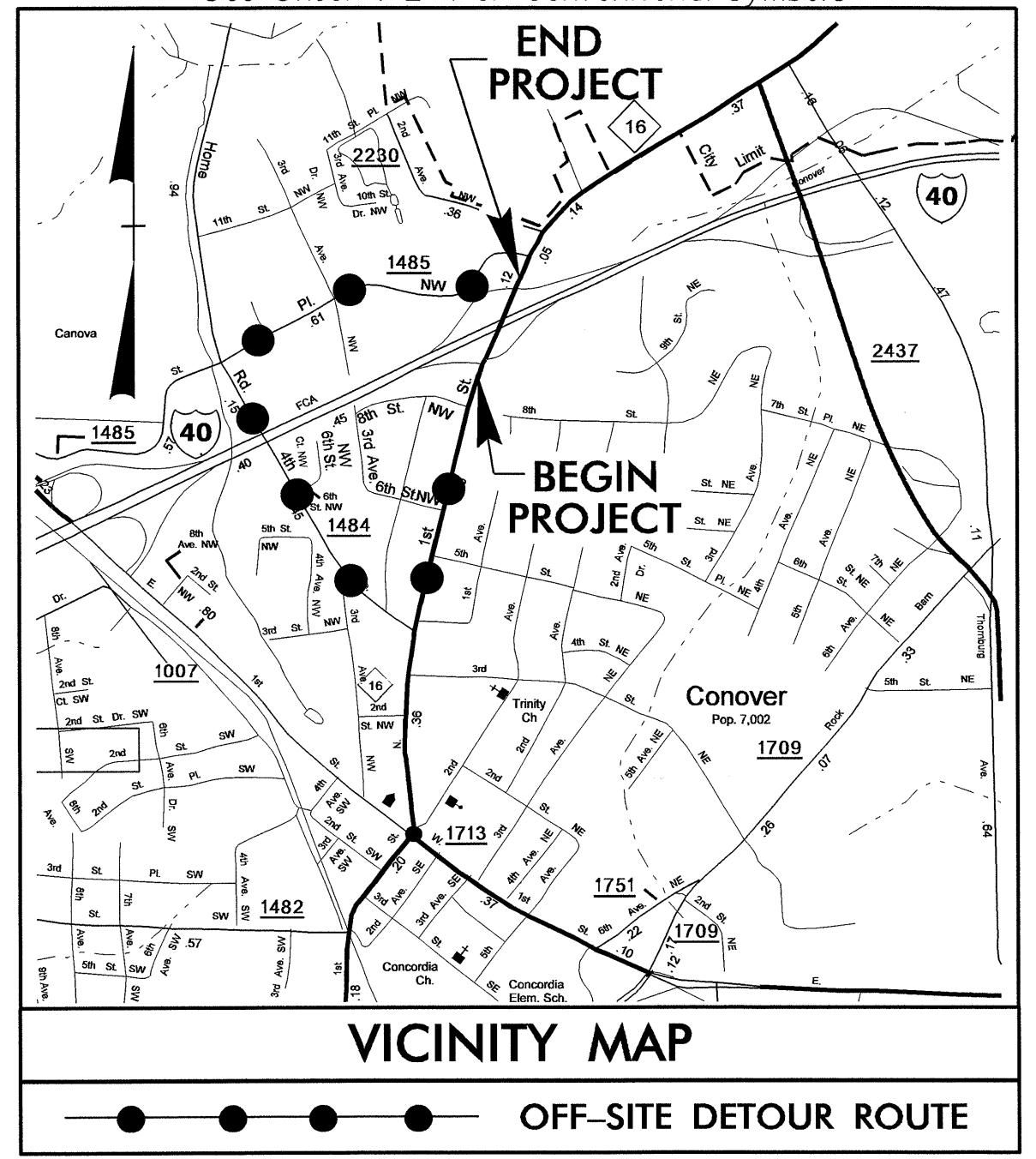


09/08/99

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CATAWBA COUNTY

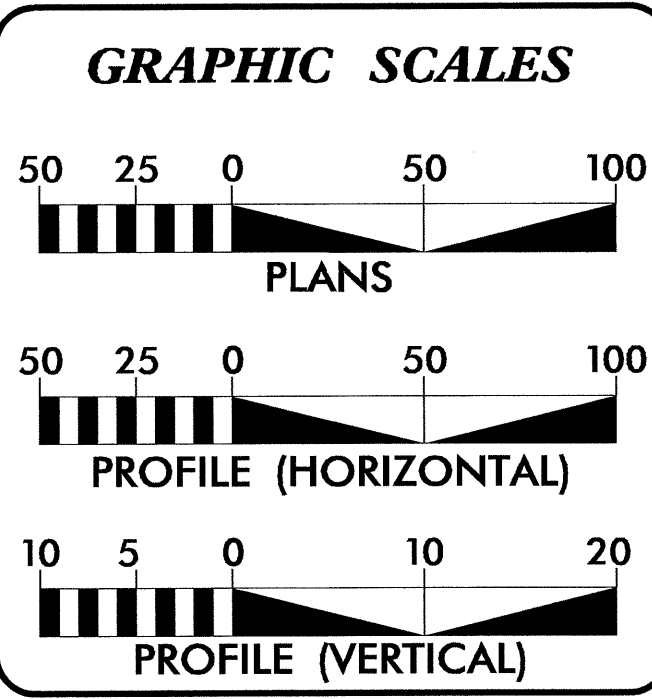
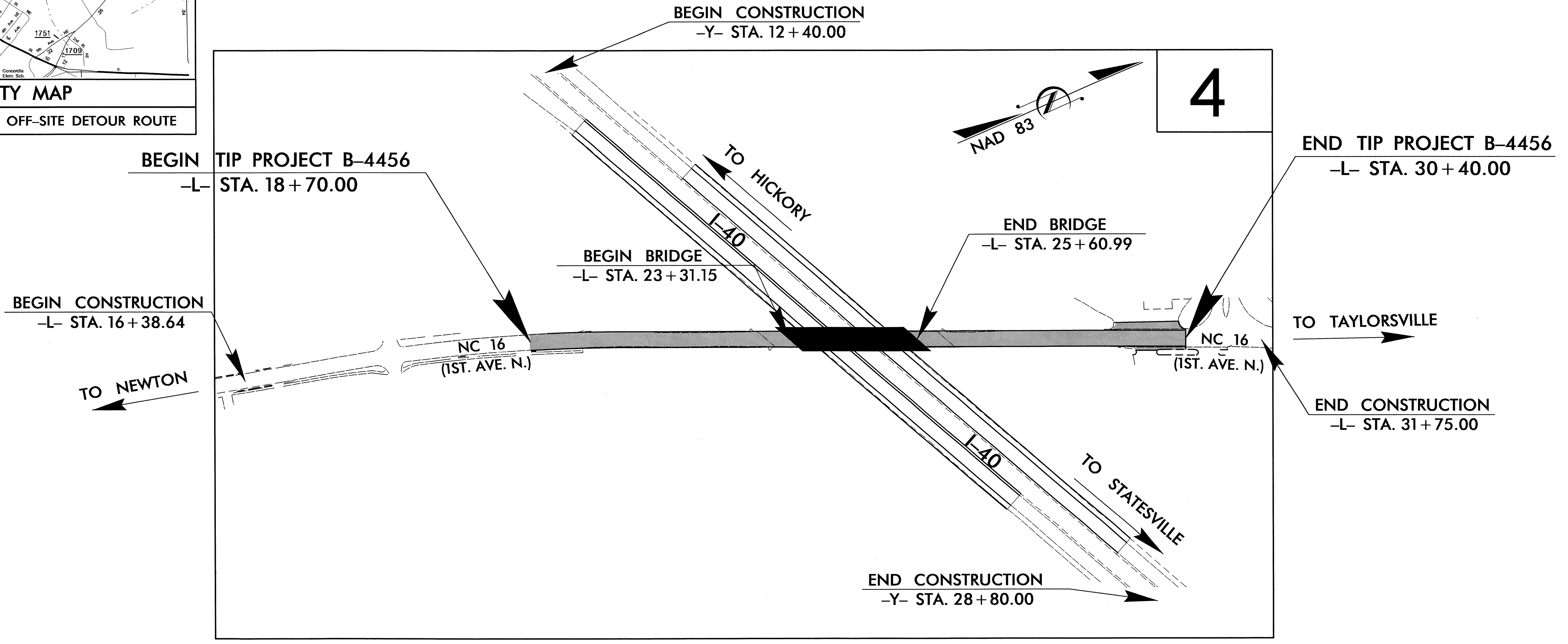
LOCATION: BRIDGE NO. 49 OVER I-40 ON NC 16 (FIRST AVENUE NORTH)

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

| STATE PROJECT REFERENCE NO. | | SHEET NO. | TOTAL SHEETS |
|-----------------------------|----------------|-------------|--------------|
| N.C. B-4456 | | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33708.1.1 | BRSTP-16 (25) | PE | |
| 33708.2.1 | BRSTP-16 (25) | RW & UTIL. | |
| 33708.3.1 | BRSTP-16 (25) | CONST. | |

TIP PROJECT: B-4456

CONTRACT: C202729



DESIGN DATA

| | |
|-------------------|-------------------------------|
| ADT 2011 = | 8110 VPD |
| ADT 2030 = | 15000 VPD |
| DHV = | 10 % |
| D = | 60 % |
| T = | 5 % * |
| V = | 50 MPH |
| * TTST 3% DUAL 2% | |
| FUNC CLASS= | URBAN ARTERIAL STATEWIDE TIER |

PROJECT LENGTH

| | |
|---------------------------------------|----------|
| LENGTH ROADWAY TIP PROJECT B-4456 = | 0.178 MI |
| LENGTH STRUCTURE TIP PROJECT B-4456 = | 0.044 MI |
| TOTAL LENGTH OF TIP PROJECT B-4456 = | 0.222 MI |

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 19, 2010

LETTING DATE:
NOVEMBER 15, 2011

JAMES A. SPEER, PE
PROJECT ENGINEER

NYA K. BOAYUE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

LINDA M. JOHNS
P.E.

8-31-11

ROADWAY DESIGN ENGINEER

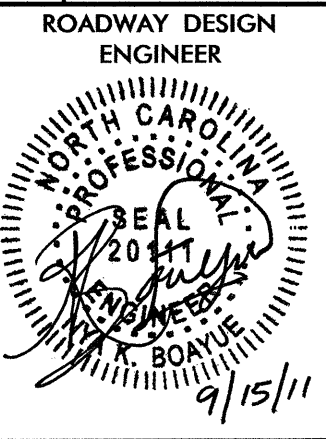
NYA K. BOAYUE
P.E.

8/31/11

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art McMillan
P.E.
STATE HIGHWAY DESIGN ENGINEER

3-AUG-2011 11:45
D:\AUG-2011\B-4456-rdy-tsh.dgn
\$\$\$USERNAME\$\$\$



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
INDEX OF SHEETS

| INDEX OF SHEETS | | GENERAL NOTES | STANDARD DRAWINGS |
|--------------------|--|---|--|
| SHEET NUMBER | SHEET | | |
| 1 | TITLE SHEET | GENERAL NOTES: 2006 SPECIFICATIONS EFFECTIVE: 07-18-06 REVISED: 07-30-08 | |
| 1-A | INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS | 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. | 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: |
| 1-B | CONVENTIONAL SYMBOLS | CLEARING: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III. | STD. NO. TITLE DIVISION 2 - EARTHWORK 200.03 Method of Clearing - Method III 225.01 Guide for Grading Subgrade - Interstate and Freeway 225.02 Guide for Grading Subgrade - Secondary and Local 225.04 Method of Obtaining Superlevation - Two Lane Pavement 225.05 Method of Obtaining Superlevation - Divided Highways DIVISION 4 - MAJOR STRUCTURES 422.10 Reinforced Bridge Approach Fills DIVISION 5 - SUBGRADE, BASES AND SHOULDERS 560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I 560.02 Method of Shoulder Construction - High Side of Superelevated Curve - Method II DIVISION 8 - INCIDENTALS 815.03 Pipe Underdrain and Blind Drain 840.00 Concrete Base Pad for Drainage Structures 840.01 Brick Catch Basin - 12" thru 54" Pipe 840.02 Concrete Catch Basin - 12" thru 54" Pipe 840.03 Frame, Grates and Hood - for Use on Standard Catch Basin 840.14 Concrete Drop Inlet - 12" thru 30" Pipe 840.15 Brick Drop Inlet - 12" thru 30" Pipe 840.16 Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15 840.17 Concrete Grated Drop Inlet Type 'A' - 12" thru 72" 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 840.28 Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe 840.31 Concrete Junction Box - 12" thru 66" Pipe 840.32 Brick Junction Box - 12" thru 66" 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 840.54 Manhole Frame and Cover 840.66 Drainage Structure Steps 840.72 Pipe Collar 846.01 Concrete Curb, Gutter and Curb & Gutter 848.01 Concrete Sidewalk 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 |
| 1-C | SURVEY CONTROL SHEET | SUPERELEVATION: ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 AND 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. | |
| 2 THRU 2-B | TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND CROSSOVER PATTERN DETAILS | SHOULDER CONSTRUCTION: ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 AND NO. 560.02. | |
| 2-C THRU 2-E | ANCHORGE FOR FRAMES AND METHOD OF PIPE INSTALLATION | UNDERDRAINS: UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER. | |
| 2-F | TRAFFIC BEARING DROP INLET | 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. | |
| 2-G | GUARDRAIL TRANSITION | TEMPORARY SHORING: SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7. | |
| 2-H | BRIDGE APPROACH FILL - SUB REGIONAL TIER | SUBSURFACE PLANS: NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS. | |
| 3 | SUMMARY OF QUANTITIES | 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. | |
| 3-A THRU 3-B | PAVEMENT REMOVAL SUMMARY, EARTHWORK SUMMARY, CONCRETE SIDEWALK SUMMARY, CURB AND GUTTER SUMMARY, SUMMARY OF GUARDRAIL, AND SUMMARY OF DRAINAGE QUANTITIES. | UTILITIES: UTILITY OWNERS ON THIS PROJECT ARE City of Conover AT&T North Carolina Duke Energy Charter Communications ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS. | |
| 4 | PLAN SHEET | | |
| 5 THRU 6 | PROFILE SHEET | | |
| TMP-1 THRU TMP-15 | TRANSPORTATION MANAGEMENT PLANS | | |
| PMP-1 THRU PMP-3 | PAVEMENT MARKING PLANS | | |
| EC-1 THRU EC-5 | EROSION CONTROL PLANS | | |
| SIGN-1 THRU SIGN-4 | SIGNING PLANS | | |
| UD-1 THRU UD-2 | UTILITIES BY OTHERS | | |
| X-1A | CROSS-SECTION SUMMARY | | |
| X-1 THRU X-22 | CROSS-SECTIONS | | |
| S-1 THRU S-32 | STRUCTURE PLANS | | |
| W-1 THRU W-4 | MSE RETAINING WALL | | |

8/17/09
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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 | ○ |
| Property Corner | ----- |
| Property Monument | □ |
| Parcel/Sequence Number | (123) |
| Existing Fence Line | -x-x-x- |
| Proposed Woven Wire Fence | ○ |
| Proposed Chain Link Fence | □ |
| Proposed Barbed Wire Fence | ◇ |
| Existing Wetland Boundary | -WLB- |
| Proposed Wetland Boundary | WLB |
| Existing Endangered Animal Boundary | EAB |
| Existing Endangered Plant Boundary | EPB |

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

| | |
|--------------------|-------|
| Standard Gauge | ----- |
| RR Signal Milepost | ○ |
| 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 | ----- |

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 | A/G Water |

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 | A/G Gas |

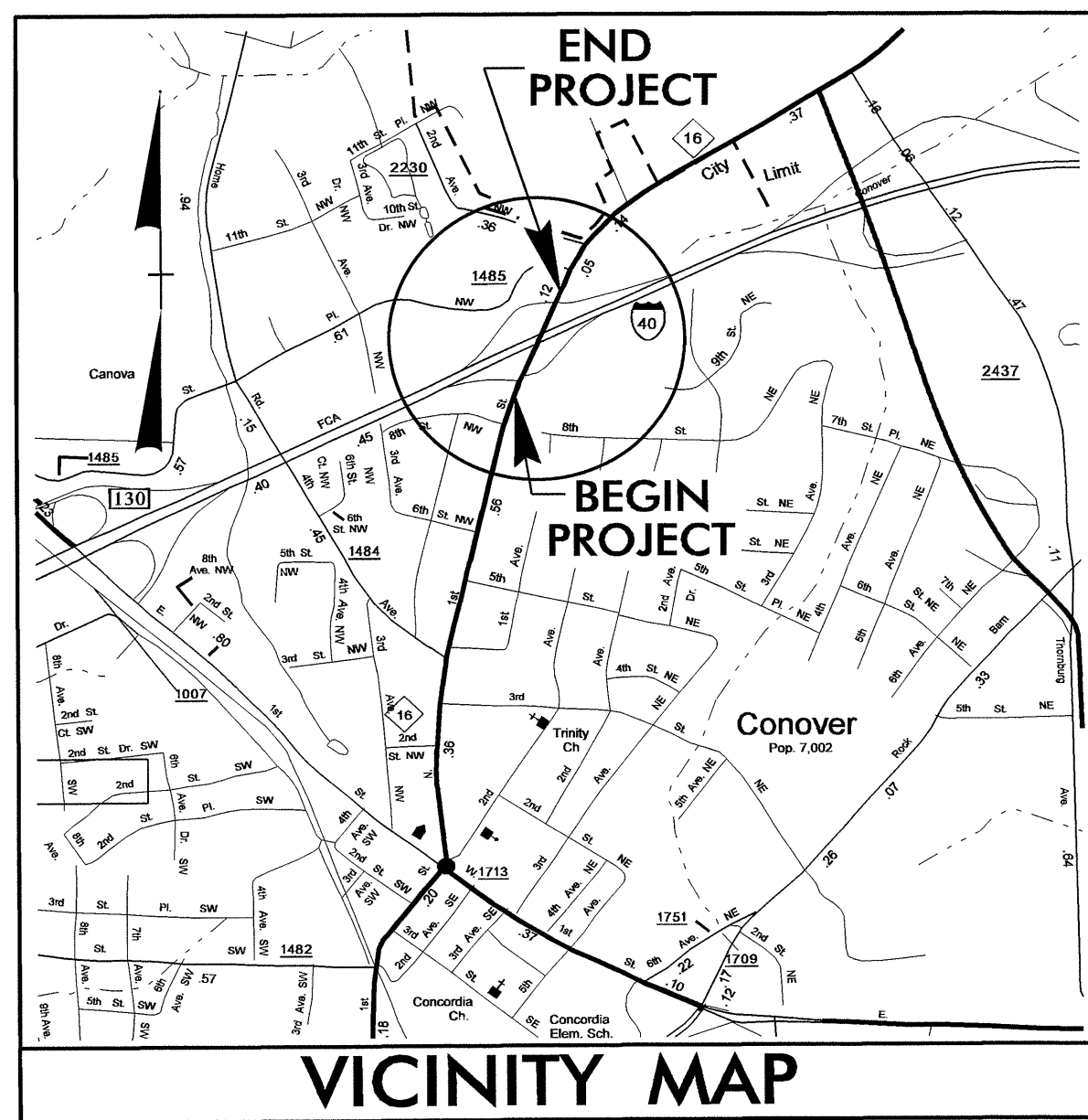
SANITARY SEWER:

| | |
|--|--------------------|
| Sanitary Sewer Manhole | ⊕ |
| Sanitary Sewer Cleanout | ⊕ |
| U/G Sanitary Sewer Line | ----- |
| Above Ground Sanitary Sewer | A/G 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. |

SURVEY CONTROL SHEET B-4456



| BL POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|----------|-------------|-------------|--------------|-----------|-----------|----------|
| BL3 | BL-3 | 723146.0211 | 1341888.1777 | 1001.76 | 14+38.94 | 21.36 LT |
| BL4 | BL-4 | 723354.3549 | 1341940.3923 | 995.88 | 16+52.80 | 22.20 LT |
| B44561 | GPS B4456-1 | 723831.8860 | 1342173.4480 | 983.67 | 21+81.85 | 25.90 RT |
| B44562 | GPS B4456-2 | 724379.2240 | 1342409.1060 | 982.85 | 27+77.76 | 23.59 RT |
| BL5 | BL-5 | 724762.9754 | 1342504.8411 | 977.36 | 31+65.36 | 43.98 LT |
| BL6 | BL-6 | 725021.8634 | 1342692.4454 | 967.92 | 34+76.68 | 30.87 LT |

| BY1 POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|-----------|-------|-------------|--------------|-----------|-----------|-----------|
| BY17 | BY1-7 | 723345.9599 | 1341817.5163 | 994.89 | 16+12.70 | 138.27 LT |
| BY18 | BL-4 | 723354.3549 | 1341940.3923 | 995.88 | 16+52.80 | 22.20 LT |

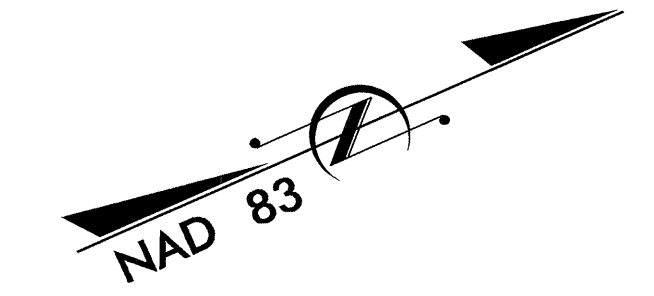
| BY2 POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|-----------|--------|-------------|--------------|-----------|-----------|-----------|
| BY29 | BL-4 | 723354.3549 | 1341940.3923 | 995.88 | 16+52.80 | 22.20 LT |
| BY210 | BY2-10 | 723270.1236 | 1342107.7998 | 999.78 | 16+16.03 | 161.74 RT |

| BY4 POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|-----------|--------|-------------|--------------|-----------|-----------|-----------|
| BY414 | BY4-14 | 724776.7414 | 1342318.8796 | 980.92 | 31+03.97 | 217.85 LT |
| BY415 | BL-5 | 724762.9754 | 1342504.8411 | 977.36 | 31+65.36 | 43.98 LT |

| BY5 POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|-----------|--------|-------------|--------------|-----------|-----------|-----------|
| BY516 | BY5-16 | 724992.7795 | 1342397.3559 | 981.39 | 32+97.05 | 251.40 LT |
| BY517 | BL-6 | 725021.8634 | 1342692.4454 | 967.92 | 34+76.68 | 30.87 LT |

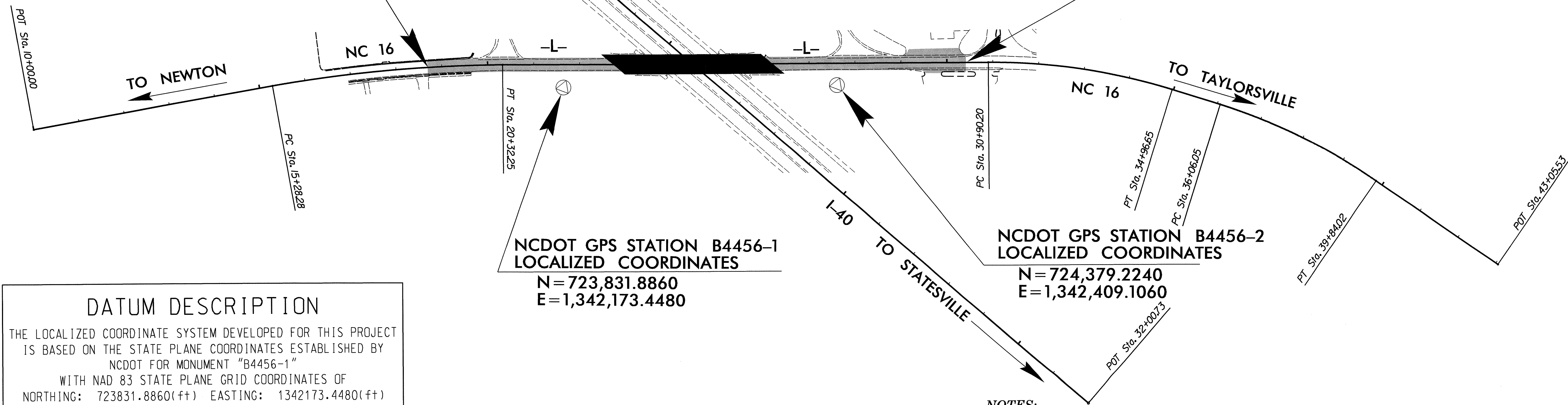
.....
 BM#1 ELEVATION = 973.20'
 N 723821 E 1341960
 L STATION 20+87 166' LEFT
 8" SPIKE SET IN ROOT OF 18' MAPLE

 BM#2 ELEVATION = 978.33'
 N 724795 E 1342435
 L STATION 31+62 121' LEFT
 MAG NAIL SET IN CONCRETE
 BASE OF AN AREA LIGHT



BEGIN TIP PROJECT B-4456
 -L- STA. 18+70.00
 N = 723,554.5408
 E = 1,342,029.4584

END TIP PROJECT B-4456
 -L- STA. 30+40.00
 N = 724,629.0965
 E = 1,342,492.1172



NCDOT GPS STATION B4456-1 LOCALIZED COORDINATES
 N = 723,831.8860
 E = 1,342,173.4480

NCDOT GPS STATION B4456-2 LOCALIZED COORDINATES
 N = 724,379.2240
 E = 1,342,409.1060

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4456-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 723831.8860(±) EASTING: 1342173.4480(±)
 ELEVATION: 983.67(±)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999863909
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4456-1" TO -L- STATION 18+70 IS
 S 27°26'13" W 312.50
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

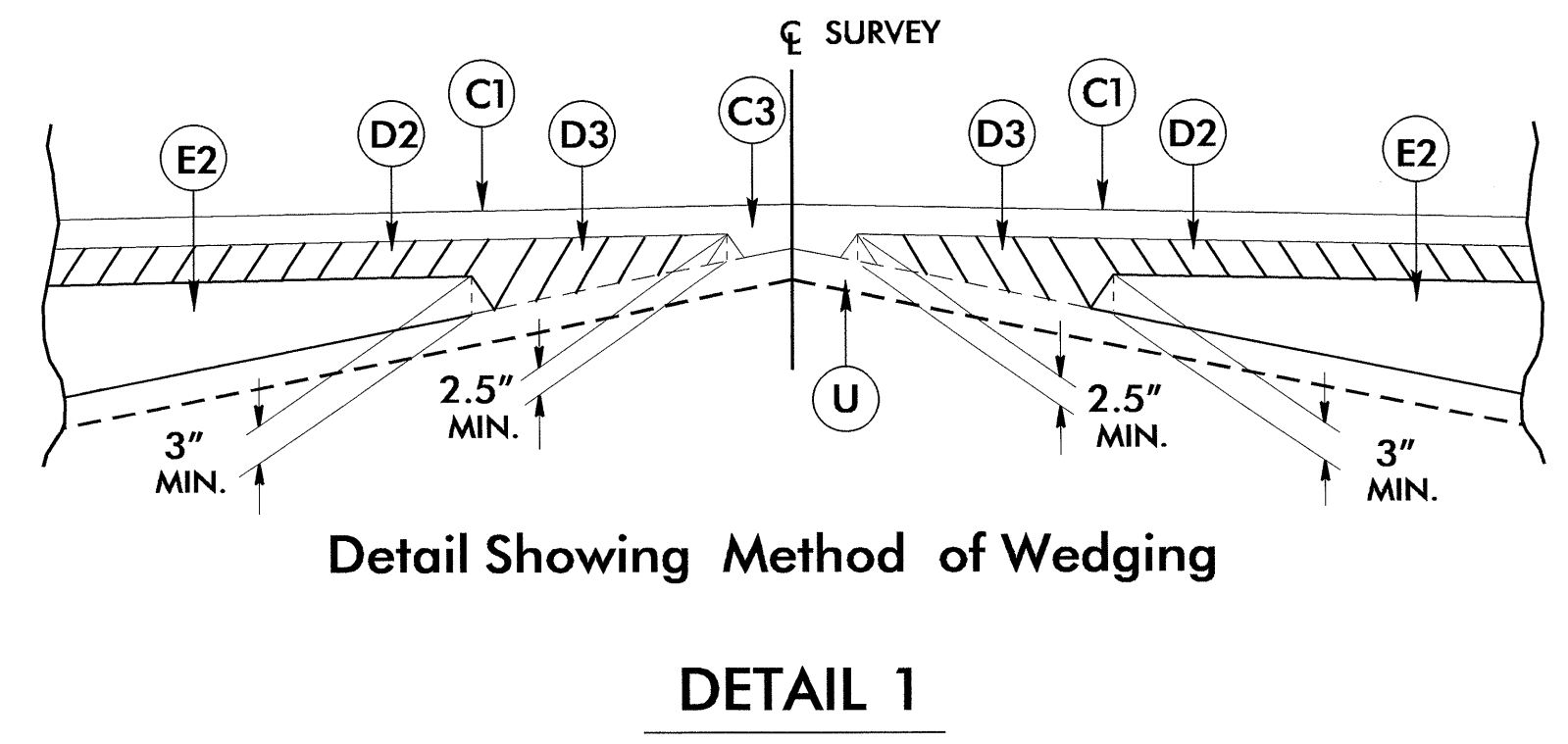
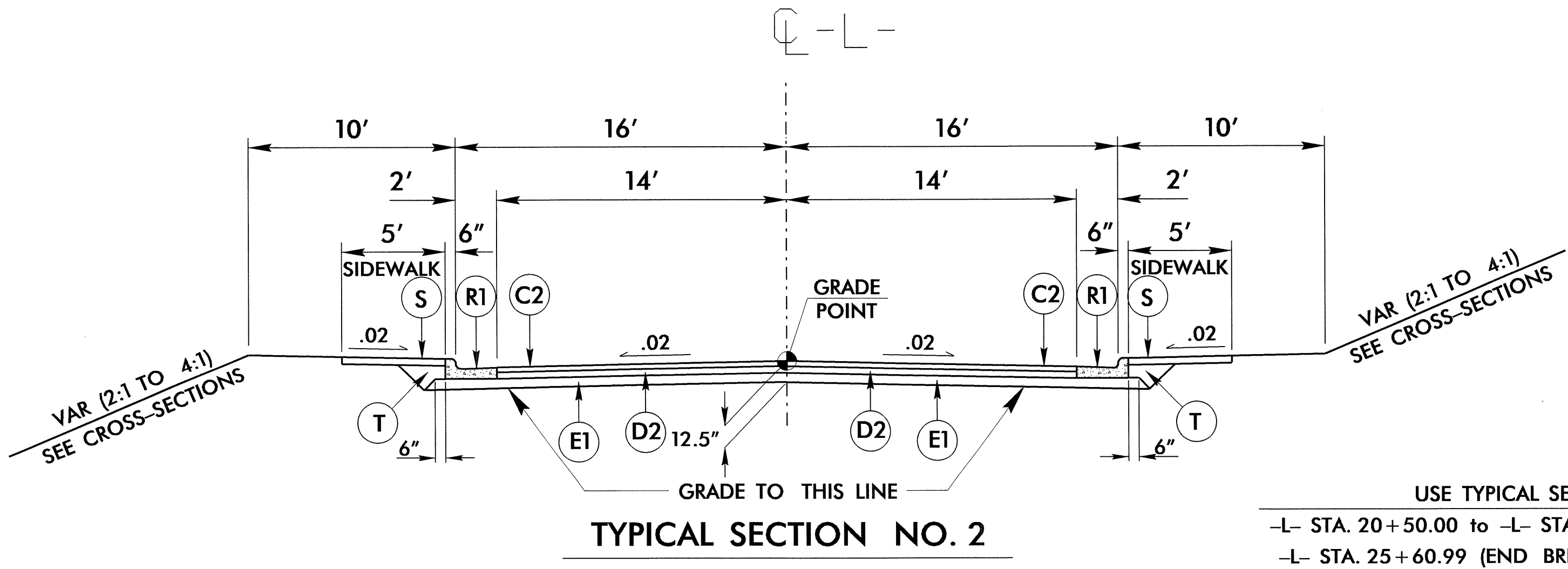
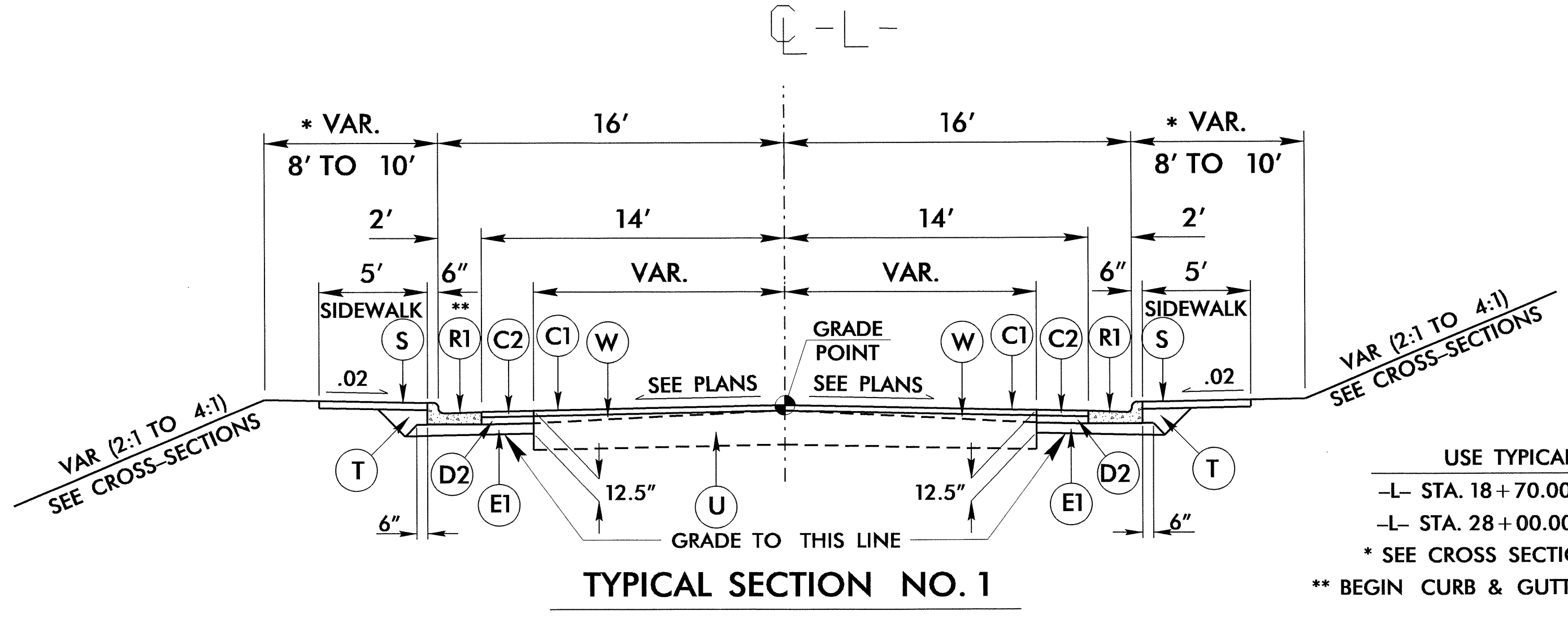
NOTES:
 1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4456_LS_CONTROL.TXT
 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.

NOTE: DRAWING NOT TO SCALE

08-AUG-2011 16:00
 L:\PROJECTS\2011\33708.1.1\B4456.LS.LC.dgn
 33708.1.1C

| PAVEMENT SCHEDULE | |
|-------------------|--|
| C1 | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| C2 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C3 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH |
| C4 | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| C5 | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| C6 | PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| D1 | PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. |
| D2 | PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| D3 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH. |
| E1 | PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. |
| E2 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH. |
| E3 | PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| E4 | PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| R1 | 2'-6" CONCRETE CURB AND GUTTER. |
| S | 4" CONCRETE SIDEWALK |
| T | EARTH MATERIAL. |
| U | EXISTING PAVEMENT. |
| V | PROP. MILLING EXISTING PAVEMENT, 0 TO 1.5" DEPTH. |
| W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL 1) |

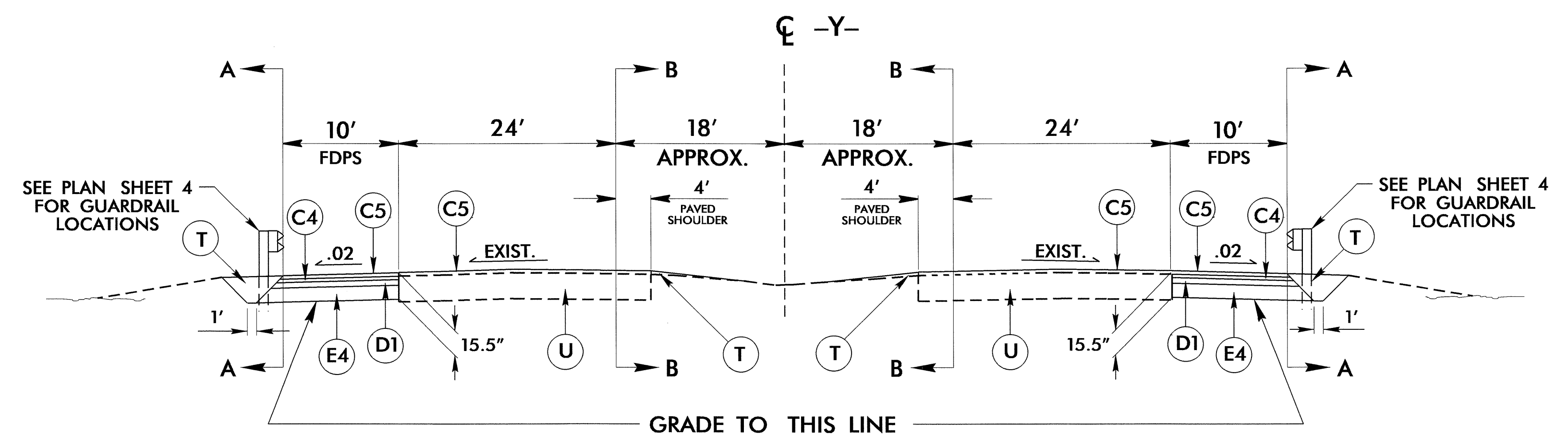
NOTE: ALL SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



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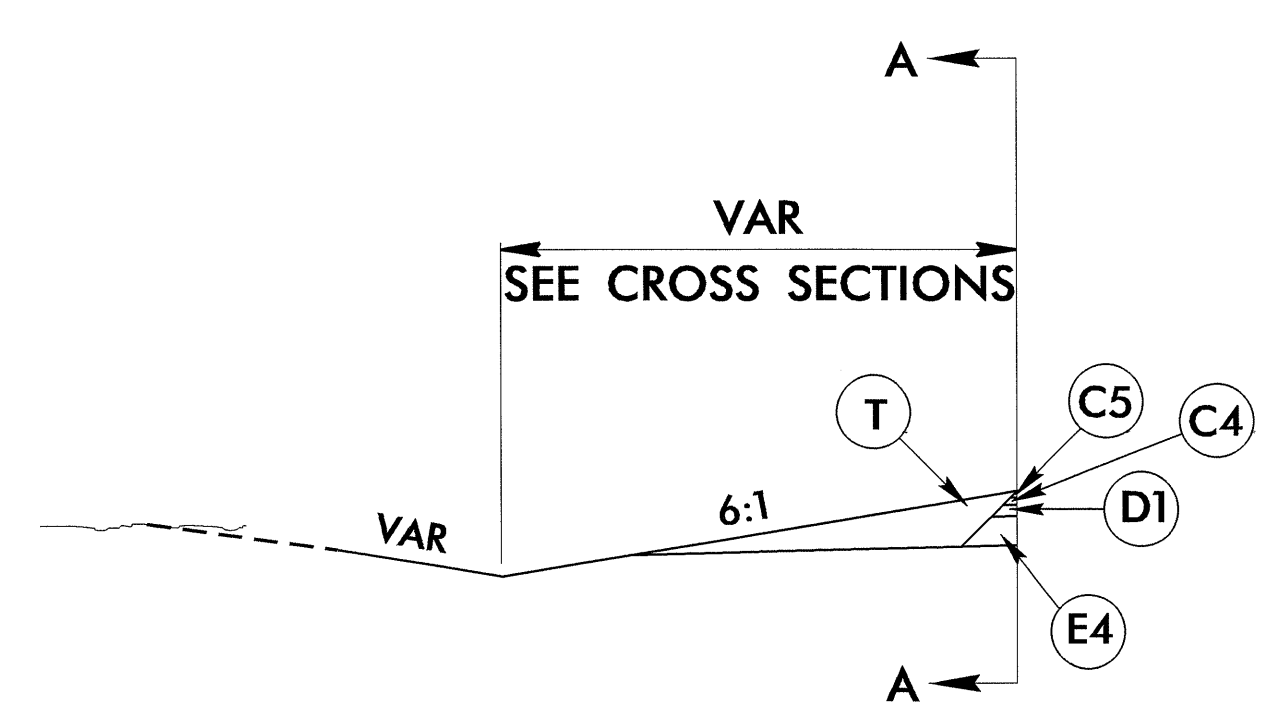
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| PROJECT REFERENCE NO. B-4456 | SHEET NO. 2-A |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |
| | |



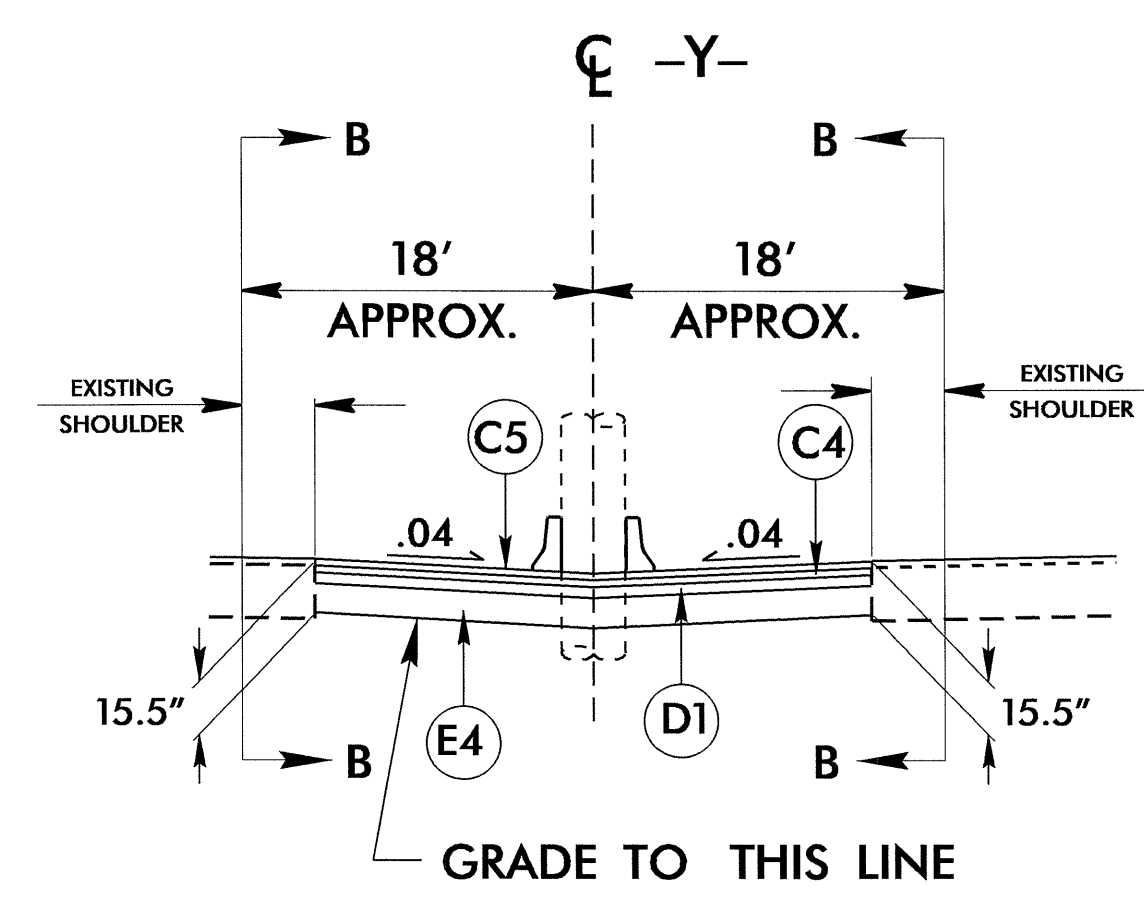
USE TYPICAL SECTION NO. 3
 -Y- STA. 14+50.00 to -Y- STA. 24+75.00 (RT.)
 -Y- STA. 16+50.00 to -Y- STA. 26+75.00 (LT.)

| PAVEMENT SCHEDULE | |
|-------------------|-------------------------|
| C4 | 1.5" S9.5C |
| C5 | 1.5" S9.5D |
| C6 | 3.0" S9.5C |
| D1 | 3.5" I19.0C |
| E3 | 7" B25.0C |
| E4 | 9" B25.0C |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| V | MILLING 0 TO 1.5" DEPTH |

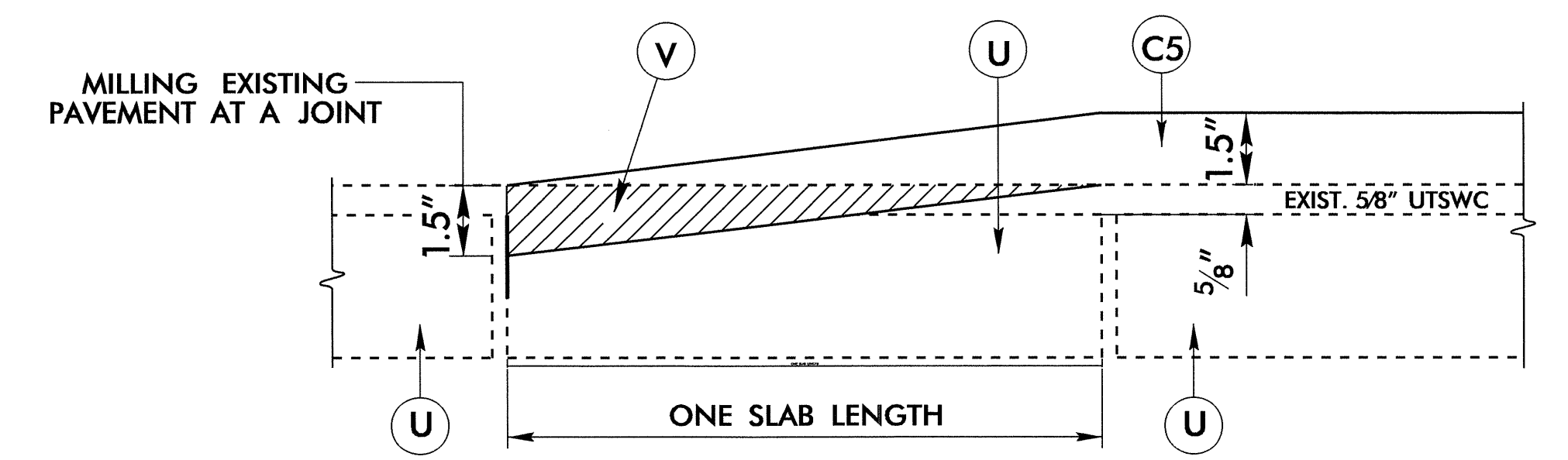
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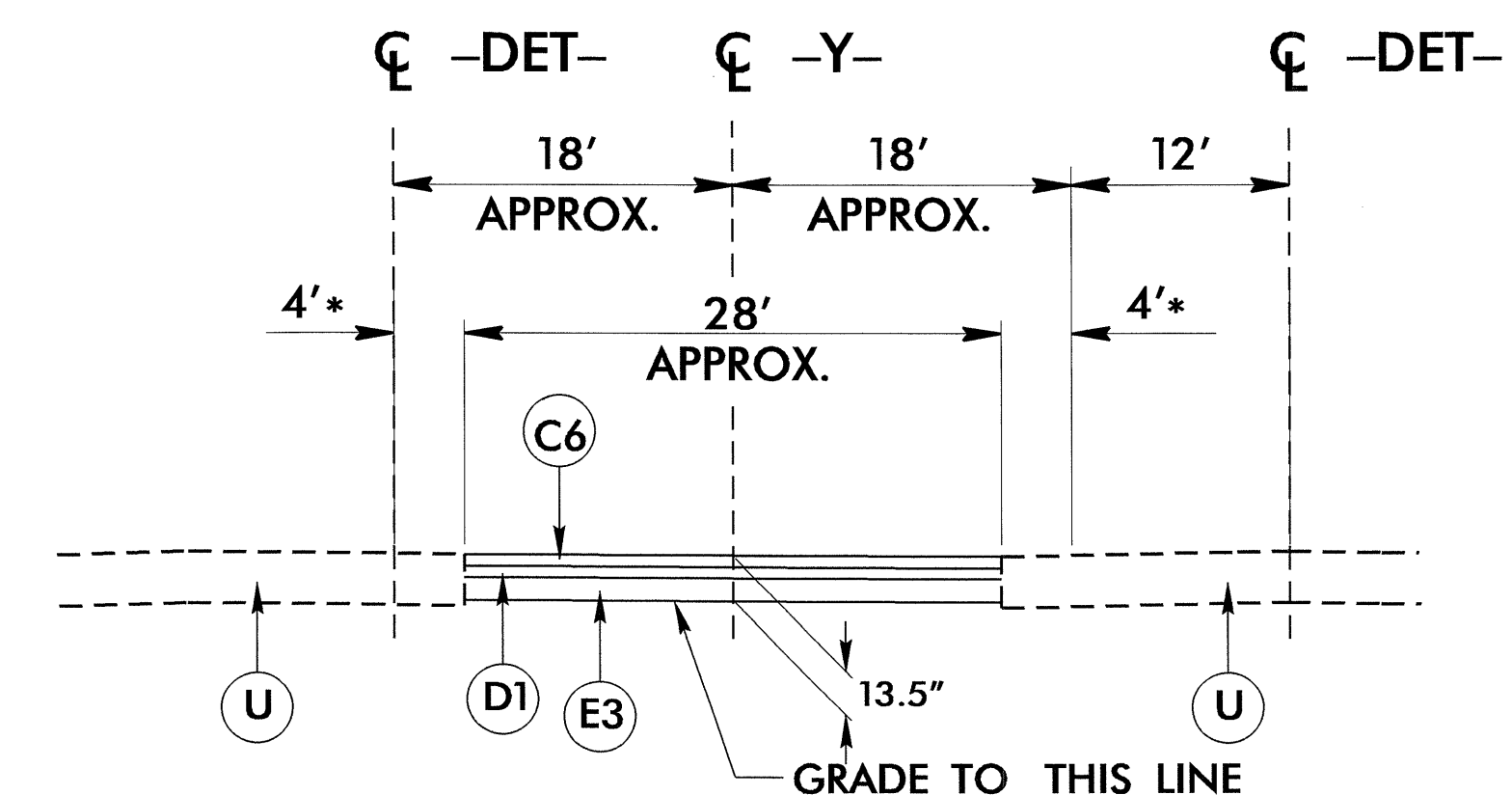
SECTION A-A
 -Y- STA. 21+80.00 to -Y- STA. 23+09.00 (RT.)
 -Y- STA. 18+50.00 to -Y- STA. 20+50.00 (LT.)
 -Y- STA. 22+00.00 to -Y- STA. 23+00.00 (LT.)



SECTION B-B
 -Y- STA. 20+09.00 to -Y- STA. 21+25.00
 SEE ROADWAY STD. DRAWINGS 862.01, SHEET 1 OF 11



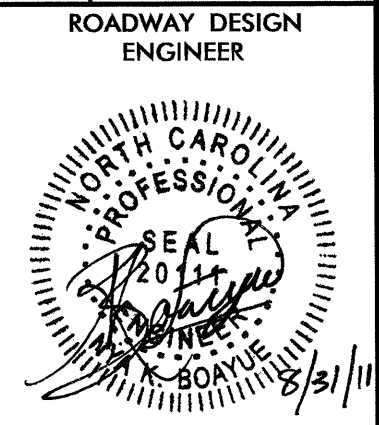
-Y- OVERLAY TIE-IN DETAIL



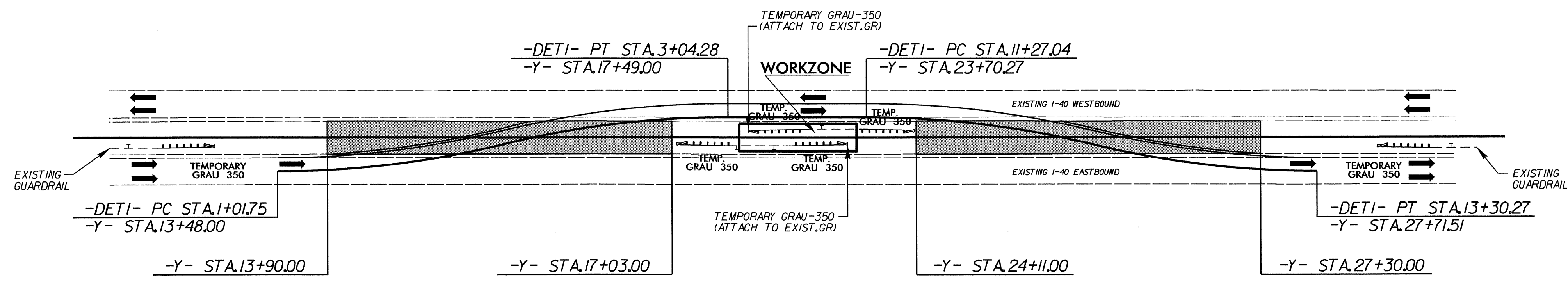
USE TYPICAL SECTION NO. 4
 -Y- STA. 13+90.00 to -Y- STA. 17+03.00
 -Y- STA. 24+23.00 to -Y- STA. 27+26.00
 * EXISTING FULL DEPTH PAVED SHOULDER

TYPICAL SECTION NO. 4
 SEE DETAILS ON SHEET 2-B

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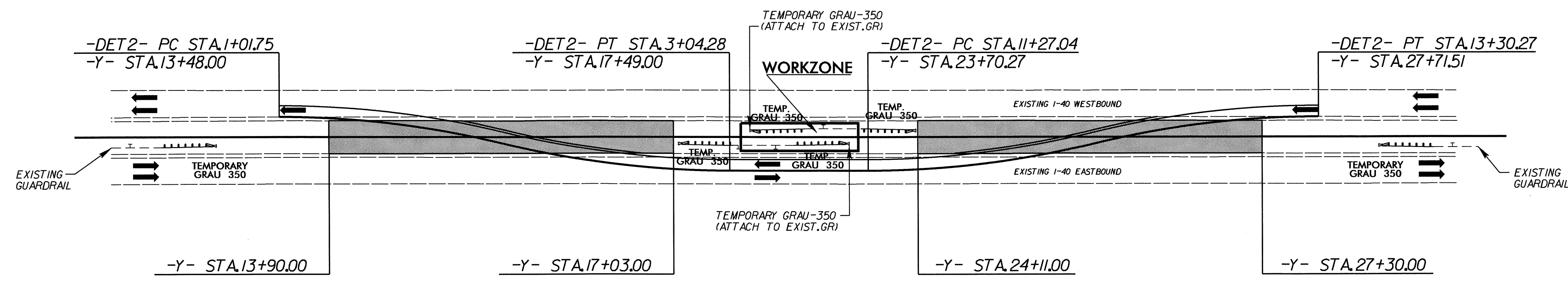
SKETCH OF CROSSOVER PAVEMENT IN RELATION TO TRAFFIC PATTERN



EASTBOUND

MEDIAN CROSSOVER, SEE TRAFFIC CONTROL PLANS
SEE SHEET 2-A "TYPICAL SECTION NO.4"
SCALE: NOT TO SCALE

| -DET1- | |
|--|--|
| PI Sta 1+01.75 $\Delta = 13^{\circ} 39' 07.3" (LT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ | PI Sta 3+04.28 $\Delta = 13^{\circ} 39' 07.3" (RT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ |
| PI Sta 11+27.04 $\Delta = 13^{\circ} 39' 07.3" (RT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ | PI Sta 13+30.27 $\Delta = 13^{\circ} 39' 07.3" (LT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ |



WESTBOUND

MEDIAN CROSSOVER, SEE TRAFFIC CONTROL PLANS
SEE SHEET 2-A "TYPICAL SECTION NO.4"
SCALE: NOT TO SCALE

| -DET2- | |
|--|--|
| PI Sta 1+01.75 $\Delta = 13^{\circ} 39' 07.3" (RT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ | PI Sta 3+04.28 $\Delta = 13^{\circ} 39' 07.3" (LT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ |
| PI Sta 11+27.04 $\Delta = 13^{\circ} 39' 07.3" (LT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ | PI Sta 13+30.27 $\Delta = 13^{\circ} 39' 07.3" (RT)$ $D = 6' 44' 26.4"$ $L = 202.53'$ $T = 101.75'$ $R = 850.00'$ |

■ MEDIAN CROSSOVER PAVEMENT

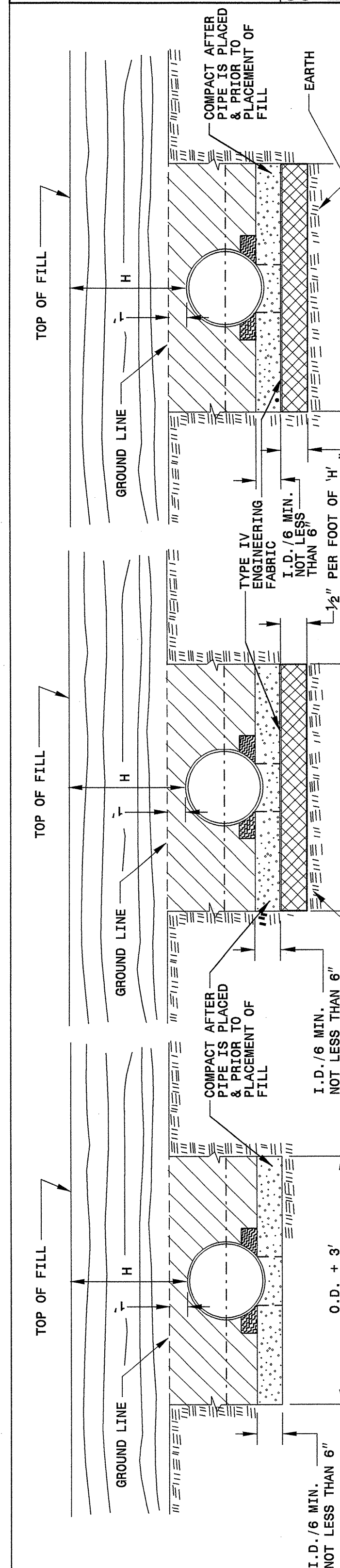
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STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

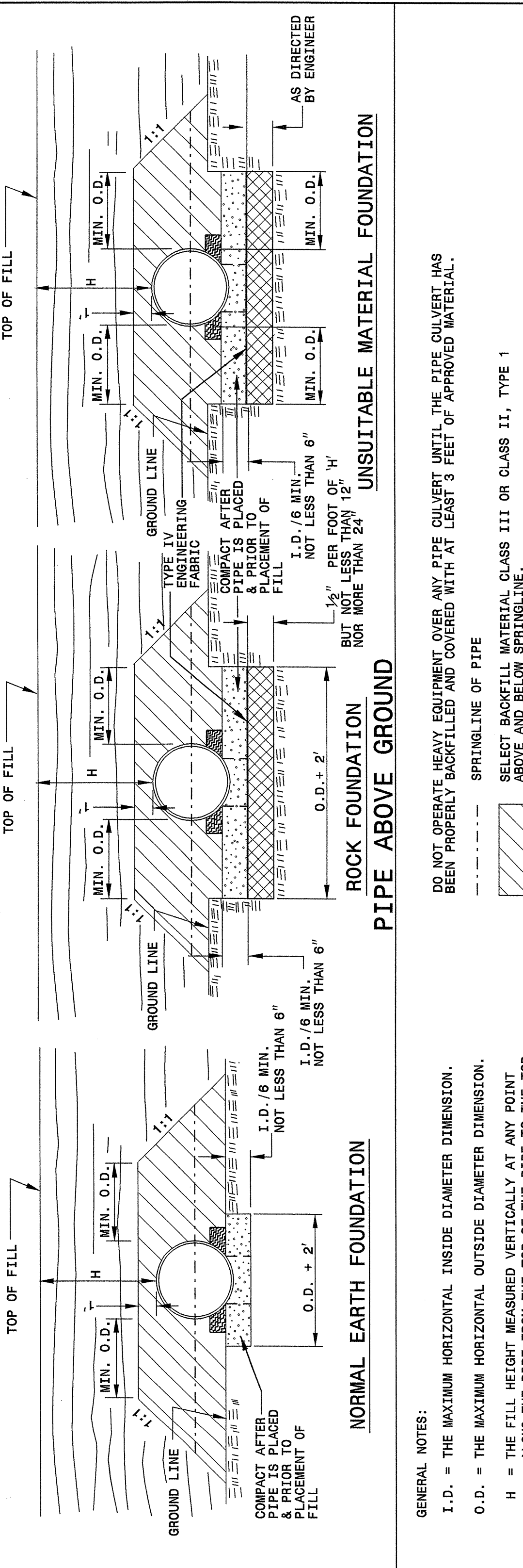
SHEET 1 OF 3
300D01



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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE

SHEET 1 OF 3
300D01



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.

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.

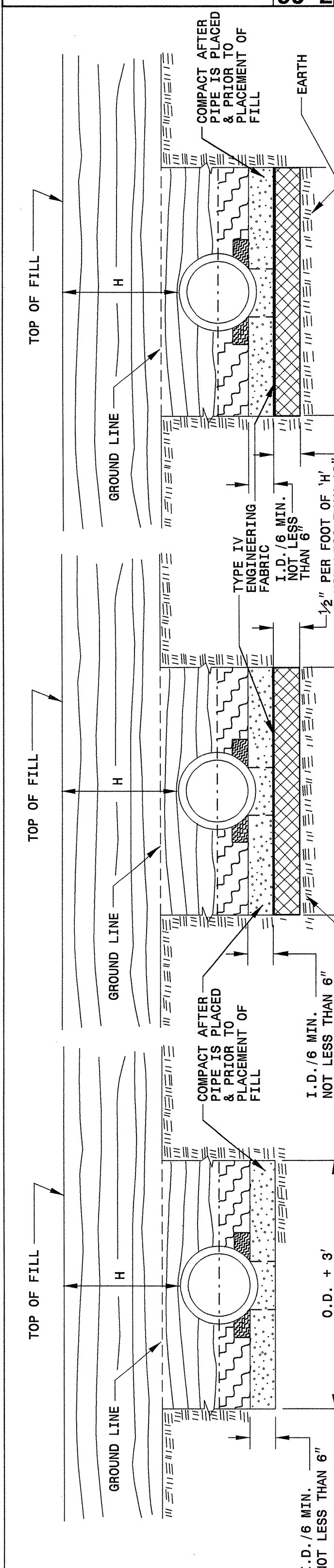
--- SPRINGLINE OF PIPE
 SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
 APPROVED SUITABLE LOCAL MATERIAL.
 UNDISTURBED EARTH MATERIAL
 SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

■ 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.

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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 RIGID PIPE

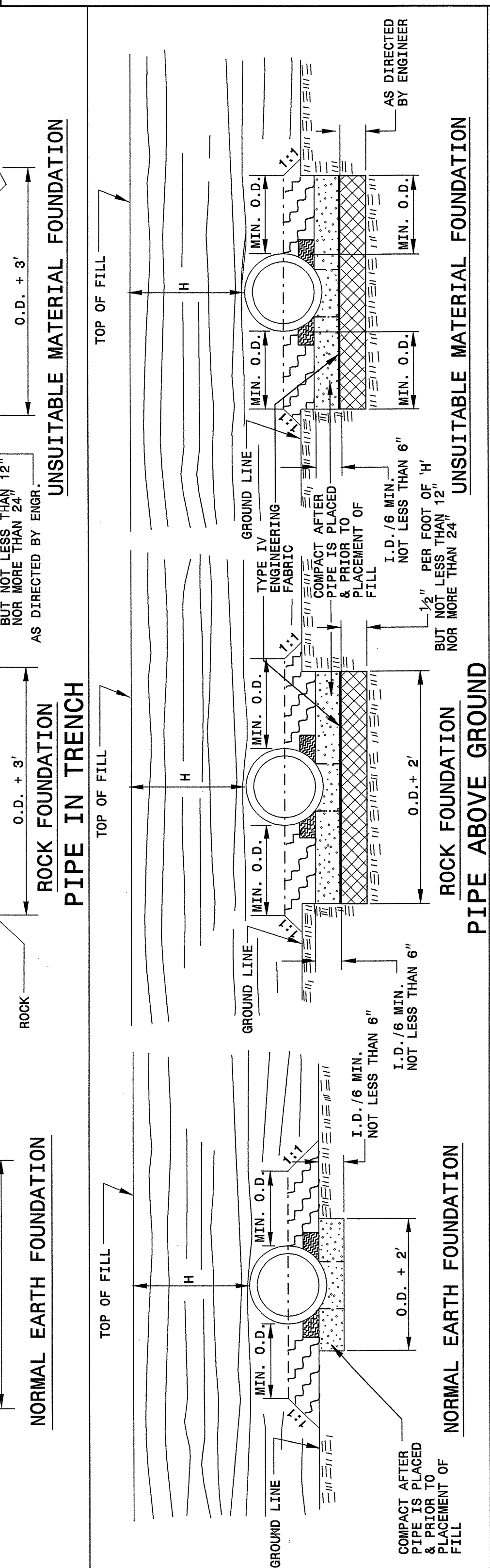
SHEET 2 OF 3
300D01



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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 RIGID PIPE

SHEET 2 OF 3
300D01



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.

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, 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.

■ 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.

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

SEE PLATE FOR TITLE

ORIGINAL BY: K Kempf DATE: 5-15-09
 MODIFIED BY: DATE:
 CHECKED BY: DATE: 7/20/09
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STATE OF
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 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

| Round Corrugated Steel Pipe 2 2/3 x 1/2 corrugation ** | | | |
|---|---------------------------|--------------------------------|-----|
| Diameter (Inches) | Minimum cover (Inches) | Maximum Height of Cover (feet) | |
| | | 16 | 12 |
| 12 | 12 | 204 | 256 |
| 15 | 12 | 162 | 204 |
| 18 | 12 | 135 | 169 |
| 21 | 12 | 115 | 145 |
| 24 | 12 | 100 | 126 |
| 30 | 12 | 79 | 100 |
| 36 | 12 | 65 | 83 |
| 42 | 12 | 55 | 70 |
| 48 | 12 | 48 | 61 |
| 54 | 12 | 48 | 54 |
| 60 | 12 | 48 | 48 |
| 66 | 12 | 48 | 48 |
| 72 | 12 | 48 | 48 |
| 78 | 12 | 48 | 48 |
| 84 | 12 | 48 | 48 |

| Round Corrugated Aluminum Pipe 2 2/3 x 1/2 corrugation ** | | | |
|--|---------------------------|--------------------------------|-----|
| Diameter (Inches) | Minimum cover (Inches) | Maximum Height of Cover (feet) | |
| | | 16 | 12 |
| 12 | 12 | 123 | 156 |
| 15 | 12 | 98 | 123 |
| 18 | 12 | 81 | 102 |
| 21 | 12 | 69 | 87 |
| 24 | 12 | 60 | 76 |
| 27 | 12 | 67 | 95 |
| 30 | 12 | 60 | 85 |
| 36 | 12 | 50 | 71 |
| 42 | 12 | 60 | 78 |
| 48 | 12 | 52 | 68 |
| 54 | 12 | 46 | 50 |
| 60 | 12 | 50 | 50 |
| 66 | 12 | 51 | 51 |
| 72 | 12 | 51 | 51 |

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- CSP - AASHTO M36
- CAAP - AASHTO M196
- HDPE - AASHTO M294
- PVC - ASTM F849 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

STATE OF
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 RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

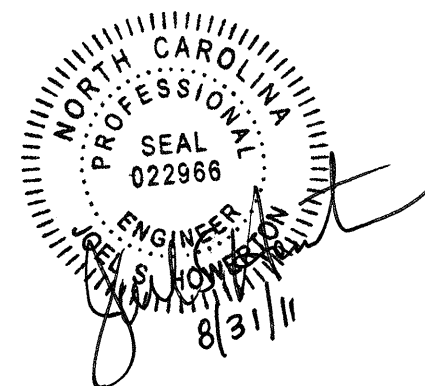
FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

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

SEE PLATE FOR TITLE

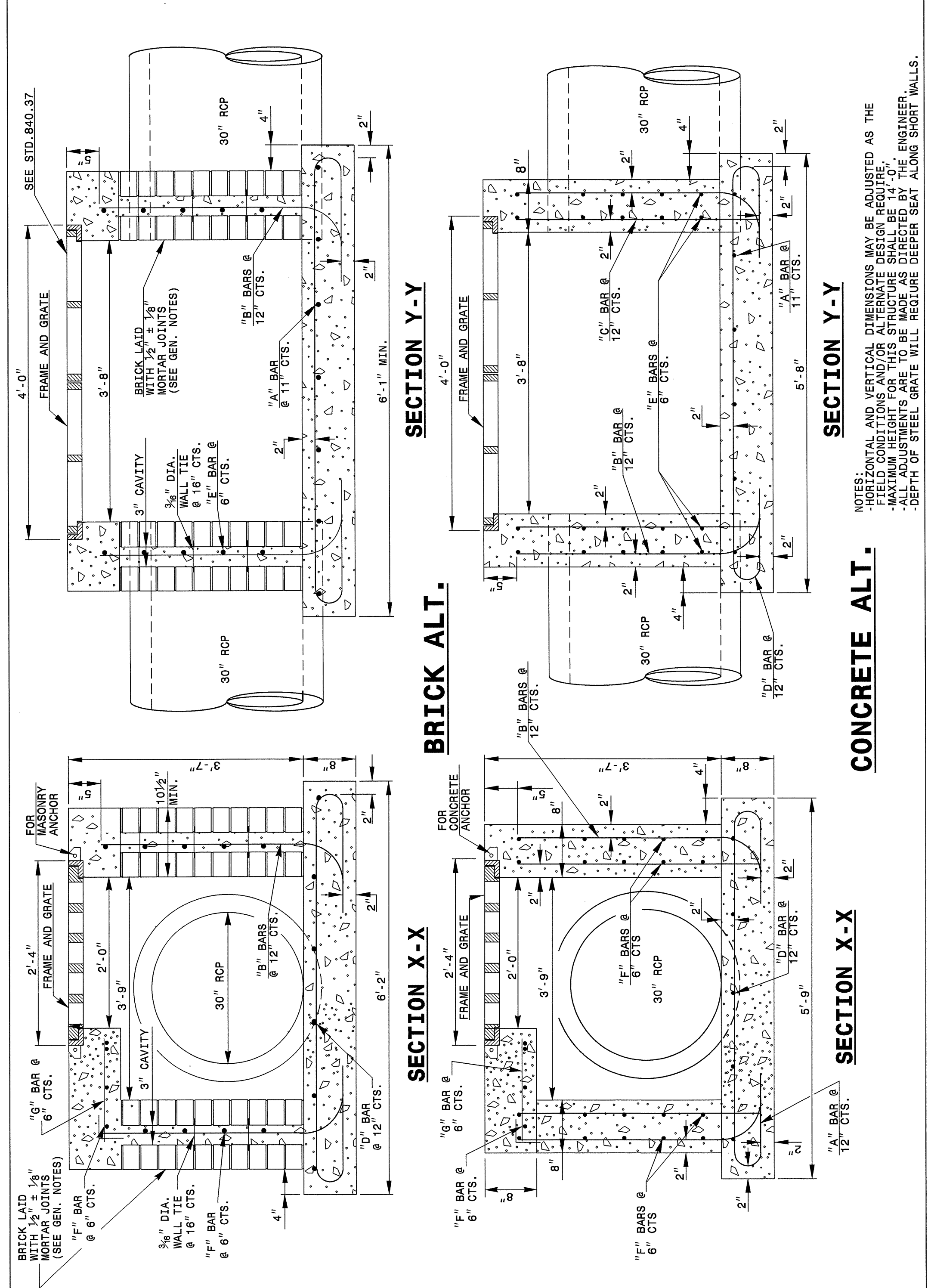
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
FOR DOUBLE FRAME AND GRATES

SHEET 1 OF 2
840D35



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

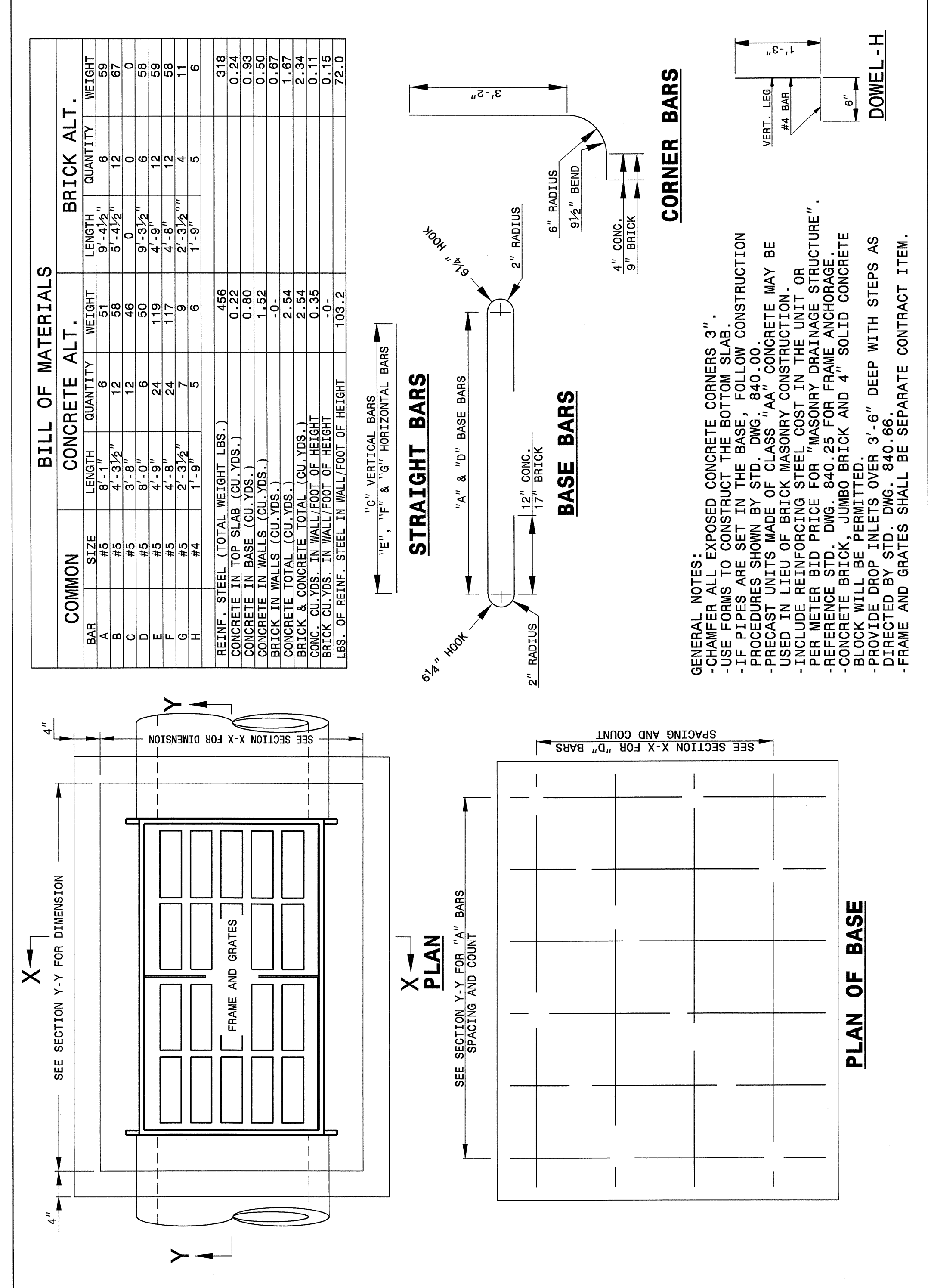
ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
FOR DOUBLE FRAME AND GRATES

SHEET 1 OF 2
840D35

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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
FOR DOUBLE FRAME AND GRATES

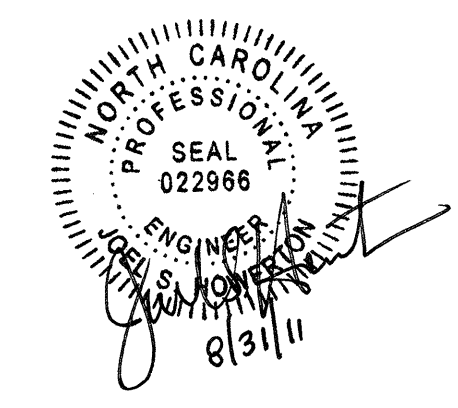
SHEET 2 OF 2
840D35



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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
FOR DOUBLE FRAME AND GRATES

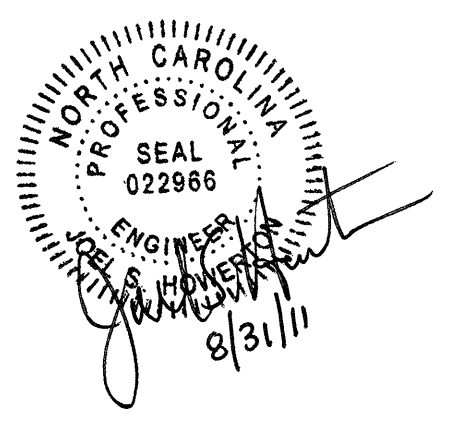
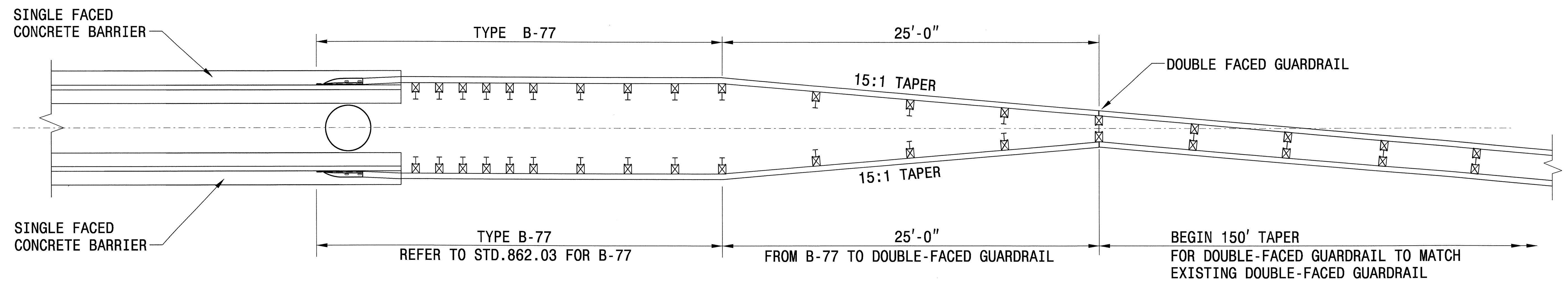
SHEET 2 OF 2
840D35



CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

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 CHECKED BY: [Signature] DATE: 8/9/11
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CONTRACT STANDARDS AND DEVELOPMENT UNIT
 PLANS AND STANDARDS SECTION
 Office 919-707-6950 FAX 919-250-4119

GUARDRAIL TRANSITION

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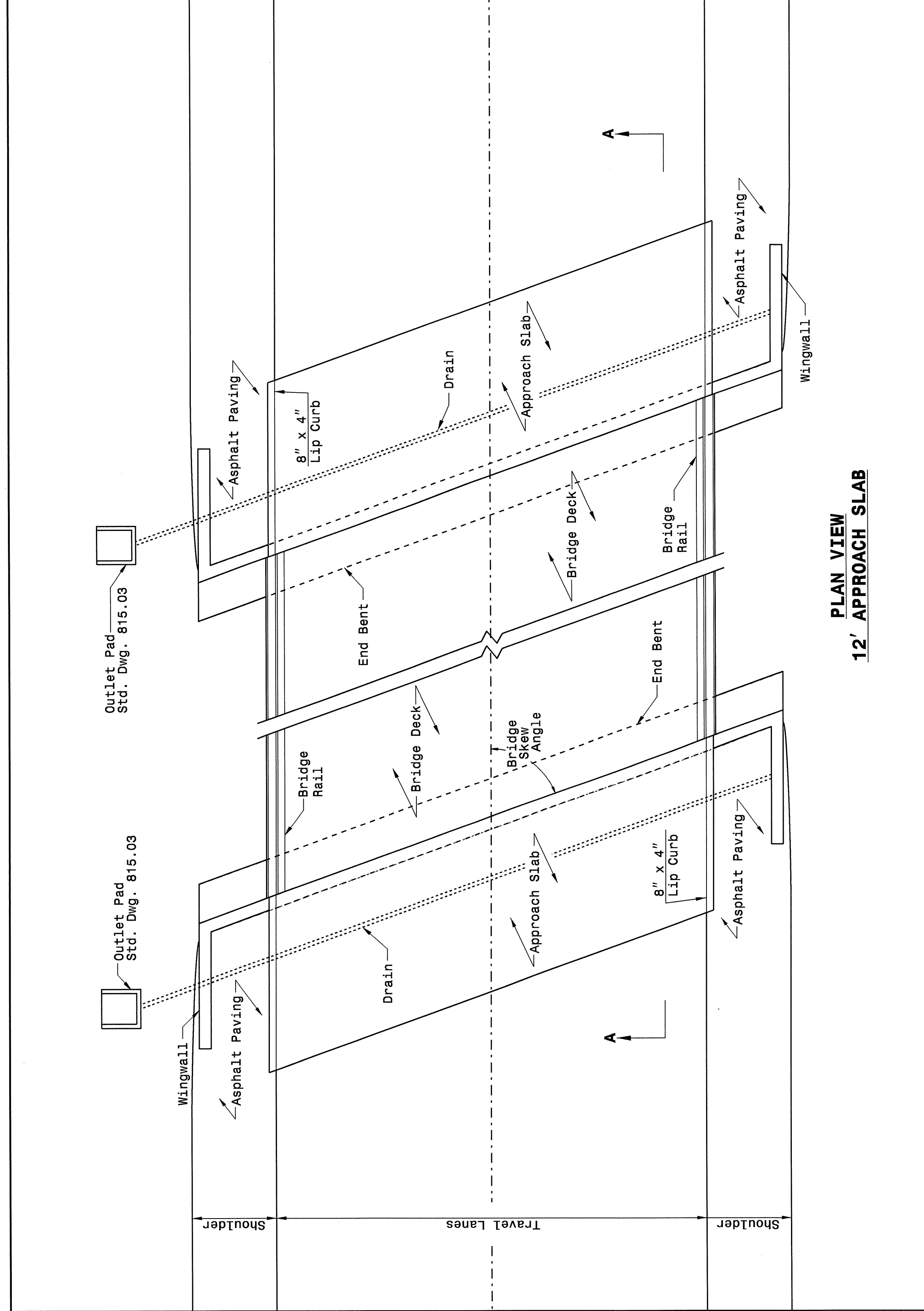
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS

SUB REGIONAL TIER

SHEET 1 OF 2
422D11



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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS

SUB REGIONAL TIER

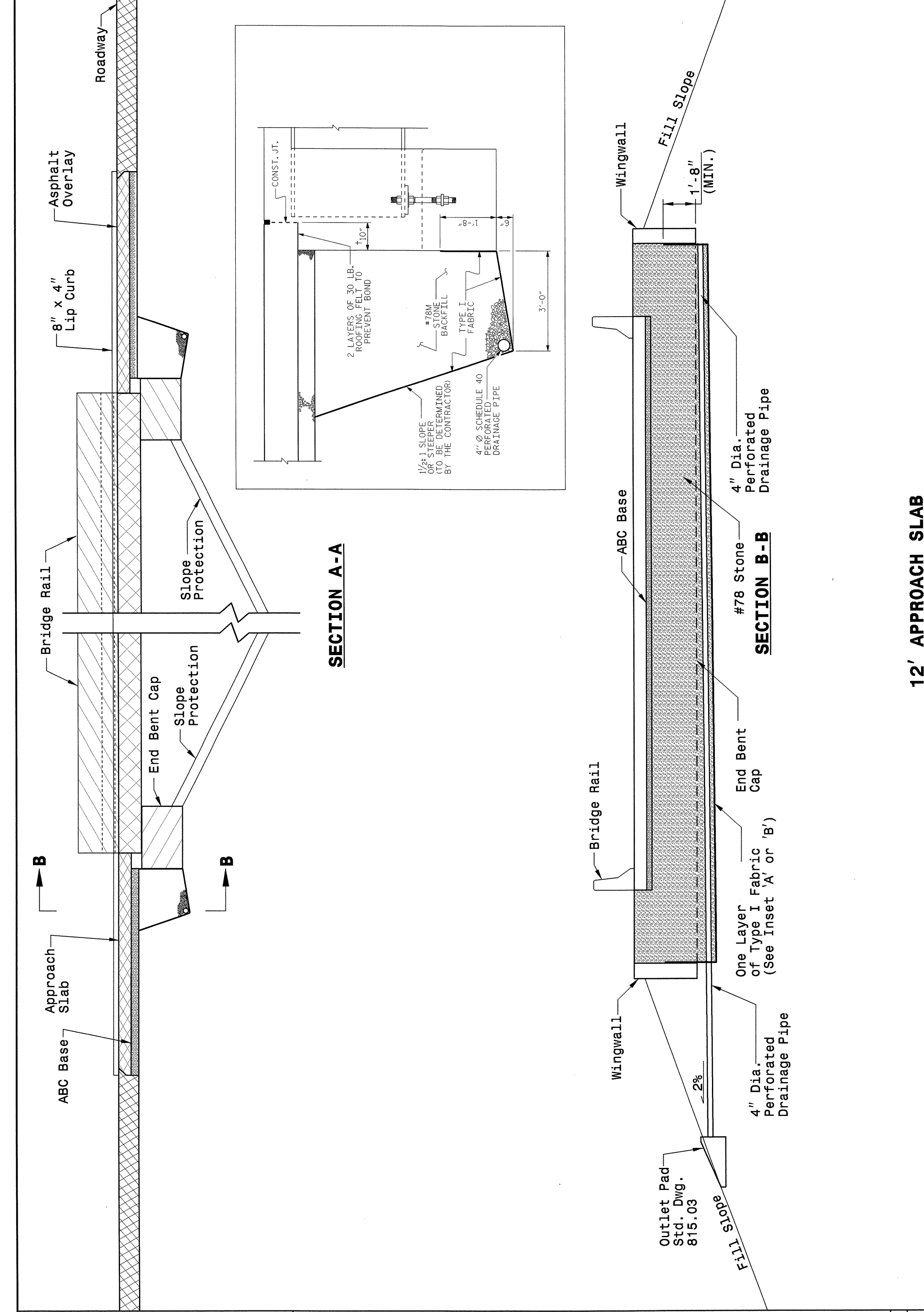
SHEET 1 OF 2
422D11

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS

SUB REGIONAL TIER

SHEET 2 OF 2
422D11

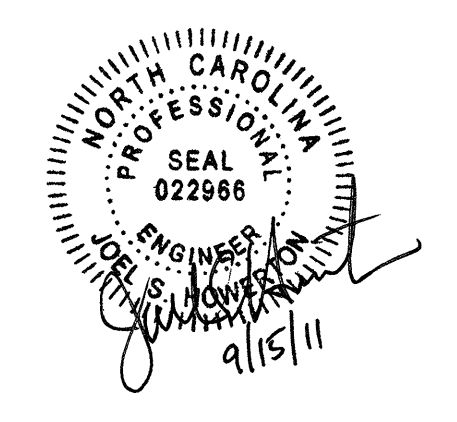


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS

SUB REGIONAL TIER

SHEET 2 OF 2
422D11



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

BRIDGE APPROACH FILLS

SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08
 MODIFIED BY: DATE:
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202729

| ItemNumber | Sec # | Quantity | Unit | Description |
|--------------|-------|----------|------|---|
| 0000100000-N | 800 | Lump Sum | | MOBILIZATION |
| 0000400000-N | 801 | Lump Sum | | CONSTRUCTION SURVEYING |
| 0030000000-N | SP | Lump Sum | | BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (24+46.07-L-) |
| 0038000000-E | SP | 100 | CY | SHALLOW UNDERCUT |
| 0043000000-N | 226 | Lump Sum | | GRADING |
| 0050000000-E | 226 | 1 | ACR | SUPPLEMENTARY CLEARING & GRUB-BING |
| 0057000000-E | 226 | 250 | CY | UNDERCUT EXCAVATION |
| 0080000000-E | SP | 200 | TON | CLASS IV SUBGRADE STABILIZATION |
| 0134000000-E | 240 | 540 | CY | DRAINAGE DITCH EXCAVATION |
| 0196000000-E | 270 | 950 | SY | FABRIC FOR SOIL STABILIZATION |
| 0318000000-E | SP | 143 | TON | FOUNDATION CONDITIONING MATERIAL, MINOR STRS |
| 0320000000-E | SP | 450 | SY | FOUNDATION CONDITIONING FABRIC |
| 0343000000-E | SP | 196 | LF | 15" SIDE DRAIN PIPE |
| 0354000000-E | SP | 244 | LF | **** RC PIPE CULVERTS, CLASS ***** (18", V) |
| 0366000000-E | SP | 84 | LF | 15" RC PIPE CULVERTS, CLASS III |
| 0448300000-E | SP | 204 | LF | 18" RC PIPE CULVERTS, CLASS IV |
| 0448400000-E | SP | 392 | LF | 24" RC PIPE CULVERTS, CLASS IV |
| 0582000000-E | SP | 92 | LF | 15" CS PIPE CULVERTS, 0.064" THICK |
| 0588000000-E | SP | 120 | LF | 18" CS PIPE CULVERTS, 0.064" THICK |
| 0594000000-E | SP | 16 | LF | 24" CS PIPE CULVERTS, 0.064" THICK |
| 0636000000-E | SP | 2 | EA | *** CS PIPE ELBOWS, ***** THICK (15", 0.064") |
| 0636000000-E | SP | 2 | EA | *** CS PIPE ELBOWS, ***** THICK (18", 0.064") |
| 0636000000-E | SP | 2 | EA | *** CS PIPE ELBOWS, ***** THICK (24", 0.064") |
| 0995000000-E | 340 | 1,069 | LF | PIPE REMOVAL |
| 0996000000-N | 350 | 2 | EA | PIPE CLEAN-OUT |
| 1220000000-E | 545 | 100 | TON | INCIDENTAL STONE BASE |
| 1489000000-E | 610 | 710 | TON | ASPHALT CONC BASE COURSE, TYPE B25.0B |
| 1491000000-E | 610 | 2,420 | TON | ASPHALT CONC BASE COURSE, TYPE B25.0C |
| 1498000000-E | 610 | 520 | TON | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B |
| 1503000000-E | 610 | 1,010 | TON | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C |
| 1519000000-E | 610 | 510 | TON | ASPHALT CONC SURFACE COURSE, TYPE S9.5B |
| 1523000000-E | 610 | 600 | TON | ASPHALT CONC SURFACE COURSE, TYPE S9.5C |
| 1524200000-E | 610 | 780 | TON | ASPHALT CONC SURFACE COURSE, TYPE S9.5D |
| 1575000000-E | SP | 280 | TON | ASPHALT BINDER FOR PLANT MIX |
| 1577000000-E | SP | 45 | TON | POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX |
| 1891000000-E | SP | 800 | SY | GENERIC PAVING ITEM MILLING CONCRETE PAVEMENT, 0" TO 1-1/2" DEPTH |
| 2022000000-E | SP | 56 | CY | SUBDRAIN EXCAVATION |
| 2033000000-E | SP | 42 | CY | SUBDRAIN FINE AGGREGATE |
| 2044000000-E | SP | 250 | LF | 6" PERFORATED SUBDRAIN PIPE |
| 2070000000-N | SP | 1 | EA | SUBDRAIN PIPE OUTLETS |
| 2077000000-E | SP | 6 | LF | 6" OUTLET PIPE (SUBDRAINS) |
| 2253000000-E | 840 | 1.79 | CY | PIPE COLLARS |
| 2286000000-N | 840 | 21 | EA | MASONRY DRAINAGE STRUCTURES |
| 2308000000-E | 840 | 7.48 | LF | MASONRY DRAINAGE STRUCTURES |
| 2364000000-N | 840 | 2 | EA | FRAME WITH TWO GRATES, STD 840.16 |

| ItemNumber | Sec # | Quantity | Unit | Description |
|--------------|-------|----------|------|---|
| 2365000000-N | 840 | 7 | EA | FRAME WITH TWO GRATES, STD 840.22 |
| 2374000000-N | 840 | 2 | EA | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E) |
| 2374000000-N | 840 | 4 | EA | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F) |
| 2374000000-N | 840 | 3 | EA | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) |
| 2396000000-N | 840 | 3 | EA | FRAME WITH COVER, STD 840.54 |
| 2549000000-E | 846 | 1,570 | LF | 2'-6" CONCRETE CURB & GUTTER |
| 2591000000-E | 848 | 830 | SY | 4" CONCRETE SIDEWALK |
| 2724000000-E | 857 | 150 | LF | PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED |
| 3030000000-E | 862 | 1,537.5 | LF | STEEL BM GUARDRAIL |
| 3060000000-E | 862 | 1,537.5 | LF | STEEL BM GUARDRAIL, DOUBLE FACED |
| 3150000000-N | 862 | 5 | EA | ADDITIONAL GUARDRAIL POSTS |
| 3210000000-N | 862 | 2 | EA | GUARDRAIL ANCHOR UNITS, TYPE CAT-1 |
| 3215000000-N | 862 | 4 | EA | GUARDRAIL ANCHOR UNITS, TYPE III |
| 3270000000-N | SP | 6 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 |
| 3317000000-N | 862 | 4 | EA | GUARDRAIL ANCHOR UNITS, TYPE B-77 |
| 3360000000-E | 863 | 2,582 | LF | REMOVE EXISTING GUARDRAIL |
| 3389100000-N | SP | 6 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY |
| 3649000000-E | 876 | 9 | TON | RIP RAP, CLASS B |
| 3656000000-E | 876 | 495 | SY | FILTER FABRIC FOR DRAINAGE |
| 4072000000-E | 903 | 105 | LF | SUPPORTS, 3-LB STEEL U-CHANNEL |
| 4102000000-N | 904 | 3 | EA | SIGN ERECTION, TYPE E |
| 4108000000-N | 904 | 4 | EA | SIGN ERECTION, TYPE F |
| 4155000000-N | 907 | 9 | EA | DISPOSAL OF SIGN SYSTEM, U-CHANNEL |

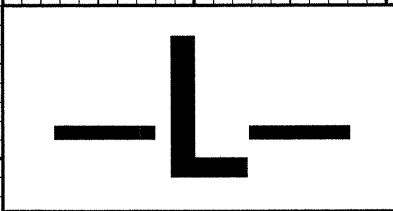
| ItemNumber | Sec # | Quantity | Unit | Description |
|--------------|-------|----------|------|--|
| 4400000000-E | 1110 | 404 | SF | WORK ZONE SIGNS (STATIONARY) |
| 4405000000-E | 1110 | 558 | SF | WORK ZONE SIGNS (PORTABLE) |
| 4410000000-E | 1110 | 157 | SF | WORK ZONE SIGNS (BARRICADE MOUNTED) |
| 4415000000-N | 1115 | 2 | EA | FLASHING ARROW PANELS, TYPE C |
| 4422000000-N | 1120 | 240 | DAY | CHANGEABLE MESSAGE SIGN (SHORT TERM) |
| 4430000000-N | 1130 | 510 | EA | DRUMS |
| 4445000000-E | 1145 | 115 | LF | BARRICADES (TYPE III) |
| 4465000000-N | 1160 | 2 | EA | TEMPORARY CRASH CUSHIONS |
| 4480000000-N | 1165 | 2 | EA | TMIA |
| 4485000000-E | 1170 | 670 | LF | PORTABLE CONCRETE BARRIER |
| 4510000000-N | SP | 480 | HR | LAW ENFORCEMENT |
| 4650000000-N | 1251 | 52 | EA | TEMPORARY RAISED PAVEMENT MARKERS |
| 4815000000-E | 1205 | 18,452 | LF | PAINT PAVEMENT MARKING LINES (6") |
| 4847000000-E | 1205 | 4,650 | LF | POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS) |
| 4847100000-E | 1205 | 4,612 | LF | POLYUREA PAVEMENT MARKING LINES (6", *****) (HIGHLY REFLECTIVE ELEMENTS) |
| 4855000000-E | 1205 | 4,612 | LF | REMOVAL OF PAVEMENT MARKING LINES (6") |
| 4905000000-N | 1253 | 93 | EA | SNOWPLOWABLE PAVEMENT MARKERS |
| 6000000000-E | 1605 | 2,650 | LF | TEMPORARY SILT FENCE |
| 6006000000-E | 1610 | 270 | TON | STONE FOR EROSION CONTROL, CLASS A |
| 6009000000-E | 1610 | 290 | TON | STONE FOR EROSION CONTROL, CLASS B |
| 6012000000-E | 1610 | 320 | TON | SEDIMENT CONTROL STONE |
| 6015000000-E | 1615 | 5 | ACR | TEMPORARY MULCHING |
| 6018000000-E | 1620 | 200 | LB | SEED FOR TEMPORARY SEEDING |
| 6021000000-E | 1620 | 1.75 | TON | FERTILIZER FOR TEMPORARY SEEDING |
| 6024000000-E | 1622 | 500 | LF | TEMPORARY SLOPE DRAINS |
| 6027000000-N | 1622 | 8 | EA | INLET PROTECTION AT TEMPORARY SLOPE DRAINS |
| 6029000000-E | SP | 1,000 | LF | SAFETY FENCE |
| 6030000000-E | 1630 | 550 | CY | SILT EXCAVATION |
| 6036000000-E | 1631 | 5,500 | SY | MATTING FOR EROSION CONTROL |
| 6037000000-E | SP | 10 | SY | COIR FIBER MAT |
| 6038000000-E | SP | 800 | SY | PERMANENT SOIL REINFORCEMENT MAT |
| 6042000000-E | 1632 | 950 | LF | 1/4" HARDWARE CLOTH |
| 6071010000-E | SP | 525 | LF | WATTLE |
| 6071020000-E | SP | 140 | LB | POLYACRYLAMIDE (PAM) |
| 6071030000-E | SP | 130 | LF | COIR FIBER BAFFLE |
| 6071050000-E | SP | 1 | EA | *** SKIMMER (1-1/2") |
| 6084000000-E | 1660 | 6 | ACR | SEEDING & MULCHING |
| 6087000000-E | 1660 | 3 | ACR | MOWING |
| 6090000000-E | 1661 | 50 | LB | SEED FOR REPAIR SEEDING |
| 6093000000-E | 1661 | 0.25 | TON | FERTILIZER FOR REPAIR SEEDING |
| 6096000000-E | 1662 | 125 | LB | SEED FOR SUPPLEMENTAL SEEDING |
| 6108000000-E | 1665 | 3.75 | TON | FERTILIZER TOPDRESSING |
| 6114500000-N | SP | 30 | MHR | SPECIALIZED HAND MOWING |
| 6117000000-N | SP | 30 | EA | RESPONSE FOR EROSION CONTROL |

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| | |
|--|-----------------------|
| PROJECT REFERENCE NO. B-4456 | SHEET NO. 5 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| | |

BM#1 8" SPIKE SET IN ROOT OF 18" MAPLE
N 723821 E 1341960 ELEV. = 973.2'



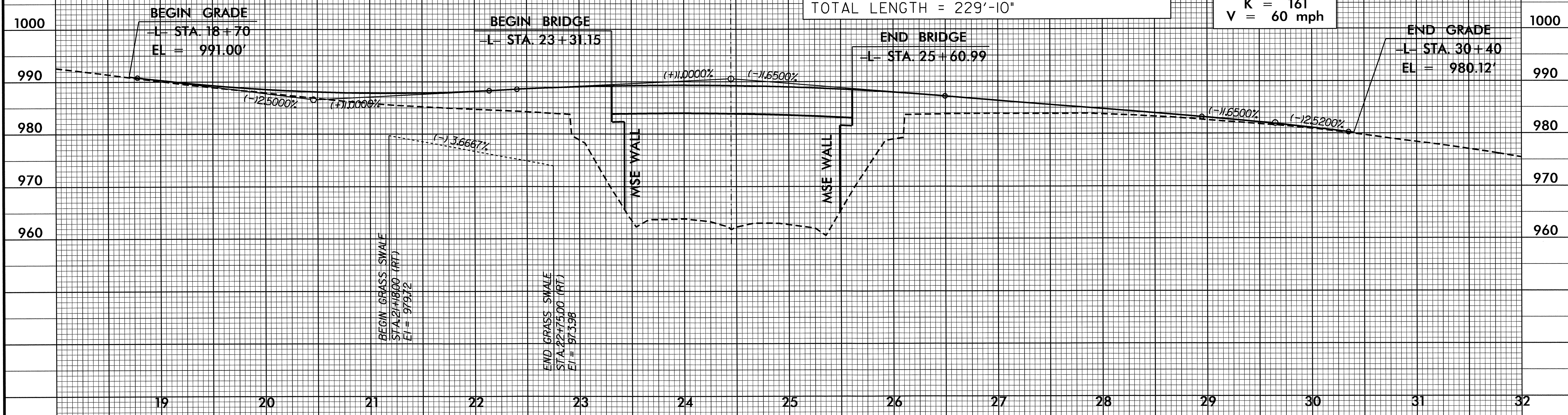
BM#2 MAG NAIL SET IN CONCRETE
BASE OF AN AREA LIGHT
N 724795 E 1342435 ELEV. = 978.33'

PI = 20+46.00
EL = 986.60'
VC = 336'
K = 96
V = 50 mph

PI = 24+45.00
EL = 990.59'
VC = 409'
K = 154
V = 60 mph

BRIDGE C
-L- STA. 24+46.07
-Y- STA. 20+66.94
ELEV. = 989.23
SKEW 40°-57'-55"
PROPOSED 2@114'-11" SPANS
COMPOSITE DECK ON 63" MODIFIED BULB TEE
TOTAL LENGTH = 229'-10"

PI = 29+65.00
EL = 982.01'
VC = 140'
K = 161
V = 60 mph



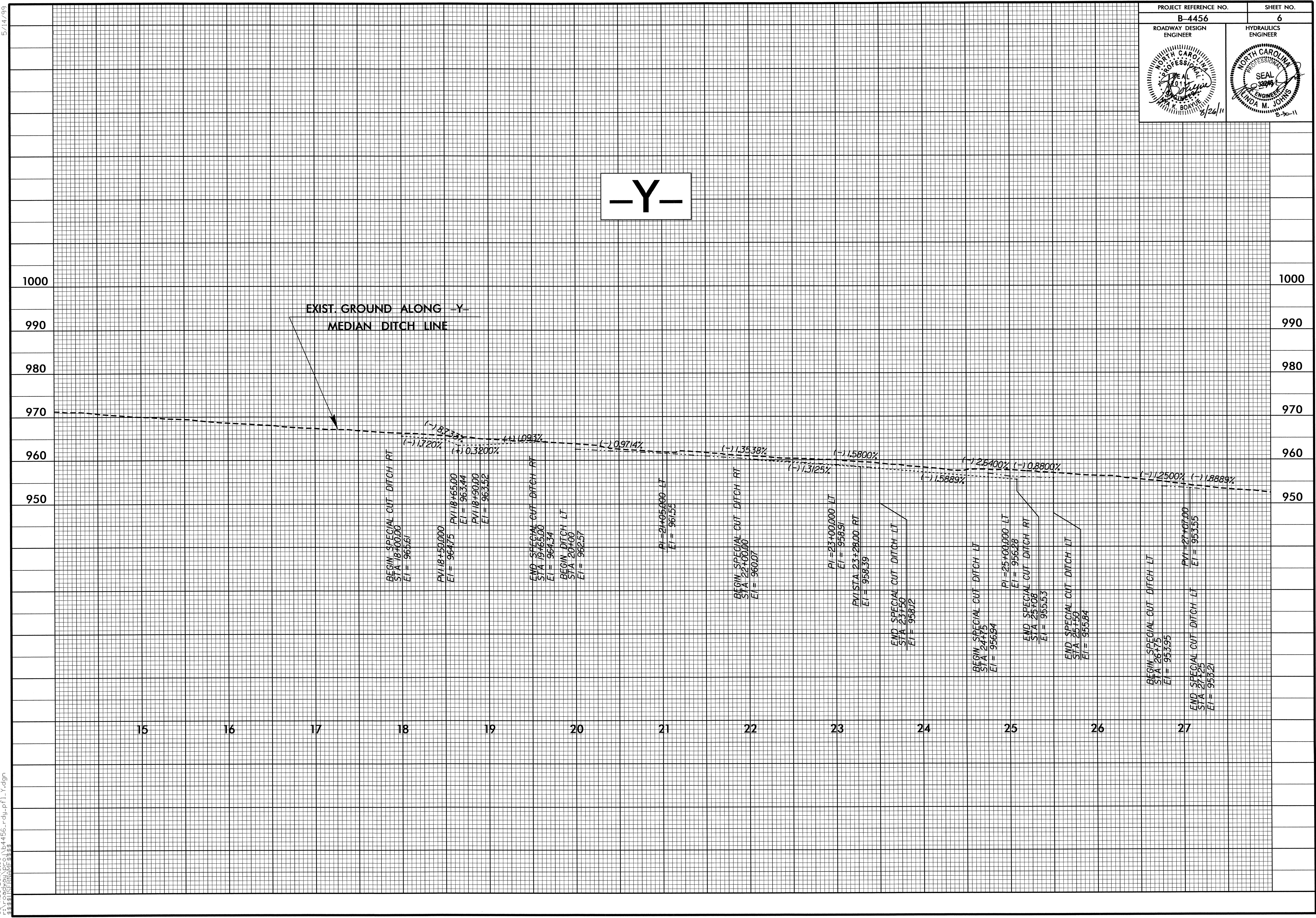
BEGIN GRASS SWALE
STA. 21+19.00 (RT)
EI = 979.72

END GRASS SWALE
STA. 22+75.00 (RT)
EI = 973.98

SEE SHEET 4 FOR -L- DESIGN

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-Y-



EXIST. GROUND ALONG -Y-
MEDIAN DITCH LINE

BEGIN SPECIAL CUT DITCH RT
STA 18+00.00
EI = 965.61

PVI 18+50.00
EI = 964.75

PVI 18+65.00
EI = 963.44

PVI 18+90.00
EI = 963.32

END SPECIAL CUT DITCH RT
STA 19+65.00
EI = 964.34

BEGIN DITCH LT
STA 20+00
EI = 962.57

PI = 21+05.00 LT
EI = 961.53

BEGIN SPECIAL CUT DITCH RT
STA 22+00.00
EI = 960.07

PI = 23+00.00 LT
EI = 958.91

PVI STA 23+28.00 RT
EI = 958.39

END SPECIAL CUT DITCH LT
STA 23+50
EI = 958.12

BEGIN SPECIAL CUT DITCH LT
STA 24+75
EI = 956.94

PI = 25+00.00 LT
EI = 956.28

END SPECIAL CUT DITCH RT
STA 25+08
EI = 955.53

END SPECIAL CUT DITCH LT
STA 25+50
EI = 955.84

BEGIN SPECIAL CUT DITCH LT
STA 26+75
EI = 953.95

PVI = 27+07.00
EI = 953.55

END SPECIAL CUT DITCH LT
STA 27+26
EI = 953.21