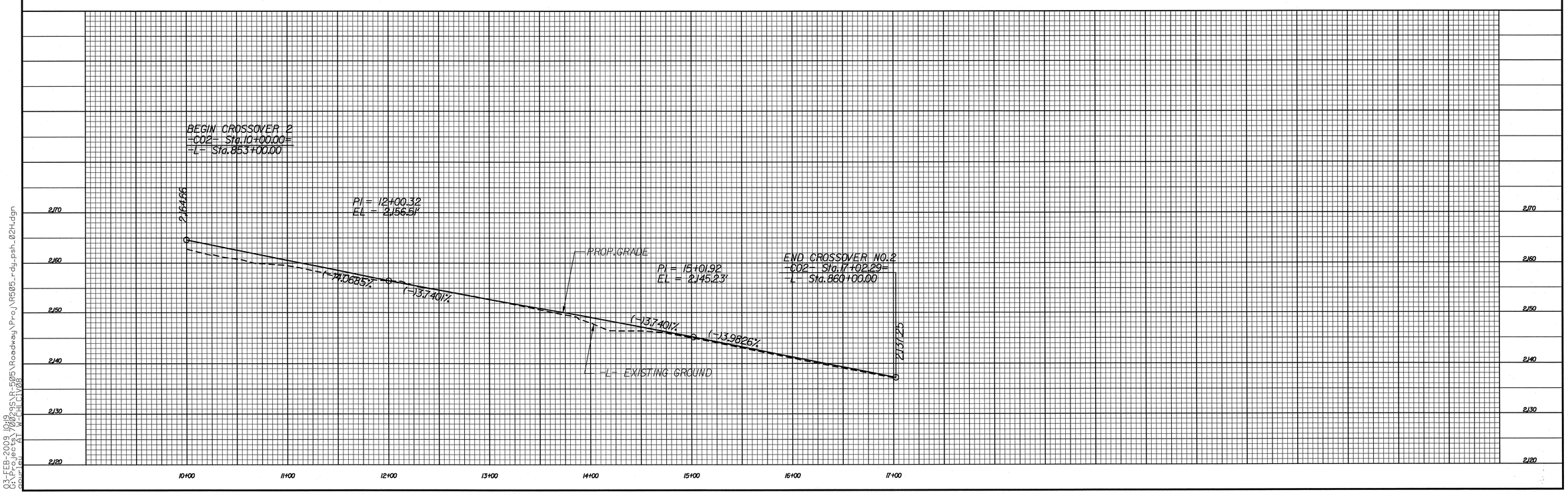
PARSONS BRINCKERHOFF

121 WEST TRADE STREET
SUITE 1950
CHARLOTTE, NC 28202



CROSSOVER NO. 2

PI Sta 11+22.10	PI Sta 15+89.28
Δ = 5° 53' 46.1" (LT)	Δ = 5° 53' 46.1" (RT)
D = 5° 43' 46.5"	D = 5° 43' 46.5"
L = 102.91'	L = 102.91'
T = 51.50'	T = 51.50'
R = 1,000.00'	R = 1,000.00'



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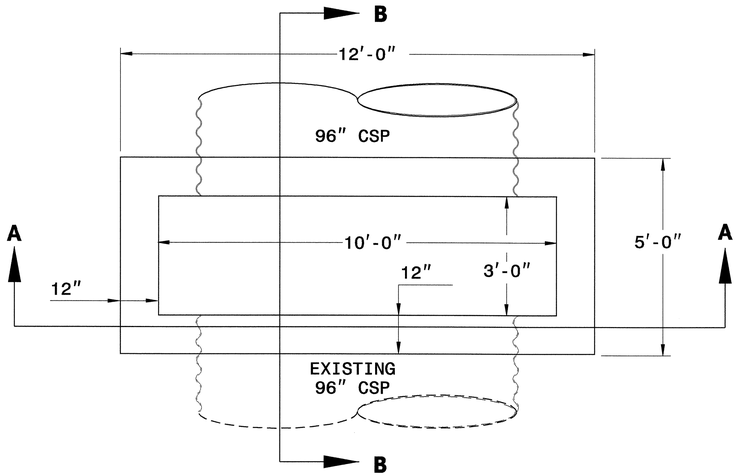
PROJECT REFERENCE NO.	SHEET NO.
R-0505	2-I



PLAN VIEW

GENERAL NOTES:
ALL EXPOSED CORNERS TO BE CHAMFERED 1".

CLASS "B" CONCRETE TO BE USED THROUGHOUT.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE SLAB AS SHOWN ON STANDARD DRAWING 840.00.

THE COST OF REINFORCING STEEL BARS SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD OF "REINFORCED CONCRETE DRAINAGE STRUCTURE."

REINFORCING STEEL SHALL BE CUT, BENT, OR RELOCATED TO POSITION PIPE AS DIRECTED BY THE ENGINEER.

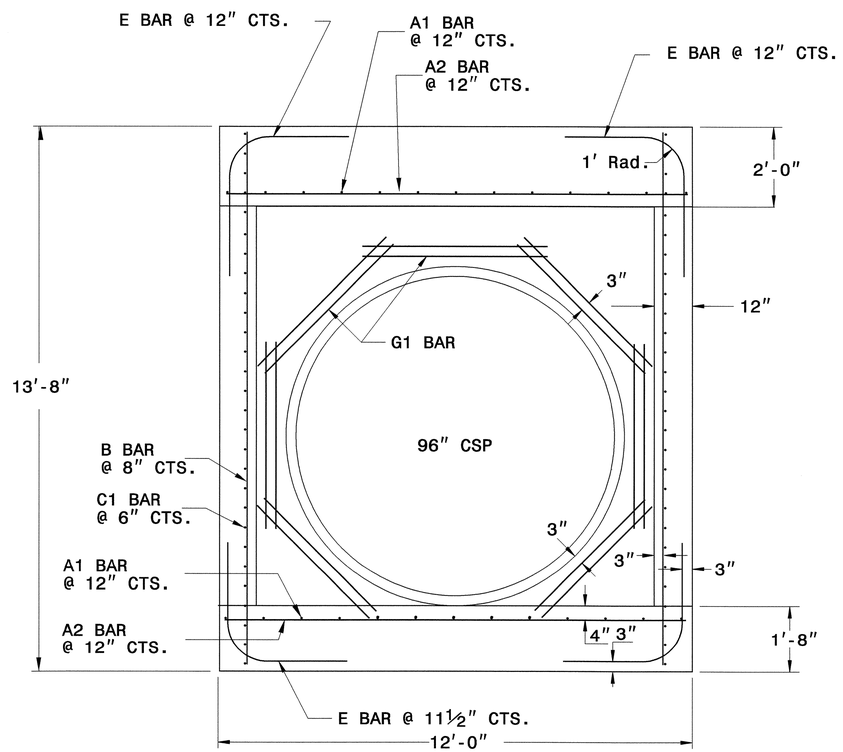
JUNCTION BOX SHALL BE POSITIONED AS FIELD CONDITIONS DICTATE AND AS DIRECTED BY THE ENGINEER.

ALL MATERIAL AND WORKMANSHIP SHALL BE OF GOOD QUALITY AND SHALL BE APPROVED BY THE ENGINEER.

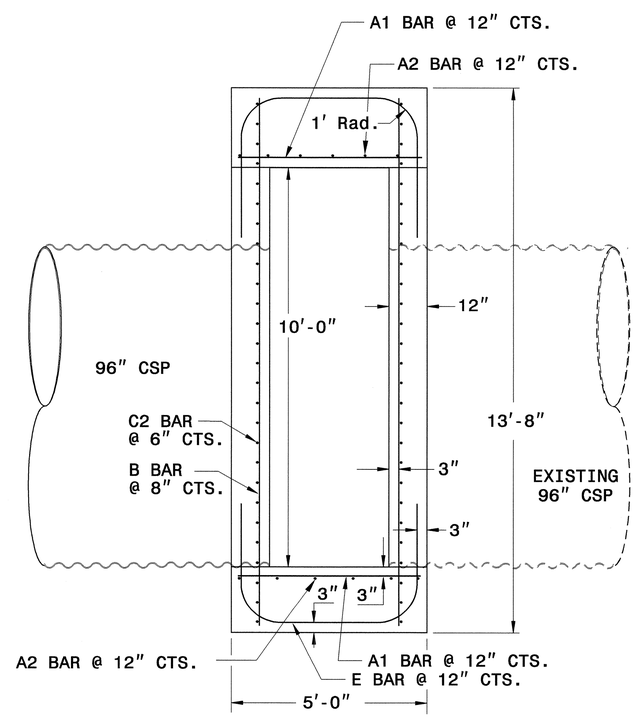
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	WEIGHT
A1	24	5	4'-6"	112.6
A2	10	5	11'-6"	119.9
B	58	5	13'-2"	796.5
C1	46	6	4'-6"	310.9
C2	42	6	11'-6"	725.5
E	68	5	5'-7"	396.0
G1	28	6	4'-7"	192.8
TOTAL STEEL (lbs.)				2,654.2
BILL OF MATERIAL - CLASS "B" CONCRETE				
CLASS "B" CONCRETE				19.2 CU.YDS.

NOTE: REBARS CROSSING PIPE OPENINGS OR PASSING WITHIN 2" OF A PIPE SHALL BE CUT, BENT, OR OTHERWISE RESHAPED SO AS TO CLEAR THE OPENING.



SECTION 'A-A'



SECTION 'B-B'

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOMEYER
2/11/09

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

DETAIL OF JUNCTION BOX UNDER 35' FILL

ORIGINAL BY: L.E.R.& T.L.Stephenson DATE: Aug. 1993
MODIFIED BY: K. Kempf DATE: Sep. 2008
CHECKED BY: [signature] DATE: 1/7/09
FILE SPEC.: details/kkempf/english/jb35'fill.dgn

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET
WBS 34334.1.1 (R-0505)	2-J

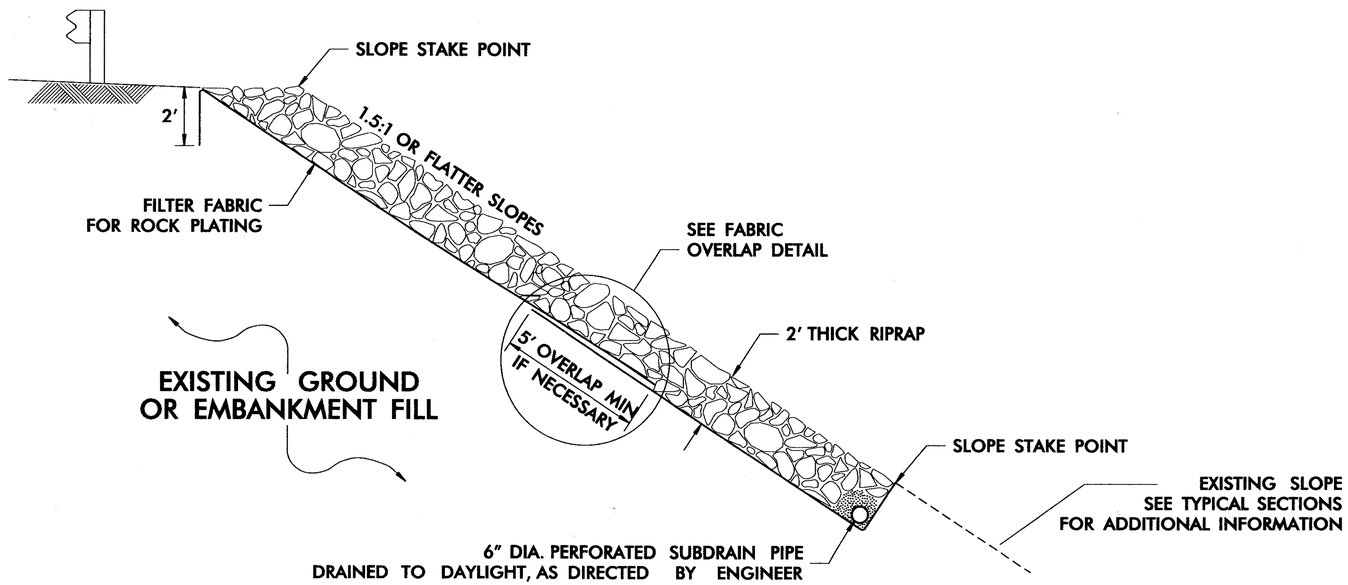
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 29869 ENGINEER SHANE C CLARK

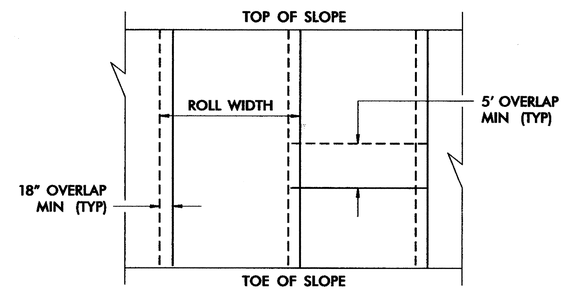
Shane Clark 2/5/9
SIGNATURE DATE

ENGINEER

SIGNATURE DATE



ROCK PLATING DETAIL



FABRIC OVERLAP DETAIL
(PLAN VIEW)

USE ROCK PLATING DETAIL
AT THE FOLLOWING LOCATIONS:

AT STA 741+25 -L- +/- AND 741+75 -L- +/- AND FROM STA 854+75 -L- +/- TO STA 860+75 -L- +/- EXTEND ROCK PLATING LIMITS TO TIE INTO EXISTING SLOPES.

FOR ROCK PLATING,
SEE ROCK PLATING SPECIAL PROVISION.

ESTIMATED QUANTITY	
ROCK PLATING	1750 SQ. YDS.

PREPARED BY: S. CLARK	DATE: 12/4/08
REVIEWED BY: S. CLARK	DATE: 2/5/09

GEOTECHNICAL ENGINEERING UNIT
☐ EASTERN REGIONAL OFFICE
☒ WESTERN REGIONAL OFFICE
☐ CONTRACT OFFICE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

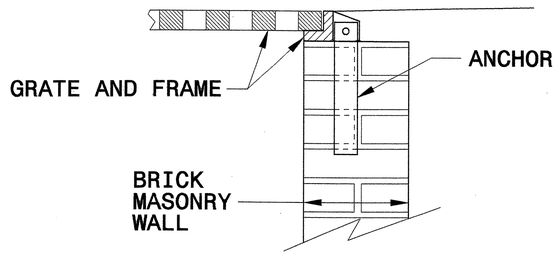
ROCK PLATING DETAILS

REVISIONS

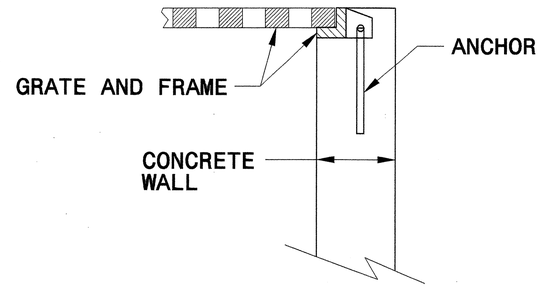
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PROJECT REFERENCE NO.	SHEET NO.
R-505	2-K

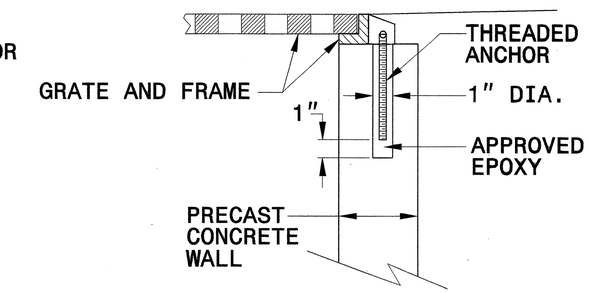
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.



BRICK MASONRY CONSTRUCTION



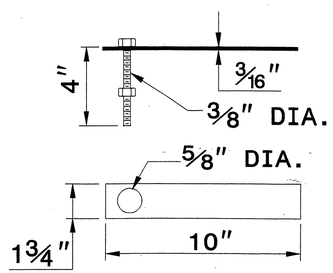
CONCRETE CONSTRUCTION



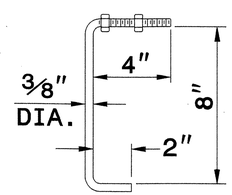
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

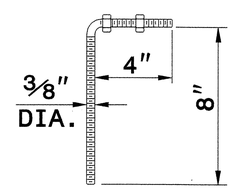
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



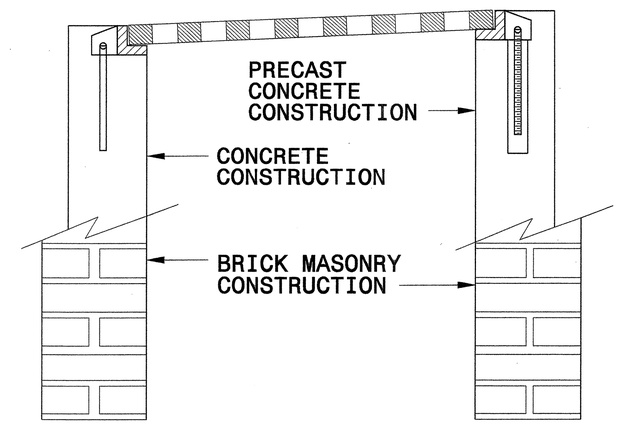
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOE G. HOWERTON 2/11/09

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

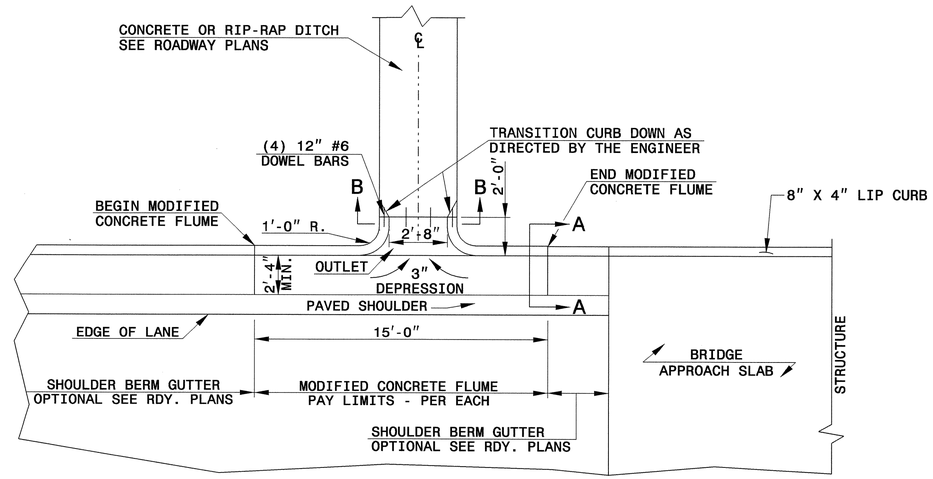
ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: DATE:
FILE SPEC.:

$$$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

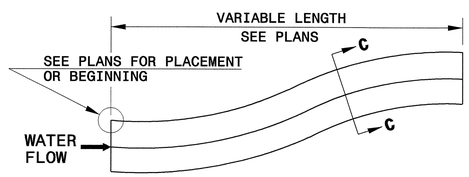
PROJECT REFERENCE NO.	SHEET NO.
R-505	2-L

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

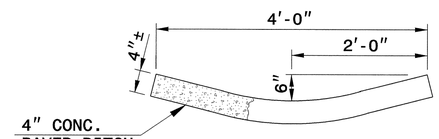
ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH



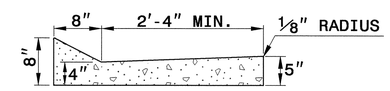
PLAN VIEW



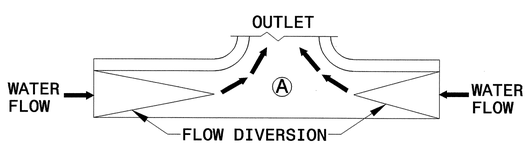
DOWNGRADE OR SAG



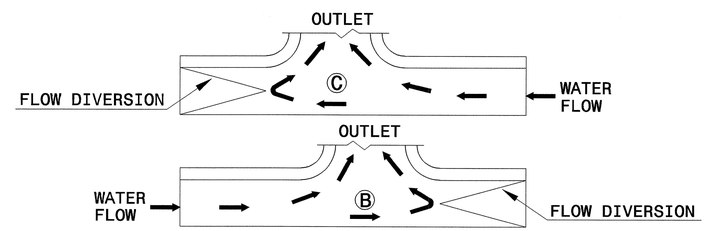
SECTION C-C



SECTION A-A

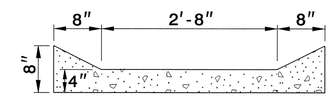


SAG

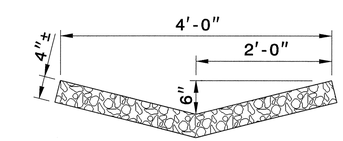


DOWN GRADE

FLOW DIVERSION EXAMPLES



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1
MODFLMDTCH

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOCKERSMITH
2/11/09

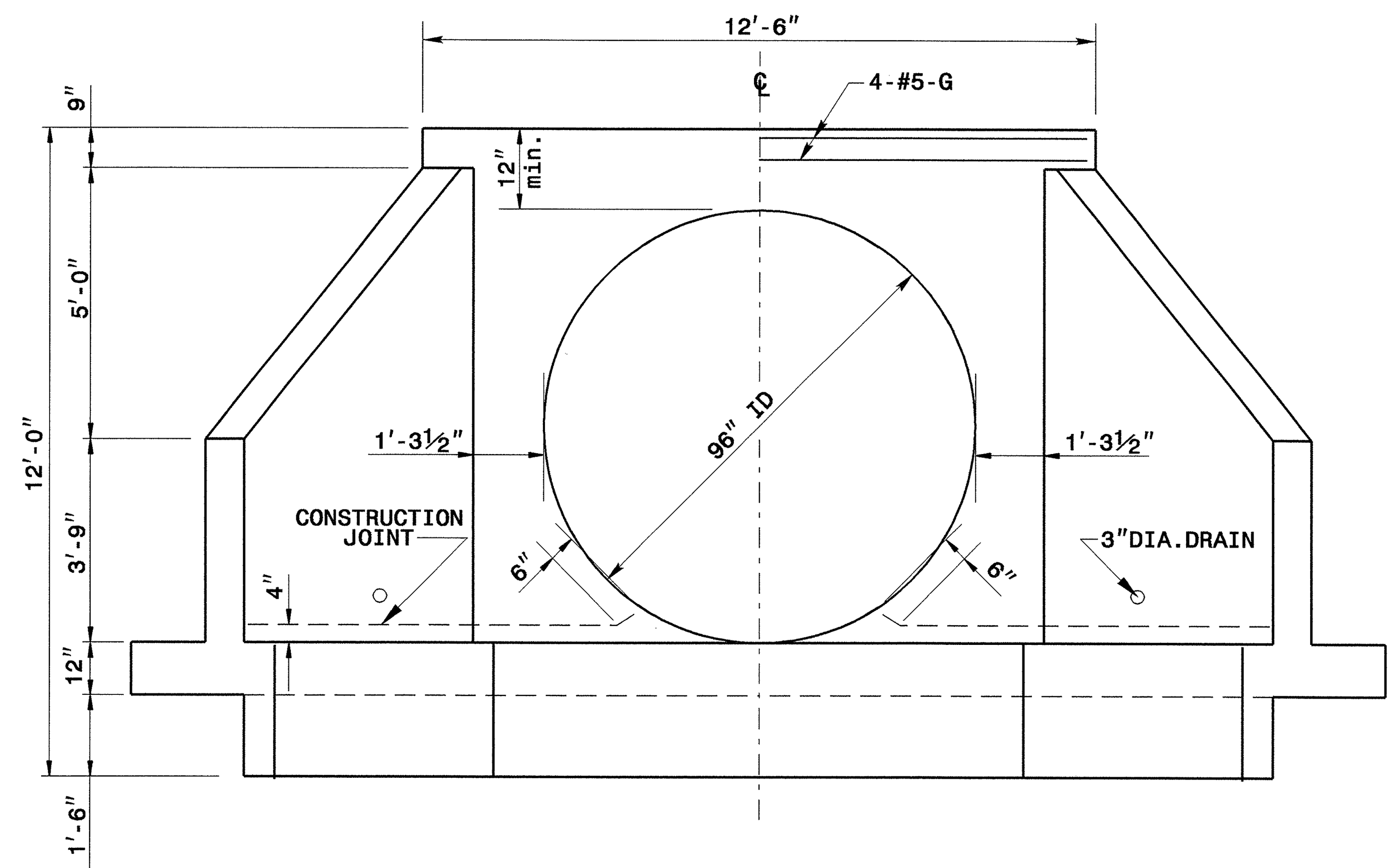
PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

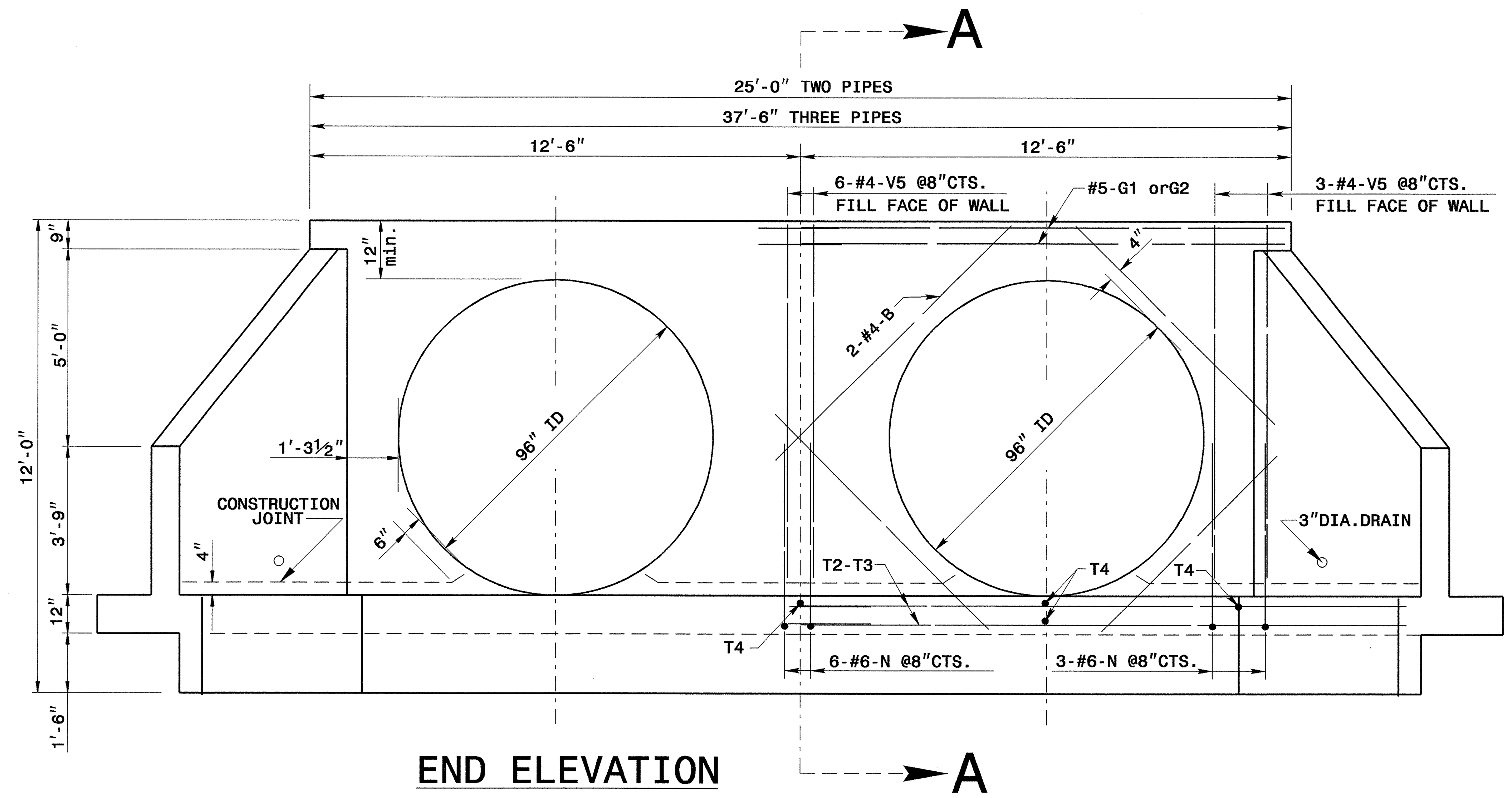
ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: E.E. Ward DATE: July 2004
CHECKED BY: Karl S. Hecht DATE: 2/4/09
FILE SPEC.: w:details\stand\modifiedflume.dgn

$$$$SYSTIME$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-505	2-M



END ELEVATION



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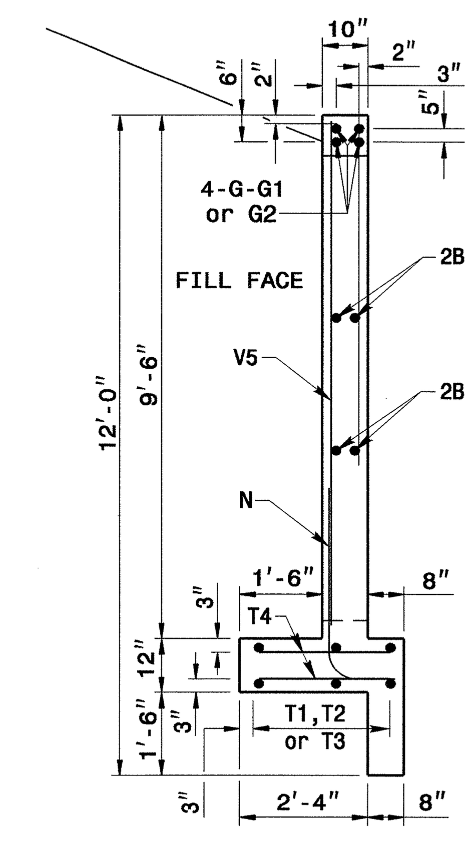
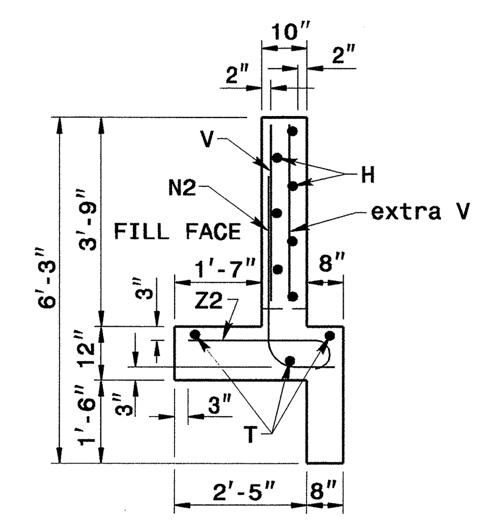
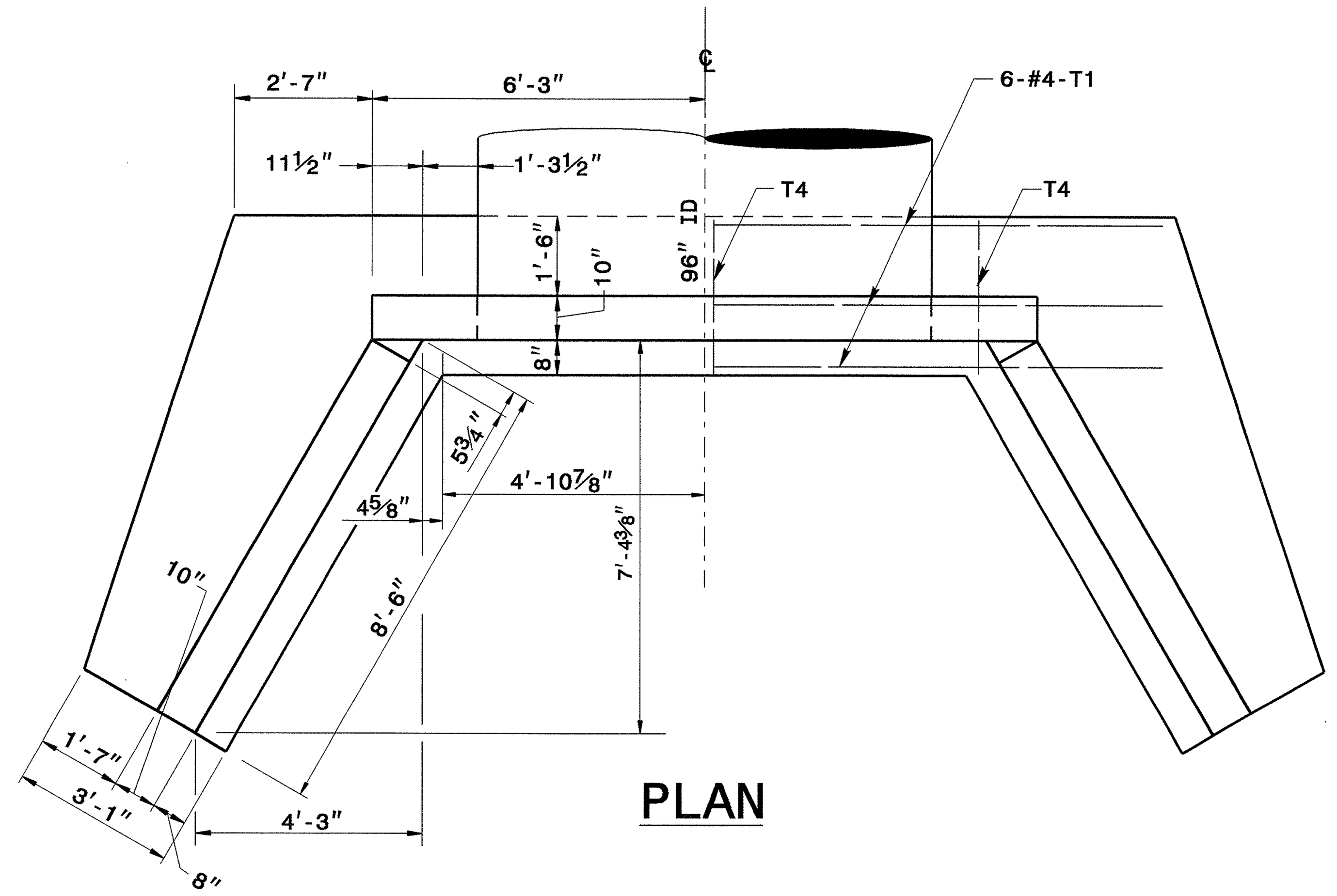


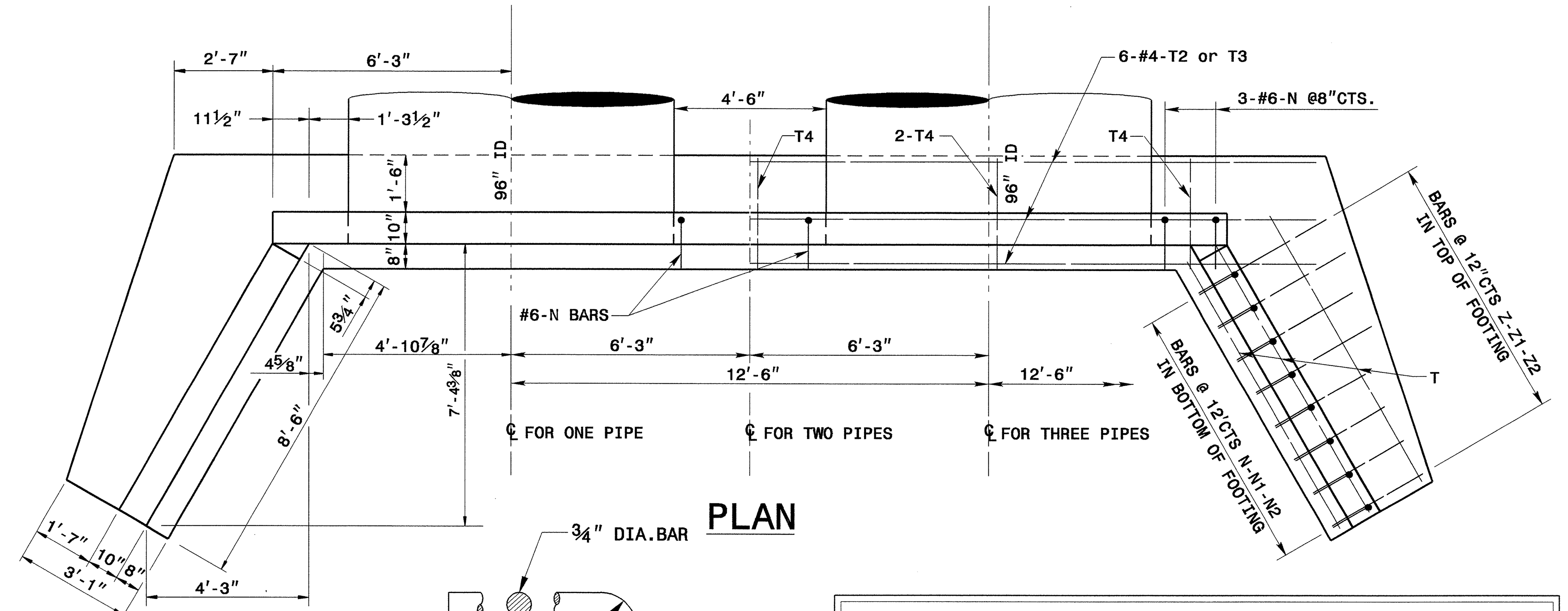
SECTION A-A



END OF WING

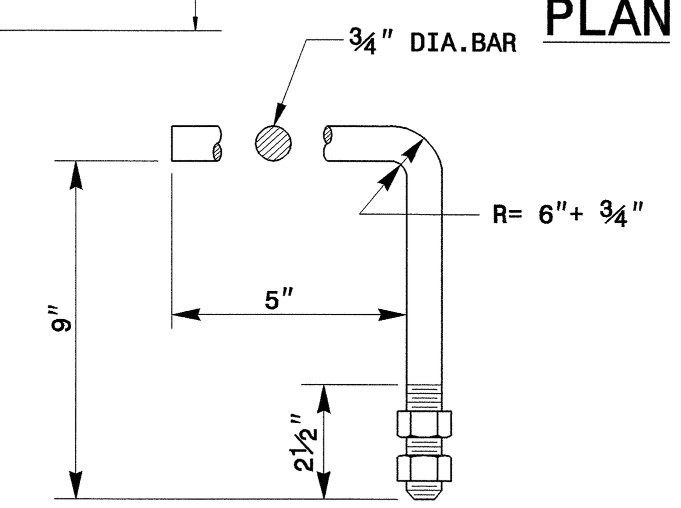


PLAN

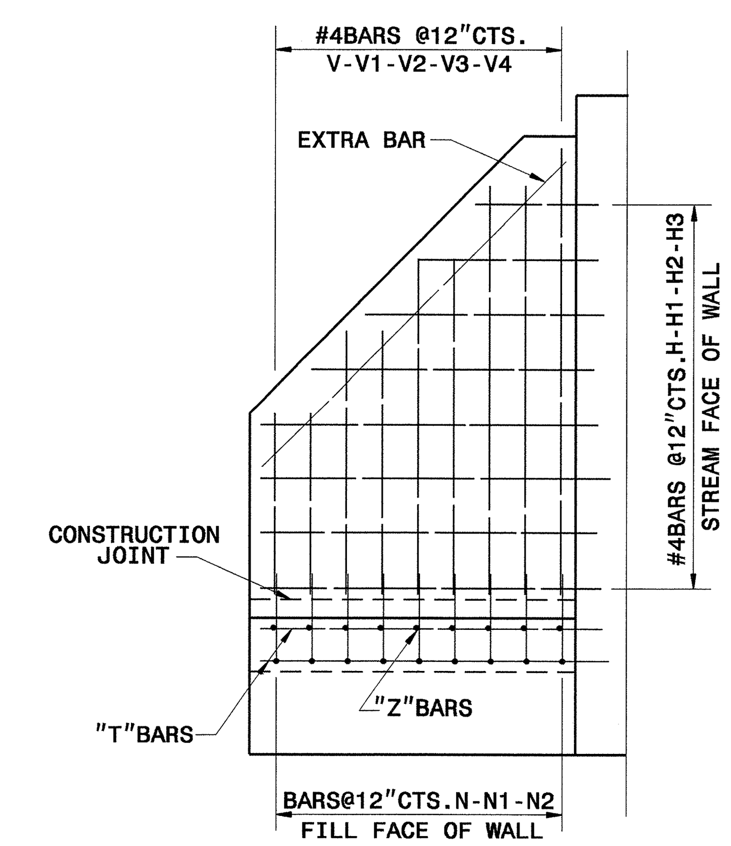


PLAN

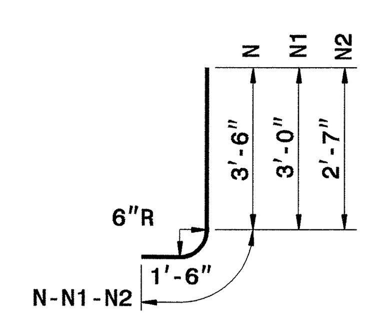
NOTE: CONSTRUCT HOOK BOLTS (ANCHORS) AT 600mm CTS. ALONG THE CIRCUMFERENCE OF THE 96" CSPA. EMBED THE HOOK BOLTS 6" IN DEPTH. THE GALVANIZED ¾" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



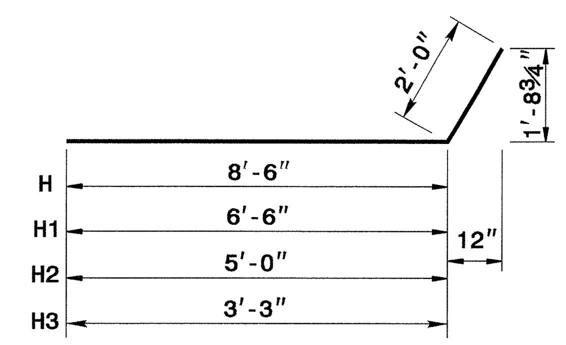
HOOK BOLT



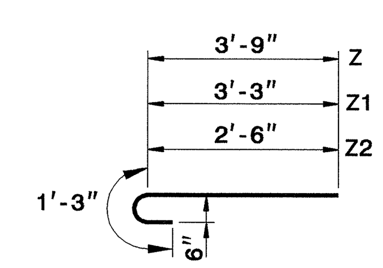
ELEVATION OF WING



BARS N-N1-N2



BARS H-H1-H2-H3



BARS Z-Z1-Z2

DESIGN DATA

Specifications	A.A.S.H.T.O. (1977)
Steel in tension	20,000 LBS.PER.SQ.INCH
Concrete in compression	12,000 LBS.PER.SQ.INCH
Shear Class "A" Concrete	40 LBS.PER.SQ.INCH
Equiv. fluid pressure of earth	30 LBS.PER.SQ.FOOT

NOTES:

ALL CONCRETE TO BE CLASS "A".

ALL REINFORCING STEEL SHALL BE ASTMA615-GRADE 60.

ALL REINFORCING STEEL SHALL BE DEFORMED BARS. WHERE SPLICING OF REINFORCMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.

THE FOOTING, CURTAIN WALL AND 4 IN. OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. THE REMAINING WALL SHALL THEN BE POURED IN ONE OPERATION.

ALL EXPOSED CORNERS ARE TO BE CHAMFERED 1 IN.

3 IN. DIAMETER DRAINS SHALL BE PLACED IN WALL AS SHOWN AND BE 6 IN. ABOVE NORMAL FLOW LINE.

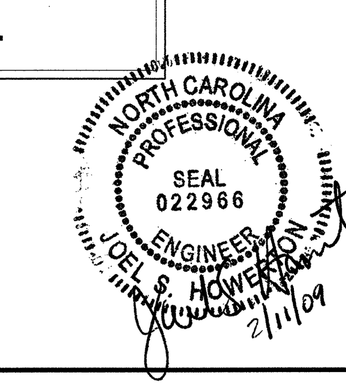
ALL MATERIAL AND WORKMANSHIP AS PER N.C.DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.

THE EXTRA BARS ARE PROVIDED FOR HOLDING REINFORCING STEEL IN CORRECT POSITION IN WING.

BILL OF MATERIALS FOR ONE ENDWALL

			1 PIPE		2 PIPES		3 PIPES	
BAR	SIZE	LENGTH	QTY	WEIGHT	QTY	WEIGHT	QTY	WEIGHT
B	4	6'-6"	8	35	16	69	24	104
G	5	12'-3"	4	51	--	--	--	--
G1	5	13'-6"	--	--	8	113	--	--
G2	5	19'-9"	--	--	--	--	8	165
H	4	10'-6"	12	84	12	84	12	84
H1	4	8'-6"	4	23	4	23	4	23
H2	4	7'-0"	2	9	2	9	2	9
H3	4	5'-3"	4	14	4	14	4	14
N	6	5'-0"	12	90	18	135	24	180
N1	5	4'-6"	4	19	4	19	4	19
N2	4	4'-1"	8	22	8	22	8	22
T	4	8'-6"	6	34	6	34	6	34
T1	4	17'-4"	6	69	--	--	--	--
T2	4	16'-0"	--	--	12	128	--	--
T3	4	22'-3"	--	--	--	--	12	178
T4	4	2'-9"	4	7	7	13	10	18
V	4	8'-0"	4	11	4	11	4	11
V1	4	7'-0"	4	19	4	19	4	19
V2	4	5'-6'	6	22	6	22	6	22
V3	4	4'-6"	4	12	4	12	4	12
V4	4	3'-3"	6	13	6	13	6	13
V5	4	9'-0"	6	36	12	72	18	108
Z	6	5'-0"	6	45	6	45	6	45
Z1	5	4'-6"	4	19	4	19	4	19
Z2	4	3'-9"	8	20	8	20	8	20
REINF. STEEL (lbs.)			654		896		1119	
CLASS "A" CONC (cu.yds.)			10.1		13.9		17.6	

* NO DEDUCTIONS HAVE BEEN MADE FOR PIPES



PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

REINFORCED CONCRETE ENDWALL FOR 96IN. DIAMETER PIPE - 90° SKEW

ORIGINAL BY:______ DATE:______
MODIFIED BY: rnbritt DATE: 12-07-06
CHECKED BY: [signature] DATE: 2/5/09
FILE SPEC.: details/nbritt/english/hydro/96INendwall90sk.dgn

$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202087

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	4	ACR	SUPPLEMENTARY CLEARING & GRUB- BING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ************ (780+25-NBL)
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ************ (780+25-SBL)
0036000000-E	225	15,000	CY	UNDERCUT EXCAVATION
0080000000-E	SP	1,000	TON	CLASS IV SUBGRADE STABILIZA- TION
0134000000-E	240	90	CY	DRAINAGE DITCH EXCAVATION
0141000000-E	240	850	LF	BERM DITCH CONSTRUCTION
0156000000-E	250	5,670	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0192000000-N	260	50	HR	PROOF ROLLING
0195000000-E	265	1,000	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	1,000	SY	FABRIC FOR SOIL STABILIZATION
0223000000-E	SP	1,750	SY	ROCK PLATING
0318000000-E	300	1,570	TON	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRS
0343000000-E	310	228	LF	15" SIDE DRAIN PIPE
0344000000-E	310	52	LF	18" SIDE DRAIN PIPE
0402000000-E	310	156	LF	48" RC PIPE CULVERTS, CLASS III
0408000000-E	310	120	LF	54" RC PIPE CULVERTS, CLASS III
0570000000-E	310	50	LF	6" CS PIPE CULVERTS, 0.064" THICK (SPRING BOX)
0684000000-E	310	156	LF	**" BIT COAT CS PIPE CULVERTS, TYPE B *****" THICK (96", 0.109")
0708000000-E	310	672	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0714000000-E	310	172	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0720000000-E	310	960	LF	24" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0726000000-E	310	152	LF	30" BIT COAT CS PIPE CULVERTS, TYPE B 0.079" THICK
0732000000-E	310	36	LF	36" BIT COAT CS PIPE CULVERTS, TYPE B 0.079" THICK
0744000000-E	310	112	LF	48" BIT COAT CS PIPE CULVERTS, TYPE B 0.109" THICK
0804000000-E	310	2	EA	**" BIT COAT CS PIPE ELBOWS, TYPE B *****" THICK (36", 0.079")
0806000000-E	310	18	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0807000000-E	310	2	EA	18" BIT COAT CS PIPE ELBOWS, T YPE B 0.064" THICK
0808000000-E	310	6	EA	24" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0809000000-E	310	2	EA	30" BIT COAT CS PIPE ELBOWS, T YPE B 0.079" THICK
0995000000-E	340	4,476	LF	PIPE REMOVAL
0996000000-N	350	1	EA	PIPE CLEAN-OUT
1011000000-N	500	Lump Sum		FINE GRADING
1044000000-E	501	17,700	SY	LIME TREATED SOIL (SLURRY METHOD)
1066000000-E	501	180	TON	LIME FOR LIME TREATED SOIL
1110000000-E	510	1,000	TON	STABILIZER AGGREGATE
1176000000-E	542	41,200	SY	SOIL CEMENT BASE
1187000000-E	542	1,140	TON	PORTLAND CEMENT FOR SOIL CE- MENT BASE
1209000000-E	543	8,820	GAL	ASPHALT CURING SEAL
1220000000-E	545	2,000	TON	INCIDENTAL STONE BASE
1297000000-E	607	40,400	SY	MILLING ASPHALT PAVEMENT, ***" DEPTH (3")
1489000000-E	610	1,300	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	890	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	4,980	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1523000000-E	610	26,940	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C
1525000000-E	610	5,250	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1565000000-E	620	1,620	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22
1693000000-E	654	320	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
1840000000-E	665	30,153	LF	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE)
2000000000-N	806	83	EA	RIGHT OF WAY MARKERS
2022000000-E	815	336	CY	SUBDRAIN EXCAVATION
2033000000-E	815	191	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	1,600	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)
2143000000-E	818	15	TON	BLOTTING SAND
2209000000-E	838	1.9	CY	ENDWALLS
2220000000-E	838	15.3	CY	REINFORCED ENDWALLS
2253000000-E	840	1.658	CY	PIPE COLLARS
2275000000-E	SP	9	CY	FLOWABLE FILL
2286000000-N	840	97	EA	MASONRY DRAINAGE STRUCTURES
2297000000-E	840	19.2	CY	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	13	LF	MASONRY DRAINAGE STRUCTURES
2354000000-N	840	4	EA	FRAME WITH GRATE, STD 840.22
2364000000-N	840	4	EA	FRAME WITH TWO GRATES, STD 840.16
2364200000-N	840	9	EA	FRAME WITH TWO GRATES, STD 840.20
2365000000-N	840	72	EA	FRAME WITH TWO GRATES, STD 840.22
2366000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.24
2396000000-N	840	3	EA	FRAME WITH COVER, STD 840.54
2556000000-E	846	1,924	LF	SHOULDER BERM GUTTER
2570000000-N	SP	2	EA	MODIFIED CONCRETE FLUME
2577000000-E	846	255	LF	CONCRETE EXPRESSWAY GUTTER
2619000000-E	850	100	SY	4" CONCRETE PAVED DITCH
2655000000-E	852	1,650	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2724000000-E	857	306	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED
3000000000-N	SP	2	EA	IMPACT ATTENUATOR UNIT, TYPE 350
3030000000-E	862	16,325	LF	STEEL BM GUARDRAIL
3045000000-E	862	650	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	19	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	52	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3285000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE M-350
3317000000-N	862	6	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3360000000-E	863	6,651	LF	REMOVE EXISTING GUARDRAIL
3420000000-E	SP	14,680	LF	GENERIC GUARDRAIL ITEM HIGH TENSION CABLE BARRIER (SOCKETED POST)
3435000000-N	SP	4	EA	GENERIC GUARDRAIL ITEM HIGH TENSION CABLE BARRIER ANCHOR
3503000000-E	866	32,820	LF	WOVEN WIRE FENCE, 47" FABRIC
3509000000-E	866	2,120	EA	4" TIMBER FENCE POSTS, 7'-6" LONG
3515000000-E	866	420	EA	5" TIMBER FENCE POSTS, 8'-0" LONG
3557000000-E	866	1,520	LF	ADDITIONAL BARBED WIRE
3566000000-E	867	300	LF	WOVEN WIRE FENCE RESET
3572000000-E	867	300	LF	CHAIN LINK FENCE RESET
3628000000-E	876	340	TON	RIP RAP, CLASS I
3649000000-E	876	520	TON	RIP RAP, CLASS B
3656000000-E	876	5,205	SY	FILTER FABRIC FOR DRAINAGE
4048000000-E	902	86	CY	REINFORCED CONCRETE SIGN FOUN- DATIONS
4060000000-E	903	8,823	LB	SUPPORTS, BREAKAWAY STEEL BEAM
4066000000-E	903	10,633	LB	SUPPORTS, SIMPLE STEEL BEAM
4072000000-E	903	1,958	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	3	EA	SIGN ERECTION, TYPE D
4102000000-N	904	65	EA	SIGN ERECTION, TYPE E
4108000000-N	904	17	EA	SIGN ERECTION, TYPE F
4110000000-N	904	9	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4110000000-N	904	5	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B)
4114000000-N	904	4	EA	SIGN ERECTION, MILEMARKERS
4152000000-N	907	7	EA	DISPOSAL OF SIGN SYSTEM, STEEL BEAM
4155000000-N	907	110	EA	DISPOSAL OF SIGN SYSTEM, U- CHANNEL
4238000000-N	907	2	EA	DISPOSAL OF SIGN, D, E OR F
4238500000-N	907	3	EA	DISPOSAL OF SIGN, MILEMARKER
4400000000-E	1110	750	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	672	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	210	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	10	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	390	EA	DRUMS
4445000000-E	1145	584	LF	BARRICADES (TYPE III)
4455000000-N	1150	3,000	MD	FLAGGER
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4480000000-N	1165	2	EA	TMIA
4485000000-E	1170	800	LF	PORTABLE CONCRETE BARRIER
4600000000-N	SP	2	EA	GENERIC TRAFFIC CONTROL ITEM AFAD SYSTEM (LONG TERM)
4605000000-N	SP	2,500	HR	GENERIC TRAFFIC CONTROL ITEM LAW ENFORCEMENT
4650000000-N	1251	4,500	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	106,300	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	31,532	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	2,700	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
4710000000-E	1205	450	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4725000000-E	1205	30	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4770000000-E	1205	2,003	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)
4770000000-E	1205	4,005	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)
4810000000-E	1205	287,030	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	130	LF	PAINT PAVEMENT MARKING LINES (8")
4845000000-N	1205	24	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	2,421	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4900000000-N	1251	10	EA	PERMANENT RAISED PAVEMENT MARKERS
4905000000-N	1253	550	EA	SNOWPLOWABLE PAVEMENT MARKERS

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STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
R-505	3 (2 of 2)

ItemNumber	Sec #	Quantity	Unit	Description
4935000000-N	1267	50	EA	FLEXIBLE DELINEATORS (CRYSTAL)
4940000000-N	1267	20	EA	FLEXIBLE DELINEATORS (YELLOW)
4945000000-N	1267	10	EA	FLEXIBLE DELINEATORS (CRYSTAL & RED)
4950000000-N	1267	10	EA	FLEXIBLE DELINEATORS (YELLOW & RED)
5325600000-E	1510	467	LF	6" WATER LINE
5326200000-E	1510	1,048	LF	12" WATER LINE
5540000000-E	1515	1	EA	6" VALVE
5558000000-E	1515	1	EA	12" VALVE
5572200000-E	1515	1	EA	12" TAPPING VALVE
5648000000-N	1515	2	EA	RELOCATE WATER METER
5666000000-M	1515	1	EA	FIRE HYDRANT
5882000000-N	SP	1	EA	GENERIC UTILITY ITEM ADJUST WATER VALVE BOX
6000000000-E	1605	55,500	LF	TEMPORARY SILT FENCE
6006000000-E	1610	2,350	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	5,575	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	3,550	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	90	ACR	TEMPORARY MULCHING
6018000000-E	1620	2,400	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	10.75	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	6,500	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	46	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	6,100	LF	SAFETY FENCE
6030000000-E	1630	20,400	CY	SILT EXCAVATION
6036000000-E	1631	72,000	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	110	SY	COIR FIBER MAT
6038000000-E	SP	8,025	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	2,100	LF	1/4" HARDWARE CLOTH
6045000000-E	SP	60	LF	**" TEMPORARY PIPE (24")
6070000000-N	SP	2	EA	SPECIAL STILLING BASINS
6071010000-E	SP	2,850	LF	WATTLE
6071020000-E	SP	1,200	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	3,550	LF	COIR FIBER BAFFLES
6071050000-E	SP	18	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	115	ACR	SEEDING & MULCHING
6087000000-E	1660	58.5	ACR	MOWING
6090000000-E	1661	700	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	2	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	1,425	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	42.25	TON	FERTILIZER TOPDRESSING
6111000000-E	SP	50	LF	IMPERVIOUS DIKE
6114000000-N	SP	300	HR	SPECIALIZED HAND MOWING
6117000000-N	SP	36	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.5	ACR	REFORESTATION
6135000000-E	SP	10	ACR	GENERIC EROSION CONTROL ITEM SOIL AMENDMENT
******* BEGIN SCHEDULE AA ******* ******* (3 ALTERNATES) *******				
0366000000-E AA1	310	4,420	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA1	310	2,756	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA1	310	3,928	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E AA1	310	812	LF	30" RC PIPE CULVERTS, CLASS III
0390000000-E AA1	310	300	LF	36" RC PIPE CULVERTS, CLASS III
*** OR ***				
0366000000-E AA2	310	2,328	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA2	310	896	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA2	310	476	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E AA2	310	228	LF	30" RC PIPE CULVERTS, CLASS III
0390000000-E AA2	310	268	LF	36" RC PIPE CULVERTS, CLASS III
0536000000-E AA2	SP	2,092	LF	***" HDPE PIPE CULVERTS (15")
0536000000-E AA2	SP	1,860	LF	***" HDPE PIPE CULVERTS (18")
0536000000-E AA2	SP	3,452	LF	***" HDPE PIPE CULVERTS (24")
0536000000-E AA2	SP	584	LF	***" HDPE PIPE CULVERTS (30")
0536000000-E AA2	SP	32	LF	***" HDPE PIPE CULVERTS (36")
*** OR ***				
0366000000-E AA3	310	2,328	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E AA3	310	896	LF	18" RC PIPE CULVERTS, CLASS III
0378000000-E AA3	310	476	LF	24" RC PIPE CULVERTS, CLASS III
0384000000-E AA3	310	228	LF	30" RC PIPE CULVERTS, CLASS III
0390000000-E AA3	310	268	LF	36" RC PIPE CULVERTS, CLASS III
0540000000-E AA3	SP	2,092	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (15", 0.064")
0540000000-E AA3	SP	1,860	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (18", 0.064")
0540000000-E AA3	SP	3,452	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (24", 0.064")
0540000000-E AA3	SP	584	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (30", 0.079")
0540000000-E AA3	SP	32	LF	***" ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ****" THICK (36", 0.079")
******* END SCHEDULE AA *******				
******* BEGIN SCHEDULE AB ******* ******* (2 ALTERNATES) *******				
0022000000-E AB1	225	496,800	CY	UNCLASSIFIED EXCAVATION
1121000000-E AB1	520	49,800	TON	AGGREGATE BASE COURSE
1231000000-E AB1	560	9,400	CY	SHOULDER BORROW
1275000000-E AB1	600	13,345	GAL	PRIME COAT
1491000000-E AB1	610	21,340	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1503000000-E AB1	610	18,040	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1560000000-E AB1	620	2,505	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
*** OR ***				
0022000000-E AB2	225	490,000	CY	UNCLASSIFIED EXCAVATION
1121000000-E AB2	520	17,600	TON	AGGREGATE BASE COURSE
1231000000-E AB2	560	8,160	CY	SHOULDER BORROW
1275000000-E AB2	600	10,690	GAL	PRIME COAT
1491000000-E AB2	610	30,570	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C
1503000000-E AB2	610	22,690	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C
1560000000-E AB2	620	3,120	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
******* END SCHEDULE AB *******				

COMPUTED BY: S. HAYNES DATE: 8/19/2008

CHECKED BY: D. GOURLEY DATE: 8/19/2008

PROJECT NO.	SHEET NO.
R-505	3A

W-CHLCIV08

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
-L- 716+71.35	LT	1		2185.7											
-L- 716+71.35	LT	1	2		2183.0	2181.9			72						
-L- 717+05.07	CL	2		2184.6											
-L- 717+05.07	CL	2	5		2181.9	2175.3			328						
-L- 720+29.97	CL	5		2178.1											
-L- 720+29.97	CL	5	5A		2175.3	2169.8			104						
-L- 721+01.19	RT	7		2176.7											
-L- 721+01.19	RT	7	5A		2173.9	2169.8									
-L- 716+17.80	LT	3													
-L- 717+03.22	RT	4													
-L- 720+03.17	LT	6													
-L- 727+50.00	RT	11		2165.7											
-L- 727+50.00	RT	11	10		2163.0	2161.4			52						
-L- 727+49.87	CL	10		2164.1											
-L- 727+49.87	CL	10	8		2161.4	2160.8			200						
-L- 725+50.00	RT	9		2169.7											
-L- 725+50.00	RT	9	8		2167.0	2165.2			52						
-L- 725+50.35	CL	8		2167.9											
-L- 725+50.35	CL	8	8A		2160.8	2158.0			76						
-L- 727+03.54	RT	12													
-L- 733+50.00	RT	15		2153.7											
-L- 733+50.00	RT	15	14		2151.0	2150.6			116						
-L- 732+34.86	RT	14		2156.0											
-L- 732+34.86	RT	14	13		2150.6	2150.5			52						
-L- 732+34.86	CL	13		2154.4											
-L- 732+34.86	CL	13	13A		2150.5	2134.0									
-L- 739+57.48	CL	20													
-L- 751+00.00	CL	34		2117.1											
-L- 751+00.00	CL	34	35		2114.3	2114.2			52						
-L- 751+00.00	LT	35		2119.0											
-L- 751+00.00	LT	35	35A		2114.2	2109.0									
SHEET TOTALS									1104						

STATION	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
-L- 716+71.35																
-L- 716+71.35																
-L- 717+05.07																
-L- 717+05.07																
-L- 720+29.97																
-L- 720+29.97																
-L- 721+01.19																
-L- 721+01.19										52						
-L- 716+17.80																
-L- 717+03.22																
-L- 720+03.17																
-L- 727+50.00																
-L- 727+50.00																
-L- 727+49.87																
-L- 727+49.87																
-L- 725+50.00																
-L- 725+50.00																
-L- 725+50.35																
-L- 725+50.35																
-L- 727+03.54																
-L- 733+50.00																
-L- 733+50.00																
-L- 732+34.86																
-L- 732+34.86																
-L- 732+34.86																
-L- 732+34.86		96														
-L- 739+57.48																
-L- 751+00.00																
-L- 751+00.00																
-L- 751+00.00																
-L- 751+00.00		28														
SHEET TOTALS		124								52						

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.24
-L- 716+71.35						1										1		1	
-L- 716+71.35																			
-L- 717+05.07						1										1		1	
-L- 717+05.07																			
-L- 720+29.97						1										1		1	
-L- 720+29.97																			
-L- 721+01.19						1										1		1	
-L- 721+01.19																			
-L- 716+17.80																			
-L- 717+03.22																			
-L- 720+03.17																			
-L- 727+50.00						1										1	1		
-L- 727+50.00																			
-L- 727+49.87						1										1		1	
-L- 727+49.87																			
-L- 725+50.00						1										1	1		
-L- 725+50.00																			
-L- 725+50.35						1	2.1									1		1	
-L- 725+50.35																			
-L- 727+03.54																			
-L- 733+50.00						1										1	1		
-L- 733+50.00																			
-L- 732+34.86						1	0.4									1	1		
-L- 732+34.86																			
-L- 732+34.86						1										1		1	
-L- 732+34.86																			
-L- 739+57.48																			
-L- 751+00.00						1										1		1	
-L- 751+00.00																			
-L- 751+00.00						1										1	1		
-L- 751+00.00																			
SHEET TOTALS						13	2.5									13	5	8	

STATION	J.B. STD. 840.31 OR 840.32	G.D.I FRAME WITH ONE GRATE STD. 840.22	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	SPRING BOX STD. 840.41	MODIFIED CONCRETE FLUME	BERM DRAINAGE OUTLET STD. 850.11	CORR. STEEL ELBOWS NO. & SIZE 15"	18"	24"	30"	36"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-L- 716+71.35																	
-L- 716+71.35																68	Remove 18" CMP
-L- 717+05.07																	
-L- 717+05.07																92	Remove 18" CMP
-L- 720+29.97																	
-L- 720+29.97																104	Remove 15" CMP
-L- 721+01.19																	
-L- 721+01.19																	
-L- 716+17.80																	Remove 45SY Conc
-L- 717+03.22																68	Remove 18" CMP
-L- 720+03.17																	Remove 16SY Conc
-L- 727+50.00																	
-L- 727+50.00																	
-L- 727+49.87																	
-L- 727+49.87																	Remove 71SY Conc
-L- 725+50.00																	
-L- 725+50.00																	
-L- 725+50.35																	
-L- 725+50.35																	
-L- 727+03.54																72	Remove 18" CMP
-L- 733+50.00																	
-L- 733+50.00																	
-L- 732+34.86																	
-L- 732+34.86																	
-L- 732+34.86																	
-L- 732+34.86																	SEE SECTION 300-6 FOR ROD & LUG
-L- 739+57.48																44	Remove 18" Conc
-L- 751+00.00																	
-L- 751+00.00																	
-L- 751+00.00																	
-L- 751+00.00									2								SEE SECTION 300-6 FOR ROD & LUG
SHEET TOTALS									2							448	

ABBREVIATIONS

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

W-CHL-CIV01

COMPUTED BY: S. HAYNES DATE: 8/19/2008

CHECKED BY: D. GOURLEY DATE: 8/19/2008

PROJECT NO.	SHEET NO.
R-505	3B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I FRAME WITH ONE GRATE STD. 840.22	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	SPRING BOX STD. 840.41	MODIFIED CONCRETE FLUME	BERM DRAINAGE OUTLET STD. 850.11	CORR. STEEL ELBOWS NO. & SIZE 15"	18"	24"	30"	36"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-L- 739+54.37	LT	18	17		2136.8	2134.9				92																																																													92	Remove 18" RCP
-L- 740+02.54	RT	19		2138.1																																						1											1		1																	
-L- 740+02.54	RT	19	17		2135.3	2135.1	0.38		72																																																													
-L- 740+02.89	CL	17		2139.1																																						1										1			1																	
-L- 740+02.89	CL	17	21		2134.4	2126.4																												400																																								400	Remove 18" CMP, Remove 27SY Conc.
-L- 743+80.84	RT	22	21		2131.8	2126.9				76																																																										68	Remove 18" CMP
-L- 744+00.00	CL	21		2131.1																																						1										1			1																	Remove DI
-L- 744+00.00	CL	21	23		2126.4	2118.3																												404																																								328	Remove 18" CMP, Remove 27SY Conc.
-L- 747+81.9	LT	25		2123.7																																						1											1		1																	
-L- 747+81.9	LT	25	23		2121.0	2119.1			68																																																											68	Remove 15" CMP
-L- 748+03.07	CL	23		2123.1																																						1										1			1																104	Remove DI, Remove 18" CMP
-L- 748+03.07	CL	23	24		2118.3	2106.2					100																																																								
-L- 746+98.09	RT	28		2124.9																																						1											1		1																	
-L- 746+98.09	RT	28	27		2122.1	2115.0											28																																									2								
-L- 746+80.81	RT	29	27		2119.0	2114.7				56																																																									
-L- 746+98.10	RT	27		2117.7																																						1											1		1																	
-L- 746+98.10	RT	27	24		2114.7	2106.7																											108																																										
-L- 748+02.62	RT	24		2111.0																																						1										1			1																	
-L- 748+02.62	RT	24	30		2106.3	2094.9																												276																																									
-L- 754+03.00	RT	33	32		2101.6	2097.5				84																																																								
-L- 753+42.17	RT	32		2100.5																																						1											1		1																	
-L- 753+42.17	RT	32	31		2097.5	2096.2																											144																																										
-L- 752+00.14	RT	31		2099.2																																						1											1		1																	
-L- 752+00.14	RT	31	30		2096.2	2095.4																											128																																										
-L- 750+75.22	RT	30		2099.6																																						1										1			1																	
-L- 750+75.22	RT	30	30A		2094.9	2030.0													192																																											2						SEE SECTION 300-6 FOR ROD & LUG
-L- 750+85.04	RT	36	36A		2028.2	2020.2																					112																																																	
-L- 763+00.00	CL	42		2104.5																																						1											1		1																	
-L- 763+00.00	CL	42	41		2101.7	2100.0																										264																																											
-L- 760+38.00	CL	41		2102.7																																						1											1		1																	
-L- 760+38.00	CL	41	40		2099.7	2099.3																											140																																										
-L- 759+00.00	CL	40		2103.2																																						1											1		1																	
-L- 759+00.00	CL	40	38		2099.3	2095.1				88																																																								
-L- 758+00.87	RT	37		2104.3																																						1											1		1																	
-L- 758+00.87	RT	37	38		2101.5	2095.4																										104																																										
-L- 761+25.00	RT	39		2098.8																																						1											1		1																	
-L- 761+25.00	RT	39	38		2096.1	2095.4																										228																																										
-L- 759+00.35	RT	38		2099.3																																						1										1			1																	
-L- 759+00.35	RT	38	38A		2094.6	2069.0													128																																																		SEE SECTION 300-6 FOR ROD & LUG
-L- 758+49.25	LT	43																																																																			20	Remove 18" CMP
-L- 760+38.02	LT	44		2104.5																																						1											1	1																		
-L- 760+38.03	LT	44	44A		2101.8	2089.0											44																																									2							SEE SECTION 300-6 FOR ROD & LUG
SHEET TOTALS									140	396	100						72		320								112			596	520	1080										18									6	12	1	17									4		2					1080	

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
D.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

W-CHLCIV08

COMPUTED BY: S. HAYNES DATE: 8/19/2008

CHECKED BY: D. GOURLEY DATE: 8/19/2008

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-505	3C

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

STATION (SIZE / THICKNESS OR GAUGE)	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"
-L- 762+50.00	LT	45		2103.2																								
-L- 762+50.00	LT	45	45A		2099.0	2098.8																						
-L- 759+98.84	RT	46																										
-L- 759+98.84	RT	46	46A		2067.7	2060.7									156													
-L- 766+97.92	RT	26																										
-L- 770+06.80	LT	47																										
-L- 770+06.80	LT	47	48		2136.3	2107.9																	36					
-L- 770+05.71	LT	48		2112.4																								
-L- 770+05.71	LT	48	49		2107.9	2106.0							76															
-L- 770+03.26	CL	49		2110.5																								
-L- 770+03.26	CL	49	50		2106.0	2096.0							92															
-L- 770+00.05	RT	50		2101.8																								
-L- 770+00.05	RT	50	50A		2096.0	2086.5							100															
-L- 769+00.00	RT	51		2102.4																								
-L- 769+00.00	RT	51	50A		2099.6	2088.0											80											
-L- 772+96.71	CL	52		2112.9																								
-L- 772+96.71	CL	52	53		2110.1	2105.9			80																			
-L- 772+69.25	RT	53		2108.6																								
-L- 772+69.25	RT	53	54		2105.9	2099.5																						
-L- 772+38.39	RT	54		2102.2																								
-L- 772+38.39	RT	54	55		2099.5	2097.9			60																			
-L- 772+00.96	RT	55		2100.6																								
-L- 772+00.96	RT	55	55A		2097.6	2095.7																						
-L- 770+45.37	RT	55A		2100.9																								
-ACC12- 35+44.83	LT	57		2099.9																								
-ACC12- 35+44.83	LT	57	57A		2097.1	2088.0											52											
-L- 777+83.93	RT	58		2122.5																								
-L- 777+83.93	RT	58			2119.8	2110.5											40											
-L- 778+69.26	LT	59		2124.2																								
-L- 778+69.26	LT	59			2121.5	2110.0											40											
-ACC3- 772+43.80	RT	60																										
-ACC3- 773+48.61	RT	61																										
-ACC3- 776+97.61	RT	62			2105.5	2102.5				64																		
SHEET TOTALS									140	64			268		156		212						36					

STATION	FROM	TO	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
-L- 762+50.00	45															1						
-L- 762+50.00	45	45A			52																	
-L- 759+98.84	46															1						
-L- 770+05.71	48															1						
-L- 770+03.26	49															1						
-L- 770+00.05	50															1	0.8					
-L- 769+00.00	51															1						
-L- 772+96.71	52															1						
-L- 772+69.25	53															1						
-L- 772+69.25	53	54		80																		
-L- 772+38.39	54															1						
-L- 772+00.96	55															1						
-L- 772+00.96	55	55A			140																	
-L- 770+45.37	55A															1	0.2					
-ACC12- 35+44.83	57															1						
-L- 777+83.93	58															1						
-L- 778+69.26	59															1						
-ACC3- 772+43.80	60										24											
-ACC3- 773+48.61	61										72											
SHEET TOTALS				80	192						96					14	1.0					

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I FRAME WITH ONE GRATE STD. 840.22	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	SPRING BOX STD. 840.41	MODIFIED CONCRETE FLUME	BERM DRAINAGE OUTLET STD. 850.11	CORR. STEEL ELBOWS NO. & SIZE 15"	18"	24"	30"	36"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-L- 762+50.00	45					1		1			1															
-L- 762+50.00	45	45A																								Remove 45' Conc Flume
-L- 759+98.84	46									1																
-L- 759+98.84	46	46A																							12	Remove 48" CMP
-L- 766+97.92	26																								312	Remove 18" CMP
-L- 770+06.80	47																1									
-L- 770+06.80	47	48																				2				
-L- 770+05.71	48					1		1																		
-L- 770+05.71	48	49																							76	Remove 36" CMP
-L- 770+03.26	49					1		1																		
-L- 770+03.26	49	50																							92	Remove 36" CMP
-L- 770+00.05	50					1		1			1															
-L- 770+00.05	50	50A																							100	Remove 36" CMP
-L- 769+00.00	51					1		1																		
-L- 772+96.71	52					1		1																		
-L- 772+96.71	52	53																							80	Remove 15" CMP
-L- 772+69.25	53					1		1																		
-L- 772+69.25	53	54																							80	Remove 15" CMP
-L- 772+38.39	54					1		1																		
-L- 772+38.39	54	55																							60	Remove 18" CMP
-L- 772+00.96	55					1		1																		
-L- 772+00.96	55	55A																							140	Remove 18" CMP
-L- 770+45.37	55A					1		1																		
-ACC12- 35+44.83	57					1		1																		
-ACC12- 35+44.83	57	57A																								SEE SECTION 300-6 FOR ROD & LUG
-L- 777+83.93	58					1	1																			
-L- 777+83.93	58																	2								SEE SECTION 300-6 FOR ROD & LUG
-L- 778+69.26	59					1	1																			
-L- 778+69.26	59																	2								SEE SECTION 300-6 FOR ROD & LUG
-ACC3- 772+43.80	60																								24	Remove 15" CMP
-ACC3- 773+48.61	61																								28	Remove 15" CMP
SHEET TOTALS						13	2	11		1	2						1	4				2			1004	

ABBREVIATIONS

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

W-CHLCIV08

COMPUTED BY: S. HAYNES DATE: 8/19/2008

CHECKED BY: D. GOURLEY DATE: 8/19/2008

PROJECT NO.	SHEET NO.
R-505	3D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
-ACC3- 784+40.44	RT	69	67		2147.9	2117.3													48				
-ACC3- 788+00.00	RT	68		2155.1																			
-ACC3- 788+00.00	RT	68	67		2152.3	2118.0																	
-ACC3- 784+40.26	RT	67		2120.8																			
-ACC3- 784+40.26	RT	67	66		2117.3	2115.7					60												
-ACC3- 784+40.00	LT	66		2120.5																			
-ACC3- 784+40.00	LT	66	64		2115.7	2089.6																	
-ACC3- 781+00.13	RT	65	64		2095.6	2090.1				56													
-ACC3- 780+76.00	LT	64		2094.4																			
-ACC3- 780+76.00	LT	64	63		2089.6	2088.5																	
-ACC3- 779+90.03	LT	63		2093.2																			
-ACC3- 779+90.03	LT	63	63A		2088.5	2086.5					76												
-Y4 REV- 11+50.00	LT	70			2086.4	2082.2				56													
-Y4 REV- 12+94.55	RT	70A		2087.3																			
-Y4 REV- 12+94.55	RT	70A	70B		2085.0	2077.9											12						
-Y4 REV- 12+94.55	RT	70B		2080.7																			
-Y4 REV- 12+94.55	RT	70B	71B		2077.9	2073.4			120														
-Y4 REV- 14+00.00	RT	71		2079.5																			
-Y4 REV- 14+00.00	RT	71	71B		2077.3	2073.4											12						
-Y4 REV- 14+00.00	RT	71B		2076.1																			
-Y4 REV- 14+00.00	RT	71B	71A		2073.1	2072.7				40													
-L- 786+00.00	CL	72A		2139.1																			
-L- 786+00.00	CL	72A	72		2136.3	2124.8																	
-L- 781+58.27		72																					
-L- 785+83.38	RT	73		2139.1																			
-L- 787+50.00	LT	74		2144.9																			
-L- 787+50.00	LT	74	74A		2142.2	2122.0											64						
-L- 803+50.00	RT	85		2202.7																			
-L- 803+50.00	RT	85	84		2199.7	2199.5				72													
-L- 803+50.00	CL	84		2205.5																			
-L- 803+50.00	CL	84	80		2199.5	2187.8																	
-L- 799+25.52	RT	83		2200.8																			
-L- 799+25.52	RT	83	81		2198.0	2188.5			72														
-L- 79925.27	RT	81		2191.3																			
-L- 799+25.27	RT	81	80		2187.8	2187.3					76												
-L- 799+42.25	LT	82		2193.1																			
-L- 799+42.25	LT	82	80		2190.4	2188.1			80														
-L- 799+25.00	CL	80		2192.1																			
-L- 799+25.00	CL	80	77		2187.3	2170.3																	
-L- 795+00.00	RT	79		2186.6																			
-L- 795+00.00	RT	79	78		2183.8	2173.2			72														
-L- 795+00.00	RT	78		2176.0																			
-L- 795+00.00	RT	78	77		2173.2	2171.0			72														
-L- 795+00.00	CL	77		2175.0																			
-L- 795+00.00	CL	77	75		2169.8	2155.8																	
-L- 791+49.28	RT	76		2164.8																			
-L- 791+49.28	RT	76	75		2162.0	2157.1			76														
-L- 791+49.28	CL	75		2161.1																			
-L- 791+49.28	CL	75	75a		2150.4	2162.0						228											
SHEET TOTALS									492	224	212	228					88		48				

STATION	FROM	TO	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
-ACC3- 784+40.44	69	67																				
-ACC3- 788+00.00	68															1						
-ACC3- 788+00.00	68	67		364																		
-ACC3- 784+40.26	67															1						
-ACC3- 784+40.26	67	66																				
-ACC3- 784+40.00	66															1						
-ACC3- 784+40.00	66	64				364																
-ACC3- 781+00.13	65	64																				
-ACC3- 780+76.00	64															1						
-ACC3- 780+76.00	64	63				88																
-ACC3- 779+90.03	63															1						
-ACC3- 779+90.03	63	63A																				
-Y4 REV- 11+50.00	70																					
-Y4 REV- 12+94.55	70A															1						
-Y4 REV- 12+94.55	70A	70B																				
-Y4 REV- 12+94.55	70B															1						
-Y4 REV- 12+94.55	70B	71B																				
-Y4 REV- 14+00.00	71															1						
-Y4 REV- 14+00.00	71	71B																				
-Y4 REV- 14+00.00	71B															1						
-Y4 REV- 14+00.00	71B	71A																				
-L- 786+00.00	72A															1						
-L- 786+00.00	72A	72		444																		
-L- 781+58.27	72															1						
-L- 785+83.38	73																					
-L- 787+50.00	74															1						
-L- 787+50.00	74	74A																				
-L- 803+50.00	85															1						
-L- 803+50.00	85	84																				
-L- 803+50.00	84															1	1.1					
-L- 803+50.00	84	80			428																	
-L- 799+25.52	83															1						
-L- 799+25.52	83	81																				
-L- 79925.27	81															1						
-L- 799+25.27	81	80																				
-L- 799+42.25	82															1						
-L- 799+42.25	82	80																				
-L- 799+25.00	80															1						
-L- 799+25.00	80	77				428																
-L- 795+00.00	79															1						
-L- 795+00.00	79	78																				
-L- 795+00.00	78															1						
-L- 795+00.00	78	77																				
-L- 795+00.00	77															1	0.3					
-L- 795+00.00	77	75					352															
-L- 791+49.28	76															1						
-L- 791+49.28	76	75																				
-L- 791+49.28	75															1	5.0	0.7				
-L- 791+49.28	75	75a																				
SHEET TOTALS				808	428	880	352									23	6.4	0.7				

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I FRAME WITH ONE GRATE STD. 840.22	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	SPRING BOX STD. 840.41	MODIFIED CONCRETE FLUME	BERM DRAINAGE OUTLET STD. 850.11	CORR. STEEL ELBOWS NO. & SIZE 15"	18"	24"	30"	36"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-ACC3- 784+40.44	69	67															1			2						
-ACC3- 788+00.00	68					1		1																		
-ACC3- 788+00.00	68	67																								
-ACC3- 784+40.26	67				1			1																		
-ACC3- 784+40.26	67	66																								
-ACC3- 784+40.00	66				1			1																		
-ACC3- 784+40.00	66	64																								
-ACC3- 781+00.13	65	64																								
-ACC3- 780+76.00	64				1			1																		
-ACC3- 780+76.00	64	63																								
-ACC3- 779+90.03	63				1			1			1															
-ACC3- 779+90.03	63	63A																								
-Y4 REV- 11+50.00	70																									
-Y4 REV- 12+94.55	70A		1	1																						
-Y4 REV- 12+94.55	70A	70B																2								
-Y4 REV- 12+94.55	70B		1	1																						
-Y4 REV- 12+94.55	70B	71B																								
-Y4 REV- 14+00.00	71		1	1																						
-Y4 REV- 14+00.00	71	71B																2							56	Remove 15" CMP
-Y4 REV- 14+00.00	71B		1	1																						
-Y4 REV- 14+00.00	71B	71A																								
-L- 786+00.00	72A					1																				
-L- 786+00.00	72A	72																								
-L- 781+58.27	72					1		1																		Connect to existing
-L- 785+83.38	73																								72	Remove 15" CMP, Remove 75SY conc
-L- 787+50.00	74					1	1																			
-L- 787+50.00	74	74A																2								SEE SECTION 300-6 FOR ROD & LUG
-L- 803+50.00	85					1		1																		
-L- 803+50.00	85	84																								
-L- 803+50.00	84					1		1																		
-L- 803+50.00	84	80																								
-L- 799+25.52	83					1		1																		
-L- 799+25.52	83	81																								
-L- 79925.27	81					1		1																		
-L- 799+25.27	81	80																								
-L- 799+42.25	82					1		1																		
-L- 799+42.25	82	80																							80	Remove 18" CMP
-L- 799+25.00	80				1			1																		
-L- 799+25.00	80	77																							428	Remove 24" CMP
-L- 795+00.00	79					1		1																		
-L- 795+00.00	79	78																								
-L- 795+00.00	78					1		1																		
-L- 795+00.00	78	77																								
-L- 795+00.00	77				1			1																		
-L- 795+00.00	77	75																								
-L- 791+49.28	76					1		1																		
-L- 791+49.28	76	75																								
-L- 791+49.28	75				1			1																		
-L- 791+49.28	75	75a																							36	Remove 36" CMP
SHEET TOTALS			4	4	7	12	1	17			1						1	6		2					672	

ABBREVIATIONS

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

W-CHLCIV08

COMPUTED BY: S. HAYNES DATE: 11/21/2008

CHECKED BY: D. GOURLEY DATE: 12/5/2008

PROJECT NO.	SHEET NO.
R-505	3E

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"
SIZE																															
THICKNESS OR GAUGE																.064	.064	.064	.064	.079	.079	.109	.109								
-Y5- 11+05.56	LT	86	EX		2188.9	2187.6													16												
-Y5- 11+35.86	RT	87	87A		2179.1	2177.9													16												
-L- 812+00.00	LT	85A																													
-L- 815+00.00	CL	88		2204.6																											
-L- 815+00.00	CL	88	89		2201.8	2196.1			96																						
-L- 815+00.00	RT	89		2198.8																											
-L- 815+00.00	RT	89	90		2196.1	2181.7																			300						
-L- 817+85.25	RT	91	90		2186.4	2181.5				56																					
-L- 818+00.00	RT	90		2184.5																											
-L- 818+00.00	RT	90	95		2181.5	2161.6																				352					
-L- 821+50.26	CL	94		2183.9																											
-L- 821+50.26	CL	94	95		2181.1	2161.8			100																						
-L- 821+49.35	RT	95		2165.8																											
-L- 821+49.35	RT	95	97		2161.1	2158.7																					224				
-L- 824+96.00	CL	98		2179.8																											
-L- 824+96.00	CL	98	96		2176.8	2176.3																				136					
-L- 823+60.00	CL	96		2180.4																											
-L- 823+60.00	CL	96	97		2176.3	2159.2				100																					
-L- 823+62.18	RT	97		2163.4																											
-L- 823+62.18	RT	97	99		2158.2	2096.2																152									
-L- 821+33.90	RT	92	93		2153.7	2116.5													212												
-L- 821+43.09	RT	93A	93		2117.0	2116.5																					16				
-L- 821+56.66	RT	93		2120.9																											
-L- 821+56.66	RT	93	99		2116.0	2096.2																						232			
-L- 823+65.10	RT	99		2101.1																											
-L- 823+65.10	RT	99	100A		2095.7	2093.8																							32		
-L- 824+02.22	RT	100																													
-Y7REV- 13+50.33	RT	101																													
-Y7REV- 17+41.94	RT	102																													
-Y7REV- 13+33.75	LT	103																													
-ACC3- 829+21.21	LT	104		2138.3																											
-ACC3- 829+21.21	LT	104	104A		2134.5	2109.2													196												
-ACC3- 831+90.01	RT	108	107		2173.5	2169.1				56																					
-ACC3- 831+76.19	LT	107		2172.1																											
-ACC3- 831+76.19	LT	107	106		2169.1	2167.0																				168					
-L- 830+22.00	CL	105		2186.1																											
-L- 830+22.00	CL	105	106		2183.4	2167.2			96																						
-ACC3- 830+07.24	LT	106		2170.0																											
-ACC3- 830+07.24	LT	106	104A		2167.0	2109.2														172											
-L- 836+28.00	CL	109		2196.2																											
-L- 836+28.00	CL	109	110		2193.4	2183.3			88																						
-ACC3- 836+26.42	LT	110		2186.0																											
-ACC3- 836+26.42	LT	110	110A		2183.3	2121.0											176														
SHEET TOTALS									380	212							176	172	440		152				300	656	240	232	32		

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	CU. YARDS C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	"TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL. "B")	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.19 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I FRAME WITH ONE GRATE STD. 840.22	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	SPRING BOX STD. 840.41	MODIFIED CONCRETE FLUME	BERM DRAINAGE OUTLET STD. 850.11	CORR. STEEL ELBOWS NO. & SIZE 15"	18"	24"	30"	36"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-Y5- 11+05.56																																		0.5526				
-Y5- 11+35.86																																		0.5526				
-L- 812+00.00		52																																				
-L- 815+00.00						1											1		1																			
-L- 815+00.00																																						
-L- 815+00.00						1											1		1																			
-L- 817+85.25																																						
-L- 818+00.00						1											1		1																			
-L- 818+00.00																																						
-L- 821+50.26						1											1		1																			
-L- 821+50.26																																						
-L- 821+49.35						1										1			1																			
-L- 821+49.35																																						
-L- 824+96.00						1											1		1																			
-L- 824+96.00																																						
-L- 823+60.00						1											1		1																			
-L- 823+60.00																																						
-L- 823+62.18						1	0.3									1			1			1																
-L- 823+62.18																																	2					
-L- 821+33.90																																		0.5526				
-L- 821+43.09																																						
-L- 821+56.66						1														1			1															
-L- 821+56.66																																						
-L- 823+65.10						1	0.4													1			1															
-L- 823+65.10																																						
-L- 824+02.22						1																	1															
-Y7REV- 13+50.33	40																																					
-Y7REV- 17+41.94	24																																					
-Y7REV- 13+33.75	20																																					
-ACC3- 829+21.21						1														1																		
-ACC3- 829+21.21					1.9																																	
-ACC3- 831+90.01																																						
-ACC3- 831+76.19						1											1		1																			
-ACC3- 831+76.19																																						
-L- 830+22.00						1											1		1																			
-L- 830+22.00																																						
-ACC3- 830+07.24						1											1		1																			
-ACC3- 830+07.24																														2								SEE SECTION 300-6 FOR ROD & LUG
-L- 836+28.00						1											1		1																			
-L- 836+28.00																																						
-ACC3- 836+26.42						1											1		1																			
-ACC3- 836+26.42																														2								SEE SECTION 300-6 FOR ROD & LUG
SHEET TOTALS	84	52			1.9	17	0.7									2	11		13		3	1			2	1			2	2		2		1.6578				

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
D.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

W-CHLCIV08

COMPUTED BY: S. HAYNES DATE: 11/21/2008

CHECKED BY: D. GOURLEY DATE: 12/5/2008

PROJECT NO.	SHEET NO.
R-505	3F

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"
-ACC3- 842+51.78	RT	111													
-ACC3- 844+27.05	RT	112													
-ACC3- 846+13.12	RT	113	115		2190.1	2185.7									
-Y8- 10+78.06	RT	114	115		2194.2	2185.7									
-ACC3- 847+04.78	RT	115		2188.4											
-ACC3- 847+04.78		115	117		2185.4	2180.0					92				
-ACC3- 846+48.41	LT	116		2189.3											
-ACC3- 846+48.41	LT	116	117		2186.6	2180.3									
-ACC3- 847+05.72	LT	117		2183.0											
-ACC3- 847+05.72	LT	117	118		2179.5	2177.5					72				
-L- 847+07.30	CL	118		2185.4											
-L- 847+07.30	CL	118	119		2177.5	2164.5									
-L- 851+15.00	RT	120		2168.6											
-L- 851+15.00	RT	120	119		2165.8	2165.3			72						
-L- 851+15.00	CL	119		2169.3											
-L- 851+15.00	CL	119	121		2164.5	2147.6									
-L- 855+50.00	RT	121		2152.3											
-L- 855+50.00	RT	121	122		2147.6	2129.6									
-L- 859+99.00	CL	122		2134.3											
-L- 859+99.00	CL	122	122A		2129.6	2078.0									
-L- 852+55.03	RT	124													
-L- 847+09.01	RT	125													
-L- 792+46.15	RT	126													
-L- 779+62.65	RT	127													
-Y1- 11+00.00	LT	128													
-L- 847+60.05	LT	129													
-L- 861+00.00	CL	123													
-L- 777+85.00															
SHEET 3F TOTALS									72		164				
SHEET 3E TOTALS									380	212					
SHEET 3D TOTALS									492	224	212	228			
SHEET 3C TOTALS									140	64			268		156
SHEET 3B TOTALS									140	396	100				
SHEET 3A TOTALS									1104						
SHEET TOTALS									2328	896	476	228	268		156

STATION	FROM	TO	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"	CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, TYPE IR OR HDPE PIPE, TYPE S OR D 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE
-ACC3- 842+51.78	111																							24		
-ACC3- 844+27.05	112																							24		
-ACC3- 846+13.12	113	115															92									
-Y8- 10+78.06	114	115															56									
-ACC3- 847+04.78	115																									
-ACC3- 847+04.78	115	117																								
-ACC3- 846+48.41	116																									
-ACC3- 846+48.41	116	117															108									
-ACC3- 847+05.72	117																									
-ACC3- 847+05.72	117	118																								
-L- 847+07.30	118																									
-L- 847+07.30	118	119																	364							
-L- 851+15.00	120																									
-L- 851+15.00	120	119																								
-L- 851+15.00	119																									
-L- 851+15.00	119	121																	436							
-L- 855+50.00	121																									
-L- 855+50.00	121	122																	452							
-L- 859+99.00	122																									
-L- 859+99.00	122	122A				152																				
-L- 852+55.03	124																									
-L- 847+09.01	125																									
-L- 792+46.15	126																									
-L- 779+62.65	127																									
-Y1- 11+00.00	128																	64								
-L- 847+60.05	129																									
-L- 861+00.00	123																									
-L- 777+85.00																										
SHEET 3F TOTALS						152											256	64	1252					48		
SHEET 3E TOTALS				176	172	440		152									300	656	240	232	32			84	52	
SHEET 3D TOTALS				88		48											808	428	880	352						
SHEET 3C TOTALS				212						36							80	192						96		
SHEET 3B TOTALS				72		320								112			596	520	1080							
SHEET 3A TOTALS				124													52									
SHEET TOTALS				672	172	960		152		36				112			2092	1860	3452	584	32			228	52	

STATION	FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. FRAME WITH TWO GRATES STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I FRAME WITH ONE GRATE STD. 840.22	MANHOLE STD. 840.51	M.H. STD. 840.51 OR 840.53	M.H. FRAME AND COVER STD. 840.54	SPRING BOX STD. 840.41	MODIFIED CONCRETE FLUME	BERM DRAINAGE OUTLET STD. 850.11
-ACC3- 842+51.78	111																									
-ACC3- 844+27.05	112																									
-ACC3- 846+13.12	113	115																								
-Y8- 10+78.06	114	115																								
-ACC3- 847+04.78	115				1										1			1								
-ACC3- 847+04.78	115	117																								
-ACC3- 846+48.41	116				1										1			1								
-ACC3- 846+48.41	116	117																								
-ACC3- 847+05.72	117				1										1		1									
-ACC3- 847+05.72	117	118																								
-L- 847+07.30	118				1	0.8								1			1									
-L- 847+07.30	118	119																								
-L- 851+15.00	120				1										1		1									
-L- 851+15.00	120	119																								
-L- 851+15.00	119				1									1			1									
-L- 851+15.00	119	121																								
-L- 855+50.00	121				1									1			1									
-L- 855+50.00	121	122																								
-L- 859+99.00	122				1									1			1									
-L- 859+99.00	122	122A																								
-L- 852+55.03	124																									
-L- 847+09.01	125																									
-L- 792+46.15	126																									
-L- 779+62.65	127																									
-Y1- 11+00.00	128																									
-L- 847+60.05	129																									
-L- 861+00.00	123																									
					4																			4		
-L- 777+85.00																									2	
SHEET 3F TOTALS					12	0.8								4	4		6	2						4	2	
SHEET 3E TOTALS				1.9	17	0.7								2	11		13		3	1			2	1		
SHEET 3D TOTALS					23	6.4	0.7					4	4	7	12	1	17			1						1
SHEET 3C TOTALS					14	1.0									13	2	11		1	2						1
SHEET 3B TOTALS					18									6	12	1	17									
SHEET 3A TOTALS					13	2.5									13	5	8									
SHEET TOTALS				1.9	97	11.4	0.7					4	4	19	65	9	72	2	4	4			2	5	2	2
						SAY 13																				

STATION	FROM	TO	CORR. STEEL ELBOWS NO. & SIZE 15"	18"	24"	30"	36"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-ACC3- 842+51.78	111									24	15" Conc
-ACC3- 844+27.05	112									24	15" CMP
-ACC3- 846+13.12	113	115								112	Remove 18" Plastic
-Y8- 10+78.06	114	115								32	Remove 15" Plastic
-ACC3- 847+04.78	115									112	Remove 15" CMP
-ACC3- 847+04.78	115	117									
-ACC3- 846+48.41	116										
-ACC3- 846+48.41	116	117									
-ACC3- 847+05.72	117										
-ACC3- 847+05.72	117	118									
-L- 847+07.30	118										
-L- 847+07.30	118	119									
-L- 851+15.00	120										
-L- 851+15.00	120	119									
-L- 851+15.00	119										
-L- 851+15.00	119	121									
-L- 855+50.00	121										
-L- 855+50.00	121	122									
-L- 859+99.00	122										
-L- 859+99.00	122	122A			2						SEE SECTION 300-6 FOR ROD & LUG
-L- 852+55.03	124									76	Remove pipe
-L- 847+09.01	125									80	Remove 15" CMP
-L- 792+46.15	126									684	Remove 24" CMP, Remove DI
-L- 779+62.65	127									48	Remove 12" CMP
-Y1- 11+00.00	128										
-L- 847+60.05	129									80	Remove 18" CMP
-L- 861+00.00	123										Remove DI, Conc. Ditch
											To be used at the discretion of the Engineer
-L- 777+85.00											See Detail
SHEET 3F TOTALS					2					1272	
SHEET 3E TOTALS			2	2		2		1.6578			
SHEET 3D TOTALS			6		2					672	
SHEET 3C TOTALS			4				2			1004	
SHEET 3B TOTALS			4		2					1080	
SHEET 3A TOTALS			2							448	
SHEET TOTALS			18	2	6	2	2	1.6578		4476	
								SAY 1.658			

W-CHLCIV08

COMPUTED BY:	S. HAYNES	DATE:	8/19/2008
CHECKED BY:	D. GOURLEY	DATE:	8/19/2008

PROJECT NO.	SHEET NO.
R-505	3G

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54"	60"	66"	72"	78"	84"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 54" .109	54" .138	54" .168	54" SHOP ELON-GATED .138	54" SHOP ELON-GATED .168	60" .138	60" .168	66" .138	66" .168	96" .109	96" .138	96" .168	STRUCTURAL PLATE PIPE 60" 12	60" 10	66" 12	66" 10	72" 12	72" 10
-ACC12- 41+57.39	LT	56	56A		2080.3	2075.8		120																							
-L- 732+48.34	RT	16		2145.8																											
-L- 732+48.34	RT	16	16A		2101.9	2065.1																	156								
		16A																													
SHEET 3G TOTAL								120															156								

STATION	REINFORCED ENDWALLS WITH R.C. - C.Y.	REINFORCED ENDWALLS WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR 840.02	FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	JB (SEE DETAIL)	M.H. FRAME AND COVER STD. 840.54	REINFORCED ENDWALL (SEE DETAIL)	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & Size	CORR. STEEL ELBOWS NO. & SIZE 15"	18"	24"	30"	36"	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.	REMARKS
-ACC12- 41+57.39	5.2																				
-L- 732+48.34		10.1	19.2					1	1												SEE DETAILS FOR JB & ENDWALL
-L- 732+48.34																					SEE SECTION 300-6 FOR ROD & LUG
SHEET 3G TOTAL	5.2	10.1	19.2					1	1												
	SAY 15.3																				

ABBREVIATIONS

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

COMPUTED BY:	S. HAYNES	DATE:	12/3/08
CHECKED BY:	C. DAVIS	DATE:	12/3/08

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
R-505	3H

GUARDRAIL SUMMARY

"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 BEGIN

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 351

SURVEY LINE	BEG. STA.	END STA.	LOCATION	GROSS LENGTH	LENGTH (LESS ANCHOR DEDUCTIONS)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLARE LENGTH		W		ANCHORS							IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
					STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	M-350	CAT-1	TYPE III	B-77			G	NG				
-L-	708+72	713+44	LT.	463	400.00				BRIDGE	12	15	50		1		1			1							463.87		TIE TO EXISTING BRIDGE
-L-	708+83	710+74	MED. LT.	191	137.50				BRIDGE	8	15	172.25		17			1		1							200.53		TIE TO EXISTING BRIDGE
-L-	720+60	725+85	LT.	524	475.00			723+50.00	721+00.00	11.1	15	50		1		1		1										
-L-	720+59	726+33	LT.																							577.89		
-L-	731+70	734+53	LT.	281	225.00			734+00.00	732+00.00	11.7	15	50		1		1		1										
-L-	731+72	734+48	LT.																							277.87		
-L-	748+55	751+44	LT.	283	237.50			751+00.00	749+00.00	12.7	15	50		1		1		1										
-L-	748+27	751+05	LT.																							276.97		
-L-	758+69	762+46	LT.	372	325.00			762+00.00	759+00.00	12.25	15	50		1		1		1										WITH SHOULDER BERM GUTTER
-L-	758+69	762+46	LT.																							376.93		
-L-	776+72	779+37	LT.	266	250.00			BRIDGE	777+00.00	10	14							1		1								
-L-	777+17	779+13	LT.																							196.55		RAMP B
-L-	777+33	779+46	LT.																							213.11		
-L-	781+34	783+50	LT.	212	162.50				BRIDGE	4	15	234.75		13.5			1			1								
-L-	781+70	784+59	LT.	282	225.00				BRIDGE	10	15	241.98		6		1				1								
-L-	781+70	783+66	LT.																							195		
-L-	781+33	783+36	LT.																							202		
-L-	787+35	790+77	LT.	325	275.00			790+00.00	788+00.00	12.2	15.33	50		1		1		1										WITH SHOULDER BERM GUTTER
-L-	791+17	792+18	LT.																							102		
-L-	819+48	823+02	LT.																							353.74		
-L-	826+34	831+36	LT.	481	437.50			830+50.00	826+50.00	11	15	50		1		1		1										
-L-	826+32	831+51	LT.																							501.76		
-L-	827+50	830+83	LT.																							300.77		
-L-	838+50	840+36	LT.	182	137.50			839+50.00	839+00.00	11.25	15	50		1		1		1										
-L-	838+46	840+47	LT.																							201.8		
-L-	837+48	839+50	LT.																							201.79		
-L-	708+95	710+78	MED. RT.	189	137.50			BRIDGE		10	13						1		1							165.61		TIE TO EXISTING BRIDGE
-L-	709+08	715+00	RT.	595	575.00			BRIDGE		12	15							1	1							585.46		TIE TO EXISTING BRIDGE
-L-	720+56	733+94	RT.	1326	1,275.00			721+00.00	733+50.00	12.3	15	50		1		1		1										WITH SHOULDER BERM GUTTER
-L-	747+56	753+34	RT.	577	525.00			748+50.00	753+50.00	12	15	50		1		1		1										
-L-	769+08	770+69	RT.																							152.31		
-L-	775+51	778+48	RT.	270	212.50				BRIDGE	10	15	258.55		5.4		1				1								
-L-	776+93	778+84	MED.RT.	188	137.50				BRIDGE	4	4	37.5		9.6			1			1								
-L-	780+70	781+41	RT.	71	50.00			BRIDGE		10	15							1		1								
-L-	817+71	834+80	RT.	1740	1,687.50			818+50.00	834+50.00	10.7	15	50		1		1		1										
-L-	852+47	861+92	RT.	941	900.00			853+00.00	861+00.00	12.5	15	50		1		1												TIE TO EXISTING GUARDRAIL
-L-	857+43	861+42	RT.																							449.26		
-ACC3-	788+74	808+35	LT.	1957	1,862.50			807+50.47	789+59.29	5	8	50	50	1	1	2												
-ACC3-	777+97	779+23	RT.	455	287.50	75.00		778+50.00	779+00.00	5	8	50	50	1	1	2												INCLUDES SECTION ON Y4REV TO 13+05
-ACC3-	791+80	794+13	RT.	226	137.50			792+50.00	793+34.54	5	8	50	50	1	1	2												
-ACC3-	806+72	810+20	RT.	339	250.00			807+50.47	809+41.05	10	13	50	50	1	1	2												
-ACC3-	817+35	827+97	RT.	1260	1,075.00	87.50		818+19.57	831+00.00	5	8	50	50	1	1	2												INLCUDES SECTION ON Y7REV TO 11+77
-ACC3-	827+90	831+76	RT.	425	175.00	162.50		10+50.00	11+00.00	5	8	50	50	1	1	2												INLCUDES SECTION ON Y7REV TO 11+94
-ACC3-	834+14	839+83	RT.	563	475.00			834+98.40	838+98.40	5	8	50	50	1	1	2												
-ACC12-	13+44	15+75	LT.	227	137.50			15+42.30	13+94.04	5	8	50	50	1	1	2												
-ACC12-	40+81	42+84	LT.	198	100.00			42+50.00	41+00.00	5	8	50	50	1	1	2												
-ACC12-	11+21	14+87	RT.	351	262.50			11+89.17	14+43.44	5	8	50	50	1	1	2												
-ACC12-	19+40	25+39	RT.	592	500.00			19+41.87	24+97.57	5	8	50	50	1	1	2												
-ACC12-	29+56	36+38	RT.	674	575.00			30+03.00	36+04.54	5	8	50	50	1	1	2												
-ACC12-	39+95	42+84	RT.	276	187.50			40+00.00	42+50.00	5	8	50	50	1	1	2												
-RAMPC-	7+38	8+67	RT.	127	75.00			7+45	7+66	8	8	50		1		1		1										
-Y2-	23+77	26+21	RT.	259	212.50			24+50.00	25+50.00	8	4	50		1		1		1										
-Y2-	23+77	26+11	RT.																							252.41		
-Y2-	26+72	29+43	RT.	319	312.50	62.50		27+08.00	29+42.00	8	11							2										
-Y2-	26+65	26+55	RT.																							50.57		
-Y2-	28+60	31+35	RT.	81	87.50			29+50.00	30+50.00	2	N/A	40.3	40.3	5.25										1	153			TIE TO CONC. BARRIER
-Y2-	27+97	29+49	RT.																							152.78		
-Y2-	28+60	31+35	LT.	81	87.50			29+50.00	30+50.00	2	N/A	40.1	40.1	3.5										1	153			TIE TO CONC. BARRIER
-Y2-	29+37	32+02	LT.																							200		
-Y2-	30+47	32+01	LT.	148	100.00			30+88.00	30+57.00	8	N/A	50		1		1		1										
-Y4REV-	11+81	14+35	LT.	252	162.50			12+29.00	13+79.00	4	4	50	50	1	1	2												
-Y5-	10+15	12+48	LT.	231	137.50			10+68.50	11+96.40	5	8	50	50	1	1	2												
-Y5-	10+15	13+08	RT.	400	237.50	75.00		10+68.50	13+06.86	5	8	50	50	1	1	2												INCLUDES SECTION ON Y6 TO 12+44
-Y6-	10+09	12+43	LT.	313	100.00	112.50		12+00.00	10+50.00	5	8	50	50	1	1	2												INCLUDES SECTION ON ACC3 TO 812+09
-Y7REV-	13+61	14+59	RT.	131		75.00		14+00.00	13+50.00	5	8		50		1	1		1										
TOTALS					**16325.00**	**650.00**										**52**	**4**	**19**	**4**	**6**			**0**	**2**	**306**	**6651**		
ADDITIONAL GUARDRAIL POSTS 10																												
HIGH TENSION CABLE BARRIER SYSTEM WITH SOCKETS																				**CBL. ANCH.**								
-L-	710+70	778+56	LT.				6,744.00			7	8	24	24	10	11.17					2								HIGH TENSION WITH SOCKETS
-L-	781+54	861+42	LT.				7,936.00			7	8	565.3	24	30	10					2								HIGH TENSION WITH SOCKETS
TOTALS						**0**	**14,680**													**4**								

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION TO STATION	TOTAL EXCAV. (UNCL.)	EMBANK-MENT +%	BORROW	TOTAL WASTE
-L- Sta 708+87.00 to 715+00.00	1460	32	0	1428
-L- Sta 715+00 to 745+00 RT.	32834	28053	0	4781
-L- Sta 715+00 to 745+00 LT.	3577	419	0	3158
-Y1- 10+15.20 to 11+60.00	68	13	0	55
-RY51A- 10+11.00 to 10+95.00	773	0	0	773
-ACCESS RD #12- Sta 10+00.00 to 11+50.00	198	785	587	0
-ACCESS RD #12- Sta 11+89.17 to 16+91.57	12037	14800	2763	0
TOTAL Summary No. 1	50947	44102	3350	10196
-L- Sta 745+00 to 773+50 RT.	54489	9258	0	45631
-L- Sta 745+00 to 773+50 LT.	6306	580	0	5726
-ACCESS RD #12- Sta16+91.57 to 38+07.66	58237	72226	13989	0
-ACCESS RD #12- Sta 38+50.00 to 44+64.93	1332	7607	6275	0
TOTAL Summary No. 2	120764	89671	20264	51357
-L- Sta 773+50 to 778+80.54 RT.	9	3763	3754	0
-L- Sta 773+50 to 779+15.24 LT.	362	1358	996	0
-Y2- Sta 23+00.00 to 45+16.22	2353	5	0	2348
-ACCESS RD #3- Sta 772+50.00 to 784+00.00	26572	1470	0	25102
-Y4REV- Sta 10+11.00 to 15+23.83	1213	1075	0	138
TOTAL Summary No. 3	30509	7671	4750	27588
-L- Sta 781+02.87 to 812+00.00 RT	60929	7339	0	53590
-L- Sta 781+37.57 to 812+00.00 LT	3966	2276	0	1690
-Y5- Sta 10+12.00 to 12+87.60	186	2002	1816	0
-Y6- Sta 10+11.00 to 12+45.00	114	51	0	63
-ACCESS RD #3- Sta 784+48.97 to 814+20.38	174652	9211	0	165441
TOTAL Summary No. 4	239847	20879	1816	220784
-L- Sta 812+00.00 to 842+00.00 RT	29880	68217	38337	0
-L- Sta 812+00.00 to 842+00.00 LT	3718	834	0	2884
-Y7 Rev- Sta 10+16.93 to 15+50.73	434	3871	3437	0
-ACCESS RD #3- Sta 814+20.38 to 849+41.65	24295	149310	125015	0
TOTAL Summary No. 5	58327	222232	166789	2884
-L- Sta 842+00.00 to 861+42.25 RT	6285	1509	0	4776
-L- Sta 842+00.00 to 861+42.25 LT	2925	276	0	2649
-Y8- Sta 10+11.00 to 11+60.00	100	9	0	91
TOTAL Summary No. 6	9310	1794	0	7516
SUBTOTAL R-505	509704	386349	196969	320326
LOSS DUE TO CLEARING & GRUBBING	-13000	0	0	-13000
TEMPORARY EARTH BERM	0	75	75	0
TEMPORARY EARTH BERM REMOVAL	65	0	0	65
ROCK TO REPLACE BORROW	0	0	-12699	-12699
ADJUST FOR ROCK SWELL	0	-3175	-3175	0
ELIMINATE EARTH SHRINKAGE FACTOR SINCE THIS MATERIAL IS ROCK	0	-2381	-2381	0
EARTH TO REPLACE BORROW	0	0	-178789	-178789
TOTAL R-505	496769	380868	0	115903
EST. TO REPLACE TOPSOIL IN BORROW PITS	0	0	0	0
SAY	496800	380900	0	116000
DRAINAGE DITCH EXCAVATION (EST.)	90	0	0	0

EARTHWORK TOTALS FOR ALTERNATE 2 PAVEMENT DESIGN

IN CUBIC YARDS

STATION TO STATION	TOTAL EXCAV. (UNCL.)	EMBANK-MENT +%	BORROW	TOTAL WASTE
SUBTOTAL R-505	509704	386349	196969	320326
ADJUSTMENT FOR ALT. PAVEMENT DESIGN	-6785	0	11601	0
LOSS DUE TO CLEARING & GRUBBING	-13000	0	0	-13000
TEMPORARY EARTH BERM	0	75	75	0
TEMPORARY EARTH BERM REMOVAL	65	0	0	65
ROCK TO REPLACE BORROW	0	0	-12699	-12699
ADJUST FOR ROCK SWELL	0	-3175	-3175	0
ELIMINATE EARTH SHRINKAGE FACTOR SINCE THIS MATERIAL IS ROCK	0	-2381	-2381	0
EARTH TO REPLACE BORROW	0	0	-190390	-190390
TOTAL R-505	489984	385684	0	104302
EST. TO REPLACE TOPSOIL IN BORROW PITS	0	0	0	0
SAY	490000	385700	0	104400

SUMMARY OF WOVEN WIRE FENCE

LINE	STATION	STATION	SIDE	LENGTH	4" POSTS	5" POSTS
-L-	708+70.66	739+42.77	LT	3158.55	200	46
-L-	739+42.77	791+01.03	LT	5095.82	332	58
-L-	791+91.13	794+10.72	LT	143.27	8	4
-L-	794+36.21	811+22.54	LT	3289.03	215	37
-L-	812+10.30	829+04.45	LT	1645.66	107	19
-L-	829+25.93	849+53.30	LT	2023.37	128	31
-L-	849+70.35	861+42.25	LT	1308.34	80	25
-L-	709+60.95	772+38.36	RT	7163.87	459	97
-L-	775+16.11	861+42.25	RT	8982.30	585	103
TOTAL				32810.21	2114	420
SAY				32820	2120	420

SUMMARY OF PAVEMENT REMOVAL

LINE	STATION	STATION	AREA	SQUARE YARDS
-L-	738+50.00	741+50.00	9409.45	1045.49
-L-	739+78.38	740+12.95	892.20	99.13
-L-	811+23.57	812+05.49	8671.10	963.46
-L-	847+02.42	848+16.09	6061.45	673.49
-ACC3-	809+85.99	810+49.41	461.32	51.26
-ACC3-	811+03.17	811+12.27	334.23	37.14
-ACC3-	826+20.98	826+36.19	1260.47	140.05
-Y7REV-	12+47.20	13+69.91	184.40	20.49
-RY51A-	10+42.68	10+52.07	920.80	102.31
TCP CROSSOVER NO. 1			6241	693.44
TCP CROSSOVER NO. 2			6891	765.67
TCP RAMP A CROSSOVER			4654.02	517.11
TCP RAMP B CROSSOVER			5023.50	558.17
TOTAL			51004.94	5667.22
SAY			51100	5670

Note: Quantities are approximate only. The Resident Engineer will re-cross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantiites are based in part on subsurface data provided by the Geotechnical Engineering Unit.

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gourley

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-505	3J

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAME
1	5	KELLY V. ALLISON
1B	5,6	LEON V. ALLISON
2	5	STACEY D. EDWARDS
3	6	JEAN NIX NICHOLS
4	6	ODIE M. GORDON
5	6	ODIE M. GORDON
6	6,7	ALEXANDER AND BARBARA CAPPS
7	7,8	WILLIAM D. AND EVE L. MCCRAW
8	8	ANNELIESE ELLIOTT
9	8	EDNAL DRYMAN
10	8	EDNAL DRYMAN
11	8	MILDRED M. MONCRIEF
11A	8,9	ROBERT M. HEATHERLY
13	8,9	HENRY EDMOND BAUMBERGER JR.
14	9	JULIUS L. BAUMBERGER
15	9	CLYDE M. GARREN JR.
16	9,10	LOIS PACE BAUMBERGER &LOIS EVELYN BAUMBERGER LIVING TRUST
17	10	CHRISTOPHER J. HILL
18B	10	SOUTHERN PRIDE WNC INC.
18C	10	SOUTHERN PRIDE WNC INC.
18D	10	SOUTHERN PRIDE WNC INC.

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAME
19A	10	TWIN BROTHER CORPORATION
19B	10	SOUTHERN PRIDE WNC INC.
19C	10	SOUTHERN PRIDE WNC INC.
19D	10,11	SOUTHERN PRIDE WNC INC.
19E	10,11	SOUTHERN PRIDE WNC INC.
19F	10,11	SOUTHERN PRIDE WNC INC.
19G	10,11	SOUTHERN PRIDE WNC INC.
19H	10,11	SOUTHERN PRIDE WNC INC.
19I	10,11	SOUTHERN PRIDE WNC INC.
20	11	GAIL K. BELL
21	11	STEVE L. KING
22	11,12	JAMES E. AND SHERRI A. WEAR
23	12	ELIZABETH AND JACQUELINE JONES
24	12,13	JERRY E. AND PENNY R. MELTON
25	13	JOHN KUYKENDALL
26	13	GEORGE G. GOSNELL
29	8	JAMES C. KIRKPATRICK
30	14	JAMES F. AND SHEILA B. STEPP
901	6,7	NCDOT

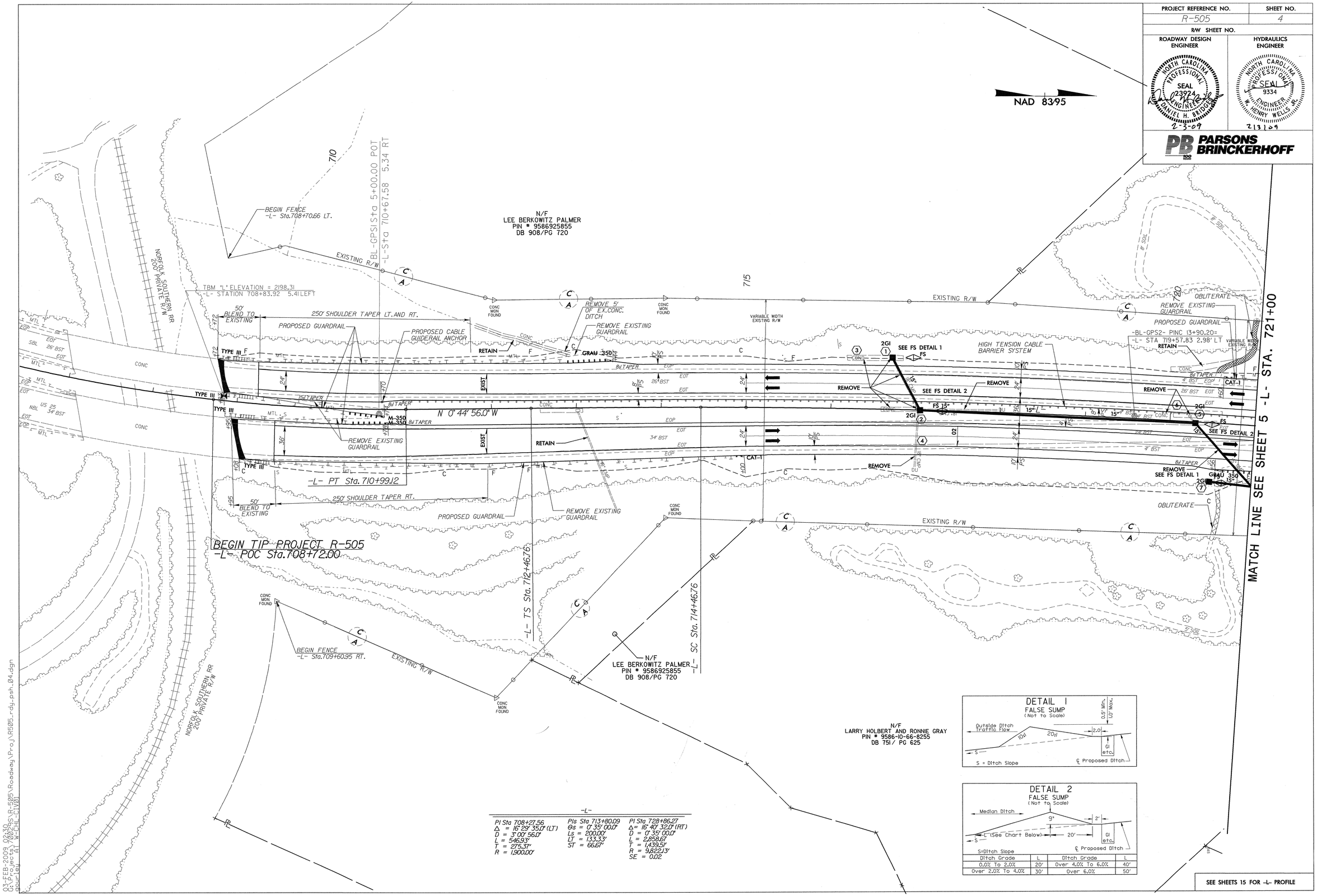
$$$$$SYSTIME$$$$
$$$$$LOGIN$$$$$$$$$$$$$$$$
$$$$$FRAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-505	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 023924 ENGINEER DANIEL H. BRIDGES 2-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 2/3/09

PARSONS BRINCKERHOFF



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

-L-

PI Sta 708+27.56	PIs Sta 713+80.09	PI Sta 728+86.27
Δ = 16° 29' 35.0" (LT)	Θs = 0° 35' 00.0"	Δ= 16° 40' 32.0" (RT)
D = 3° 00' 56.0"	Ls = 200.00'	D = 0° 35' 00.0"
L = 546.93'	LT = 133.33'	L = 2,858.61'
T = 275.37'	ST = 66.67'	T = 1,439.51'
R = 1,900.00'		R = 9,822.13'
		SE = 0.02

SEE SHEETS 15 FOR -L- PROFILE

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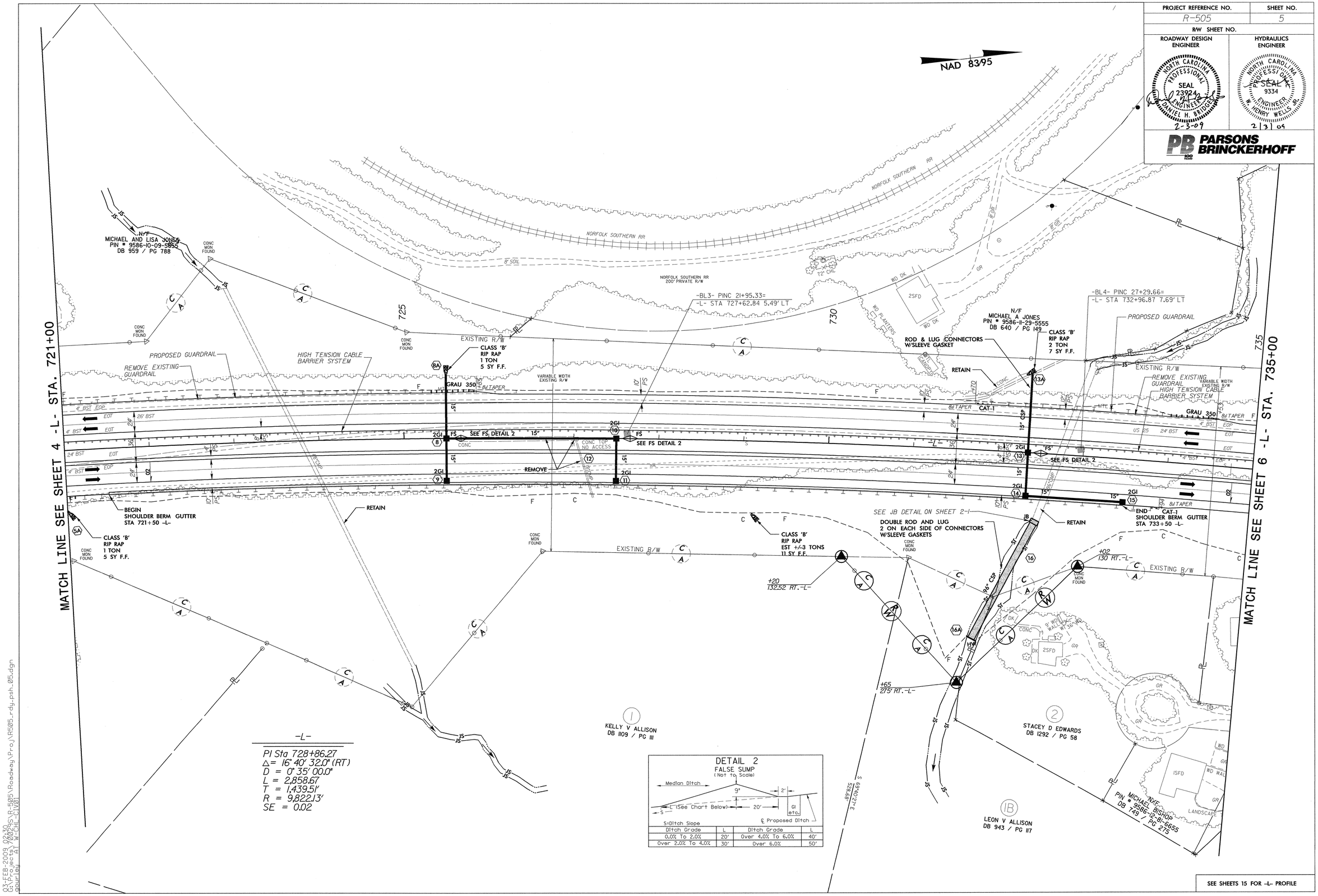
gourley AT W-CHL-C1V01

PROJECT REFERENCE NO.	SHEET NO.
R-505	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGER 2-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. 2/3/09

PARSONS BRINCKERHOFF



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

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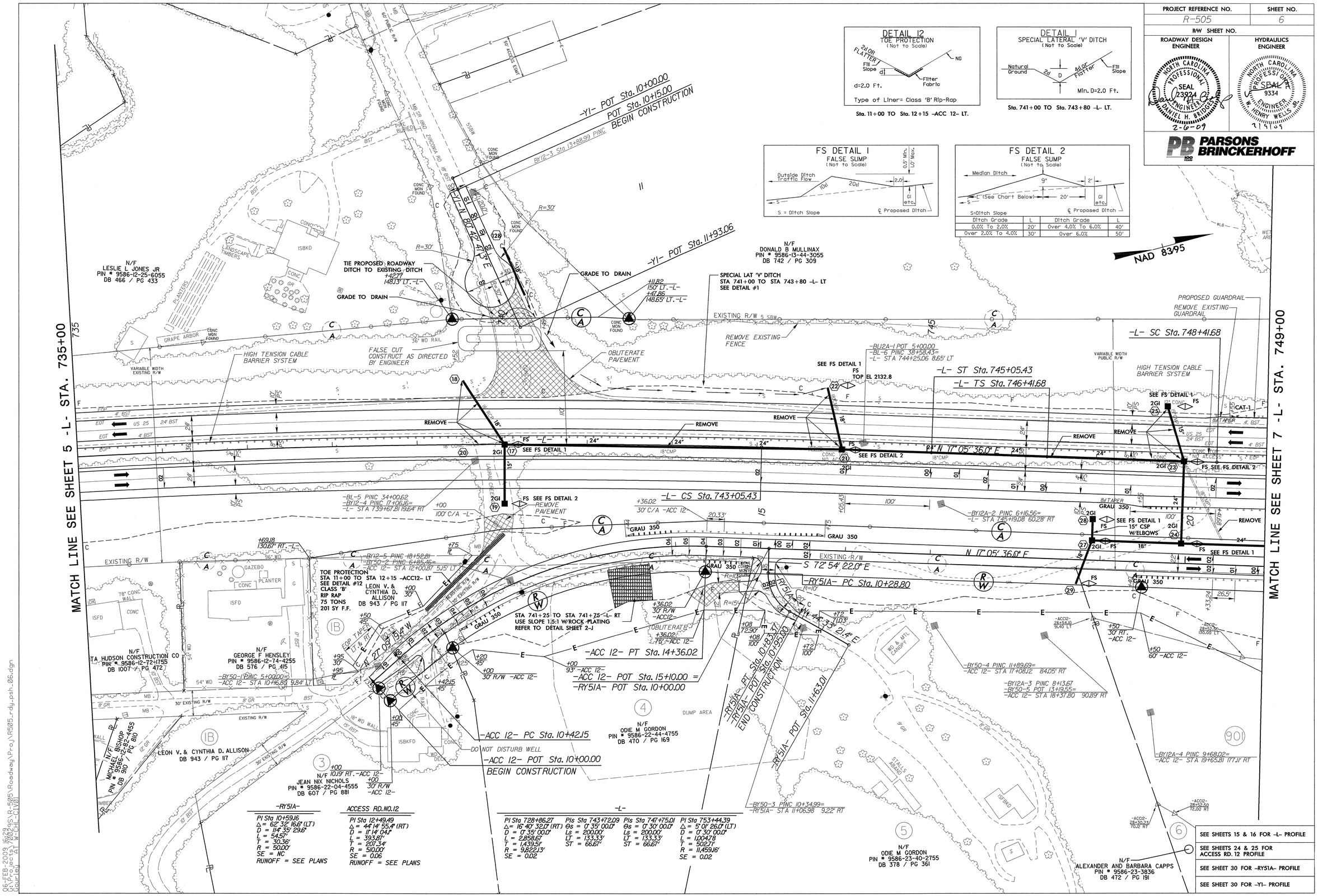
courley AT W-CHL-CIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES 2-6-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. 2/9/09

PB PARSONS BRINCKERHOFF



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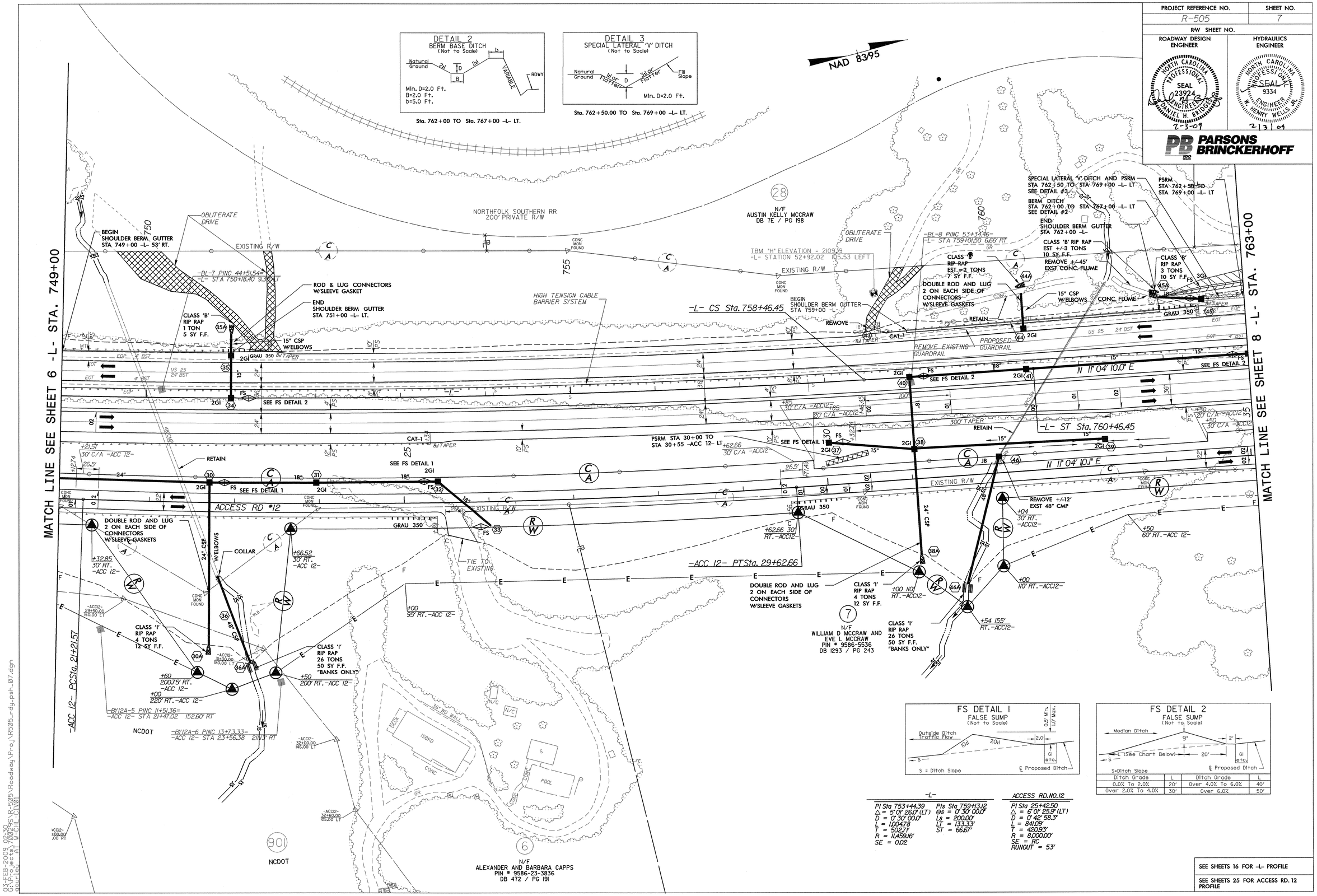
Courley AT W-CHL_C1V01

PROJECT REFERENCE NO.	SHEET NO.
R-505	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGERS 2-3-09

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. 2/3/09

PB PARSONS BRINCKERHOFF



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

-L-

PI Sta 753+44.39
Δ = 5° 01' 26.0" (LT)
D = 0° 30' 00.0"
L = 1,004.78
T = 502.71'
R = 11,459.16'
SE = 0.02

PIs Sta 759+13.12
θs = 0° 30' 00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

ACCESS RD.NO.12

PI Sta 25+42.50
Δ = 6° 01' 25.9" (LT)
D = 0° 42' 58.3"
L = 841.09'
T = 420.93'
R = 8,000.00'
SE = RC
RUNOUT = 53'

SEE SHEETS 16 FOR -L- PROFILE

SEE SHEETS 25 FOR ACCESS RD. 12 PROFILE

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03-FEB-2009 10:30
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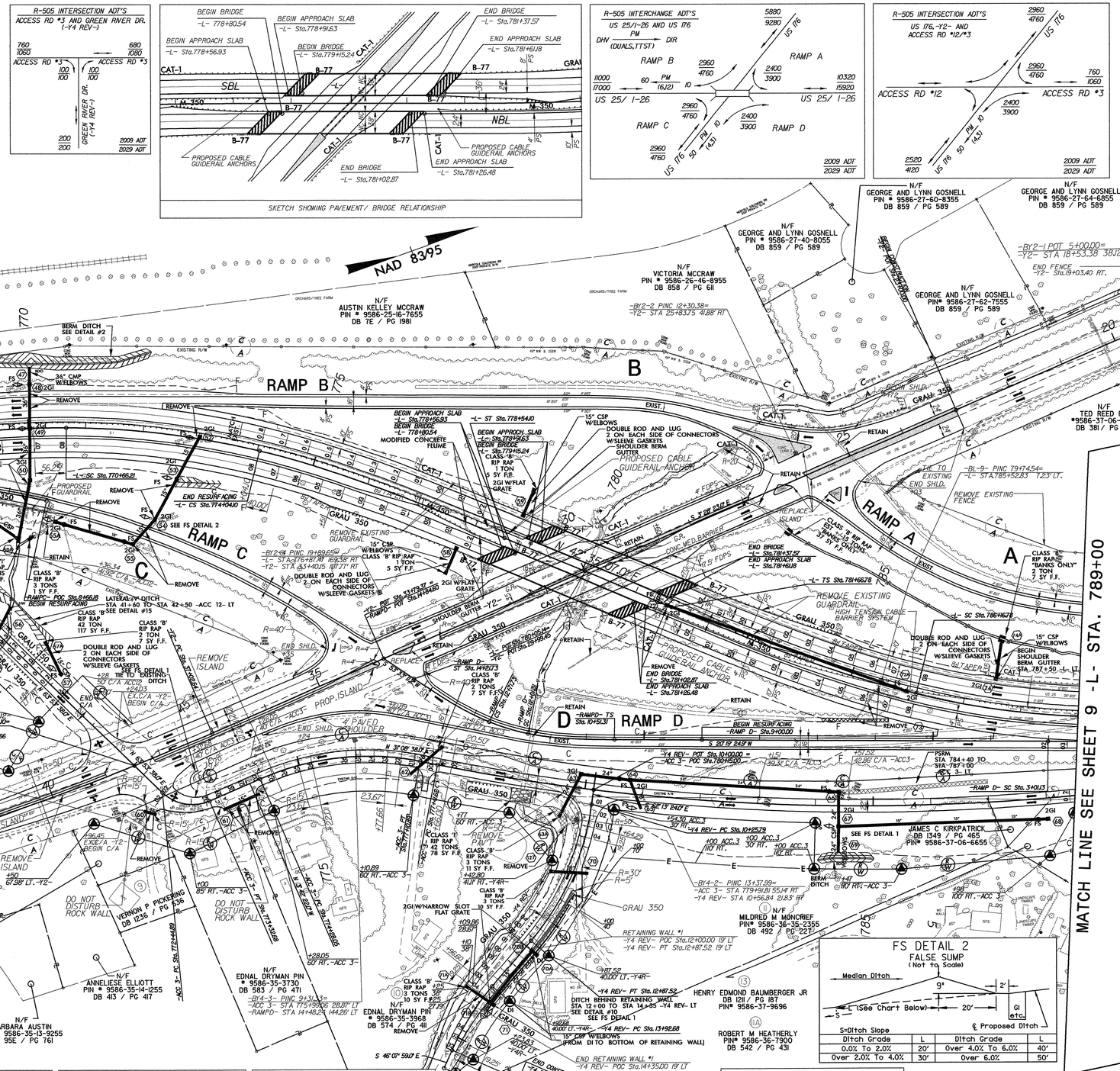
PROJECT REFERENCE NO.	SHEET NO.
R-505	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 023924 ENGINEER DANIEL H. BRIDGES 2-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. 2/3/09

PB PARSONS BRINCKERHOFF



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gourley, W. Phillip

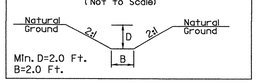
PROJECT REFERENCE NO.	SHEET NO.
R-505	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGERS 2-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. 2/3/09

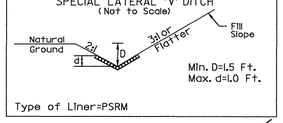
PARSONS BRINCKERHOFF

DETAIL 5
STANDARD BASE DITCH
(Not to Scale)



Sta. 792+80 TO Sta. 793+10 -L- RT.

DETAIL 6
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

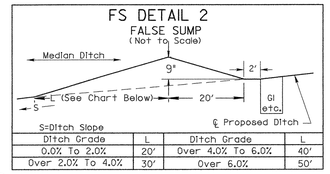


Type of Liner=PSRM

Sta. 799+42 TO Sta. 800+00 -L- LT.

FS DETAIL 1
FALSE SUMP
(Not to Scale)

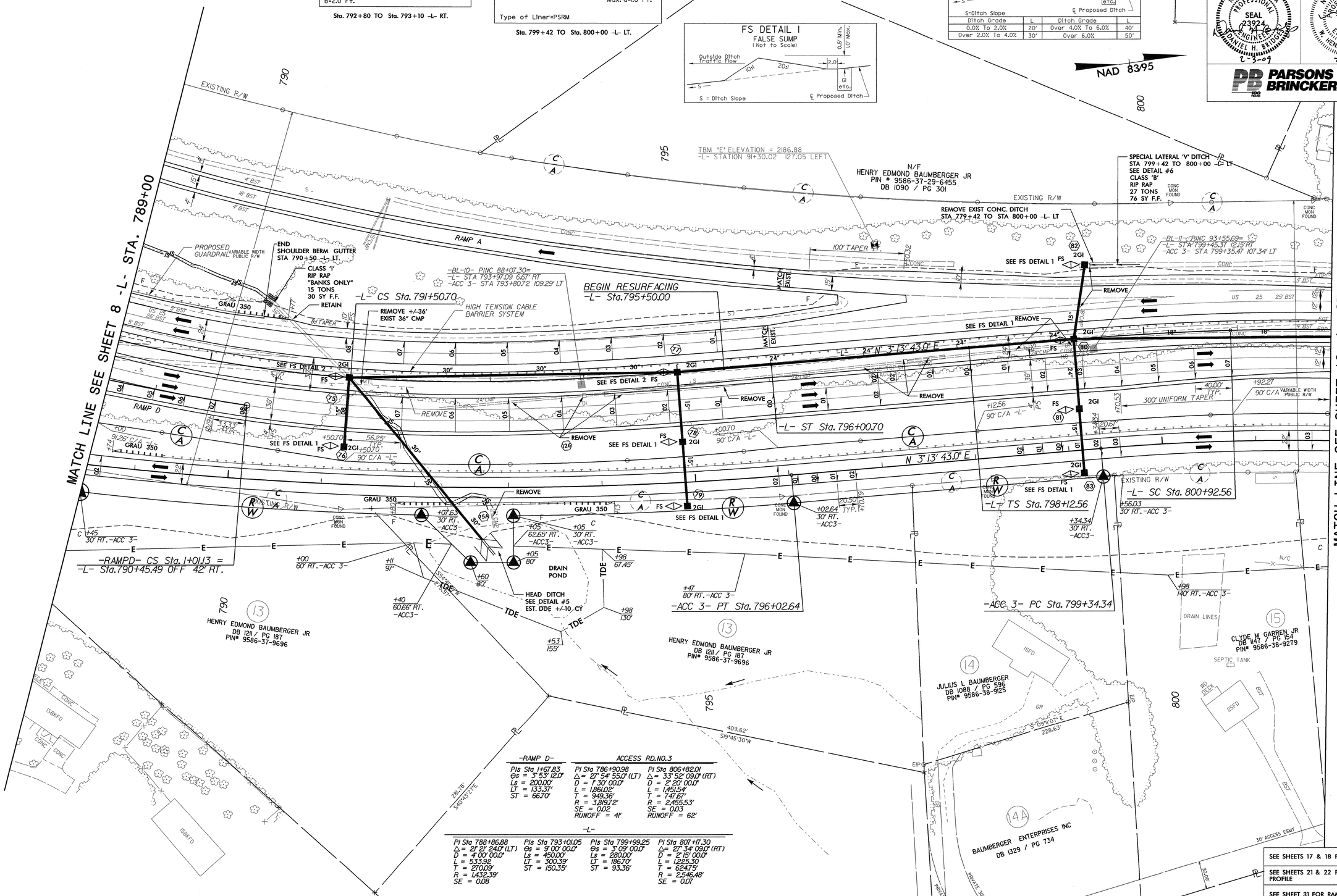
FS DETAIL 2
FALSE SUMP
(Not to Scale)



S=Ditch Slope

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

NAD 83/95



-RAMP D-

Pls Sta 1+67.83
Θs = 3° 53' 12.0"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

ACCESS RD.NO.3

PI Sta 786+90.98
Δ = 27° 54' 55.0" (LT)
D = 1° 30' 00.0"
L = 1,861.02'
T = 949.36'
R = 3,819.72'
SE = 0.02
RUNOFF = 41'

PI Sta 806+82.01
Δ = 33° 52' 09.0" (RT)
D = 2° 20' 00.0"
L = 1,451.54'
T = 747.67'
R = 2,455.53'
SE = 0.03
RUNOFF = 62'

-L-

PI Sta 788+86.88
Δ = 21° 21' 24.0" (LT)
D = 4° 00' 00.0"
L = 533.92
T = 270.09'
R = 1,432.39'
SE = 0.08

Pls Sta 793+01.05
Θs = 9° 00' 00.0"
Ls = 450.00'
LT = 300.39'
ST = 150.35'

Pls Sta 799+99.25
Θs = 3° 09' 00.0"
Ls = 280.00'
LT = 186.70'
ST = 93.36'

PI Sta 807+17.30
Δ= 27° 34' 09.0" (RT)
D = 2° 15' 00.0"
L = 1,225.30
T = 624.76'
R = 2,546.48'
SE = 0.07

SEE SHEETS 17 & 18 FOR -L- PROFILE

SEE SHEETS 21 & 22 FOR ACCESS RD. 3 PROFILE

SEE SHEET 31 FOR RAMP D PROFILE

03-FEB-2009 09:38
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gourley AT W-CHI-DIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGERS 2-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 2/3/09

PARSONS BRINCKERHOFF

NAD 83/95

-L-

PI Sta 807+17.30
Δ= 27° 34' 09.0" (RT)
D = 2° 15' 00.0"
L = 1,225.30
T = 624.75'
R = 2,546.48'
SE = 0.07'

PIs Sta 814+11.21
Θs = 3° 09' 00.0"
Ls = 280.00'
LT = 186.70'
ST = 93.36'

ACCESS RD.NO.3

PI Sta 806+82.01
Δ= 33° 52' 09.0" (RT)
D = 2° 20' 00.0"
L = 1,451.54'
T = 741.67'
R = 2,455.53'
SE = 0.03
RUNOFF = 62'

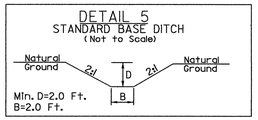
-Y5-

PI Sta 11+86.00
Δ= 18° 00' 00.0" (RT)
D = 12° 19' 18.0"
L = 146.08'
T = 73.65'
R = 465.00'
SE = SEE PLANS
RUNOFF = SEE PLANS

-Y6-

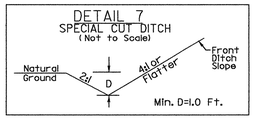
PI Sta 10+57.20
Δ= 32° 36' 00.0" (LT)
D = 48° 00' 00.0"
L = 67.92'
T = 34.91'
R = 119.37'
SE = 0.03
RUNOFF = SEE PLANS

DETAIL 5
STANDARD BASE DITCH
(Not to Scale)



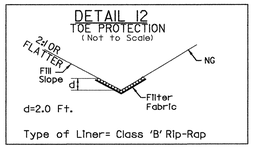
Sta. 11+00 -Y5- LT.

DETAIL 7
SPECIAL CUT DITCH
(Not to Scale)



Sta. 810+50 TO Sta. 811+50 -L- RT.
Sta. 811+00 TO Sta. 812+50 -L- LT.

DETAIL 12
TOE PROTECTION
(Not to Scale)



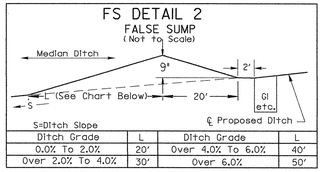
Type of Liner= Class 'B' Rip-Rap

Sta. 10+20 TO Sta. 11+50 -Y5- LT.

R-505 INTERSECTION ADT'S
ACCESS RD #3 AND GREEN HILL RD.

760 / 1060 — 510 / 750
ACCESS RD #3 — ACCESS RD #3
100 / 100 — 100 / 100
100 / 100 — 100 / 100
360 / 660 — 100 / 100 — SR 1829 (KAY RD) -Y5-
240 / 440 — SR 1830 -Y6- (GENERAL HILL RD) 10 / 50 (2)
2009 ADT / 2029 ADT

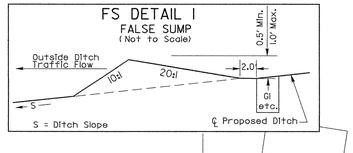
FS DETAIL 2
FALSE SUMP
(Not to Scale)



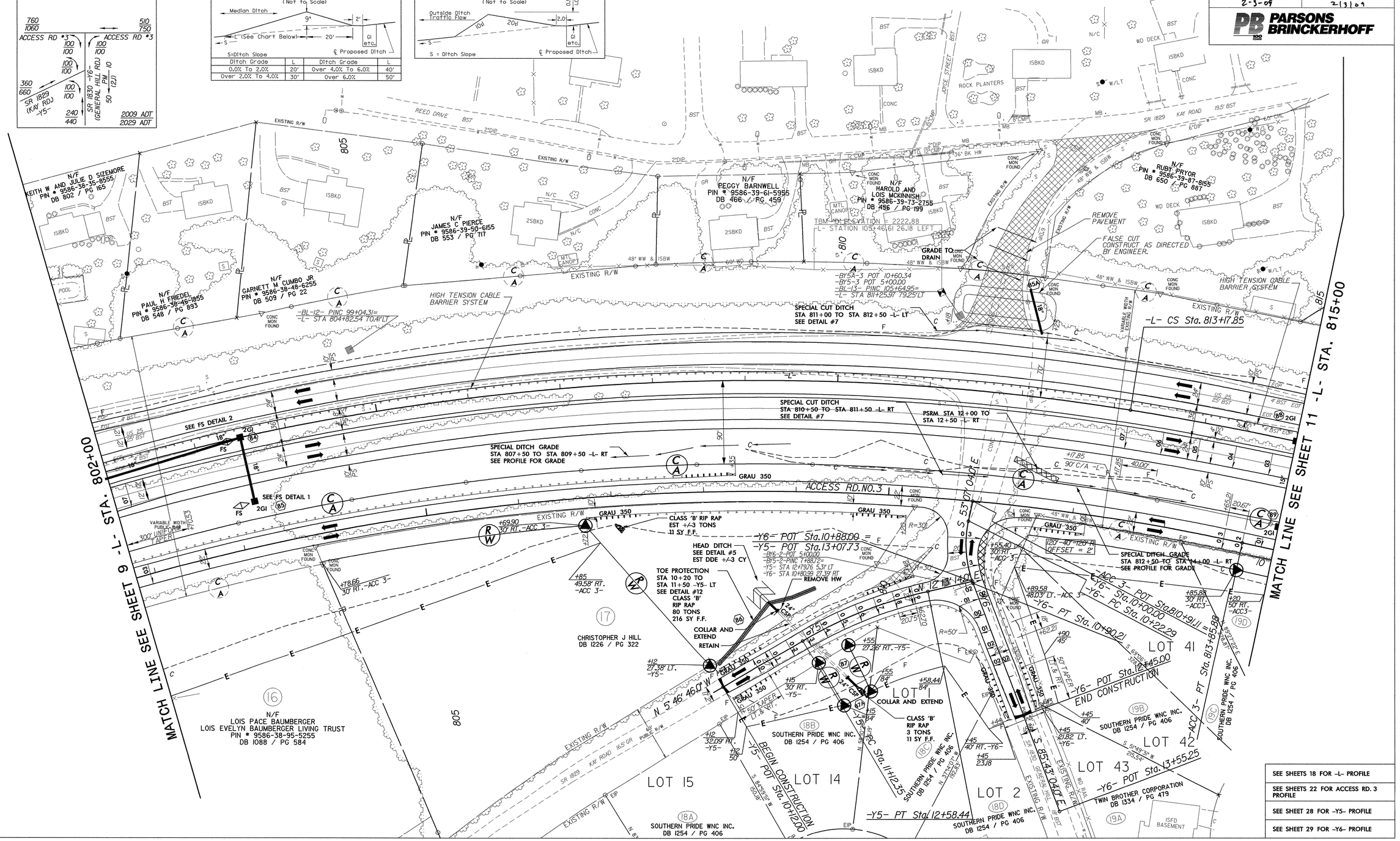
S=Ditch Slope

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FS DETAIL 1
FALSE SUMP
(Not to Scale)



S = Ditch Slope



SEE SHEETS 18 FOR -L- PROFILE
SEE SHEETS 22 FOR ACCESS RD. 3 PROFILE
SEE SHEET 28 FOR -Y5- PROFILE
SEE SHEET 29 FOR -Y6- PROFILE

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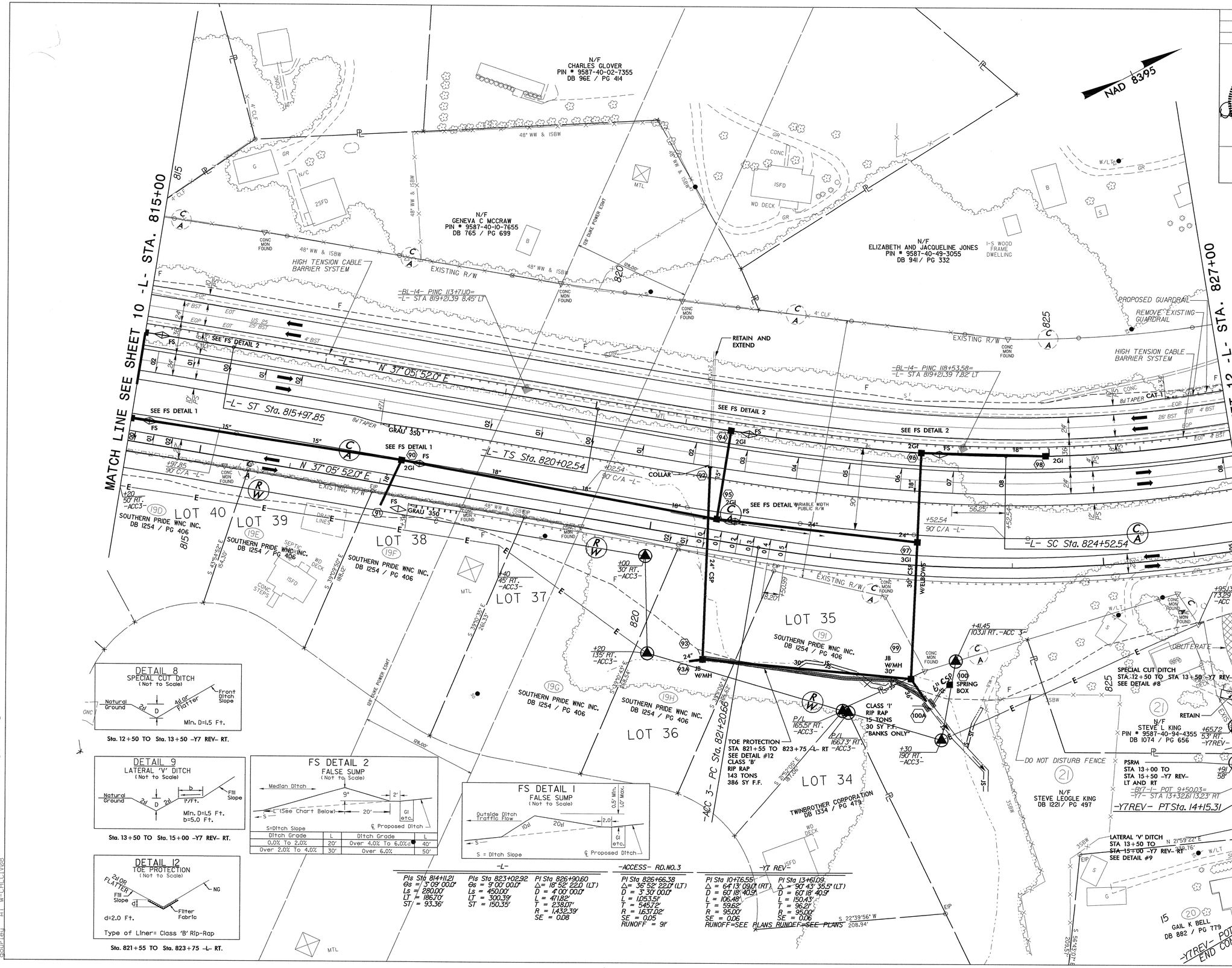
Combs, AT W-CHI-CIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES 2-12-09	NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 2/13/09

PARSONS BRINCKERHOFF



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

-L-

Pls Sta 814+11.21	Pls Sta 823+02.92	Pl Sta 826+90.60
Θs = 3°09'00.0"	Θs = 9°00'00.0"	Δ= 18°52'22.0 (LT)
Ls = 280.00'	Ls = 450.00'	D = 4°00'00.0"
LT = 186.70'	LT = 300.39'	L = 471.82'
ST = 93.36'	ST = 150.35'	T = 238.07'
		R = 1,432.39'
		SE = 0.08

-ACCESS- RD.NO.3

Pl Sta 826+66.38
Δ= 36°52'22.0" (LT)
D = 3°30'00.0"
L = 1,053.51'
T = 545.72'
R = 1,637.02'
SE = 0.05
RUNOFF = 91'

-Y7 REV-

Pl Sta 10+76.55	Pl Sta 13+61.09
Δ = 64°13'09.0" (RT)	Δ = 90°43'35.5" (LT)
D = 60°18'40.9"	D = 60°18'40.9"
L = 106.48'	L = 150.43'
T = 59.62'	T = 96.21'
R = 95.00'	R = 95.00'
SE = 0.06	SE = 0.06
RUNOFF=SEE PLANS	RUNOFF=SEE PLANS

SEE SHEETS 18 & 19 FOR -L- PROFILE

SEE SHEETS 22 & 23 FOR ACCESS RD. 3 PROFILE

SEE SHEET 29 -Y7 REV- PROFILE

12-FEB-2009 11:33
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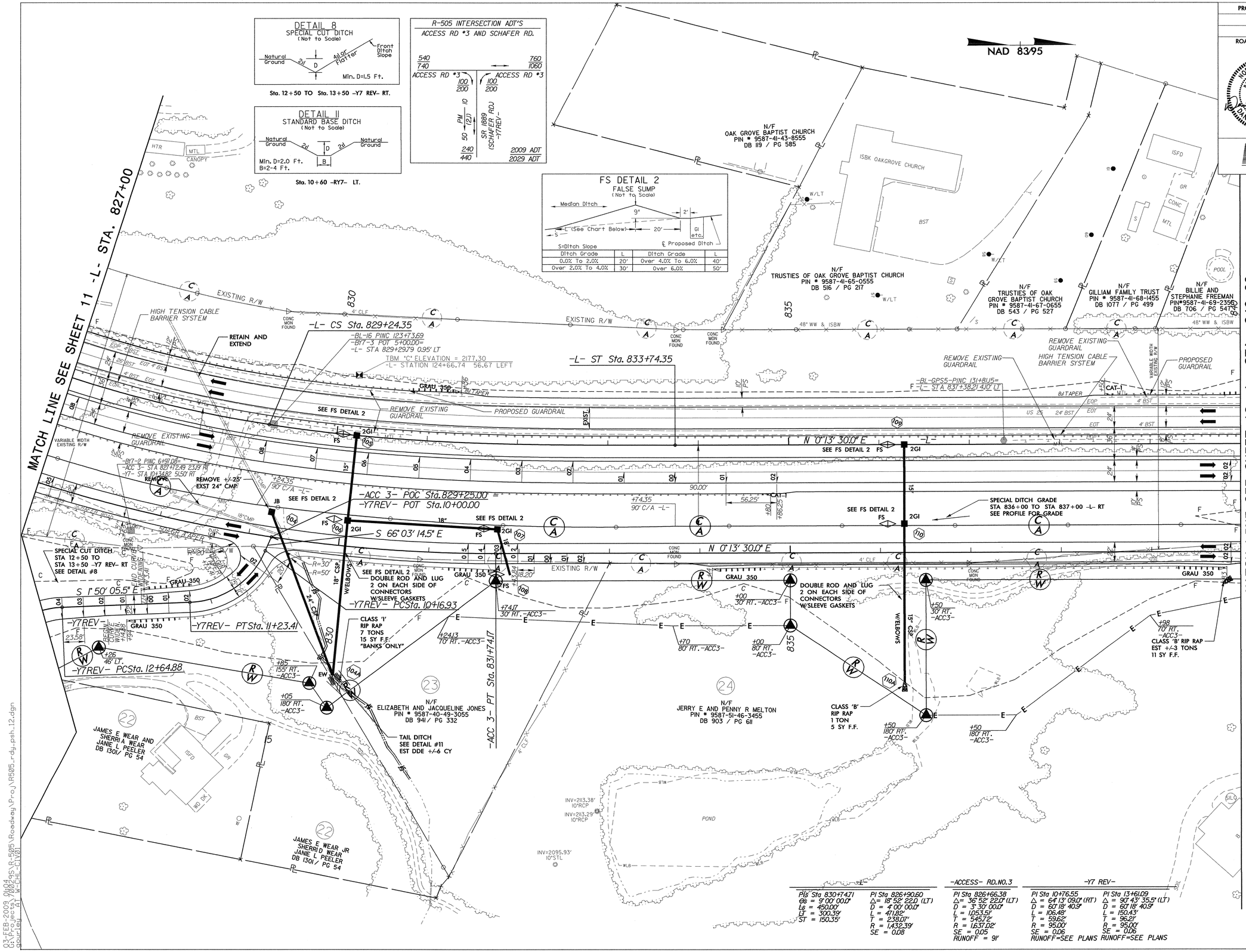
gourley AT W-CHLCIV08

PROJECT REFERENCE NO.	SHEET NO.
R-505	12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 023924 ENGINEER DANIEL H. BRIDGES — 2-3-09

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — 2/3/09

PARSONS BRINCKERHOFF



SEE SHEETS 19 FOR -L- PROFILE

SEE SHEETS 23 FOR ACCESS RD. 3 PROFILE

SEE SHEET 29 FOR -Y7REV- PROFILE

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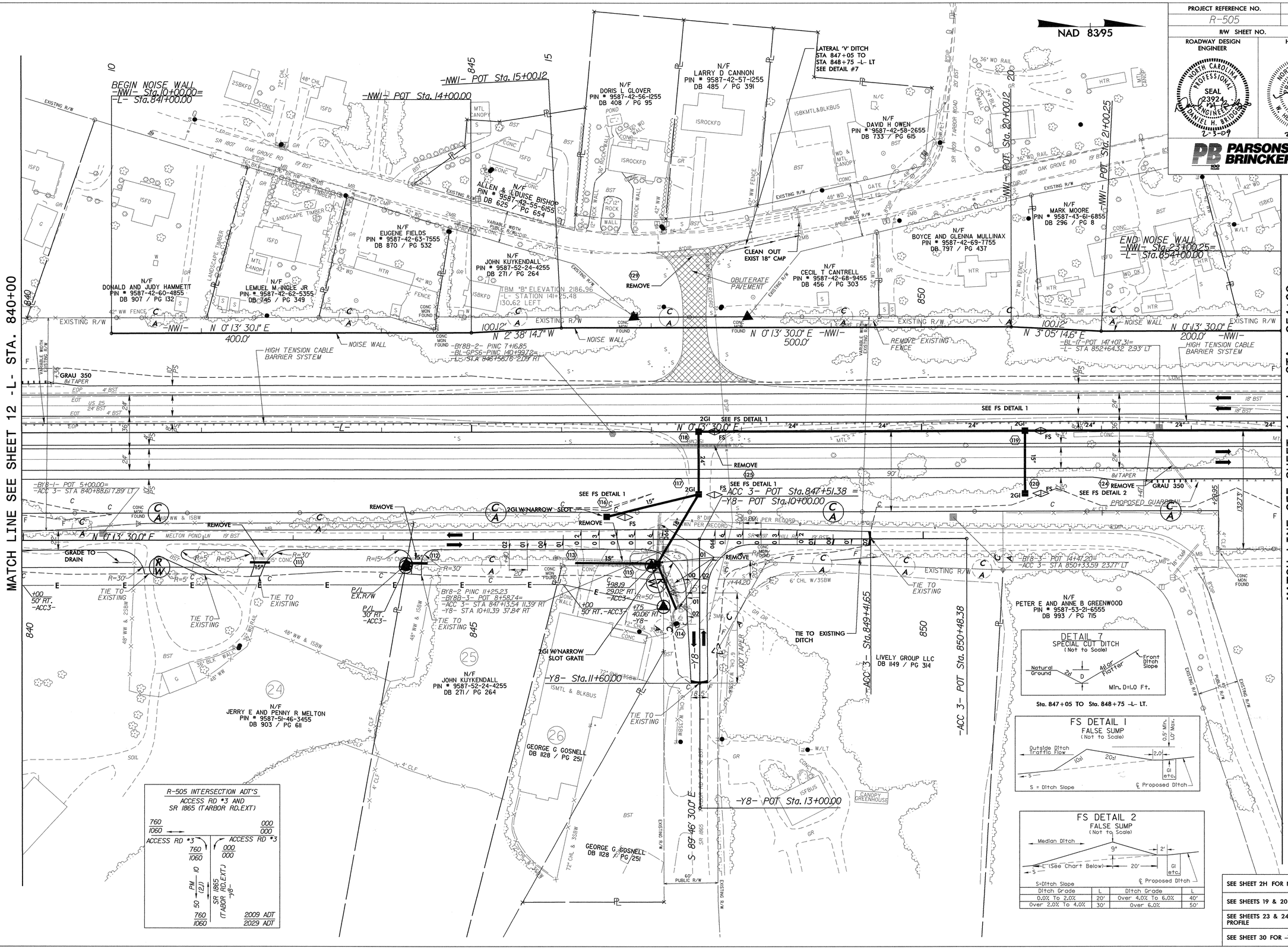
Courtesy AT W-CHL-CIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES 2-3-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. 2/3/09

PARSONS BRINCKERHOFF



SEE SHEET 2H FOR NWI ENVELOPE

SEE SHEETS 19 & 20 FOR -L- PROFILE

SEE SHEETS 23 & 24 FOR ACCESS RD. 3 PROFILE

SEE SHEET 30 FOR -Y8- PROFILE

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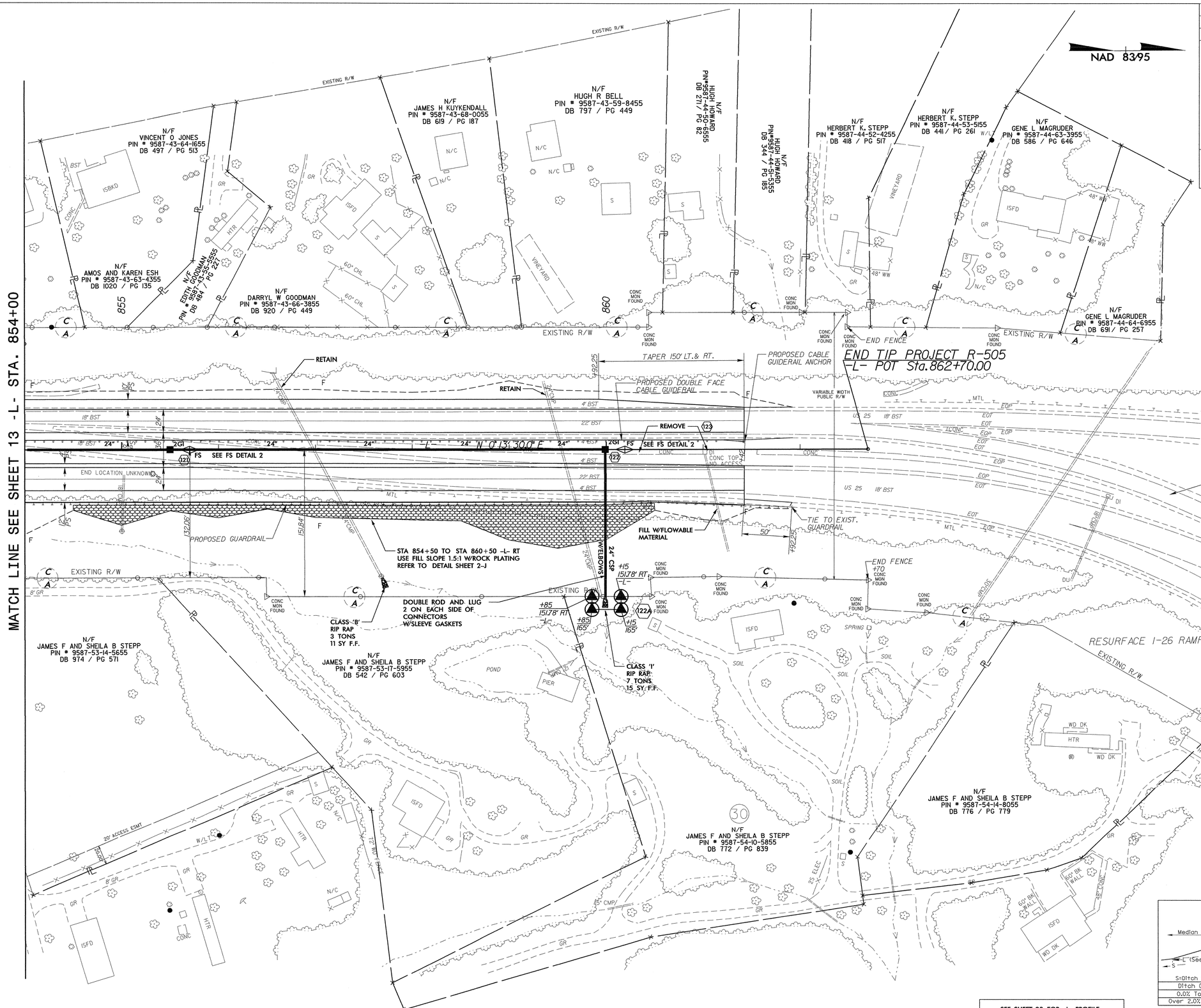
gourley W_CHL_C1V01

PROJECT REFERENCE NO.	SHEET NO.
R-505	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES 2-6-09

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. 2/9/09

PARSONS BRINCKERHOFF



FS DETAIL 2
FALSE SUMP
(Not to Scale)

Median Ditch — 9' — 2' — L (See Chart Below) — 20' — GI etc. — S — ℄ Proposed Ditch

S=Ditch Slope

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

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Courley AT W-CHL_CIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	15

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGE

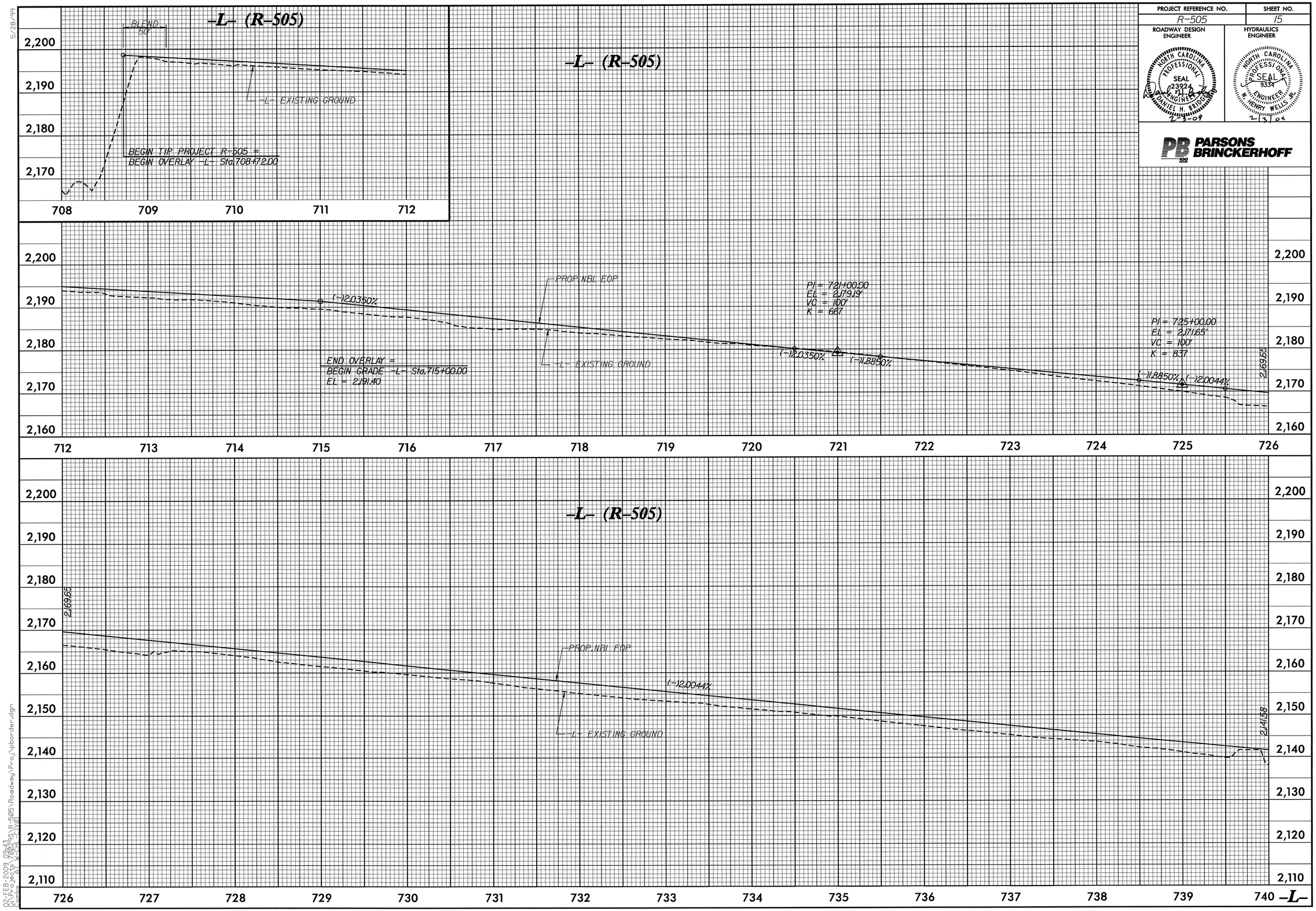
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

2/3/09

PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	16

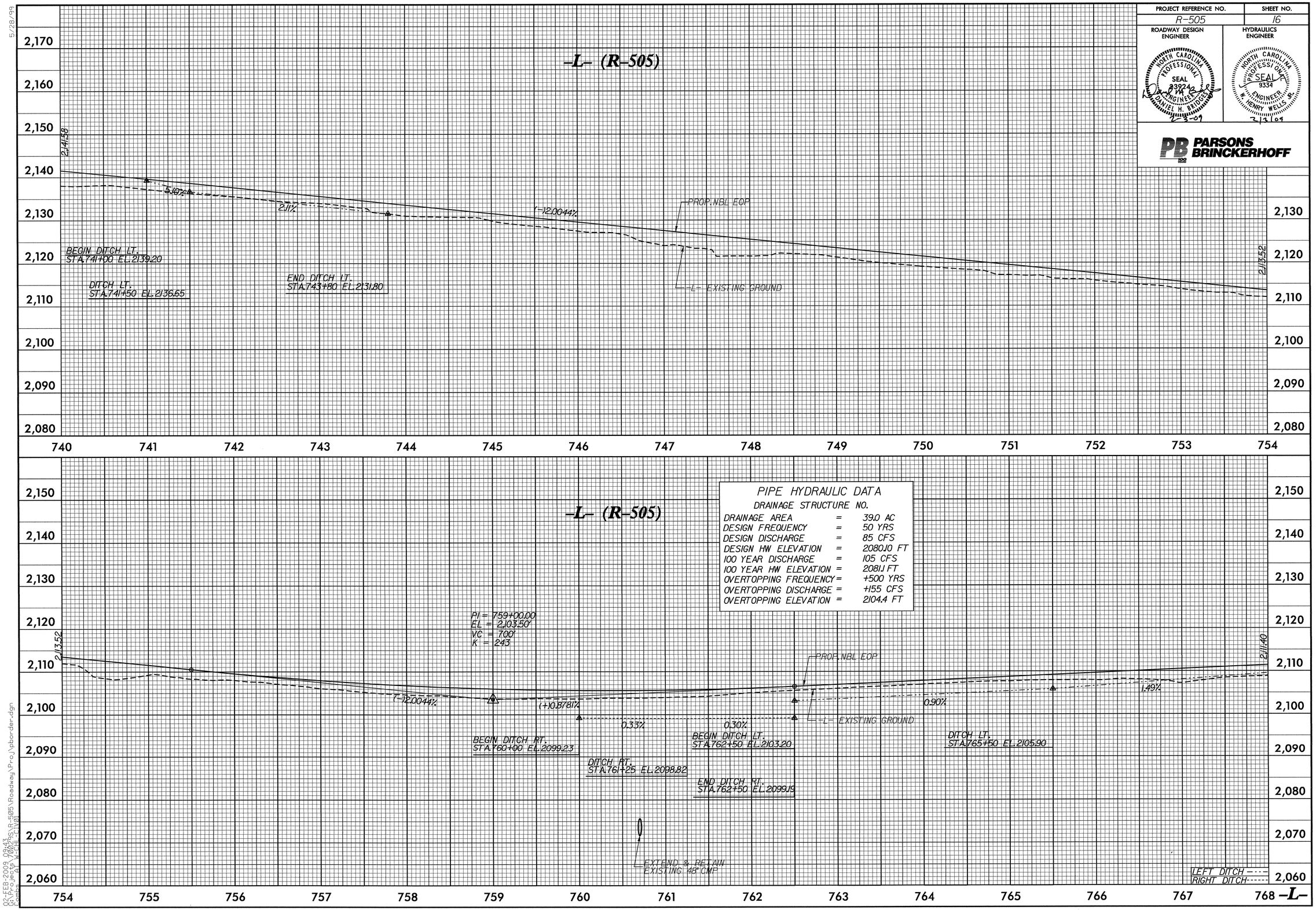
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	17

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

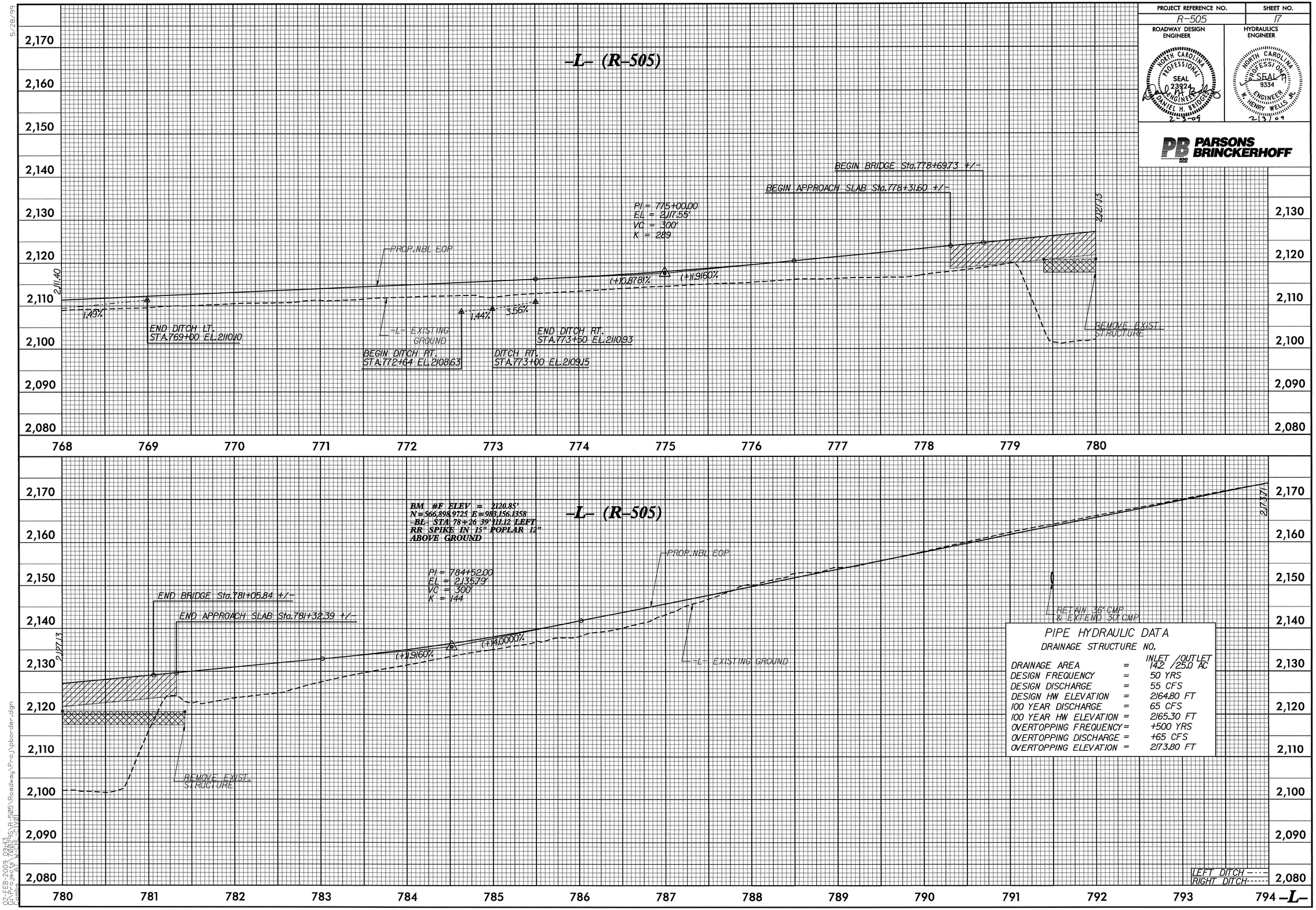
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

2/3/09

PARSONS BRINCKERHOFF



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

		INLET /OUTLET
DRAINAGE AREA	=	14.2 /25.0 AC
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	55 CFS
DESIGN HW ELEVATION	=	2164.80 FT
100 YEAR DISCHARGE	=	65 CFS
100 YEAR HW ELEVATION	=	2165.30 FT
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	+65 CFS
OVERTOPPING ELEVATION	=	2173.80 FT

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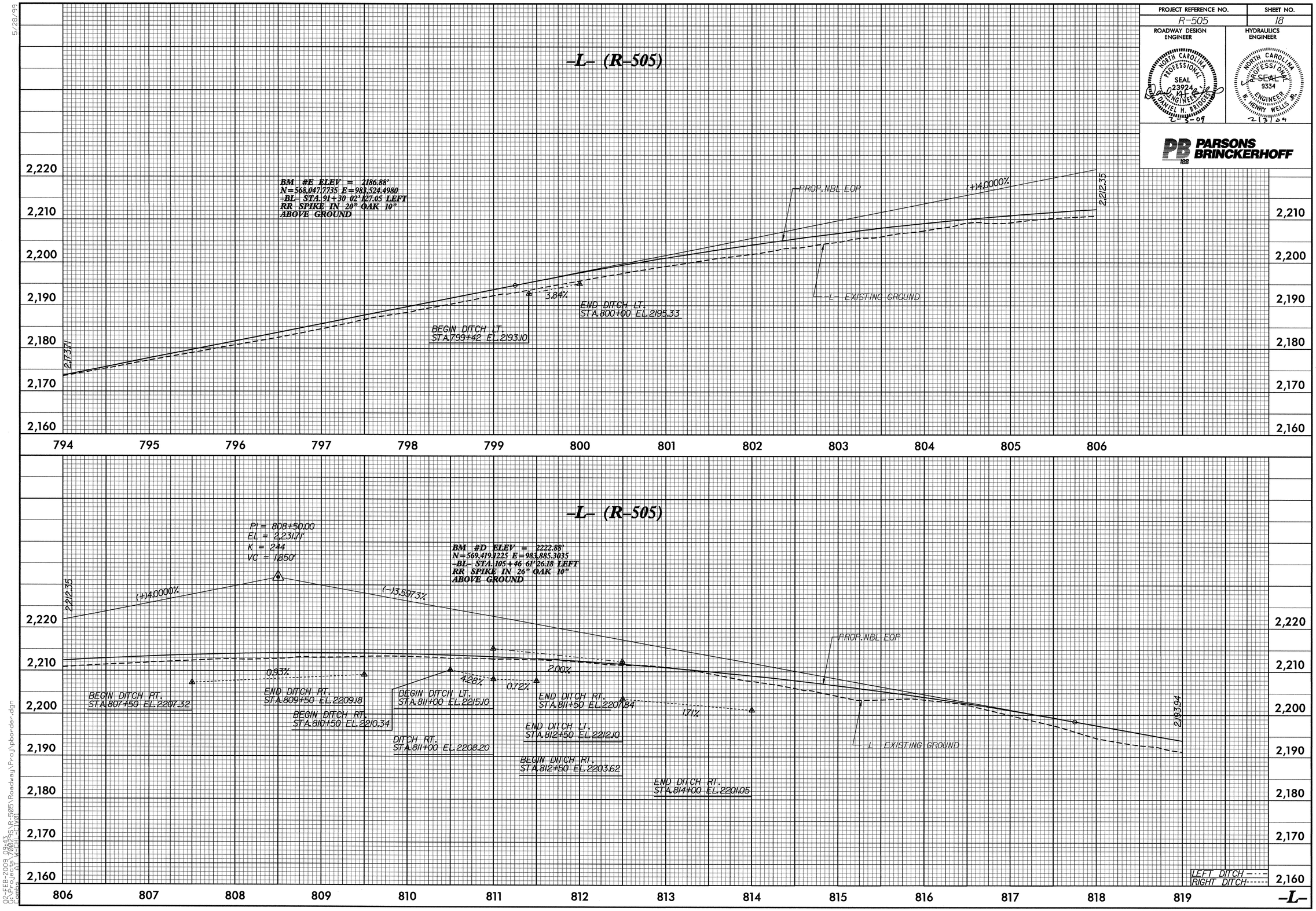
PROJECT REFERENCE NO.	SHEET NO.
R-505	18

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PARSONS BRINCKERHOFF



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Pentagon 2K - WCHI - CLIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	19

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PARSONS BRINCKERHOFF

PIPE HYDRAULIC DATA

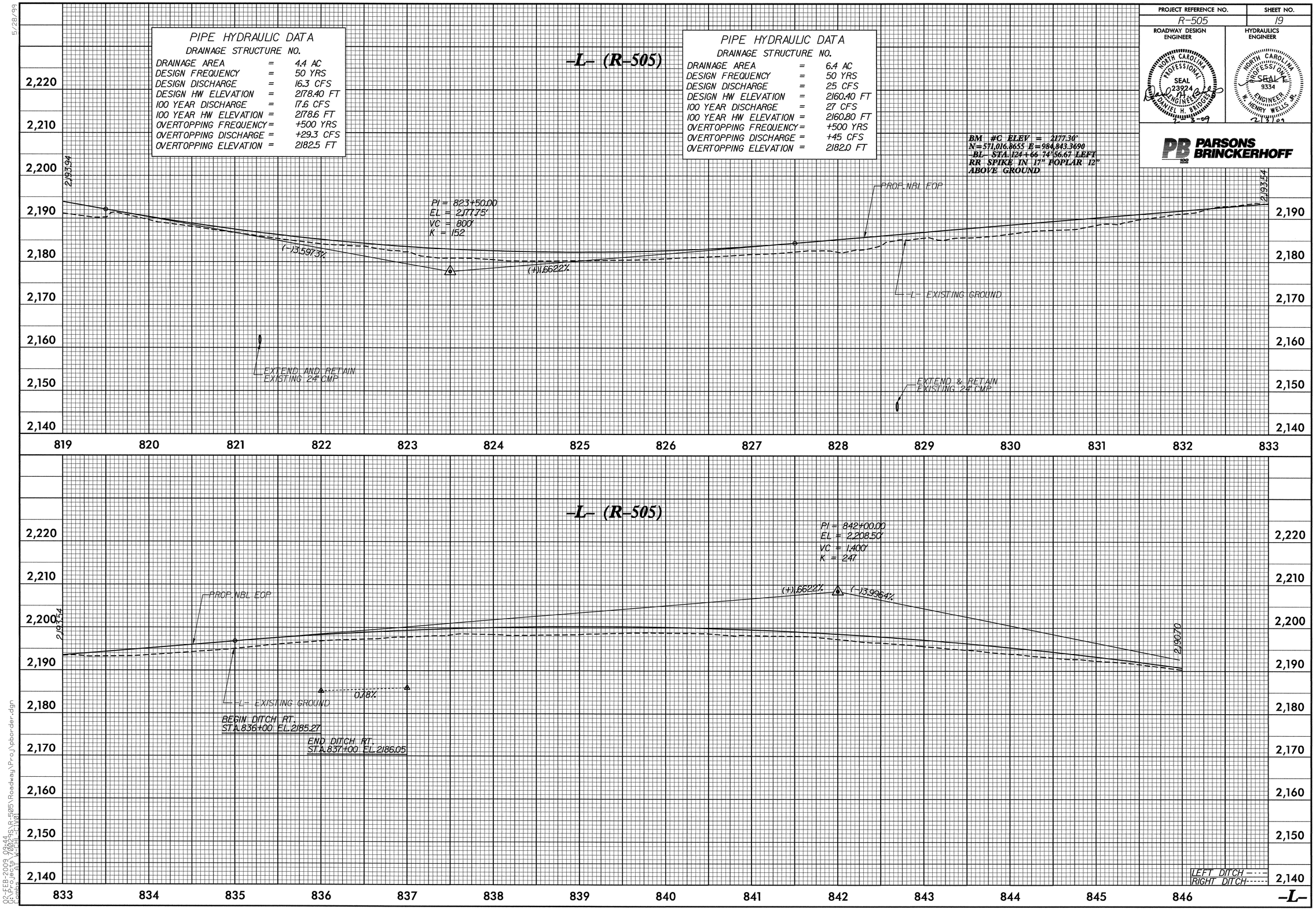
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	4.4 AC
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	16.3 CFS
DESIGN HW ELEVATION	=	2178.40 FT
100 YEAR DISCHARGE	=	17.6 CFS
100 YEAR HW ELEVATION	=	2178.6 FT
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	+29.3 CFS
OVERTOPPING ELEVATION	=	2182.5 FT

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	6.4 AC
DESIGN FREQUENCY	=	50 YRS
DESIGN DISCHARGE	=	25 CFS
DESIGN HW ELEVATION	=	2160.40 FT
100 YEAR DISCHARGE	=	27 CFS
100 YEAR HW ELEVATION	=	2160.80 FT
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	+45 CFS
OVERTOPPING ELEVATION	=	2182.0 FT



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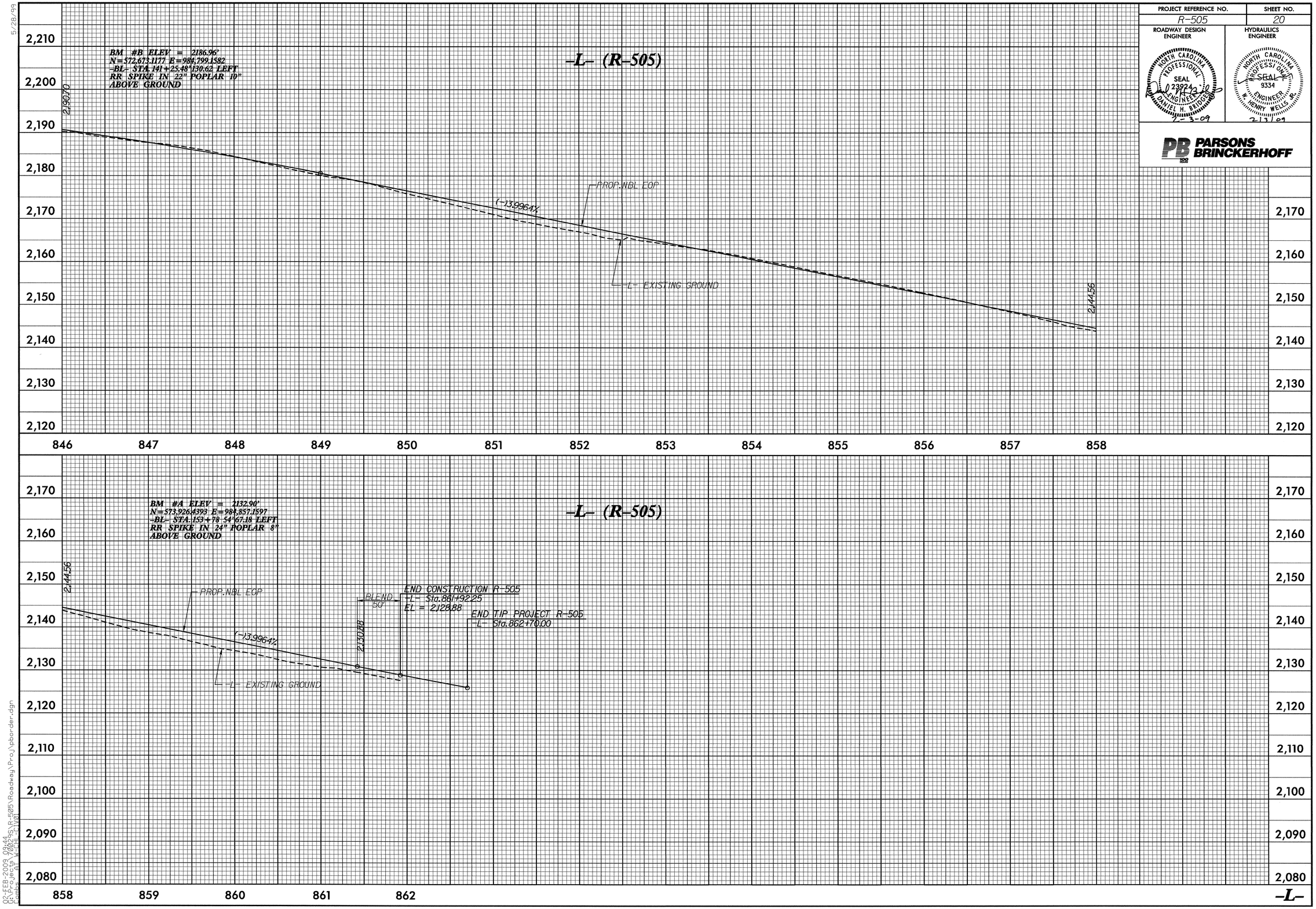
PROJECT REFERENCE NO.	SHEET NO.
R-505	20

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PARSONS BRINCKERHOFF



PROJECT REFERENCE NO.	SHEET NO.
R-505	21

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 023924 ENGINEER DANIEL H. BRIDGERS 2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR. 2/3/09

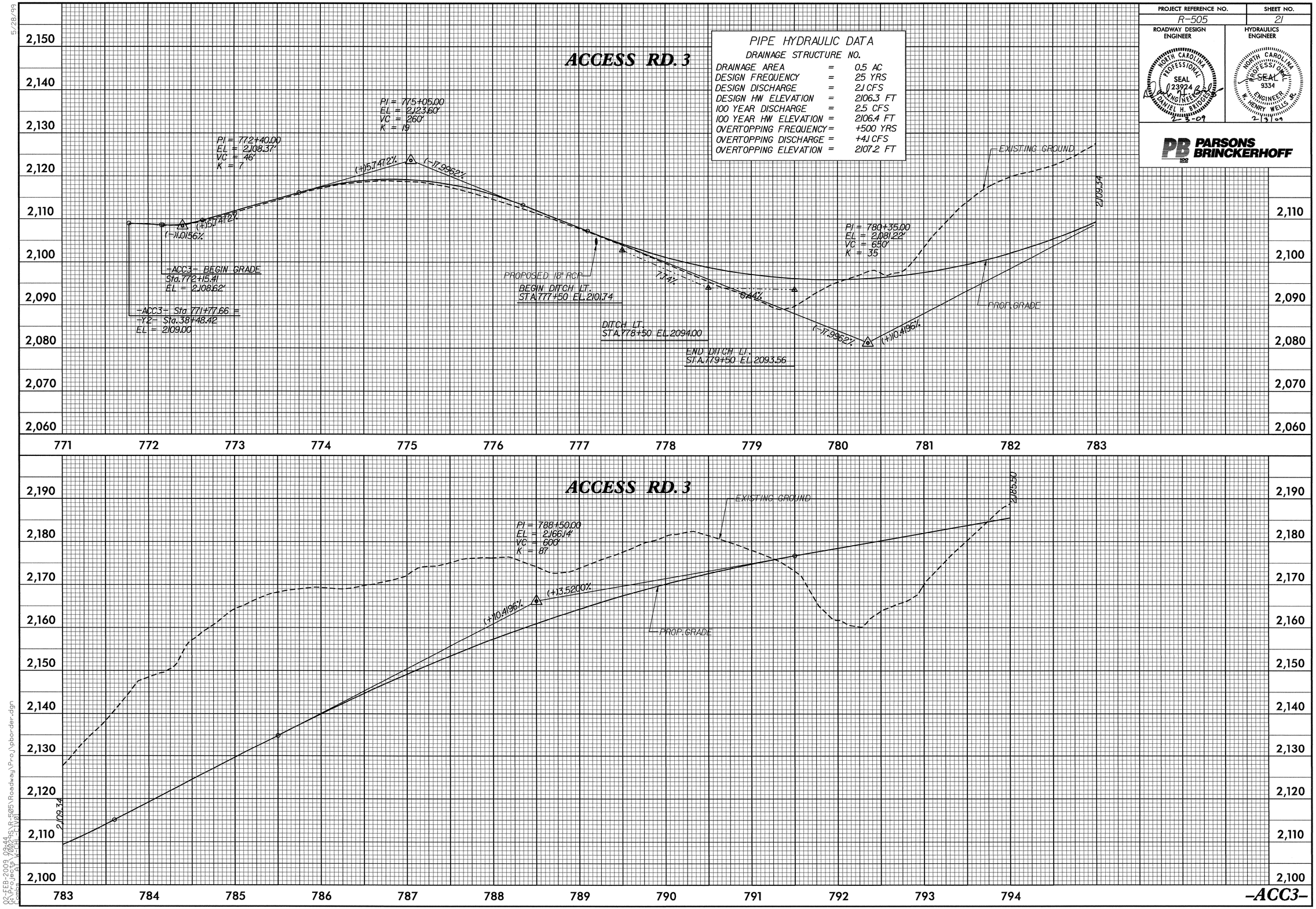
PARSONS BRINCKERHOFF

ACCESS RD. 3

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	0.5 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	2.1 CFS
DESIGN HW ELEVATION	=	2106.3 FT
100 YEAR DISCHARGE	=	2.5 CFS
100 YEAR HW ELEVATION	=	2106.4 FT
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	+4.1 CFS
OVERTOPPING ELEVATION	=	2107.2 FT



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PROJECT REFERENCE NO.	SHEET NO.
R-505	22

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

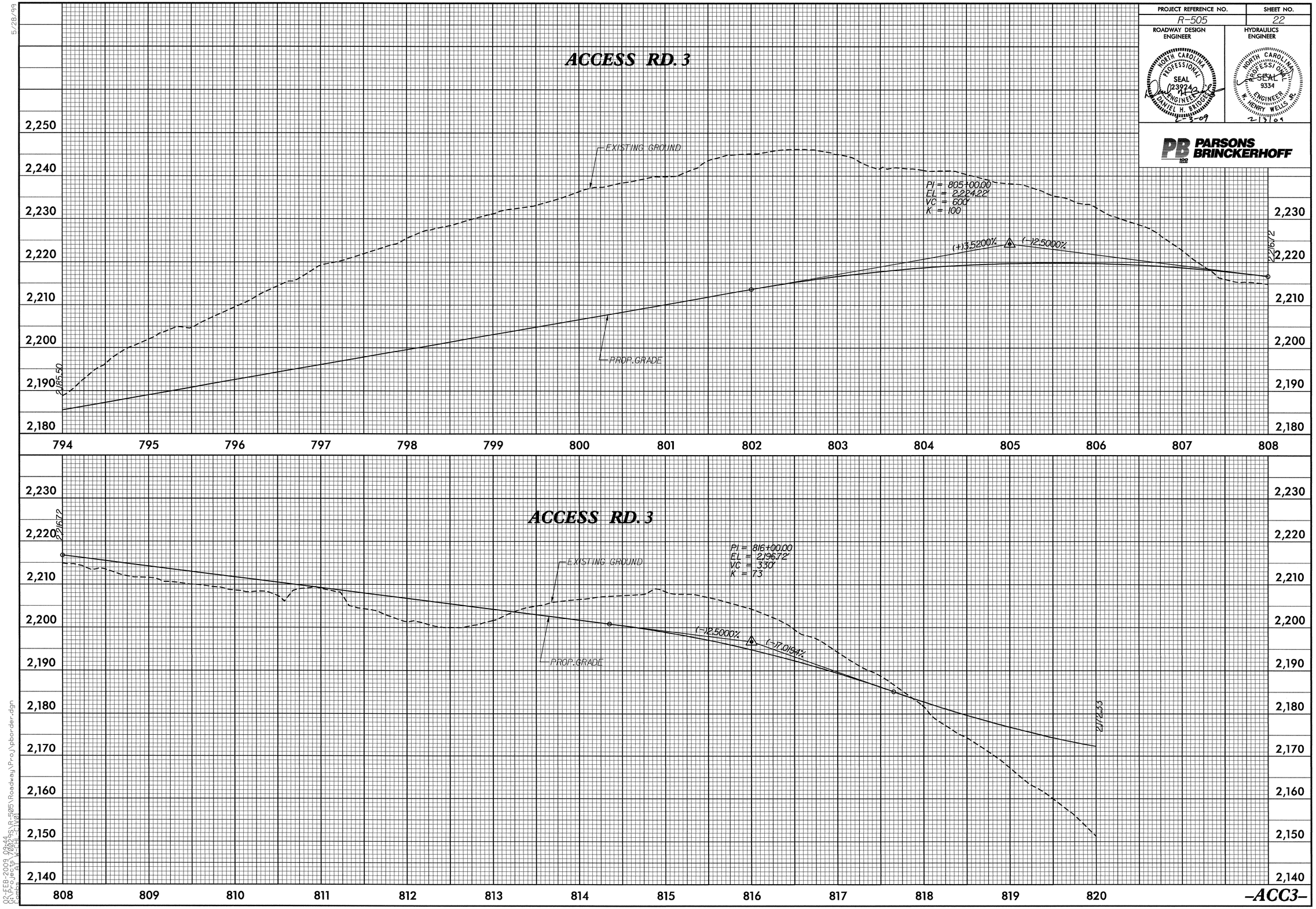
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

2/3/09

PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	23

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

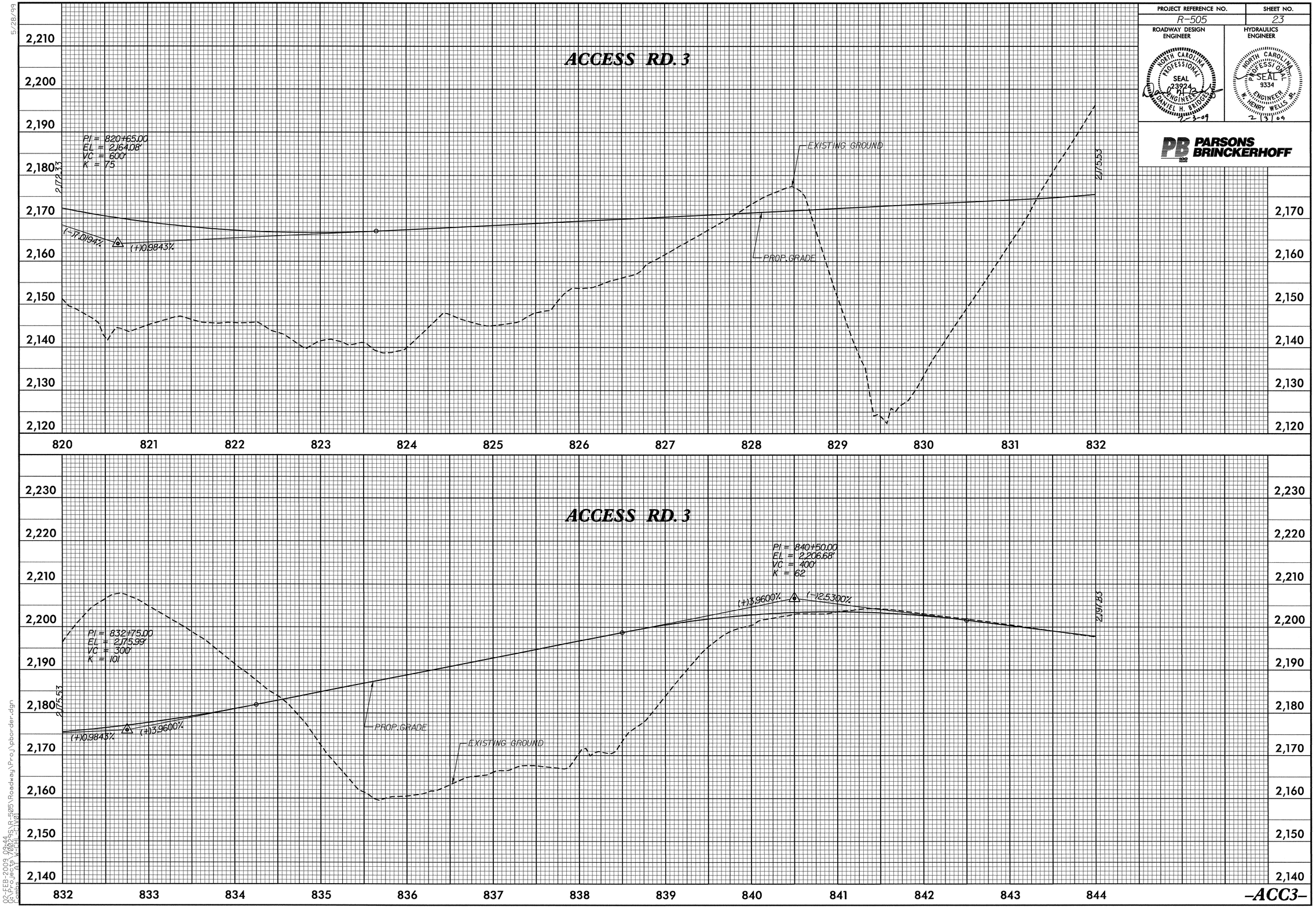
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

2/3/09

PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	24

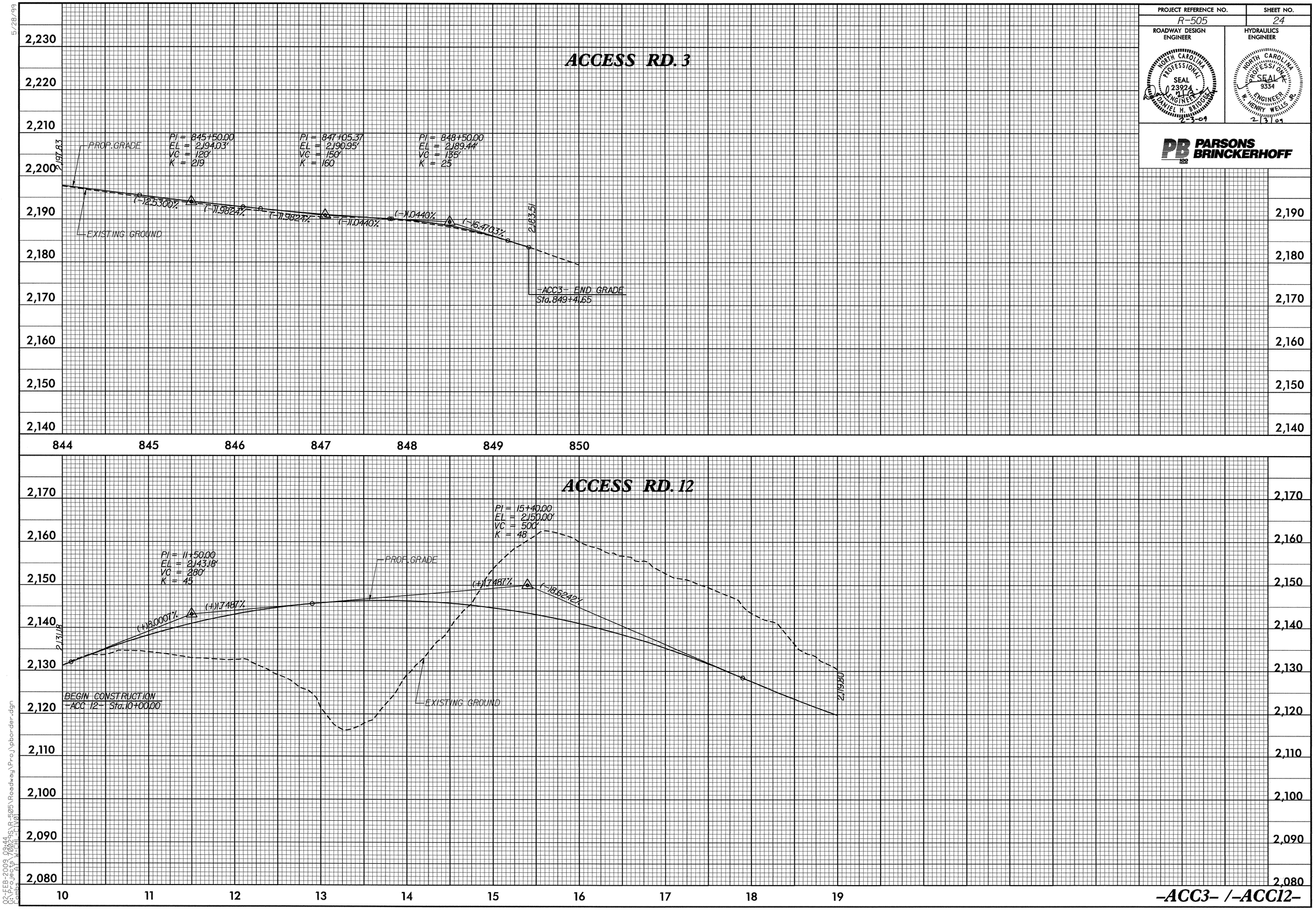
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGER
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
2/3/09

PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	25

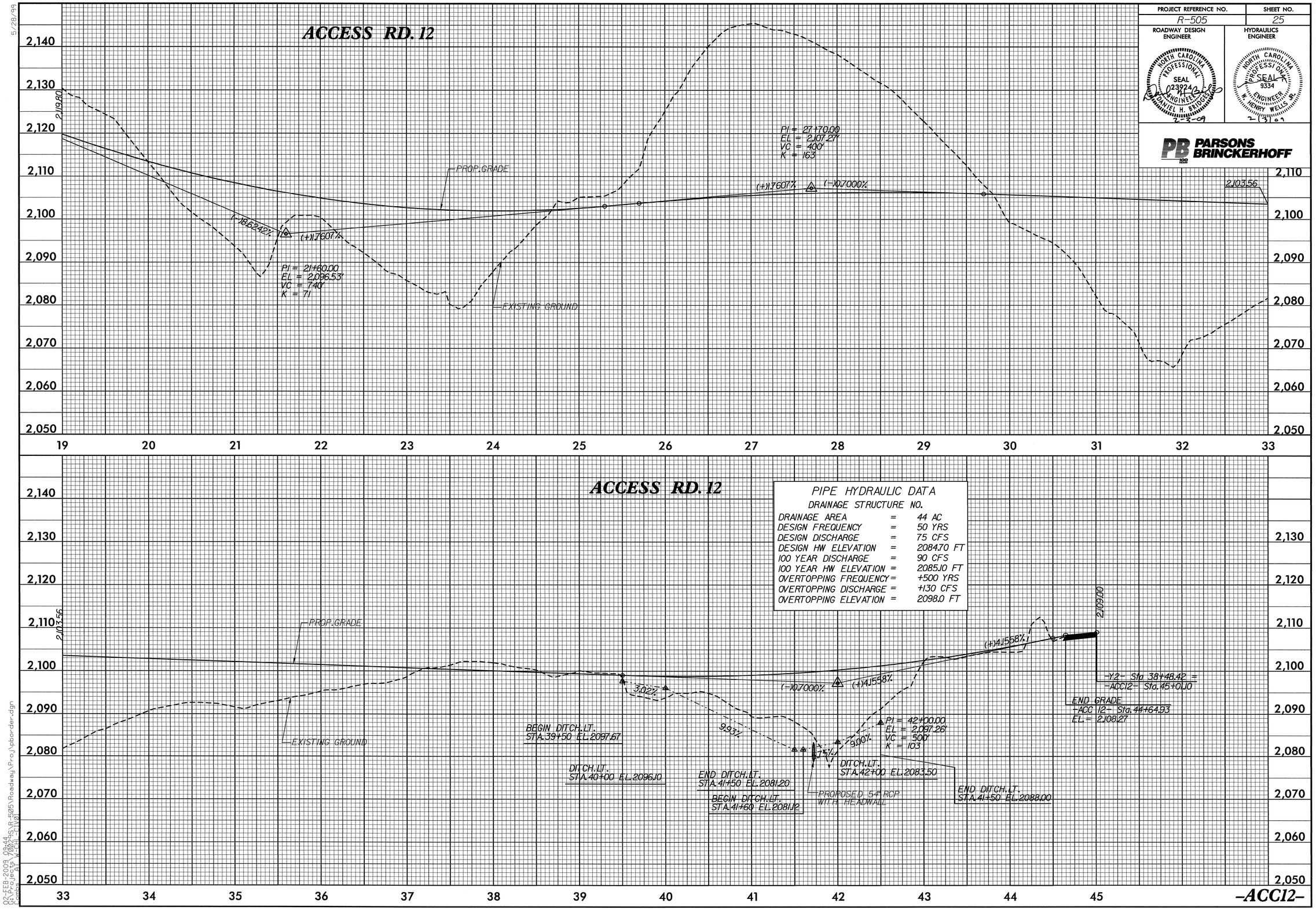
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 023924 ENGINEER DANIEL H. BRIDGES
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
2/3/09

PB PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	26

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

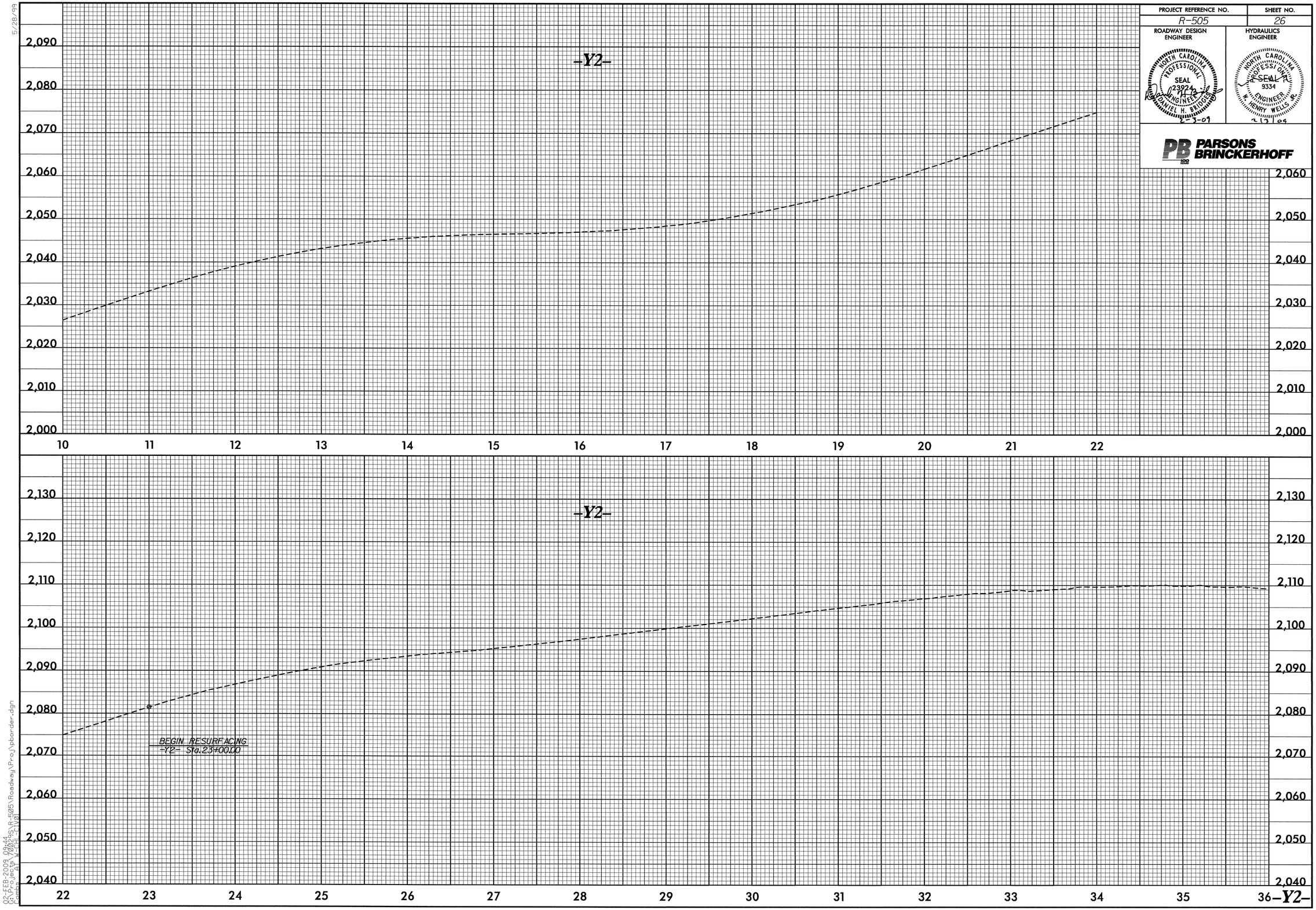
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

2/3/09

PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	27

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES

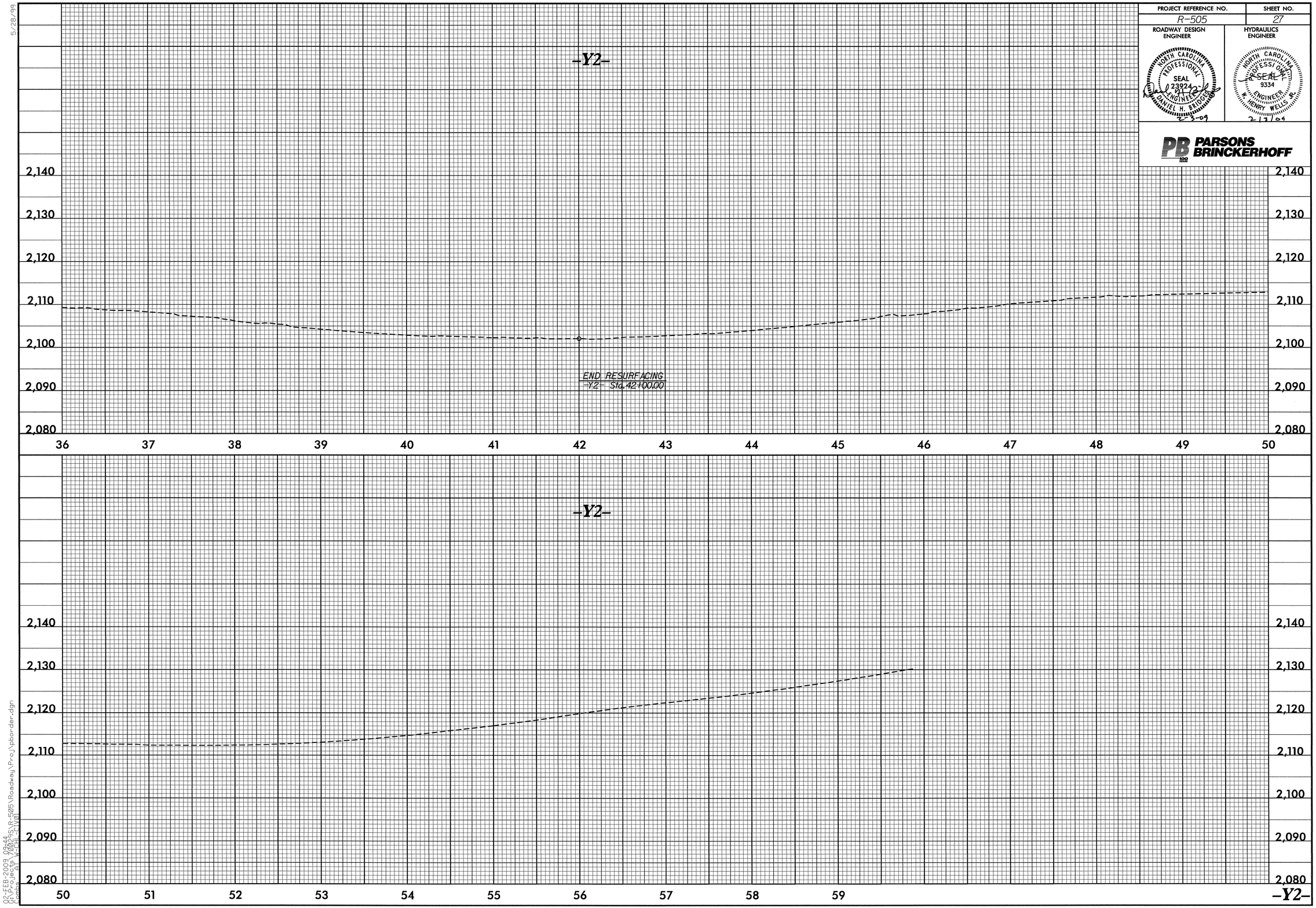
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

2/3/09

PARSONS BRINCKERHOFF



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PROJECT REFERENCE NO.	SHEET NO.
R-505	28

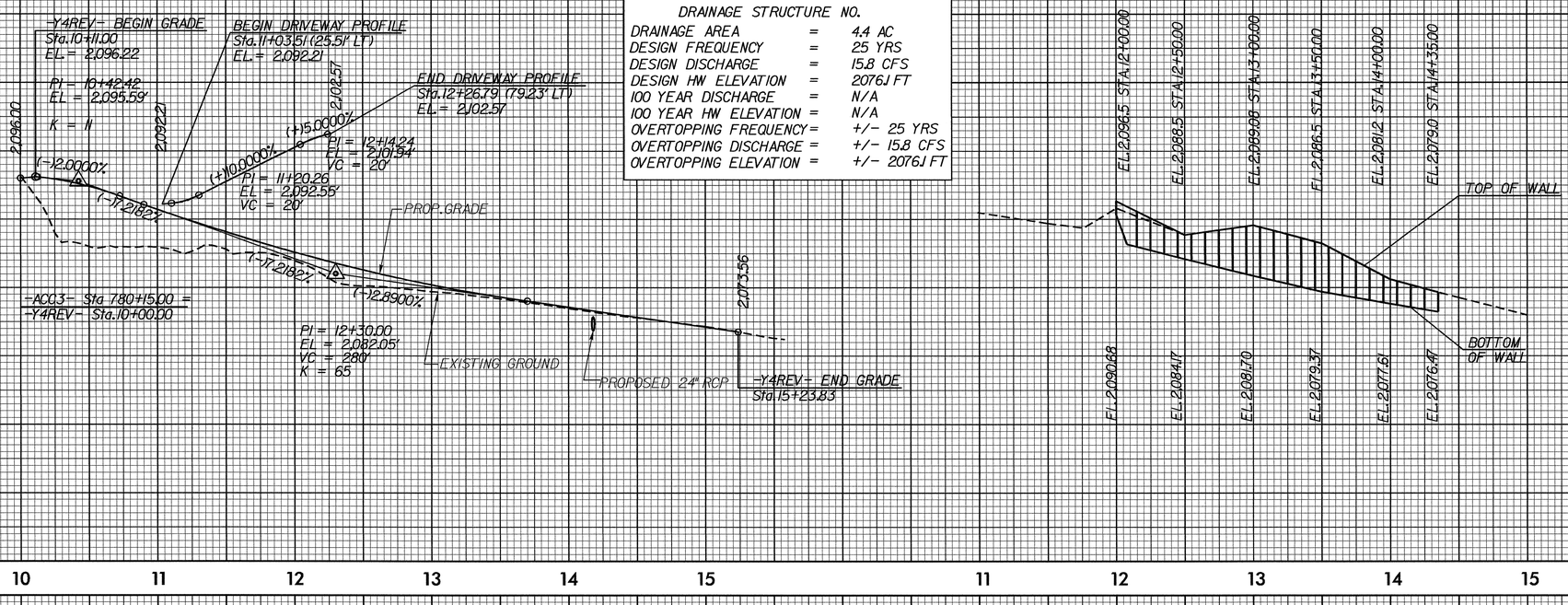
ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 023924 ENGINEER DANIEL H. BRIDGES 2-3-09

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS, JR. 2/3/09

PARSONS BRINCKERHOFF

-Y4REV-

RETAINING WALL #1

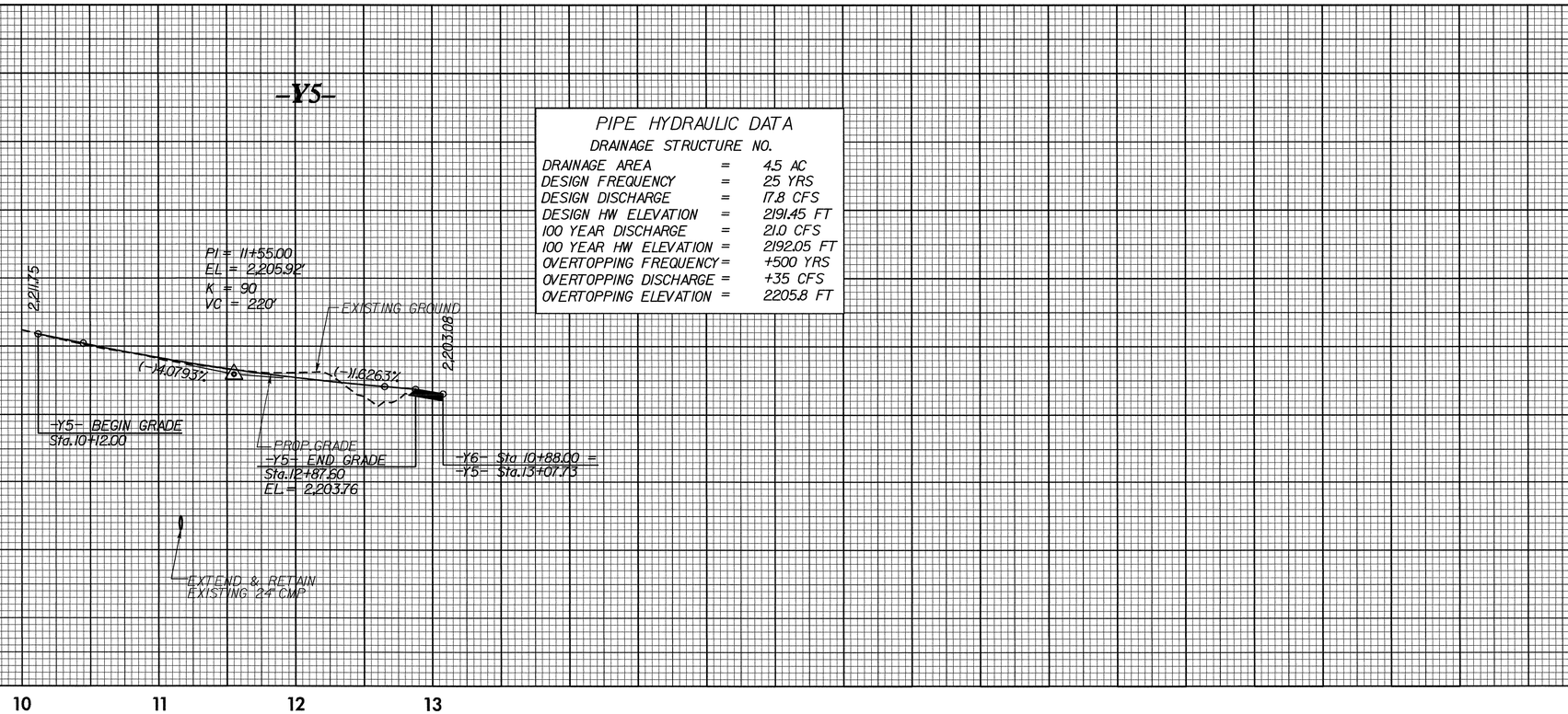


PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	4.4 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	15.8 CFS
DESIGN HW ELEVATION	=	2076.1 FT
100 YEAR DISCHARGE	=	N/A
100 YEAR HW ELEVATION	=	N/A
OVERTOPPING FREQUENCY	=	+/- 25 YRS
OVERTOPPING DISCHARGE	=	+/- 15.8 CFS
OVERTOPPING ELEVATION	=	+/- 2076.1 FT

-Y5-



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.

DRAINAGE AREA	=	4.5 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	17.8 CFS
DESIGN HW ELEVATION	=	2191.45 FT
100 YEAR DISCHARGE	=	21.0 CFS
100 YEAR HW ELEVATION	=	2192.05 FT
OVERTOPPING FREQUENCY	=	+500 YRS
OVERTOPPING DISCHARGE	=	+35 CFS
OVERTOPPING ELEVATION	=	2205.8 FT

-Y4REV- /-Y5-

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PROJECT REFERENCE NO.	SHEET NO.
R-505	29

ROADWAY DESIGN ENGINEER

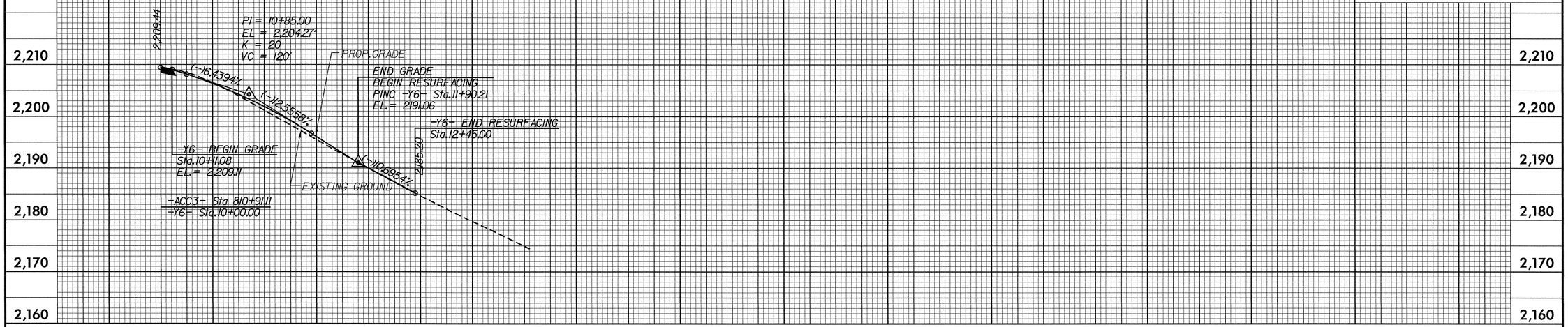
NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGEWATER
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.
2/3/09

PARSONS BRINCKERHOFF

-Y6-



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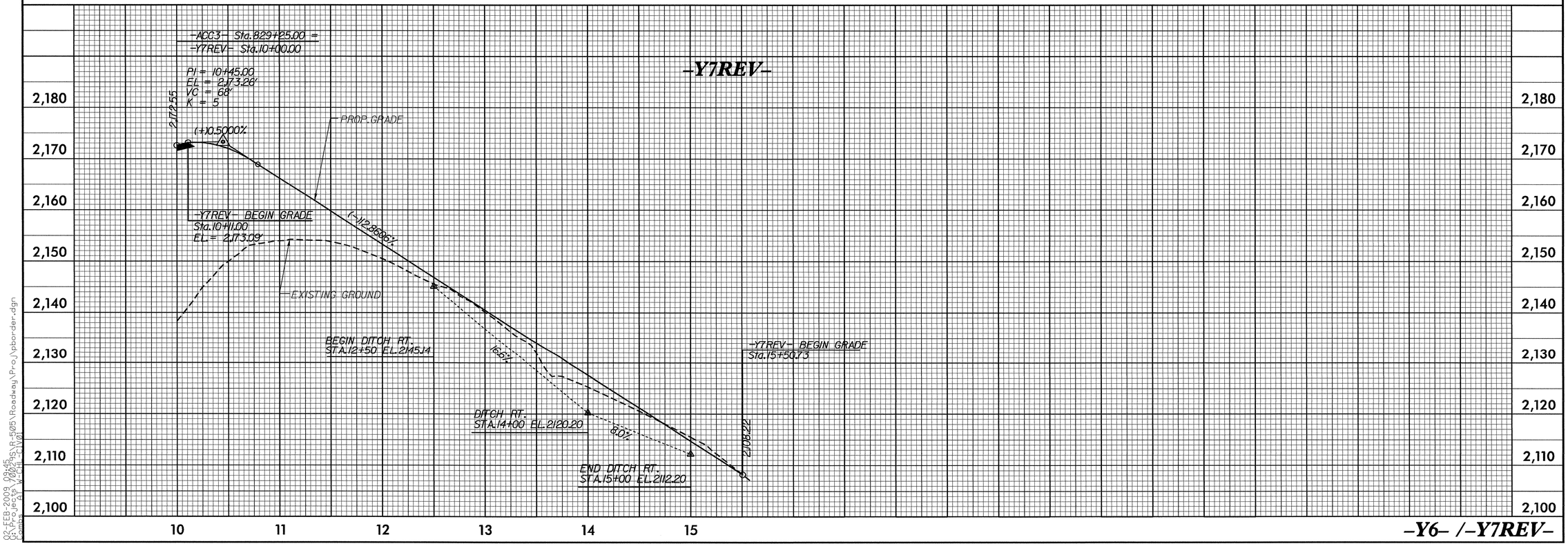

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Complex 1 (Y-HI 2)(V01)

PROJECT REFERENCE NO.	SHEET NO.
R-505	30

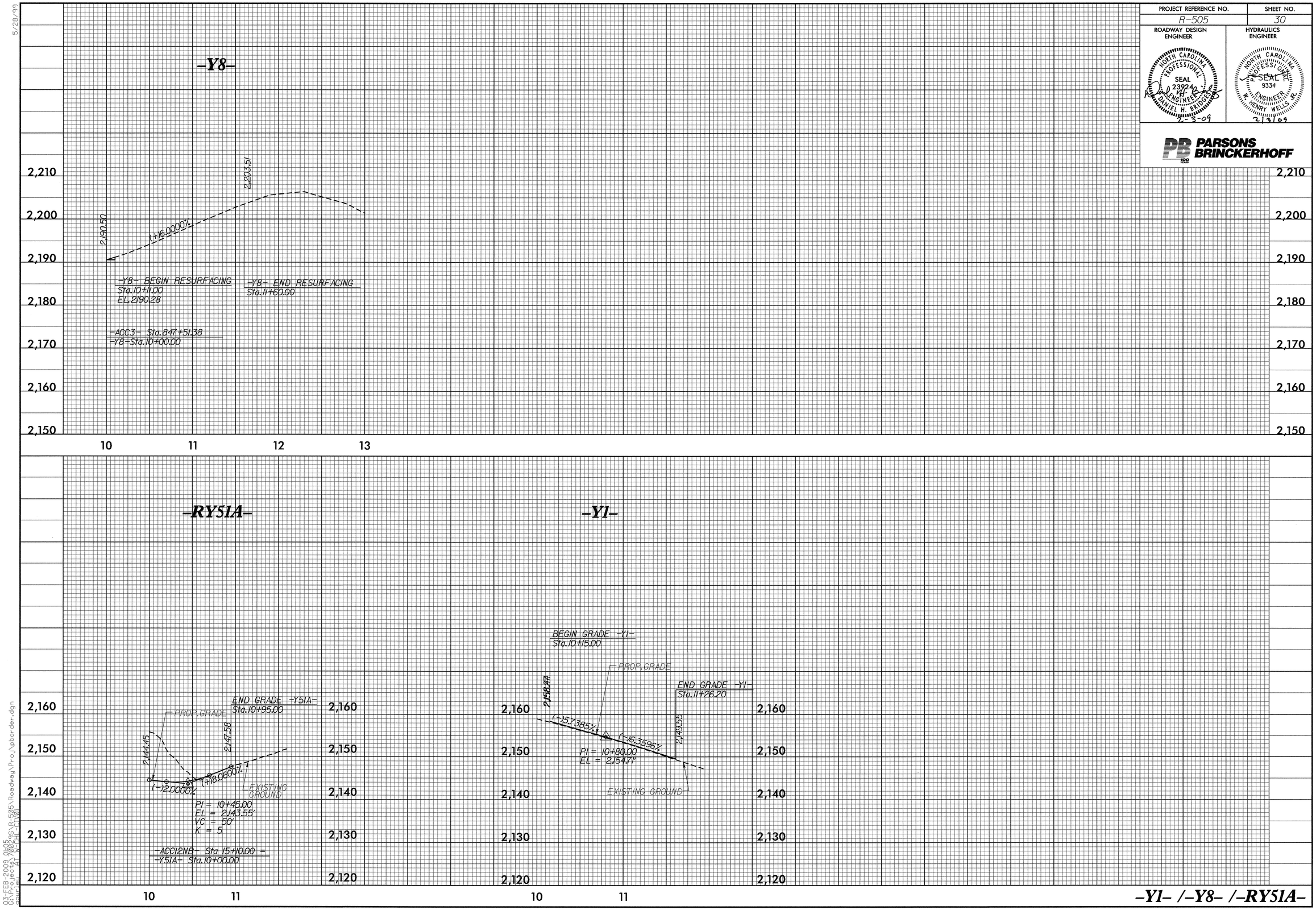
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
2/3/09

PARSONS BRINCKERHOFF



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courtesy AT W-CHL-CIV01

PROJECT REFERENCE NO.	SHEET NO.
R-505	31

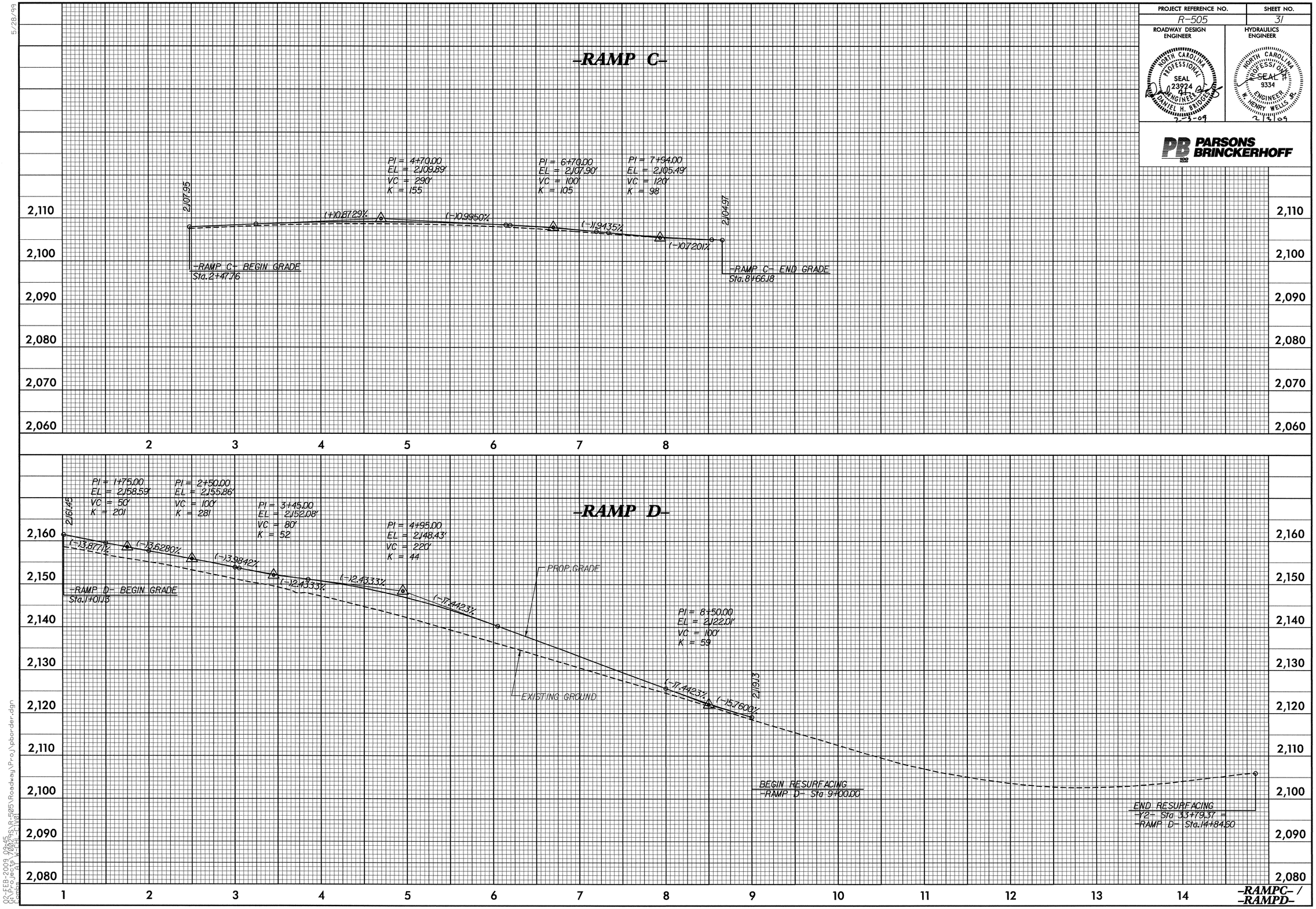
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 23924 ENGINEER DANIEL H. BRIDGES
2-3-09

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.
2/3/09

PARSONS BRINCKERHOFF



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