| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4973 | 1 | |

| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 40097.1.1 | BRSTP-1157(5) | PE |
| 40097.2.1 | BRSTP-1157(5) | R/W & UTIL |
| 40097.3.FD1 | BRSTP-1157(5) | CONST |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# CABARRUS COUNTY

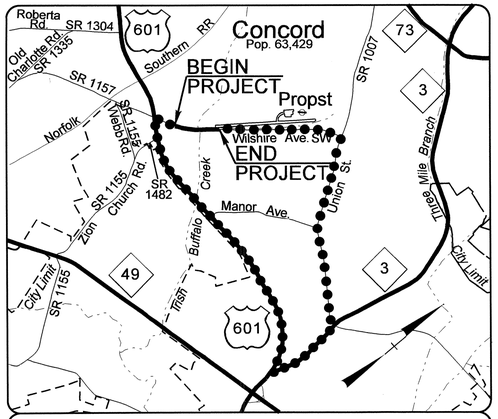
**LOCATION: BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE. SW)**

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

TIP PROJECT: B-4973

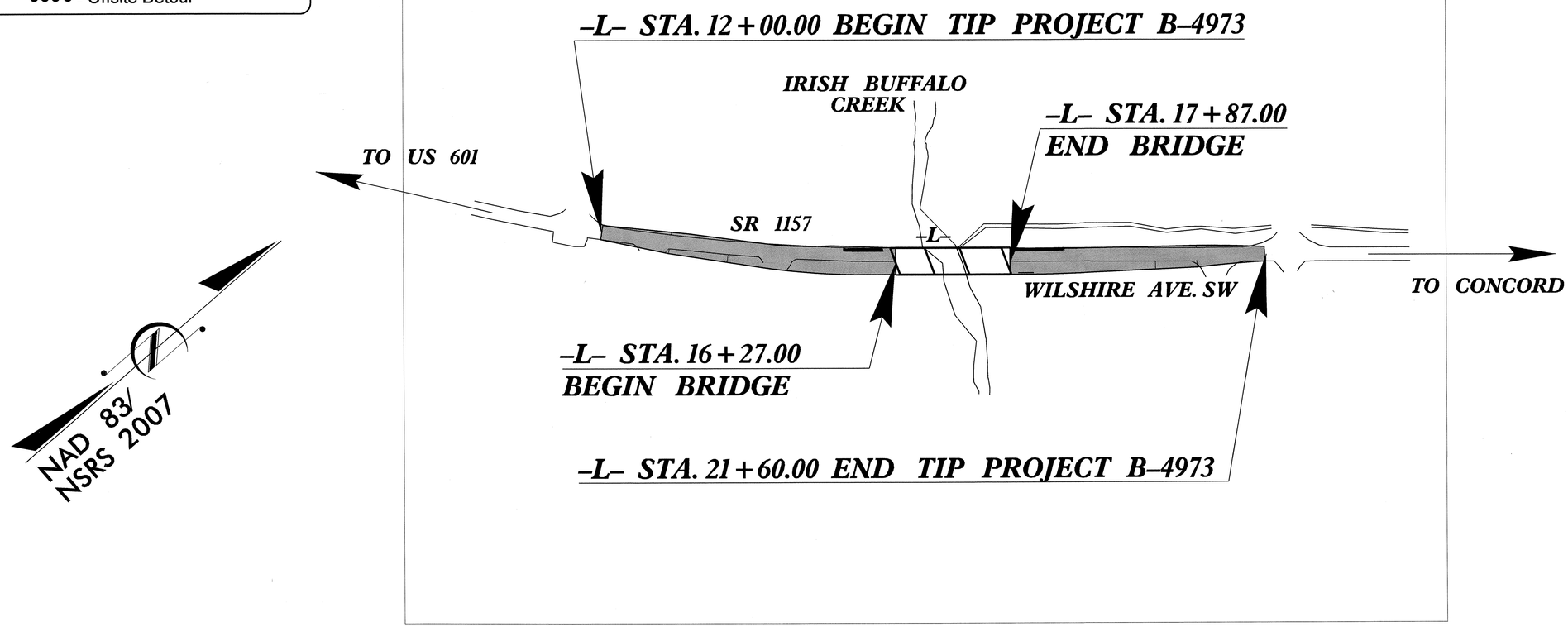
CONTRACT: C203261

See Sheet 1-A For Index of Sheets




Vicinity Map
●●●● - Offsite Detour

4




**GRAPHIC SCALES**

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

**DESIGN DATA**

ADT 2013 = 6,600
ADT 2035 = 9,900
DHV = 9 %
D = 60 %
T = 4 %**
*V = 50 MPH
*SUB-REGIONAL TIER
FUNC. CLASS = RURAL LOCAL
**TTST 1% + DUAL 3%

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-4973 = 0.152 MI.
LENGTH OF STRUCTURE TIP PROJECT B-4973 = 0.030 MI.
TOTAL LENGTH OF PROJECT B-4973 = 0.182 MI.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 24, 2012

LETTING DATE:
NOVEMBER 19, 2013

G. E. BREW, PE
PROJECT ENGINEER

W. T. BEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19721 ENGINEER WILLIAM H. ELAM
8/31/13
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREW
8-23-13
SIGNATURE:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99

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$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 1-A |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18907 ENGINEER GREGORY E. BRICH
8-28-13

INDEX OF SHEETS

| 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 DETAIL, AND MISCELLANEOUS DETAILS |
| 2-A | DETAIL FOR TRANSITION OF 2'-6" CONCRETE CURB AND GUTTER |
| 2-B | DETAIL FOR 96" CHAIN LINK FENCE |
| 2-C | DETAIL FOR TYPE III STRUCTURE ANCHOR UNITS |
| 2-D | DETAIL FOR 48" WOODEN 2 RAIL FENCE |
| 3 | SUMMARY OF QUANTITIES |
| 3-A | SUMMARY OF DRAINAGE QUANTITIES |
| 3-B | SUMMARY OF GUARDRAIL, ASPHALT PAVEMENT REMOVAL SUMMARY, 96" CHAIN LINK FENCE SUMMARY,EARTHWORK SUMMARY |
| 4 | PLAN SHEET |
| 5 | PROFILE SHEET |
| TMP-1 THRU TMP-2 | TRANSPORTATION MANAGEMENT PLANS |
| PMP-1 THRU PMP-2 | PAVEMENT MARKING PLANS |
| EC-1 THRU EC-5 | EROSION CONTROL PLANS |
| SIGN-1 | SIGNING PLANS |
| UC-1 THRU UC-5 | UTILITY CONSTRUCTION PLANS |
| UO-1 THRU UO-3 | UTILITIES BY OTHERS PLANS |
| X-1A | CROSS-SECTIONS SUMMARY |
| X-1 THRU X-6 | CROSS-SECTIONS |
| S-1 THRU S-36 | STRUCTURE PLANS |

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHER 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. 225.04 USING THE RATE OF SUPERELEVATIONAND RUNOFF ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

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.

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

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE TRANSMISSION, CITY OF CONCORD, WINDSTREAM, TIME WARNER CABLE, PSNC, AND WATER AND SEWER AUTHORITY OF CABARRUS COUNTY.

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

RIGHT-OF-WAY MARKERS:

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

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

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

| STD.NO. | TITLE |
|---|---|
| DIVISION 2 - EARTHWORK | |
| 200.03 | Method of Clearing - Method III |
| 225.02 | Guide for Grading Subgrade - Secondary and Local |
| 225.04 | Method of Obtaining Superelevation - Two Lane Pavement |
| DIVISION 3 - PIPE CULVERTS | |
| 300.01 | Method of Pipe Installation |
| 310.10 | Driveway Pipe Construction |
| DIVISION 4 - MAJOR STRUCTURES | |
| 422.10 | Reinforced Bridge Approach Fills |
| DIVISION 5 - SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction - High Side of Superelevated Curve - Method I |
| DIVISION 6 - ASPHALT BASES AND PAVEMENTS | |
| 654.01 | Pavement Repairs |
| 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 - 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 |
| 840.19 | Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe |
| 840.25 | Anchorage for Frames - Brick or Concrete or Precast |
| 840.28 | Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe |
| 840.29 | Frames and Narrow Slot Flat Grates |
| 840.31 | Concrete Junction Box - 12" thru 66" Pipe |
| 840.32 | Brick Junction Box - 12" thru 66" Pipe |
| 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 |
| 846.01 | Concrete Curb, Gutter and Curb & Gutter |
| 846.04 | Drop Inlet Installation in Shoulder Berm Gutter |
| 848.01 | Concrete Sidewalk |
| 862.01 | Guardrail Placement |
| 862.02 | Guardrail Installation |
| 866.01 | Chain Link Fence - 4', 5', and 6' High Fence |
| 866.04 | Barbed Wire Fence with Wood Post (2 - 7 Strands)Guardrail Installation |
| 876.01 | Rip Rap in Channels |
| 876.02 | Guide for Rip Rap at Pipe Outlets |

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04/16/11

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 1-B |

***Note: Not to Scale***

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

## *BOUNDARIES AND PROPERTY:*

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

## *BUILDINGS AND OTHER CULTURE:*

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

## *HYDROLOGY:*

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

## *RAILROADS:*

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

## *RIGHT OF WAY:*

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

## *ROADS AND RELATED FEATURES:*

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

## *VEGETATION:*

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

## *EXISTING STRUCTURES:*

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

## *UTILITIES:*

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

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

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

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

SANITARY SEWER:

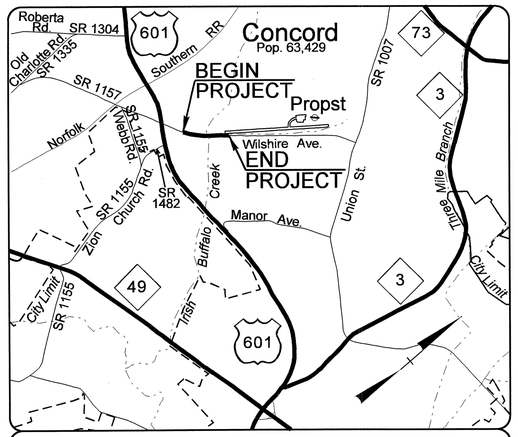
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

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

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 1 C |
| Location and Surveys | |

# SURVEY CONTROL SHEET – Final –




Vicinity Map

## DATUM DESCRIPTION

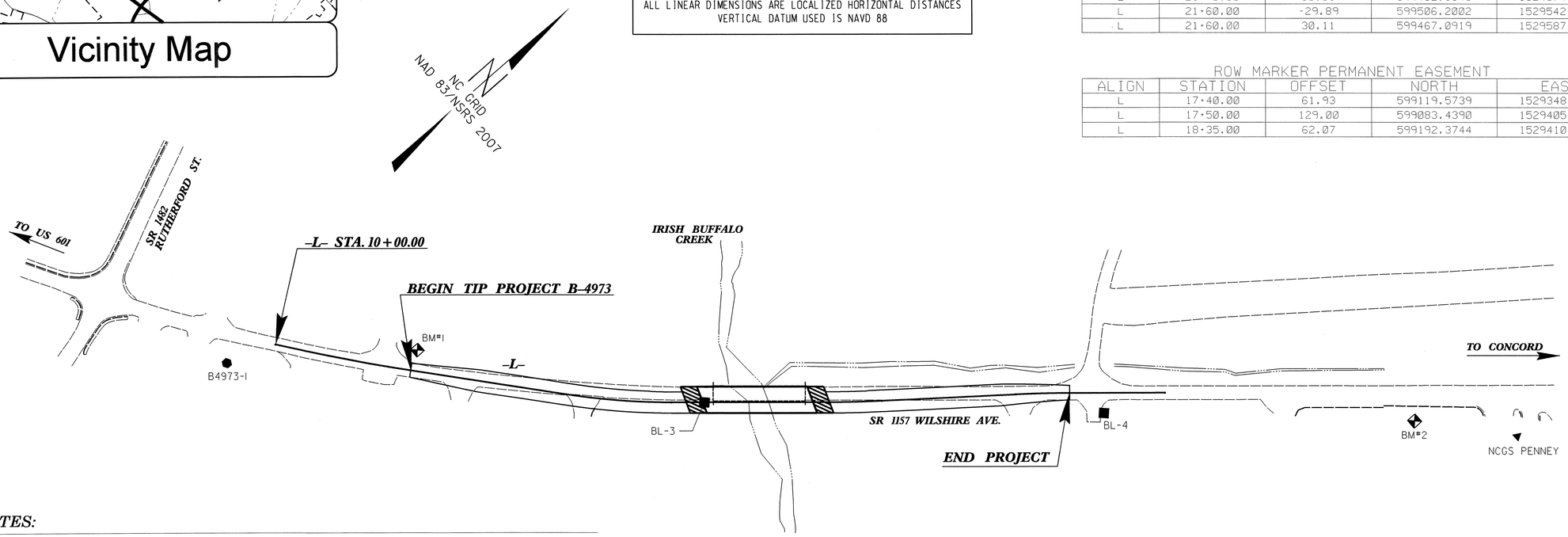
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "PENNEY"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 599937.681(ft) EASTING: 1530036.730(ft)
ELEVATION: 579.56(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999852
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"PENNEY" TO -L- STATION 10+00.00 IS
S 44°57'12.9" W 1807.461'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

ROW MARKER IRON PIN AND CAP

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| L | 12+00.00 | -60.00 | 598828.7853 | 1528877.0692 |
| L | 12+00.00 | -29.88 | 598805.8972 | 1528896.6529 |
| L | 12+00.00 | 30.12 | 598760.3076 | 1528935.6604 |
| L | 14+30.00 | -60.00 | 598978.2472 | 1529051.7488 |
| L | 15+05.00 | 33.00 | 598960.3162 | 1529169.1664 |
| L | 16+10.00 | 62.00 | 599020.9359 | 1529263.4728 |
| L | 16+10.00 | 30.00 | 599041.7937 | 1529239.2044 |
| L | 18+20.00 | -70.00 | 599265.9391 | 1529299.9551 |
| L | 18+20.00 | -42.80 | 599248.3330 | 1529320.6866 |
| L | 18+70.00 | 63.00 | 599219.9772 | 1529434.3465 |
| L | 18+87.29 | -41.05 | 599298.0493 | 1529363.4010 |
| L | 19+10.00 | 35.00 | 599269.2163 | 1529437.3438 |
| L | 21+40.00 | 30.01 | 599452.1843 | 1529574.9318 |
| L | 21+60.00 | -29.89 | 599506.2002 | 1529542.2367 |
| L | 21+60.00 | 30.11 | 599467.0919 | 1529587.7399 |

ROW MARKER PERMANENT EASEMENT

| ALIGN | STATION | OFFSET | NORTH | EAST |
|---|---|---|---|---|
| L | 17+40.00 | 61.93 | 599119.5739 | 1529348.1519 |
| L | 17+50.00 | 129.00 | 599083.4390 | 1529405.5374 |
| L | 18+35.00 | 62.07 | 599192.3744 | 1529410.6500 |




BL

| POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|---|---|---|---|---|---|---|
| 1 | B4973-1 | 598587.4770 | 1528733.4560 | 583.79 | OUTSIDE PROJECT LIMITS | |
| 3 | BL-3 | 599076.0420 | 1529228.8780 | 581.68 | 14+28.77 | 3.85 RT |
| 4 | BL-4 | 599505.2980 | 1529619.9010 | 579.16 | OUTSIDE PROJECT LIMITS | |
| 2 | NCGS PENNEY | 599937.6810 | 1530036.7300 | 579.56 | OUTSIDE PROJECT LIMITS | |

L

| TYPE | STATION | NORTH | EAST |
|---|---|---|---|
| PC | 10+00.00 | 598658.5782 | 1528759.6983 |
| PT | 12+00.00 | 598783.1957 | 1528916.0768 |
| PC | 14+28.25 | 598931.5888 | 1529089.5094 |
| PT | 15+81.34 | 599039.6102 | 1529197.7700 |
| PC | 18+10.55 | 599213.4415 | 1529347.1717 |
| PT | 18+87.29 | 599272.8179 | 1529395.7774 |
| PC | 20+81.68 | 599426.1454 | 1529515.2676 |
| PT | 21+58.42 | 599485.5218 | 1529563.8732 |
| POT | 22+98.39 | 599591.6758 | 1529655.1087 |

```
*****************************************
BM1        ELEVATION = 581.76
N 598809       E 1528900
L STATION 10+05 30 LEFT
RR SPIKE IN POWER POLE
*****************************************
*****************************************
BM2        ELEVATION = 580.82
N 599839       E 1529923
L STATION 19+58
 N 45°25'31.6" E  DIST    504.12
RR SPIKE IN TREE
*****************************************
```

## NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
   HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/
   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B4973_LS_CONTROL.TXT
   B4973_LS_LOCAL.TXT
2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
3. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

◀ INDICATES EXISTING NCGS GEODETIC CONTROL MONUMENTS USED FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

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

■ INDICATES BASELINE MONUMENTS SET FOR LOCAL HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

◆ INDICATES BENCHMARKS USED OR SET FOR VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

NOTE: DRAWING NOT TO SCALE

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 2 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER |

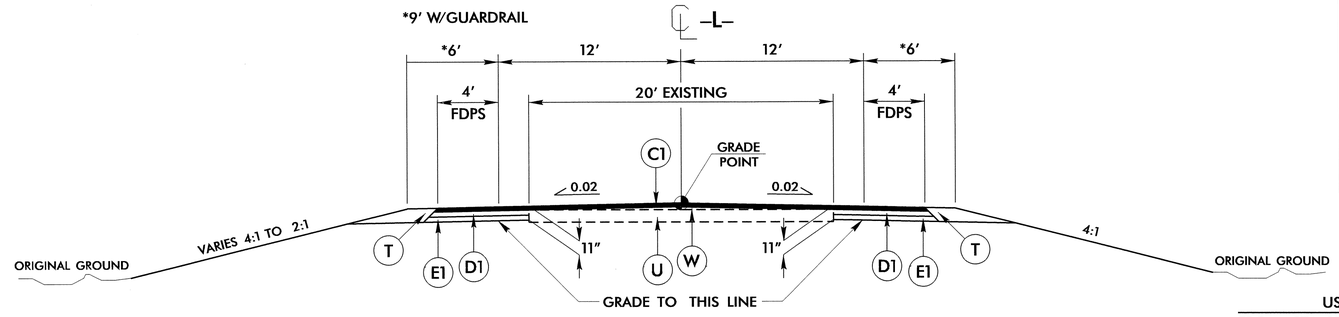
NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BRENT 8-23-13

NORTH CAROLINA PROFESSIONAL SEAL 22898 ENGINEER CLARK S. MORRISON 8/23/13

## PAVEMENT SCHEDULE

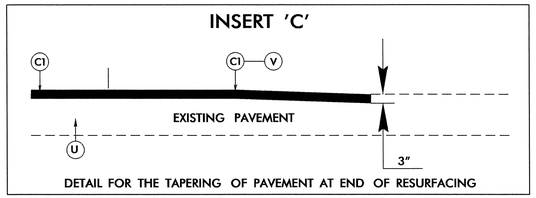
| | |
|---|---|
| C1 | PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS |
| C2 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH. |
| D1 | PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| D2 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER GREATER THAN 4" IN DEPTH. |
| E1 | PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| E2 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH. |
| R1 | 2'6" CONCRETE CURB. |
| R2 | SHOULDER BERM GUTTER. |
| S | 4" CONCRETE SIDEWALK. |
| T | EARTH MATERIAL. |
| U | EXISTING PAVEMENT. |
| W | VARIABLE DEPTH ASPHALT PAVEMENT. |
| V | INCIDENTAL MILLING FOR BITUMINOUS PAVEMENT. |

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

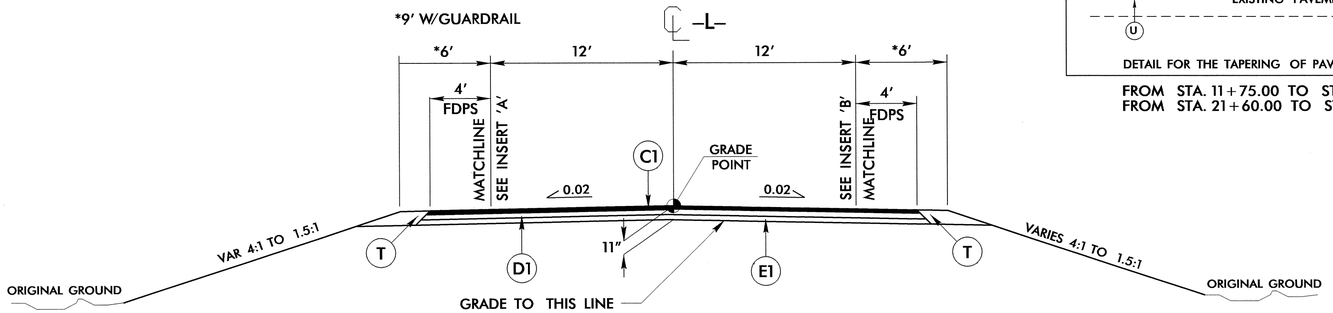



## TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
FROM STA. 12+00.00 TO STA. 13+00.00
TRANSITION FROM EXISTING TO TYP. SECT. NO. 1
FROM STA. 13+00.00 TO STA. 14+25.00
FROM STA. 19+65.00 TO STA. 20+60.00
FROM STA. 20+60.00 TO STA. 21+60.00
TRANSITION FROM TYP. SECT. NO. 1 TO EXISTING

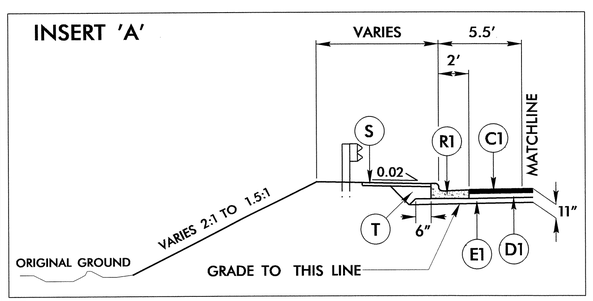



FROM STA. 11+75.00 TO STA. 12+00.00
FROM STA. 21+60.00 TO STA. 21+85.00

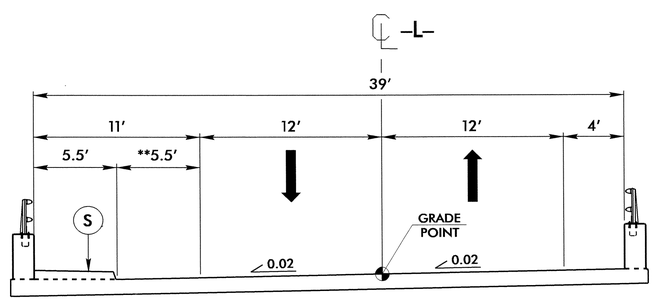



## TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
FROM STA. 14+25.00 TO STA. 16+27.00
FROM STA. 17+87.00 TO STA. 19+65.00



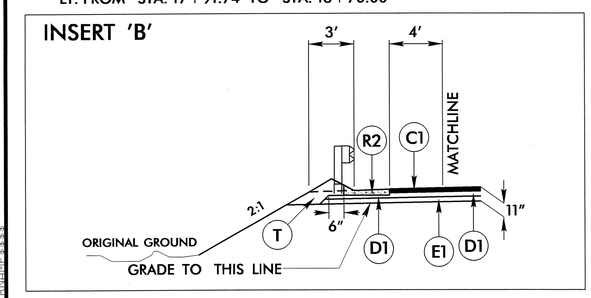

USE INSERT 'A' IN CONJUNCTION WITH TYPICAL SECTION NO. 2
LT. FROM STA. 15+50.44 TO STA. 16+09.52
LT. FROM STA. 17+91.74 TO STA. 18+70.00



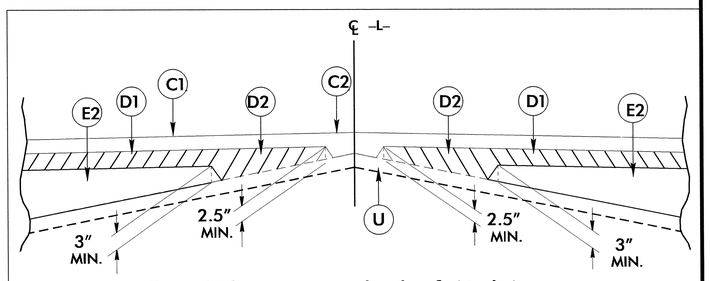

**ADDITIONAL 1.5' ADDED FOR DRAINAGE PURPOSES

## TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
FROM STA. 16+27.00 TO STA. 17+87.00




USE INSERT 'B' IN CONJUNCTION WITH TYPICAL SECTION NO. 2
RT. FROM STA. 18+03.08 TO STA. 18+25.00



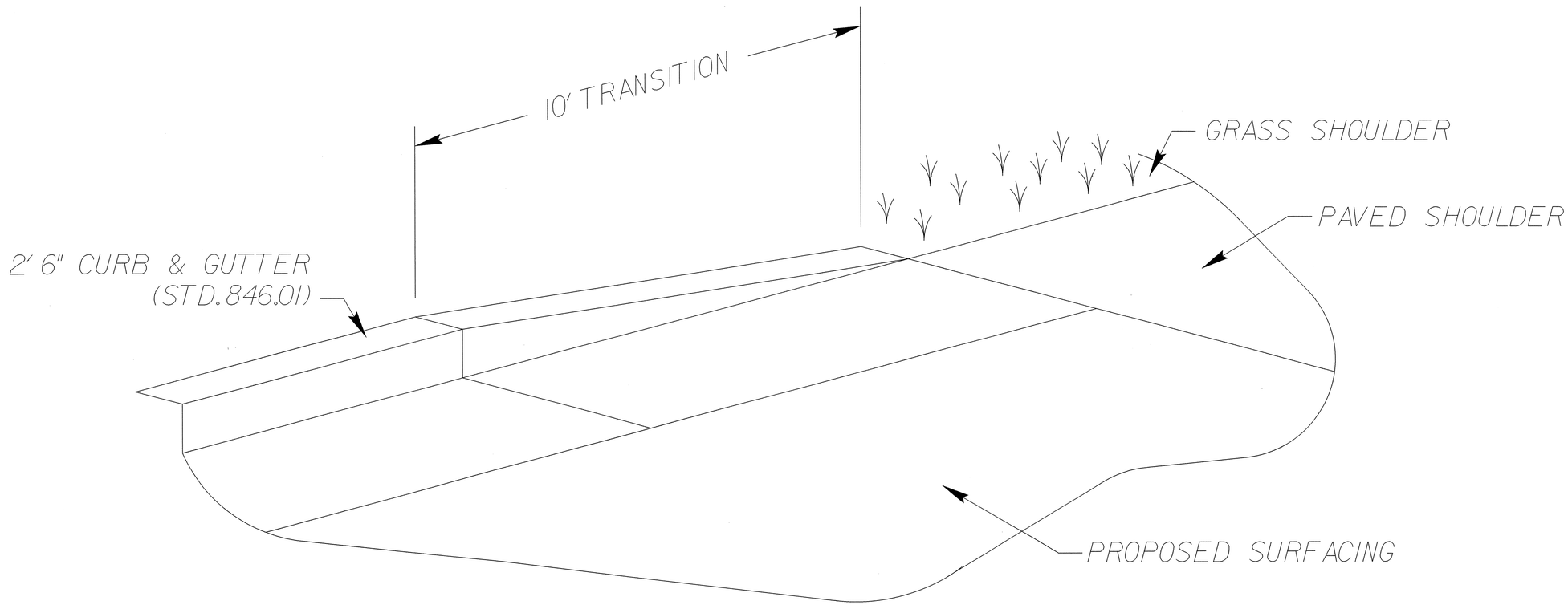

Detail Showing Method of Wedging

5/14/99

22-AUG-2013 15:24
R:\Roadway\Proj\b4973_rdy_typ.dgn
$$$$USERNAME$$$$

| PROJECT REFERENCE NO. | SHEET NO. |
| --- | --- |
| B-4973 | 2-A |
| R/W SHEET NO. | |

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BIRD
8-23-13

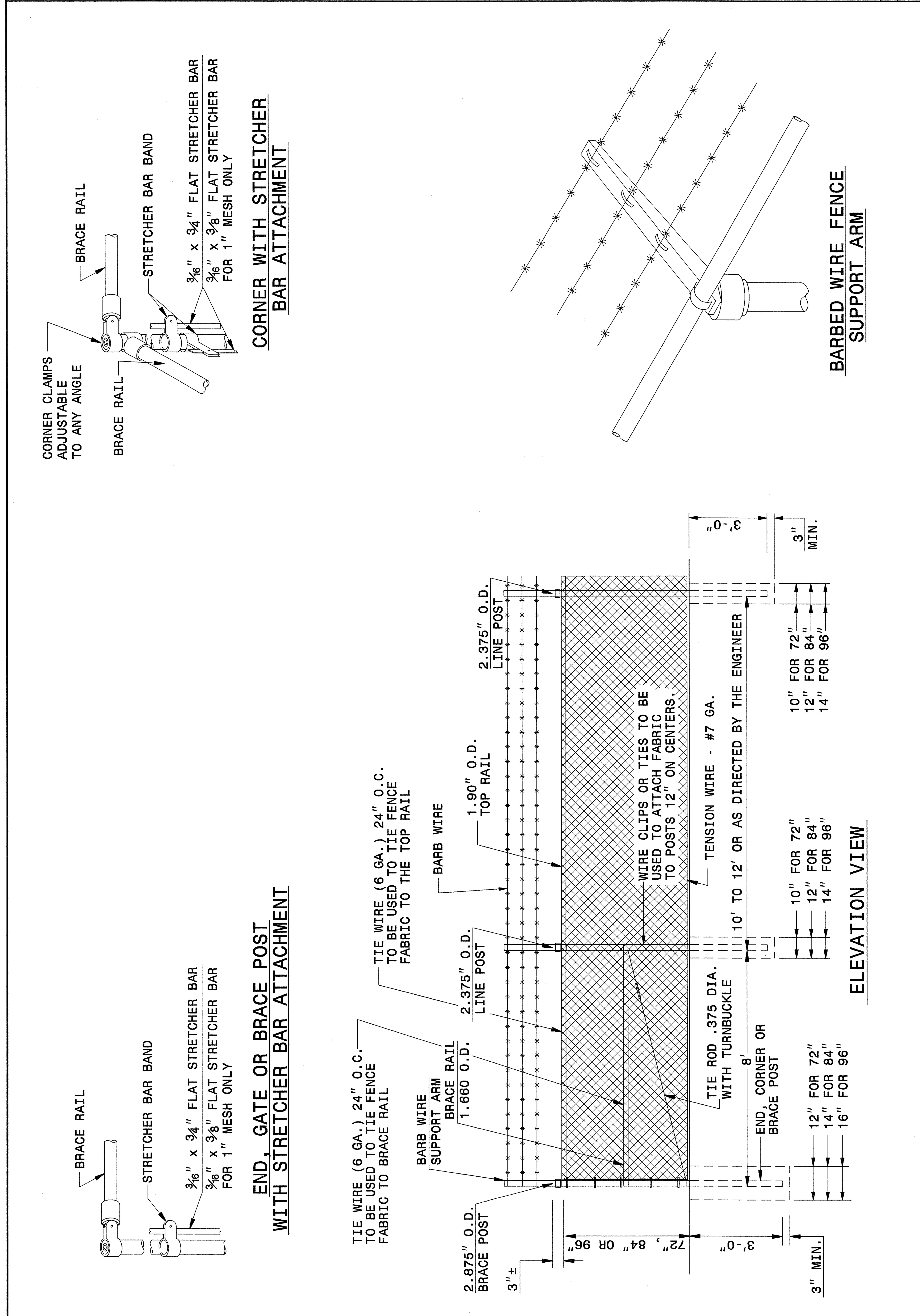



DETAIL FOR TRANSITION OF 2' 6" CONC. CURB & GUTTER AT ENDS

5/14/99

07-AUG-2013 09:58
R:\Roadway\Proj\trans_curb_detail.dgn
$$$$USERNAME$$$$

ENGLISH DETAIL DRAWING FOR
CHAIN LINK FENCE WITH BARBED WIRE
6', 7' AND 8' HEIGHT
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 1 OF 2 fence4cl

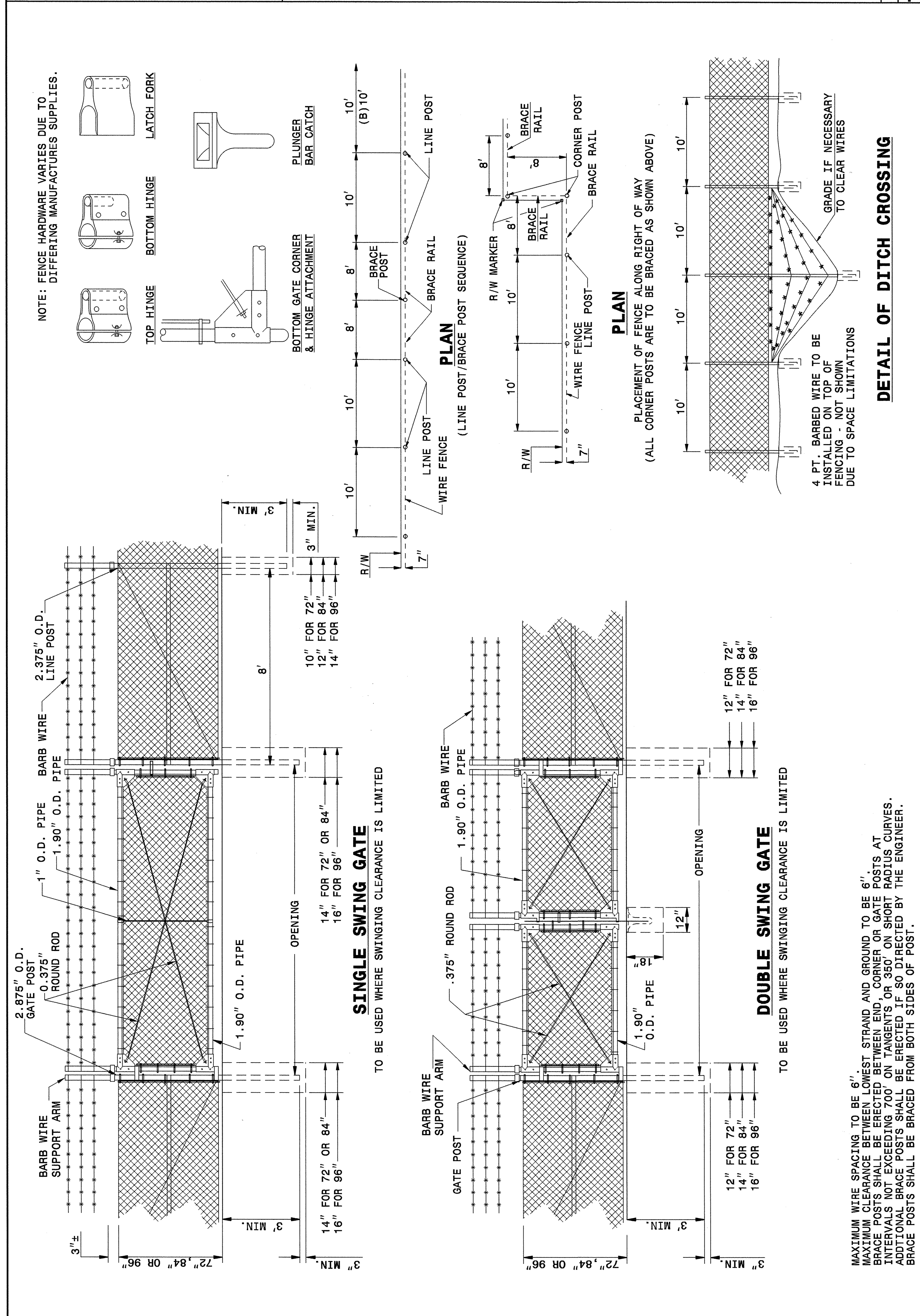



ENGLISH DETAIL DRAWING FOR
**CHAIN LINK FENCE WITH BARBED WIRE**
6', 7' AND 8' HEIGHT

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

SHEET 1 OF 2 **fence4cl**

ENGLISH DETAIL DRAWING FOR
CHAIN LINK FENCE WITH BARBED WIRE
6', 7' AND 8' HEIGHT
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
SHEET 2 OF 2 fence4cl




MAXIMUM WIRE SPACING TO BE 6".
MAXIMUM CLEARANCE BETWEEN LOWEST STRAND AND GROUND TO BE 6".
BRACE POSTS SHALL BE ERECTED BETWEEN END, CORNER OR GATE POSTS AT INTERVALS NOT EXCEEDING 700' ON TANGENTS OR 350' ON SHORT RADIUS CURVES.
ADDTIONAL BRACE POSTS SHALL BE ERECTED IF SO DIRECTED BY THE ENGINEER.
BRACE POSTS SHALL BE BRACED FROM BOTH SIDES OF POST.

ENGLISH DETAIL DRAWING FOR
**CHAIN LINK FENCE WITH BARBED WIRE**
6', 7' AND 8' HEIGHT

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

SHEET 2 OF 2 **fence4cl**

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOEL S. HOWERTON 8/28/13

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

**SEE PLATE FOR TITLE**

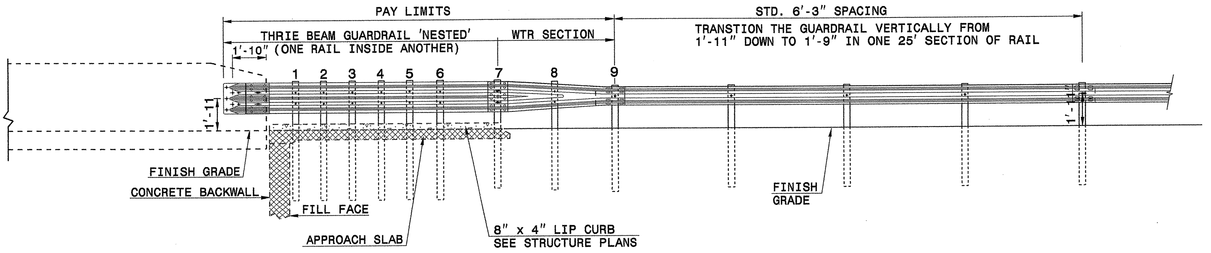
ORIGINAL BY: N.T. KEGLERS DATE: MAR.11, 1996
MODIFIED BY: DATE:
CHECKED BY: DATE: 8/8/13
FILE SPEC.:

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

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

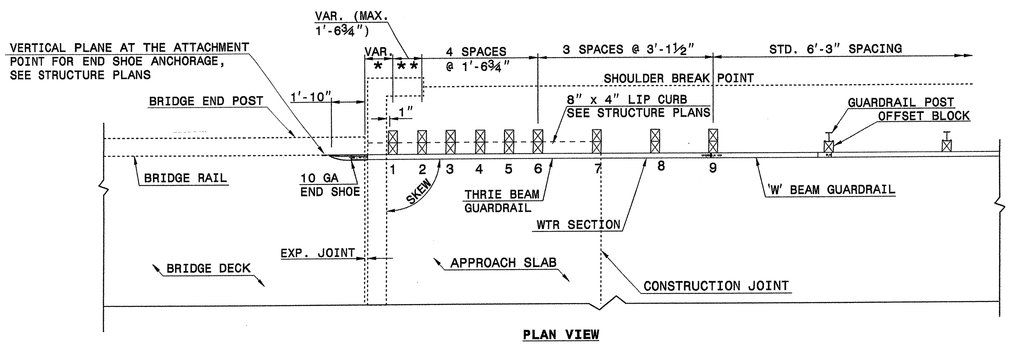
ENGLISH DETAIL DRAWING FOR
**STRUCTURE ANCHOR UNITS**
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
**862d03**




**ELEVATION**

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.




**PLAN VIEW**

## GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

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

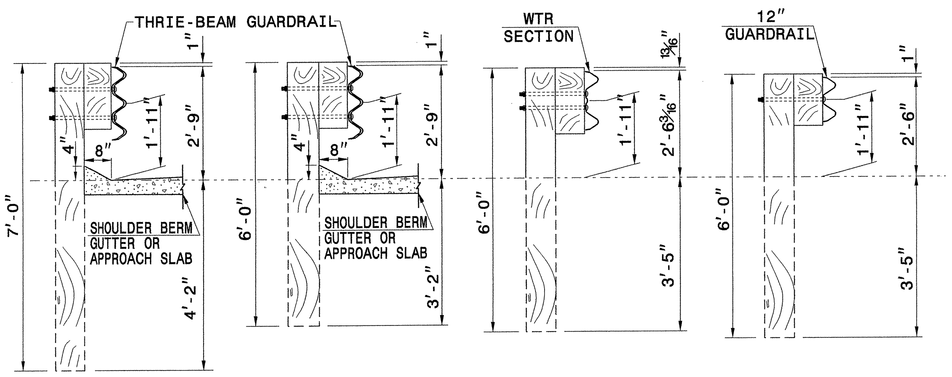
ENGLISH DETAIL DRAWING FOR
**STRUCTURE ANCHOR UNITS**
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
**862d03**

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

ENGLISH DETAIL DRAWING FOR
**STRUCTURE ANCHOR UNITS**
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7
**862d03**

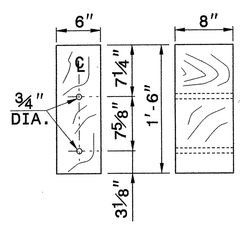



**SECTION OF THRIE BEAM POSTS 1 THRU 6**

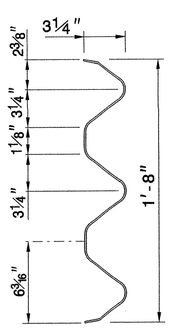
**SECTION OF THRIE BEAM POST 7**

**SECTION OF WTR BEAM POST 8**

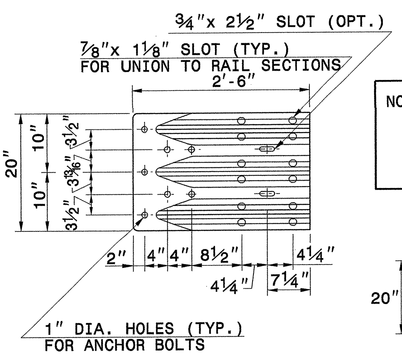
**SECTION OF 'W' BEAM POST 9**




**THRIE BEAM OFFSET BLOCK**

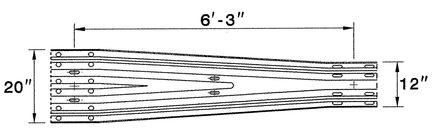



**THRIE-BEAM SECTION**

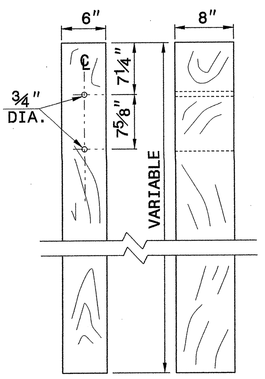



**END SHOE**

NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.




**WTR SECTION**
ELEVATION VIEW




**THRIE BEAM LINE POST**

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

ENGLISH DETAIL DRAWING FOR
**STRUCTURE ANCHOR UNITS**
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7
**862d03**

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

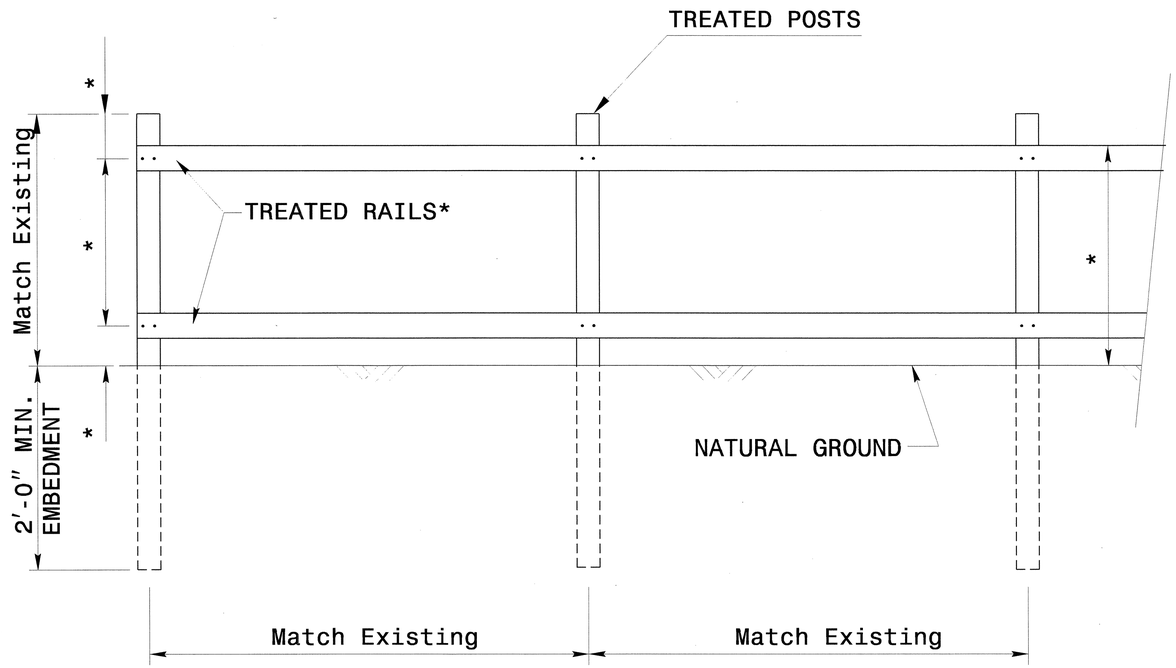
**SEE TITLE BLOCK**

ORIGINAL BY: J. HOMERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE: 11/13/12
FILE SPEC.:

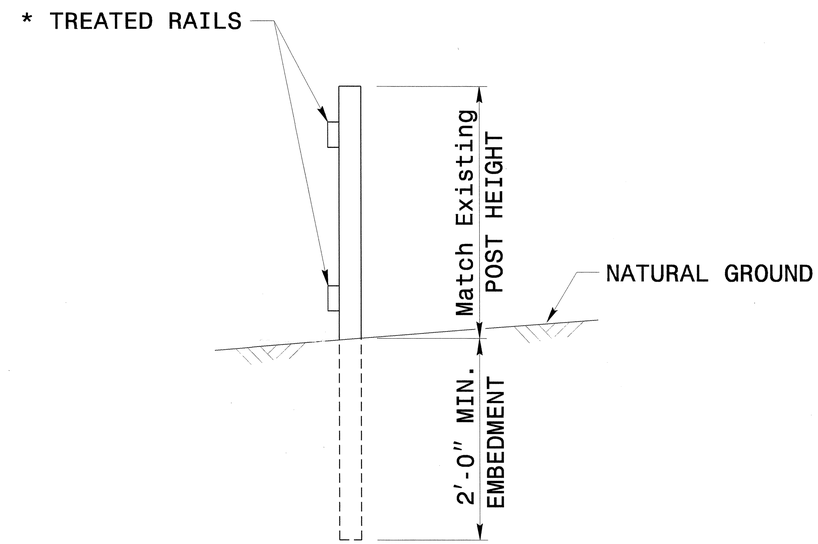
NORTH CAROLINA PROFESSIONAL SEAL 022506 ENGINEER JOHN S. HOMERTON
11/13/12

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 2-C |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 2-D |




## ELEVATION VIEW




## SECTION VIEW

GENERAL NOTES:
- PROVIDE TREATED LUMBER IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATION SECTION 1082.
- PROVIDE GALVANIZED HARDWARE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATION SECTION 1076.
- FASTEN HORIZONTAL PLANKS WITH 16d GALVANIZED NAILS.

*USE POST AND PLANK MATERIALS THAT MATCH THE EXISTING FENCE.

*USE SPACING AND DIMENSIONS OF THE EXISTING FENCE FOR THE PROPOSED FENCE.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL C. HOCHSTETLER 8/28/13


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


# WOODEN FENCE

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 09-30-04
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/misc/woodfence.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203261

# SUMMARY OF QUANTITIES - B-4973

| ItemNumber | Sec # | Quantity | Unit | Description |
|---|---|---|---|---|
| 0000100000-N | 800 | Lump Sum | | MOBILIZATION |
| 0000400000-N | 801 | Lump Sum | | CONSTRUCTION SURVEYING |
| 0029000000-N | SP | Lump Sum | | REINFORCED BRIDGE APPROACH FILL, STATION ********** (17+07.00) |
| 0043000000-N | 226 | Lump Sum | | GRADING |
| 0050000000-E | 226 | 1 | ACR | SUPPLEMENTARY CLEARING & GRUBBING |
| 0057000000-E | 226 | 150 | CY | UNDERCUT EXCAVATION |
| 0134000000-E | 240 | 90 | CY | DRAINAGE DITCH EXCAVATION |
| 0196000000-E | 270 | 350 | SY | GEOTEXTILE FOR SOIL STABILIZATION |
| 0318000000-E | 300 | 225 | TON | FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES |
| 0320000000-E | 300 | 100 | SY | FOUNDATION CONDITIONING GEOTEXTILE |
| 0335200000-E | 305 | 24 | LF | 15" DRAINAGE PIPE |
| 0335400000-E | 305 | 40 | LF | 24" DRAINAGE PIPE |
| 0335500000-E | 305 | 112 | LF | 30" DRAINAGE PIPE |
| 0448200000-E | 310 | 76 | LF | 15" RC PIPE CULVERTS, CLASS IV |
| 0582000000-E | 310 | 44 | LF | 15" CS PIPE CULVERTS, 0.064" THICK |
| 0636000000-E | 310 | 2 | EA | **" CS PIPE ELBOWS, *****" THICK (15", 0.064") |
| 0995000000-E | 340 | 8 | LF | PIPE REMOVAL |
| 1099500000-E | 505 | 100 | CY | SHALLOW UNDERCUT |
| 1099700000-E | 505 | 200 | TON | CLASS IV SUBGRADE STABILIZATION |
| 1220000000-E | 545 | 200 | TON | INCIDENTAL STONE BASE |
| 1330000000-E | 607 | 140 | SY | INCIDENTAL MILLING |
| 1489000000-E | 610 | 440 | TON | ASPHALT CONC BASE COURSE, TYPE B25.0B |
| 1498000000-E | 610 | 770 | TON | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B |
| 1519000000-E | 610 | 610 | TON | ASPHALT CONC SURFACE COURSE, TYPE S9.5B |
| 1575000000-E | 620 | 93 | TON | ASPHALT BINDER FOR PLANT MIX |
| 1693000000-E | 654 | 50 | TON | ASPHALT PLANT MIX, PAVEMENT REPAIR |
| 2286000000-N | 840 | 8 | EA | MASONRY DRAINAGE STRUCTURES |
| 2308000000-E | 840 | 3 | LF | MASONRY DRAINAGE STRUCTURES |
| 2364000000-N | 840 | 1 | EA | FRAME WITH TWO GRATES, STD 840.16 |
| 2367000000-N | 840 | 2 | EA | FRAME WITH TWO GRATES, STD 840.29 |
| 2374000000-N | 840 | 3 | EA | FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G) |
| 2396000000-N | 840 | 2 | EA | FRAME WITH COVER, STD 840.54 |
| 2549000000-E | 846 | 130 | LF | 2'-6" CONCRETE CURB & GUTTER |
| 2556000000-E | 846 | 25 | LF | SHOULDER BERM GUTTER |
| 2591000000-E | 848 | 80 | SY | 4" CONCRETE SIDEWALK |
| 2830000000-N | 858 | 1 | EA | ADJUSTMENT OF MANHOLES |
| 3030000000-E | 862 | 175 | LF | STEEL BM GUARDRAIL |
| 3150000000-N | 862 | 5 | EA | ADDITIONAL GUARDRAIL POSTS |
| 3215000000-N | 862 | 4 | EA | GUARDRAIL ANCHOR UNITS, TYPE III |
| 3270000000-N | SP | 4 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 |
| 3533000000-E | 866 | 200 | LF | CHAIN LINK FENCE, **" FABRIC (96") |
| 3539000000-E | 866 | 15 | EA | METAL LINE POSTS FOR **" CHAIN LINK FENCE (96") |
| 3545000000-E | 866 | 4 | EA | METAL TERMINAL POSTS FOR **" CHAIN LINK FENCE (96") |
| 3575000000-E | SP | 175 | LF | GENERIC FENCING ITEM TEMPORARY 4 STRAND BARBED WIRE FENCE WITH POSTS |
| 3575000000-E | SP | 250 | LF | GENERIC FENCING ITEM TEMPORARY 48" WOODEN FENCE WITH POSTS |
| 3575000000-E | SP | 175 | LF | GENERIC FENCING ITEM TEMPORARY 72" CHAIN LINK FENCE WITH POSTS |
| 3628000000-E | 876 | 65 | TON | RIP RAP, CLASS I |
| 3649000000-E | 876 | 9 | TON | RIP RAP, CLASS B |
| 3656000000-E | 876 | 1,516 | SY | GEOTEXTILE FOR DRAINAGE |
| 4155000000-N | 907 | 4 | EA | DISPOSAL OF SIGN SYSTEM, U-CHANNEL |
| 4158000000-N | 907 | 8 | EA | DISPOSAL OF SIGN SYSTEM, WOOD |
| 4400000000-E | 1110 | 333 | SF | WORK ZONE SIGNS (STATIONARY) |
| 4410000000-E | 1110 | 94 | SF | WORK ZONE SIGNS (BARRICADE MOUNTED) |
| 4430000000-N | 1130 | 10 | EA | DRUMS |
| 4445000000-E | 1145 | 64 | LF | BARRICADES (TYPE III) |
| 4685000000-E | 1205 | 1,600 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) |
| 4686000000-E | 1205 | 1,600 | LF | THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS) |
| 4770000000-E | 1205 | 480 | LF | COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II) |
| 4900000000-N | 1251 | 24 | EA | PERMANENT RAISED PAVEMENT MARKERS |
| 5325800000-E | 1510 | 414 | LF | 8" WATER LINE |
| 5546000000-E | 1515 | 2 | EA | 8" VALVE |
| 5648000000-N | 1515 | 3 | EA | RELOCATE WATER METER |
| 5649000000-N | 1515 | 1 | EA | RECONNECT WATER METER |
| 5666000000-E | 1515 | 1 | EA | FIRE HYDRANT |
| 5678600000-E | 1515 | 1 | EA | 8" LINE STOP |
| 5691000000-E | 1520 | 42 | LF | **" SANITARY GRAVITY SEWER (42") |
| 5691500000-E | 1520 | 436 | LF | 12" SANITARY GRAVITY SEWER |
| 5775000000-E | 1525 | 1 | EA | 4' DIA UTILITY MANHOLE |
| 5778000000-E | 1525 | 1 | EA | 8' DIA UTILITY MANHOLE |
| 5781000000-E | 1525 | 6.5 | LF | UTILITY MANHOLE WALL, 4' DIA |
| 5784000000-E | 1525 | 4.9 | LF | UTILITY MANHOLE WALL, 8' DIA |
| 5801000000-E | 1530 | 396 | LF | ABANDON 8" UTILITY PIPE |
| 5804000000-E | 1530 | 171 | LF | ABANDON 12" UTILITY PIPE |
| 5828000000-N | 1530 | 1 | EA | REMOVE UTILITY MANHOLE |
| 5835800000-E | 1540 | 134 | LF | 18" ENCASEMENT PIPE |
| 5872000000-E | 1550 | 67 | LF | TRENCHLESS INSTALLATION OF 18" IN SOIL |
| 5872010000-E | 1550 | 67 | LF | TRENCHLESS INSTALLATION OF 18" NOT IN SOIL |
| 5882000000-N | SP | 1 | EA | GENERIC UTILITY ITEM REMOVE & STOCKPILE EXISTING FIRE HYDRANT |
| 6000000000-E | 1605 | 1,355 | LF | TEMPORARY SILT FENCE |
| 6006000000-E | 1610 | 210 | TON | STONE FOR EROSION CONTROL, CLASS A |
| 6009000000-E | 1610 | 95 | TON | STONE FOR EROSION CONTROL, CLASS B |
| 6012000000-E | 1610 | 325 | TON | SEDIMENT CONTROL STONE |
| 6015000000-E | 1615 | 1 | ACR | TEMPORARY MULCHING |
| 6018000000-E | 1620 | 50 | LB | SEED FOR TEMPORARY SEEDING |
| 6021000000-E | 1620 | 1.25 | TON | FERTILIZER FOR TEMPORARY SEEDING |
| 6024000000-E | 1622 | 200 | LF | TEMPORARY SLOPE DRAINS |
| 6029000000-E | SP | 1,300 | LF | SAFETY FENCE |
| 6030000000-E | 1630 | 390 | CY | SILT EXCAVATION |
| 6036000000-E | 1631 | 2,000 | SY | MATTING FOR EROSION CONTROL |
| 6037000000-E | SP | 350 | SY | COIR FIBER MAT |
| 6042000000-E | 1632 | 300 | LF | 1/4" HARDWARE CLOTH |
| 6070000000-N | 1639 | 8 | EA | SPECIAL STILLING BASINS |
| 6071010000-E | SP | 180 | LF | WATTLE |
| 6071020000-E | SP | 55 | LB | POLYACRYLAMIDE (PAM) |
| 6071030000-E | 1640 | 140 | LF | COIR FIBER BAFFLE |
| 6071050000-E | SP | 3 | EA | **" SKIMMER (1-1/2") |
| 6084000000-E | 1660 | 1 | ACR | SEEDING & MULCHING |
| 6087000000-E | 1660 | 0.5 | ACR | MOWING |
| 6090000000-E | 1661 | 50 | LB | SEED FOR REPAIR SEEDING |
| 6093000000-E | 1661 | 0.25 | TON | FERTILIZER FOR REPAIR SEEDING |
| 6096000000-E | 1662 | 50 | LB | SEED FOR SUPPLEMENTAL SEEDING |
| 6108000000-E | 1665 | 0.75 | TON | FERTILIZER TOPDRESSING |
| 6114500000-N | 1667 | 10 | MHR | SPECIALIZED HAND MOWING |
| 6117000000-N | SP | 25 | EA | RESPONSE FOR EROSION CONTROL |

| COMPUTED BY: | WAS | DATE: | 8/5/2013 |
|---|---|---|---|
| CHECKED BY: | WTB | DATE: | 8/27/2013 |

| PROJECT NO. | SHEET NO. |
|---|---|
| B-4973 | 3-A |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
## DIVISION OF HIGHWAYS

RD266429

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".**

## *LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)*

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL |
|---|---|---|---|---|---|---|---|
| 12+09.98 -L- | Lt. | 401 | | 580.10 | 576.80 | | |
| 12+50.00 -L- | Lt. | 401 | 402 | | 576.80 | 576.70 | |
| 15+05.32 -L- | Lt. | 417 | | | | | |
| 15+90.00 -L- | Lt. | 403 | | 582.80 | 579.60 | | |
| 15+90.00 -L- | Lt. | 403 | 404 | | 579.60 | 576.00 | |
| 18+20.00 -L- | Lt. | 405 | | 852.00 | 577.50 | | |
| 18+20.00 -L- | Rt. | 406 | | 582.70 | 577.30 | | |
| | | 405 | 406 | | 577.50 | 577.30 | |
| 18+20.00 -L- | Rt. | 406 | 407 | | 577.30 | 571.00 | |
| 18+65.00 -L- | Lt. | 408 | | 581.70 | 578.40 | | |
| | | 408 | 405 | | 578.40 | 577.50 | |
| 18+83.51 -L- | Rt. | 410 | | 578.60 | 571.80 | | |
| 18+23.28 -L- | Rt. | 410 | 411 | | 571.80 | 571.10 | |
| 20+57.50 -L- | Rt. | 409 | | 577.90 | 572.80 | | |
| 2057.50 -L- | Rt. | 418 | | 577.10 | 574.80 | | |
| | | 418 | 409 | | 574.80 | 572.80 | |
| **SHEET TOTALS** | | | | | | | |
| **PROJECT TOTALS** | | | | | | | |
| **SAY** | | | | | | | |

DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) and C.S. PIPE

| STATION | FROM | TO | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | C.S. 12" | C.S. 15" | C.S. 18" | C.S. 24" | C.S. 30" | C.S. 36" | C.S. 42" | C.S. 48" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| THICKNESS OR GAUGE | | | | | | | | | | | | | | | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 |
| 12+09.98 -L- | 401 | | | | | | | | | | | | | | | | | | | | | |
| 12+50.00 -L- | 401 | 402 | | | | 40' | | | | | | | | | | | | | | | | |
| 15+05.32 -L- | 417 | | | | | | 44' | | | | | | | | | | | | | | | |
| 15+90.00 -L- | 403 | | | | | | | | | | | | | | | | | | | | | |
| 15+90.00 -L- | 403 | 404 | | 20' | | | | | | | X | | | | | | | | | | | |
| 18+20.00 -L- | 405 | | | | | | | | | | | | | | | | | | | | | |
| 18+20.00 -L- | 406 | | | | | | | | | | | | | | | | | | | | | |
| | 405 | 406 | | | | | | | | | | | | | | | | | | | | |
| 18+20.00 -L- | 406 | 407 | | | | | | | | | | | | | | 44' | | | | | | |
| 18+65.00 -L- | 408 | | | | | | | | | | | | | | | | | | | | | |
| | 408 | 405 | | | | | | | | | | | | | | | | | | | | |
| 18+83.51 -L- | 410 | | | | | | | | | | | | | | | | | | | | | |
| 18+23.28 -L- | 410 | 411 | | | | | 68' | | | | | | | | | | | | | | | |
| 20+57.50 -L- | 409 | | | | | | | | | | | | | | | | | | | | | |
| 2057.50 -L- | 418 | | | | | | | | | | | | | | | | | | | | | |
| | 418 | 409 | | 4' | | | | | | | X | | | | | | | | | | | |
| **SHEET TOTALS** | | | | 24' | | 40' | 112' | | | | | | | | | 44' | | | | | | |
| **PROJECT TOTALS** | | | | 24' | | 40' | 112' | | | | | | | | | 44' | | | | | | |
| **SAY** | | | | | | | | | | | | | | | | | | | | | | |

R.C. PIPE CLASS III, R.C. PIPE CLASS IV, and other pipe / ENDWALLS (STD. 838.01, 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE), CU. YARDS)

| STATION | FROM | TO | III 12" | III 15" | III 18" | III 24" | III 30" | III 36" | III 42" | III 48" | IV 12" | IV 15" | IV 18" | IV 24" | IV 30" | IV 36" | IV 42" | IV 48" | ** " R.C. PIPE (CLASS V) | ***" RC PIPE CULVERTS, CONTRACTOR DESIGN | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS R.C.P. | ENDWALLS C.S.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12+09.98 -L- | 401 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12+50.00 -L- | 401 | 402 | | | | | | | | | | | | | | | | | | | | | | | |
| 15+05.32 -L- | 417 | | | | | | | | | | | | | | | | | | | | | | | | |
| 15+90.00 -L- | 403 | | | | | | | | | | | | | | | | | | | | | | | | |
| 15+90.00 -L- | 403 | 404 | | | | | | | | | | | | | | | | | | | | | | | |
| 18+20.00 -L- | 405 | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+20.00 -L- | 406 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 405 | 406 | | | | | | | | | | 32' | | | | | | | | | | | | | |
| 18+20.00 -L- | 406 | 407 | | | | | | | | | | | | | | | | | | | | | | | |
| 18+65.00 -L- | 408 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 408 | 405 | | | | | | | | | | 44' | | | | | | | | | | | | | |
| 18+83.51 -L- | 410 | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+23.28 -L- | 410 | 411 | | | | | | | | | | | | | | | | | | | | | | | |
| 20+57.50 -L- | 409 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2057.50 -L- | 418 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 418 | 409 | | | | | | | | | | | | | | | | | | | | | | | |
| **SHEET TOTALS** | | | | | | | | | | | | 76' | | | | | | | | | | | | | |
| **PROJECT TOTALS** | | | | | | | | | | | | 76' | | | | | | | | | | | | | |
| **SAY** | | | | | | | | | | | | | | | | | | | | | | | | | |

QUANTITIES FOR DRAINAGE STRUCTURES (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')); FRAME, GRATES, AND HOOD STANDARD 840.03 (TYPE OF GRATE); CONCRETE TRANSITIONAL SECTION (EACH)

| STATION | FROM | TO | PER EACH (0' THRU 5.0') | LIN. FT. A: 5.0' THRU 10.0' | LIN. FT. B: 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | E | F | G | DROP INLET | CATCH BASIN | OPEN THROAT CATCH BASIN STD. 840.04 OR 840.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME WITH TWO GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH TWO GRATES STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | J.B. STD. 840.31 OR 840.32 | M.H. FRAME AND COVER STD. 840.54 | T.B.D.I. STD. 840.35 | ADJUST EXIST. DI | G.D.I. FRAME WITH TWO GRATES STD. 840.29 | | DRAINAGE PIPE ELBOWS NO. & SIZE | SPECIAL 2-G.I. ( DETAIL SHEET 2-?) | CS PIPE ELBOWS NO. & SIZE | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. 'B' C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12+09.98 -L- | 401 | | 1 | | | | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | |
| 12+50.00 -L- | 401 | 402 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8' | Outlet Pipe, Cl. B Rip Rap Req'd, Rem. 24" RCP |
| 15+05.32 -L- | 417 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15+90.00 -L- | 403 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 15+90.00 -L- | 403 | 404 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Outlet Pipe, Cl. B Rip Rap Req'd |
| 18+20.00 -L- | 405 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 18+20.00 -L- | 406 | | 1 | 0.4 | | | | | | | | | | | | | | | | | | 1 | | 1 | | | | | | | | |
| | 405 | 406 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+20.00 -L- | 406 | 407 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 @ 15" | | | | Outlet Pipe, Cl. I Rip Rap Req'd |
| 18+65.00 -L- | 408 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| | 408 | 405 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+83.51 -L- | 410 | | 1 | 1.8 | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | |
| 18+23.28 -L- | 410 | 411 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Outlet Pipe, Cl. I Rip Rap Req'd |
| 20+57.50 -L- | 409 | | 1 | 0.1 | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | |
| 2057.50 -L- | 418 | | 1 | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | |
| | 418 | 409 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SHEET TOTALS** | | | 8 | 2.3 | | 3 | | | 3 | | | | 1 | 1 | | | 1 | | | 2 | 2 | 1 | | 2 | | | | 2 @ 15" | | | 8' | |
| **PROJECT TOTALS** | | | 8 | 2.3 | | 3 | | | 3 | | | | 1 | 1 | | | 1 | | | 2 | 2 | 1 | | 2 | | | | 2 @ 15" | | | 8' | |
| **SAY** | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ABBREVIATIONS**

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

| COMPUTED BY: | WAS | DATE: | 8/8/2013 |
|---|---|---|---|
| CHECKED BY: | WTB | DATE: | 8/8/2013 |

# DIVISION OF HIGHWAYS
# STATE OF NORTH CAROLINA

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 3-B |

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

## *GUARDRAIL SUMMARY*

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

| SURVEY LINE | BEG. STA. | END STA. | LOCATION | LENGTH | | | WARRANT POINT | | "N" DIST. FROM E.O.L. | TOTAL SHOUL WIDTH | FLARE LENGTH | | W | | ANCHORS | | | | | | | | IMPACT ATTENUATOR TYPE 350 | | SINGLE FACED CONCRETE BARRIER | REMOVE EXISTING GUARDRAIL | REMOVE & STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | STRAIGHT | SHOP CURVED | DOUBLE FACED | APPROACH END | TRAILING END | | | APPROACH END | TRAILING END | APPROACH END | TRAILING END | XI MOD | XI | GRAU 350* | M-350 | TYPE III | CAT-1 | VI MOD | BIC | G | NG | | | | |
| -L- | 15+37.38 | 16+18.63 | Lt. | 81.25 | | | | 16+18.63 | 11 | 14 | | N/A | | N/A | | | 1 | | 1 | | | | | | | | | |
| -L- | 15+51.57 | 16+32.82 | Rt. | 81.25 | | | 16+32.82 | | 4 | 7 | 37.5 | | 0.75 | | | | 1 | | 1 | | | | | | | | | |
| -L- | 17+78.63 | 19+59.88 | Lt. | 181.25 | | | 17+78.63 | | 11 | 14 | N/A | | N/A | | | | 1 | | 1 | | | | | | | | | |
| -L- | 17+92.82 | 18+86.57 | Rt. | 93.75 | | | | 17+92.82 | 4 | 7 | | 37.5 | | 0.75 | | | 1 | | 1 | | | | | | | | | |
| | | | Sub-Totals | 437.5 | | | | | | | | | | | | | 4 | | 4 | | | | | | | | | |
| | Deduction for Guard Anchor Units | | | -275 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | Deductions for Guardrail Anchor Units | | | | | | | | | |
| | | | Total | 162.5 | | | | | | | | | | | | | | | 4 - Type 350 (TL-3) @ 50' = | | | 200 | | | | | | |
| | 5 ADDITIONAL GUARDRAIL POST | | | | | | | | | | | | | | | | | | 4- Type III @ 18.75' = | | | 75 | | | | | | |
| | | | Say | 175 | | | | | | | | | | | | | | | | | | 275 | | | | | | |

## *PAVEMENT REMOVAL SUMMARY*
in Square Yards

| SURVEY LINE | BEG. STA. | END STA. | LOCATION | ASPHALT REMOVAL | ASPHALT BREAKUP | CONCRETE REMOVAL | CONCRETE BREAKUP |
|---|---|---|---|---|---|---|---|
| -L- | 14+25.00 | 16+42.00 | Centerline | 458.75 | | | |
| -L- | 17+75.00 | 19+65.00 | Centerline | 415.53 | | | |
| | | | | | | | |
| | | | Total | 875.28 | | | |
| | | | Say | 880 | | | |

**Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."**

## *96" CHAIN LINK FENCE SUMMARY*
with 3 Strand Barbed Wire

| SURVEY LINE | STATION | STATION | FABRIC (Lin. Ft.) | 4" POST (Ea.) | 5" POST (Ea.) |
|---|---|---|---|---|---|
| -L- | 14+78.00 | 16+31.00 | 187.04 | 15 | 4 |
| | | | | | |
| | | Total | 187.04 | 15 | 4 |
| | | Say | 200 | 15 | 4 |
| | | | | | |

| COMPUTED BY: WTB | DATE: 8/8/2013 |
|---|---|
| CHECKED BY: WAS | DATE: 8/8/2013 |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

## SUMMARY OF EARTHWORK

| CHAIN | BEGINNING STATION | ENDING STATION | UNCL. EXCA. C.Y. | UNDERCUT C.Y. | EMBANK. +% C.Y. | BORROW C.Y. | WASTE C.Y. |
|---|---|---|---|---|---|---|---|
| SUMMARY 1 | | | | | | | |
| -L- | 12+00.00 | 16+00.00 | 127 | | 875 | 748 | 0 |
| -L- | 18+00.00 | 21+50.00 | 92 | | 859 | 767 | 0 |
| SUBTOTAL | | | 219 | 0 | 1,734 | 1,515 | 0 |
| | | | | | | | |
| SHEET TOTALS | | | 219 | 0 | 1,734 | 1,515 | 0 |
| MATERIAL FOR SHOULDER CONSTRUCTION | | | | | 240 | 240 | |
| PROJECT TOTAL | | | 219 | 0 | 1,974 | 1,755 | 0 |
| EST. 5% TO REPLACE TO | | | | | | 88 | |
| GRAND TOTAL | | | 219 | | | 1,843 | |
| SAY | | | 250 | | | 1,900 | |

DRAINAGE DITCH EXCAVATION = 90 C.Y.
ESTIMATED UNDERCUT = 150 C.Y.
ESTIMATED SHALLOW UNDERCUT = 100 C.Y.

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

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 4 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 16903 ENGINEER GREGORY E. BREW — 9-23-13

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 19721 ENGINEER WILLIAM H. ELDER — 9-23-13

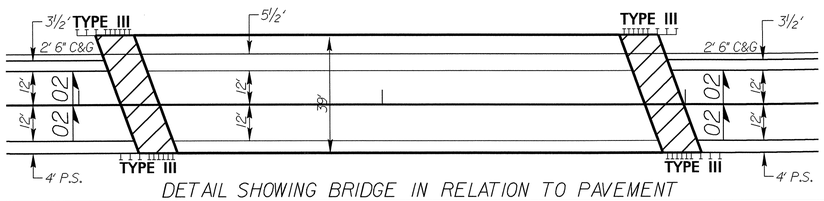
SEE SHEET 5 FOR -L- PROFILE

NAD 83/NSRS 2007

-L-

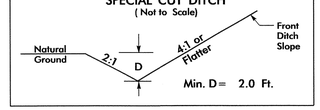
| PI Sta 11+00.04 | PI Sta 15+04.94 | PI Sta 18+48.93 | PI Sta 21+20.06 |
|---|---|---|---|
| Δ = 3° 59' 58.9" (LT) | Δ = 8° 46' 15.8" (LT) | Δ = 2° 44' 53.1" (LT) | Δ = 2° 44' 53.1" (RT) |
| D = 1° 59' 59.5" | D = 5° 43' 46.5" | D = 3° 34' 51.6" | D = 3° 34' 51.6" |
| L = 200.00' | L = 153.08' | L = 76.74' | L = 76.74' |
| T = 100.04' | T = 76.69' | T = 38.38' | T = 38.38' |
| R = 2,865.00' | R = 1,000.00' | R = 1,600.00' | R = 1,600.00' |

(NOT TO SCALE)



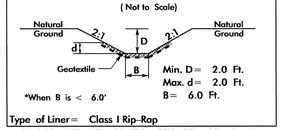

DETAIL SHOWING BRIDGE IN RELATION TO PAVEMENT

## DETAIL 'A'
SPECIAL CUT DITCH
( Not to Scale)




FROM STA. 12+50 TO STA. 14+00 -L- LT

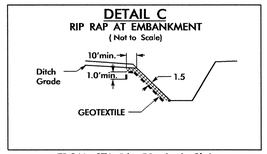
## DETAIL B
STANDARD BASE DITCH
( Not to Scale)



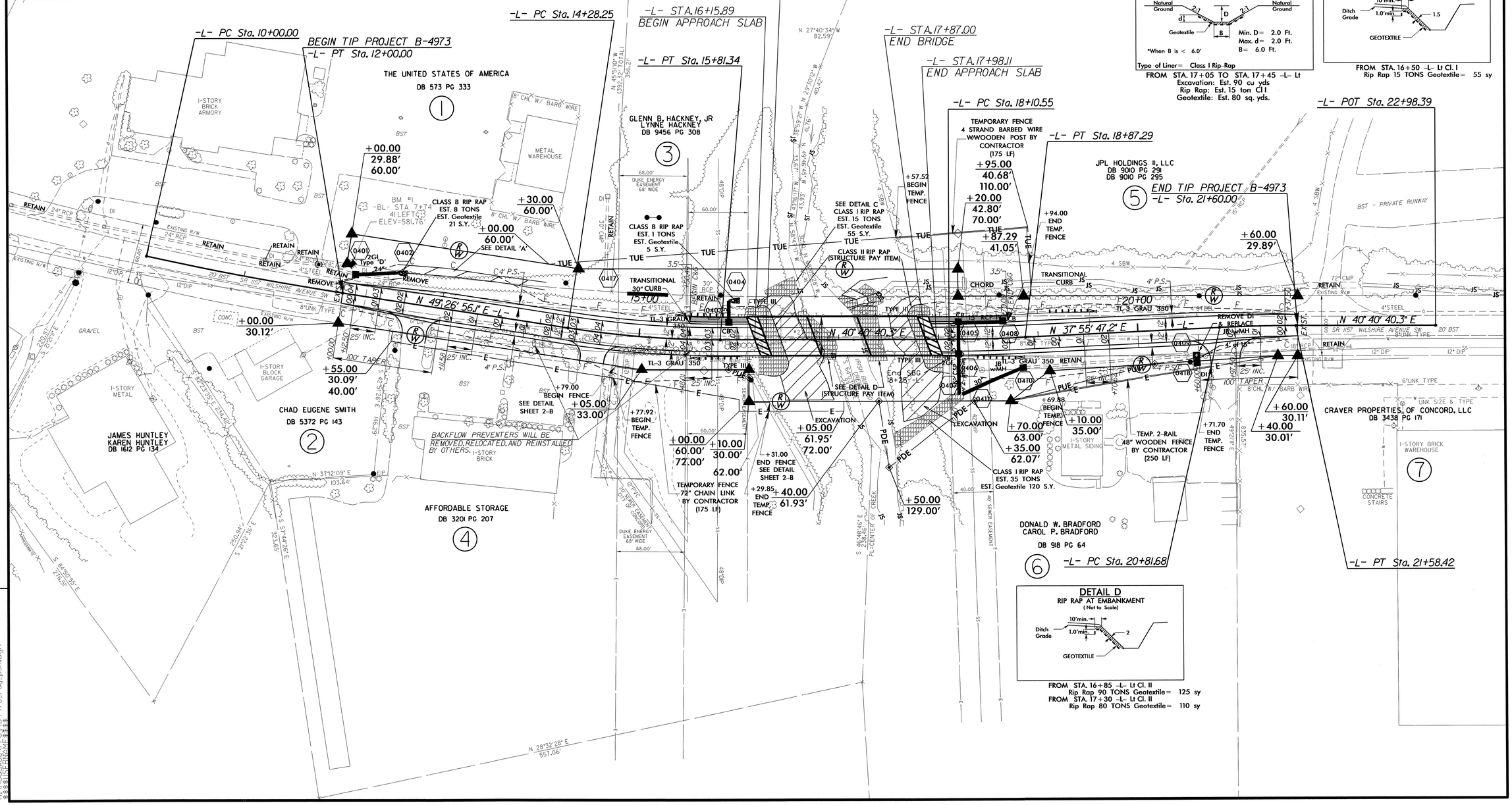

Type of Liner = Class I Rip-Rap

FROM STA. 17+05 TO STA. 17+45 -L- Lt
Excavation: Est. 90 cu yds
Rip Rap: Est. 15 ton Cl I
Geotextile: Est. 80 sq. yds.

## DETAIL C
RIP RAP AT EMBANKMENT
( Not to Scale)




FROM STA. 16+50 -L- Lt Cl. I
Rip Rap 15 TONS Geotextile = 55 sy




## DETAIL D
RIP RAP AT EMBANKMENT
( Not to Scale)




FROM STA. 16+85 -L- Lt Cl. II
Rip Rap 90 TONS Geotextile = 125 sy
FROM STA. 17+30 -L- Lt Cl. II
Rip Rap 80 TONS Geotextile = 110 sy

REVISIONS

8/17/99

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | 5 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18903 ENGINEER GREGORY E. BREWER

8-23-13

HYDRAULICS ENGINEER

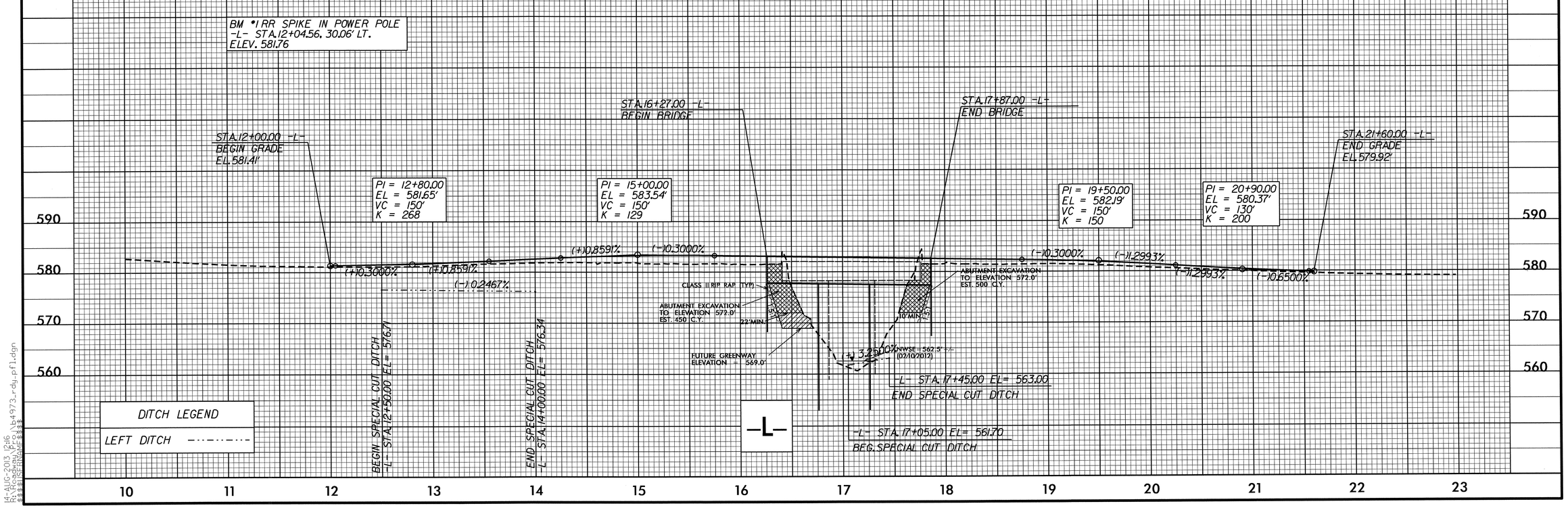
NORTH CAROLINA PROFESSIONAL SEAL 19721 ENGINEER WILLIAM H. ELAM

8/21/13

SEE SHEET 4 FOR -L- PLAN

## BRIDGE HYDRAULIC DATA

| | | |
|---|---|---|
| DESIGN DISCHARGE | = 5630 | CFS |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN HW ELEVATION | = 574.1 | FT |
| BASE DISCHARGE | = 7280 | CFS |
| BASE FREQUENCY | = 100 | YRS |
| BASE HW ELEVATION | = 575.2 | FT |
| OVERTOPPING DISCHARGE | = 10950 | CFS |
| OVERTOPPING FREQUENCY | = 500 | YRS |
| OVERTOPPING ELEVATION | = 578.8 | FT |
| | = | FT |
| DATE OF SURVEY | = 2/10/12 | |
| W.S. ELEVATION AT DATE OF SURVEY | = 562.5+/- | FT |

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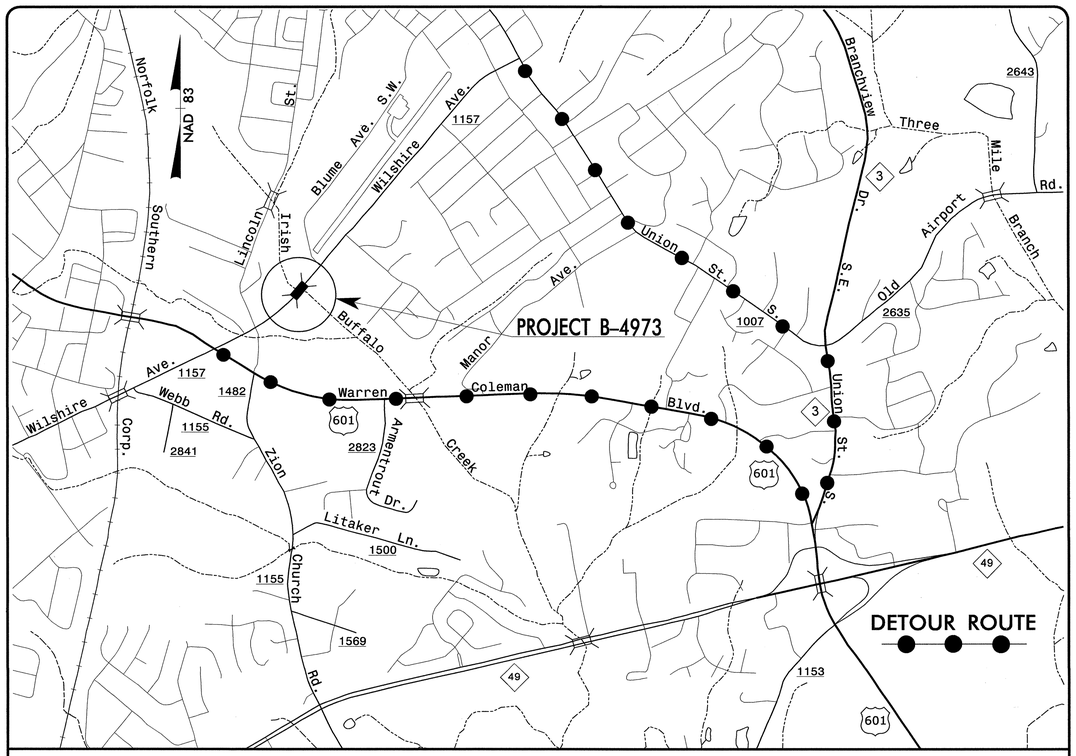
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# TRANSPORTATION MANAGEMENT PLAN

# CABARRUS COUNTY




VICINITY MAP

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"


N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. — STATE TRAFFIC MANAGEMENT ENGINEER
G. L. GETTIER, P.E. — TRAFFIC CONTROL PROJECT ENGINEER
J. W. WOOLARD, P.E. — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. B. COATS — TRAFFIC CONTROL DESIGN ENGINEER


DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

## INDEX OF SHEETS


| SHEET NO. | TITLE |
|---|---|
| TMP-1 | TITLE SHEET, AND INDEX OF SHEETS |
| TMP-1A | LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKINGS |
| TMP-1B | TRANSPORTATION OPERATIONS PLAN: (TRANSPORTATION OPERATIONS AND GENERAL NOTES) |
| TMP-2 | TEMPORARY TRAFFIC CONTROL PHASING AND OFF-SITE DETOUR - WILSHIRE AVENUE - SR 1157 |


APPROVED:
DATE: 7/1/13
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

SHEET NO.
TMP-1

TIP PROJECT: B-4973

6/28/2013
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| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | TMP-1A |

# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

| STD. NO. | TITLE |
|---|---|
| 1101.03 | TEMPORARY ROAD CLOSURES |
| 1101.05 | WORK ZONE VEHICLE ACCESSES |
| 1101.11 | TRAFFIC CONTROL DESIGN TABLES |
| 1110.01 | STATIONARY WORK ZONE SIGNS |
| 1130.01 | DRUMS |
| 1145.01 | BARRICADES |

# LEGEND

## GENERAL

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

EXIST. PVMT.

NORTH ARROW

PROPOSED PVMT.

WORK AREA

REMOVAL

USER DEFINED (IF NEEDED)

USER DEFINED (IF NEEDED)

## TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

CONE

DRUM  SKINNY DRUM  TUBULAR MARKER

TEMPORARY CRASH CUSHION

FLASHING ARROW BOARD

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED ATTENUATOR (TMA)

CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

PORTABLE SIGN

STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

## SIGNALS

EXISTING  PROPOSED  TEMP TEMPORARY

## PAVEMENT MARKINGS

EXISTING LINES

TEMPORARY LINES

## PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED

YELLOW/YELLOW

## PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

## TEMPORARY PAVEMENT MARKINGS

NONE

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J.W. WOOLARD, JR.

7/1/13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

6/28/2013
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| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | TMP-1B |

# TRANSPORTATION OPERATIONS

## CONSTRUCTION

REMOVE AND REPLACE EXISTING STRUCTURE AND ROADWAY APPROACHES ALONG EXISTING ROADWAY ALIGNMENT AS SHOWN IN THE CONSTRUCTION PLANS.

## TMP DESIGN PARAMETERS

TRAFFIC WILL BE DETOURED OFF-SITE DURING THE CONSTRUCTION PERIOD.

THE OFF-SITE DETOUR WILL INCLUDE US 601 (WARREN COLEMAN BLVD.), NC 3 (UNION ST. S.), AND SR 1007 (UNION ST. S.),(SEE SHEET TMP-2).

# GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

STATE FORCES WILL BE RESPONSIBLE FOR PROVIDING SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

STATE FORCES WILL COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

E) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

F) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J.W. WOOLARD JR.

9/9/13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

9/9/2013
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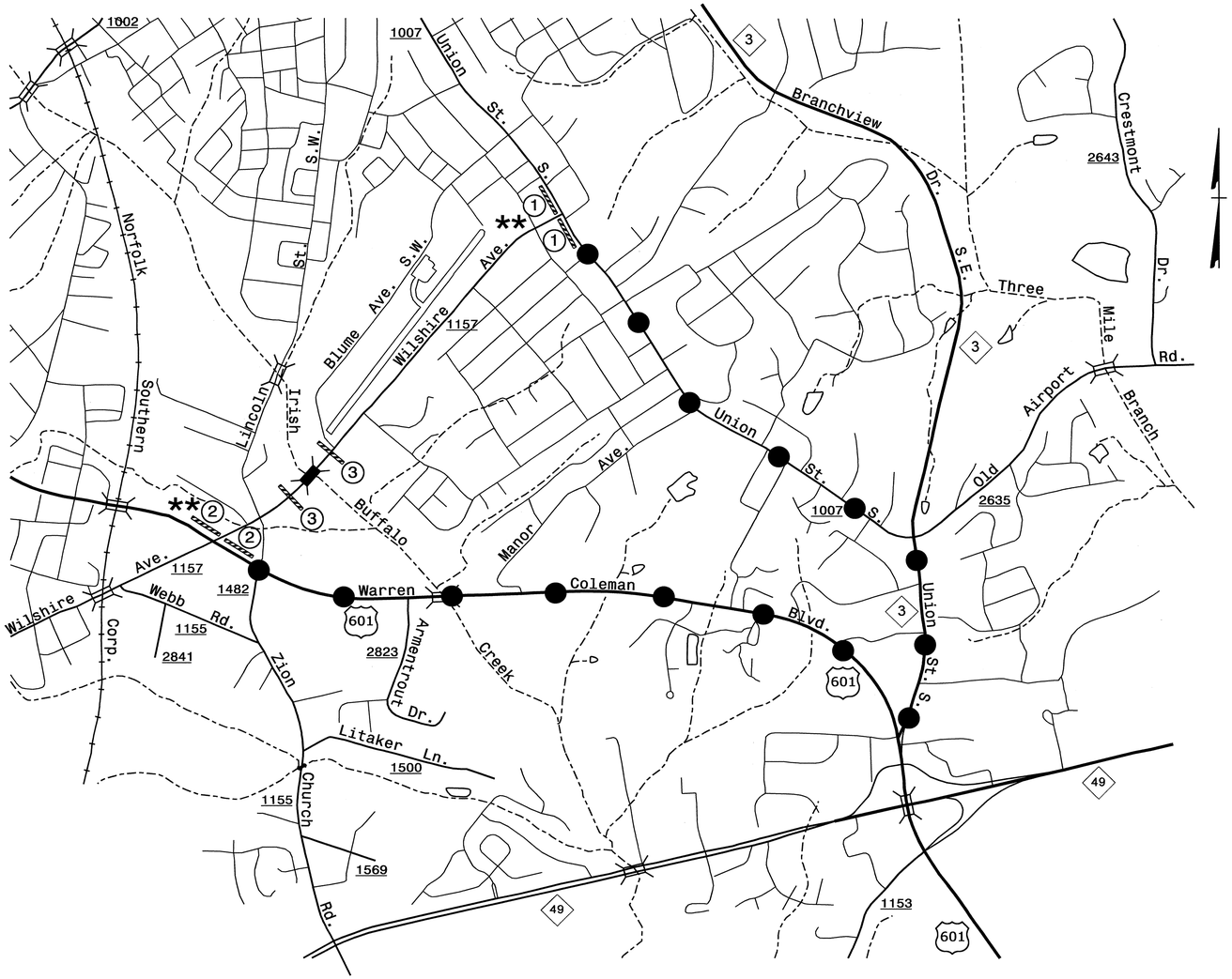
| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | TMP-2 |




# TEMPORARY TRAFFIC CONTROL PHASING

## PHASE I

STEP 1. STATE FORCES WILL INSTALL ALL OFF-SITE DETOUR SIGNING.

- USING RSD 1101.03 (SHEET 1 OF 9), CLOSE SR 1157 (WILSHIRE AVENUE) FROM STA. 12+00+/- -L- TO STA. 21+60+/- -L-.

NOTE: INSTALL TYPE III BARRICADES AT STA. 13+75+/- -L- AND STA. 20+25+/- -L-. USE DRUMS TO MAINTAIN ACCESS TO ALL DRIVEWAYS WITHIN THE PROJECT LIMITS DURING CONSTRUCTION.

## PHASE II

STEP 1. REMOVE EXISTING BRIDGE. CONSTRUCT NEW BRIDGE AND ROADWAY APPROACHES, DRAINAGE, AND GUARDRAIL, UP TO AND INCLUDING THE FINAL SURFACE COURSE AS FOLLOWS (SEE CONSTRUCTION PLANS):

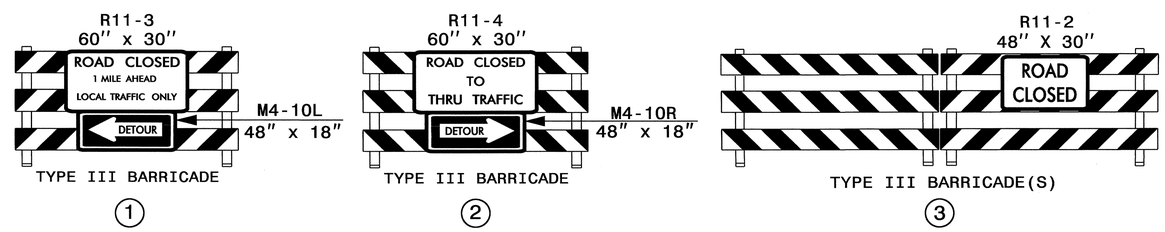
STA. 12+00+/- -L- TO STA. 21+60+/- -L-

- USING RSD 1101.04 (SHEET 1 OF 1), CONSTRUCT DRAINAGE (SEE CONSTRUCTION PLANS).
- PLACE FINAL PAVEMENT MARKINGS AND MARKERS AS SHOWN IN THE FINAL PAVEMENT MARKING PLANS.

STEP 2. REMOVE ALL TYPE III BARRICADES AND DETOUR SIGNING. REOPEN SR 1157 (WILSHIRE AVENUE) TO A 2-LANE, 2-WAY TRAFFIC PATTERN.

DETOUR ROUTE

** SEE RSD 1101.03, SHEET 1 OF 9, FOR ADDITIONAL WORK ZONE SIGNS AND LOCATIONS




APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER W. WOOLARD

9/9/13

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASING AND OFF-SITE DETOUR WILSHIRE AVENUE SR 1157

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jwoolard AT TE266005

T.I.P.: B-4973

CONTRACT: C203261

| TIP NO. | SHEET NO. |
|---|---|
| B-4973 | PMP-1 |

APPROVED: [illegible]

DATE: 8/7/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

# STATE OF NORTH CAROLINA
# DEPARTMENT OF TRANSPORTATION

# PAVEMENT MARKING PLAN
## CABARRUS COUNTY

### LOCATION: BRIDGE No. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)

## ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

| STD. NO. | TITLE |
|---|---|
| 1205.01 | PAVEMENT MARKINGS - LINE TYPES AND OFFSETS |
| 1205.12 | PAVEMENT MARKINGS - BRIDGES |
| 1250.01 | RAISED PAVEMENT MARKERS - INSTALLATION SPACING |
| 1251.01 | RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY |
| 1261.01 | GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING |
| 1261.02 | GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING |
| 1262.01 | GUARDRAIL END DELINEATION |

## PAVEMENT MARKING SCHEDULE

COLD APPLIED PLASTIC(4") (TYPE II OR III)

CA WHITE EDGELINE
CB YELLOW EDGELINE

THERMO(4", 120 MILS)

TI YELLOW DOUBLE CENTER

THERMO(4", 90 MILS)

TA WHITE EDGELINE

PERMANENT RAISED PAVEMENT MARKERS

MA YELLOW & YELLOW

## GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

| ROAD NAME | MARKING | MARKER |
|---|---|---|
| SR 1157 | THERMOPLASTIC | RAISED |
| BRIDGE DECK | COLD APPLIED PLASTIC (TYPE II or III) | RAISED |

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

E) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING THERMOPLASTIC PAVEMENT MARKING MATERIAL.

F) TYPE III COLD APPLIED PLASTIC MAY BE USED IN LIEU OF TYPE II COLD APPLIED PLASTIC. IF TYPE III COLD APPLIED PLASTIC IS USED, IT SHALL BE PAID FOR USING THE TYPE II COLD APPLIED PLASTIC PAY ITEM.

## INDEX


| SHEET NO. | DESCRIPTION |
|---|---|
| PMP-1 | PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET |
| PMP-2 | PAVEMENT MARKING DETAIL |



PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

K. L. JORDAN SIGNING & DELINEATION REGIONAL ENGINEER

J. G. MARTINEZ SIGNING & DELINEATION PROJECT DESIGN ENGINEER


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION


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jgmartinez AT TE27440

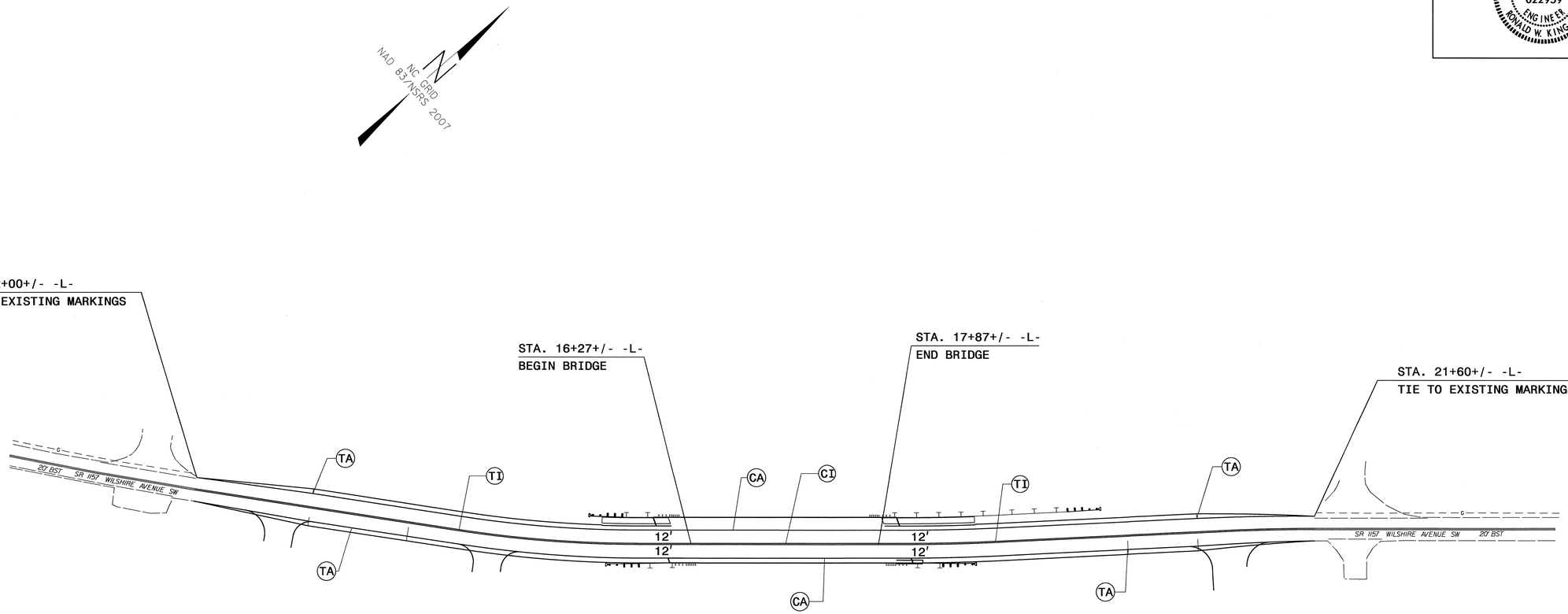
| TIP NO. | SHEET NO. |
|---|---|
| B-4973 | PMP-2 |

APPROVED: _____

DATE: 8/7/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING




## PROJECT NOTES

CA WHITE EDGELINE (4")
CI YELLOW DOUBLE CENTER (4")
TA WHITE EDGELINE (4",90 MIL)
TI YELLOW DOUBLE CENTER (4",120 MIL)

# PAVEMENT MARKING DETAIL

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jgmartinez AT TE274401

TIP PROJECT: B-4973

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | B-4973 | EC-1 | |

| STATE PROJ. NO. | F. A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

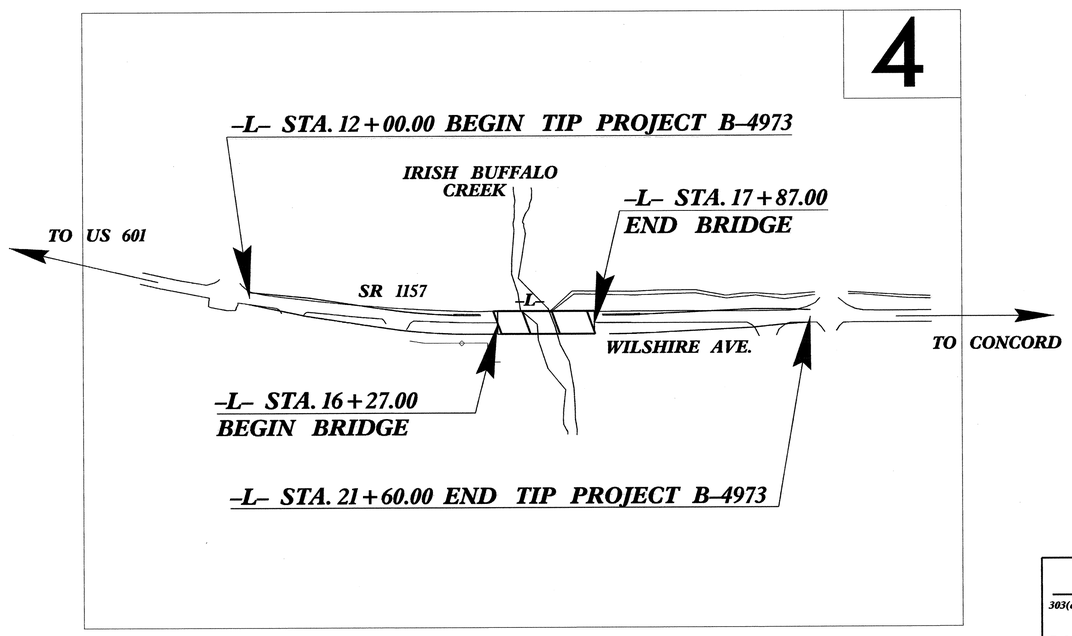
## PLAN FOR PROPOSED
# HIGHWAY EROSION CONTROL

# *CABARRUS COUNTY*

***LOCATION: BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)***

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

NAD 83/
NSRS 2007




## EROSION AND SEDIMENT CONTROL MEASURES

| Std. # | Description | Symbol |
|---|---|---|
| 1630.03 | Temporary Silt Ditch | TSD |
| 1630.05 | Temporary Diversion | TD |
| 1605.01 | Temporary Silt Fence | |
| 1606.01 | Special Sediment Control Fence | |
| 1622.01 | Temporary Berms and Slope Drains | |
| 1630.02 | Silt Basin Type B | |
| 1633.01 | Temporary Rock Silt Check Type-A | |
| | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | |
| 1633.02 | Temporary Rock Silt Check Type-B | |
| | Wattle / Coir Fiber Wattle | EW CFW |
| | Wattle / Coir Fiber Wattle with Polyacrylamide (PAM) | |
| 1634.01 | Temporary Rock Sediment Dam Type-A | |
| 1634.02 | Temporary Rock Sediment Dam Type-B | |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A | |
| 1635.02 | Rock Pipe Inlet Sediment Trap Type-B | |
| 1630.04 | Stilling Basin | |
| 1630.06 | Special Stilling Basin | |
| | Rock Inlet Sediment Trap: | |
| 1632.01 | Type A | A |
| 1632.02 | Type B | B |
| 1632.03 | Type C | C |
| | Skimmer Basin | |
| | Tiered Skimmer Basin | |
| | Infiltration Basin | |

**THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.**

**THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.**

**303(d) IMPAIRED WATER(S) EXIST ON THIS PROJECT**

*303(d) Impaired Water Zone(s) Exist*
*From Sta. Begin*
*to Sta. End*
*Refer To E. C. Special Provisions for Special Considerations.*

**ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT**

*Refer To E. C. Special Provisions for Special Considerations.*

***GRAPHIC SCALE***

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

*ROADSIDE ENVIRONMENTAL UNIT*
*DIVISION OF HIGHWAYS*
*STATE OF NORTH CAROLINA*

*THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.*

*Prepared In the Office of:*

***ROADSIDE ENVIRONMENTAL UNIT***
*1 South Wilmington St.*
*Raleigh, NC 27611*

***2012 STANDARD SPECIFICATIONS***

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

| | | | |
|---|---|---|---|
| 1604.01 | Railroad Erosion Control Detail | 1632.01 | Rock Inlet Sediment Trap Type A |
| 1605.01 | Temporary Silt Fence | 1632.02 | Rock Inlet Sediment Trap Type B |
| 1606.01 | Special Sediment Control Fence | 1632.03 | Rock Inlet Sediment Trap Type C |
| 1607.01 | Gravel Construction Entrance | 1633.01 | Temporary Rock Silt Check Type A |
| 1622.01 | Temporary Berms and Slope Drains | 1633.02 | Temporary Rock Silt Check Type B |
| 1630.01 | Riser Basin | 1634.01 | Temporary Rock Sediment Dam Type A |
| 1630.02 | Silt Basin Type B | 1634.02 | Temporary Rock Sediment Dam Type B |
| 1630.03 | Temporary Silt Ditch | 1635.01 | Rock Pipe Inlet Sediment Trap Type A |
| 1630.04 | Stilling Basin | 1635.02 | Rock Pipe Inlet Sediment Trap Type B |
| 1630.05 | Temporary Diversion | 1640.01 | Coir Fiber Baffle |
| 1630.06 | Special Stilling Basin | 1645.01 | Temporary Stream Crossing |
| 1631.01 | Matting Installation | | |

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wjohnson
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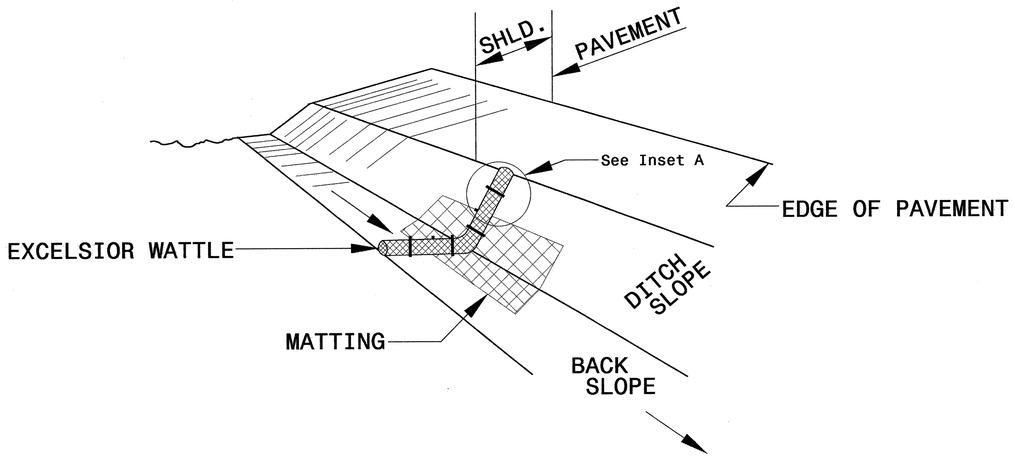
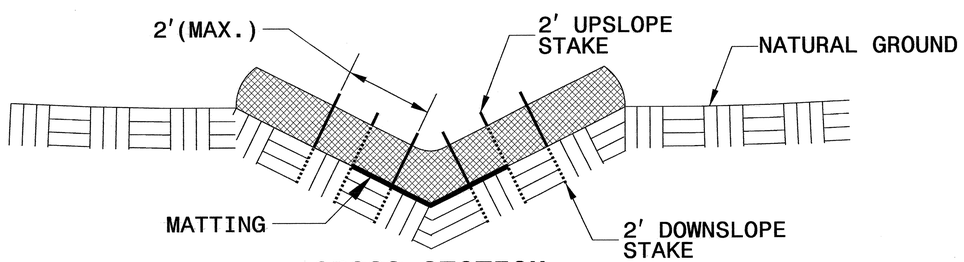
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | EC-2 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

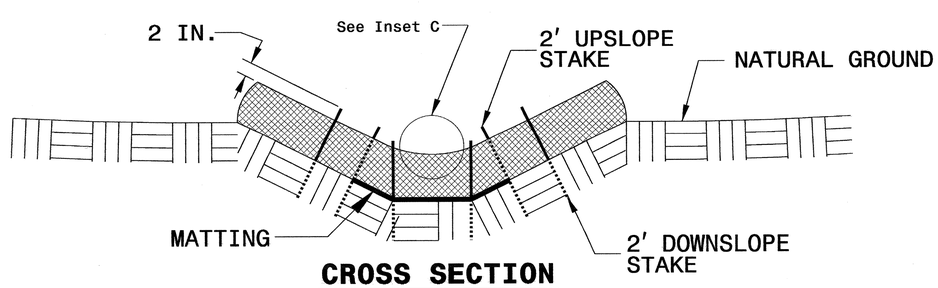
# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL




**ISOMETRIC VIEW**




**CROSS SECTION VEE DITCH**




**CROSS SECTION TRAPEZOIDAL DITCH**

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

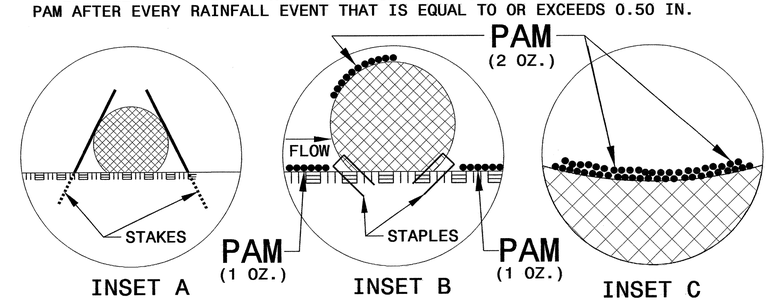
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

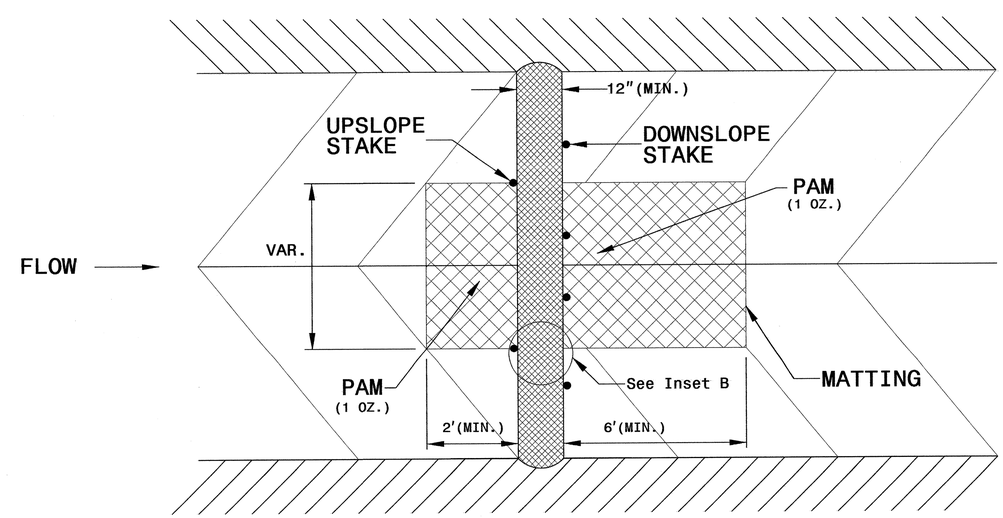
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

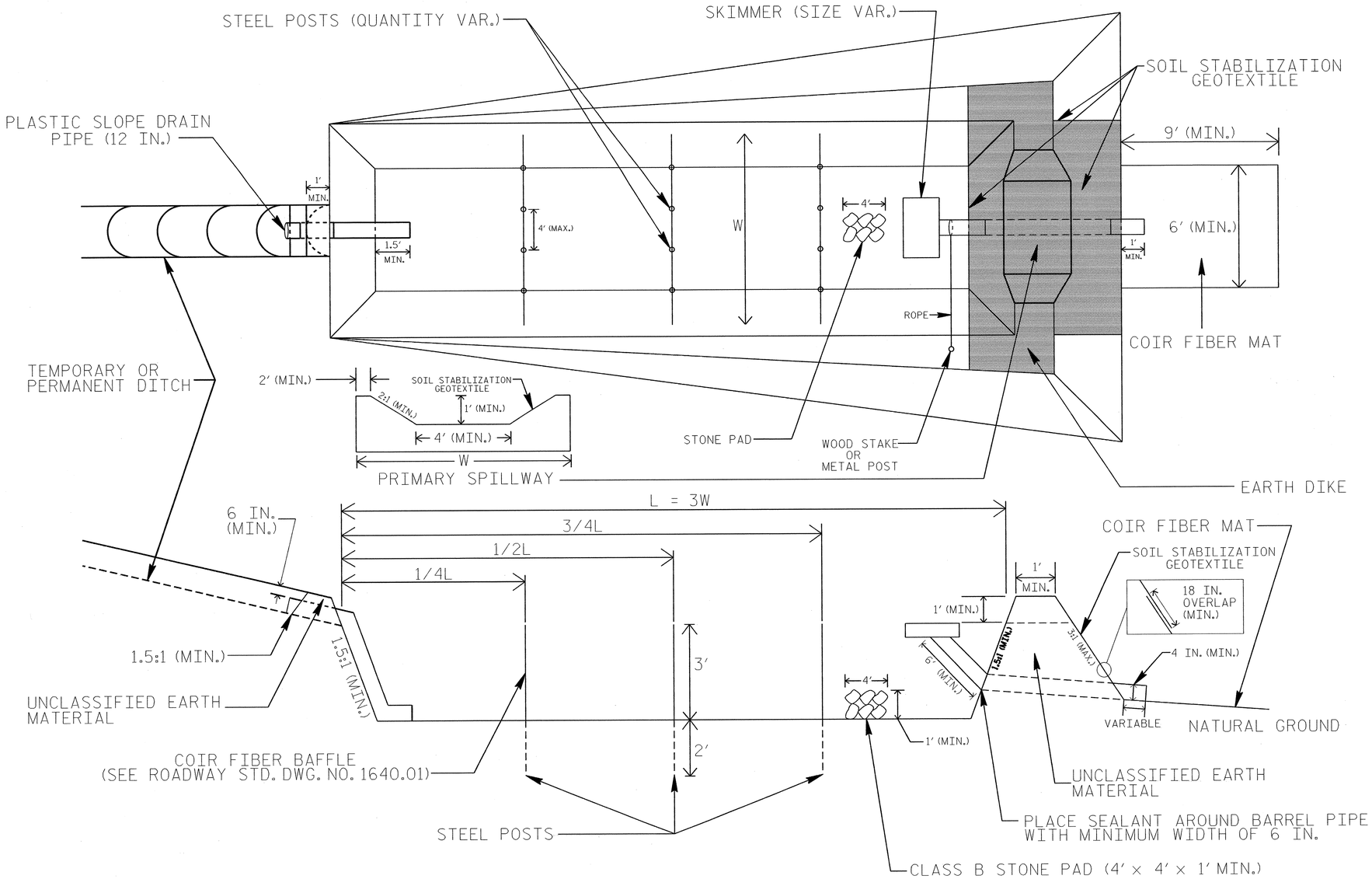


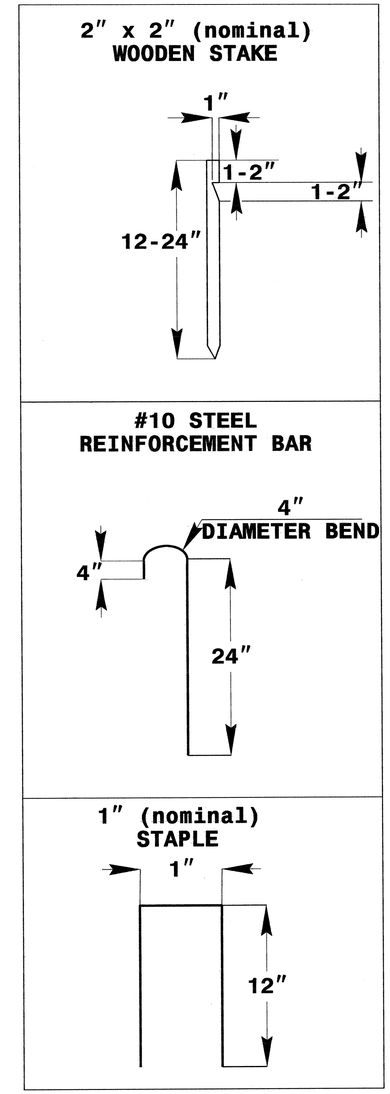




**TOP VIEW**

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | EC-2A |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

# SKIMMER BASIN WITH BAFFLES DETAIL




## COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING Q/0.4, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | EC-3 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

# SOIL STABILIZATION TIMEFRAMES

| SITE DESCRIPTION | STABILIZATION TIME | TIMEFRAME EXCEPTIONS |
|---|---|---|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES | 7 DAYS | NONE |
| HIGH QUALITY WATER (HQW) ZONES | 7 DAYS | NONE |
| SLOPES STEEPER THAN 3:1 | 7 DAYS | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER | 14 DAYS | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH. |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1 | 14 DAYS | NONE, EXCEPT FOR PERIMETERS AND HQW ZONES. |

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | EC-4/CONST.4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

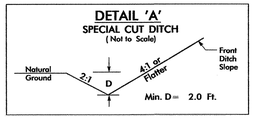
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

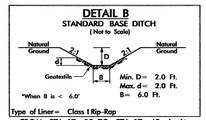
50 x 17 x 3
1.5 inch Skimmer
with 0.75 inch
Orifice Diameter
9 ft. weir
ID 4.1B

**DETAIL 'A'**
SPECIAL CUT DITCH
( Not to Scale)




FROM STA. 12+50 TO STA. 14+00 –L– LT

**DETAIL B**
STANDARD BASE DITCH
(Not to Scale)




FROM STA. 17+05 TO STA. 17+45 –L– Lt
Excavation: Est. 90 cu yds
Rip Rap: Est. 15 ton Cl I
Geotextile: Est. 700 sq. ft.

NAD 83/NSRS 2007

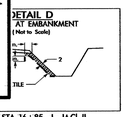
–L– PC Sta. 10+00.00
BEGIN TIP PROJECT B-4973
–L– PT Sta. 12+00.00
–L– PC Sta. 14+28.25
–L– STA.16+15.89
BEGIN APPROACH SLAB
–L– PT Sta. 15+81.34
–L– STA.16+27.00
BEGIN BRIDGE
–L– STA.17+87.00
END BRIDGE
–L– STA.17+98.11
END APPROACH SLAB
–L– PC Sta. 18+10.55
–L– PT Sta. 18+87.29
–L– POT Sta. 22+98.39
END TIP PROJECT B-4973
–L– Sta. 21+60.00
–L– PC Sta. 20+81.68
–L– PT Sta. 21+58.42

THE UNITED STATES OF AMERICA
DB 573 PG 333
GLENN B. HACKNEY, JR.
LYNNE HACKNEY
DB 9456 PG 308
JPL HOLDINGS II, LLC
DB 9010 PG 291
DB 9010 PG 295
CHAD EUGENE SMITH
DB 5372 PG 143
JAMES HUNTLEY
KAREN HUNTLEY
DB 1612 PG 134
AFFORDABLE STORAGE
DB 3201 PG 207
DONALD W. BRADFORD
CAROL P. BRADFORD
DB 918 PG 64
CRAVER PROPERTIES OF CONCORD, LLC
DB 7438 PG 171

26 x 10 x 3
1.5 inch Skimmer
with 0.25 inch
Orifice Diameter
4 ft. weir
ID 4.2B

35 x 10 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 4.3B

**DETAIL D**
AT EMBANKMENT
( Not to Scale)




FROM STA. 16+85 –L– Lt Cl. II
Rip Rap 90 TONS Geotextile= 125 sy
FROM STA. 17+30 –L– Lt Cl. II
Rip Rap 80 TONS Geotextile= 110 sy

29-JUL-2013 12:42
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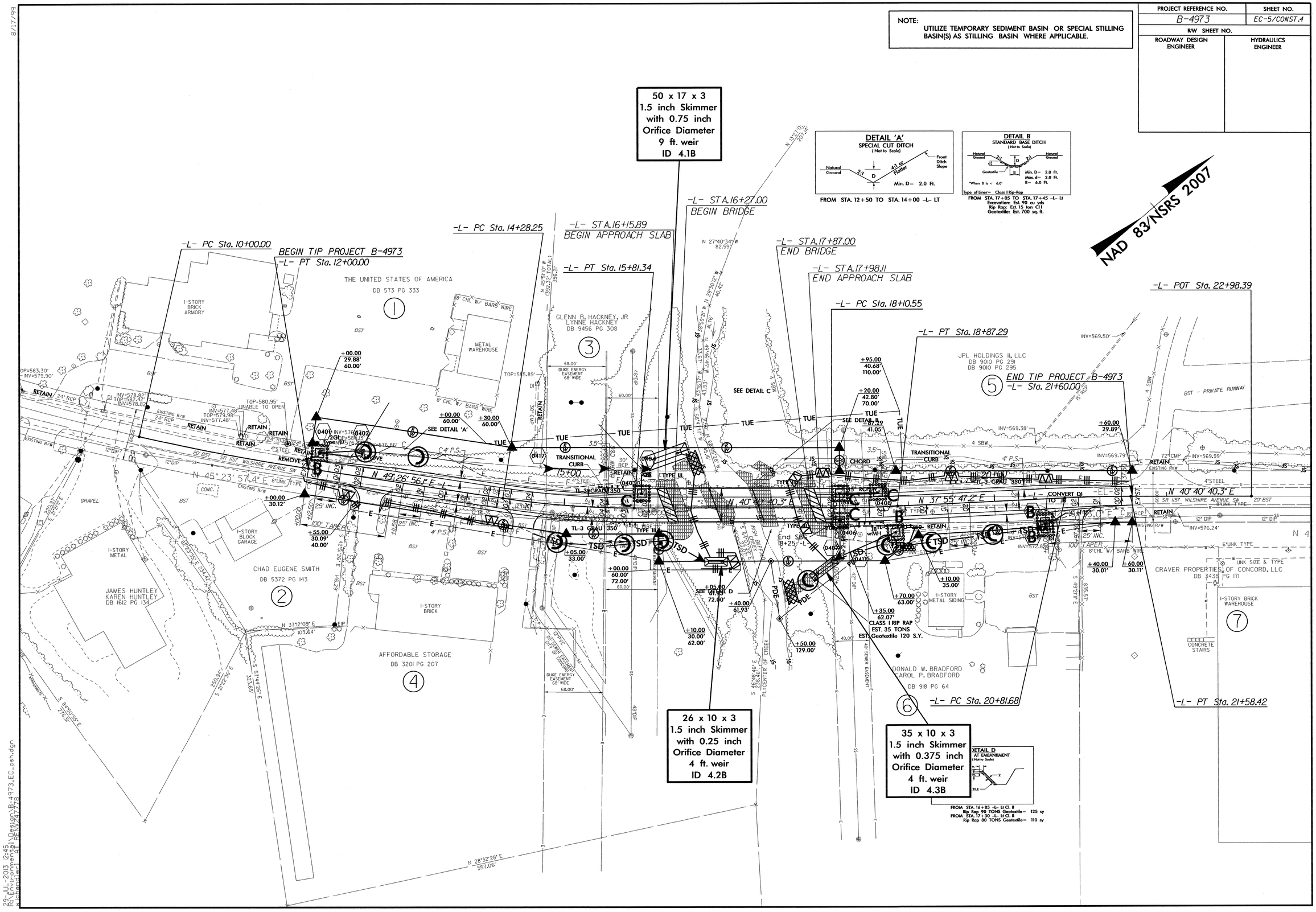
$$$$Jobnumber AT REV24.7.73

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | EC-5/CONST.4 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.




8/17/99

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| TIP NO. | SHEET NO. |
|---|---|
| B-4973 | SIGN-1 |

APPROVED: R.W. King

DATE: 8/7/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

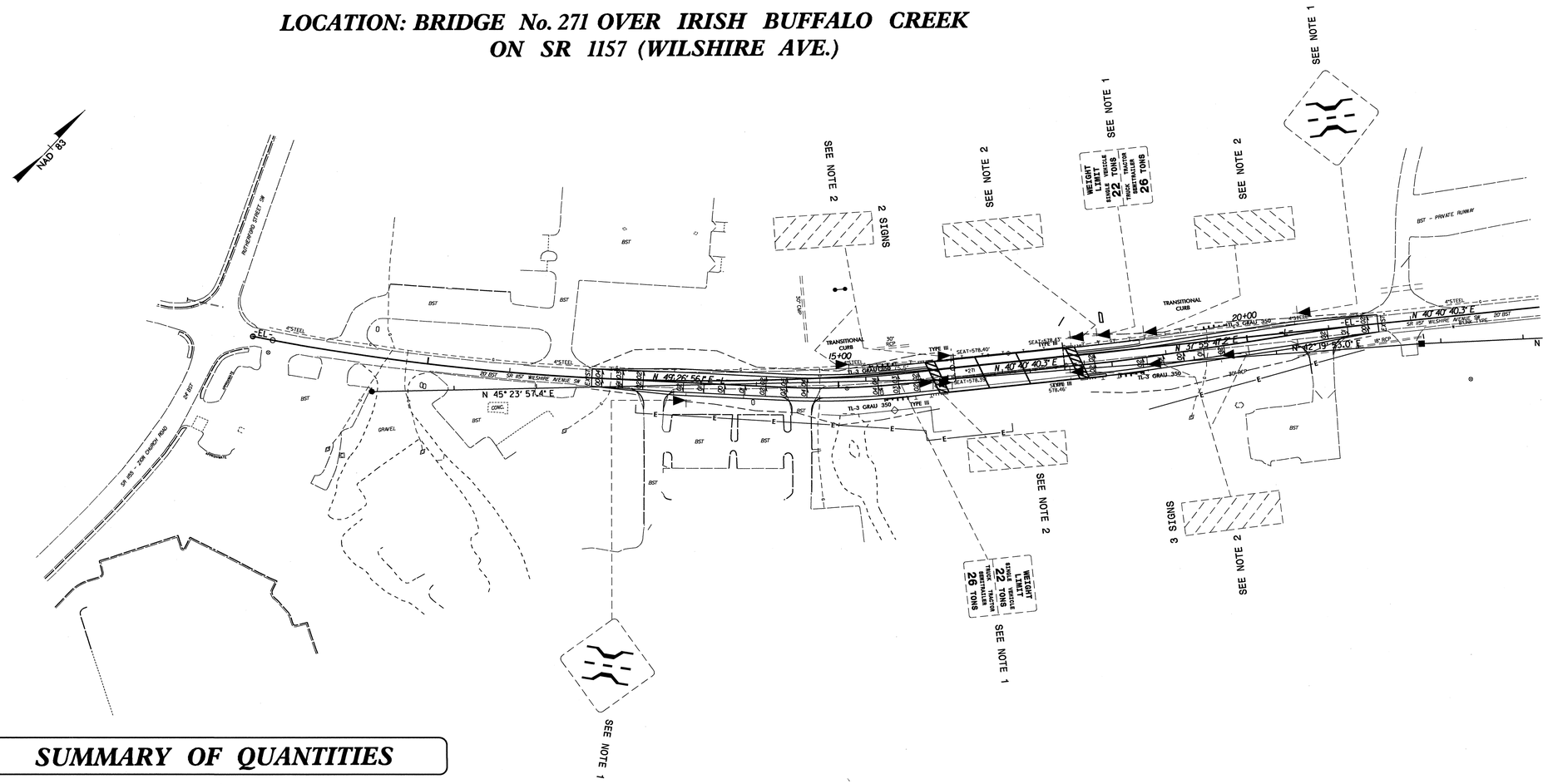
# STATE OF NORTH CAROLINA
# DEPARTMENT OF TRANSPORTATION

# SIGNING PLAN
# CABARRUS COUNTY

## LOCATION: BRIDGE No. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)

T.I.P.: B-4973

CONTRACT: C203261




## SUMMARY OF QUANTITIES

| ITEM NO. DESC. NO. | ITEM NO. SECT. NO. | ITEM DESCRIPTION | QUANTITY | UNIT |
|---|---|---|---|---|
| 4155000000 | 907 | DISPOSAL OF SIGN SYSTEM, U-CHANNEL | 4 | EA. |
| 4158000000 | 907 | DISPOSAL OF SIGN SYSTEM, WOOD | 8 | EA. |

## PROJECT NOTES

1 DISPOSE OF SIGN SYSTEM, U-CHANNEL
2 DISPOSE OF SIGN SYSTEM, WOOD

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

K. L. JORDAN — SIGNING & DELINEATION REGIONAL ENGINEER

J. G. MARTINEZ — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ENG.

07-AUG-2013 11:25
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jgmartinez AT TE274401

TIP PROJECT: B-4973

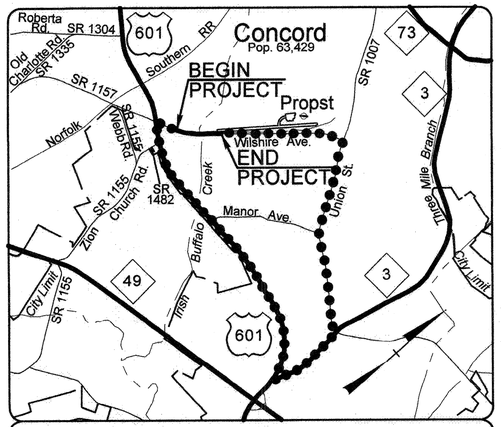
CONTRACT:

| T.I.P. NO. | SHEET NO. |
|---|---|
| B-4973 | UC-1 |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# UTILITY CONSTRUCTION PLANS
# CABARRUS COUNTY

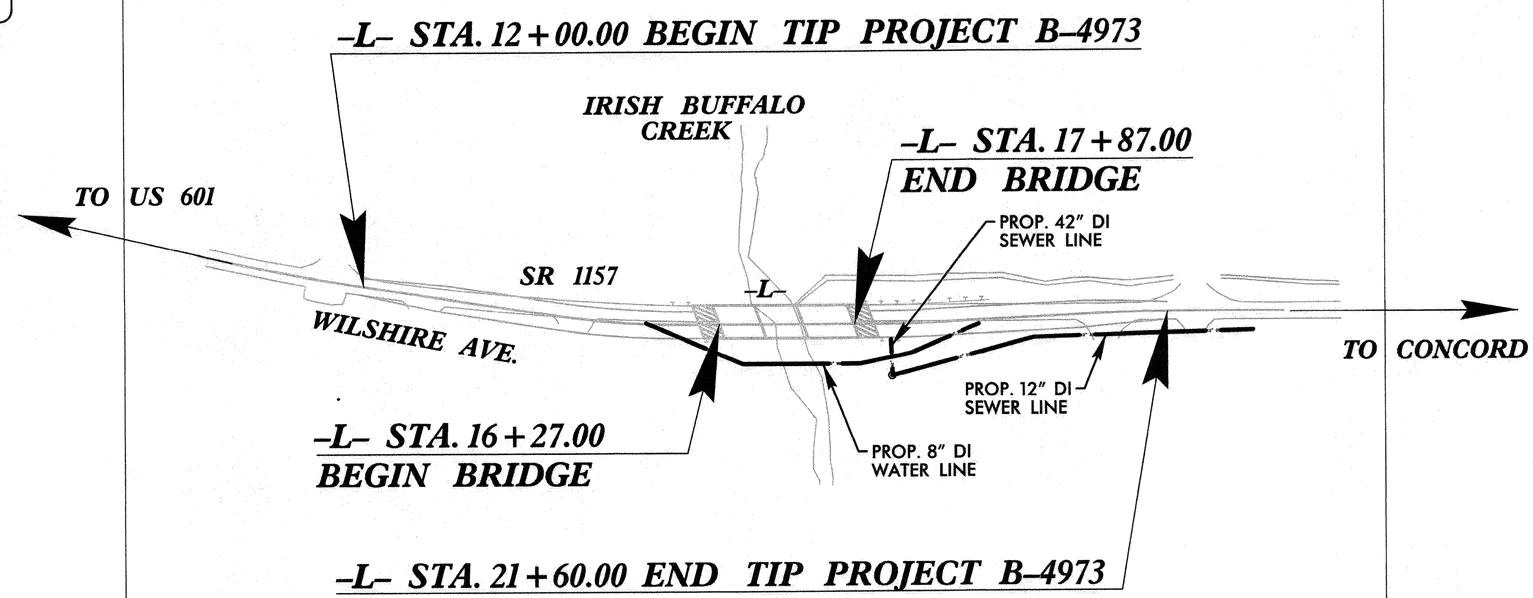
**LOCATION: BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)**
**TYPE OF WORK: UTILITIES**

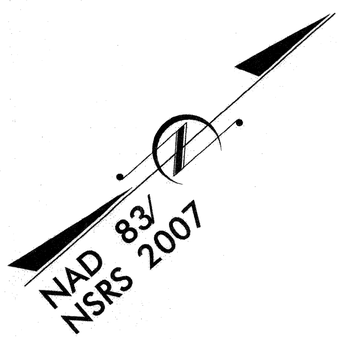



Vicinity Map
●●●● - Offsite Detour

WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CONCORD

UC-4




## GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

## INDEX OF SHEETS


| SHEET NO. | DESCRIPTION |
|---|---|
| UC-1 | TITLE SHEET |
| UC-2 | UTILITY SYMBOLOGY SHEET |
| UC-3 | GENERAL NOTES SHEET |
| UC-3A - UC-3B | DETAIL SHEETS |
| UC-4 | UTILITY CONSTRUCTION SHEET |
| UC-5 | PROFILE SHEET |


## WATER AND SEWER OWNERS ON PROJECT

(1) WATER - CITY OF CONCORD
(2) SEWER - CITY OF CONCORD
(3) SEWER - WATER AND SEWER AUTHORITY OF CABARRUS COUNTY (WSACC)

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE
8/5/13

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227


DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Carl Barclay, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Bo Hemphill, P.E. — UTILITIES PROJECT DESIGNER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# UTILITIES PLAN SHEET SYMBOLS

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | UC-2 |
| DESIGNED BY: KSH | |
| DRAWN BY: KSH | |
| CHECKED BY: KSH | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151 | UTILITY CONSTRUCTION PLANS ONLY |

NORTH CAROLINA PROFESSIONAL SEAL 029901 8/5/13 ENGINEER KEVIN S. HINDE

UTILITY CONSTRUCTION

## PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

## PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

## PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

## EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE)

| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| KSH | KSH | 8-5-13 | UC-2 | UC-5 |

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

# UTILITY CONSTRUCTION

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | UC-3 |
| DESIGNED BY: KSH | |
| DRAWN BY: KSH | |
| CHECKED BY: KSH | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151 | UTILITY CONSTRUCTION PLANS ONLY |

NORTH CAROLINA PROFESSIONAL SEAL 029901 8/5/13 ENGINEER JOHN S. HINDE

UTILITY CONSTRUCTION

## GENERAL NOTES:

1. ALL WATER AND SEWER UTILITY MATERIALS, EQUIPMENT, LABOR, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH AND SUBJECT TO THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY'S STANDARD SPECIFICATIONS; THE CITY OF CONCORD'S ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, AND THE NORTH CAROLINA ADMINISTRATIVE CODE FOR WASTERWATER COLLECTION AND WATER DISTRIBUTION SYSTEMS. IN THE EVENT OF CONFLICT BETWEEN THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY'S STANDARD SPECIFICATIONS; THE CITY OF CONCORD'S ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, OR THE NORTH CAROLINA ADMINISTRATIVE CODE, THE MORE RESTRICTIVE REQUIREMENTS SHALL APPLY.

2. REVIEW AND APPROVAL OF THE PLANS DOES NOT RELIEVE THE OWNER, CONTRACTOR, OR DEVELOPER FROM MEETING THE REQUIREMENTS OF THE CITY OF CONCORD'S OR CABARRUS COUNTY ORDINANCES, POLICIES, AND STANDARD SPECIFICATIONS, (AS APPLICABLE), CONCORD WATER AND SEWER POLICIES AND TECHNICAL SPECIFICATIONS, THE "STANDARD SPECIFICATION FOR WASTEWATER COLLECTION AND WASTE DISTRIBUTION FOR CABARRUS COUNTY (WSACC MANUAL) AND ANY OTHER LOCAL, STATE, AND FEDERAL REGULATIONS AND APPROVALS.

3. THE CONTRACTOR MUST CONTACT THE CITY OF CONCORD ENGINEERING CONSTRUCTION MANAGER, PHILLIP KINGSLAND, AT 704-920-5425 AT LEAST 24-HOURS PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITY.

4. THE EXISTING WATER MAIN VALVE RIMS AND STEMS AND THE EXISTING SEWER MAIN MANHOLE RIMS ARE TO BE RAISED OR LOWERED TO FINAL GRADE, AS APPLICABLE AND AT LEAST 3-FT OF GROUND COVER IS TO BE MAINTAINED OVER THE EXISTING UTILITIES AT ALL TIMES.

5. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE THE DURATION OF ANY WATER SUPPLY DISRUPTION AND/OR LOSS TO THE EXISTING CITY OF CONCORD CUSTOMERS. THE CONTRACTOR MUST NOTIFY THE ASSIGNED CITY OF CONCORD CONSTRUCTION INSPECTOR AT LEAST 48 HOURS IN ADVANCE OF ANY SCHEDULED WATER SERVICE LOSS OR DISRUPTION, AND PROVIDE WRITTEN NOTIFICATION ON A CITY APPROVED FORM TO EACH CITY OF ONCORD CUSTOMER THAT SPECIFIES THE DAY AND DURATION OF ANY SCHEDULED WATER SERVICE LOSS OR DISRUPTION AND INCLUDE THE APPROPRIATE CITY CONTACT NUMBERS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY POTABLE WATER SUPPLIES TO ANY CUSTOMER UPON REQUEST BY THE CITY AND/OR WHEN THE DRUATION OF THE WATER SERVICE LOSS OR DISRUPTION EXCEEDS 4 HOURS.

7. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

8. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITONAL COST TO THE DEPARTMENT.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE CURRENT PLUMBING CODE REQUIREMENTS ASSOCIATED WITH RE-ESTABLISHING THE WATER SERVICE CONNECTION AND OBTAINING ALL NECESSARY PLUMBING PERMITS, IN ACCORDANCE WITH THE MOST CURRENT VERSIONS OF THE NORTH CAROLINA PLUMBING CODE. THE PLUMBING REQUIREMENTS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE MATERIALS, EQUIPMENT, LABOR AND WORKMANSHIP ASSOCIATED WITH THE INSTALLATION OF A SHUT-OFF VALVE, AND A WATER PRESSURE REDUCING VALVE (PRV) WITH ASSOCIATED APPURTENANCES ON THE PRIVATE HOMEOWNERS PLUMBING, IN ACCORDANCE WITH THE MOST CURRENT VERSION OF THE NORTH CAROLINA PLUMBING CODE.

## PROJECT SPECIFIC NOTES:

1. THE EXISTING 8" WATER LINE, 12" SEWER LINES AND THE 42" SEWER LINE BELONG TO THE CITY OF CONCORD. THE EXISTING 48" SEWER LINE BELONGS TO THE WATER AND SEWER AUTHORITY OF CABARRUS COUNTY.

2. WALL BLOCKING SHALL BE USED ON EXISTING WATER LINES AT THE PROPOSED RELOCATION TIE-IN POINTS.

3. CONTRACTOR SHALL CONNECT ALL WATER LINES AND SERVICE CONNECTIONS USING NECESSARY FITTINGS.

4. REMOVE AND STOCKPILE EXISTING FIRE HYDRANT - THE CONTRACTOR SHALL USE EXTREME CAUTION AND CARE WHEN DISMANTLING THE HYDRANT. THE CONTRACTOR SHALL CONTACT THE CITY OF CONCORD TO DETERMINE A SUITABLE LOCATION TO STOCKPILE THE FIRE HYDRANT AND ASSOCIATED ITEMS.

## LIST OF STANDARD DRAWINGS

1515.01 WATER METER

1515.02 FIRE HYDRANT

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE)

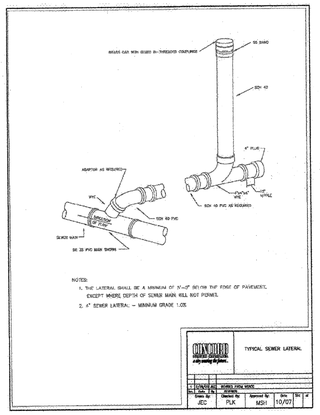
| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| KSH | KSH | 8-5-13 | UC-3 | UC-5 |

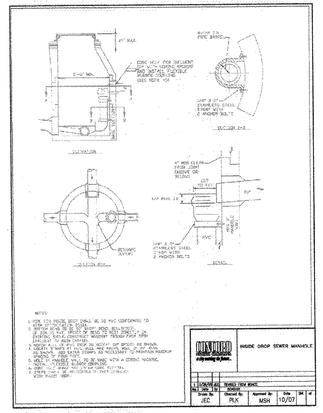
HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

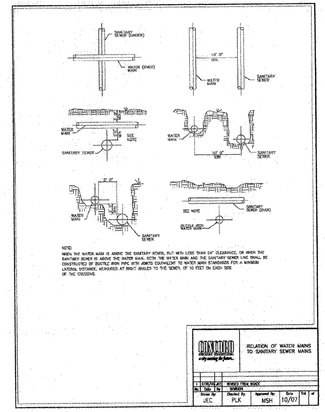
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | UC-3A |
| DESIGNED BY: KSH | |
| DRAWN BY: KSH | |
| CHECKED BY: KSH | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151 | UTILITY CONSTRUCTION PLANS ONLY |

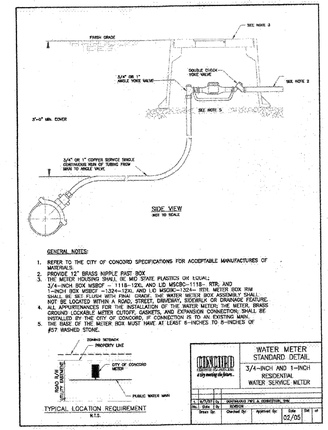
NORTH CAROLINA PROFESSIONAL SEAL 029901 8/5/13 ENGINEER KEVIN S. HINDE

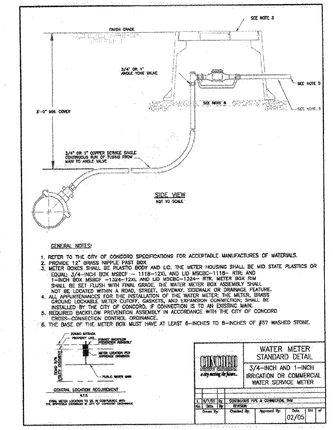
# CITY OF CONCORD STANDARD DETAILS

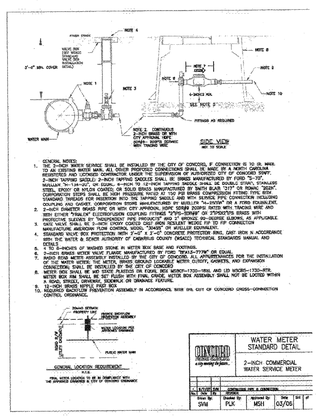


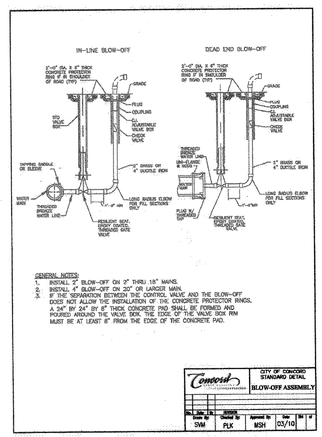



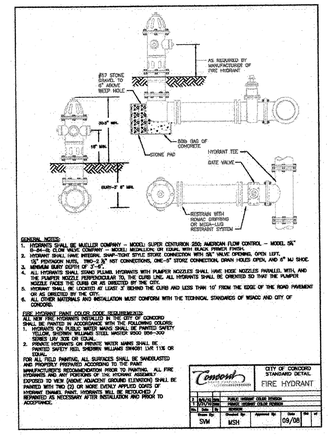



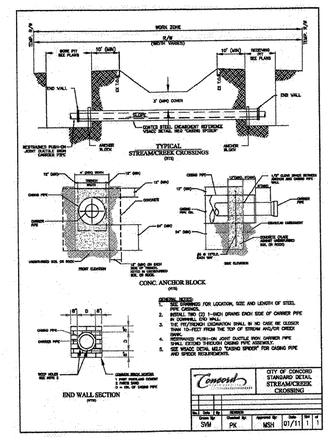



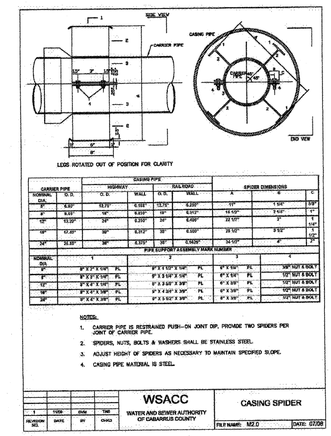



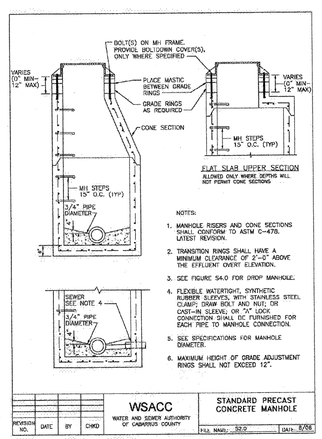



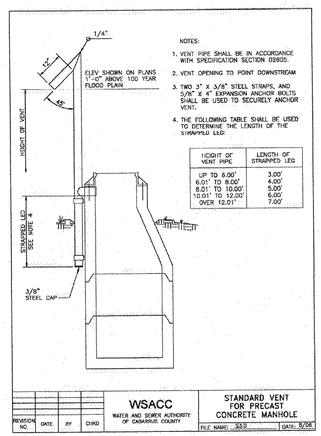



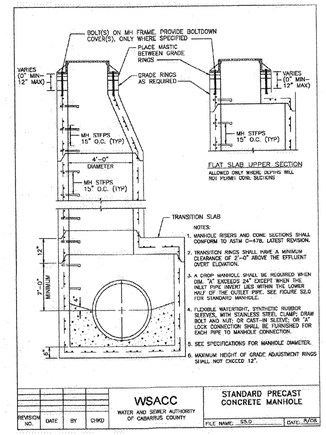



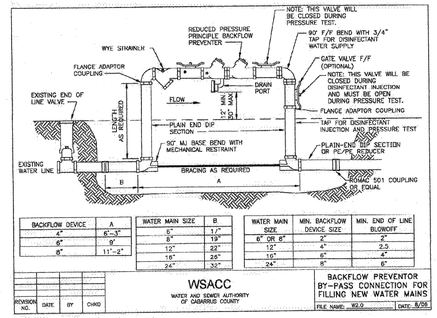




# WATER AND SEWER AUTHORITY OF CABARRUS COUNTY (WSACC) STANDARD DETAILS



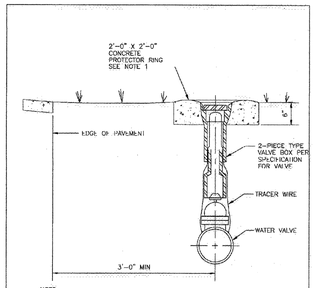

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)

| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| KSH | KSH | 8-5-13 | UC-3A | UC-5 |

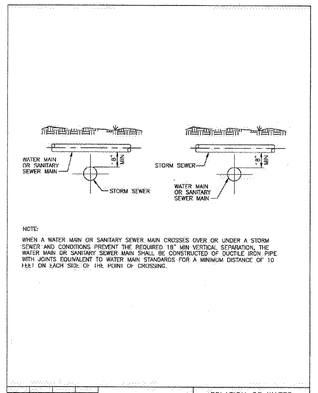
HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

# WATER AND SEWER AUTHORITY OF CABARRUS COUNTY (WSACC)
# STANDARD DETAILS



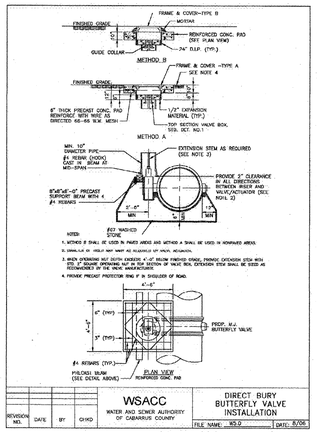

NOTE:
1. USE PROTECTION RING IN SHOULDER OF ROAD.

| REVISION NO. | DATE | BY | CHKD | WSACC WATER AND SEWER AUTHORITY OF CABARRUS COUNTY | VALVE BOX INSTALLATION |
|---|---|---|---|---|---|
| | | | | | FILE NAME: W1.0 DATE: 8/06 |

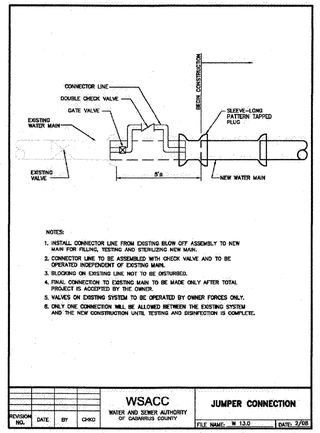



NOTE:
WHEN A WATER MAIN OR SANITARY SEWER MAIN CROSSES OVER OR UNDER A STORM SEWER AND CONDITIONS PREVENT THE REQUIRED 18" MIN VERTICAL SEPARATION, THE WATER MAIN OR SANITARY SEWER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A MINIMUM DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.

| REVISION NO. | DATE | BY | CHKD | WSACC WATER AND SEWER AUTHORITY OF CABARRUS COUNTY | RELATION OF WATER MAINS AND SANITARY SEWER MAINS TO STORM SEWERS |
|---|---|---|---|---|---|
| | | | | | FILE NAME: W4.0 DATE: 8/06 |




| REVISION NO. | DATE | BY | CHKD | WSACC WATER AND SEWER AUTHORITY OF CABARRUS COUNTY | DIRECT BURY BUTTERFLY VALVE INSTALLATION |
|---|---|---|---|---|---|
| | | | | | FILE NAME: W5.0 DATE: 8/06 |



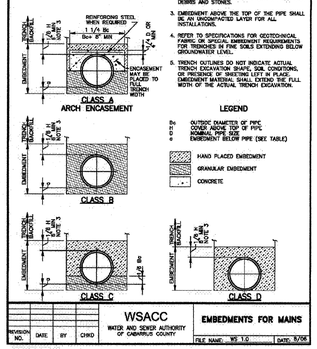

NOTES:
1. INSTALL CONNECTOR LINE FROM EXISTING BLOW OFF ASSEMBLY TO NEW MAIN FOR FILLING, TESTING AND STERILIZING NEW MAIN.
2. CONNECTOR LINE TO BE ASSEMBLED WITH CHECK VALVE AND TO BE OPERATED INDEPENDENT OF EXISTING MAIN.
3. BLOCKING ON EXISTING LINE NOT TO BE DISTURBED.
4. FINAL CONNECTION TO EXISTING MAIN TO BE MADE ONLY AFTER TOTAL PROJECT IS ACCEPTED BY THE OWNER.
5. VALVES ON EXISTING SYSTEM TO BE OPERATED BY OWNER FORCES ONLY.
6. ONLY ONE CONNECTION WILL BE ALLOWED BETWEEN THE EXISTING SYSTEM AND THE NEW CONSTRUCTION UNTIL TESTING AND DISINFECTION IS COMPLETE.

| REVISION NO. | DATE | BY | CHKD | WSACC WATER AND SEWER AUTHORITY OF CABARRUS COUNTY | JUMPER CONNECTION |
|---|---|---|---|---|---|
| | | | | | FILE NAME: W 13.0 DATE: 3/08 |

TABLE OF EMBEDMENT DEPTHS BELOW PIPE

| D | d MIN SOIL | d MIN ROCK |
|---|---|---|
| 27" & SMALLER | 6" | 6" |
| 30" TO 60" | 6" | 9" |
| 66" & LARGER | 6" | 12" |

NOTES:
1. GRANULAR EMBEDMENT MATERIAL SHALL BE CRUSHED ROCK, PEA GRAVEL, COARSE AGGREGATE SIZE NUMBER 57. EMBEDMENT MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 6" DEEP AND COMPACTED AS SPECIFIED.
2. HAND PLACED EMBEDMENT SHALL BE COMPACTED FINELY DIVIDED MATERIAL FREE FROM LUMPS AND STONES.
3. EMBEDMENT ABOVE THE TOP OF THE PIPE SHALL BE AN UNCOMPACTED LAYER FOR ALL INSTALLATIONS.
4. REFER TO SPECIFICATIONS FOR GEOTECHNICAL FABRIC OR SPECIAL EMBEDMENT REQUIREMENTS FOR TRENCHES IN FINE SOILS EXTENDING BELOW GROUNDWATER LEVEL.
5. TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.




| REVISION NO. | DATE | BY | CHKD | WSACC WATER AND SEWER AUTHORITY OF CABARRUS COUNTY | EMBEDMENTS FOR MAINS |
|---|---|---|---|---|---|
| | | | | | FILE NAME: W5 1.0 DATE: 8/06 |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | UC-3B |
| DESIGNED BY: KSH | |
| DRAWN BY: KSH | |
| CHECKED BY: KSH | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151 | UTILITY CONSTRUCTION PLANS ONLY |

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/5/13

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE)

| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| KSH | KSH | 8-5-13 | UC-3B | UC-5 |

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | UC-4 |
| DESIGNED BY: KSH | |
| DRAWN BY: KSH | |
| CHECKED BY: KSH | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
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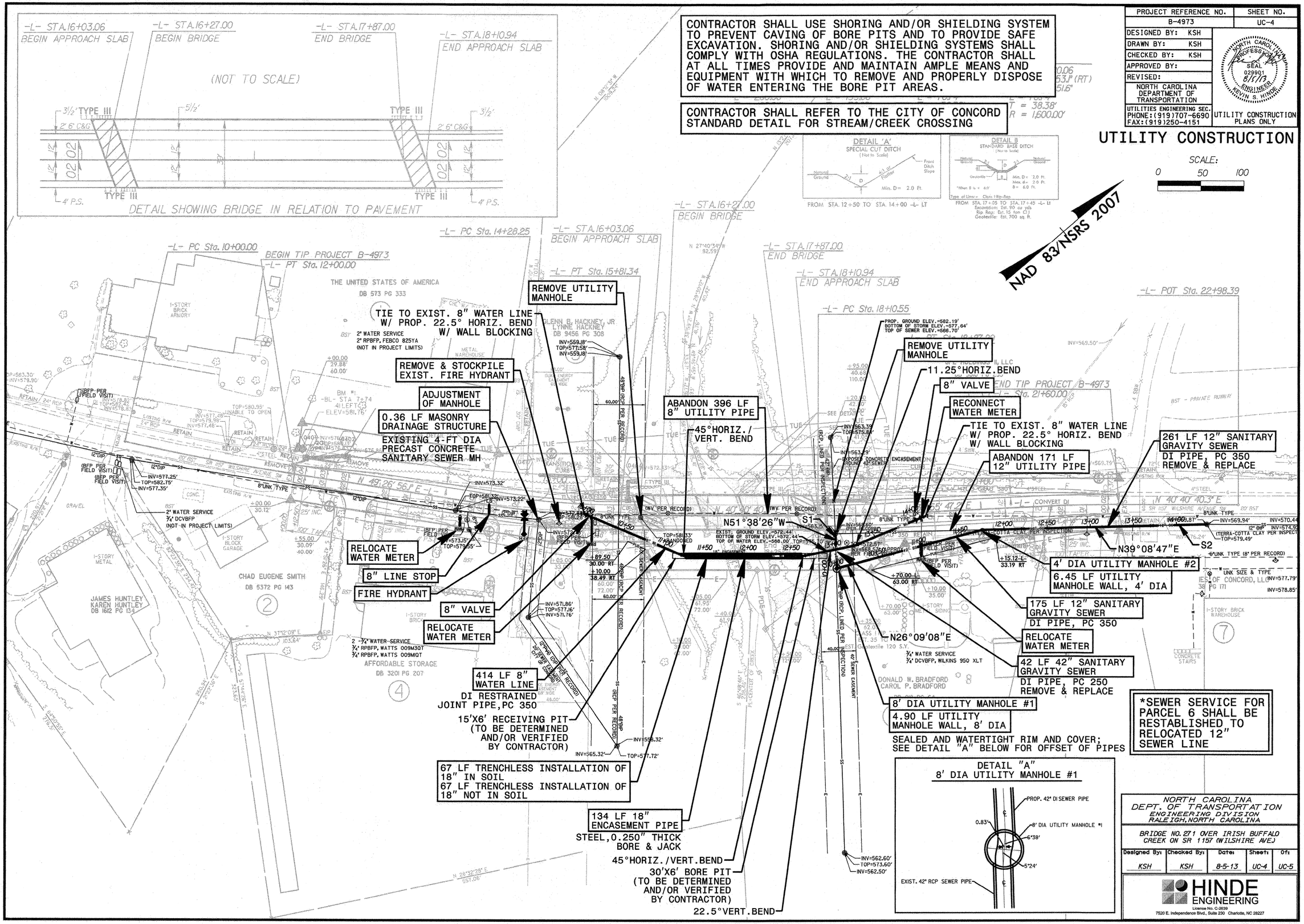
NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/5/13

# UTILITY CONSTRUCTION

SCALE: 0 50 100

CONTRACTOR SHALL USE SHORING AND/OR SHIELDING SYSTEM TO PREVENT CAVING OF BORE PITS AND TO PROVIDE SAFE EXCAVATION. SHORING AND/OR SHIELDING SYSTEMS SHALL COMPLY WITH OSHA REGULATIONS. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE AND MAINTAIN AMPLE MEANS AND EQUIPMENT WITH WHICH TO REMOVE AND PROPERLY DISPOSE OF WATER ENTERING THE BORE PIT AREAS.

CONTRACTOR SHALL REFER TO THE CITY OF CONCORD STANDARD DETAIL FOR STREAM/CREEK CROSSING




NORTH CAROLINA DEPT. OF TRANSPORTATION ENGINEERING DIVISION RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE)

| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| KSH | KSH | 8-5-13 | UC-4 | UC-5 |

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | UC-5 |

DESIGNED BY: KSH
DRAWN BY: KSH
CHECKED BY: KSH
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/5/13

UTILITY CONSTRUCTION PLANS ONLY

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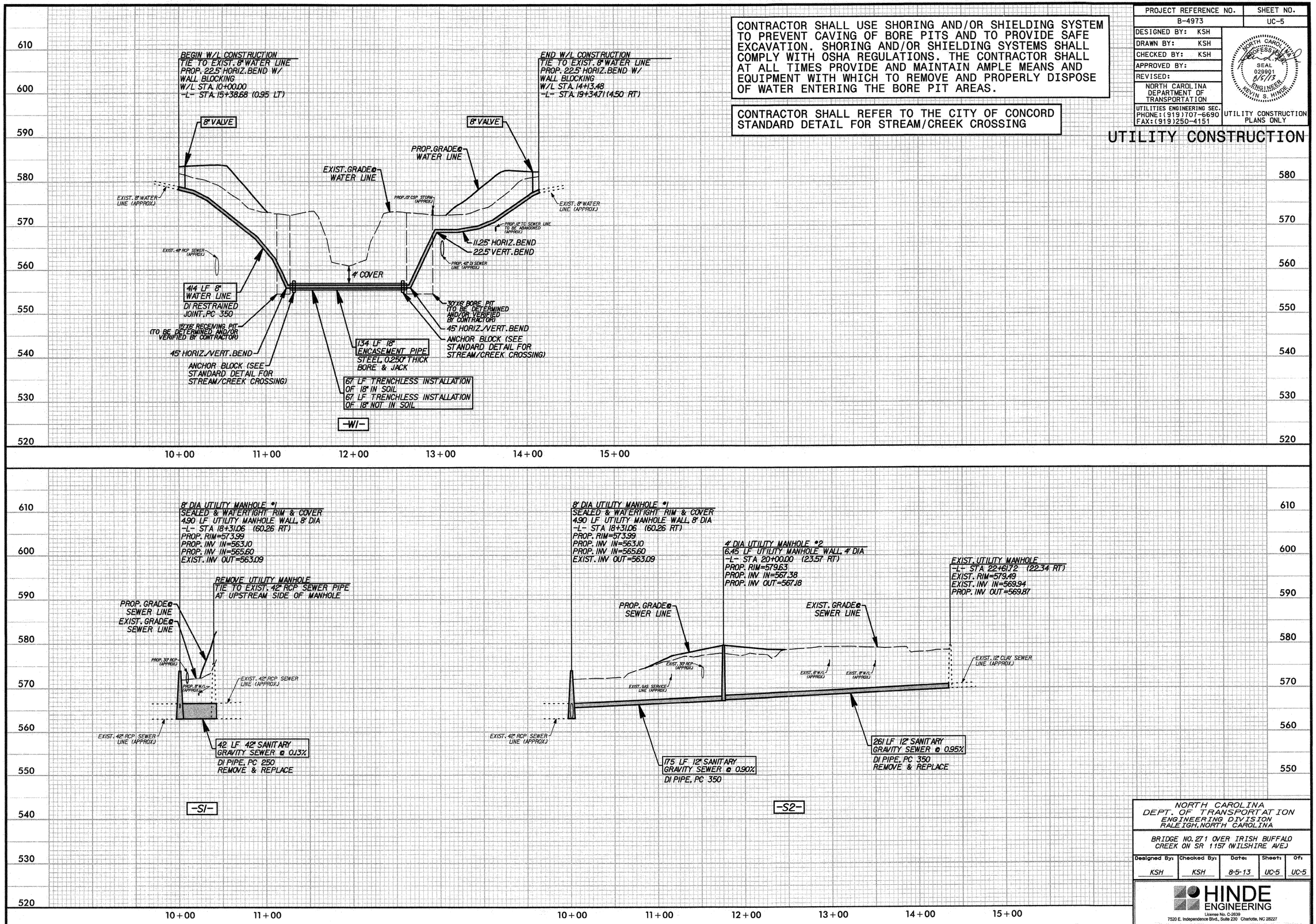



NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)

| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| KSH | KSH | 8-5-13 | UC-5 | UC-5 |

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

TIP PROJECT: B-4973

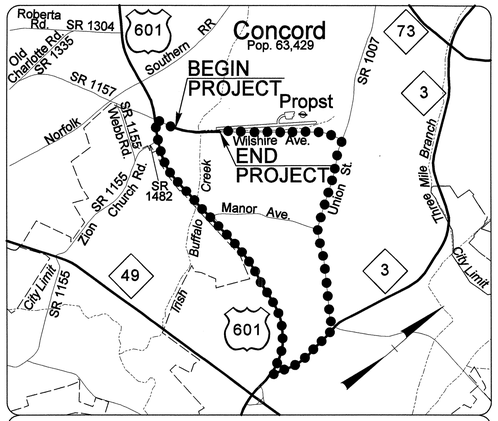
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

| T.I.P. NO. | SHEET NO. |
|---|---|
| B-4973 | UO-1 |

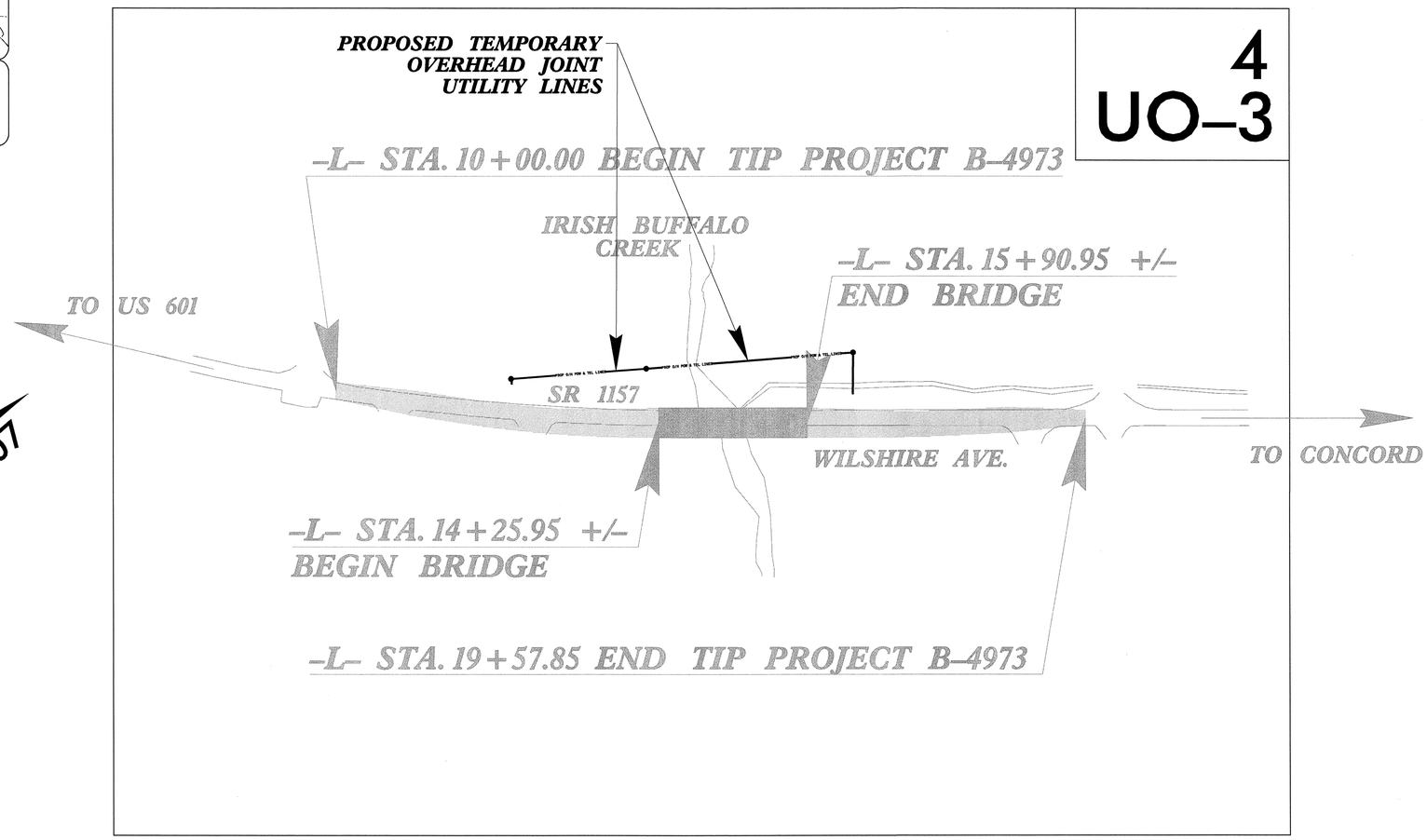
# UTILITIES BY OTHERS PLANS
# CABARRUS COUNTY

**LOCATION: BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)**

**TYPE OF WORK: ELECTRIC POWER DISTRIBUTION, TELEPHONE**




Vicinity Map
●●●● - Offsite Detour




NAD 83/NSRS 2007

## GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

## INDEX OF SHEETS

| SHEET NO. | DESCRIPTION |
|---|---|
| UO-1 | TITLE SHEET |
| UO-2 | UTILITY SYMBOLOGY SHEET |
| UO-3 | UBO PLAN SHEET |

## PRIVATE UTILITY OWNERS ON PROJECT

(1) POWER - CITY OF CONCORD POWER
(2) POWER - DUKE TRANSMISSION
(3) TELECOMMUNICATIONS - TIME WARNER CABLE
(4) TELECOMMUNICATIONS - WINDSTREAM
(5) GAS - PSNC

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | UO-2 |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

# UTILITIES PLAN SHEET SYMBOLS

## UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

## PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

## PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

## PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

## EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — PUTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)

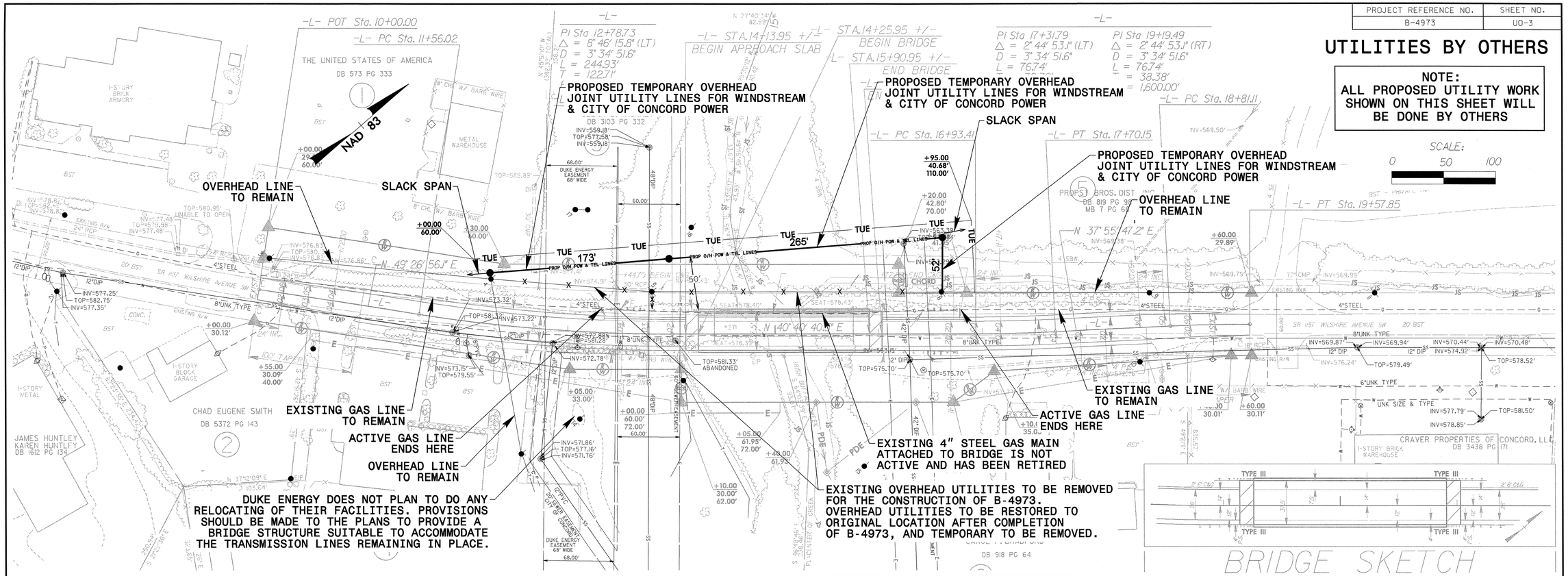
| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| OTHERS | OTHERS | 7-29-13 | UO-2 | UO-3 |

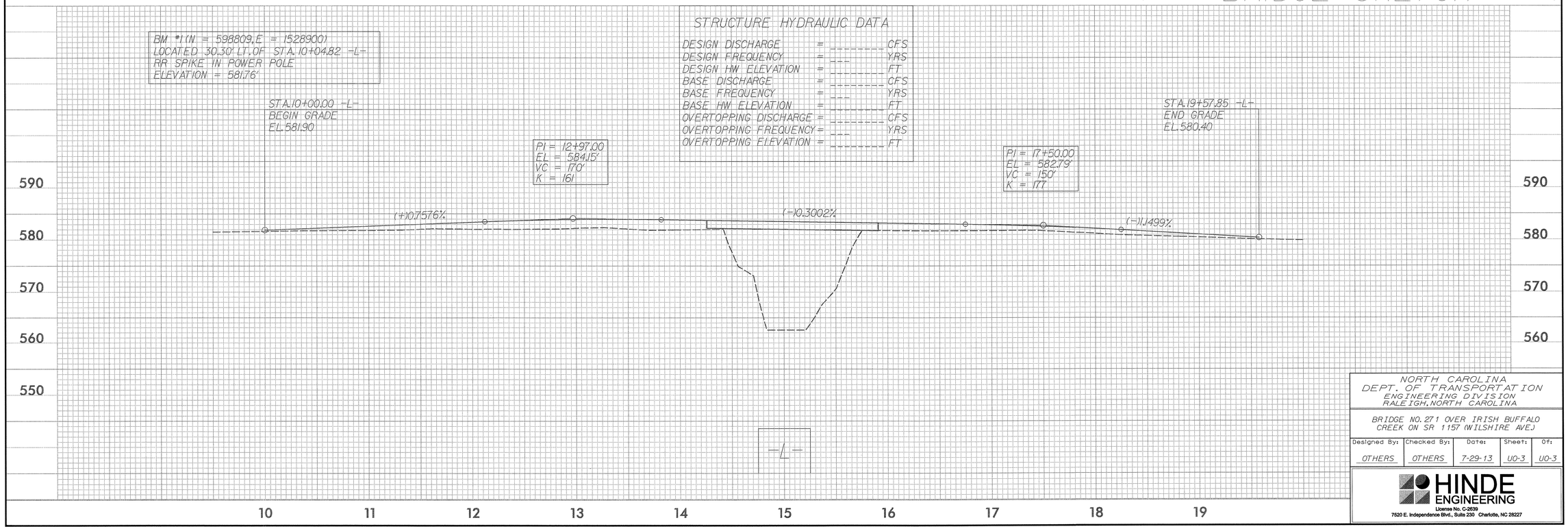
HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | U0-3 |

# UTILITIES BY OTHERS

**NOTE:**
**ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS**




STRUCTURE HYDRAULIC DATA

| | | |
|---|---|---|
| DESIGN DISCHARGE | = | CFS |
| DESIGN FREQUENCY | = | YRS |
| DESIGN HW ELEVATION | = | FT |
| BASE DISCHARGE | = | CFS |
| BASE FREQUENCY | = | YRS |
| BASE HW ELEVATION | = | FT |
| OVERTOPPING DISCHARGE | = | CFS |
| OVERTOPPING FREQUENCY | = | YRS |
| OVERTOPPING ELEVATION | = | FT |

NORTH CAROLINA
DEPT. OF TRANSPORTATION
ENGINEERING DIVISION
RALEIGH, NORTH CAROLINA

BRIDGE NO. 271 OVER IRISH BUFFALO CREEK ON SR 1157 (WILSHIRE AVE.)

| Designed By: | Checked By: | Date: | Sheet: | Of: |
|---|---|---|---|---|
| OTHERS | OTHERS | 7-29-13 | U0-3 | U0-3 |

HINDE ENGINEERING
License No. C-2636
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

| PROJ. REFERENCE NO. | SHEET NO. |
|---|---|
| B-4973 | X-1A |

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

**Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".**

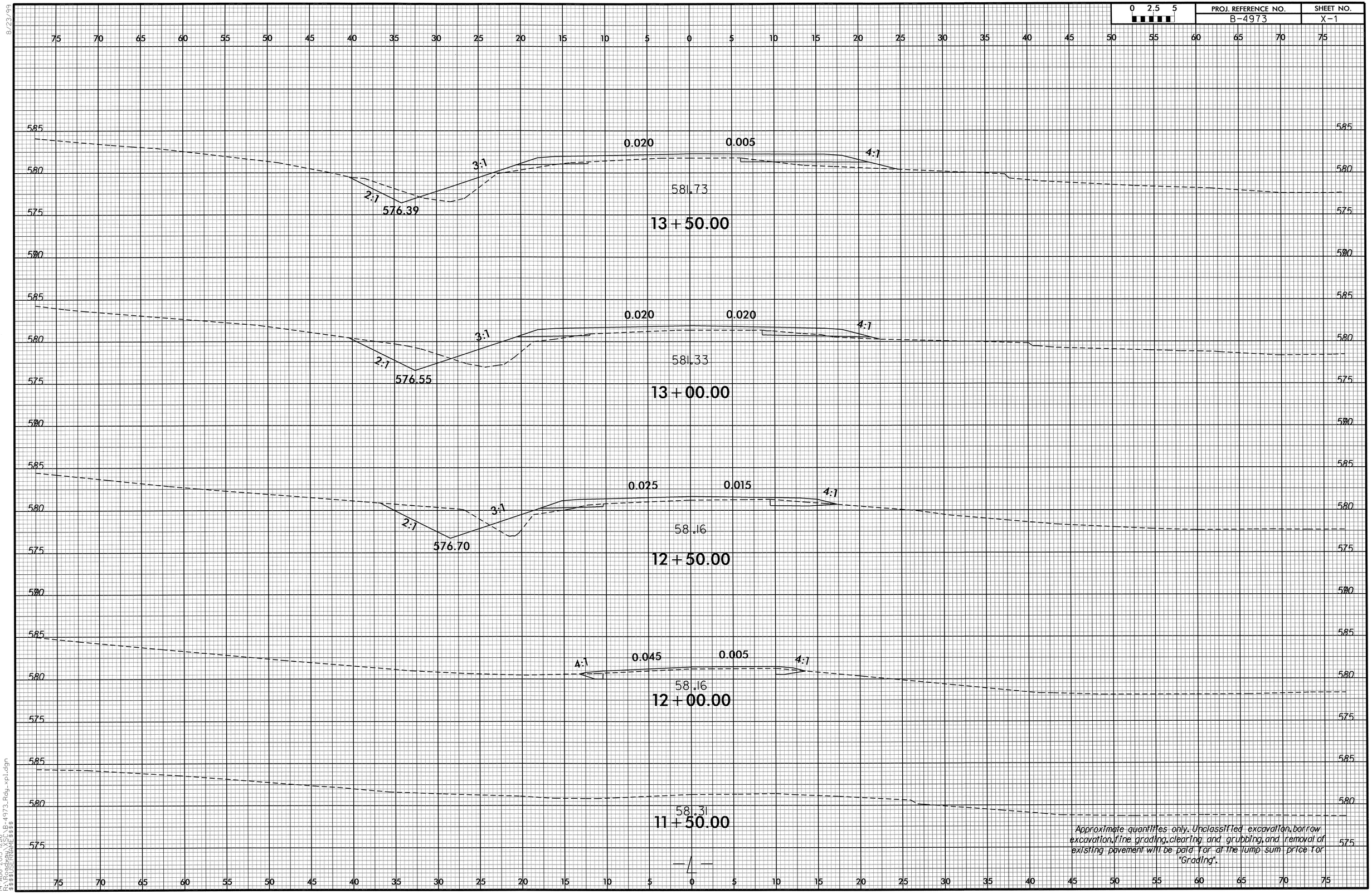
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

## *CROSS-SECTION SUMMARY*

| Station<br>L | Uncl. Exc.<br>(cu. yd.) | Embt<br>(cu. yd.) |
|---|---|---|
| 12+00.00 | 0 | 0 |
| 12+50.00 | 28 | 9 |
| 13+00.00 | 44 | 27 |
| 13+50.00 | 25 | 37 |
| 14+00.00 | 12 | 43 |
| 14+50.00 | 6 | 64 |
| 15+00.00 | 3 | 118 |
| 15+50.00 | 5 | 195 |
| 16+00.00 | 4 | 236 |

| Station<br>L | Uncl. Exc.<br>(cu. yd.) | Embt<br>(cu. yd.) |
|---|---|---|
| 18+00.00 | 0 | 0 |
| 18+50.00 | 16 | 194 |
| 19+00.00 | 18 | 233 |
| 19+50.00 | 21 | 152 |
| 20+00.00 | 14 | 77 |
| 20+50.00 | 7 | 44 |
| 21+00.00 | 8 | 16 |
| 21+50.00 | 8 | 0 |

| 0 2.5 5 | PROJ. REFERENCE NO. | SHEET NO. |
|---|---|---|
| | B-4973 | X-1 |






8/23/99
14-AUG-2013 12:16
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$$$$USERNAME$$$$

| 0 2.5 5 | PROJ. REFERENCE NO. | SHEET NO. |
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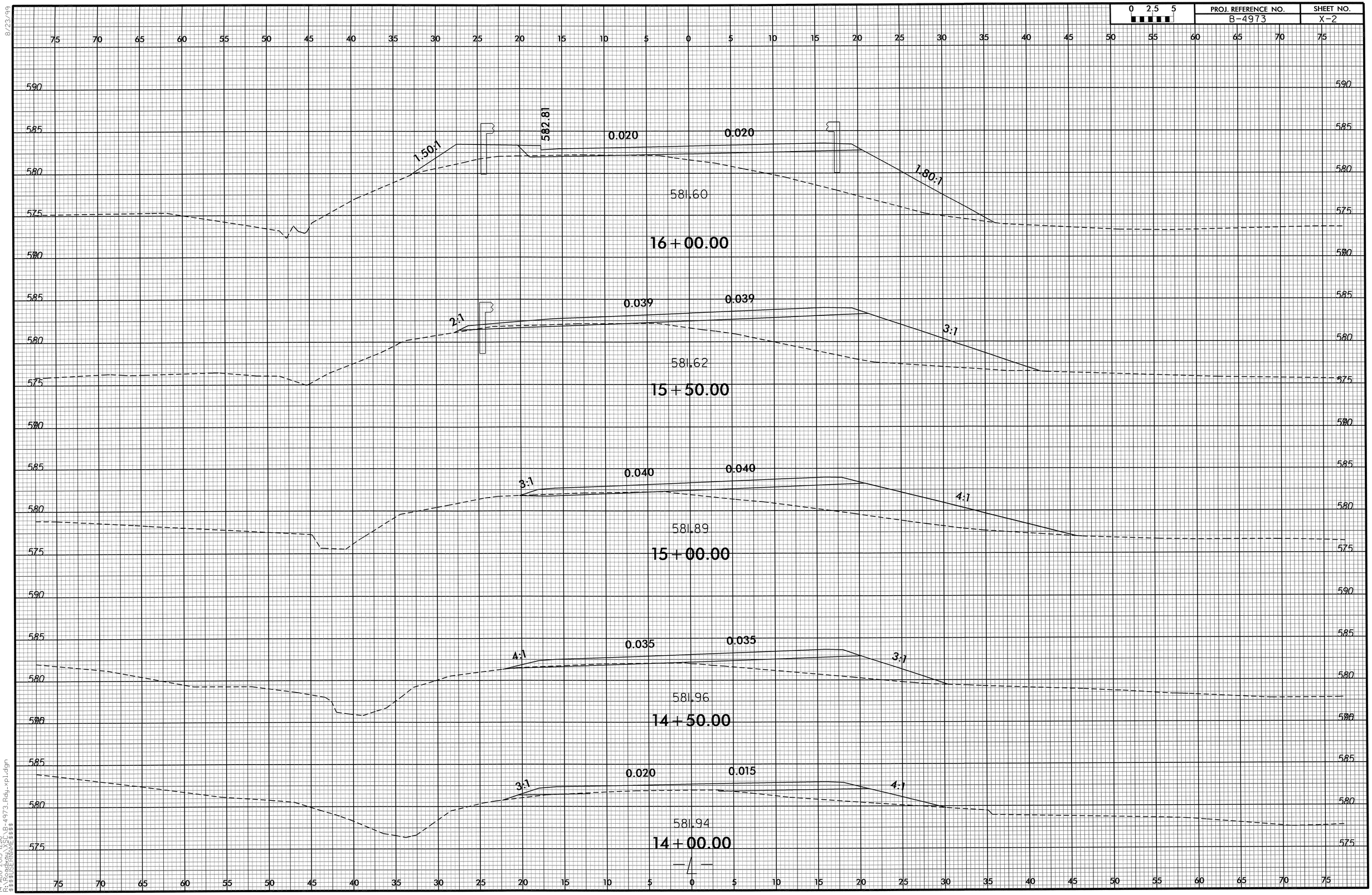
| | B-4973 | X-2 |

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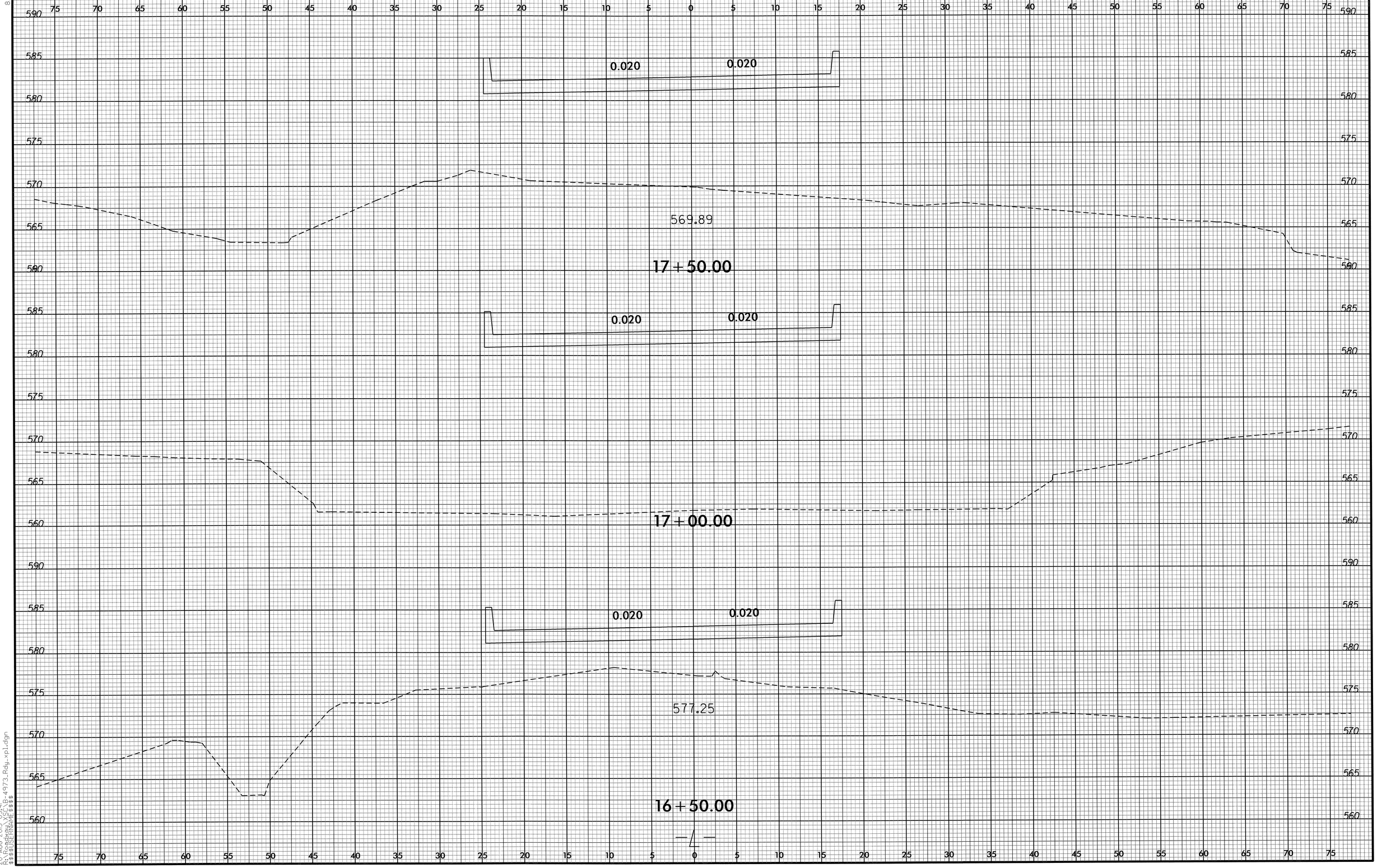


8/23/99

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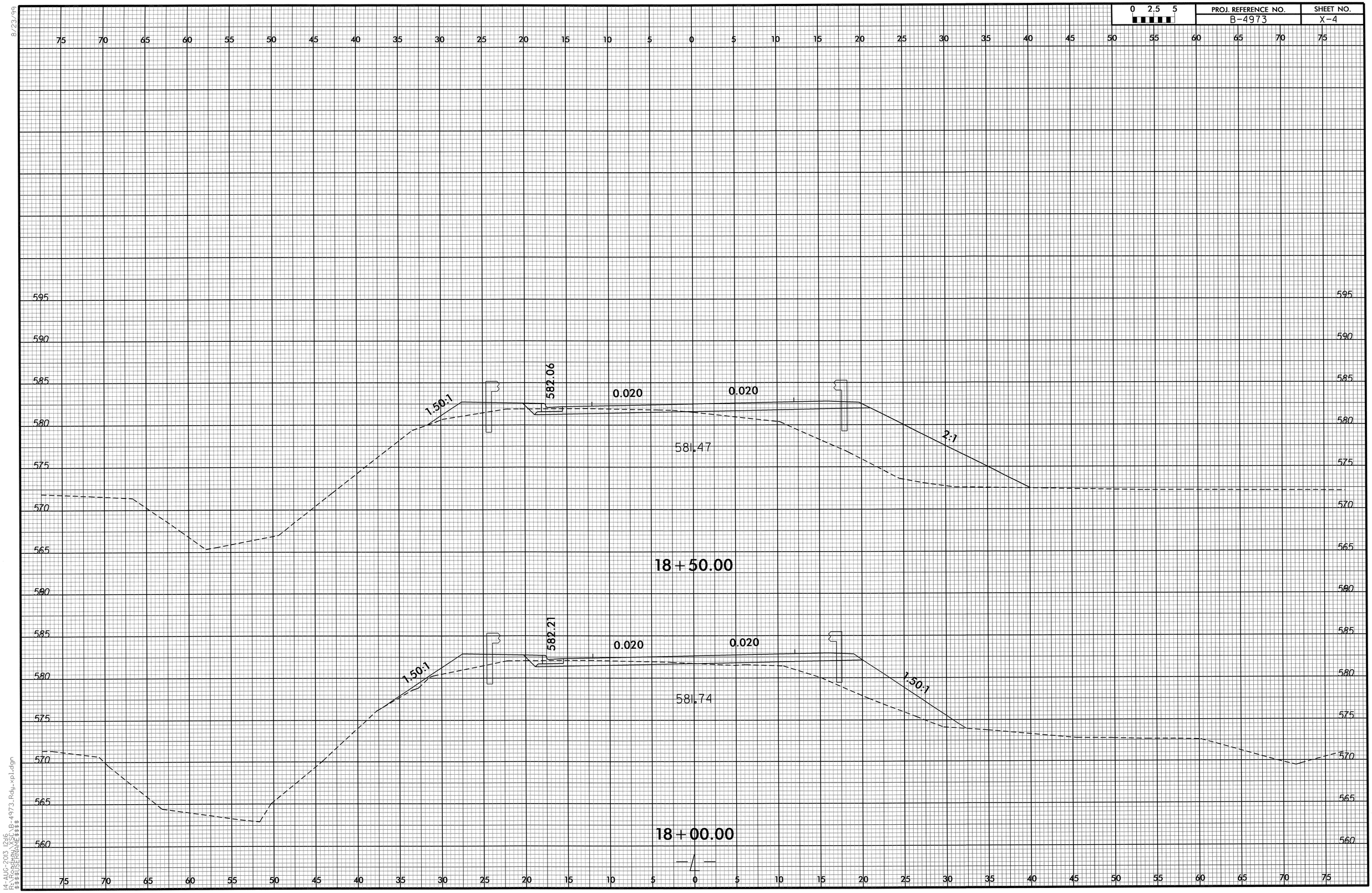
|---|---|---|
| | B-4973 | X-4 |




8/23/99
14-AUG-2013 12:16
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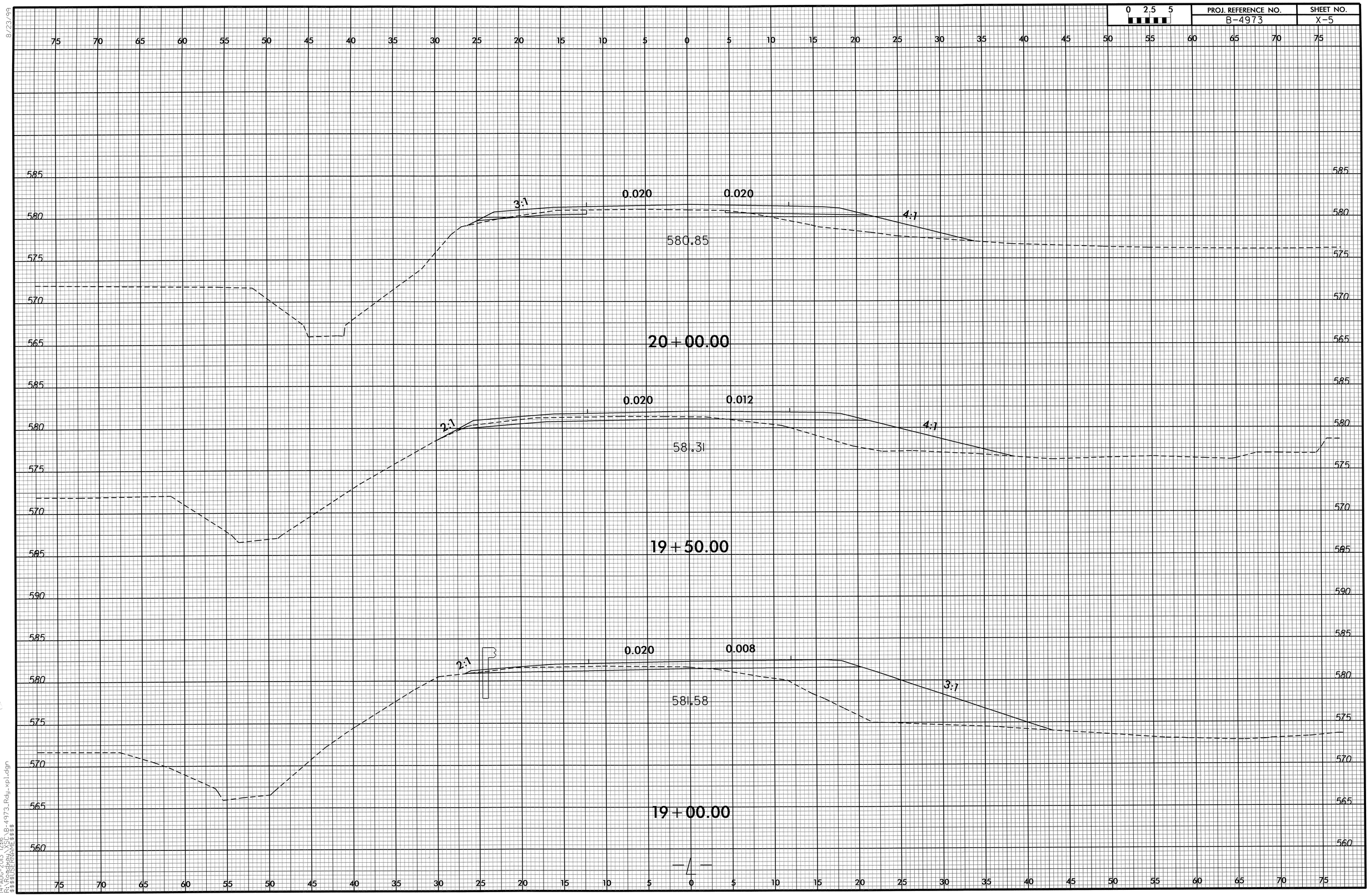
$$$$USERNAME$$$$




14-AUG-2013 12:16
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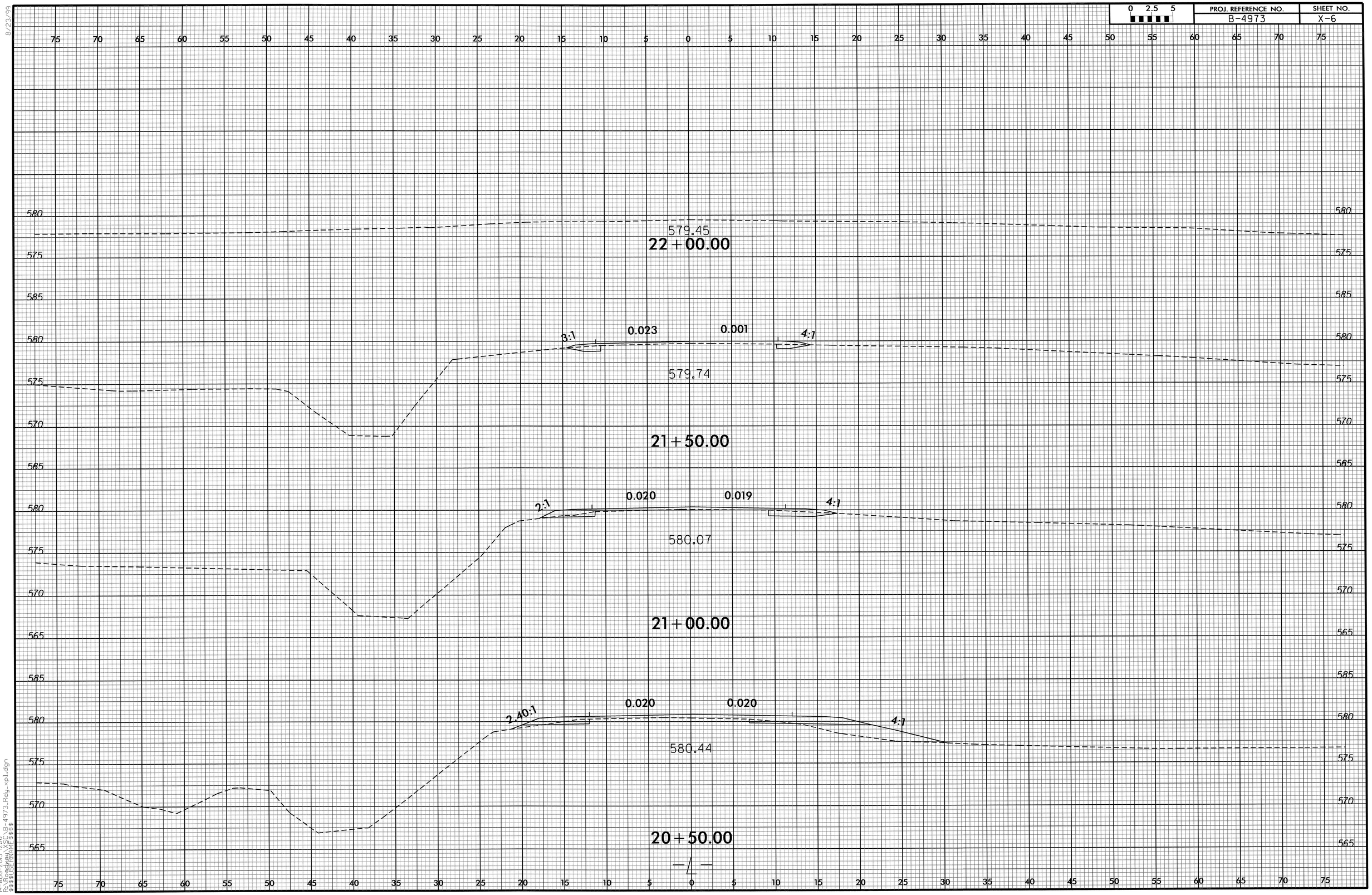
$$$$USERNAME$$$$

8/23/99

| 0 2.5 5 | PROJ. REFERENCE NO. | SHEET NO. |
|---|---|---|
| | B-4973 | X-6 |






8/23/99
14-AUG-2013 12:16
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$$$$USERNAME$$$$