

PROJECT: EB-4978

CONTRACT: C202632

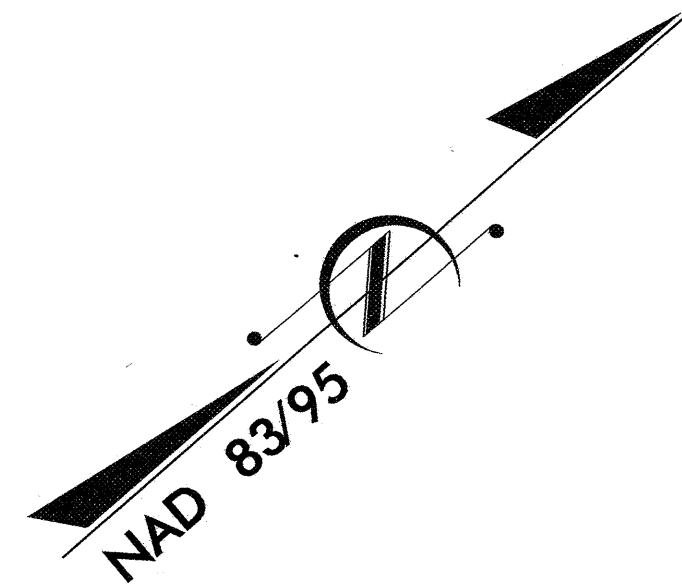
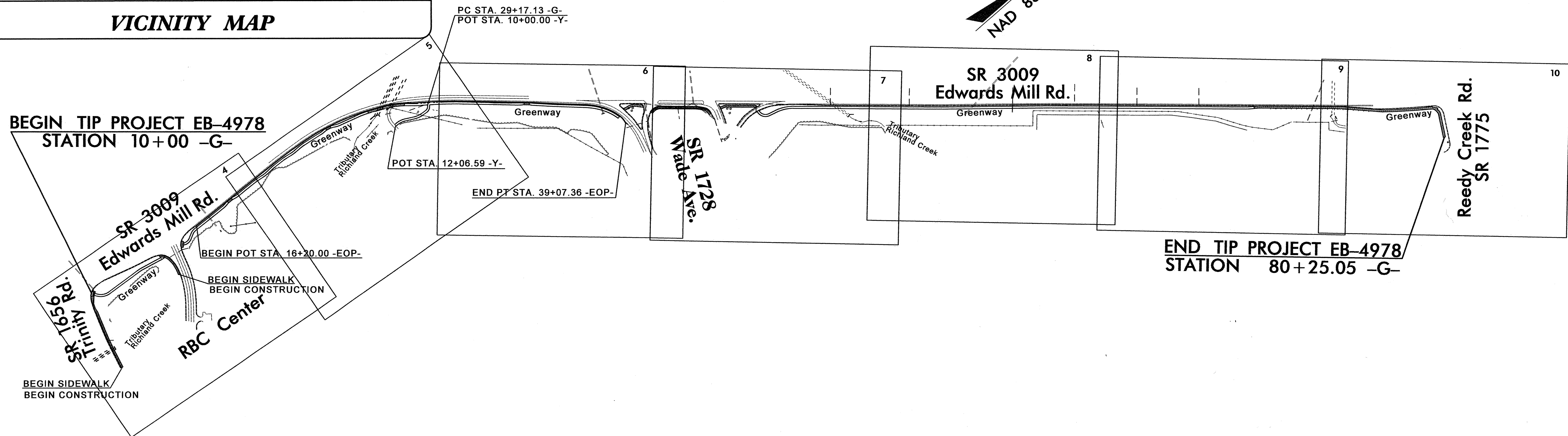
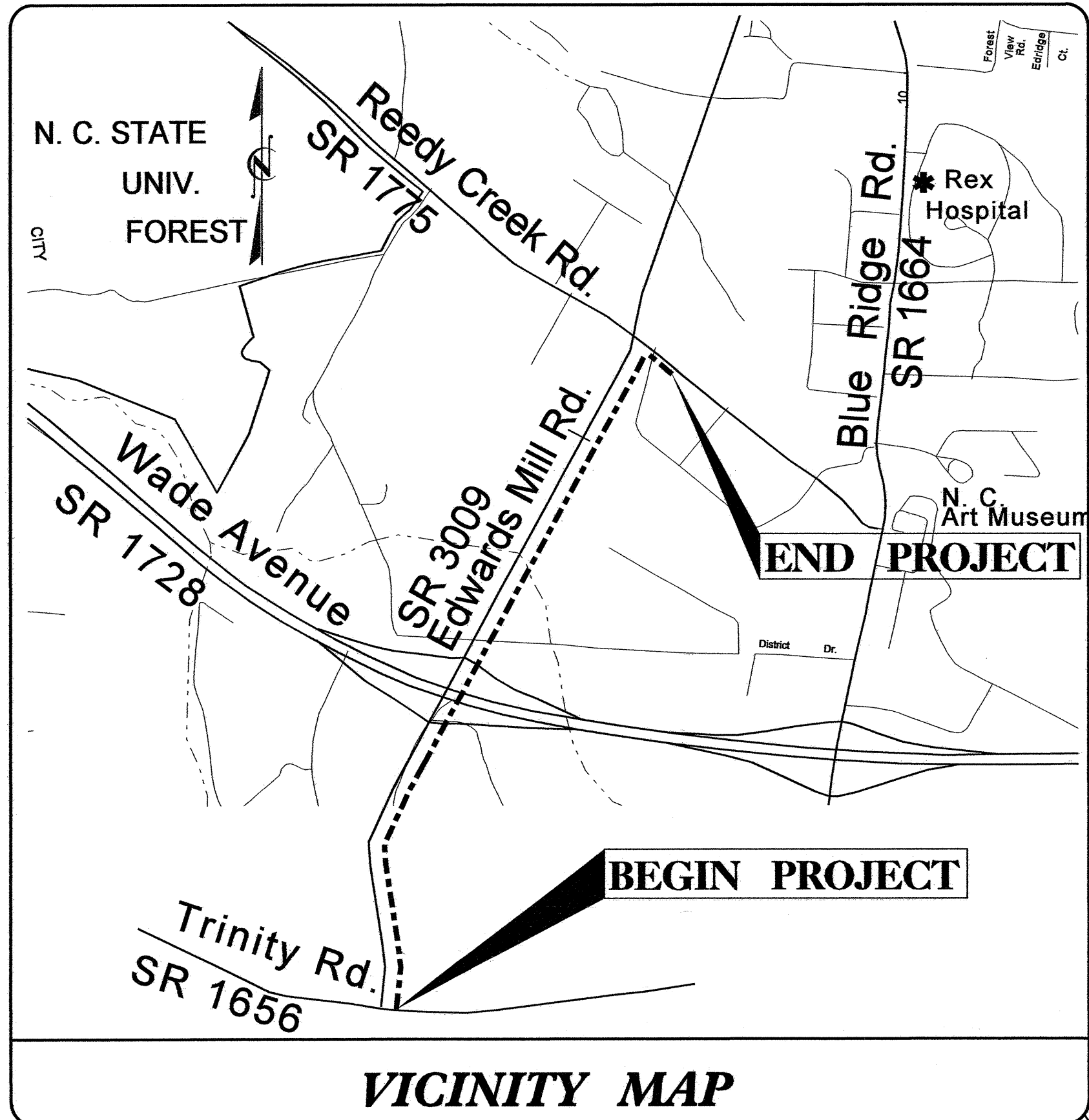
STATE OF NORTH CAROLINA
DIVISION OF BICYCLE AND
PEDESTRIAN TRANSPORTATION

WAKE COUNTY

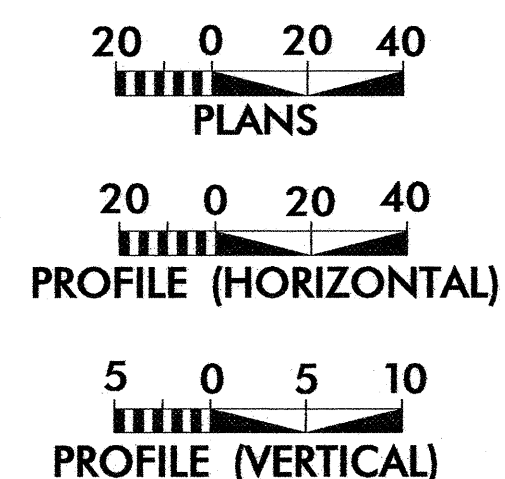
LOCATION: Along Edwards Mill Road (SR 3009) From Trinity Road (SR 1656) to Existing Reedy Creek Road Greenway

TYPE OF WORK: Grading, Paving, Drainage, Structure, Sidewalk, and Signing

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB-4978	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
39981.3 STI	STM-0520(38)	CONST.	



GRAPHIC SCALES



DESIGN DATA

ADT 2010 = -
ADT 2030 = -
DHV = - %
D = - %
T = - %
V = 20 MPH
TTST = - %
DUAL = - %

PROJECT LENGTH

LENGTH GREENWAY TIP PROJECT EB-4978 = 1.331 MILES
LENGTH STRUCTURE TIP PROJECT EB-4978 = 0.000 MILES
TOTAL LENGTH OF TIP PROJECT EB-4978 = 1.331 MILES

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

AUGUST 3, 2010

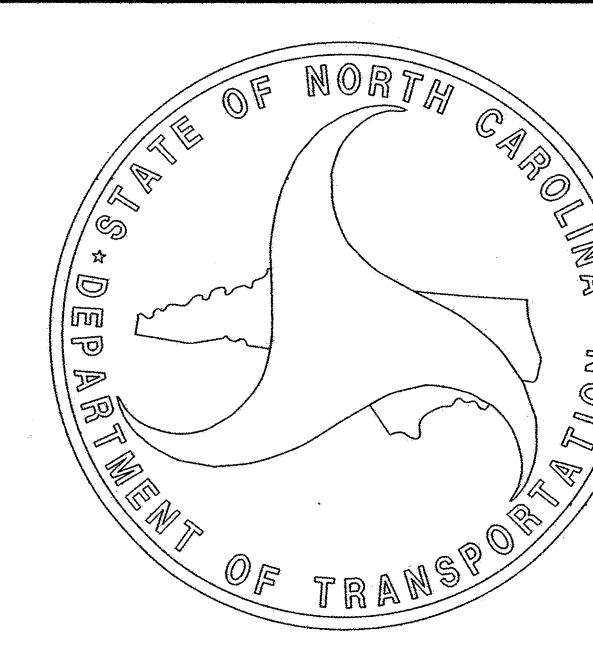
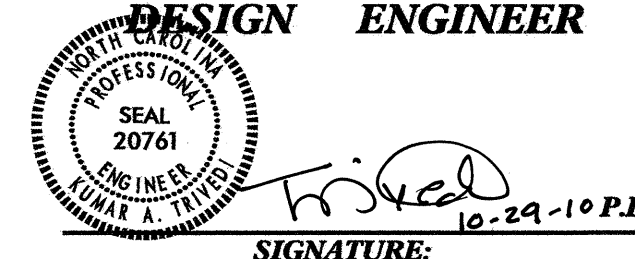
LETTING DATE:

JANUARY 18, 2011

HYDRAULICS ENGINEER

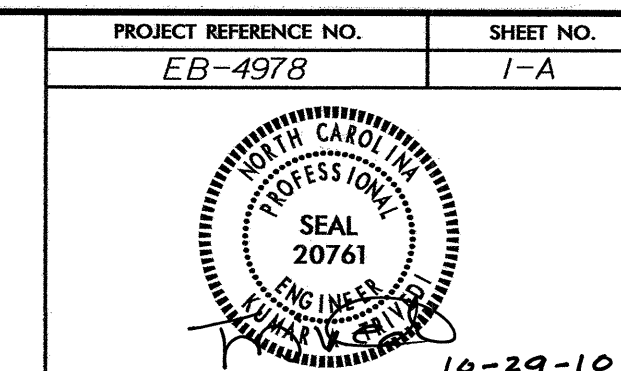


BICYCLE FACILITY DESIGN ENGINEER



Thomas P. Norman
THOMAS P. NORMAN
DIRECTOR

STATE OF NORTH CAROLINA
DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION



INDEX OF SHEETS

<u>SHEET NUMBER</u>	<u>TITLE</u>
1	TITLE SHEET
1-A	INDEX OF SHEETS, LIST OF STANDARDS, AND GENERAL NOTES
1-B	SYMBOL SHEET
2	PAVEMENT SCHEDULE AND TYPICAL SECTION
2-A	BOLLARD DETAILS, TRAIL CONNECTION DETAIL, AND SIGN PLACEMENT DETAIL
2-B	DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX
2-C	METHOD OF PIPE INSTALLATION
2-D	METHOD OF PIPE INSTALLATION
2-E	WHEELCHAIR RAMP
2-F	WHEELCHAIR RAMP
2-G	WHEELCHAIR RAMP
2-H	WHEELCHAIR RAMP
2-I	WHEELCHAIR RAMP
3	SUMMARY OF QUANTITIES
3-A	PIPE SUMMARY, EARTHWORK SUMMARY, CHAIN LINK FENCE SUMMARY, GUARDRAIL SUMMARY, BOLLARDS SUMMARY, REMOVAL OF ASPHALT SUMMARY, SAFETY FENCE SUMMARY, RUB RAIL SUMMARY
4 THRU 13	PLAN SHEETS
TCP-1 THRU TCP-3	TRAFFIC CONTROL PLANS
SIGN-1 THRU SIGN-3	SIGNING PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-10	EROSION CONTROL PLANS
S-1 THRU S-7	STRUCTURE PLANS
X-0 THRU X-53	CROSS-SECTIONS

GENERAL NOTES

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

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 THE PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

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.

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.

SUBSURFACE PLANS:
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE: AT & T OF NORTH CAROLINA, PROGRESS ENERGY AND CITY OF RALEIGH.

UTILITIES:
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

WHEELCHAIR RAMPS:
WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH DETAILS IN PLANS.

ROADWAY ENGLISH STANDARD DRAWINGS

2006 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 07-18-06
REV. 07-30-08

THE FOLLOWING ROADWAY STANDARD 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:

<u>STD. NO.</u>	<u>TITLE</u>
	DIVISION 2 - EARTHWORK
200.02	METHOD OF CLEARING - METHOD II
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
240.01	GUIDE FOR BERM DITCH CONSTRUCTION
	DIVISION 6 - ASPHALT BASES AND PAVEMENTS
654.01	PAVEMENT REPAIR
	DIVISION 8 - INCIDENTALS
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.01	BRICK CATCH BASIN - 12" THRU 54" PIPE
840.02	CONCRETE CATCH BASIN - 12' THRU 54" PIPE
840.03	FRAME, GRATES AND HOOD
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
840.18	CONCRETE GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.24	FRAMES AND NARROW SLOT SAG GRATES
840.27	BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.45	PRECAST DRAINAGE STRUCTURES
840.54	MANHOLE FRAME AND COVER
840.66	DRAINAGE STRUCTURE STEPS
846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
848.01	CONCRETE SIDEWALK
850.01	CONCRETE PAVED DITCHES
850.10	GUIDE FOR BERM DRAINAGE OUTLET (15" AND 18" PIPE)
862.01	GUARDRAIL PLACEMENT
862.02	GUARDRAIL INSTALLATION
866.01	CHAIN LINK FENCE
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF BICYCLE AND
PEDESTRIAN TRANSPORTATION

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	-----
Property Monument	□
Parcel/Sequence Number	123
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Safety Rail	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing High Quality Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
River Basin Buffer	-----
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Swamp Marsh	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
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	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Wheel Chair Ramp	-----
Curb Cut for Future Wheel Chair Ramp	-----
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	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	□
H-Frame Pole	●
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	□
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

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

TV:

TV Satellite Dish	⊗
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

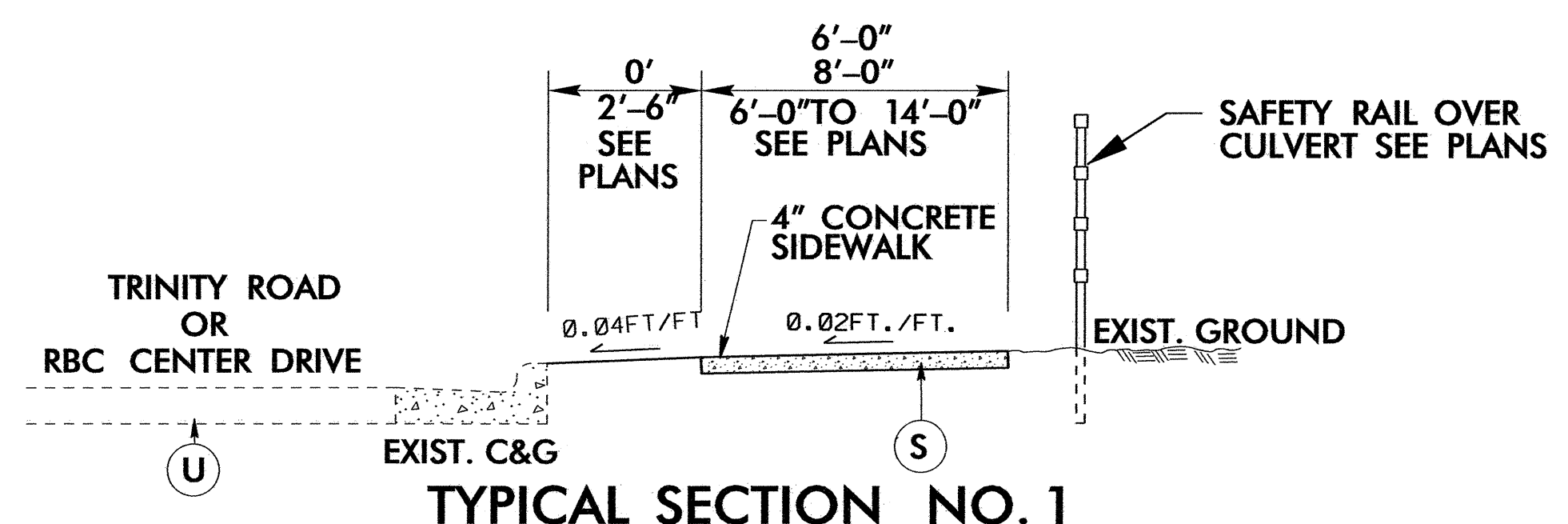
Gas Valve	◆
Gas Meter	◆
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

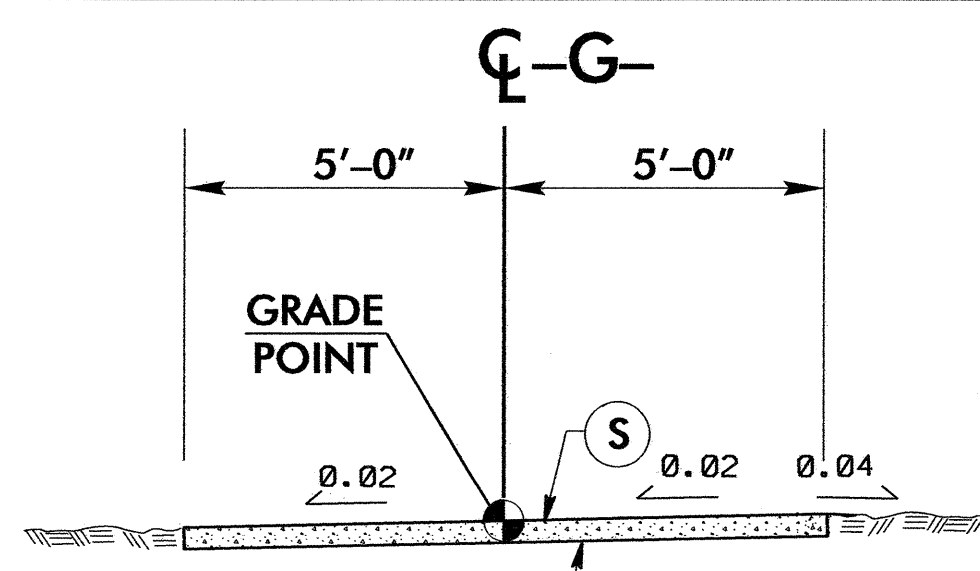
Sanitary Sewer Manhole	⊗
Sanitary Sewer Cleanout	⊗
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

MISCELLANEOUS:

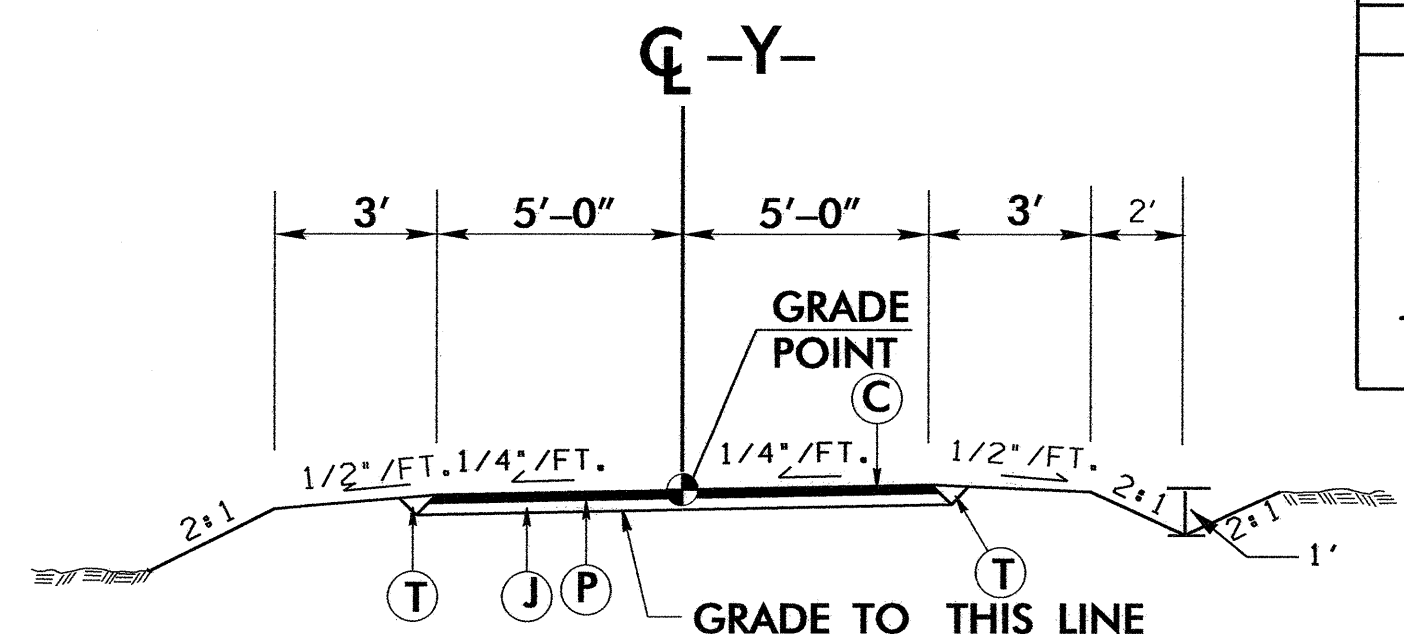
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊗
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



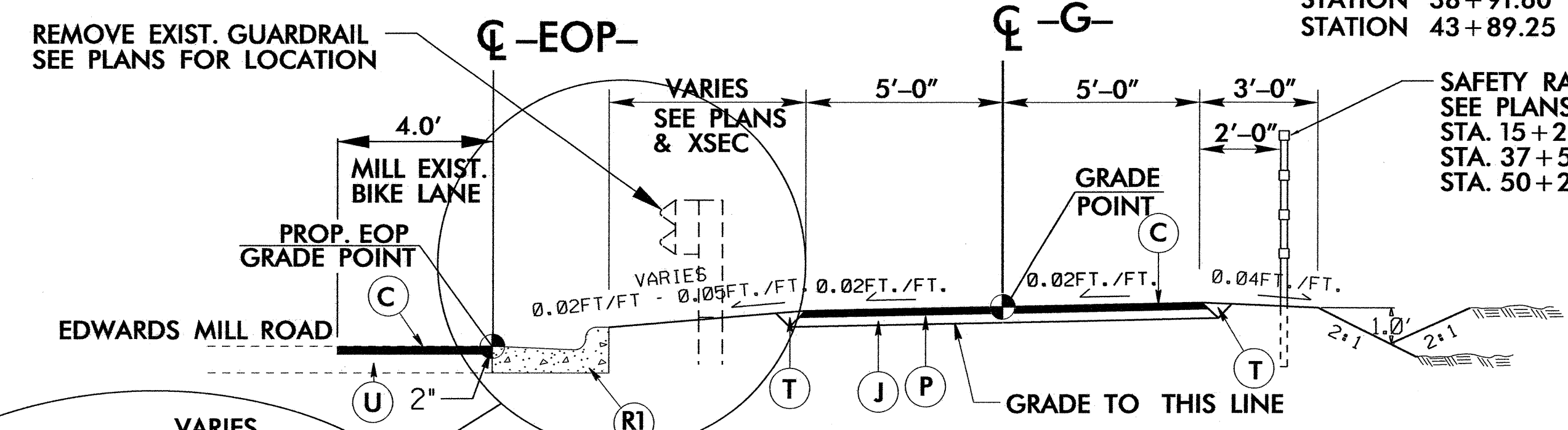
TYPICAL SECTION NO. 1
 TRINITY RD. EXIST. SIDEWALK TO STA. 10+00 -G-
 RBC CENTER DR. EXIST. SIDEWALK TO STA. 13+75.60 -G-



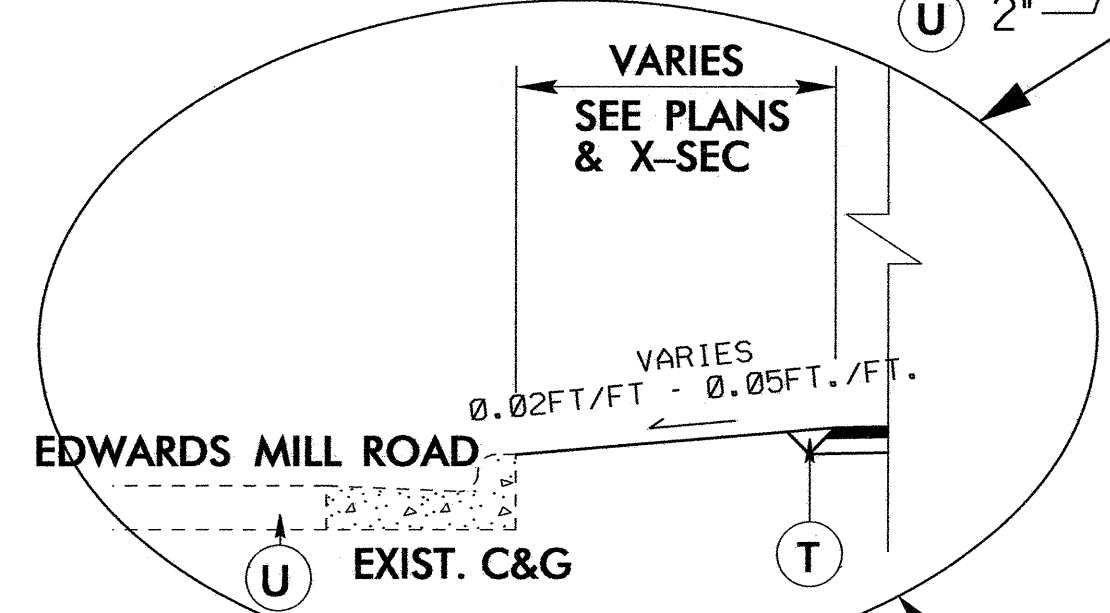
TYPICAL SECTION NO. 4
 AT EXIST PORK CHOP TRAFFIC ISLANDS
 STATION 38+91.60 TO 39+88.30 -G-
 STATION 43+89.25 TO 45+64.50 -G-



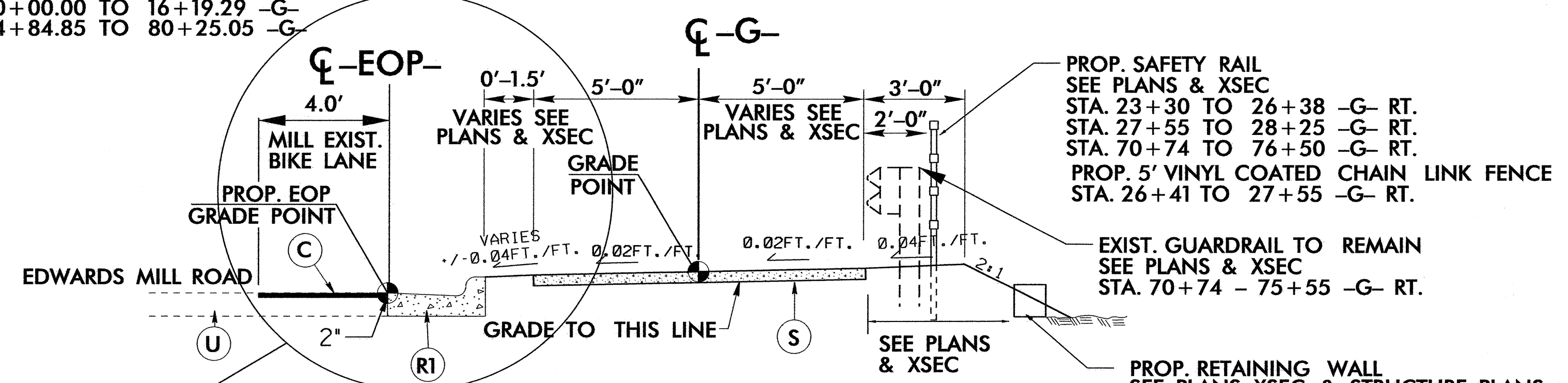
TYPICAL SECTION NO. 5
 STATION 10+05.00 TO 12+06.59 -Y-



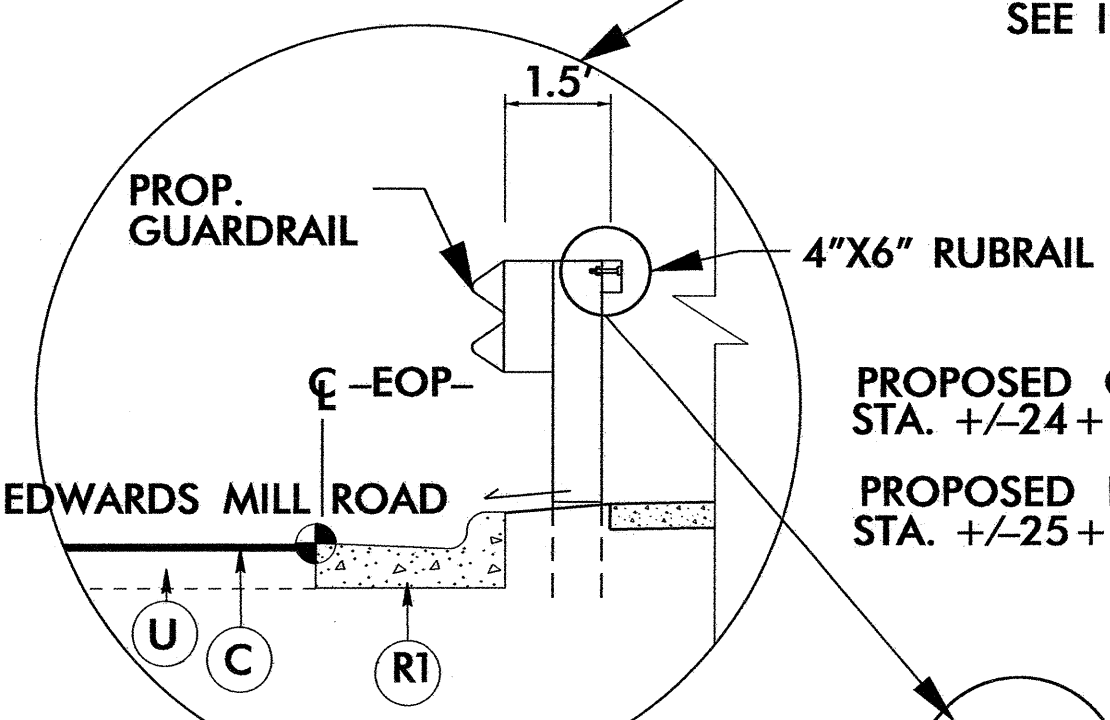
TYPICAL SECTION NO. 2
 STATION 10+00.00 TO 13+89.50 -G-
 STATION 15+05.91 TO 18+08.58 -G-
 STATION 18+33.58 TO 23+99.10 -G-
 STATION 24+24.10 TO 26+19.74 -G-
 STATION 28+00.04 TO 33+80.00 -G-
 STATION 34+05.00 TO 38+44.54 -G-
 STATION 45+84.85 TO 69+99.13 -G-



SEE PLANS FOR EXISTING CURB AND GUTTER LOCATION
 STA. 10+00.00 TO 16+19.29 -G-
 STA. 44+84.85 TO 80+25.05 -G-

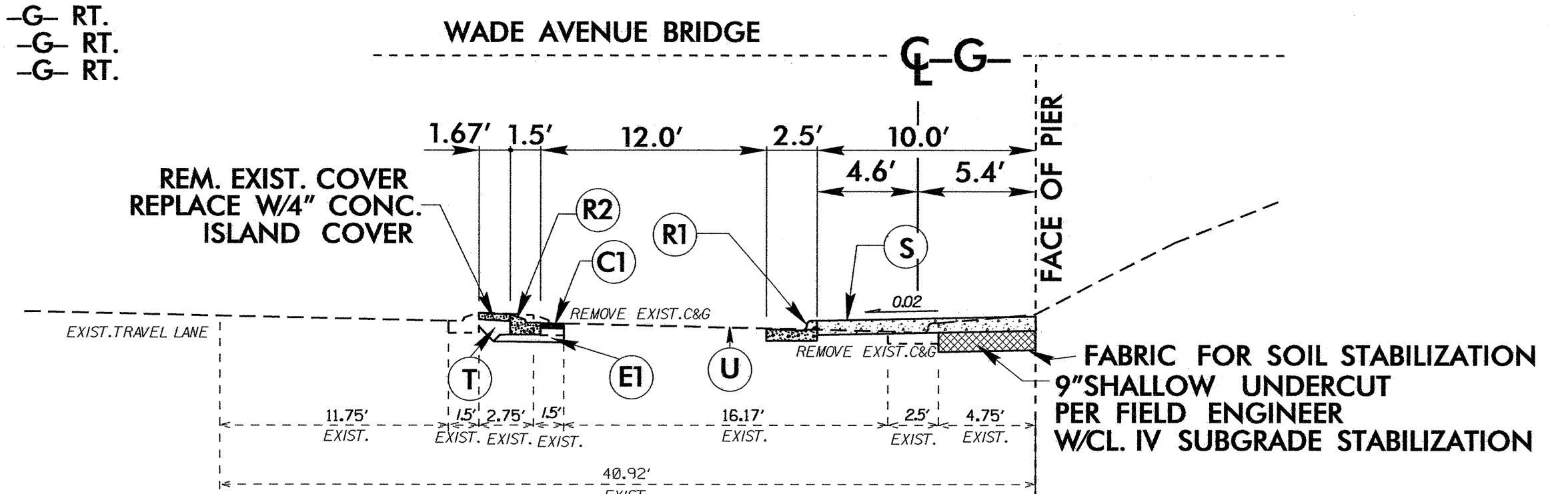


TYPICAL SECTION NO. 3
 STATION 18+08.58 TO 18+33.58 -G-
 STATION 23+99.10 TO 24+24.10 -G-
 STATION 26+19.74 TO 28+00.04 -G-
 STATION 33+80.00 TO 34+05.00 -G-
 STATION 69+99.13 TO 80+25.05 -G-



RECESSED 6" X 3/4" BOLT
 4" X 6" RUBRAIL
 3/4" X #24 NUT
 WASHER

SEE STRUCTURE PLANS FOR RETAINING WALL DESIGN AND SIGNAL POLE BASE TREATMENT DESIGN AND DETAILS



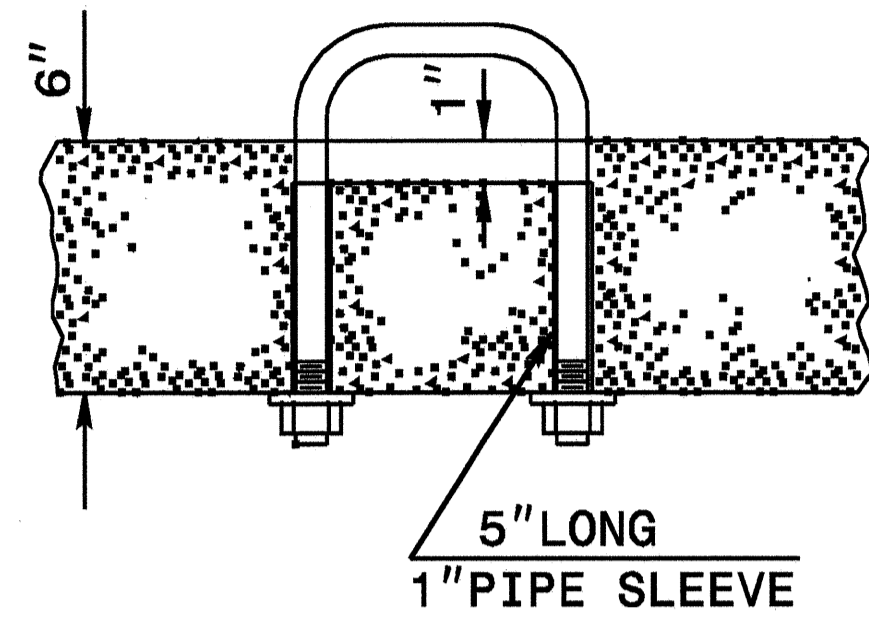
TYPICAL SECTION NO. 6
 CROSS SECTION UNDER WAIDE AVENUE WITH SHALLOW UNDERCUT AT EDWARDS MILL ROAD EXTENSION

STATION 40+53.08 TO 43+29.82 -G-

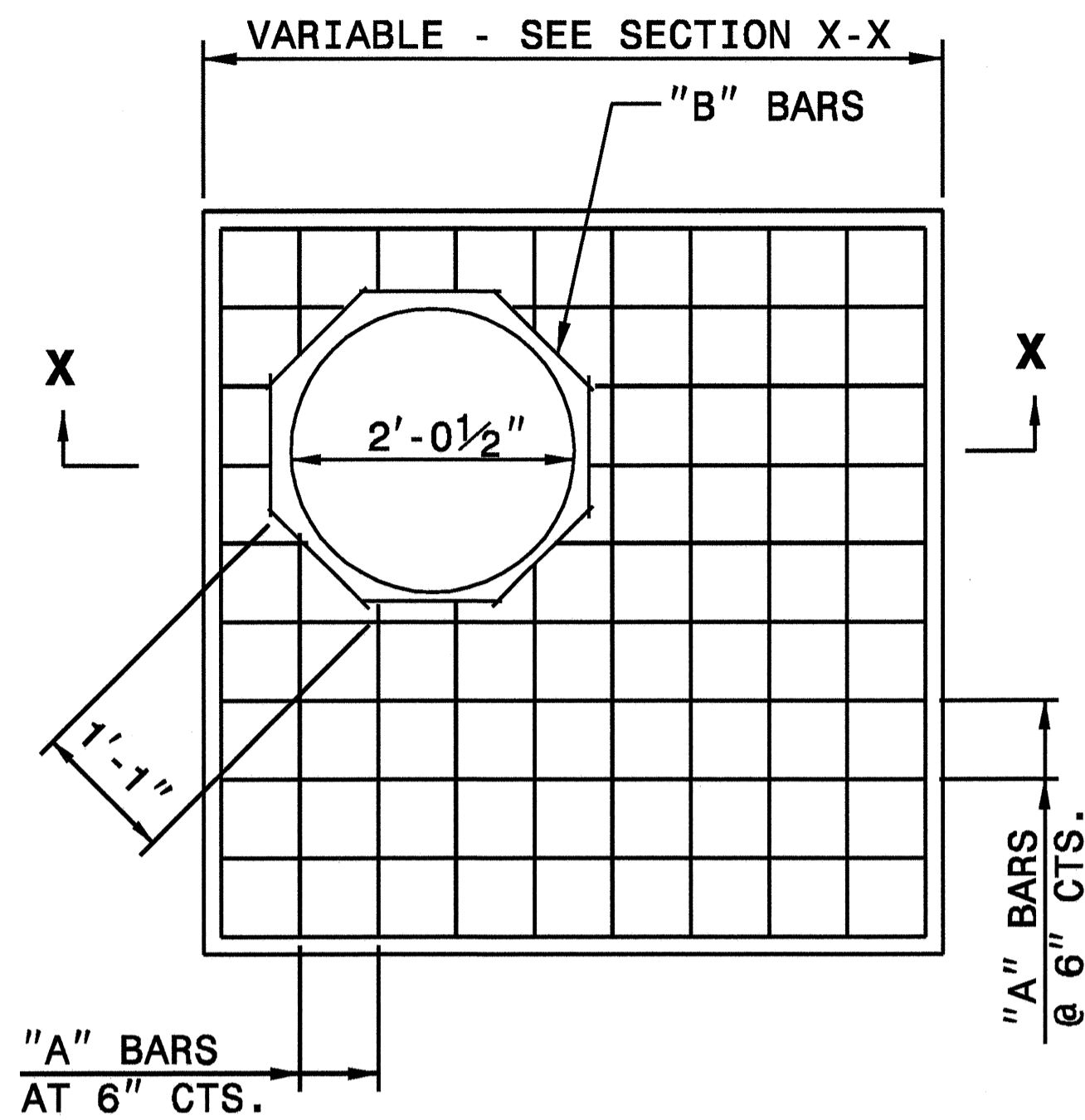
PAVEMENT SCHEDULE	
C	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5 A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
CI	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S 9.5 B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
EI	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B 25.0 B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
J	PROP. 6" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
R1	PROPOSED 2'-6" CURB & GUTTER
R2	PROPOSED 1'-6" CURB & GUTTER
S	4" CONCRETE
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1.

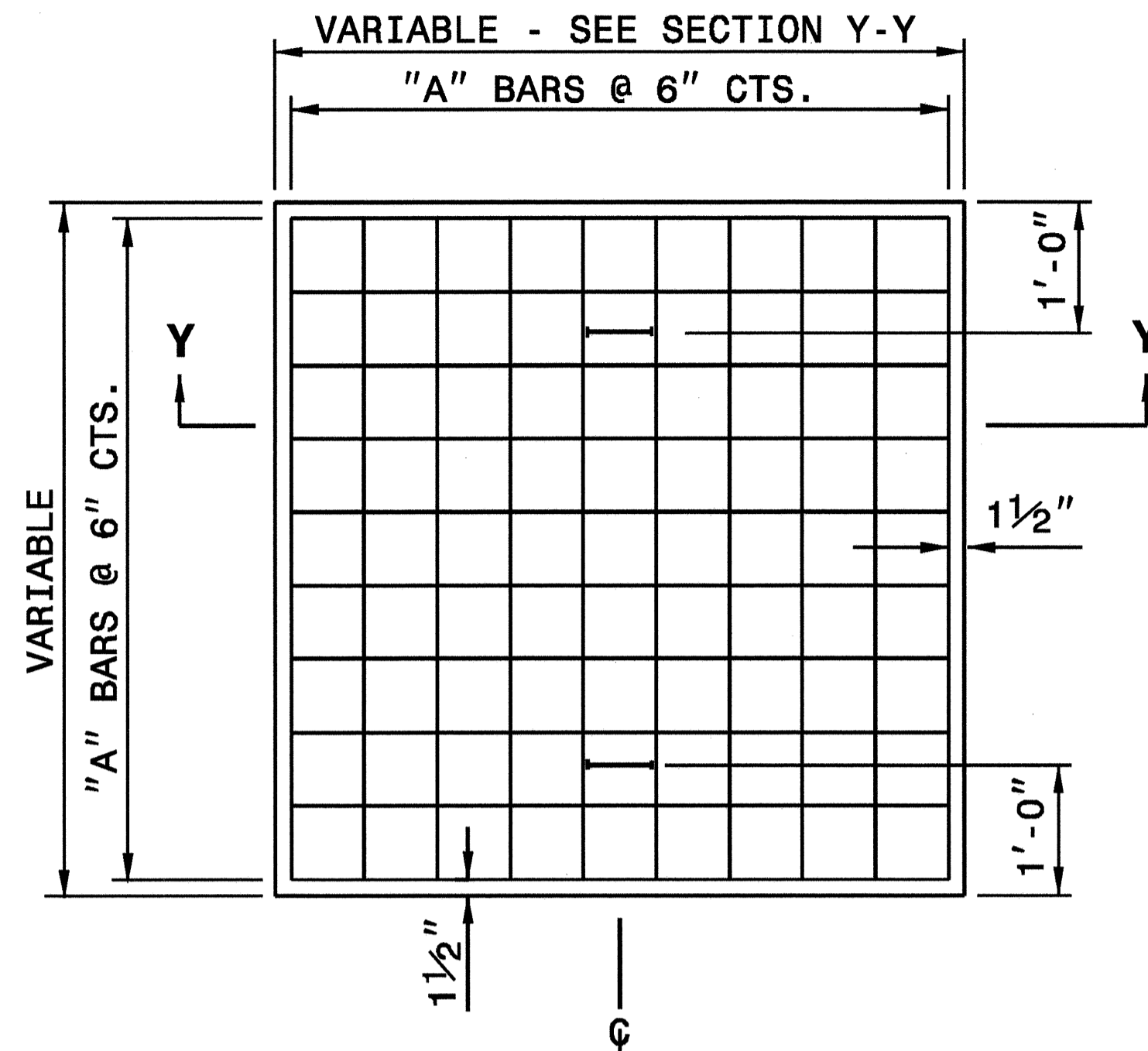
8/17/99
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 AT: BIPED240317



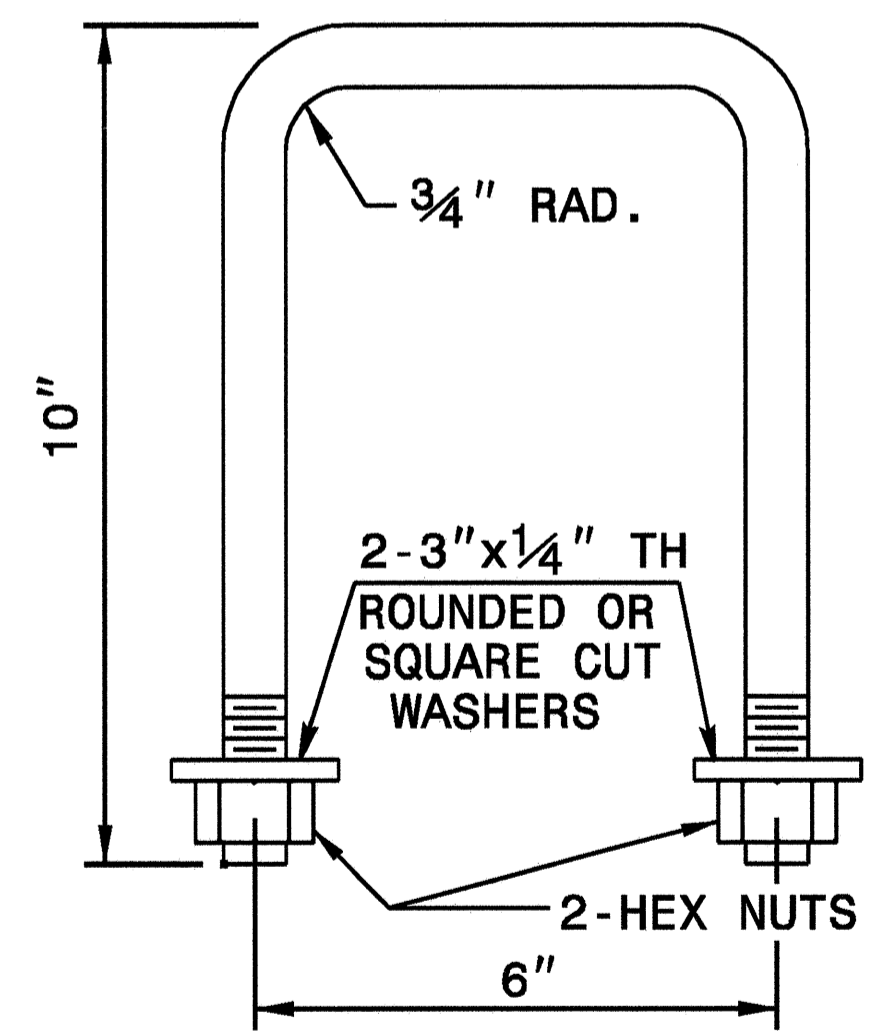
PARTIAL SECTION



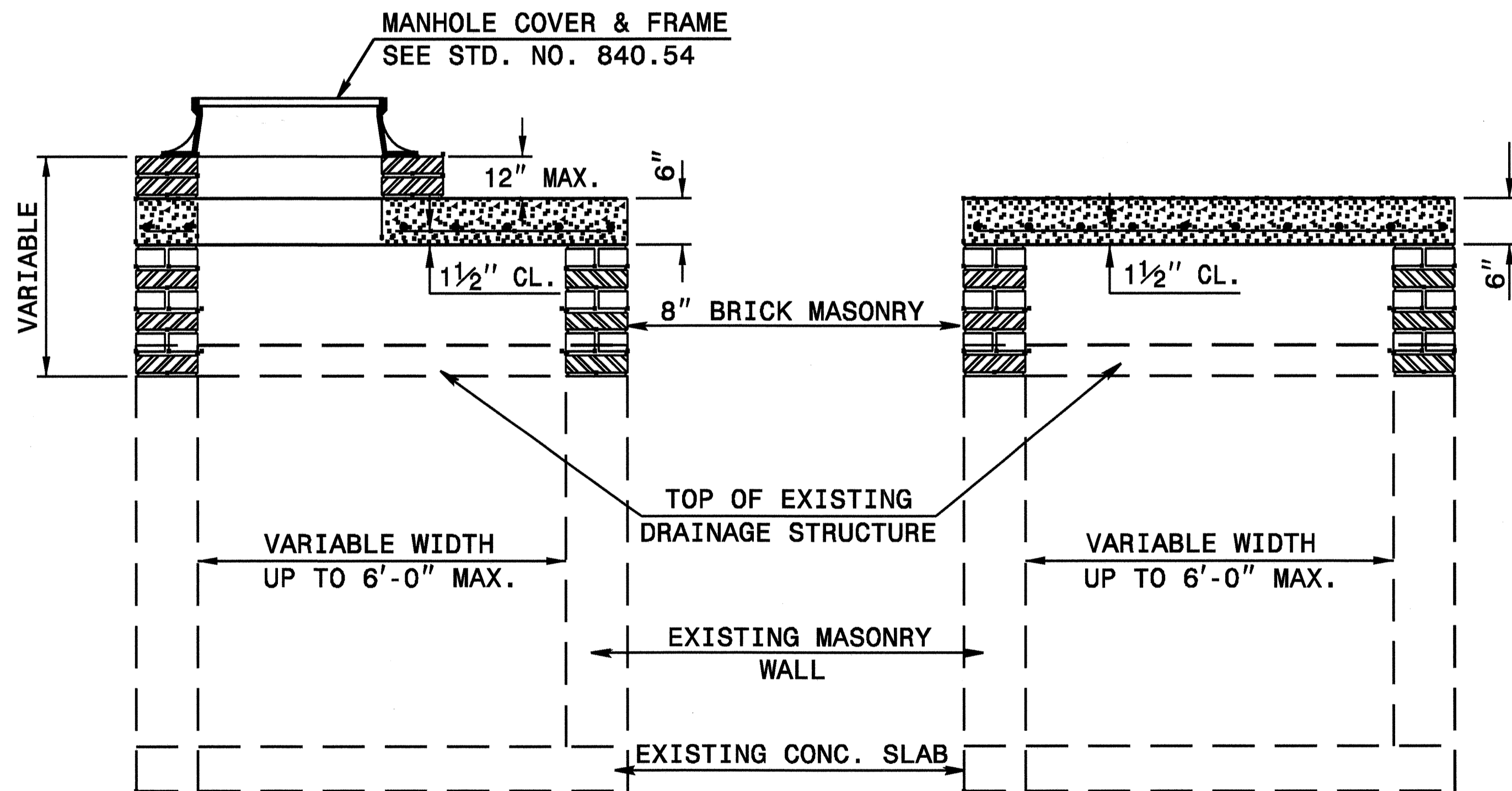
PLAN



PLAN



DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



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

**DETAIL TO CONVERT EXISTING
DROP INLET OR CATCH BASIN
TO JUNCTION BOX
(MANHOLE OPTIONAL)**

ORIGINAL BY: T.S.S. DATE: NOV. 1997
MODIFIED BY: T.S.S. DATE: FEB. 2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtoibe.dgn

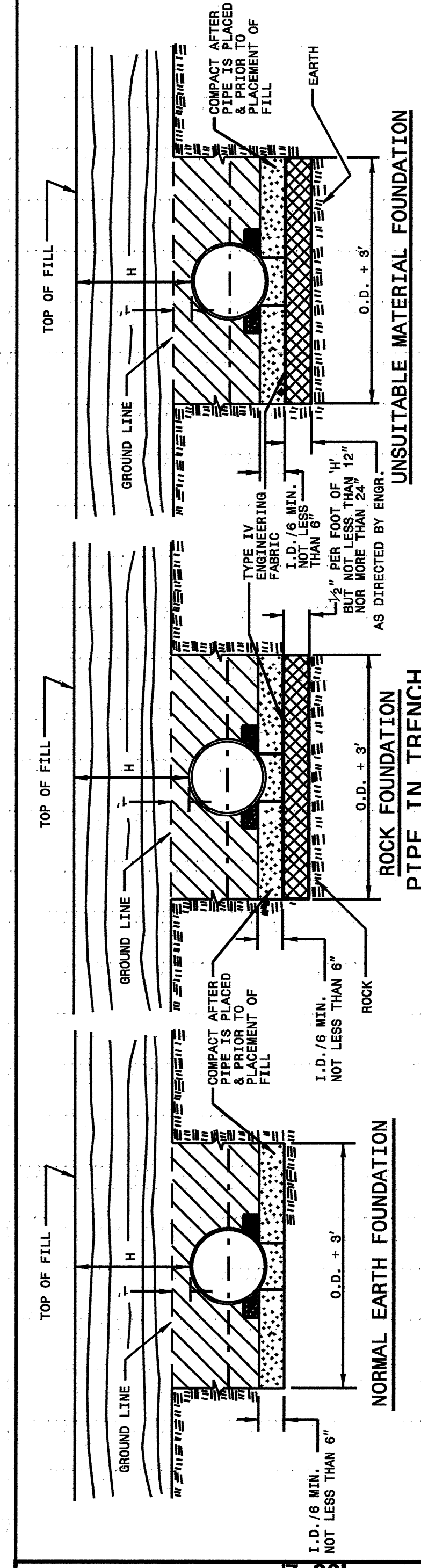
5/14/99

05-NOV-2009 11:35
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 Jhowerton AT 15237361

5/14/93

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

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



ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

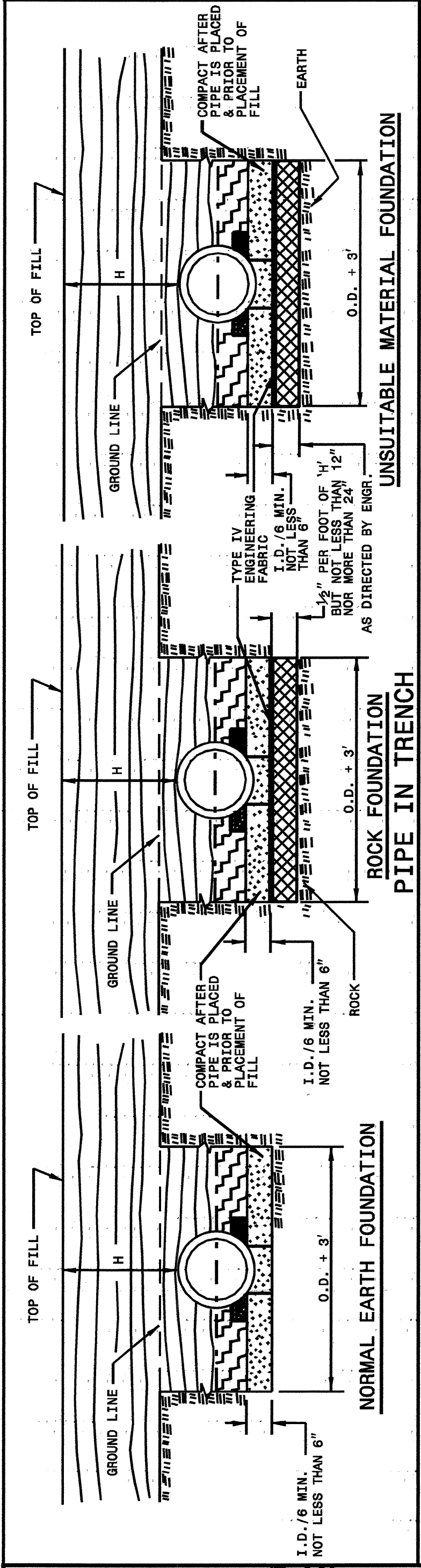
DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
 SPRINGLINE OF PIPE
 SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
 APPROVED SUITABLE LOCAL MATERIAL.
 UNDISTURBED EARTH MATERIAL
 SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 1 OF 3
 300D01

SHEET 1 OF 3
 300D01

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

STATE OF NORTH CAROLINA
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 RALEIGH, N.C.



ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 RIGID PIPE

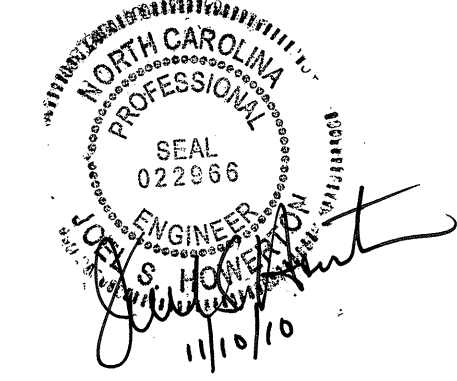
ENGLISH DETAIL DRAWING FOR
 METHOD OF PIPE INSTALLATION
 RIGID PIPE

GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.
 SPRINGLINE OF PIPE
 SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 BELOW SPRINGLINE.
 APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.
 UNDISTURBED EARTH MATERIAL
 SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SHEET 2 OF 3
 300D01

SHEET 2 OF 3
 300D01



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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Diameter (Inches)	Round Corrugated Steel Pipe 2 2/3 X 2 1/2 corrugation						
	Minimum cover (Inches)	(Ga)	16	14	12	10	8
12	12	204	266				
15	12	162	204				
18	12	135	169	239			
21	12	115	145	204			
24	12	100	126	178			
30	12	79	100	142			
36	12	65	83	117	152		
42	12	55	70	100	130	160	
48	12	48	61	87	113	139	
54	12	44	54	77	100	123	
60	12			69	90	111	
66	12				81	100	
72	12				74	91	
78	12					81	
84	12					69	

Diameter (Inches)	Round Corrugated Aluminum Pipe 2 2/3 X 2 1/2 corrugation						
	Minimum cover (Inches)	(Ga)	16	14	12	10	8
12	12	123	156	218	281	344	
15	12	98	123	174	224	275	
18	12	81	102	144	187	228	
21	12	69	87	123	160	195	
24	12	60	76	108	139	171	
27	12		67	95	123	151	
30	12		60	85	111	136	
36	12		50	71	92	113	
42	12			60	78	96	
48	12			52	68	84	
54	12			46	50	74	
60	12				50	62	
66	12				51	61	
72	12				41		

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- CSP - AASHTO M98
- CAAP - AASHTO M196
- HDPE - AASHTO M294
- PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

- RCP - * (Minimum fill) 1' for Class IV & CLASS V
 2' for Class III & Class II
- * (Maximum fill) 10' - Class II pipe
 20' - Class III pipe
 30' - Class IV pipe
 40' - Class V pipe

(For fills > 40' & < 80' use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

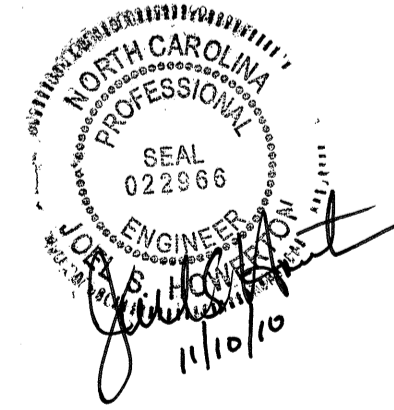
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

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

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
PROPOSED CURB AND GUTTER

SHEET 1 OF 3
848D05

SECTION B-B

SECTION A-A

ISOMETRIC VIEW

PLAN VIEW
DUAL RAMP
ANY FACT
(40" MIN. FLOOR WIDTH)

DETECTABLE WARNING DOMES

BASE DIAMETER 0.45' TO 0.70'
TOP DIAMETER OF NO LESS THAN 50% TO NO MORE THAN 65% OF THE BASE DIAMETER
RAMP LENGTH 2'-0"

W	A	W+A+9'	X	B
5'	0.0'	5.8'	5.8'	5.0'
6'	0.0'	6.8'	6.8'	6.0'
7'	0.0'	7.8'	7.3'	6.5'
8'	0.0'	8.8'	7.3'	6.5'
5'	2.0'	7.8'	7.8'	5.0'
5'	3.0'	8.3'	8.1'	4.8'
5'	3.5'	8.8'	8.3'	4.4'
5'	4.0'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.4'
5'	5.0'	10.8'	8.9'	3.1'

B = X - (A+9')
 B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (6.33%) SLOPE.
 * BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES
 ** SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.

NOTES: DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP. RAMP FLOOR AS SHOWN ON THE DETAILS.

1. RAMP FLOOR AS SHOWN ON THE DETAILS.

2. OBTAIN 70% CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.

STATE OF NORTH CAROLINA
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ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
PROPOSED CURB AND GUTTER

SHEET 2 OF 3
848D05

PLAN VIEW
DUAL RAMP
ANY FACT
(40" MIN. FLOOR WIDTH)

SECTION A-A

DETECTABLE WARNING DOMES

BASE DIAMETER 0.45' TO 0.70'
TOP DIAMETER OF NO LESS THAN 50% TO NO MORE THAN 65% OF THE BASE DIAMETER
RAMP LENGTH 2'-0"

W	A	W+A+9'	X	B
5'	0.0'	5.8'	5.8'	5.0'
6'	0.0'	6.8'	6.8'	6.0'
7'	0.0'	7.8'	7.3'	6.5'
8'	0.0'	8.8'	7.3'	6.5'
5'	2.0'	7.8'	7.8'	5.0'
5'	3.0'	8.3'	8.1'	4.8'
5'	3.5'	8.8'	8.3'	4.4'
5'	4.0'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.4'
5'	5.0'	10.8'	8.9'	3.1'

B = X - (A+9')
 B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (6.33%) SLOPE.
 * BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES
 ** SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.

NOTES: DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP. RAMP FLOOR AS SHOWN ON THE DETAILS.

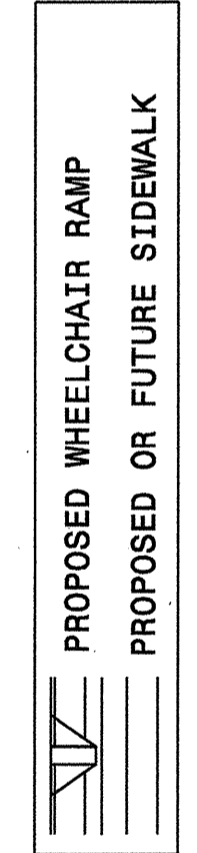
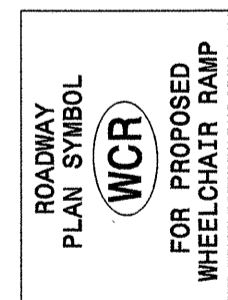
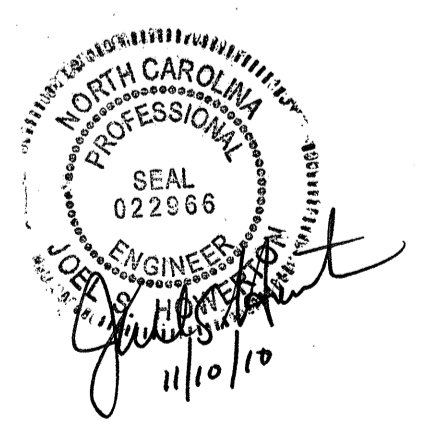
1. RAMP FLOOR AS SHOWN ON THE DETAILS.

2. OBTAIN 70% CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.

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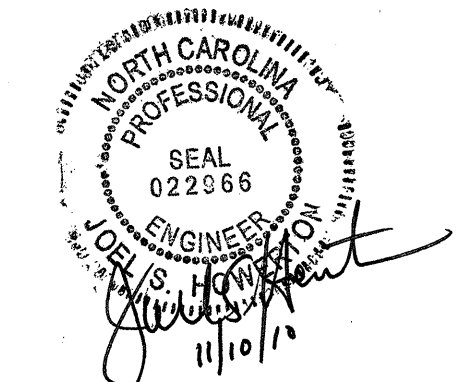
ALLOWABLE LOCATIONS

 DUAL RAMP RADII.....ANY

DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMP. PEDESTRIAN CROSSWALKS AND STOP LINES

DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMP. PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP PROPOSED CURB AND GUTTER	SHEET 3 OF 3 848D05
<p>NOTES:</p> <ol style="list-style-type: none"> 1. CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK. 2. CROSSWALK WIDTHS AND CONFIGURATION VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS. 3. NORTH CAROLINA GENERAL STATUTE 136-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW. <p>IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.</p> <p>THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES. COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN, AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.</p> <ol style="list-style-type: none"> 4. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED PLACE NOT LESS THAN 2 FEET OF FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE. 5. DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET. 6. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS. 7. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE. 8. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01. 9. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADIUS, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 17) 10. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES. 11. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE. 12. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY. 13. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK. 14. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD. 		

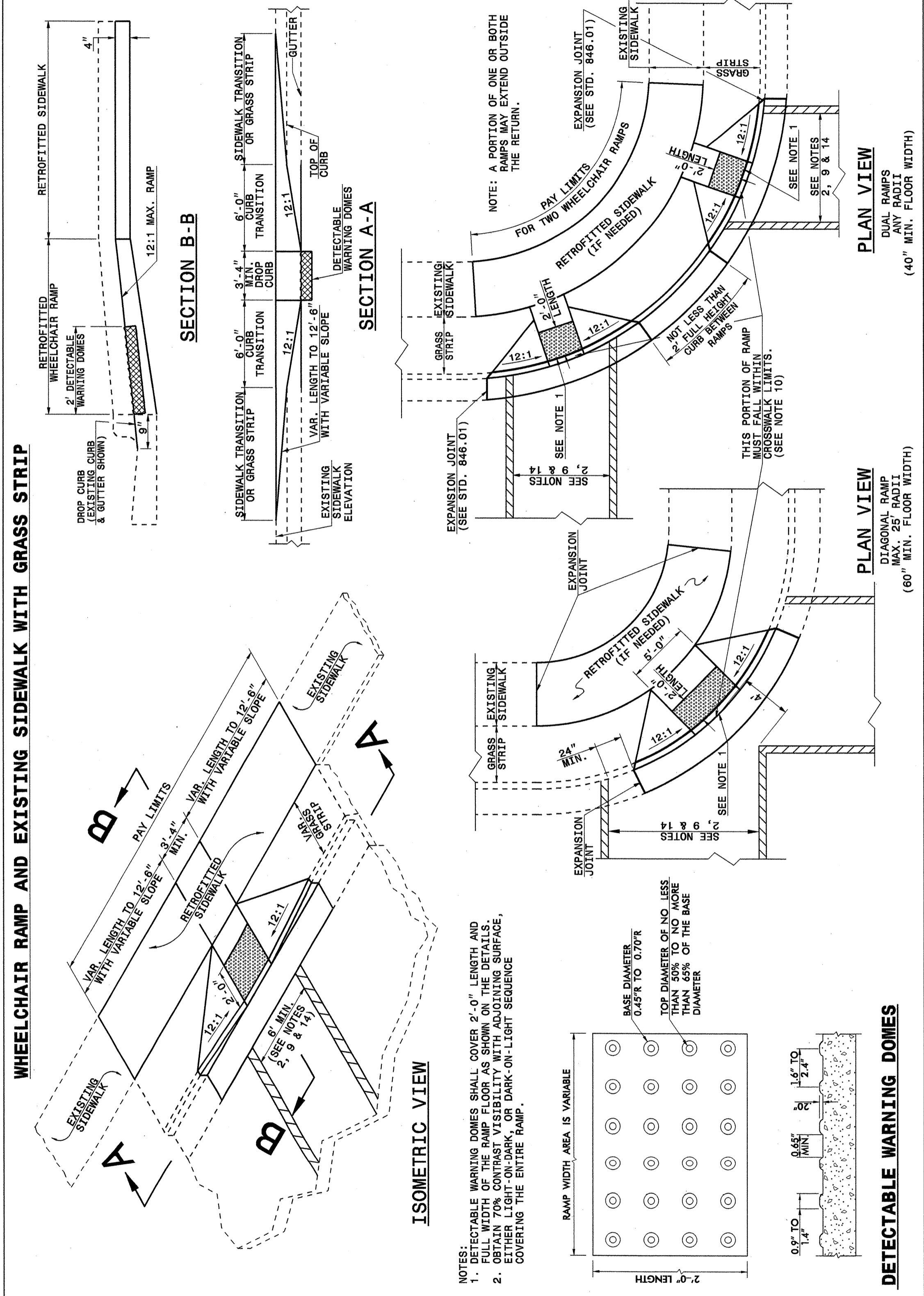


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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER

SHEET 1 OF 5 **848D06**



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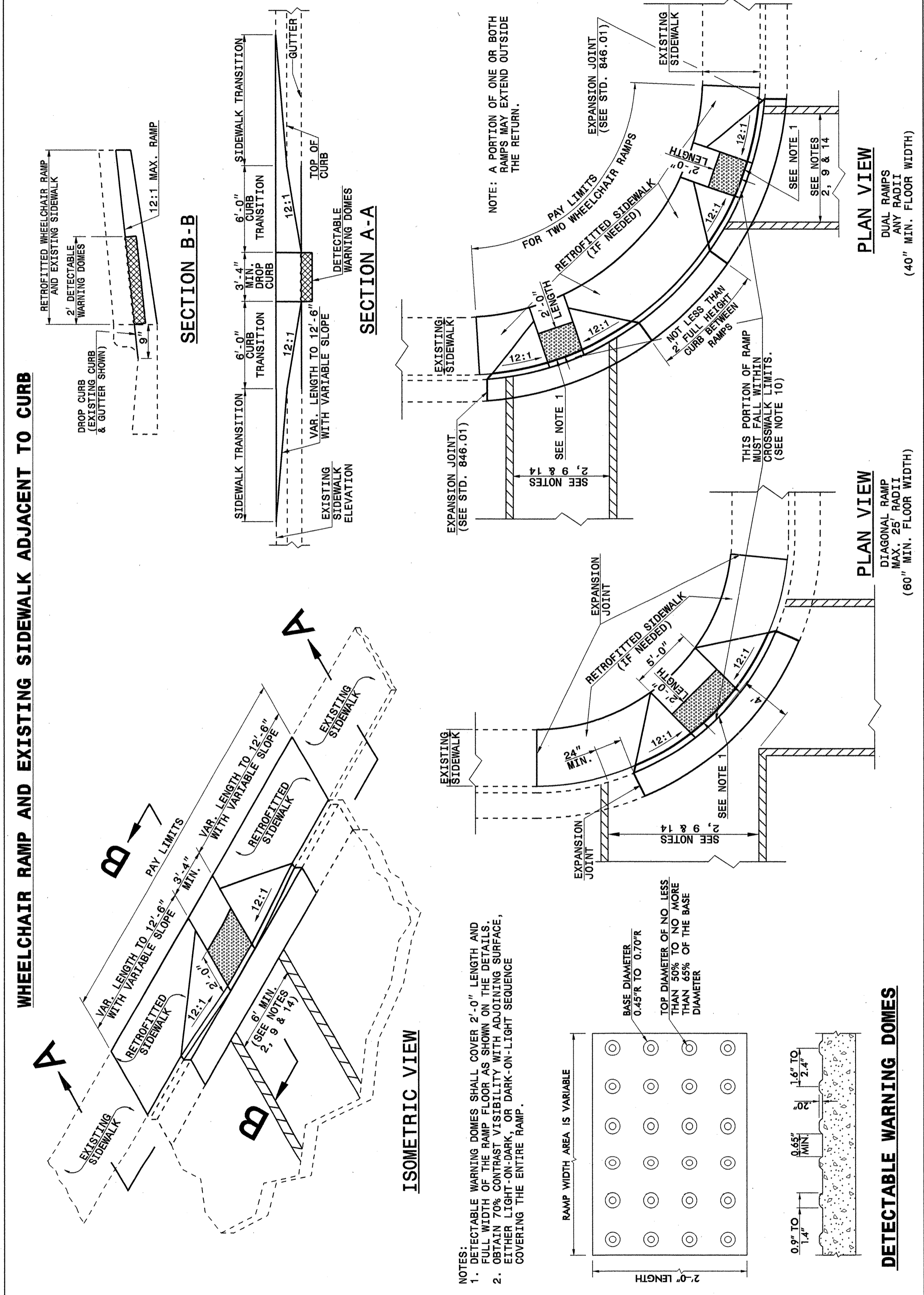
ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER

SHEET 1 OF 5 **848D06**

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

ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER

SHEET 2 OF 5 **848D06**



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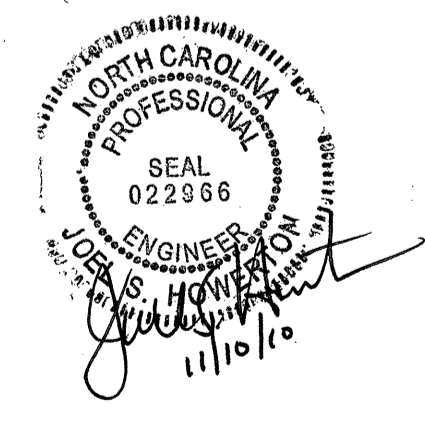
ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER

SHEET 2 OF 5 **848D06**

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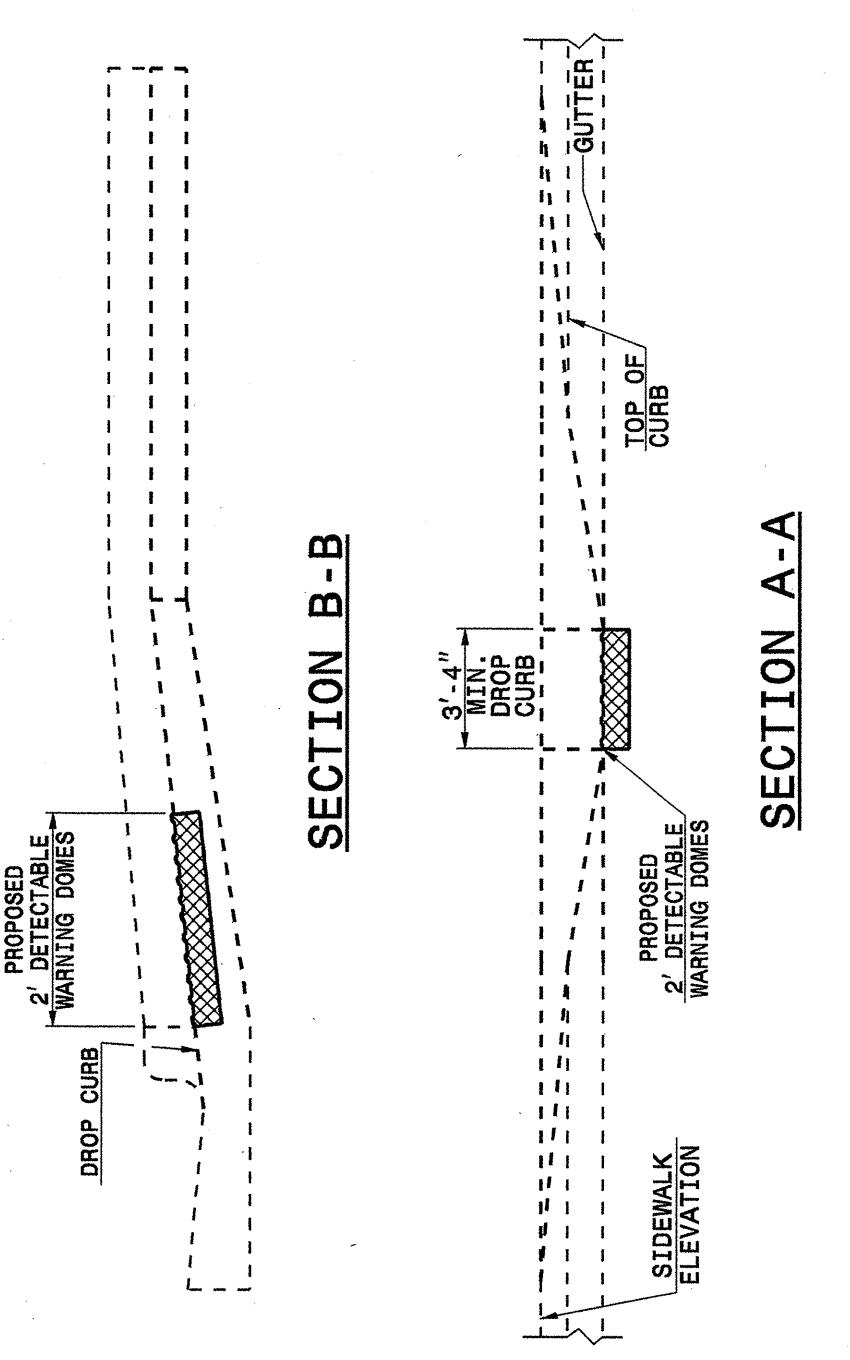
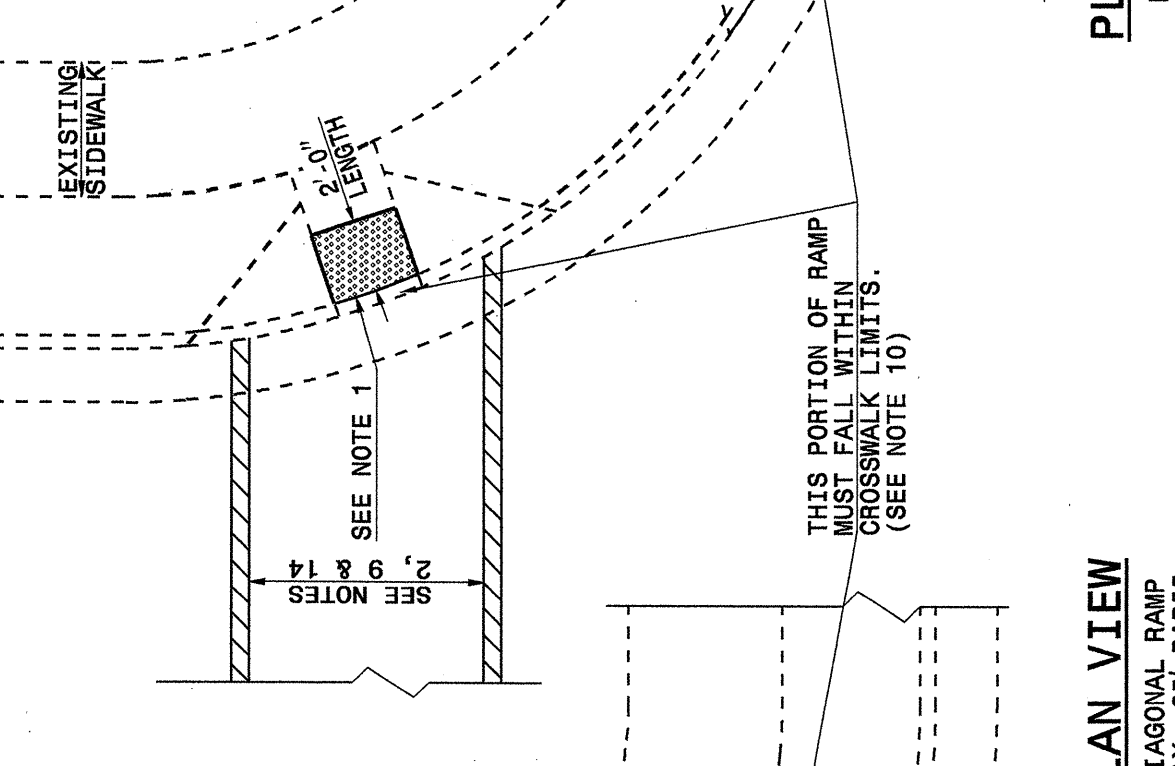
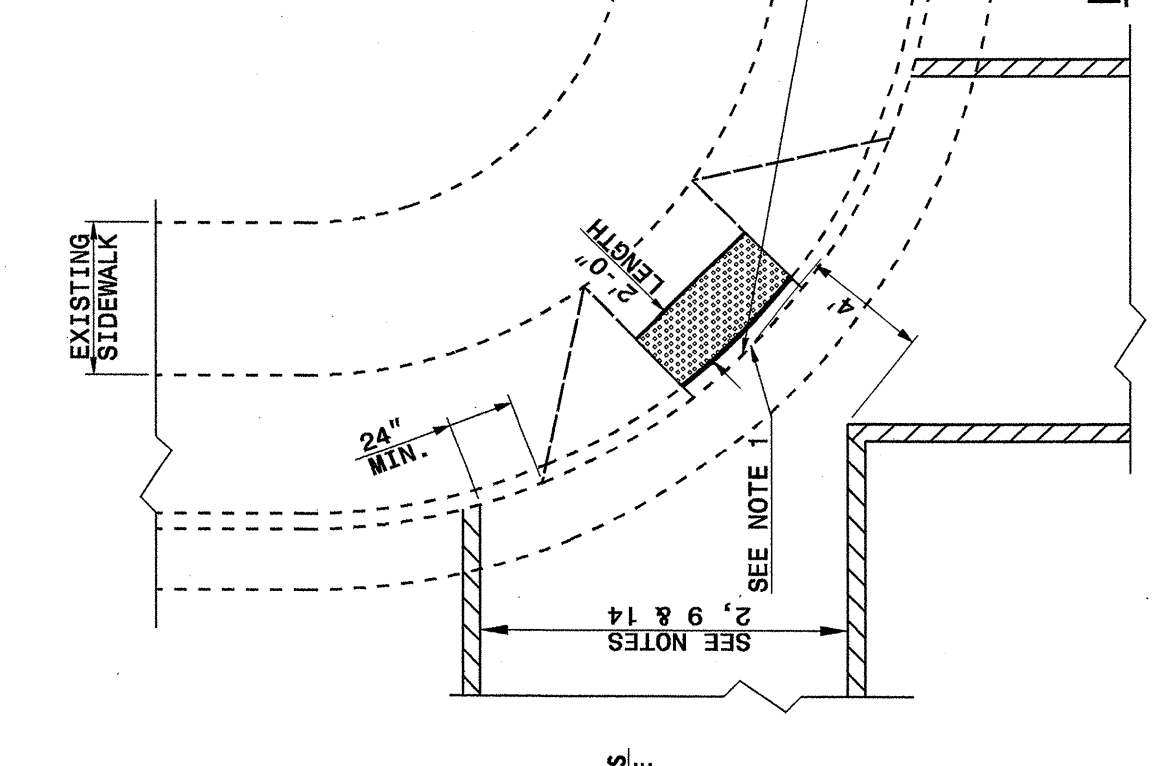
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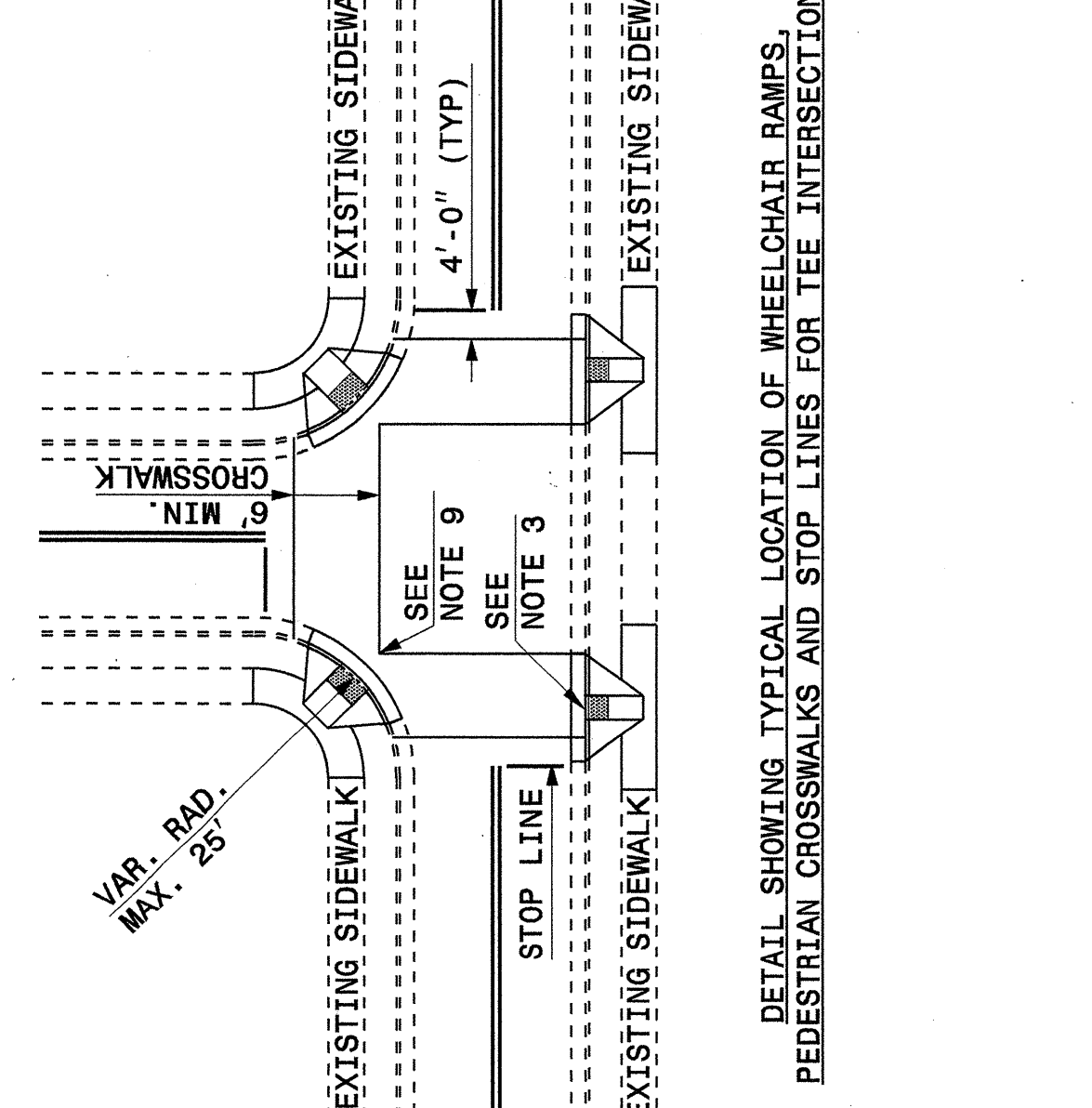
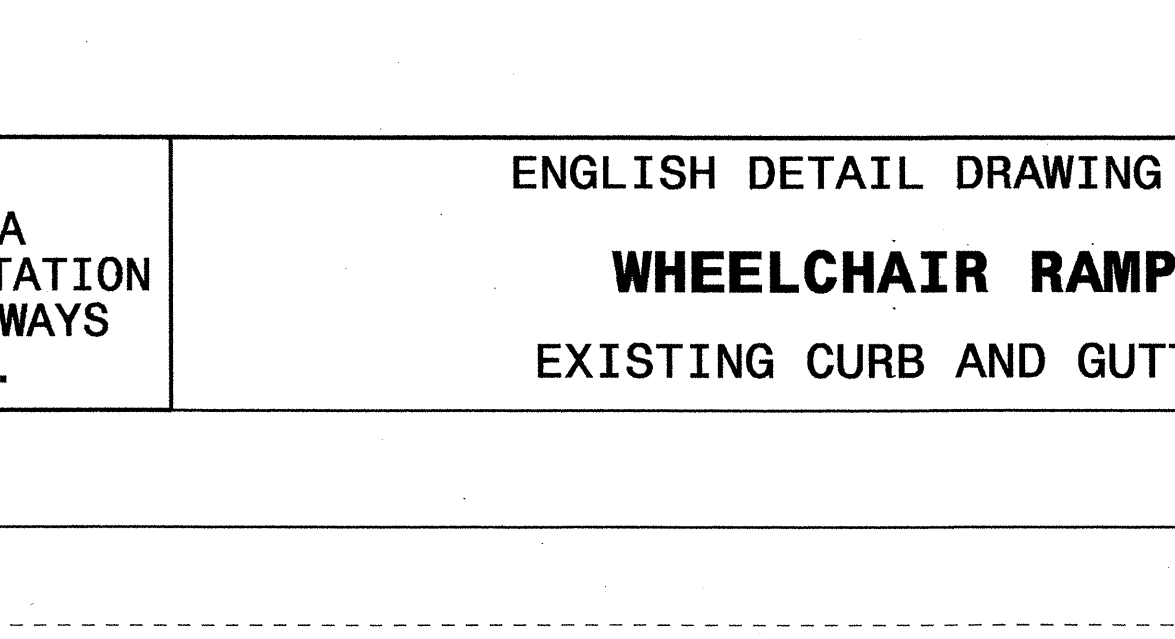
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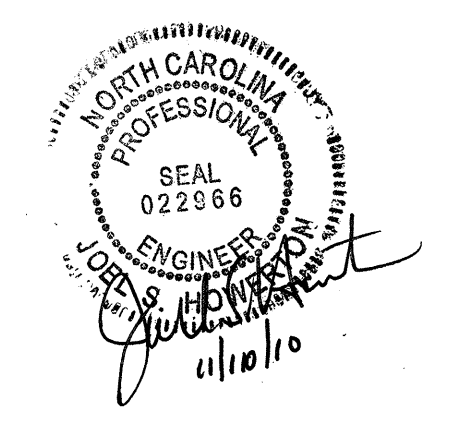
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	RETROFITTING DETECTABLE WARNING DOMES ONTO EXISTING WHEELCHAIR RAMP  <p style="text-align: center;">ISOMETRIC VIEW</p>	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER	SHEET 3 OF 5 848D06
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP  <p style="text-align: center;">PLAN VIEW (40" MIN. FLOOR WIDTH)</p>	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER	SHEET 3 OF 5 848D06
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP  <p style="text-align: center;">PLAN VIEW (60" MIN. FLOOR WIDTH)</p>	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER	SHEET 3 OF 5 848D06

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	WHEELCHAIR RAMP AND EXISTING SIDEWALK  <p style="text-align: center;">DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMP, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS</p>	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER	SHEET 4 OF 5 848D06
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	WHEELCHAIR RAMP AND EXISTING SIDEWALK  <p style="text-align: center;">DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMP, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS</p>	ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP EXISTING CURB AND GUTTER	SHEET 4 OF 5 848D06

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

ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

SHEET 5 OF 5
848D06

WHEELCHAIR RAMP AND EXISTING SIDEWALK

NOTES:

1. CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
2. CROSSWALK WIDTHS AND CONFIGURATION VARY, BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS.
3. NORTH CAROLINA GENERAL STATUTE 136-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW.
IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.
THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES, COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.
4. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED PLACE NOT LESS THAN 2 FEET OF FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
5. DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
6. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS AND 60" (5'-0") OR GREATER FOR DIAGONAL RAMPS.
7. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
8. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848-01.
9. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADIUS, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 14)
10. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
11. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE.
12. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY.
13. TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
14. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

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

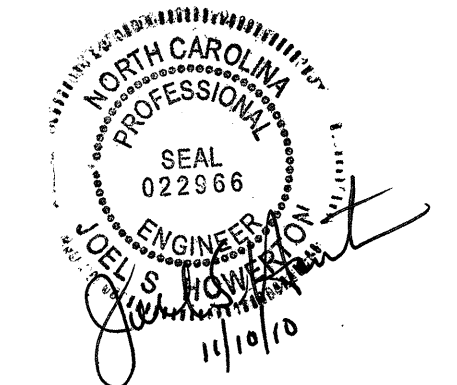
ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
EXISTING CURB AND GUTTER

SHEET 5 OF 5
848D06

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

SEE PLATE FOR TITLE

ORIGINAL BY: STD.NO.848.06 DATE: 4-22-10
 MODIFIED BY: *Eric Ward* DATE: *11/10/10*
 CHECKED BY: *Eric Ward* DATE: *11/10/10*
 FILE SPEC.: SpecialDetails/EricWard/STDs/848d06.dgn



STATE OF NORTH CAROLINA DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION SUMMARY OF QUANTITIES

**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202632**

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
003800000-E	SP	40	CY	SHALLOW UNDERCUT
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
008000000-E	SP	81	TON	CLASS IV SUBGRADE STABILIZATION
014100000-E	240	10	LF	BERM DITCH CONSTRUCTION
019200000-N	260	2	HR	PROOF ROLLING
019600000-E	270	154	SY	FABRIC FOR SOIL STABILIZATION
031800000-E	SP	130	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
032000000-E	SP	390	SY	FOUNDATION CONDITIONING FABRIC
036000000-E	SP	28	LF	12" RC PIPE CULVERTS, CLASS III
036600000-E	SP	944	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	SP	116	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	SP	52	LF	24" RC PIPE CULVERTS, CLASS III
038400000-E	SP	28	LF	30" RC PIPE CULVERTS, CLASS III
112100000-E	520	2,170	TON	AGGREGATE BASE COURSE
127500000-E	600	2,145	GAL	PRIME COAT
129700000-E	607	1,150	SY	MILLING ASPHALT PAVEMENT, **** DEPTH (2")
148900000-E	610	25	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
151900000-E	610	5	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
152500000-E	610	684	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	50	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
169300000-E	654	1	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
228600000-N	840	15	EA	MASONRY DRAINAGE STRUCTURES
230800000-E	840	3.6	LF	MASONRY DRAINAGE STRUCTURES
236400000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.16
236600000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.24
237400000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
237400000-N	840	6	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
237400000-N	840	3	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
239600000-N	840	4	EA	FRAME WITH COVER, STD 840.54
254200000-E	846	220	LF	1'-6" CONCRETE CURB & GUTTER
254900000-E	846	2,600	LF	2'-6" CONCRETE CURB & GUTTER
259100000-E	848	2,570	SY	4" CONCRETE SIDEWALK
260000000-N	SP	2	EA	RETROFIT EXISTING WHEELCHAIR RAMPS
260500000-N	848	10	EA	CONCRETE WHEELCHAIR RAMPS
261900000-E	850	20	SY	4" CONCRETE PAVED DITCH
262700000-E	852	40	SY	4" CONCRETE ISLAND COVERS
286000000-N	859	1	EA	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX
293800000-N	SP	2	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE COVER
303000000-E	862	312.5	LF	STEEL BM GUARDRAIL
321000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
327000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
336000000-E	863	220	LF	REMOVE EXISTING GUARDRAIL
342000000-E	SP	285	LF	GENERIC GUARDRAIL ITEM WOOD RUB RAIL BEHIND GUARDRAIL

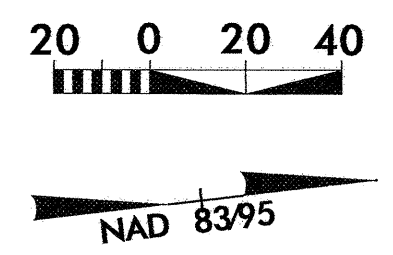
ItemNumber	Sec #	Quantity	Unit	Description
342000000-E	SP	1,360	LF	GENERIC GUARDRAIL ITEM WOOD SAFETY RAIL
343500000-N	SP	4	EA	GENERIC GUARDRAIL ITEM METAL BOLLARD
343500000-N	SP	2	EA	GENERIC GUARDRAIL ITEM METAL HINGED BOLLARD
352400000-E	SP	111	LF	VINYL COATED CHAIN LINK FENCE, *** FABRIC (60")
353900000-E	866	9	EA	METAL LINE POSTS FOR *** CHAIN LINK FENCE (60")
354500000-E	866	4	EA	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (60")
364900000-E	876	1	TON	RIP RAP, CLASS B
365600000-E	876	255	SY	FILTER FABRIC FOR DRAINAGE
407200000-E	903	417	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
410200000-N	904	26	EA	SIGN ERECTION, TYPE E
440000000-E	1110	144	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	872	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	120	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
441500000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
442000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
443000000-N	1130	122	EA	DRUMS
443500000-N	1135	122	EA	CONES
444500000-E	1145	96	LF	BARRICADES (TYPE III)
445000000-N	1150	448	HR	FLAGGER
448000000-N	1165	2	EA	TMA
451000000-N	SP	315	HR	LAW ENFORCEMENT
451600000-N	1180	209	EA	SKINNY DRUM
471000000-E	1205	191	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
481000000-E	1205	464	LF	PAINT PAVEMENT MARKING LINES (4")
482500000-E	1205	210	LF	PAINT PAVEMENT MARKING LINES (12")
486000000-E	1205	366	LF	REMOVAL OF PAVEMENT MARKING LINES (8")
600000000-E	1605	10,600	LF	TEMPORARY SILT FENCE
600600000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS A
601200000-E	1610	24	TON	SEDIMENT CONTROL STONE
602900000-E	SP	1,360	LF	SAFETY FENCE
603000000-E	1630	90	CY	SILT EXCAVATION
603600000-E	1631	800	SY	MATting FOR EROSION CONTROL
604200000-E	1632	320	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	80	LF	WATTLE
6071020000-E	SP	20	LB	POLYACRYLAMIDE (PAM)
608400000-E	1660	2.2	ACR	SEEDING & MULCHING
611700000-N	SP	4	EA	RESPONSE FOR EROSION CONTROL

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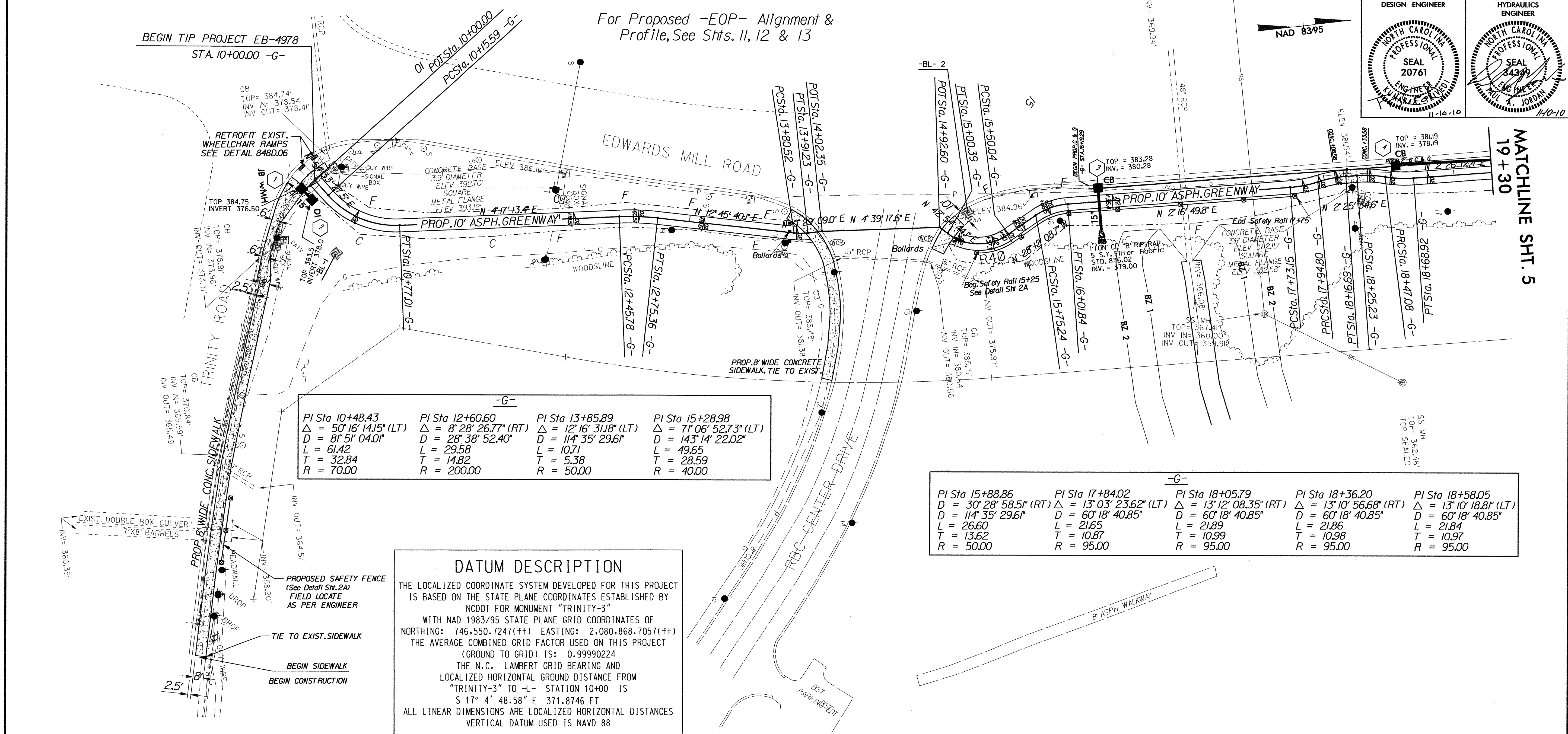
8/17/99

Note: Super Elevation Max = .02
See Plans & Cross-sections.

For Proposed -EOP- Alignment &
Profile, See Shts. 11, 12 & 13



PROJECT REFERENCE NO. EB-4978		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
DESIGN ENGINEER		SEAL 20761	
NORTH CAROLINA PROFESSIONAL ENGINEER		NORTH CAROLINA PROFESSIONAL ENGINEER	
11-16-10		11-10-10	



PI Sta 10+48.43 Δ = 50° 16' 14.5" (LT) D = 81' 5' 04.0" L = 61.42 T = 32.84 R = 70.00	PI Sta 12+60.60 Δ = 8° 28' 26.77" (RT) D = 28' 38' 52.40" L = 29.58 T = 14.82 R = 200.00	PI Sta 13+85.89 Δ = 12° 16' 31.8" (LT) D = 114' 35' 29.6" L = 10.71 T = 5.38 R = 50.00	PI Sta 15+28.98 Δ = 71° 06' 52.73" (LT) D = 143' 14' 22.02" L = 49.65 T = 28.59 R = 40.00
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PI Sta 15+88.86 D = 30° 28' 58.5" (RT) D = 114' 35' 29.6" L = 26.60 T = 13.62 R = 50.00	PI Sta 17+84.02 Δ = 13° 03' 23.62" (LT) D = 60' 18' 40.85" L = 21.65 T = 10.87 R = 95.00	PI Sta 18+05.79 Δ = 13° 12' 08.35" (RT) D = 60' 18' 40.85" L = 21.89 T = 10.99 R = 95.00	PI Sta 18+36.20 Δ = 13° 10' 56.68" (RT) D = 60' 18' 40.85" L = 21.86 T = 10.98 R = 95.00	PI Sta 18+58.05 Δ = 13° 10' 18.8" (LT) D = 60' 18' 40.85" L = 21.84 T = 10.97 R = 95.00
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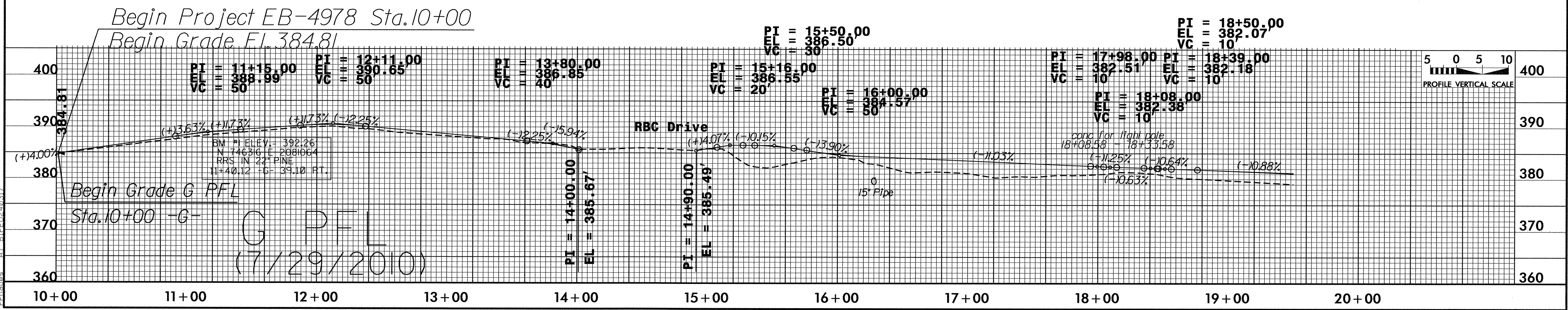
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "TRINITY-3"

WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 746,550.7247(±ft) EASTING: 2,080,868.7057(±ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99990224

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "TRINITY-3" TO -L- STATION 10+00 IS S 17° 4' 48.58" E 371.8746 FT

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

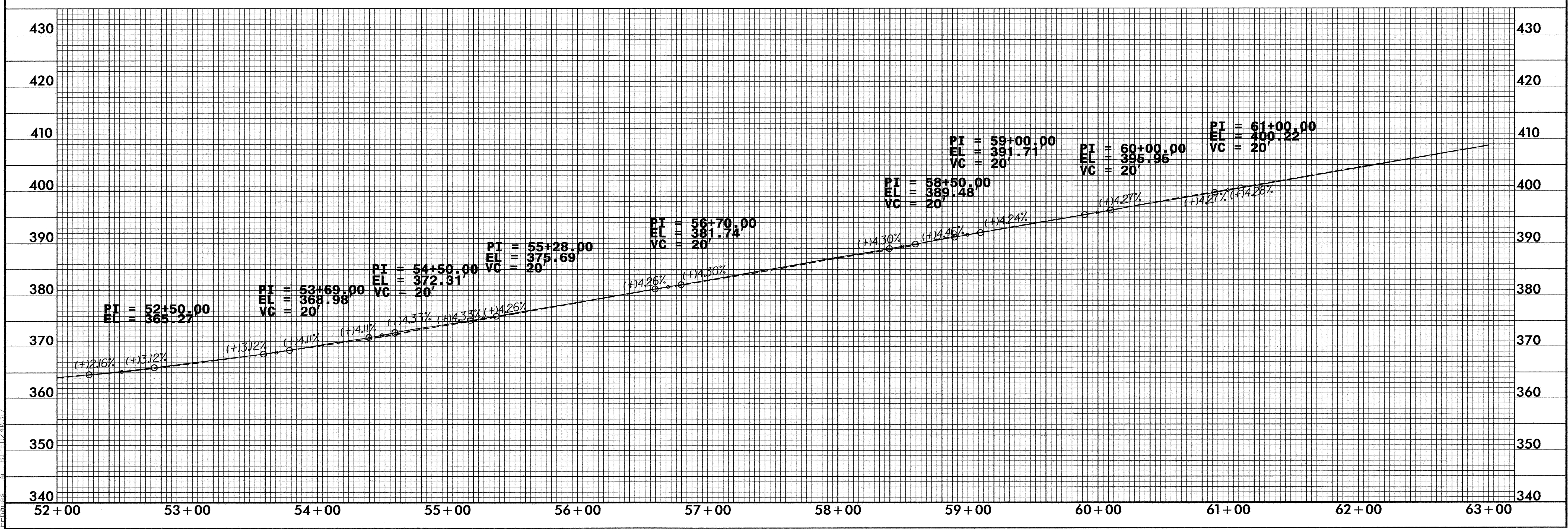
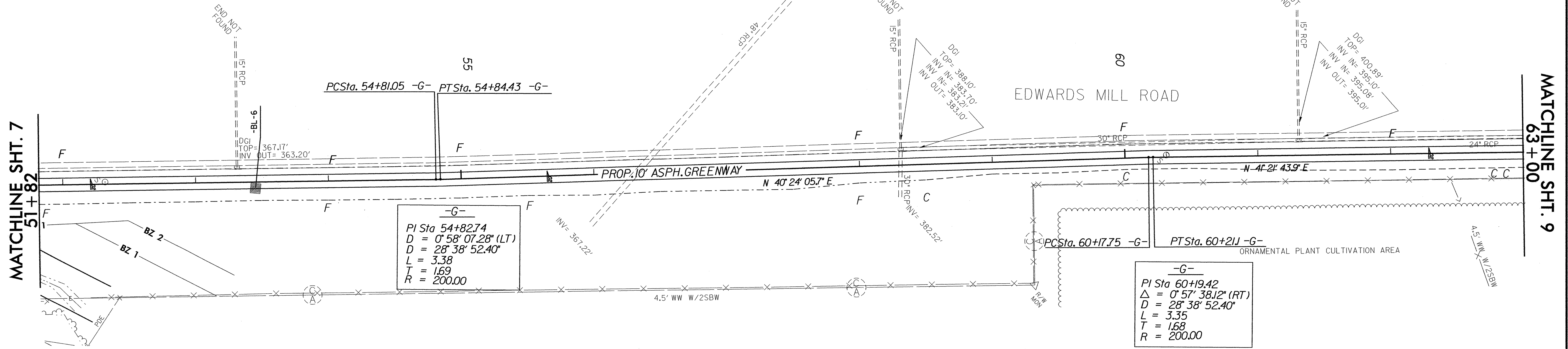


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User: jordan

B/17/99

Note: Super Elevation Max = .02
See Plans & Cross-sections

PROJECT REFERENCE NO. EB-4978	SHEET NO. 8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

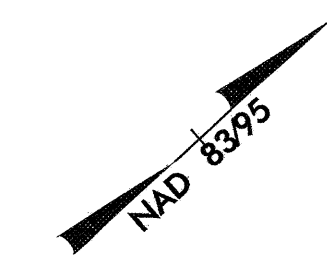


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8/17/99

Note: Super Elevation Max = .02
See Plans & Cross-sections

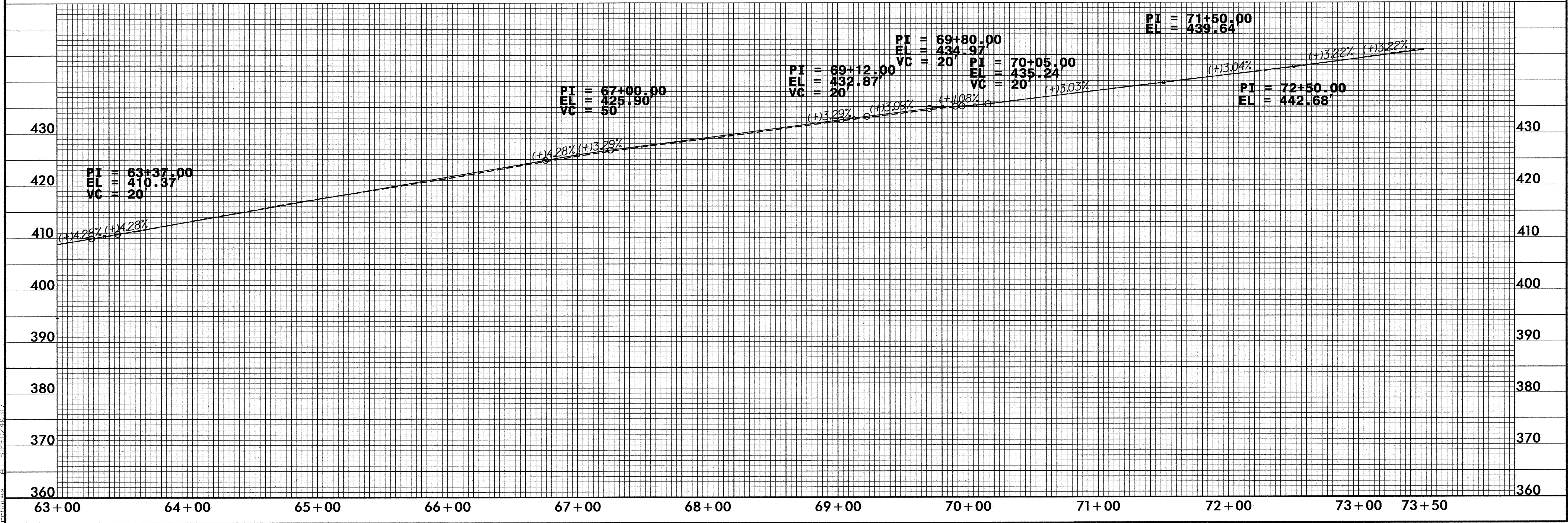
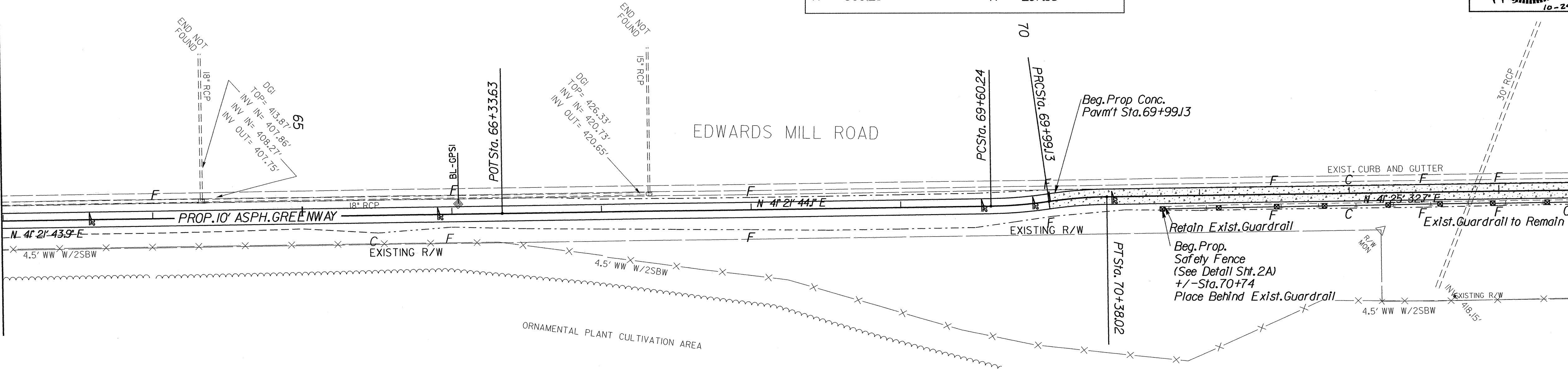
-G-	
PI Sta 69+79.71	PI Sta 70+18.60
D = 7' 25' 19.07" (LT)	Δ = 7' 29' 07.65" (RT)
D = 19' 05' 08.58"	D = 19' 14' 58.05"
L = 38.89	L = 38.89
T = 19.47	T = 19.47
R = 300.20	R = 297.65



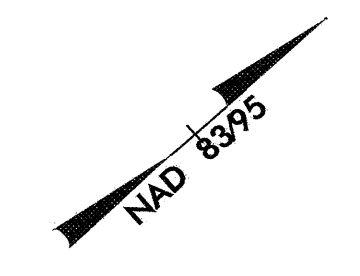
PROJECT REFERENCE NO. EB-4978	SHEET NO. 9
RW SHEET NO.	
DESIGN ENGINEER 	HYDRAULICS ENGINEER

MATCH LINE SHT. 8
63+00

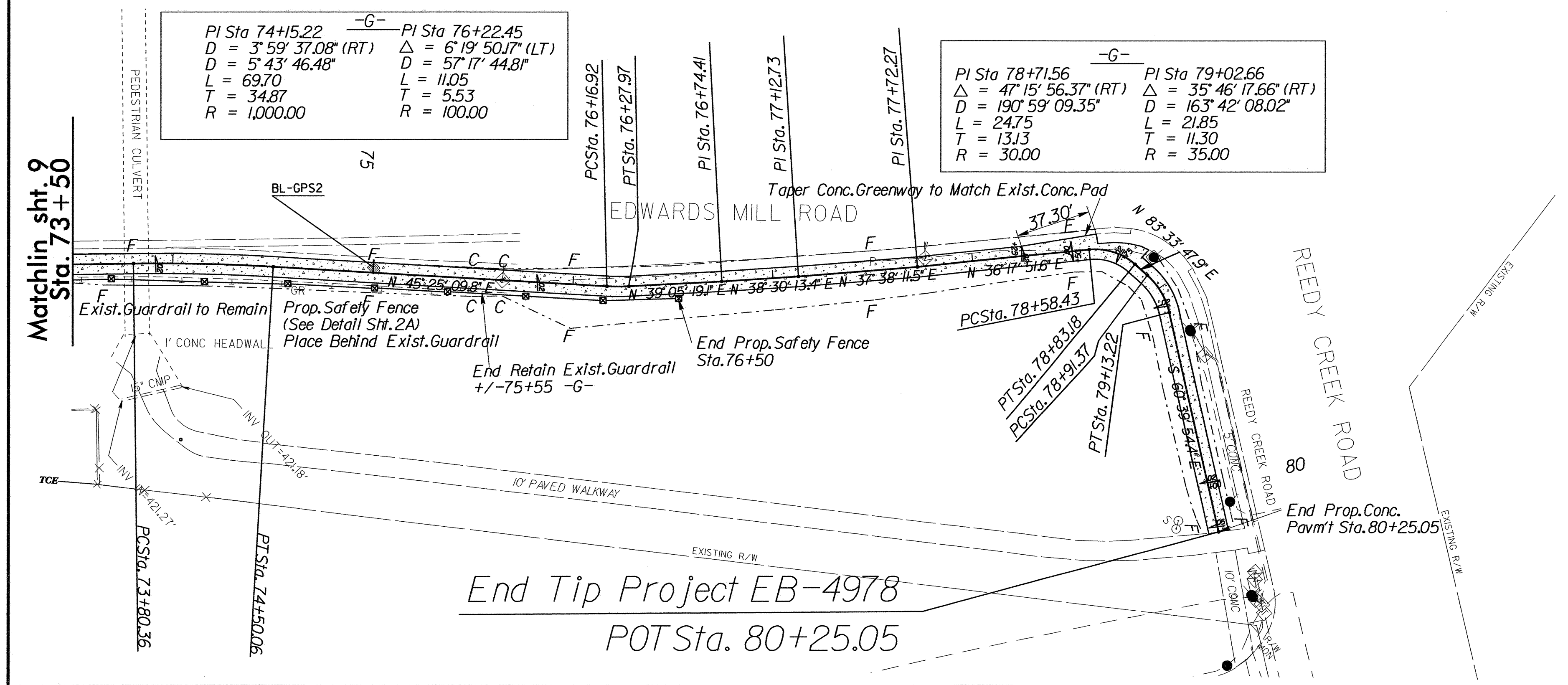
Matchline Sht. 9
Sta. 73+50



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Archie



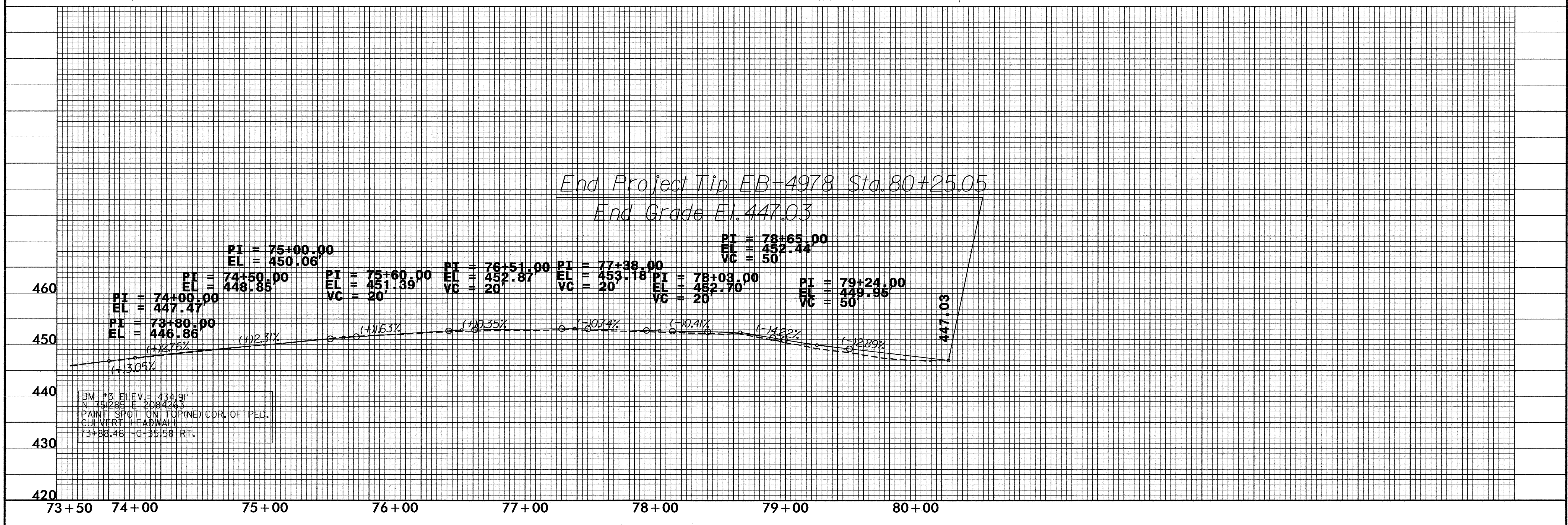
Note: Super Elevation Max = .02
See Plans & Cross-sections

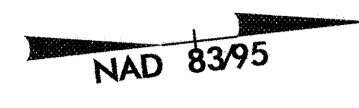


-G-
PI Sta 74+5.22 PI Sta 76+22.45
D = 3' 59' 37.08" (RT) Δ = 6' 19' 50.17" (LT)
D = 5' 43' 46.48" D = 57' 17' 44.81"
L = 69.70 L = 11.05
T = 34.87 T = 5.53
R = 1,000.00 R = 100.00

-G-
PI Sta 78+71.56 PI Sta 79+02.66
Δ = 47' 15' 56.37" (RT) Δ = 35' 46' 17.66" (RT)
D = 190' 59' 09.35" D = 163' 42' 08.02"
L = 24.75 L = 21.85
T = 13.13 T = 11.30
R = 30.00 R = 35.00

End Tip Project EB-4978
POT Sta. 80+25.05

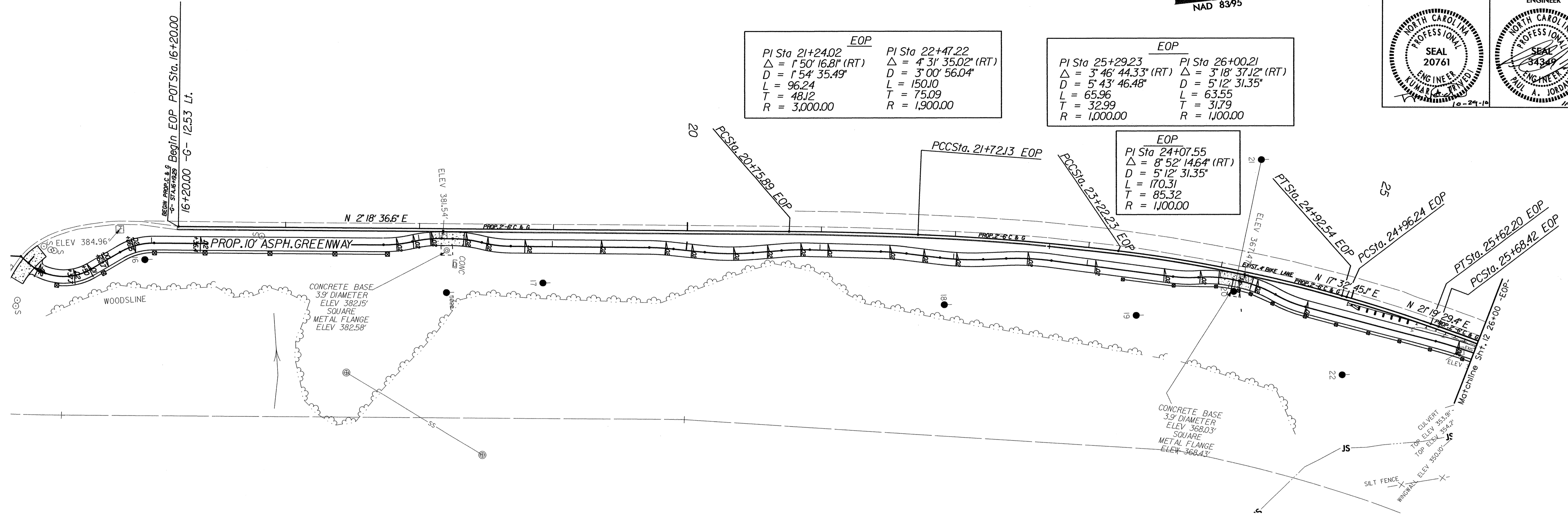




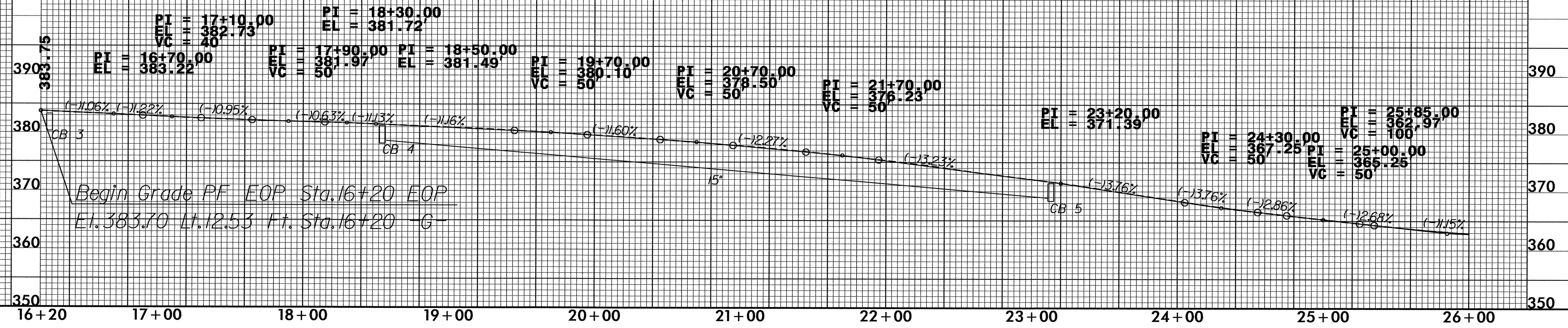
EOP	
PI Sta 21+24.02	PI Sta 22+47.22
$\Delta = 1' 50' 16.81''$ (RT)	$\Delta = 4' 31' 35.02''$ (RT)
D = 1' 54' 35.49"	D = 3' 00' 56.04"
L = 96.24	L = 150.00
T = 48.12	T = 75.09
R = 3,000.00	R = 1,900.00

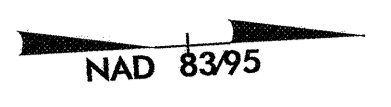
EOP	
PI Sta 25+29.23	PI Sta 26+00.21
$\Delta = 3' 46' 44.33''$ (RT)	$\Delta = 3' 18' 37.12''$ (RT)
D = 5' 43' 46.48"	D = 5' 12' 31.35"
L = 65.96	L = 63.55
T = 32.99	T = 31.79
R = 1,000.00	R = 1,000.00

EOP	
PI Sta 24+07.55	
$\Delta = 8' 52' 14.64''$ (RT)	
D = 5' 12' 31.35"	
L = 170.31	
T = 85.32	
R = 1,000.00	

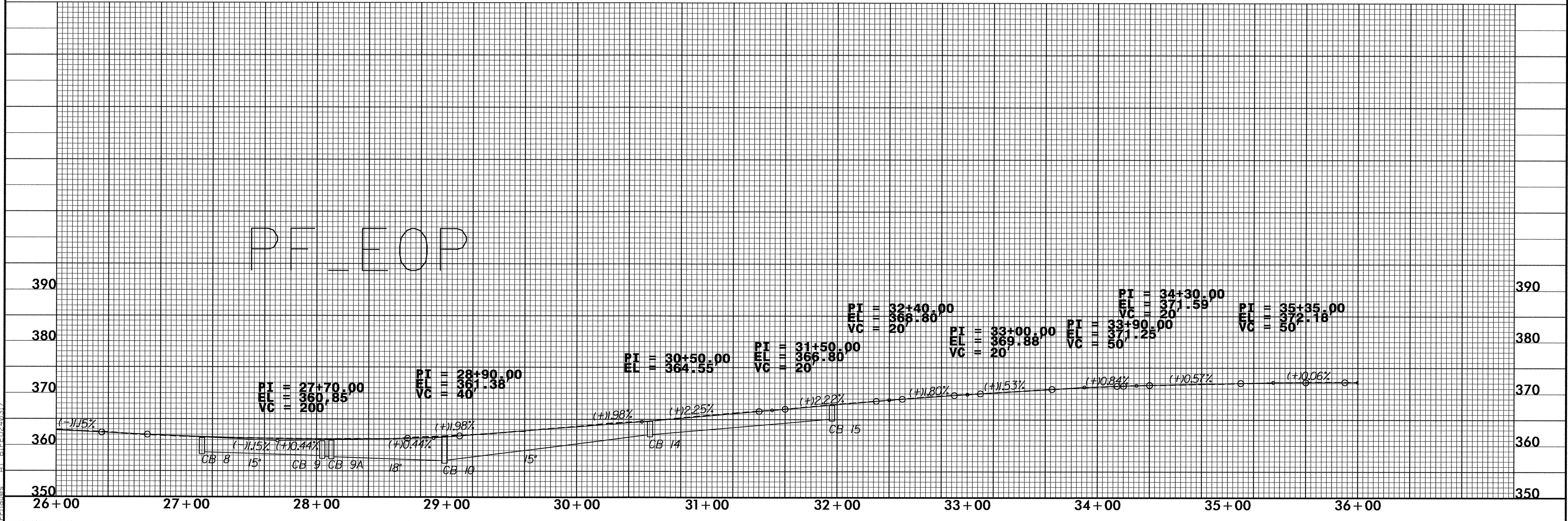
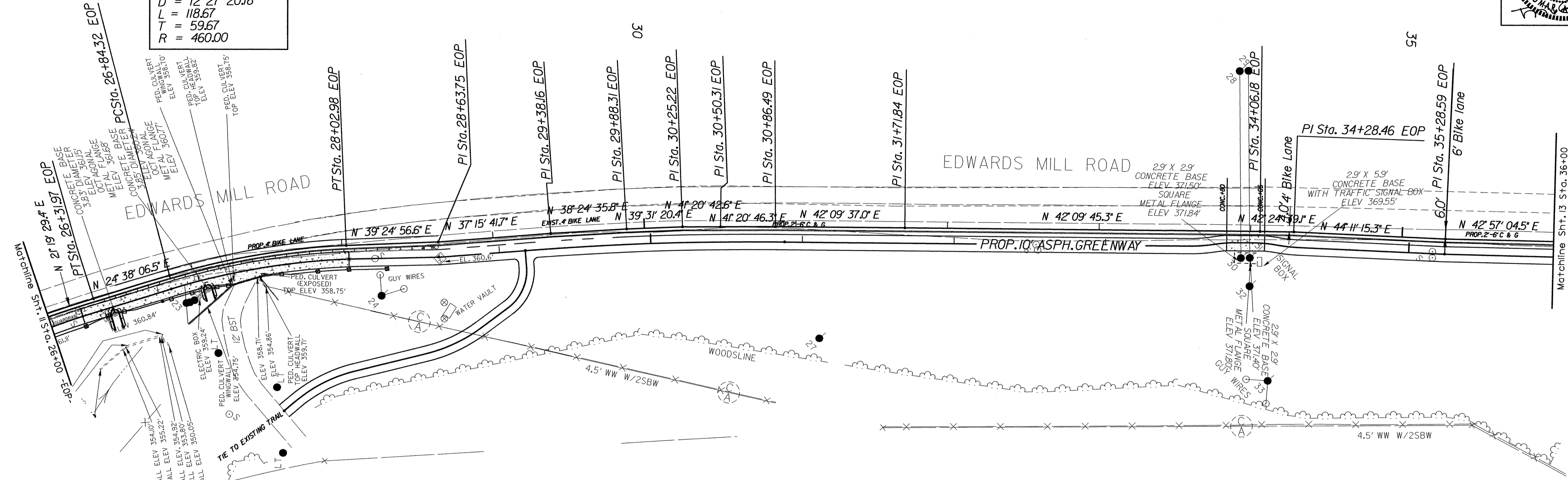


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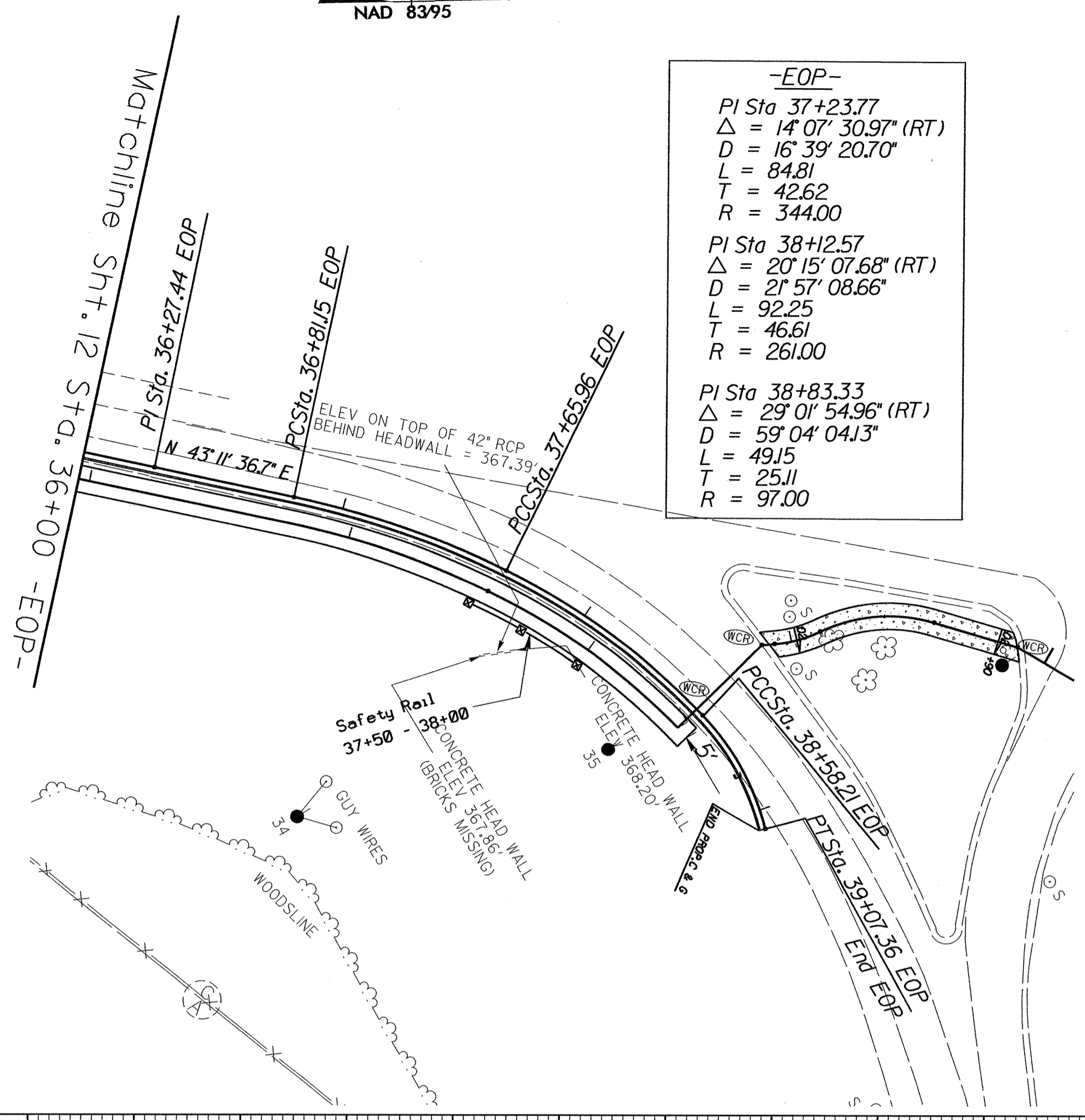
-EOP-
 PI Sta 27+43.98
 $\Delta = 14' 46" 51.0"$ (RT)
 $D = 12' 27" 20.18"$
 $L = 118.67$
 $T = 59.67$
 $R = 460.00$



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NAD 8395



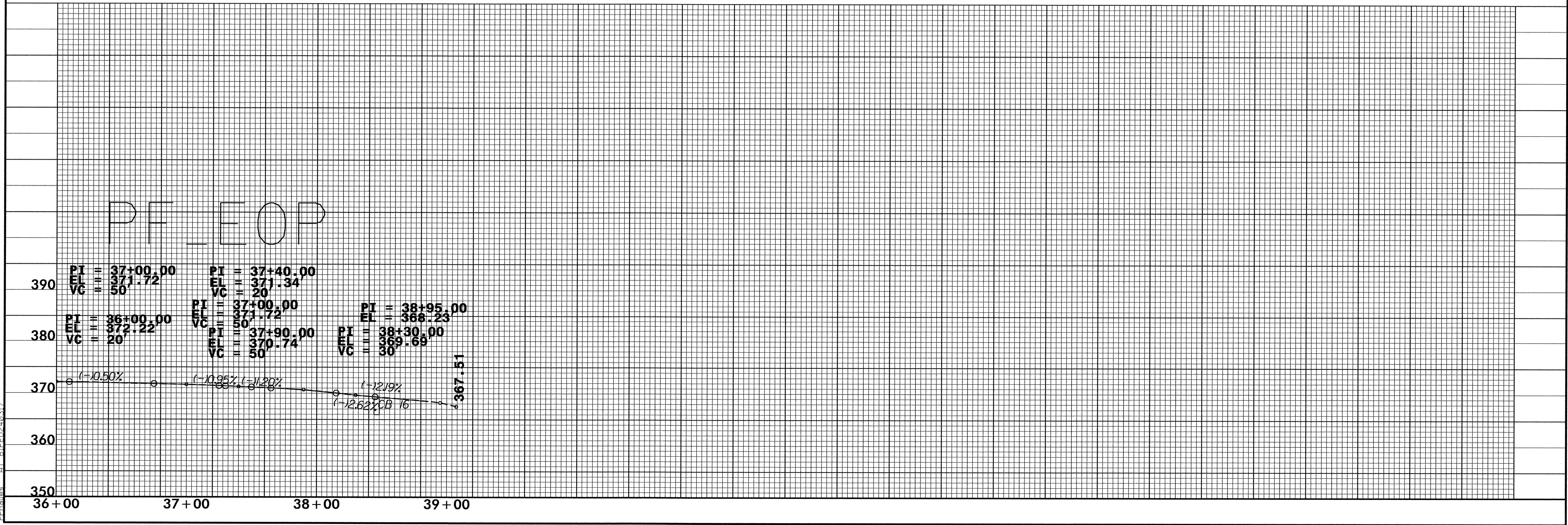
-EOP-

PI Sta 37+23.77
 $\Delta = 14^{\circ} 07' 30.97"$ (RT)
 $D = 16^{\circ} 39' 20.70"$
 $L = 84.81$
 $T = 42.62$
 $R = 344.00$

PI Sta 38+12.57
 $\Delta = 20^{\circ} 15' 07.68"$ (RT)
 $D = 21^{\circ} 57' 08.66"$
 $L = 92.25$
 $T = 46.61$
 $R = 261.00$

PI Sta 38+83.33
 $\Delta = 29^{\circ} 01' 54.96"$ (RT)
 $D = 59^{\circ} 04' 04.13"$
 $L = 49.15$
 $T = 25.11$
 $R = 97.00$

PROJECT REFERENCE NO. EB-4978	SHEET NO. 13
RW SHEET NO.	
DESIGN ENGINEER	HYDRAULICS ENGINEER



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