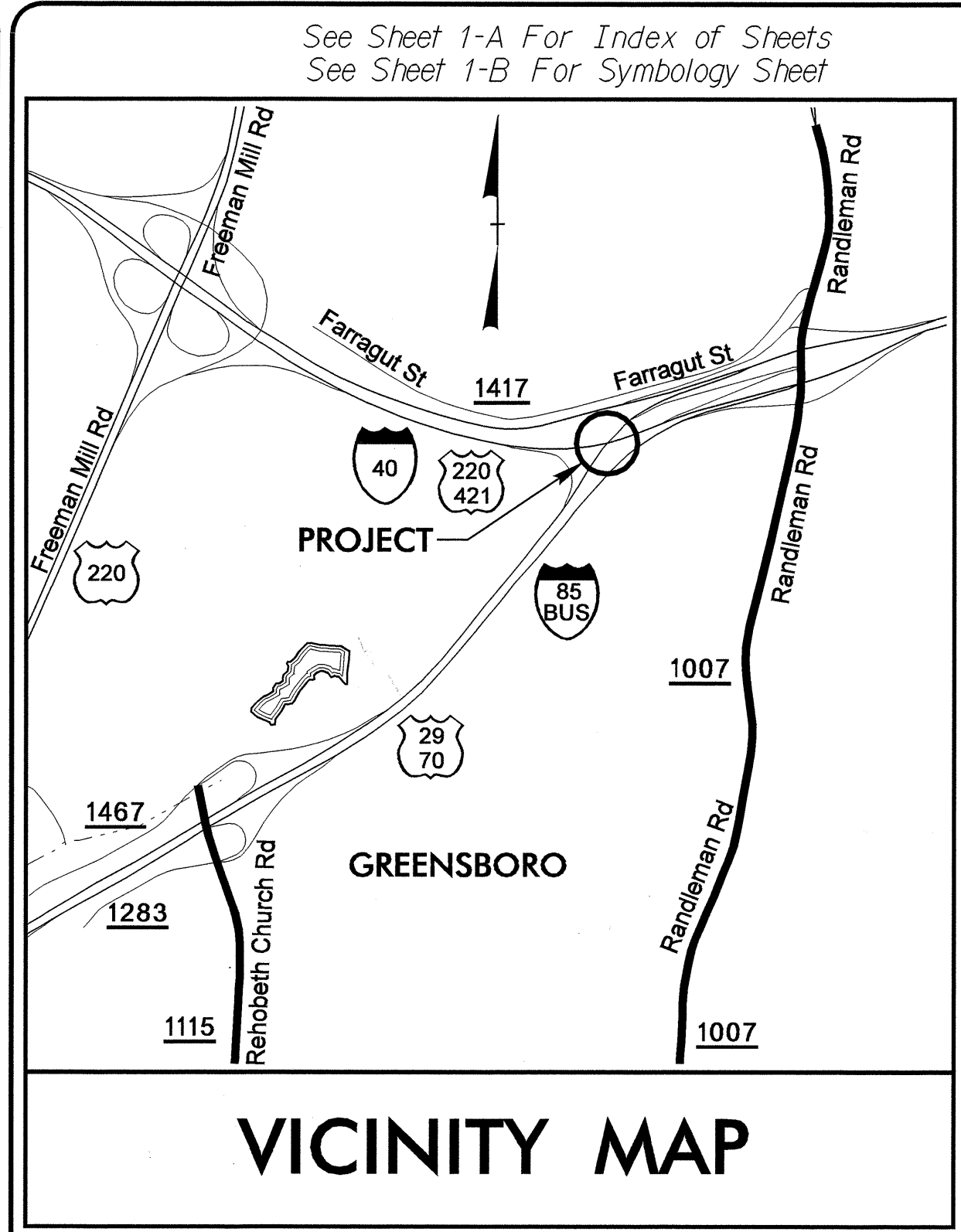
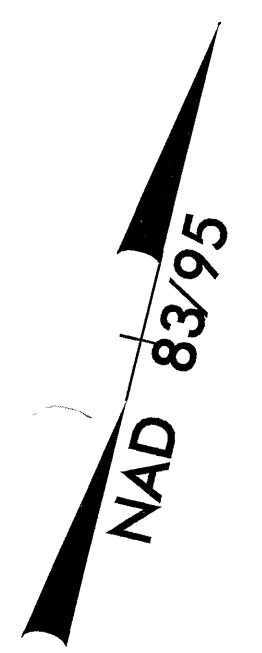


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4534	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
37698.1.1	BRNHS-40-3(103)219	P.E.	
37698.2.1	BRNHS-40-3(103)219	R.W. UTIL.	
37698.3.1	BRNHS-40-3(104)219	CONSTR.	

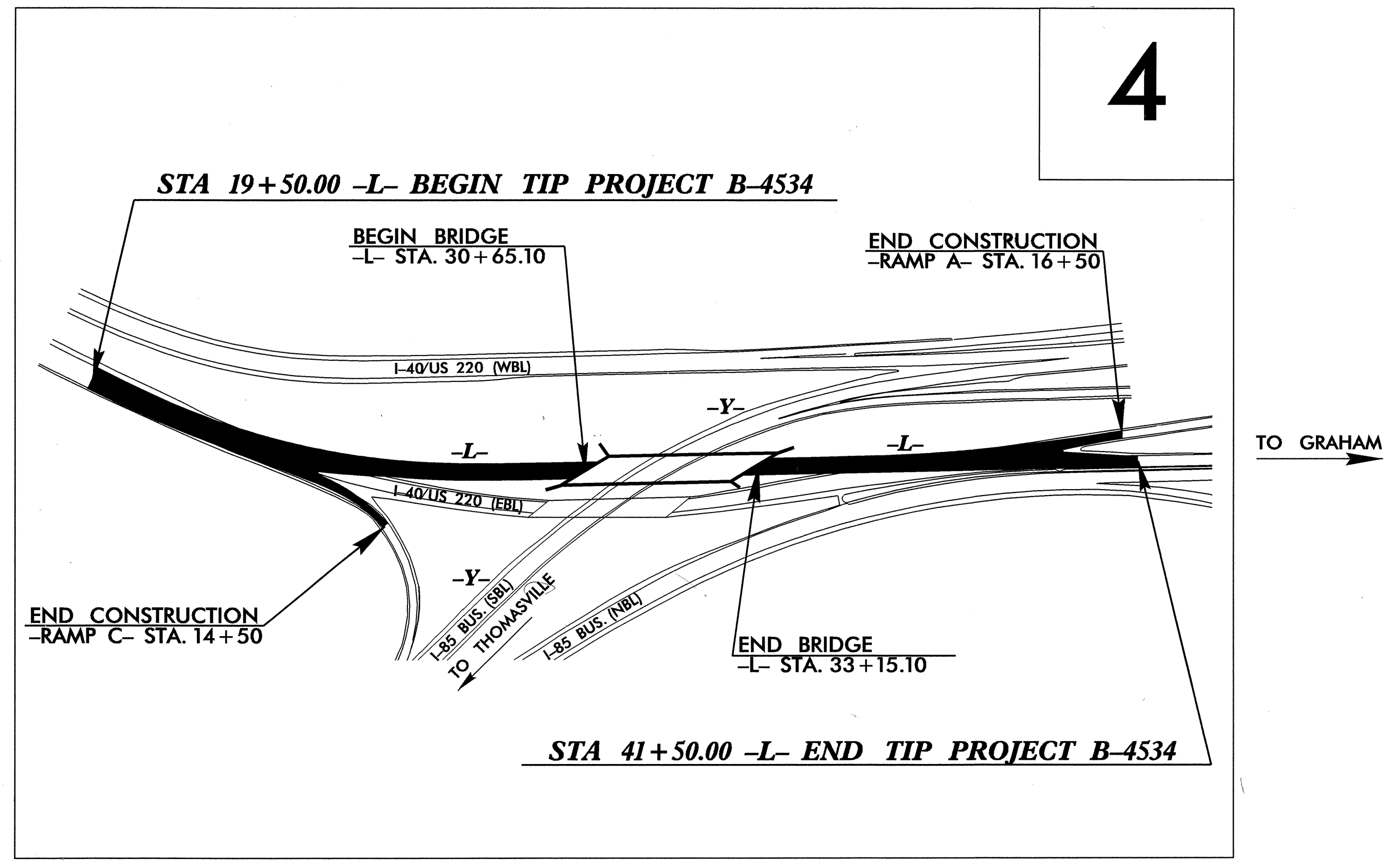
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
GUILFORD COUNTY

LOCATION: BRIDGE NO. 336 ON I-40 & US 220 EBL OVER I-85 SBL

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, STRUCTURE, AND RETAINING WALLS

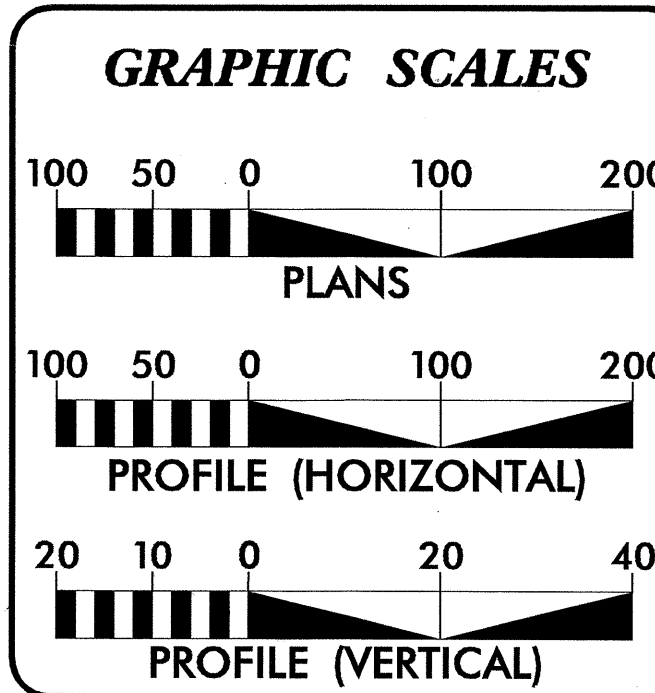


VICINITY MAP



4

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



DESIGN DATA

ADT 2008 =	46800
ADT 2028 =	45200
DHV =	10 %
D =	55 %
T =	17 % *
V =	60 MPH
* (TTST 12% + DUAL 5%)	
POSTED SPEED =	55 MPH
FUNC. CLASS =	INTERSTATE

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4534	=	0.370 MILES
LENGTH OF STRUCTURE TIP PROJECT B-4534	=	0.047 MILES
TOTAL LENGTH OF TIP PROJECT B-4534	=	0.417 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	JULY 20, 2007	BRENDA MOORE, PE PROJECT ENGINEER
LETTING DATE:	JULY 15, 2008	REKHA PATEL, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Signature: *Joseph W. Dunne*

ROADWAY DESIGN ENGINEER

Signature: *Rekha V. Patel*

Professional Engineer Seals for Joseph W. Dunne and Rekha V. Patel.

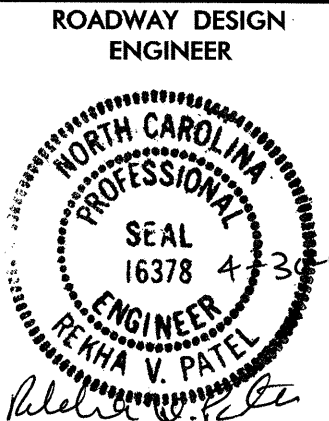
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Signature: *Ant McMillan*

Professional Engineer Seal for Ant McMillan.

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TIP PROJECT: B-4534
CONTRACT: C201876



EFF. 07-18-06
REV. 01-02-07

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	ANCHORAGE FOR FRAMES DETAIL
2-B	METHOD OF PLACEMENT OF DROP INLETS IN CONCRETE MEDIAN
2-C	STANDARD TEMPORARY SHORING DETAIL
2-D	CONVERTING EXISTING CATCH BASINS TO JUNCTION BOX WITH MANHOLE COVER DETAIL
3	SUMMARY OF QUANTITIES
3-A	LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)
3-B	SUMMARY OF EARTHWORK, SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL, AND GUARDRAIL SUMMARY
4	PLAN SHEET
5 THRU 6	PROFILE SHEETS
TCP-1 THRU TCP-18	TRAFFIC CONTROL PLANS
SD-1 THRU SD-1	SPECIAL SIGN PLANS
PM-1 THRU PM-3	PAVEMENT MARKING PLANS
E-1 THRU E-2	LIGHTING/ELECTRICAL CONSTRUCTION PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN- 22	SIGNING PLANS
ITS-1 THRU ITS-1	INTELLIGENT TRANSPORTATION SYSTEMS PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-18	CROSS-SECTIONS
S-1 THRU S-24	STRUCTURE PLANS

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 III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 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. 560.02.

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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

SUBSURFACE PLANS:

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

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 NCDOT

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

2006 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated 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	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.03	Deceleration and Acceleration Lanes
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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.01	Guide for Paving Shoulders Under Bridges - Method I
665.01	Milled Rumble Strips - Asphalt Pavements
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.04	Drop Inlet Installation in Shoulder Berm Gutter
850.01	Concrete Paved Ditches
852.01	Concrete Islands
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
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
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/09

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3/15/06

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	EDM
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 UG Tank Cap	○
Sign	○
Well	○
Small Mine	⊗
Foundation	-----
Area Outline	-----
Cemetery	-----
Building	-----
School	-----
Church	-----
Dam	-----

HYDROLOGY:

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

RAILROADS:

Standard Gauge	----- 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	-----
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	----- 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	-----
UG Power Cable Hand Hole	----- PH
H-Frame Pole	-----
Recorded UG Power Line	----- P
Designated UG Power Line (S.U.E.*)	----- P

TELEPHONE:

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

WATER:

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

TV:

TV Satellite Dish	-----
TV Pedestal	-----
TV Tower	-----
UG TV Cable Hand Hole	----- PH
Recorded UG TV Cable	----- TV
Designated UG TV Cable (S.U.E.*)	----- TV
Recorded UG Fiber Optic Cable	----- TV FO
Designated UG Fiber Optic Cable (S.U.E.*)	----- TV FO

GAS:

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

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
UG 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	-----
Utility Unknown UG Line	----- TUTL
UG Tank; Water, Gas, Oil	-----
A/G Tank; Water, Gas, Oil	-----
UG Test Hole (S.U.E.*)	-----
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

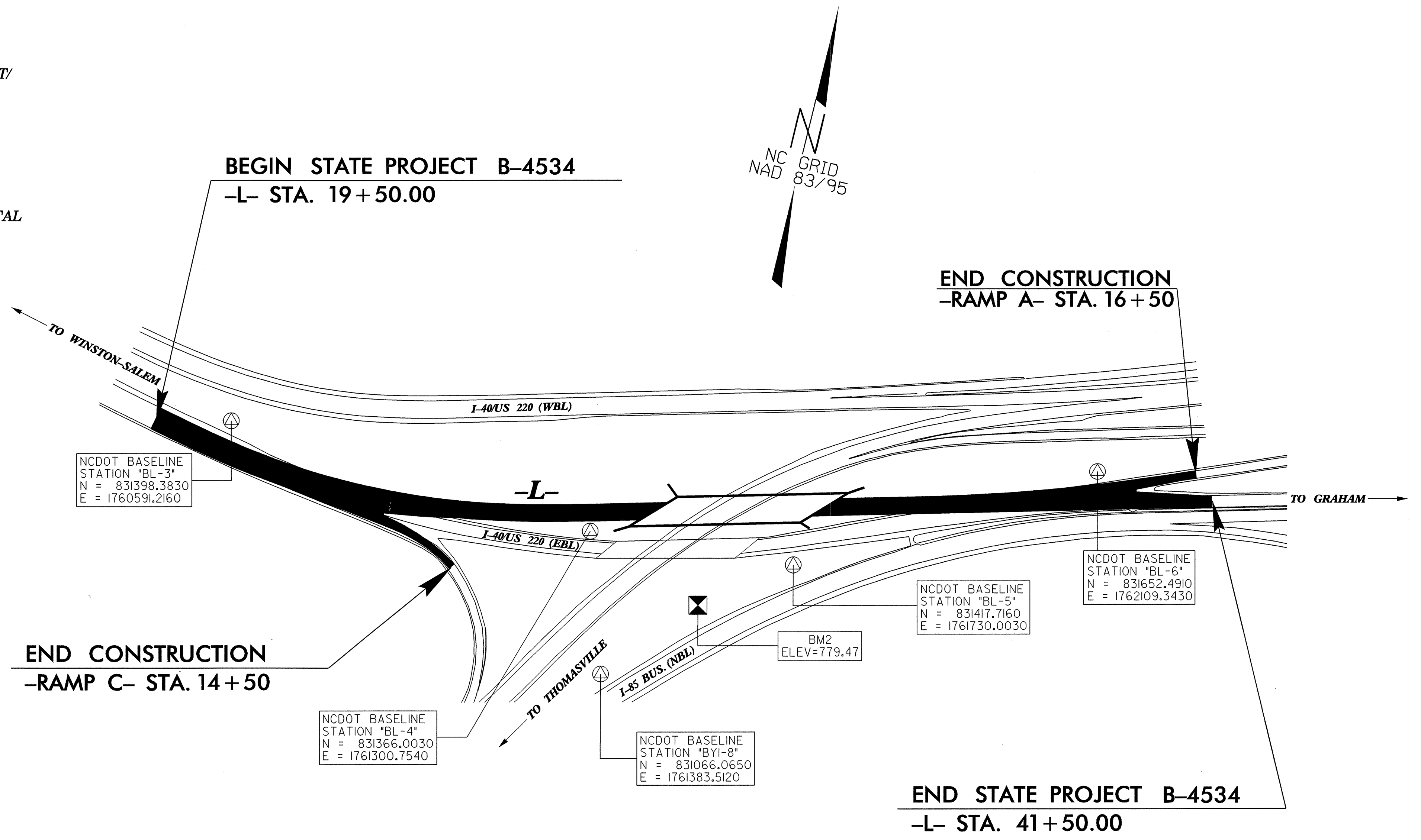
12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
B-4534	1-C
Location and Surveys	

B-4534 SURVEY CONTROL SHEET

NOTES

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/) THE FILES TO BE FOUND ARE AS FOLLOWS:
b4534_ls_control_061213.txt
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- 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. NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)



BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1		831743.1400	1759508.1640	750.69	10+02.42	67.06 LT
2	BL-2		831511.3660	1760075.4420	753.55	16+19.52	28.94 LT
3	BL-3		831398.3830	1760591.2160	767.55	21+51.63	33.47 LT
4	BL-4		831366.0030	1761300.7540	781.20	28+00.15	53.37 RT
5	BL-5		831417.7160	1761730.0030	780.38	32+87.90	114.12 RT
6	BL-6		831652.4910	1762109.3430	774.34	37+15.00	14.73 LT
7	BL-7		831863.7780	1762634.0630	761.05	42+76.48	83.34 LT
	BY1						
15	BY1-8		831066.0650	1761383.5120	778.19	28+64.19	364.48 RT
8	BY1-9		830666.5040	1761060.3410	774.06	25+50.77	694.80 RT
9							

BENCHMARK DATA

 BM1 ELEVATION = 752.56
 N 831749 E 1759503
 L STATION 10+00
 N 17° 49' 20.2" E DIST 71.10
 CHISELED SQUARE IN CONC WW

 BM2 ELEVATION = 779.47
 N 831335 E 1761573
 L STATION 31+15 153 RIGHT
 RR SPIKE IN BASE 18 INCH SYCAMORE TREE

 BM3 ELEVATION = 760.13
 N 832030 E 1762886
 L STATION 43+57
 N 34° 09' 29.3" E DIST 272.80
 RR SPIKE IN BASE 24 INCH OAK

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "HAWTHORNE RESET" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 851,336.375(ft) EASTING: 1,722,541.083(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99993454 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "HAWTHORNE RESET" TO -L- STATION IS S 62° 13' 34" 42775.26 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

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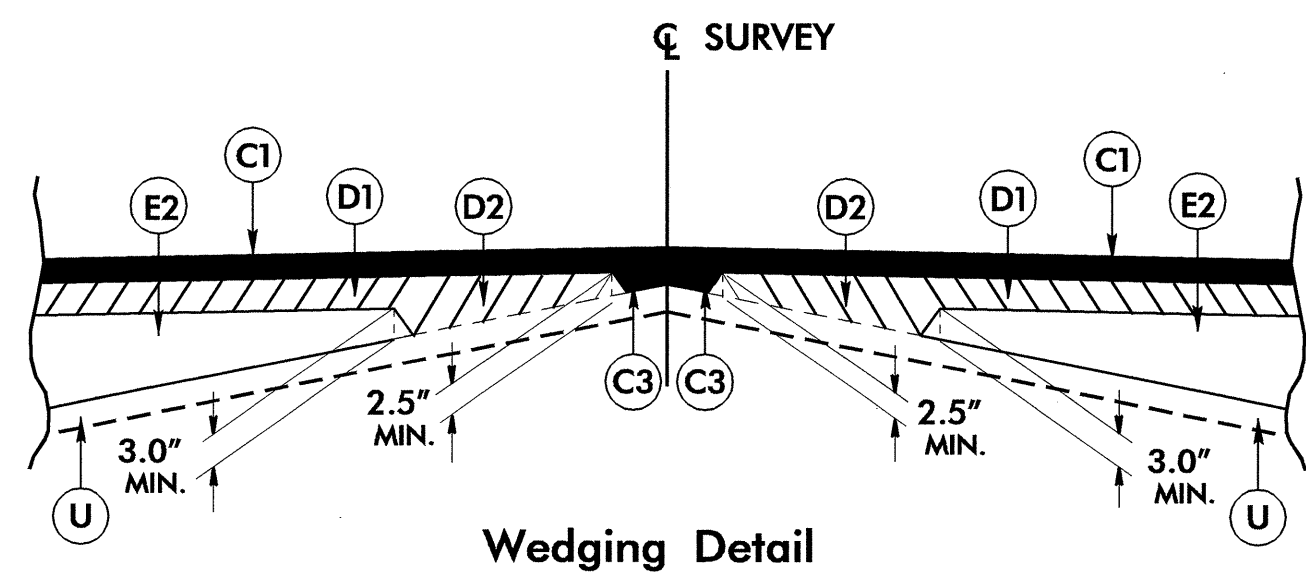
6/2/09

PAVEMENT SCHEDULE

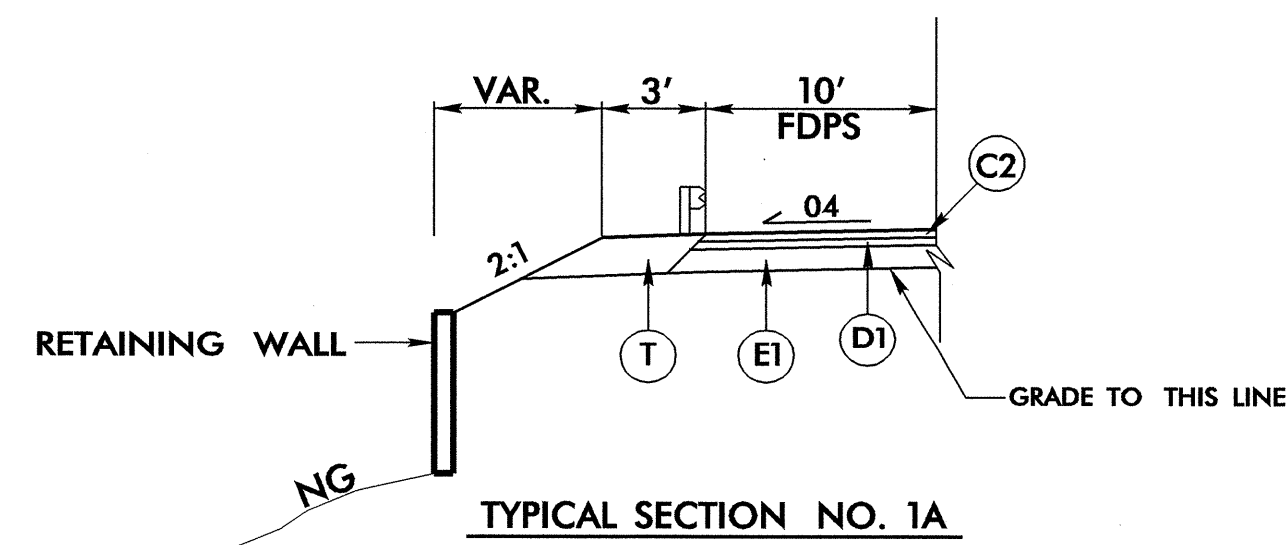
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, 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. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 12.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 475 LBS. PER SQ. YD. IN EACH OF THREE LAYERS.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" OR LESS THAN 3" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

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

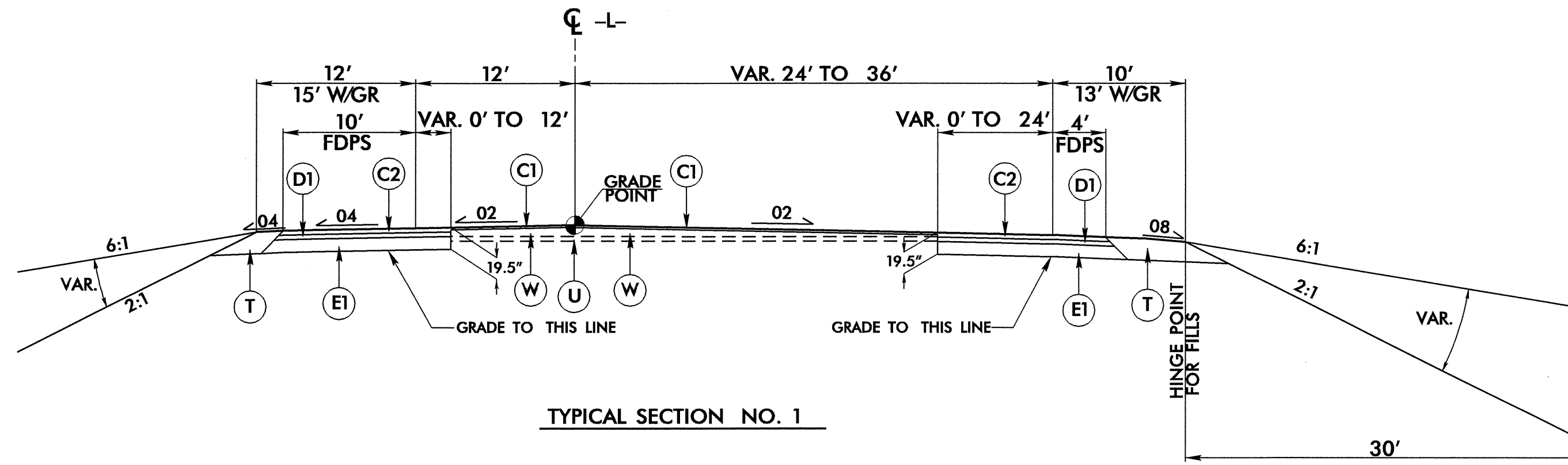


Wedging Detail

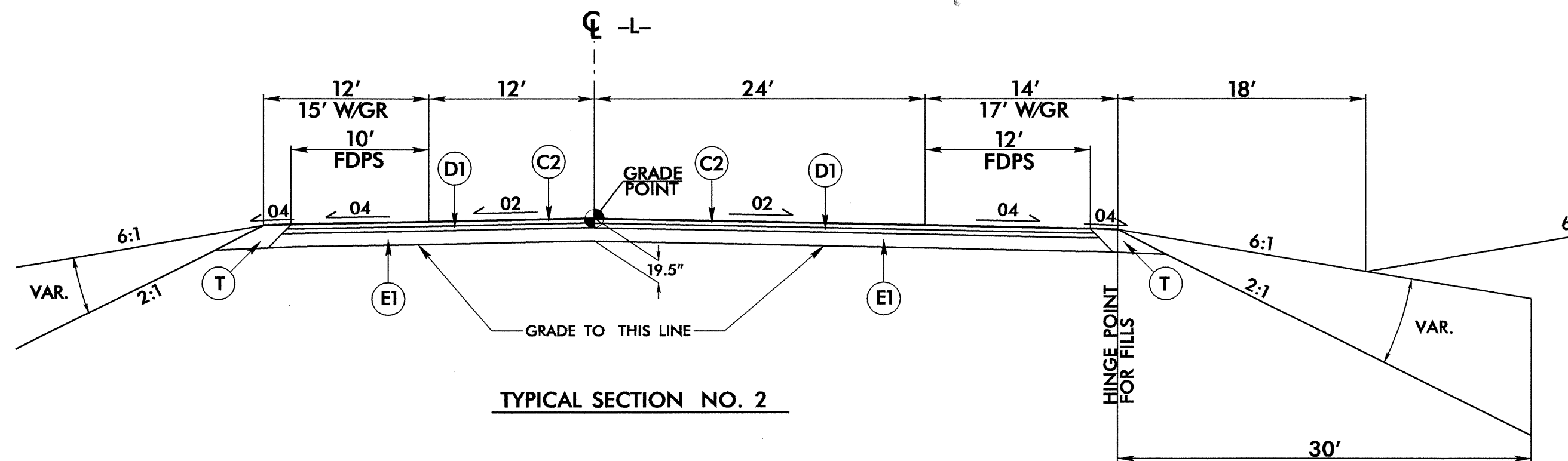


TYPICAL SECTION NO. 1A

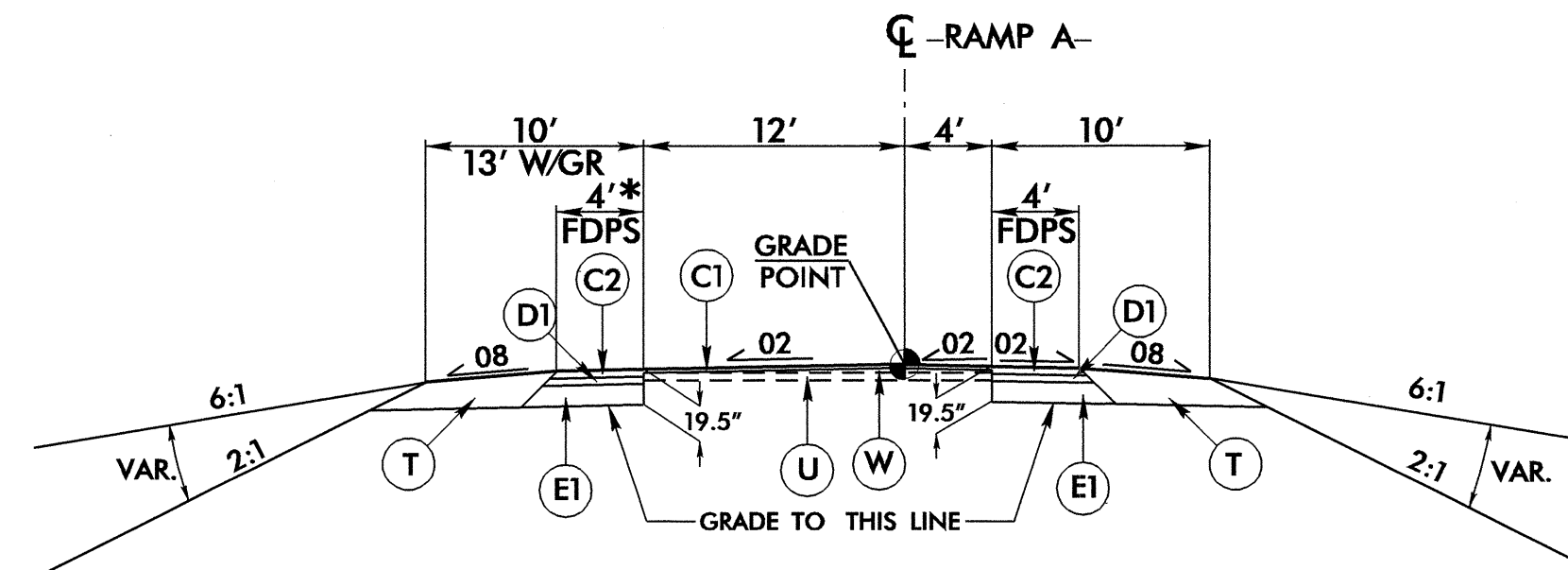
USE TYPICAL SECTION NO. 1A IN CONJUNCTION WITH TYPICAL SECTION NO. 1 AND NO. 2
 -L- STA 33+70 LT TO 35+40 LT
 -L- STA 29+50 RT TO 30+31 RT



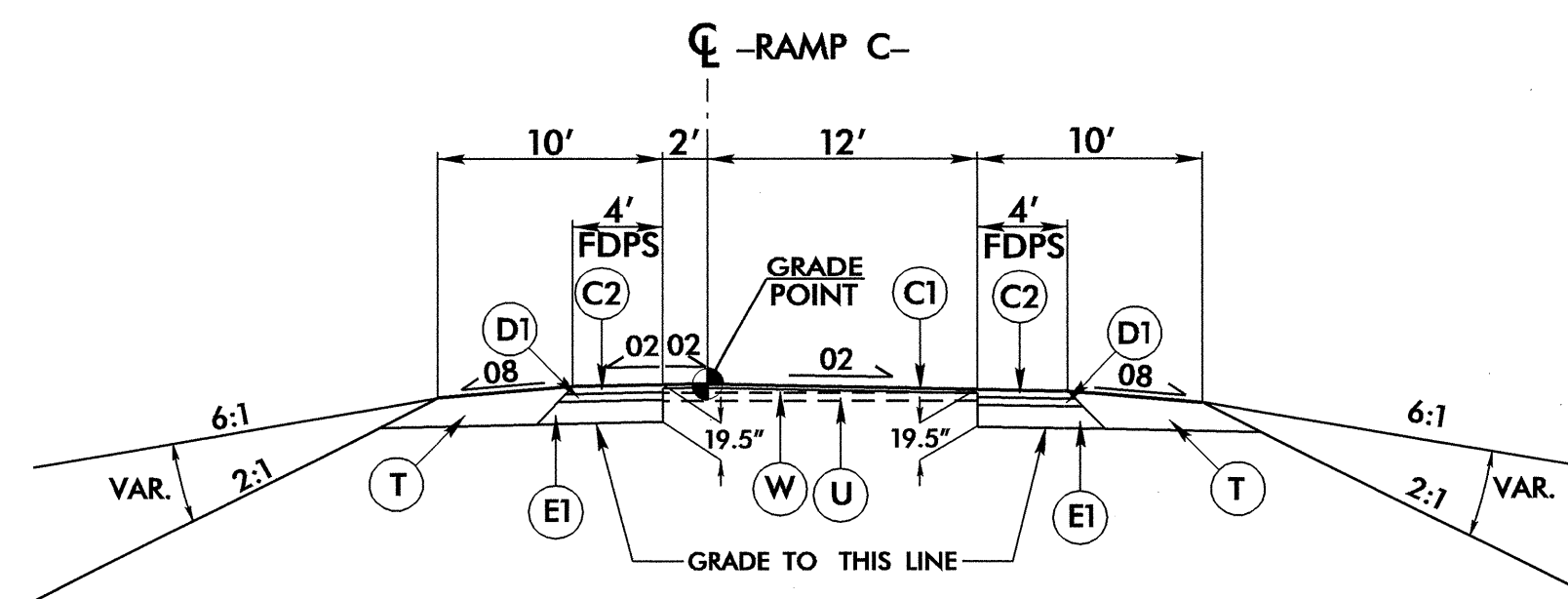
TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2



TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4

PROJECT REFERENCE NO. B-4534	SHEET NO. 2
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16378 REKHA V. PATEL	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13368 DON CHEN

USE TYPICAL SECTION NO. 1
 -L- STA 19+50 TO 25+50
 -L- STA 35+50 TO 41+50

USE TYPICAL SECTION NO. 2
 -L- STA 25+50 TO 30+65.10 (BEGIN BRIDGE)
 -L- STA 33+15.10 (END BRIDGE) TO 35+50

USE TYPICAL SECTION NO. 3
 -RAMP A- STA 10+00 TO 15+78.28 *10' FDPS
 -RAMP A- STA 15+78.28 TO 16+50

USE TYPICAL SECTION NO. 4
 -RAMP C- STA 10+00 TO 14+50

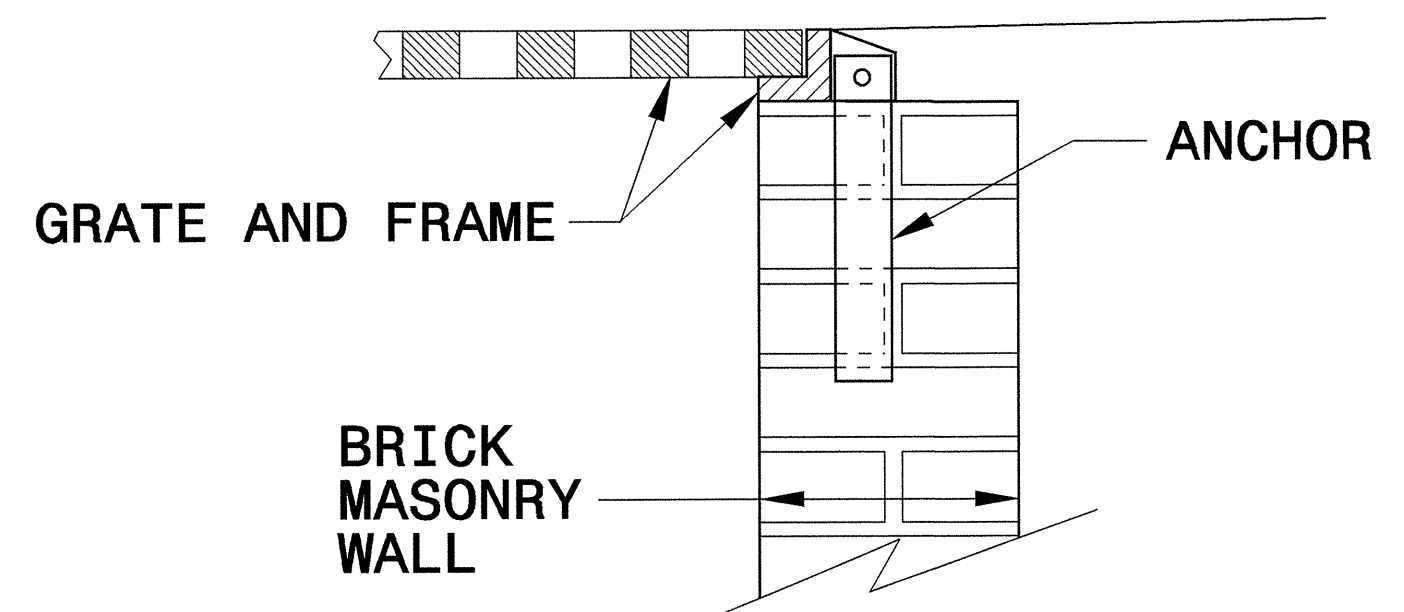
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STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

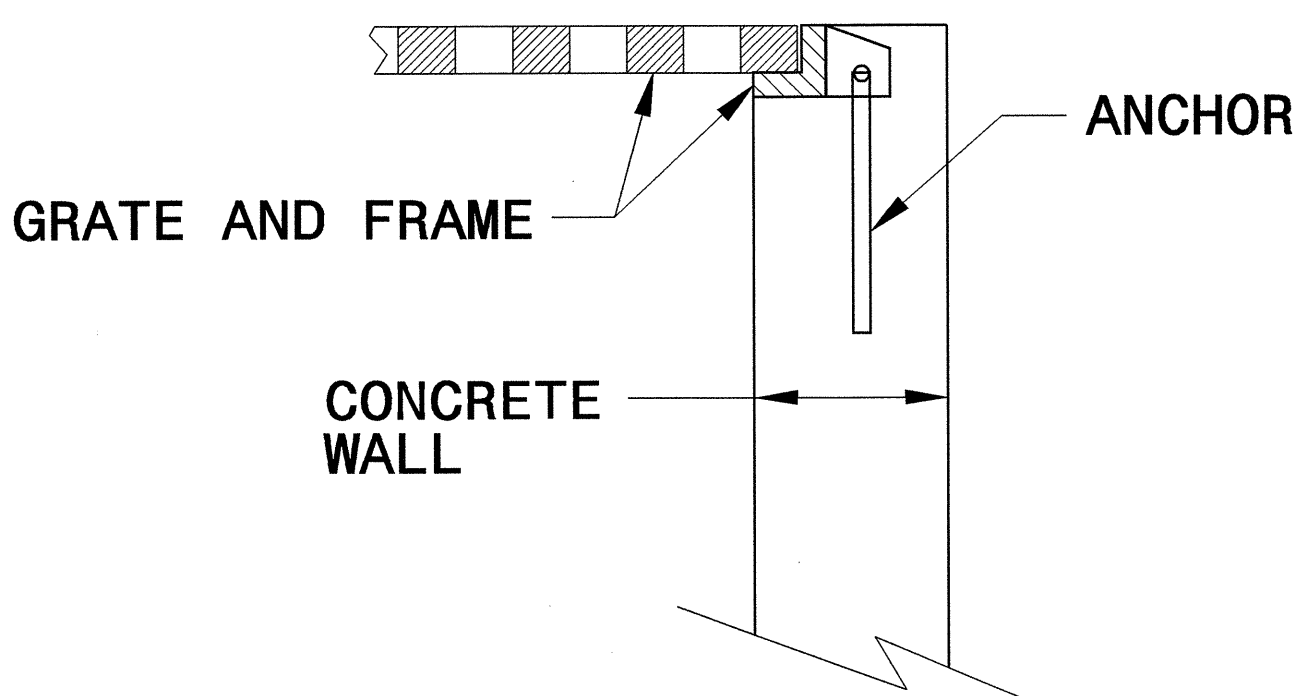
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

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

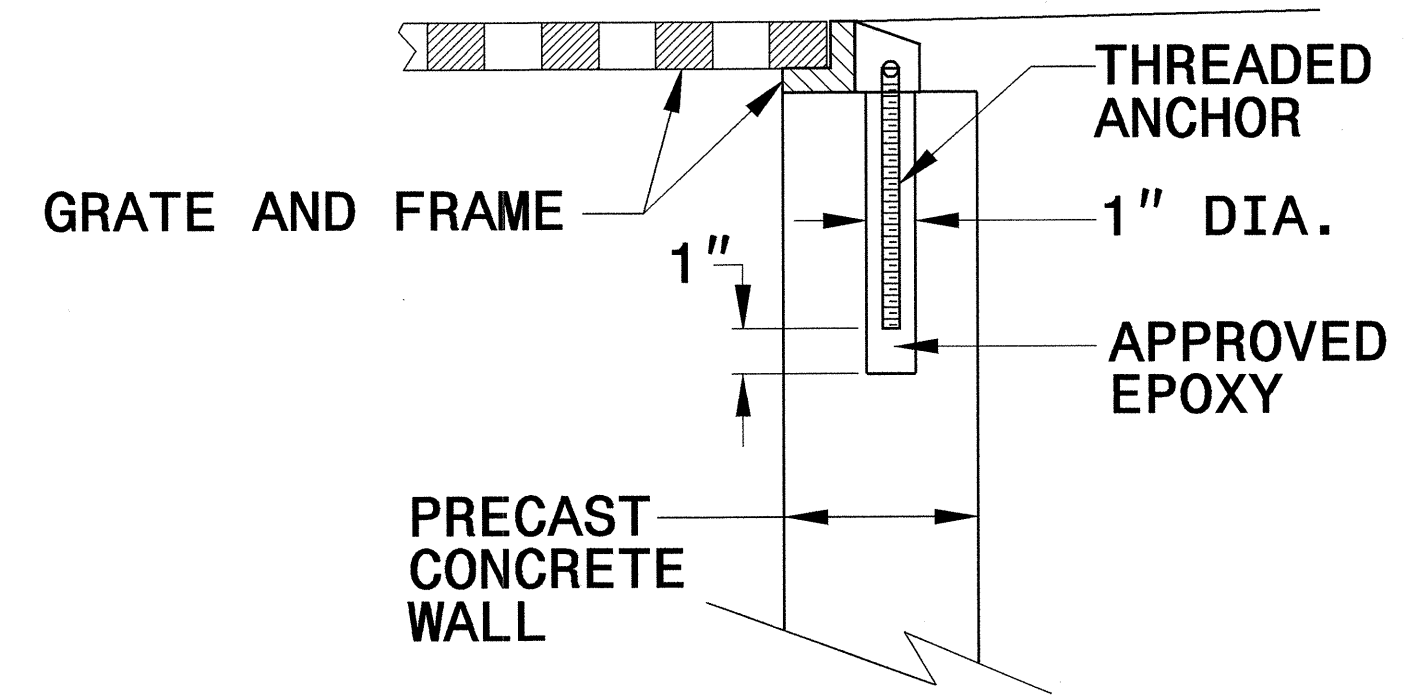
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



**BRICK MASONRY
CONSTRUCTION**



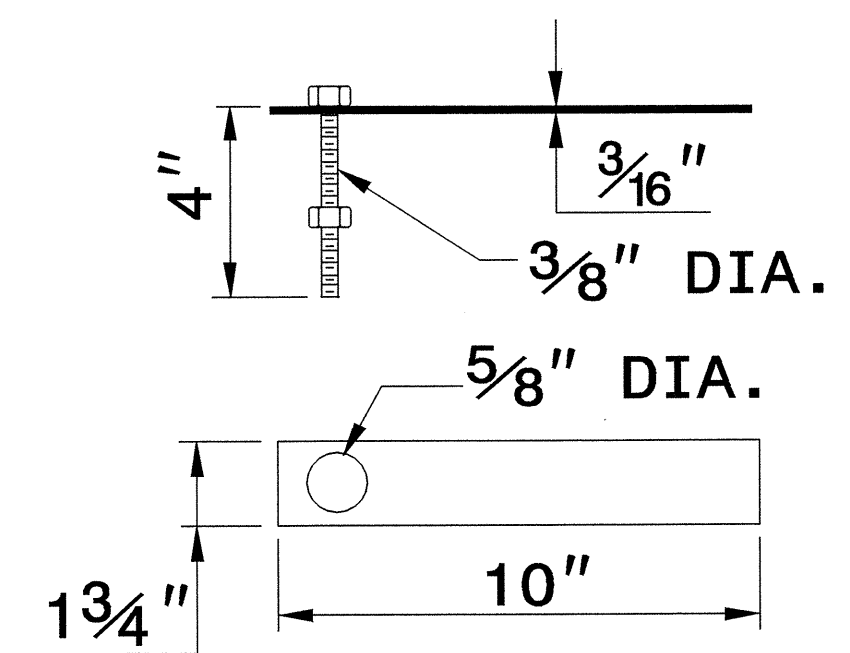
**CONCRETE
CONSTRUCTION**



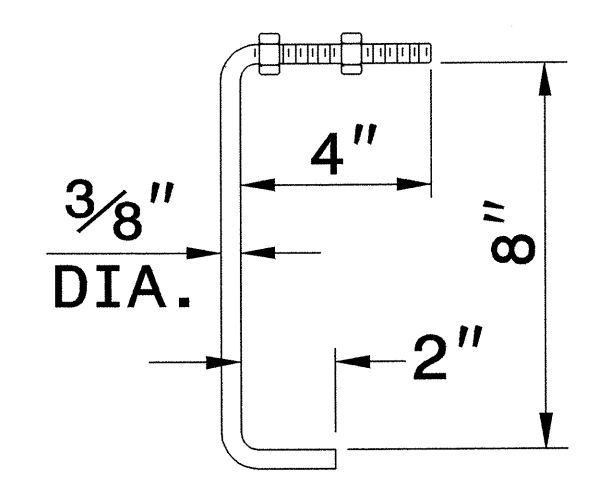
**PRECAST CONCRETE
CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF
FRAME FOR GRATED DROP INLET**

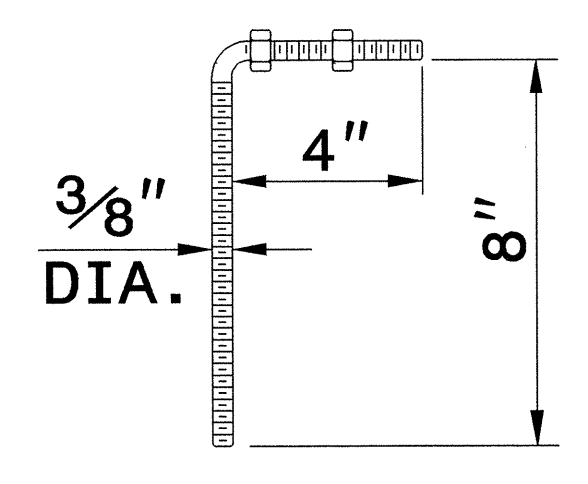
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



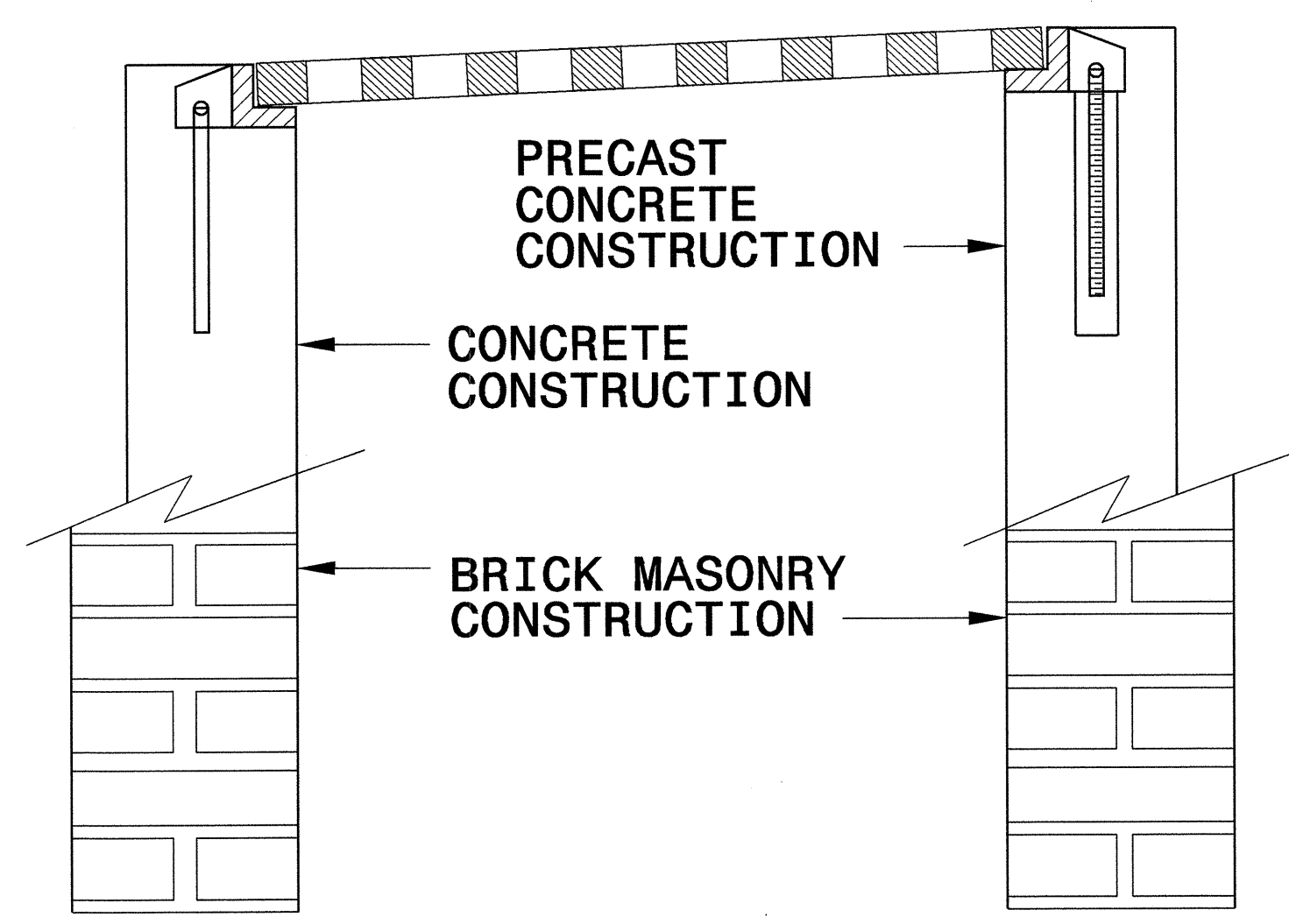
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



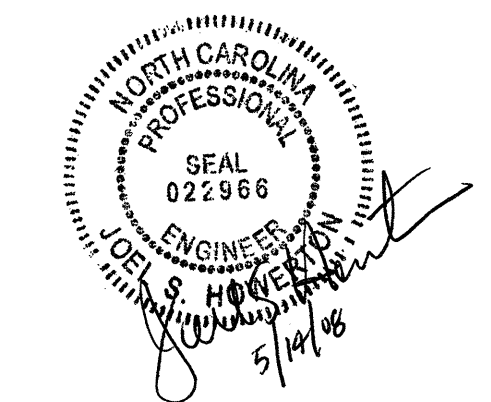
CONCRETE ANCHOR
3/8" DIA. BENT BAR



**PRECAST
CONCRETE ANCHOR**
3/8" DIA. BENT BAR



**FRAME AND GRATE INSTALLATION
FOR NORMAL CROWN AND
SUPERELEVATED SECTIONS**

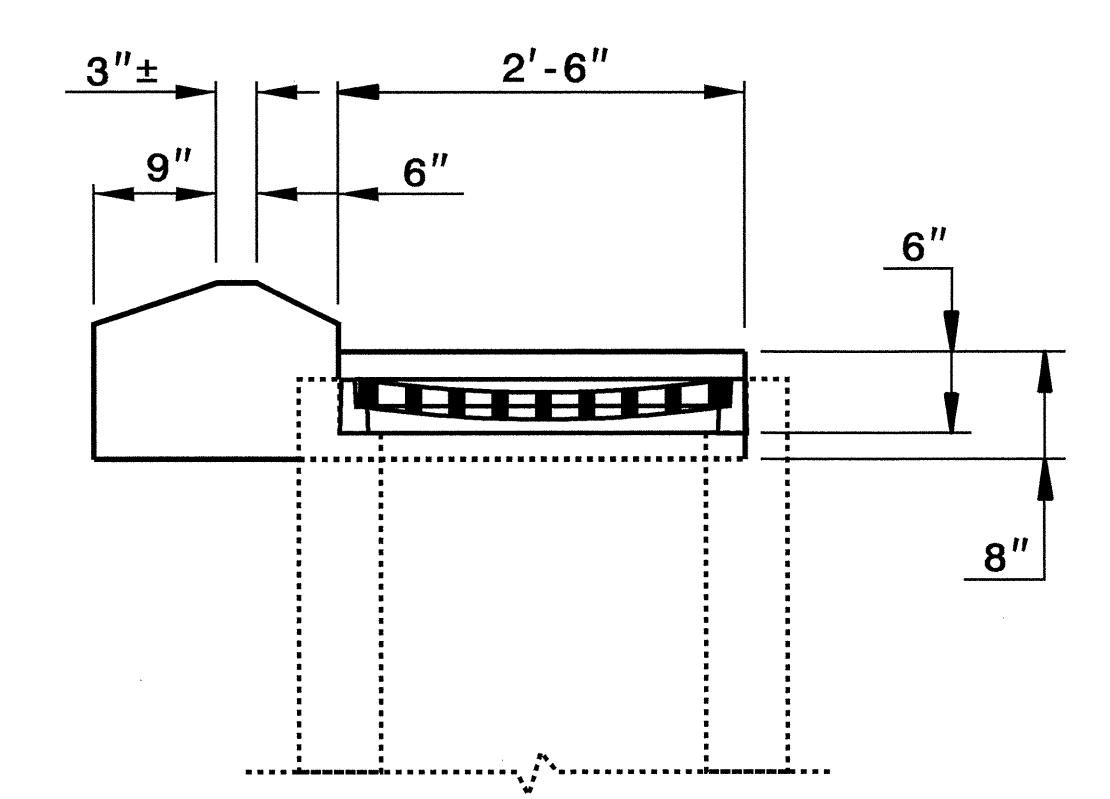
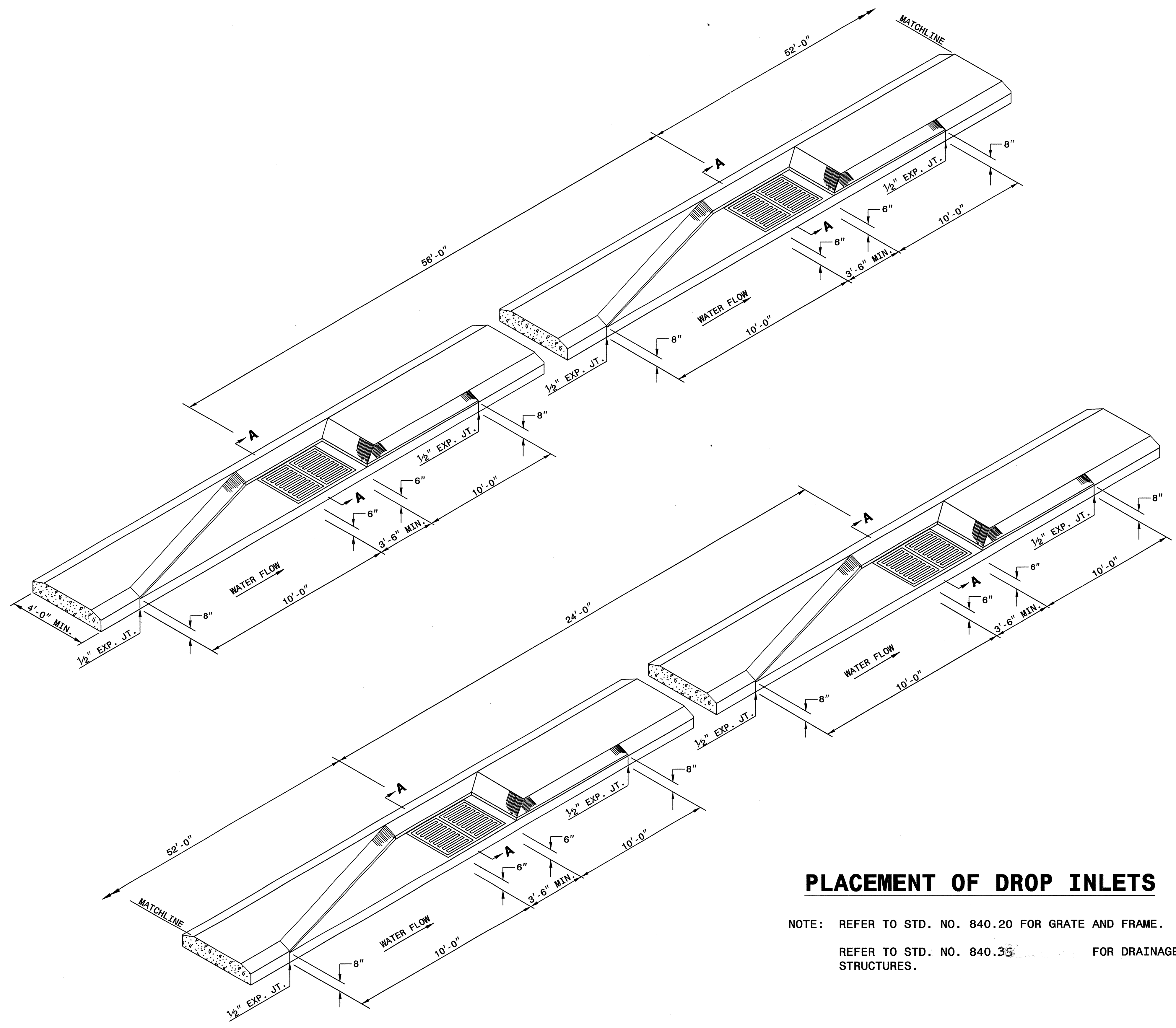


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Office 919-250-4128 FAX 919-250-4119

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.:

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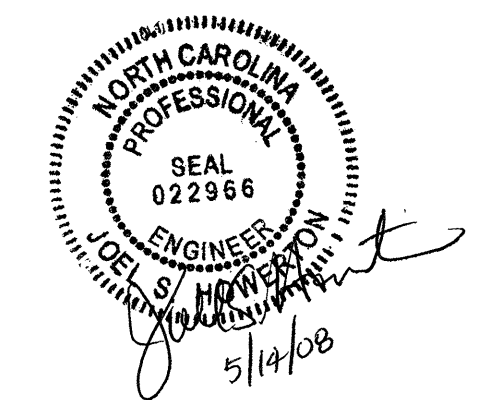


SECTION 'A-A'

*CONCRETE APRON IS INCIDENTAL TO CONSTRUCTION OF THE DRAINAGE STRUCTURE

PLACEMENT OF DROP INLETS

NOTE: REFER TO STD. NO. 840.20 FOR GRATE AND FRAME.
REFER TO STD. NO. 840.35 FOR DRAINAGE STRUCTURES.




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**METHOD FOR
PLACEMENT OF DROP INLETS
IN CONCRETE MEDIAN**

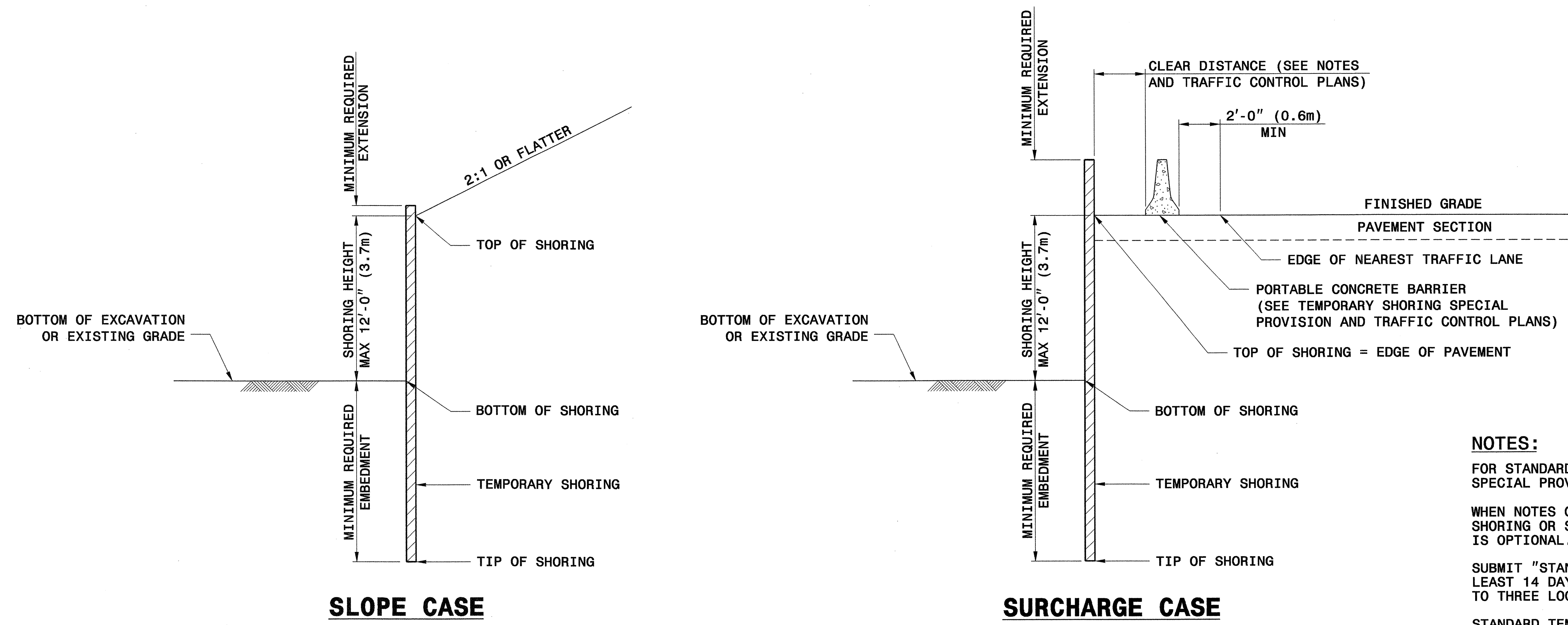
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CHECKED BY: *[Signature]* DATE: 4/7/08
FILE SPEC.: w:\spell\stand\islandconc3.dgn

07-APR-2008 11:38 s:\contracts\concrete\stand\islandconc3.dgn .spell At 10268352

GEOTECHNICAL ENGINEER ENGINEER



Scott A. Hidden 3/29/07



NOTES:
 FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.
 WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.
 SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:
 1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
 3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
 4) H PILE SPACING IS 6'-0" (1.8m).
 5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
 6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

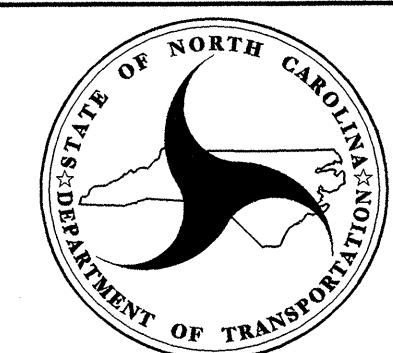
STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M³)
 FRICTION ANGLE = 30 DEGREES
 COHESION = 0 PSF (0 KPA)
 GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.
 DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.
 VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".
 AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.
 CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.
 CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

GROUNDWATER CONDITION	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT						SURCHARGE CASE WITH TRAFFIC IMPACT				
	SHORING HEIGHT FT (m)	MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN ³ /FT (cm ³ /m)	H PILES WITH TIMBER LAGGING			MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN ³ /FT (cm ³ /m)	H PILES WITH TIMBER LAGGING		
				HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)			HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)
12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)	

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".



GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 2-20-07

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201876

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000010000-N	800	Lump Sum		MOBILIZATION	331700000-N	862	5	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77	477500000-E	1205	2,926	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (6") (4)
000040000-N	801	Lump Sum		CONSTRUCTION SURVEYING	336000000-E	863	2,425	LF	REMOVE EXISTING GUARDRAIL	481500000-E	1205	10,438	LF	PAINT PAVEMENT MARKING LINES (6")
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	364900000-E	876	20	TON	RIP RAP, CLASS B	482500000-E	1205	3,950	LF	PAINT PAVEMENT MARKING LINES (12")
005700000-E	226	400	CY	UNDERCUT EXCAVATION	365600000-E	876	280	SY	FILTER FABRIC FOR DRAINAGE	484000000-N	1205	32	EA	PAINT PAVEMENT MARKING CHARACTER
006300000-N	SP	Lump Sum		GRADING	404800000-E	902	2	CY	REINFORCED CONCRETE SIGN FOUNDATIONS	484500000-N	1205	16	EA	PAINT PAVEMENT MARKING SYMBOL
010600000-E	230	36,600	CY	BORROW EXCAVATION	405700000-E	SP	36	CY	OVERHEAD FOOTING	484710000-E	1205	583	LF	POLYUREA PAVEMENT MARKING LINES (6", *****) (STANDARD GLASS BEADS)
013400000-E	240	16	CY	DRAINAGE DITCH EXCAVATION	406000000-E	903	431	LB	SUPPORTS, BREAKAWAY STEEL BEAM	490500000-N	1253	170	EA	SNOWPLOWABLE PAVEMENT MARKERS
019500000-E	265	400	CY	SELECT GRANULAR MATERIAL	406600000-E	903	779	LB	SUPPORTS, SIMPLE STEEL BEAM	501500000-E	1401	1	EA	120" HIGH MOUNT STANDARD
019600000-E	270	400	SY	FABRIC FOR SOIL STABILIZATION	407200000-E	903	420	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	502000000-N	1401	1	EA	PORTABLE DRIVE UNIT
019900000-E	SP	346.5	SF	TEMPORARY SHORING	408210000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (11+00-L-)	502500000-E	1402	9.4	CY	HIGH MOUNT FOUNDATIONS
031800000-E	300	170	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	408210000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (21+80-L-)	503000000-N	1403	8	EA	HIGH MOUNT LUMINAIRES ***** (750W HPS)
070800000-E	310	124	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	408210000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (34+50-L-)	512500000-E	1407	50	LF	ELECTRIC SERVICE LATERAL ***** (3#1/0, USE)
080400000-E	310	6	EA	*** BIT COAT CS PIPE ELBOWS, TYPE B ***** THICK (15", 0.064")	409600000-N	904	1	EA	SIGN ERECTION, TYPE D	514500000-N	1408	1	EA	LIGHT CONTROL EQUIPMENT, TYPE RW ***** (240/480 VOLT)
098700000-E	310	76	LF	GENERIC PIPE ITEM TEMPORARY 15" PLASTIC CORR. PIPE	410200000-N	904	11	EA	SIGN ERECTION, TYPE E	515500000-E	1409	375	LF	ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")
099500000-E	340	585	LF	PIPE REMOVAL	411000000-N	904	4	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)	516000000-E	1409	260	LF	ELECTRICAL DUCT, TYPE JA, SIZE ***** (3")
099600000-N	350	1	EA	PIPE CLEAN-OUT	412750000-N	SP	Lump Sum		LRS LIGHTING SYSTEM FOR OVERHEAD SIGN ASSEMBLY AT STA ***** (11+00-L-)	516000000-E	1409	65	LF	ELECTRICAL DUCT, TYPE JA, SIZE ***** (6")
149100000-E	610	6,000	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C	412750000-N	SP	Lump Sum		LRS LIGHTING SYSTEM FOR OVERHEAD SIGN ASSEMBLY AT STA ***** (21+50-L-)	518000000-E	1410	720	LF	** #4 W/G FEEDER CIRCUIT (2)
150800000-E	610	2,000	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0D	412750000-N	SP	Lump Sum		LRS LIGHTING SYSTEM FOR OVERHEAD SIGN ASSEMBLY AT STA ***** (34+50-L-)	521000000-E	1410	250	LF	** #6 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1.5")
152420000-E	610	2,000	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5D	412750000-N	SP	Lump Sum		DISPOSAL OF SIGN SYSTEM, OVERHEAD	521500000-E	1410	3,350	LF	** #4 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1.5")
156000000-E	620	260	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	412750000-N	SP	Lump Sum		DISPOSAL OF SIGN SYSTEM, STEEL BEAM	524000000-N	1411	8	EA	ELECTRICAL JUNCTION BOXES ***** (PC18)
156500000-E	620	95	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22	414900000-N	907	2	EA	DISPOSAL OF SIGN SYSTEM, OVERHEAD	524000000-N	1411	3	EA	ELECTRICAL JUNCTION BOXES ***** (PC30)
157000000-E	620	110	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 76-22	415200000-N	907	5	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	527000000-N	SP	1	EA	GENERIC LIGHTING ITEM RELOCATE LIGHT STANDARD
184000000-E	665	3,240	LF	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE)	415200000-N	907	20	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	527000000-N	SP	1	EA	GENERIC LIGHTING ITEM REMOVE CONTROL SYS
202200000-E	815	23	CY	SUBDRAIN EXCAVATION	423400000-N	907	1	EA	DISPOSAL OF SIGN, A OR B (OVERHEAD)	527000000-N	SP	1	EA	GENERIC LIGHTING ITEM REMOVE HIGH MAST
203300000-E	815	17	CY	SUBDRAIN FINE AGGREGATE	440000000-E	1110	350	SF	WORK ZONE SIGNS (STATIONARY)	527000000-N	SP	1	EA	GENERIC LIGHTING ITEM TRANSFORMER PANEL, 3KVA
204400000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE	440500000-E	1110	520	SF	WORK ZONE SIGNS (PORTABLE)	600000000-E	1605	3,600	LF	TEMPORARY SILT FENCE
205500000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	441000000-E	1110	160	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	600600000-E	1610	330	TON	STONE FOR EROSION CONTROL, CLASS A
206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	441500000-N	1115	3	EA	FLASHING ARROW PANELS, TYPE C	600900000-E	1610	410	TON	STONE FOR EROSION CONTROL, CLASS B
207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)	442000000-N	1120	3	EA	CHANGEABLE MESSAGE SIGN	601200000-E	1610	450	TON	SEDIMENT CONTROL STONE
228600000-N	840	23	EA	MASONRY DRAINAGE STRUCTURES	442000000-N	1120	27	DAY	CHANGEABLE MESSAGE SIGN (SHORT TERM)	601500000-E	1615	5.5	ACR	TEMPORARY MULCHING
230800000-E	840	13.3	LF	MASONRY DRAINAGE STRUCTURES	443000000-N	1130	160	EA	DRUMS	601800000-E	1620	200	LB	SEED FOR TEMPORARY SEEDING
236400000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.16	443000000-N	1130	160	EA	DRUMS	602100000-E	1620	0.75	TON	FERTILIZER FOR TEMPORARY SEEDING
236420000-N	840	12	EA	FRAME WITH TWO GRATES, STD 840.20	444500000-E	1145	180	LF	BARRICADES (TYPE III)	602400000-E	1622	90	LF	TEMPORARY SLOPE DRAINS
236500000-N	840	8	EA	FRAME WITH TWO GRATES, STD 840.22	446500000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS	602700000-N	1622	3	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
239600000-N	840	3	EA	FRAME WITH COVER, STD 840.54	447000000-N	1160	2	EA	RESET TEMPORARY CRASH CUSHIONS	603000000-E	1630	1,500	CY	SILT EXCAVATION
255600000-E	846	2,050	LF	SHOULDER BERM GUTTER	448000000-N	1165	2	EA	TMIA	603600000-E	1631	2,500	SY	MATTING FOR EROSION CONTROL
261900000-E	850	150	SY	4" CONCRETE PAVED DITCH	448500000-E	1170	1,400	LF	PORTABLE CONCRETE BARRIER	604200000-E	1632	360	LF	1/4" HARDWARE CLOTH
264700000-E	852	980	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	449500000-E	1170	1,400	LF	PORTABLE CONCRETE BARRIER (DRAINAGE)	607103000-E	SP	225	LF	COIR FIBER BAFFLES
272400000-E	857	25	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	450000000-E	1170	760	LF	RESET PORTABLE CONCRETE BARRIER	608400000-E	1660	7.5	ACR	SEEDING & MULCHING
287500000-N	859	1	EA	CONVERT EXISTING CATCH BASIN TO DROP INLET	450600000-E	1170	760	LF	RESET PORTABLE CONCRETE BARRIER (DRAINAGE)	608700000-E	1660	5	ACR	MOWING
289300000-N	SP	2	EA	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX WITH MANHOLE COVER	451000000-N	SP	20	HR	POLICE	609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
303000000-E	862	2,650	LF	STEEL BM GUARDRAIL	465000000-N	1251	170	EA	TEMPORARY RAISED PAVEMENT MARKERS	609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
315000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS	468800000-E	1205	3,913	LF	THERMOPLASTIC PAVEMENT MARKING LINES (6", 90 MILS)	609600000-E	1662	200	LB	SEED FOR SUPPLEMENTAL SEEDING
321000000-N	862	3	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	469000000-E	1205	723	LF	THERMOPLASTIC PAVEMENT MARKING LINES (6", 120 MILS)					
327000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	470000000-E	1205	2,400	LF	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)					
328500000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE M-350	472100000-E	1205	16	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)					
					472500000-E	1205	8	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)					

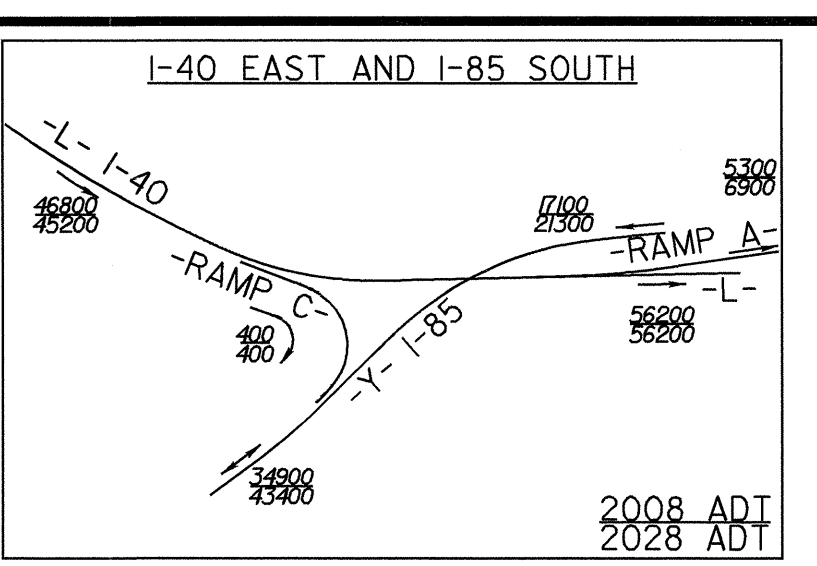
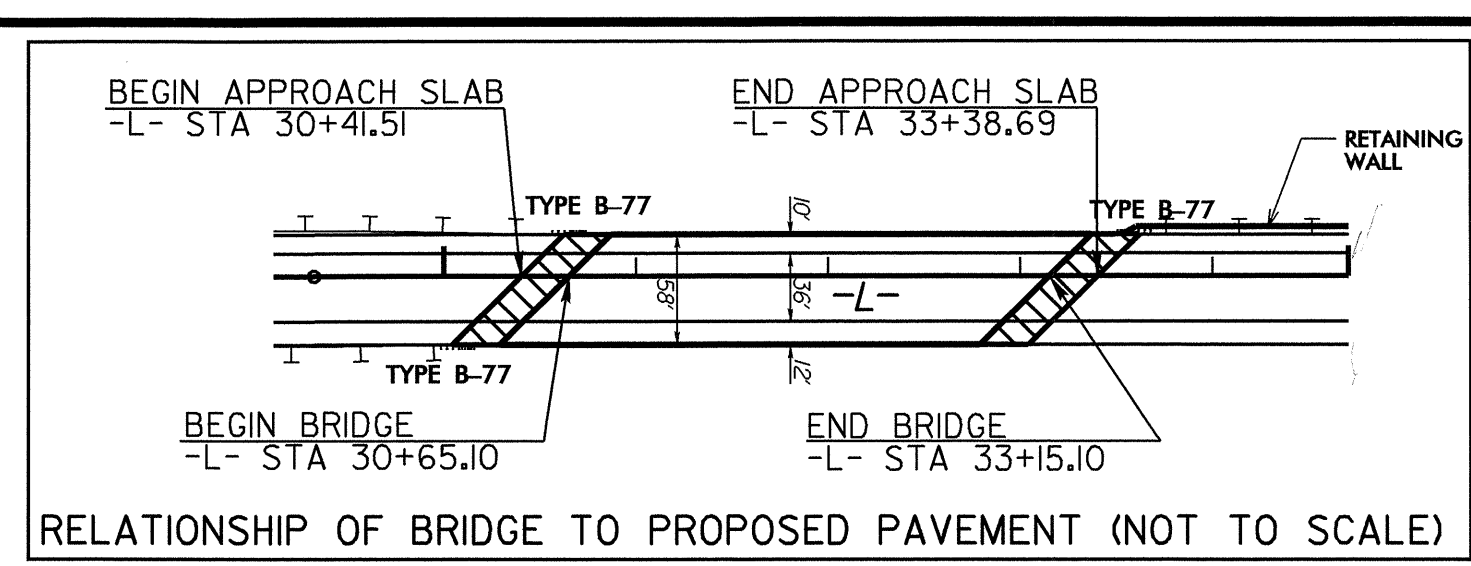
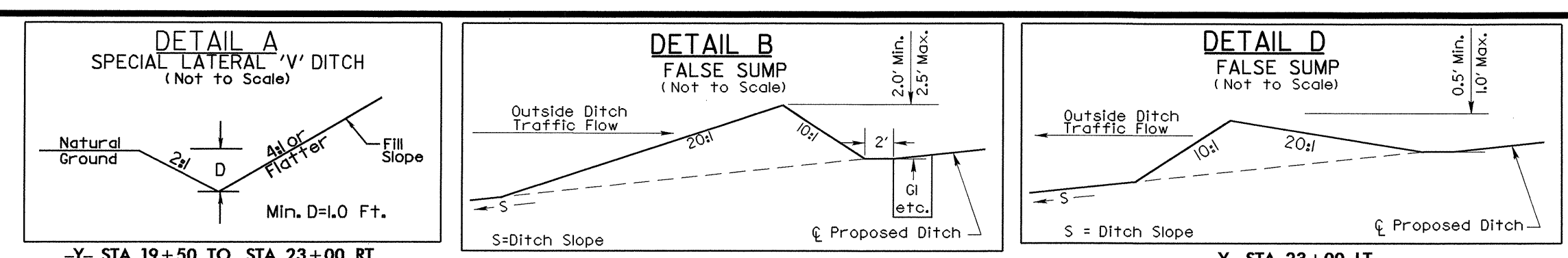
***** BEGIN SCHEDULE AA *****
(3 ALTERNATIVES) *****

036600000-E	AA1	310	852	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	AA1	310	256	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	AA1	310	312	LF	24" RC PIPE CULVERTS, CLASS III
*** OR ***					
036600000-E	AA2	310	568	LF	15" RC PIPE CULVERTS, CLASS III
053600000-E	AA2	SP	284	LF	**** HDPE PIPE CULVERTS (15")
053600000-E	AA2	SP	256	LF	**** HDPE PIPE CULVERTS (18")
053600000-E	AA2	SP	312	LF	**** HDPE PIPE CULVERTS (24")
*** OR ***					
036600000-E	AA3	310	568	LF	15" RC PIPE CULVERTS, CLASS III
054000000-E	AA3	SP	284	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (15")
054000000-E	AA3	SP	256	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (18")
054000000-E	AA3	SP	312	LF	**** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, **** THICK (24")

***** END SCHEDULE AA *****

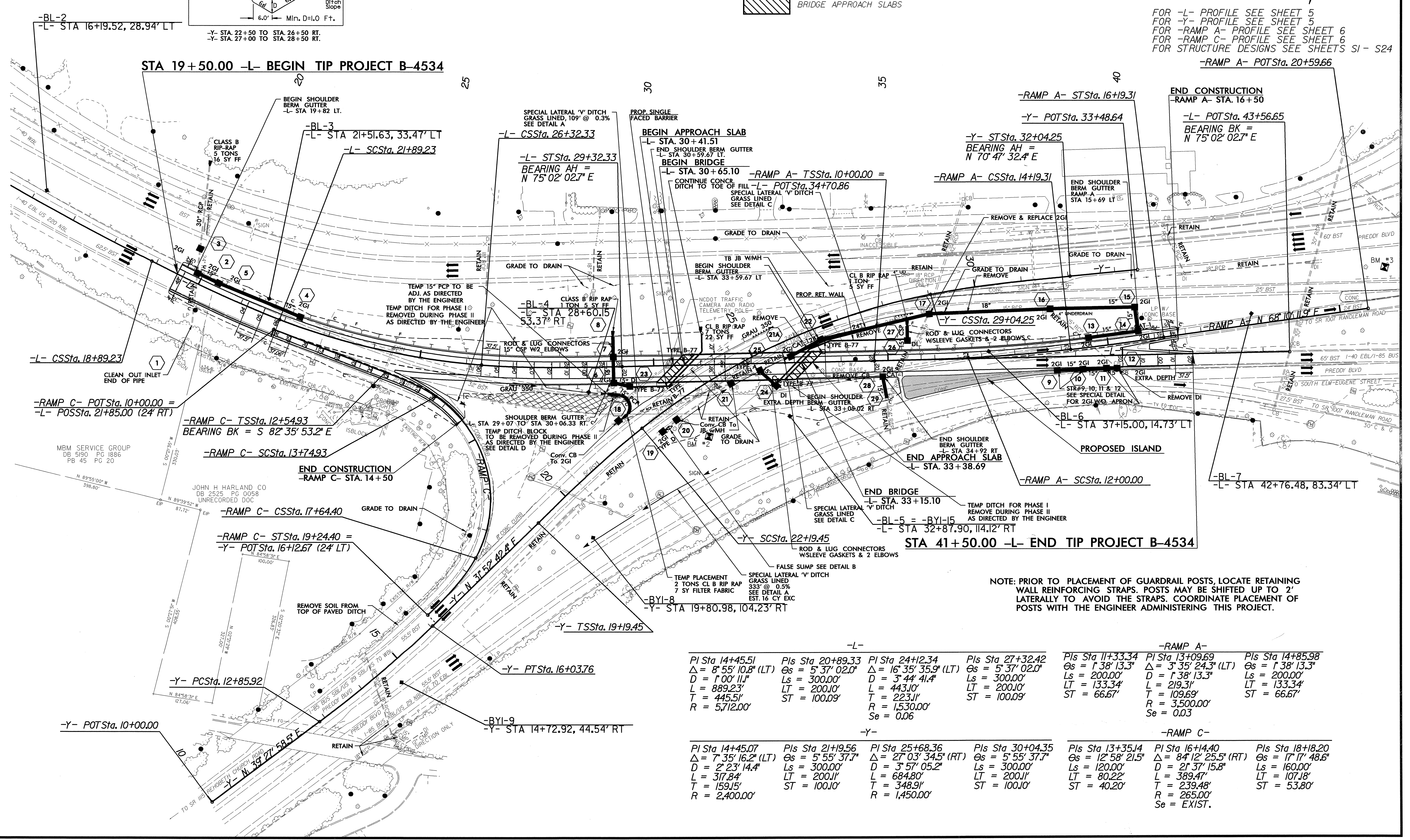
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 8/17/99

8/17/09
 24-APR-2008 14:19
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 \$\$\$\$\$\$USERID\$\$\$\$\$\$



PROJECT REFERENCE NO. B-4534	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16378 REKHA V. PATEL	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14482 JOSEPH W. DUNN JR.

FOR -L- PROFILE SEE SHEET 5
 FOR -Y- PROFILE SEE SHEET 5
 FOR -RAMP A- PROFILE SEE SHEET 6
 FOR -RAMP C- PROFILE SEE SHEET 6
 FOR STRUCTURE DESIGNS SEE SHEETS SI - S24
 -RAMP A- POTSta. 20+59.66



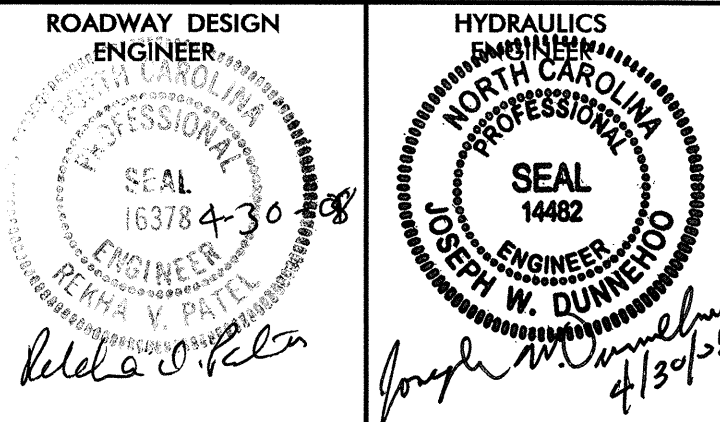
NOTE: PRIOR TO PLACEMENT OF GUARDRAIL POSTS, LOCATE RETAINING WALL REINFORCING STRAPS. POSTS MAY BE SHIFTED UP TO 2' Laterally TO AVOID THE STRAPS. COORDINATE PLACEMENT OF POSTS WITH THE ENGINEER ADMINISTERING THIS PROJECT.

PI Sta 14+45.51 $\Delta = 8^{\circ} 55' 10.8''$ (LT) $D = 1^{\circ} 00' 11''$ $L = 889.23'$ $T = 445.51'$ $R = 5,712.00'$	PI Sta 20+89.33 $\Delta = 5^{\circ} 37' 02.0''$ $Ls = 300.00'$ $LT = 200.10'$ $ST = 100.09'$	PI Sta 24+12.34 $\Delta = 16^{\circ} 35' 35.9''$ (LT) $D = 3^{\circ} 44' 41.4''$ $L = 443.10'$ $T = 223.11'$ $R = 1,530.00'$ $Se = 0.06$	PI Sta 27+32.42 $\Delta = 5^{\circ} 37' 02.0''$ $Ls = 300.00'$ $LT = 200.10'$ $ST = 100.09'$	PI Sta 11+33.34 $\Delta = 1^{\circ} 38' 13.3''$ $Ls = 200.00'$ $LT = 133.34'$ $ST = 66.67'$	RAMP A- PI Sta 13+09.69 $\Delta = 3^{\circ} 35' 24.3''$ (LT) $D = 1^{\circ} 38' 13.3''$ $L = 219.31'$ $T = 109.69'$ $R = 3,500.00'$ $Se = 0.03$	PI Sta 14+85.98 $\Delta = 1^{\circ} 38' 13.3''$ $Ls = 200.00'$ $LT = 133.34'$ $ST = 66.67'$
PI Sta 14+45.07 $\Delta = 7^{\circ} 35' 16.2''$ (LT) $D = 2^{\circ} 23' 14.4''$ $L = 317.84'$ $T = 159.15'$ $R = 2,400.00'$	PI Sta 21+19.56 $\Delta = 5^{\circ} 55' 37.7''$ $Ls = 300.00'$ $LT = 200.10'$ $ST = 100.10'$	PI Sta 25+68.36 $\Delta = 27^{\circ} 03' 34.5''$ (RT) $D = 3^{\circ} 57' 05.2''$ $L = 684.80'$ $T = 348.91'$ $R = 1,450.00'$	PI Sta 30+04.35 $\Delta = 5^{\circ} 55' 37.7''$ $Ls = 300.00'$ $LT = 200.10'$ $ST = 100.10'$	PI Sta 13+35.14 $\Delta = 12^{\circ} 58' 21.5''$ $Ls = 120.00'$ $LT = 80.22'$ $ST = 40.20'$	RAMP C- PI Sta 16+14.40 $\Delta = 84^{\circ} 12' 25.5''$ (RT) $D = 2^{\circ} 37' 15.8''$ $L = 389.47'$ $T = 239.48'$ $R = 265.00'$ $Se = EXIST.$	PI Sta 18+18.20 $\Delta = 17^{\circ} 17' 48.6''$ $Ls = 160.00'$ $LT = 107.18'$ $ST = 53.80'$

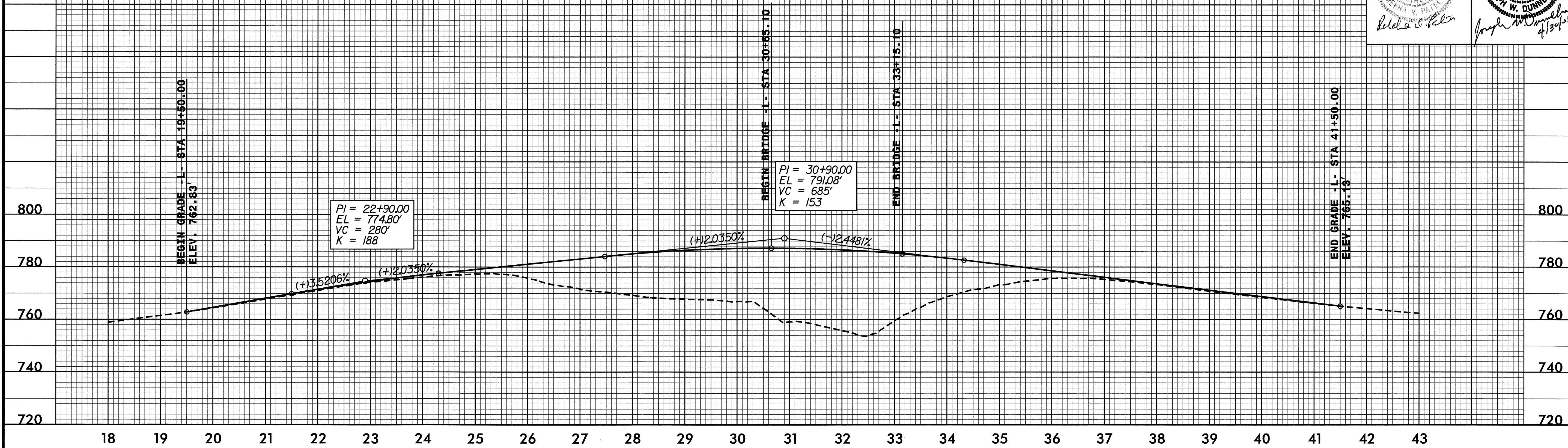
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BM #2 ELEVATION=779.47'
-L- STA. 31+14.75 OFF 153.36' RT
R/R SPIKE IN BASE OF 18' SYCAMORE TREE

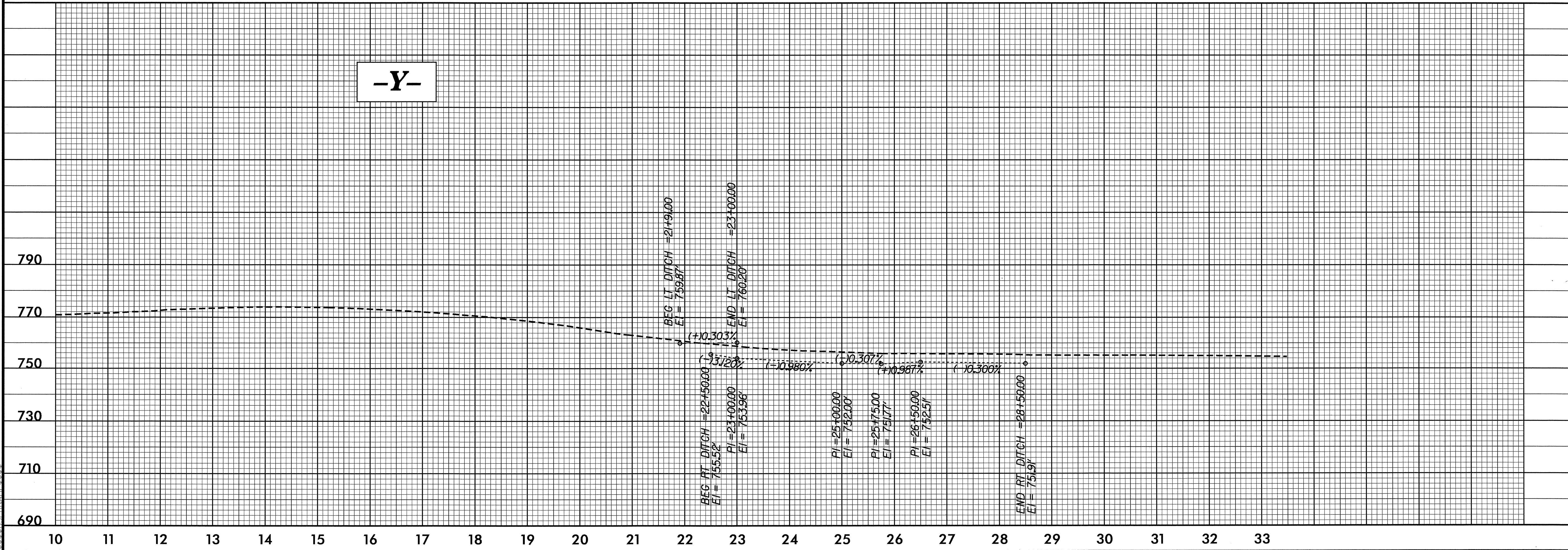
PROJECT REFERENCE NO. B-4534
SHEET NO. 5



-L-



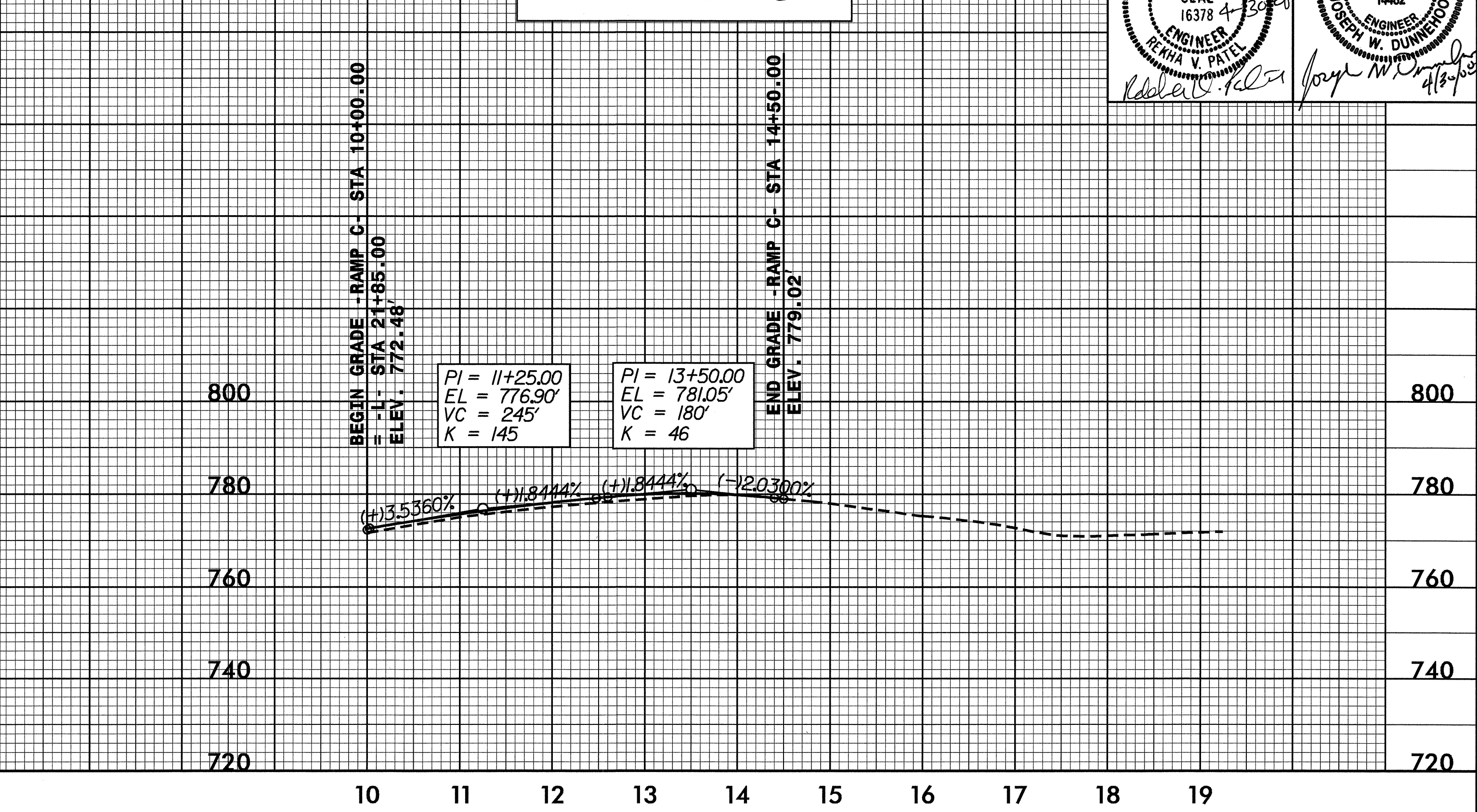
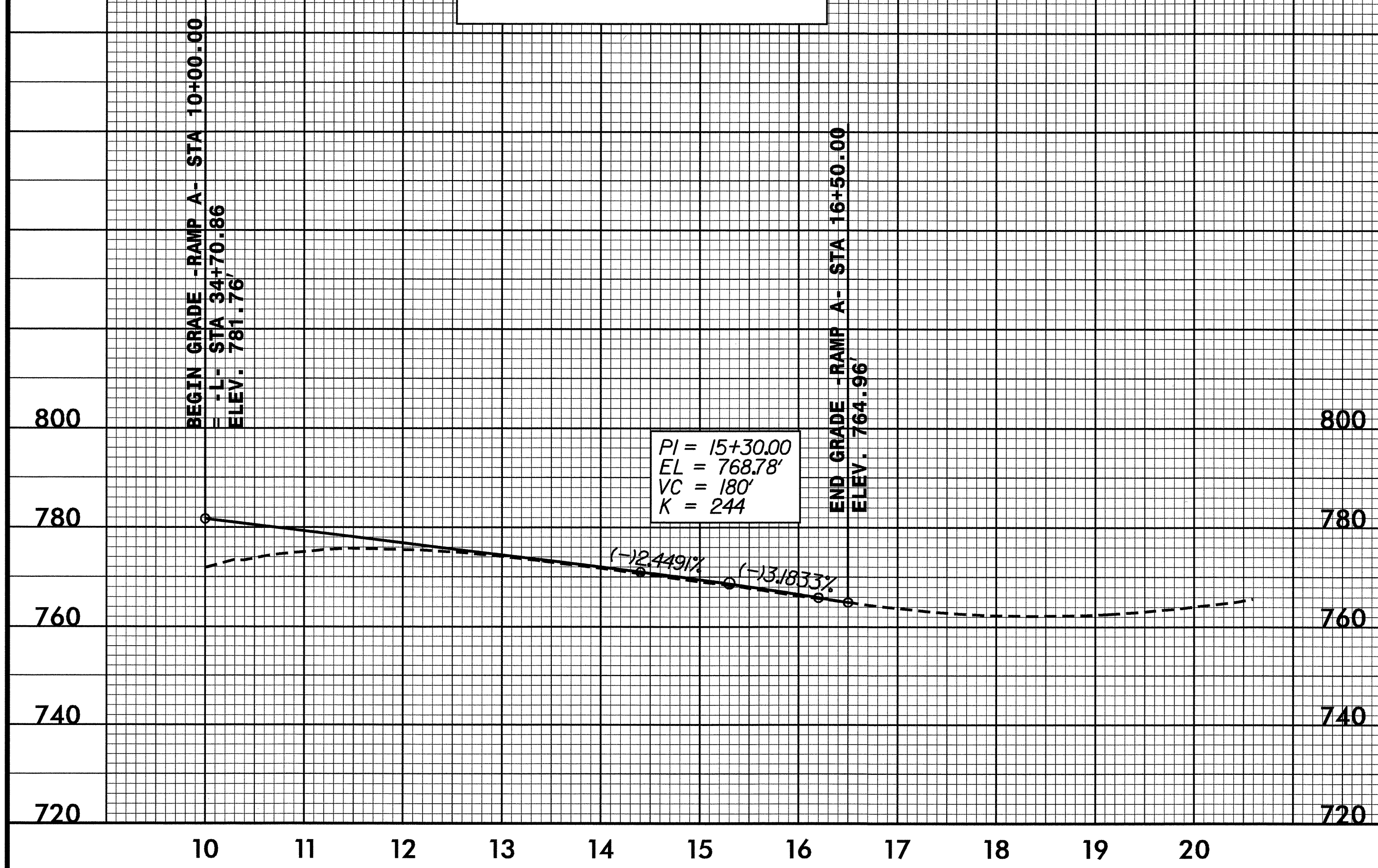
-Y-



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USER:RVP

-RAMP A-

-RAMP C-



5/28/99