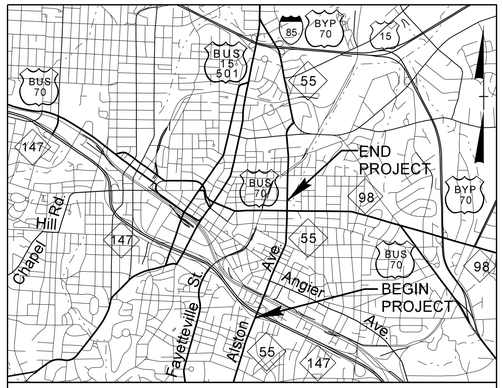
TIP PROJECT: U-3308

CONTRACT: C203567

21-JUN-2016 10:57
R:\Roadway\Proj\u3308_rdy_tsh.dgn
$$$$USERNAME$$$$

See Sheet 1-A For Index of Sheets
See Sheet 1-B For CONVENTIONAL SYMBOLS



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

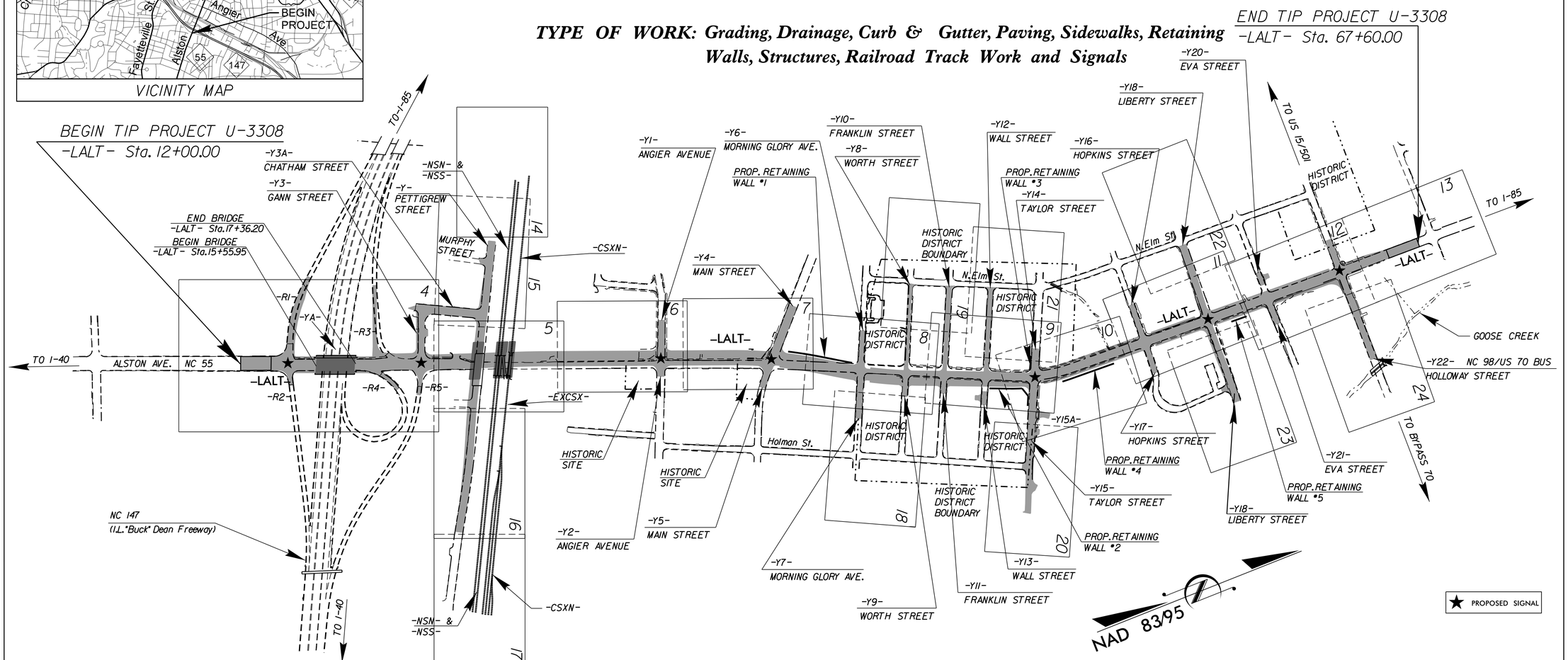
DURHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3308	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34915.1.1	STP-0055(20)	PE
34915.2.1	STP-0055(20)	R/W
34915.2.U1	STP-0055(20)	UTILITIES
34915.3.FR1	STP-0055(20)	CONST.

LOCATION: NC 55 (ALSTON AVE.) FROM NC 147 (I. L. "BUCK" DEAN FREEWAY) TO NORTH OF US 70 BUS/NC 98 (HOLLOWAY ST.)

TYPE OF WORK: Grading, Drainage, Curb & Gutter, Paving, Sidewalks, Retaining Walls, Structures, Railroad Track Work and Signals



GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2016 = 25400 VPD
ADT 2036 = 32800 VPD
K = 9 %
D = 55 %
T = 7 % *
V = 35 MPH
* TTST 1% DUAL 6%
Minor Arterial
Regional Tier

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3308 = 1.019 mi
LENGTH STRUCTURE TIP PROJECT U-3308 = 0.034 mi
TOTAL LENGTH TIP PROJECT U-3308 = 1.053 mi

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 30, 2013

LETTING DATE: JULY 19, 2016

JAMES A. SPEER, PE
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019721 ENGINEER WILLIAM H. ELAM

DocuSigned by: Wm. H. Elam, Jr 6/21/2016 P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 6/21/2016 P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PROJECT REFERENCE NO.	SHEET NO.
U-3308	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 014571 James A. Speer

DocuSigned by: James Speer 5/18/2016

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-10	SURVEY CONTROL SHEETS
2A-1 THRU 2A-14	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-7	ROADWAY DETAILS
2C-1 THRU 2C-21	SPECIAL DETAILS
2H-1	STOCKPILE CONTAINMENT DETAIL
3B-1 THRU 3B-3	ROADWAY SUMMARIES (Earthwork, Guardrail, Asphalt Pavement Removal, Concrete Pavement Removal)
3D-1 THRU 3D-12	DRAINAGE SUMMARIES
3G-1	GEOTECH SUMMARIES
3P-1 THRU 3P-2	PARCEL INDEX SHEET
4 THRU 39	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-28	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-9	PAVEMENT MARKING PLANS
E-1 THRU E-5	ELECTRICAL PLANS
EC-1 THRU EC-45	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-10	SIGNING PLANS
SIG-1 THRU SIG-P3	SIGNAL PLANS
SCP.1 THRU SCP.18	COMMUNICATIONS CABLE ROUTING
UC-1 THRU UC-49	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-24	UTILITIES BY OTHERS
RR-1 THRU X-RR12	TRACKWORK PLANS
X-1A THRU X-1C	CROSS-SECTION SUMMARY SHEET
X-1 THRU X- 119	CROSS-SECTIONS
S-1 THRU S-79	STRUCTURE PLANS
W-1 THRU W-8	RETAINING WALL PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

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.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 900 MM RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

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 CITY OF DURHAM - WATER
CITY OF DURHAM - SANITARY SEWER, DUKE ENERGY - POWER (DISTRIBUTION)
DUKE ENERGY - POWER (TRANSMISSION), TIME WARNER CABLE - (CABLE TV)
FRONTIER COMMUNICATIONS - (COMMUNICATIONS), PIEDMONT NATURAL GAS - (NATURAL GAS)
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

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
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
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	
610.03	Guide for Paving Shoulders Under Bridges - Method III
654.01	Pavement Repairs
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS	
700.05	Tying Proposed Pavement to Existing
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.39	Reinforced Concrete Endwall - for Single 72" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.69	Reinforced Brick Endwall - for Single 72" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
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
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.30	Driveway Drop Inlet
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Beg. March 2013 Letting use detail in lieu of Standard)
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/99

13-MAY-2016 10:57
R:\Roadway\Proj\U3308_1-A.dgn
$$$$USERNAME$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
U-3308	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:

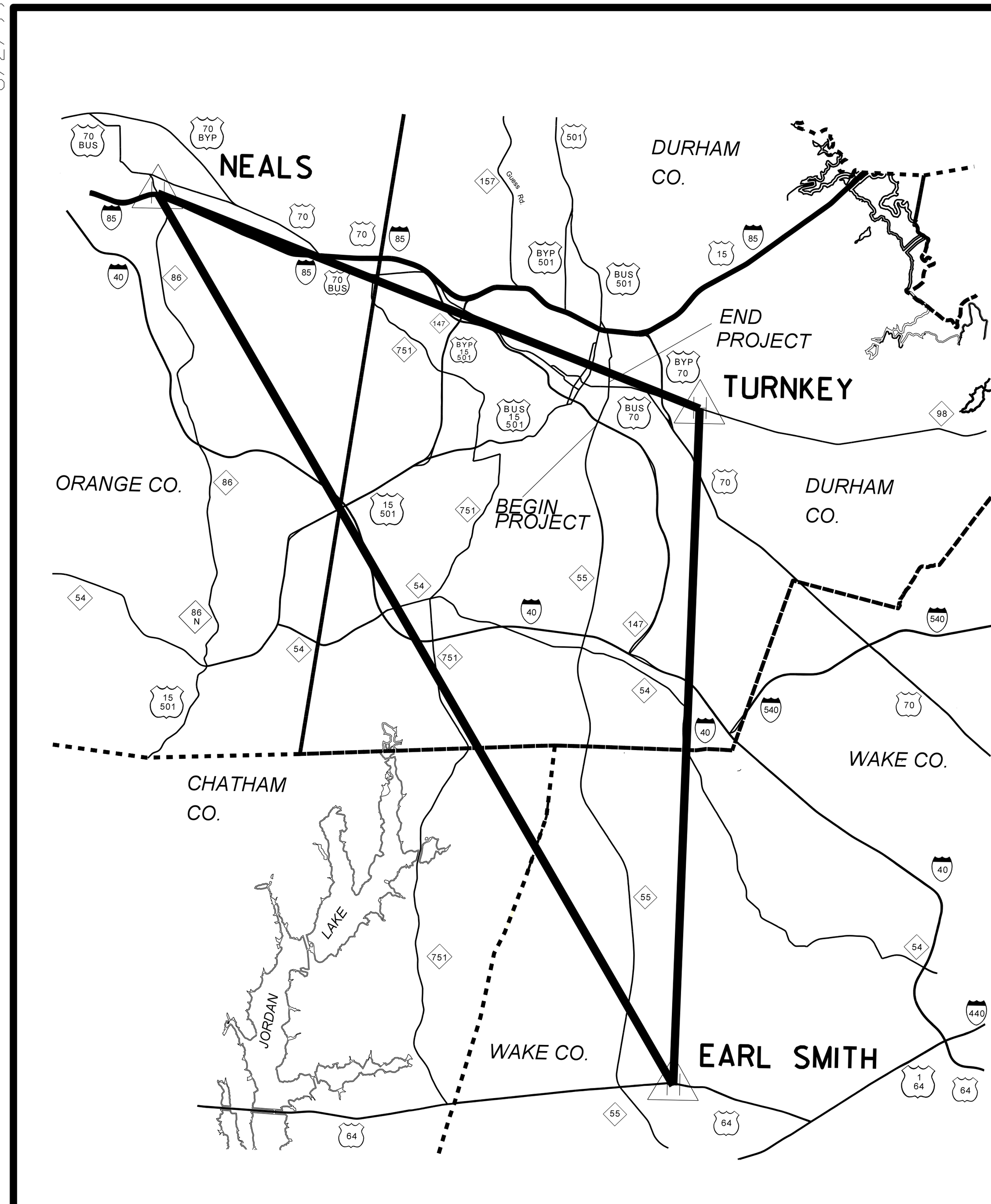
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

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.
U-3308	1C-1
Location and Surveys	

SURVEY CONTROL SHEET U-3308
DURHAM COUNTY



GPS CONTROL NETWORK
NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1"

WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- STATION 13+50.00 IS N 84° 58′ 17.0″ W 634.7202 (ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   U3308_LS_GPSCALIB_050829.HTML
   U3308_LS_WGS84_050829.TXT
   U3308_LS_LOCAL_050829.TXT
   U3308_LS_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

07-MAY-2015 13:45

SURVEY CONTROL SHEET U-3308

GPS Calibration Report

Project : 34915.1.1 TIP Number: U3308

User name A. P. Spielvogel Date & Time 10:54:50 AM 6/20/05
Coordinate System US State Plane 1983(at ground) Zone North Carolina 3200
Horizontal Datum NAD 1983 (Conus)
Vertical Datum Geoid Model Geoid99 NC Sub Grid

Coordinate Units	US Survey Feet
Distance Units	US Survey Feet
Height Units	US Survey Feet

LOCAL SITE INFORMATION
Localized around U3308-1
Latitude 35°58′52.77432"N
Longitude 78°53′19.19111"W
Site Scale Factor 1.000057303
Height ?

The North Carolina Department of Transportation uses a Localized Coordinate System which is very similar to North Carolina Zone 3200 from which it is derived. Please take care in utilizing these coordinates to eliminate confusion of the two systems. This file is to aid in the use of Real Time Kinematic (RTK) GPS during construction layout.

Datum Transformation Parameters

Datum Transformation computation not requested

Updated Default Projection (Transverse Mercator) Definition

Updated default projection not requested

Horizontal Adjustment Parameters

Northing coordinate of rotation center 806047.0164SFT
Easting coordinate of rotation center 2028149.2155SFT
Rotation about the center point 0°00′00"
Translation north 0.3463SFT
Translation east -0.2689SFT
Scale factor 1.00005747

Vertical Adjustment Parameters

Northing coordinate of origin point 840519.8109SFT
Easting coordinate of origin point 1975512.3961SFT
Vertical separation at origin -0.1436SFT
Slope north 0.629PPM
Slope east 0.302PPM

Geoid Model Definition

Geoid03 (CONUS) NC Sub Grid

Residual Differences Between GPS (WGS84) And Local Coordinates

Summary

	Maximum Error	Root Mean Square Error	Point
Horizontal	0.010sft	0.002	TURNKEY_WGS84
Vertical	0.078sft	0.011	TURNKEY_WGS84
Three-dimensional	0.079sft	0.011	TURNKEY_WGS84

Point NEALS_ WGS84
Latitude 36°03′33.70562"N
Longitude 79°04′58.20354"W
Height 516.9051sft

Northing 840519.8109sft
Easting 1975512.3961
Elevation 617.0749sft
Horz error 0.008sft
Vert error 0.017sft
3D error 0.019sft

Point NEALS Local
Northing 840519.8117
Easting 1975512.4040sft
Elevation 617.0919sft
Utilized Horz and Vert
Quality Survey quality

Point EARL SMITH_ WGS84
Latitude 35°44′57.32992"N
Longitude 78°51′09.25788"W
Height 382.9815sft

Northing 727654.554sft
Easting 2043745.3942sft
Elevation 488.3649sft
Horz error 0.007sft
Vert error 0.004sft
3D error 0.008sft

Point EARL SMITH Local
Northing 727654.5486sft
Easting 2043745.3974sft
Elevation 488.3684sft
Utilized Horz and Vert
Quality Survey quality

Point TURNKEY_ WGS84
Latitude 35°59′14.51009"N
Longitude 78°50′47.43883"W
Height 267.6865sft

Northing 814333.7648
Easting 2045409.8586sft
Elevation 371.0434sft
Horz error 0.010sft
Vert error 0.078sft
3D error 0.079sft

Point TURNKEY Local
Northing 814333.7683sft
Easting 2045409.8495sft
Elevation 371.1213sft
Utilized Horz and Vert
Quality Survey quality

Point U3308-1_ WGS84
Latitude 35°58′52.77432"N
Longitude 78°53′19.19115"W
Height 283.7035sft

Northing 812119.1554sft
Easting 2032940.7021sft
Elevation 386.5564sft
Horz error 0.004sft
Vert error 0.015sft
3D error 0.016sft

Point U3308-1 Local
Northing 812119.1566sft
Easting 2032940.6979sft
Elevation 386.5412sft
Utilized Horz and Vert
Quality Survey quality

Point U3308-2_ WGS84
Latitude 35°58′57.96845"N
Longitude 78°53′31.18917"W
Height 293.4541sft

Northing 812643.9091sft
Easting 2031954.0107sft
Elevation 396.2549sft
Horz error 0.003sft
Vert error 0.019sft
3D error 0.019sft

Point U3308-2 Local
Northing 812643.3091sft
Easting 2031954.0135sft
Elevation 396.2361sft
Utilized Horz and Vert
Quality Survey quality

Point U3308-3_ WGS84
Latitude 35°59′42.51098"N
Longitude 78°53′09.71889"W
Height 231.9418sft

Northing 817149.5425sft
Easting 2033713.4559sft
Elevation 334.7078sft
Horz error 0.002sft
Vert error 0.033sft
3D error 0.033sft

Point u3308-3 Local
Northing 817149.5402sft
Easting 2033713.4555sft
Elevation 334.6745sft
Utilized Horz and Vert
Quality Survey quality

Point U3308-4_ WGS84
Latitude 35°59′49.99641"N
Longitude 78°53′09.05905"W
Height 246.3414sft

Northing 817906.5538sft
Easting 2033766.8087sft
Elevation 349.0921sft
Horz error 0.003sft
Vert error 0.031sft
3D error 0.031sft

Point U3308-4 Local
Northing 817906.5564sft
Easting 2033766.8084sft
Elevation 349.0610sft
Utilized Horz and Vert
Quality Survey quality

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1"
WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF
NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 STATION IS N 84° 58′ 17.0" W 634.7202(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   U3308_LS_GPSCALIB_050829.HTML
   U3308_LS_WGS84_050829.TXT
   U3308_LS_LOCAL_050829.TXT
   U3308_LS_CONTROL_050829.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3308	1C-3
Location and Surveys	

SURVEY CONTROL SHEET U-3308

CONTROL DATA:

BL

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
100	BL-100	811382.3270	2032035.7910	390.03	OUTSIDE PROJECT LIMITS	
101	BL-101	811853.9600	2032217.8670	388.48	OUTSIDE PROJECT LIMITS	
102	BL-102	812083.5940	2032308.7900	397.07	OUTSIDE PROJECT LIMITS	
103	BL-103	812297.1280	2032399.1270	407.94	14+97.19	39.12 RT
180	POINT NOT SET	812375.6081	2032430.5233	UNKNOWN	15+81.71	39.31 RT
104	BL-104	812555.7530	2032502.5910	408.84	17+75.65	39.78 RT
105	BL-105	812838.3410	2032617.0490	401.55	20+79.07	48.09 RT
181	POINT NOT SET	813035.6549	2032683.6804	UNKNOWN	22+87.30	44.17 RT
106	BL-106	813102.7770	2032706.3470	397.04	23+58.13	42.84 RT
107	BL-107	813306.5760	2032795.8480	396.71	25+81.36	57.45 RT
108	BL-108	813504.7440	2032868.4300	395.14	27+92.78	53.11 RT
109	BL-109 PK	813862.6950	2033004.7730	380.63	31+75.80	49.96 RT
110	BL-110	814014.3640	2033073.6490	377.33	33+42.13	58.97 RT
111	BL-111 PK	814326.4050	2033192.1510	373.69	36+80.86	46.01 RT
112	BL-112 PK	814704.8910	2033364.2030	360.35	40+97.26	1.20 LT
113	BL-113	814891.0430	2033457.9560	352.92	43+05.85	0.14 LT
114	BL-114	815049.2290	2033531.5390	350.72	44+80.14	7.26 RT
115	BL-115	815187.8620	2033593.5770	349.35	46+31.96	11.78 RT
116	BL-116	815445.2000	2033695.4640	353.80	49+05.67	20.85 RT
117	BL-117	815922.8060	2033730.8230	349.16	53+81.31	27.75 RT
118	BL-118	816300.0780	2033748.3780	357.23	57+58.97	31.77 RT
119	BL-119 PK	816581.2290	2033749.0890	353.94	60+39.96	22.39 RT
120	BL-120	816948.9180	2033759.9420	337.36	64+07.54	21.29 RT
121	BL-121 PK	817357.1680	2033770.1280	335.55	68+15.31	27.52 RT
4	-U3308-4	817406.5540	2033766.8070	349.86	OUTSIDE PROJECT LIMITS	

BY

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
122	BY-122	811504.8860	2031826.1370	392.56	OUTSIDE PROJECT LIMITS	
A100	BL-100	811382.3270	2032035.7910	390.03	OUTSIDE PROJECT LIMITS	
123	BY-123 PK	811326.9960	2032230.6220	387.58	OUTSIDE PROJECT LIMITS	

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
124	BY1-124 PK	812236.1100	2031922.6790	364.66	OUTSIDE PROJECT LIMITS	
A102	BL-102	812083.5940	2032308.7900	397.07	OUTSIDE PROJECT LIMITS	

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
125	BY2-125	812762.7220	2031807.4390	399.01	17+11.36	682.69 LT
126	BY2-126	812556.5390	2032095.7500	393.63	16+26.22	338.62 LT
127	BY2-127	812415.9160	2032348.7370	390.84	15+88.97	51.58 LT
A180	POINT NOT SET	812375.6081	2032430.5233	0.00	15+81.71	39.31 RT
128	BY2-128	812302.4860	2032582.9490	388.06	15+68.19	208.70 RT
129	BY2-129	812083.1460	2033025.2810	385.45	15+29.57	700.03 RT

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
130	BY3-130 PK	812923.5880	2032327.8310	407.40	9+96.11	14.25 LT
A105	BL-105	812838.3410	2032617.0490	401.55	OUTSIDE PROJECT LIMITS	

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	Y3A STATION	OFFSET
A130	BY3-130 PK	812923.5880	2032327.8310	407.12	10+13.87	4.81 LT
131	BY5-131	813167.7890	2032421.2800	415.56	12+73.95	31.79 LT

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
A131	BY5-131	813167.7890	2032421.2800	415.54	15+71.51	20.24 RT
A181	POINT NOT SET	813035.6549	2032683.6804	UNKNOWN	18+65.06	11.38 RT
132	BY5-132 PK	812975.0940	2032803.9460	382.45	19+99.57	9.19 RT
133	BY5-133 PK	812838.9660	2033069.5950	413.40	22+98.06	8.17 RT
134	BY5-134 PK	812623.9530	2033434.6930	402.69	OUTSIDE PROJECT LIMITS	
135	BY5-135 PK	812511.3100	2033642.2980	399.47	OUTSIDE PROJECT LIMITS	

BY8

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
138	BY8-138	812316.8750	2033270.2000	407.63	18+29.65	841.68 RT
137	BY8-137 PK	812266.2120	2033380.4430	405.00	18+22.99	962.78 RT
A136	BY9-136 PK	812201.9490	2033502.7260	403.92	18+09.20	1100.04 RT

BY9

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
136	BY9-136 PK	812201.9490	2033502.7260	403.92	18+09.20	1100.04 RT
A135	BY5-135 PK	812511.3100	2033642.2980	399.47	21+17.46	1123.55 RT

BY10

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
144	BY12-144 PK	814552.9810	2032934.1860	382.11	37+54.52	288.38 LT
143	BY10-143	814202.8460	2032771.5030	393.07	34+07.84	291.03 LT
141	BY11-141	813993.6210	2032676.2110	388.62	31+78.29	303.72 LT
140	BY10-140 PK	813718.7890	2032534.6660	395.19	28+70.73	335.61 LT
139	BY10-139	813420.9720	2032392.9400	405.65	25+47.53	359.91 LT

BY11

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
B141	BY11-141	813993.6210	2032676.2110	388.65	OUTSIDE PROJECT LIMITS	
B109	BL-109	813862.6950	2033004.7730	380.63	OUTSIDE PROJECT LIMITS	
142	BY11-142 PK	813726.9280	2033322.7380	416.06	OUTSIDE PROJECT LIMITS	

BY11

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
B141	BY11-141	813993.6210	2032676.2110	388.65	OUTSIDE PROJECT LIMITS	
B109	BL-109	813862.6950	2033004.7730	380.63	10+65.79	27.05 LT
142	BY11-142 PK	813726.9280	2033322.7380	416.06	OUTSIDE PROJECT LIMITS	

BY12

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
A144	BY12-144 PK	814552.9810	2032934.1860	382.26	12+85.62	19.31 RT
A111	BL-111	814326.4050	2033192.1510	373.69	OUTSIDE PROJECT LIMITS	
145	BY12-145	814213.8840	2033325.3120	380.77	OUTSIDE PROJECT LIMITS	

BY12

POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
A144	BY12-144 PK	814552.9810	2032934.1860	382.26	OUTSIDE PROJECT LIMITS	
A111	BL-111	814326.4050	2033192.1510	373.69	10+57.60	28.42 LT
145	BY12-145	814213.8840	2033325.3120	380.77	12+38.43	17.26 LT

BY13

POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
146	BY13-146 PK	814893.4330	2032943.5140	377.56	OUTSIDE PROJECT LIMITS	
A112	BL-112	814704.8910	2033364.2030	360.35	OUTSIDE PROJECT LIMITS	
147	BY13-147 PK	814593.0690	2033595.2730	370.71	OUTSIDE PROJECT LIMITS	

BY13

POINT	DESC.	NORTH	EAST	ELEVATION	Y7 STATION	OFFSET
146	BY13-146 PK	814893.4330	2032943.5140	377.56	OUTSIDE PROJECT LIMITS	
A112	BL-112	814704.8910	2033364.2030	360.35	10+43.94	19.06 LT
147	BY13-147 PK	814593.0690	2033595.2730	370.71	OUTSIDE PROJECT LIMITS	

BY14

POINT	DESC.	NORTH	EAST	ELEVATION	Y8 STATION	OFFSET
148	BY14-148 PK	815023.4320	2033136.3600	373.95	13+08.59	7.62 RT
A113	BL-113	814891.0430	2033457.9560	352.92	9+61.06	28.60 RT
149	BY14-149 PK	814794.5320	2033647.7170	363.68	OUTSIDE PROJECT LIMITS	

BY14

POINT	DESC.	NORTH	EAST	ELEVATION	Y9 STATION	OFFSET
148	BY14-148 PK	815023.4320	2033136.3600	373.95	OUTSIDE PROJECT LIMITS	
A113	BL-113	814891.0430	2033457.9560	352.92	OUTSIDE PROJECT LIMITS	
149	BY14-149 PK	814794.5320	2033647.7170	363.68	12+51.65	11.84 LT

BY15

POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
150	BY15-150 PK	815126.7330	2033352.0100	365.38	11+66.62	11.52 RT
A114	BL-114	815049.2290	2033531.5390	350.72	OUTSIDE PROJECT LIMITS	
151	BY15-151 PK	814978.3900	2033669.6010	353.90	OUTSIDE PROJECT LIMITS	

BY15

POINT	DESC.	NORTH	EAST	ELEVATION	Y11 STATION	OFFSET
150	BY15-150 PK	815126.7330	2033352.0100	365.38	OUTSIDE PROJECT LIMITS	
A114	BL-114	815049.2290	2033531.5390	350.72	10+28.85	17.06 LT
151	BY15-151 PK	814978.3900	2033669.6010	353.90	11+83.91	11.13 LT

BY16

POINT	DESC.	NORTH	EAST	ELEVATION	Y12 STATION	OFFSET
152	BY16-152	815287.6820	2033397.2820	364.99	12+04.07	14.03 LT
A115	BL-115	815187.8620	2033593.5770	349.35	OUTSIDE PROJECT LIMITS	
153	BY16-153 PK	815122.7170	2033756.3840	345.88	OUTSIDE PROJECT LIMITS	

BY16

POINT	DESC.	NORTH	EAST	ELEVATION	Y13 STATION	OFFSET
152	BY16-152	815287.6820	2033397.2820	364.99	OUTSIDE PROJECT LIMITS	
A115	BL-115	815187.8620	2033593.5770	349.35	10+16.02	21.55 RT
153	BY16-153 PK	815122.7170	2033756.3840	345.88	11+91.11	11.80 RT

BY17

POINT	DESC.	NORTH	EAST	ELEVATION	Y14 STATION	OFFSET
154	-U3308BY17-154	815493.9420	2033467.9960	350.77	12+18.01	21.65 LT
A116	BL-116	815445.2000	2033695.4640	353.80	OUTSIDE PROJECT LIMITS	
155	BY17-155	815259.4070	2034069.9140	341.92	OUTSIDE PROJECT LIMITS	

BY17

POINT	DESC.	NORTH	EAST	ELEVATION	Y15 STATION	OFFSET
154	-U3308BY17-154	815493.9420	2033467.9960	350.77	OUTSIDE PROJECT LIMITS	
A116	BL-116	815445.2000	2033695.4640	353.80	10+08.83	29.92 LT
155	BY17-155	815259.4070	2034069.9140	341.92	14+27.41	18.38 LT

BY18

POINT	DESC.	NORTH	EAST	ELEVATION	Y16 STATION	OFFSET
156	BY18-156	815946.4610	2033475.9130	356.85	12+30.91	21.00 LT
A117	BL-117	815922.8060	2033730.8230	349.16	OUTSIDE PROJECT LIMITS	
157	BY18-157	815920.8440	2034043.2220	339.78	OUTSIDE PROJECT LIMITS	

BY18

POINT	DESC.	NORTH	EAST	ELEVATION	Y17 STATION	OFFSET
156	BY18-156	815946.4610	2033475.9130	356.85	OUTSIDE PROJECT LIMITS	
A117	BL-117	815922.8060	2033730.8230	349.16	10+25.72	36.34 RT
157	BY18-157	815920.8440	2034043.2220	339.78	OUTSIDE PROJECT LIMITS	

BY19

POINT	DESC.	NORTH	EAST	ELEVATION	Y18 STATION	OFFSET
158	BY19-158 PK	816268.2350	2033354.0250	370.41	10+20.83	18.71 RT
A118	BL-118	816300.0780	2033748.3780	357.23	14+13.74	39.90 LT
159	BY19-159	816277.1310	2034079.0340	345.95	17+45.69	20.60 LT

BY20

POINT	DESC.	NORTH	EAST	ELEVATION	Y20 STATION	OFFSET
160	BY20-160	816578.9330	2033620.3810	359.95	10+46.35	15.33 LT
A119	BL-119	816581.2290	2033749.0890	353.94	OUTSIDE PROJECT LIMITS	
161	BY20-161	816580.1730	2033841.0890	345.42	OUTSIDE PROJECT LIMITS	

BY20

POINT	DESC.	NORTH	EAST	ELEVATION	Y21 STATION	OFFSET
160	BY20-160	816578.9330	2033620.3810	359.95	OUTSIDE PROJECT LIMITS	
A119	BL-119	816581.2290	2033749.0890	353.94	10+23.61	21.70 LT
161	BY20-161	816580.1730	2033841.0890	345.42	11+15.57	18.96 LT

BY22

POINT	DESC.	NORTH	EAST	ELEVATION	Y22 STATION	OFFSET
162	BY22-162	816939.4680	2033383.9520	343.47	10+59.24	17.36 LT
A120	BL-120	816948.9180	2033759.9420	337.36	14+35.09	31.46 LT
163	BY22-163	816894.7290	2034231.2750	336.39	19+07.05	16.90 RT

BY23

POINT	DESC.	NORTH	EAST	ELEVATION	LALT STATION	OFFSET
164	BY23-164 PK	817362.1810	2033335.8380	360.33	68+20.59	406.77 LT
A121	BL-121	817357.1680	2033770.1280	335.55	68+15.31	27.52 RT

BY24

POINT	DESC.	NORTH	EAST	ELEVATION	NSS STATION	OFFSET
166	BY24-166	813247.4830	2032452.3090	413.22	18+76.01	18.90 RT
167	BY24-167	813154.4340	2032636.5170	411.96	20+82.38	17.01 RT
A106	BL-106	813102.7770	2032706.3470	397.04	21+68.13	30.85 RT
168	BY24-168	813095.1280	2032749.1920	412.23	22+09.71	17.99 RT
169	BY24-169	812929.7100	2033062.6810	412.40	25+64.15	21.05 RT
170	BY24-170	812733.3950	2033447.6290	405.47	29+96.26	18.77 RT

BM501 ELEVATION = 390.24
N 811527 E 2031971
LALT STATION 13+50.00
S 27°32'15.6" W 730.75'
R/R SPIKE IN ASPHALT

BM502 ELEVATION = 408.92
N 812346 E 2032417
LALT STATION 15+48.92 37.66 RIGHT
CUT SQUARE ON SE BENT

BM503 ELEVATION = 414.78
N 813231 E 2032457
Y STATION 15+72.37 52.46' LEFT
R/R SPIKE SET IN 15" PIN OAK

BM504 ELEVATION = 384.59
N 814163 E 2033350
Y5 STATION 12+83.43 17.94' RIGHT
R/R SPIKE SET IN 42" PIN OAK

BM505 ELEVATION = 341.46
N 815930 E 2033884
Y17 STATION 11+56.50
S 43°40'47.02" E DIST 28.88'
CUT SQUARE IN CONCRETE

BM506 ELEVATION = 335.58
N 816881 E 2034114
Y22 STATION 17+90.86 31.72' RIGHT
R/R SPIKE SET IN 44" PIN OAK

BM507 ELEVATION = 349.66
N 817347 E 2033589
LALT STATION 68+04.89 153.81' LEFT
R/R SPIKE SET IN 48" PIN OAK

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 STATION IS N 84° 58' 17.0" W 634.7202(ft)

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

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   U3308_LS_GPSCALIB_050829.HTML
   U3308_LS_WGS84_050829.TXT
   U3308_LS_LOCAL_050829.TXT
   U3308_LS_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

07-MAY-2015 13:45
C:\Projects\U3308_ls.1C-3.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	1C-4
Location and Surveys	

SURVEY CONTROL SHEET U-3308

L

TYPE	STATION	NORTH	EAST
POT	4+96.70	811381.8100	2031993.3000
PC	17+57.65	812553.6282	2032458.9653
PT	20+28.04	812806.5464	2032554.5551
PC	31+93.59	813903.6238	2032948.1369
PT	39+26.84	814573.2125	2033245.3742
PC	46+82.27	815239.3577	2033601.6331
PT	51+27.82	815667.3549	2033707.9944
PC	53+22.61	815862.1430	2033707.2244
PT	56+41.14	816180.6138	2033712.3061
PC	62+18.35	816757.4485	2033733.0023
PT	67+65.74	817304.7255	2033742.6447
POT	68+84.57	817423.5553	2033742.5700

L1

TYPE	STATION	NORTH	EAST
POT	12+00.00	812035.3955	2032253.0263
PC	17+57.65	812553.6267	2032458.9646
PT	20+28.04	812806.5426	2032554.5536
PC	32+90.15	813994.5203	2032980.7466
PT	37+45.64	814402.1114	2033181.8366
PC	39+03.72	814535.0160	2033267.4362
PT	43+56.56	814935.7907	2033476.9129
PC	47+70.02	815318.0395	2033634.5115
PT	50+36.42	815577.0232	2033690.6498
PC	62+17.60	816757.4464	2033733.0022
PT	67+64.97	817304.7052	2033742.6448
EQB	68+79.26	817418.9877	2033742.5730
EQA	68+77.15	817418.9877	2033742.5730

L2

TYPE	STATION	NORTH	EAST
POT	10+00.00	811381.8100	2031993.3000
PC	17+85.18	812111.4876	2032283.2644
PT	18+55.45	812176.3204	2032310.3563
PC	19+62.18	812274.0613	2032353.2316
PT	20+43.56	812349.2296	2032384.3976
PC	32+12.67	813438.0798	2032810.1044
PT	38+31.54	814020.0144	2033020.4922
PC	38+69.48	814056.0174	2033032.4681
PRC	43+73.78	814515.2960	2033238.6632
PT	46+05.68	814721.2996	2033344.9862
PC	52+74.24	815328.9703	2033623.7360
PT	55+69.19	815614.0745	2033691.5287
PC	68+13.31	816857.3571	2033737.3190
PT	71+12.85	817156.8281	2033742.7377
POT	73+79.58	817423.5600	2033742.5700

L3

TYPE	STATION	NORTH	EAST
POT	13+50.00	812174.7923	2032308.4208
PC	17+57.65	812553.6267	2032458.9646
PT	20+28.04	812806.5426	2032554.5536
PC	32+57.53	813963.8127	2032969.7301
PT	38+83.82	814524.2505	2033246.2289
PC	39+69.87	814596.5999	2033292.8268
PT	44+22.71	814997.3746	2033502.3035
PC	47+69.56	815318.0395	2033634.5115
PT	50+35.96	815577.0232	2033690.6498
PC	62+17.14	816757.4464	2033733.0022
PT	67+64.51	817304.7052	2033742.6448
POT	68+78.80	817418.9877	2033742.5730

LALT

TYPE	STATION	NORTH	EAST
POT	12+00.00	812035.3955	2032253.0263
PC	17+57.65	812553.6267	2032458.9646
PT	20+28.04	812806.5426	2032554.5536
PC	25+00.01	813250.7885	2032713.9291
PT	26+10.85	813354.5858	2032752.7983
PC	34+79.67	814163.9271	2033068.7276
PT	38+79.73	814519.6195	2033250.3830
PC	39+80.08	814603.9831	2033304.7189
PT	43+42.35	814924.6028	2033472.3002
PC	47+67.91	815318.0395	2033634.5115
PT	50+34.31	815577.0232	2033690.6498
PC	62+15.49	816757.4464	2033733.0022
PT	67+62.86	817304.7052	2033742.6448
POT	68+77.15	817418.9877	2033742.5730

LR1_QC

TYPE	STATION	NORTH	EAST
POT	5+00.00	817418.9877	2033742.5730

NSALTA

TYPE	STATION	NORTH	EAST
TS	10+00.00	813566.6166	2031879.8242
SC	11+24.00	813510.4103	2031990.3516
CS	12+46.73	813458.4051	2032101.5128
ST	13+70.73	813409.5788	2032215.4928
TS	15+90.73	813324.2890	2032418.2875
SC	17+14.73	813275.4627	2032532.2675
CS	20+84.20	813105.9146	2032860.2903
ST	22+08.20	813041.1668	2032966.0408
TS	24+28.20	812925.0514	2033152.9023
SC	25+52.20	812860.3036	2033258.6529
CS	26+74.93	812799.6939	2033365.3665
ST	27+98.93	812742.0308	2033475.1410
POT	29+51.18	812672.1223	2033610.3921

NS

TYPE	STATION	NORTH	EAST
POT	34+00.00	813597.6039	2031850.3632
POT	57+50.00	812518.5568	2033937.9833

NSD2

TYPE	STATION	NORTH	EAST
TS	10+00.00	813579.1631	2031851.5113
SC	11+24.00	813523.1428	2031962.1318
CS	12+57.34	813468.0044	2032083.5228
ST	13+81.34	813421.5572	2032198.4917
TS	16+01.34	813340.8067	2032403.1362
SC	17+25.34	813294.3595	2032518.1050
CS	21+16.03	813115.2062	2032864.8597
ST	22+40.03	813048.3123	2032969.2647
TS	24+60.03	812928.1271	2033153.5349
SC	25+84.03	812861.2332	2033257.9399
CS	27+17.37	812794.1302	2033373.1492
ST	28+41.37	812736.3219	2033482.8460

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 IS
N 84° 58' 17.0" W 634.7202 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U3308_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

PROJECT REFERENCE NO.	SHEET NO.
U-3308	1C-5
Location and Surveys	

SURVEY CONTROL SHEET U-3308

NSN

TYPE	STATION	NORTH	EAST
POT	10+00.00	813676.1020	2031696.1030
POT	31+41.59	812692.6472	2033598.5310

NSS

TYPE	STATION	NORTH	EAST
POT	10+00.00	813666.3757	2031682.7097
POT	30+46.93	812726.8090	2033501.2585

NSS_NSN

TYPE	STATION	NORTH	EAST
POT	10+00.00	813672.8527	2031686.0560
POT	31+50.00	812685.5367	2033595.9535

R1

TYPE	STATION	NORTH	EAST
POT	10+00.00	812565.6260	2031944.0485
PC	11+27.17	812468.4591	2032026.0854
PT	14+55.67	812278.5151	2032290.0539
POT	15+11.05	812258.0865	2032341.5209

R2

TYPE	STATION	NORTH	EAST
POT	10+00.00	812249.6945	2032338.1860
POT	11+00.49	812224.2262	2032435.3910

R3

TYPE	STATION	NORTH	EAST
POT	10+00.00	812619.8207	2032484.9293
PC	13+59.09	812750.8246	2032150.5892
PT	18+65.96	813009.5675	2031717.4082
POT	18+93.03	813027.0785	2031696.7628

R4

TYPE	STATION	NORTH	EAST
POT	10+00.00	812525.7757	2032481.2551
PC	10+52.68	812574.7324	2032500.7098
PT	12+30.37	812684.4751	2032631.2722
POT	12+62.21	812690.9712	2032662.4520

R5

TYPE	STATION	NORTH	EAST
POT	10+00.00	812827.2123	2032561.9691
POT	11+66.93	812745.6587	2032707.6205

SW2

TYPE	STATION	NORTH	EAST
PC	10+00.00	813565.7548	2031909.5623
PT	11+12.69	813516.9870	2032011.1375
PC	12+12.69	813476.3832	2032102.5231
PT	13+22.78	813428.8110	2032201.7815
POT	14+02.53	813392.2852	2032272.6753
POT	14+33.78	813380.8149	2032301.7441

WALL1

TYPE	STATION	NORTH	EAST
PC	37+32.00	814413.1342	2033137.2785
PT	38+82.90	814542.9031	2033214.2323
PC	39+83.25	814627.2666	2033268.5681
PT	40+32.10	814668.6621	2033294.5044

WALL2

TYPE	STATION	NORTH	EAST
POT	10+00.00	815213.9051	2033638.0890
PC	10+94.74	815301.4923	2033674.2005
PT	11+51.04	815354.2600	2033693.8081
POT	11+95.76	815367.1996	2033736.6091
POT	12+41.76	815347.8280	2033778.3312

WALL3

TYPE	STATION	NORTH	EAST
POT	10+50.00	815421.9754	2033619.8156
POT	11+07.95	815446.3752	2033567.2564

WALL3A

TYPE	STATION	NORTH	EAST
POT	10+00.00	815413.1076	2033622.3178
POT	10+09.21	815421.9754	2033619.8156
POT	10+28.75	815430.2010	2033602.0970
POT	10+35.75	815423.7756	2033599.3196

WALL3AB

TYPE	STATION	NORTH	EAST
POT	10+00.00	815413.1076	2033622.3178
POT	10+09.21	815421.9754	2033619.8156
POT	10+28.75	815430.2010	2033602.0970
POT	10+35.75	815423.7756	2033599.3196
POT	10+39.62	815425.4100	2033595.8069
POT	10+46.62	815431.8746	2033598.4920
POT	10+81.06	815446.3752	2033567.2564

WALL3B

TYPE	STATION	NORTH	EAST
POT	10+39.62	815425.4100	2033595.8069
POT	10+46.62	815431.8746	2033598.4920
POT	10+81.06	815446.3752	2033567.2564

WALL4

TYPE	STATION	NORTH	EAST
PC	49+72.00	815509.4044	2033732.0050
PT	50+38.17	815575.3559	2033737.1199
POT	52+53.86	815790.9115	2033744.8538

WALL5

TYPE	STATION	NORTH	EAST
POT	57+70.00	816310.5772	2033763.4989
POT	59+60.00	816500.4550	2033770.3116

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	813397.8041	2032026.1246
PC	12+15.57	813298.7824	2032217.6036
PRC	14+16.22	813201.9491	2032393.3207
PT	15+68.06	813127.8173	2032525.8221
PC	18+40.63	812999.5111	2032766.3065
PRC	20+52.70	812905.2943	2032956.2543
PT	24+40.92	812724.3465	2033299.5175
PC	24+73.91	812707.4010	2033327.8240
PT	26+01.70	812643.5269	2033438.4963
POT	26+63.34	812613.5737	2033492.3648

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 IS N 84° 58' 17.0" W 634.7202 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U3308_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◎ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

6/2/99

30-JUN-2015 07:55
R:\Roadway\Projects\U3308_LS_1c-5.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	1C-6
Location and Surveys	

SURVEY CONTROL SHEET U-3308

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	813961.0490	2032695.5040
POT	12+73.92	813858.1677	2032949.3733

Y4

TYPE	STATION	NORTH	EAST
POT	9+82.13	814332.5608	2033143.6944
POT	14+92.17	814679.1901	2032769.5501

Y5

TYPE	STATION	NORTH	EAST
POT	10+17.87	814332.5608	2033143.6944
PC	10+97.27	814278.5985	2033201.9402
PT	12+48.88	814193.8649	2033326.9641
POT	12+90.03	814176.1900	2033364.1200

Y6

TYPE	STATION	NORTH	EAST
POT	9+56.56	814687.6615	2033355.7566
POT	13+83.23	814865.3283	2032967.8388

Y7

TYPE	STATION	NORTH	EAST
POT	10+43.44	814687.7682	2033355.8182
POT	12+85.85	814586.8700	2033576.2300

Y8

TYPE	STATION	NORTH	EAST
POT	9+60.63	814871.9492	2033449.7037
POT	14+21.52	815063.4132	2033030.4667

Y9

TYPE	STATION	NORTH	EAST
POT	10+39.37	814871.9492	2033449.7037
POT	14+24.47	814711.9715	2033799.9973

Y10

TYPE	STATION	NORTH	EAST
POT	9+77.66	815036.5099	2033518.4388
POT	14+36.15	815230.0818	2033102.8145

Y11

TYPE	STATION	NORTH	EAST
POT	10+22.34	815036.5100	2033518.4388
POT	14+12.64	814871.7262	2033872.2520

Y12

TYPE	STATION	NORTH	EAST
POT	9+96.74	815212.7896	2033591.1177
POT	14+41.84	815400.8775	2033187.7097

Y13

TYPE	STATION	NORTH	EAST
POT	10+03.26	815212.7896	2033591.1177
POT	11+98.96	815130.0900	2033768.4900

Y14

TYPE	STATION	NORTH	EAST
POT	10+06.10	815424.3515	2033669.3195
POT	12+29.17	815518.2800	2033466.9900

Y15

TYPE	STATION	NORTH	EAST
POT	9+93.90	815424.3517	2033669.3195
PC	13+89.30	815257.8395	2034027.9491
PT	14+34.74	815239.6448	2034069.5880
PC	14+44.28	815236.0280	2034078.4059
PT	14+55.15	815231.7929	2034088.4196
POT	16+93.00	815136.7666	2034306.4691

Y15A

TYPE	STATION	NORTH	EAST
POT	10+00.00	815354.9086	2033818.8846
PC	10+25.78	815378.2882	2033829.7388
PT	10+72.47	815417.9753	2033854.1475
POT	11+78.29	815501.0385	2033919.7040

Y16

TYPE	STATION	NORTH	EAST
POT	10+03.07	815959.1774	2033704.3611
POT	12+50.52	815968.1600	2033457.0700

Y17

TYPE	STATION	NORTH	EAST
POT	9+96.97	815960.8923	2033704.4226
POT	11+56.50	815950.8200	2033863.6300

Y18

TYPE	STATION	NORTH	EAST
POT	10+00.00	816287.7055	2033333.9035
PC	10+95.32	816284.1680	2033429.1578
PRC	11+58.98	816279.5585	2033492.6365
PRC	16+59.42	816256.9120	2033992.2350
PT	17+82.35	816255.2554	2034115.1412
POT	19+66.48	816247.1173	2034299.0913

Y2

TYPE	STATION	NORTH	EAST
POT	10+16.56	813856.9361	2032948.8925
POT	11+00.00	813824.4630	2033025.7505

Y20

TYPE	STATION	NORTH	EAST
POT	10+00.00	816563.9600	2033573.9200
POT	11+52.10	816562.7970	2033726.0183

Y21

TYPE	STATION	NORTH	EAST
POT	10+00.00	816559.0977	2033725.8855
POT	11+31.66	816561.5100	2033857.5200

Y22

TYPE	STATION	NORTH	EAST
POT	10+00.00	816922.8400	2033324.5000
POT	19+46.78	816911.1400	2034271.2100

Y3

TYPE	STATION	NORTH	EAST
POT	9+80.23	812916.1817	2032307.8213
POT	12+49.64	812816.9745	2032558.2962

Y3A

TYPE	STATION	NORTH	EAST
POT	10+00.00	812909.0387	2032325.8555
POT	12+88.05	813166.0060	2032456.0150

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 IS N 84° 58' 17.0" W 634.7202 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U3308_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◎ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-3308	1C-7
Location and Surveys	

SURVEY CONTROL SHEET U-3308

Y4

TYPE	STATION	NORTH	EAST
POT	9+82.13	814332.5608	2033143.6944
POT	14+92.17	814679.1901	2032769.5501

Y5

TYPE	STATION	NORTH	EAST
POT	10+17.87	814332.5608	2033143.6944
PC	10+97.27	814278.5985	2033201.9402
PT	12+48.88	814193.8649	2033326.9641
POT	12+90.03	814176.1900	2033364.1200

Y6

TYPE	STATION	NORTH	EAST
POT	9+56.56	814687.6615	2033355.7566
POT	13+83.23	814865.3283	2032967.8388

Y7

TYPE	STATION	NORTH	EAST
POT	10+43.44	814687.7682	2033355.8182
POT	12+85.85	814586.8700	2033576.2300

Y8

TYPE	STATION	NORTH	EAST
POT	9+60.63	814871.9492	2033449.7037
POT	14+21.52	815063.4132	2033030.4667

Y9

TYPE	STATION	NORTH	EAST
POT	10+39.37	814871.9492	2033449.7037
POT	14+24.47	814711.9715	2033799.9973

YB

TYPE	STATION	NORTH	EAST
POT	25+88.05	812999.5111	2032766.3065
EQB	32+13.06	813298.7824	2032217.6036
EQA	12+15.57	813298.7824	2032217.6036
PT	14+16.22	813201.9491	2032393.3207
EQB	20+34.15	812914.8683	2032940.5100
EQA	21+48.54	812914.8683	2032940.5100

YC

TYPE	STATION	NORTH	EAST
POT	10+00.00	812854.3078	2032802.1302
POT	11+18.64	812971.8128	2032818.4827

YA

TYPE	STATION	NORTH	EAST
POT	10+00.00	812607.6605	2032127.0258
PC	10+02.07	812606.5497	2032128.7733
PT	13+02.66	812459.4697	2032390.7487
POT	15+46.91	812351.7098	2032609.9423

CSX

TYPE	STATION	NORTH	EAST
POT	10+00.00	813511.4993	2032087.7289
POT	28+78.85	812648.7879	2033756.8067

CSXN

TYPE	STATION	NORTH	EAST
POT	10+00.00	813356.9237	2032412.7800
POT	16+92.30	813038.2320	2033027.3645

CSXSW

TYPE	STATION	NORTH	EAST
POT	0+00.00	813080.4544	2032921.6664
POT	0+31.25	813066.1054	2032949.4273
PC	2+50.44	812985.3844	2033153.2142
PT	3+50.38	812943.7911	2033244.0383

EXCSX

TYPE	STATION	NORTH	EAST
POT	10+00.00	813169.1080	2032810.1863
PC	10+79.64	813125.7150	2032876.9699
PT	12+52.28	813038.8884	2033026.0984

JOHNWALL2

TYPE	STATION	NORTH	EAST
POT	48+71.49	815365.1280	2033742.2623
POT	49+11.50	815348.2800	2033778.5423

DR1

TYPE	STATION	NORTH	EAST
POT	10+00.00	815365.5622	2033795.9370
POT	10+90.00	815283.9307	2033758.0386

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 IS
N 84° 58′ 17.0″ W 634.7202 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U3308_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◬ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

30-JUN-2015 07:55
R:\Roadway\Proj\U3308_LS_1c-7.dgn
$$$$USERNAME$$$$

SURVEY CONTROL SHEET U-3308

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
LALT	12+00.00	-40.00	812050.1674	2032215.8538
LALT	12+00.00	40.00	812020.6236	2032290.1988
LALT	13+50.00	76.77	812146.4398	2032379.7678
LALT	19+09.76	-78.51	812723.1107	2032440.2890
LALT	20+94.97	50.00	812852.6569	2032624.2176
LALT	20+97.00	-50.00	812888.3356	2032530.7770
LALT	25+00.01	55.08	813232.1877	2032765.7784
LALT	25+02.74	-50.00	813270.2726	2032667.7988
LALT	26+10.85	-50.00	813372.7674	2032706.2211
LALT	26+10.85	56.60	813334.0027	2032805.5276
LALT	34+79.67	-50.00	814182.1086	2033022.1505
LALT	34+79.67	55.89	814143.6069	2033120.7903
LALT	37+35.00	-45.00	814416.7834	2033136.9899
LALT	38+79.73	-45.00	814543.9860	2033212.5509
LALT	38+79.73	50.00	814492.5457	2033292.4188
LALT	39+80.08	-45.00	814628.3496	2033266.8867
LALT	39+80.08	50.00	814576.9092	2033346.7546
LALT	43+42.35	45.00	814907.4503	2033513.9030
LALT	44+15.00	45.00	814974.6203	2033541.5967
LALT	46+00.00	45.00	815145.6539	2033612.1127
LALT	47+64.80	-45.00	815332.3133	2033591.7219
LALT	47+65.19	-54.50	815336.3030	2033583.0920
LALT	47+67.91	-45.00	815335.1921	2033592.9088
LALT	47+67.91	45.00	815300.8870	2033676.1143
LALT	48+19.00	45.00	815351.6188	2033695.0362
LALT	49+47.00	-50.00	815497.7368	2033633.0324
LALT	50+34.31	50.00	815575.2304	2033740.6176
LALT	50+34.31	-50.00	815578.8160	2033640.6819
LALT	53+93.68	50.00	815934.3771	2033753.5035
LALT	54+39.68	50.00	815980.3475	2033755.1528
LALT	57+75.00	50.00	816315.4485	2033767.1759
LALT	60+73.00	-50.00	816616.8424	2033677.9253
LALT	62+15.49	50.00	816755.6536	2033782.9701
LALT	62+15.49	-50.00	816759.2412	2033683.0345
LALT	63+05.00	50.00	816845.4149	2033785.9225
LALT	63+25.00	-50.00	816868.3289	2033686.5497
LALT	64+30.00	30.00	816971.2209	2033769.1537
LALT	64+47.00	-42.47	816989.7316	2033697.0567
LALT	66+10.00	-42.23	817152.2487	2033699.7314
LALT	66+10.00	30.00	817151.5580	2033771.9605
LALT	66+10.00	20.77	817151.6463	2033762.7294

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	12+63.62	45.00	813236.7314	2032238.9744
Y	12+85.00	30.00	813239.9355	2032264.7170
Y	14+16.22	30.00	813176.0659	2032378.1529
Y	14+50.00	30.00	813158.9845	2032407.6007
Y	15+45.00	30.00	813112.3530	2032491.2254
Y	15+68.06	30.00	813101.3489	2032511.7004
Y	16+50.00	30.00	813062.7789	2032583.9921
Y	16+61.22	45.70	813043.6436	2032586.4945
Y	17+62.19	45.04	812996.6977	2032675.8930
Y	17+70.00	30.00	813006.2919	2032689.8657
Y	18+40.63	30.00	812973.0427	2032752.1847
Y	20+52.69	30.00	812878.0357	2032943.7257
Y	24+40.92	30.00	812698.6063	2033284.1083
Y	24+50.00	30.00	812693.9436	2033291.8971
Y	24+50.00	18.50	812703.8108	2033297.8040

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+95.00	25.34	813864.3214	2032866.7089
Y1	11+95.00	-24.66	813910.6625	2032885.4887
Y1	12+23.30	-47.91	813921.5863	2032920.4546
Y1	12+24.53	47.08	813833.0897	2032885.9097

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	10+70.17	-44.38	813876.9532	2033015.5446
Y2	10+80.00	-24.75	813855.0440	2033016.9632

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	9+98.35	65.00	812849.0793	2032300.7257
Y3	10+25.00	30.00	812871.8052	2032338.3939
Y3	10+65.00	-30.97	812913.7632	2032398.0357
Y3	11+73.90	73.57	812776.4625	2032460.7848
Y3	11+75.00	-31.39	812873.6486	2032500.4613
Y3	11+75.58	30.40	812815.9857	2032478.2419

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y3A	10+62.99	29.72	812951.7984	2032380.8332
Y3A	12+32.00	30.00	813102.4473	2032457.4501
Y3A	12+47.00	-29.33	813142.6356	2032411.3044

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	10+20.05	-47.61	814323.4108	2033083.5222
Y4	10+50.00	-30.00	814356.6795	2033073.5188
Y4	10+65.00	28.00	814409.4206	2033101.9331
Y4	11+00.00	-28.00	814392.1276	2033038.1997
Y4	11+00.00	-30.00	814390.6604	2033036.8405

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y5	10+59.04	-38.08	814332.5114	2033199.7747
Y5	10+80.00	-25.25	814308.8565	2033206.4293

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	10+05.76	-37.69	814673.8797	2033295.3343
Y6	10+16.13	42.46	814751.0751	2033319.2774
Y6	10+20.00	-22.89	814693.2678	2033288.5471
Y6	10+36.00	22.02	814740.7574	2033292.6991

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y7	10+89.75	38.56	814633.4315	2033381.8742
Y7	10+92.09	-42.43	814706.0975	2033417.7177
Y7	11+10.00	-23.00	814680.9768	2033425.9117
Y7	11+17.00	23.00	814636.2372	2033413.1299

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y8	10+29.86	-36.37	814867.6305	2033371.6227
Y8	10+32.94	35.00	814933.8259	2033398.4683
Y8	10+44.00	-16.94	814891.1781	2033366.8326
Y8	10+53.00	15.00	814923.9663	2033371.9127

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y9	10+83.80	-34.08	814884.4951	2033504.2749
Y9	10+84.37	35.44	814821.0176	2033475.9100
Y9	11+05.00	15.00	814831.0405	2033503.1713
Y9	11+05.00	-15.00	814858.3293	2033515.6339

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"U3308-1" TO -LALT- 13+50.00 IS
N 84° 58' 17.0" W 634.7202 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U3308_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◎ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

PROJECT REFERENCE NO.	SHEET NO.
U-3308	1C-9
Location and Surveys	

SURVEY CONTROL SHEET U-3308

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y10	10+43.68	-36.38	815031.4018	2033443.2282
Y10	10+44.10	35.67	815096.8948	2033473.2710
Y10	10+64.00	-15.00	815059.3647	2033433.8382
Y10	10+64.00	15.00	815086.5597	2033446.5040

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y11	10+65.97	-31.60	815046.7317	2033571.3278
Y11	10+90.00	-15.00	815021.5420	2033586.1059
Y11	10+90.00	15.00	814994.3469	2033573.4401

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y12	10+55.31	-35.75	815205.1402	2033522.9251
Y12	10+55.75	35.30	815269.7234	2033552.5509
Y12	10+76.00	15.00	815259.8777	2033525.6207
Y12	10+76.00	-15.00	815232.6877	2033512.9434

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y13	10+47.63	-15.00	815207.6360	2033637.6675
Y13	11+10.00	50.00	815122.3684	2033666.7287
Y13	11+22.00	15.00	815149.0190	2033692.3947

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y13	10+47.63	-15.00	815207.6360	2033637.6675
Y13	11+10.00	50.00	815122.3684	2033666.7287
Y13	11+22.00	15.00	815149.0190	2033692.3947

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y14	10+45.15	-38.15	815406.1923	2033617.8378
Y14	10+55.00	-25.00	815422.2664	2033614.4390
Y14	10+83.00	29.91	815483.8567	2033612.1613
Y14	11+08.00	-25.00	815444.5833	2033566.3666
Y14	11+08.00	-23.00	815446.3948	2033567.2076

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y15	10+36.18	-40.99	815443.7219	2033724.9293
Y15	10+80.00	25.00	815365.4156	2033736.8839
Y15	12+15.00	-46.00	815372.9679	2033889.2306
Y15	12+80.00	-46.01	815345.5960	2033948.1864
Y15	12+80.00	-28.01	815329.2701	2033940.6060
Y15	13+89.49	-28.01	815283.1632	2034039.9147
Y15	14+34.91	-28.00	815265.4860	2034080.3705
Y15	14+63.00	-28.00	815254.3245	2034106.8037
Y15	14+63.00	-43.00	815268.0754	2034112.7964
Y15	15+36.00	-43.00	815238.9111	2034179.7175
Y15	15+36.00	-28.00	815225.1601	2034173.7249
Y15	16+20.00	-28.00	815191.6012	2034250.7300
Y15	16+20.00	-19.62	815183.9196	2034247.3824

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y15A	10+37.68	-39.22	815407.5310	2033800.5373
Y15A	10+62.00	-20.00	815421.1384	2033831.5498
Y15A	10+62.00	20.00	815398.0350	2033864.2029

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y16	10+53.06	-32.73	815928.2855	2033653.2206
Y16	10+53.09	38.27	815999.2398	2033655.7663
Y16	10+63.00	-23.00	815938.3681	2033643.6357
Y16	10+68.00	23.00	815984.5192	2033640.3088

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y18	10+09.86	38.00	816249.3658	2033342.3460
Y18	10+22.22	-30.00	816316.8603	2033357.2193
Y18	10+35.00	-25.00	816311.3899	2033369.8078
Y18	10+35.00	25.00	816261.4238	2033367.9516
Y18	10+95.32	25.00	816259.1848	2033428.2307
Y18	10+95.32	-25.00	816309.1512	2033430.0863
Y18	11+58.98	-25.00	816304.4132	2033495.3277
Y18	11+59.00	25.00	816254.7015	2033489.9663
Y18	12+00.00	-25.00	816300.2331	2033535.8771
Y18	13+11.00	-30.03	816296.0223	2033646.1442
Y18	13+15.00	25.00	816240.8520	2033646.3192
Y18	13+30.94	-46.41	816311.0392	2033666.9534
Y18	13+33.58	45.55	816219.0984	2033663.6547
Y18	14+32.48	48.96	816210.5160	2033763.4111
Y18	14+55.00	30.00	816228.6248	2033786.8321
Y18	14+57.00	-36.90	816295.4184	2033791.0765
Y18	16+57.44	-30.00	816286.8741	2033989.7535
Y18	16+59.42	30.00	816226.9164	2033992.7528
Y18	16+59.42	-30.00	816286.9075	2033991.7174
Y18	16+70.00	30.00	816227.0687	2034003.1759
Y18	16+90.00	50.00	816207.2060	2034022.9146
Y18	17+20.11	-27.11	816284.1420	2034053.2820
Y18	17+20.19	-30.00	816287.0348	2034053.3954
Y18	17+30.00	48.00	816208.8923	2034061.9488
Y18	17+50.00	30.00	816226.4356	2034081.9681
Y18	17+83.00	30.00	816225.2561	2034114.4610
Y18	17+83.00	24.46	816230.7929	2034114.7060

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y20	10+30.00	-23.00	816586.7299	2033604.0950
Y20	10+30.00	-54.00	816617.7290	2033604.3320
Y20	11+01.43	23.02	816540.1647	2033675.1742

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y21	10+48.19	34.67	816525.3134	2033774.7057
Y21	10+52.26	-40.22	816600.2652	2033777.3949
Y21	10+60.00	23.00	816537.2012	2033786.2968
Y21	10+70.00	-22.31	816582.6910	2033795.4649

ROW MARKER CONCRETE OR GRANITE-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y22	12+76.50	25.00	816894.4250	2033600.6699
Y22	12+76.53	23.00	816896.4245	2033600.7238
Y22	13+38.00	-23.00	816941.6614	2033662.7584
Y22	13+49.67	30.00	816888.5212	2033673.7760
Y22	14+70.00	-30.00	816947.0296	2033794.8348
Y22	14+85.00	40.00	816876.8496	2033808.9687
Y22	15+10.00	30.00	816886.5399	2033834.0903
Y22	16+46.92	30.00	816884.8478	2033971.0037
Y22	16+47.27	23.05	816891.7970	2033971.4386
Y22	16+90.00	-30.00	816944.3109	2034014.8182
Y22	16+90.00	-23.00	816937.3114	2034014.7316

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 IS N 84° 58' 17.0" W 634.7202 (ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 8395 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*
2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U3308_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

SURVEY CONTROL SHEET U–3308

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
LALT	24+88.10	60.00	813219.3148	2032766.3825
LALT	25+10.00	55.39	813241.3520	2032769.4079
LALT	25+10.00	60.00	813239.7857	2032773.7396
LALT	30+93.00	-50.00	813821.9111	2032881.5465
LALT	32+39.00	-50.00	813957.9164	2032934.6366
LALT	32+39.00	-60.00	813961.5527	2032925.3212
LALT	32+49.00	-50.00	813967.2318	2032938.2729
LALT	32+49.00	-60.00	813970.8681	2032928.9575
LALT	33+60.00	-65.00	814076.0875	2032964.6629
LALT	33+60.00	-50.00	814070.6331	2032978.6360
LALT	33+70.00	-50.00	814079.9485	2032982.2723
LALT	33+70.00	-65.00	814085.4030	2032968.2992
LALT	34+55.00	-80.00	814170.0386	2032985.2347
LALT	34+55.00	-50.00	814159.1296	2033013.1810
LALT	35+05.00	-80.00	814217.4983	2033003.9399
LALT	35+05.00	-50.01	814206.2419	2033031.7320
LALT	36+15.00	-50.01	814309.5258	2033076.9144
LALT	36+15.00	-56.00	814312.0784	2033071.4951
LALT	36+25.00	-50.00	814318.7878	2033081.3080
LALT	38+00.00	55.00	814423.8330	2033255.9490
LALT	38+79.73	55.00	814489.8381	2033296.6228
LALT	40+15.00	-44.99	814657.2074	2033285.1250
LALT	40+25.02	-45.00	814665.5461	2033290.2600
LALT	41+88.00	45.01	814764.0067	2033448.1904
LALT	41+88.00	60.00	814757.2418	2033461.5665
LALT	48+40.00	-45.00	815398.9872	2033615.6912
LALT	49+56.00	-55.00	815506.7459	2033629.3062
LALT	50+34.00	-60.00	815578.8934	2033630.6786
LALT	51+34.00	-60.00	815678.8046	2033634.2634
LALT	51+80.00	-50.00	815724.4165	2033645.9063
LALT	52+03.00	-50.00	815747.4017	2033646.7310
LALT	52+33.00	-76.00	815778.3147	2033621.8234
LALT	52+33.00	-50.00	815777.3824	2033647.8067
LALT	52+63.00	-70.00	815808.0803	2033628.8952
LALT	52+63.00	-76.00	815808.2954	2033622.8991
LALT	52+84.00	-60.00	815828.7082	2033639.6418
LALT	53+21.00	-60.00	815865.6844	2033640.9685
LALT	53+21.00	-52.00	815865.3975	2033648.9633
LALT	53+21.00	-50.00	815865.3258	2033650.9620
LALT	55+50.00	-55.00	816094.3579	2033654.1763
LALT	55+65.00	56.00	816105.3682	2033765.6427
LALT	55+65.00	50.00	816105.5833	2033759.6466
LALT	55+73.00	-61.00	816117.5582	2033649.0048
LALT	55+75.00	56.00	816115.3618	2033766.0013
LALT	55+75.00	50.00	816115.5769	2033760.0051
LALT	55+96.00	-54.00	816140.2924	2033656.8250
LALT	55+96.00	-60.00	816140.5076	2033650.8289
LALT	55+96.00	-50.00	816140.1490	2033660.8224
LALT	56+05.00	-54.00	816149.2866	2033657.1477
LALT	56+05.00	-60.00	816149.5018	2033651.1516
LALT	56+05.00	-50.00	816149.1432	2033661.1451
LALT	56+60.00	-56.00	816204.3230	2033657.1211
LALT	58+88.00	-56.00	816432.1764	2033665.2962
LALT	61+50.00	-67.00	816694.4023	2033663.6976
LALT	61+76.00	-77.00	816720.7442	2033654.6362
LALT	62+00.00	-54.00	816743.9040	2033678.4820
LALT	62+43.00	-57.00	816786.8804	2033676.9969
LALT	62+67.00	-64.00	816811.0029	2033670.7949
LALT	63+00.00	-67.00	816843.9367	2033668.8255
LALT	64+35.93	-50.00	816978.8582	2033689.2990
LALT	64+88.00	-48.00	817030.7058	2033692.3070
LALT	64+88.00	-51.00	817030.7589	2033689.3075
LALT	65+29.00	99.00	817069.3696	2033839.9579
LALT	65+29.00	30.00	817070.4021	2033770.9643
LALT	65+60.00	99.00	817100.5712	2033840.3926
LALT	65+60.00	30.00	817101.4610	2033771.3972
LALT	65+70.00	-58.00	817112.5564	2033683.5307
LALT	66+10.00	-58.00	817152.3994	2033683.9649
ALIGN	STATION	OFFSET	NORTH	EAST
Y	12+04.00	18.91	813287.3032	2032198.6441
Y	12+04.00	29.13	813278.2185	2032193.9460
Y	12+25.86	29.84	813267.5749	2032212.9610
Y	12+80.00	33.53	813239.1838	2032258.6772
Y	13+50.00	33.00	813206.1737	2032319.7105
Y	13+50.00	55.00	813187.0018	2032308.9199
Y	13+72.00	35.00	813193.6846	2032337.6938
Y	13+72.00	55.00	813176.3127	2032327.7834
Y	15+84.00	45.00	813080.6126	2032518.7008
Y	18+62.00	45.00	812949.6813	2032764.2425
Y	18+62.00	40.00	812954.1067	2032766.5698
Y	20+52.69	40.00	812868.9493	2032939.5498
Y	21+13.15	40.00	812843.5278	2032993.6495
Y	22+90.00	30.00	812772.7424	2033154.1189
Y	22+90.00	35.00	812768.3478	2033151.7341
Y	24+58.00	35.00	812685.5443	2033296.1933

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+12.00	-45.00	813960.6889	2032816.2060
Y1	11+12.00	-25.00	813942.1530	2032808.6942
Y1	11+80.00	-45.00	813935.1493	2032879.2276
Y1	11+80.00	-24.77	813916.4031	2032871.6306
Y1	11+85.00	25.26	813868.1512	2032857.4714
Y1	11+93.68	59.48	813833.1836	2032852.6686
ALIGN	STATION	OFFSET	NORTH	EAST
Y3	10+13.58	45.00	812862.0655	2032322.2503
Y3	10+73.00	-41.00	812920.1402	2032409.1662
Y3	10+73.00	-31.00	812910.8458	2032405.4849
Y3	10+83.00	-41.00	812916.4578	2032418.4635
Y3	10+83.00	-31.04	812907.1990	2032414.7963
Y3	11+75.08	43.30	812804.1785	2032473.0267
ALIGN	STATION	OFFSET	NORTH	EAST
Y4	10+24.26	-54.29	814321.3690	2033075.8954
Y4	10+27.25	-43.38	814331.4036	2033081.1192
Y4	10+55.29	41.70	814412.8724	2033118.3694
Y4	10+94.00	-30.00	814386.5826	2033041.2423
Y4	11+00.00	43.00	814444.2106	2033086.4530
Y4	11+00.00	28.00	814433.2070	2033076.2587
Y4	11+32.00	-53.00	814395.5361	2032997.7355
Y4	11+32.00	-28.00	814413.8752	2033014.7260
ALIGN	STATION	OFFSET	NORTH	EAST
Y5	10+63.34	-41.29	814331.9414	2033205.1107
Y5	10+82.00	-30.00	814310.9837	2033211.1270
Y5	11+55.00	-28.00	814264.4891	2033262.9935
Y5	11+55.00	-25.00	814262.0657	2033261.2250
ALIGN	STATION	OFFSET	NORTH	EAST
Y6	10+18.82	-45.96	814671.8015	2033280.0166
Y6	10+20.01	-55.60	814663.5306	2033274.9202
Y6	10+13.18	-29.97	814683.9908	2033291.7951
Y6	11+55.00	-30.00	814743.0174	2033162.8473
Y6	11+54.90	-22.91	814749.4157	2033165.8919
ALIGN	STATION	OFFSET	NORTH	EAST
Y7	10+94.38	42.18	814628.2187	2033384.5777
Y7	11+17.00	30.00	814629.8723	2033410.2167
Y7	11+70.00	30.00	814607.8120	2033458.4073
Y7	11+70.00	40.00	814598.7194	2033454.2450
Y7	11+70.00	23.00	814614.1768	2033461.3210
Y7	11+85.00	40.00	814592.4759	2033467.8839
Y7	11+85.00	30.00	814601.5685	2033472.0462
Y7	11+85.00	23.00	814607.9333	2033474.9598
Y7	12+49.99	23.00	814580.8820	2033534.0530
Y7	12+50.00	30.00	814574.5134	2033531.1480
ALIGN	STATION	OFFSET	NORTH	EAST
Y9	10+99.95	20.00	814828.5888	2033496.5037

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y14	10+53.96	-46.98	815401.8921	2033606.1225
Y14	10+89.00	39.00	815494.6324	2033610.5492
Y14	11+02.00	38.00	815499.1993	2033598.3368
Y14	11+02.00	23.00	815485.5917	2033592.0189
ALIGN	STATION	OFFSET	NORTH	EAST
Y15	12+04.00	30.00	815308.6672	2033847.2495
Y15	12+04.00	25.00	815313.1999	2033849.3539
Y15	12+17.00	30.00	815303.1928	2033859.0407
Y15	12+17.00	25.00	815307.7256	2033861.1452
Y15	12+80.00	-43.01	815342.8751	2033946.9230
Y15	12+92.00	29.99	815271.6099	2033927.0665
Y15	12+92.00	25.00	815276.1435	2033929.1714
Y15	13+02.00	29.99	815267.3988	2033936.1367
Y15	13+02.00	25.00	815271.9326	2033938.2416
Y15	13+46.00	29.99	815248.8702	2033976.0452
Y15	13+46.00	24.99	815253.4044	2033978.1503
Y15	13+55.00	29.99	815245.0802	2033984.2083
Y15	13+55.00	24.99	815249.6146	2033986.3135
Y15	15+36.00	-41.00	815237.0775	2034178.9189
Y15	16+20.00	-38.00	815200.7683	2034254.7255
ALIGN	STATION	OFFSET	NORTH	EAST
Y18	10+27.26	29.00	816257.7135	2033360.0734
Y18	10+40.00	-39.00	816325.1940	2033375.3237
Y18	10+63.00	27.00	816258.3859	2033395.8585
Y18	11+15.00	27.00	816256.2694	2033447.2234
Y18	11+46.00	28.00	816252.9845	2033477.1113
Y18	11+58.98	-39.00	816318.3317	2033496.8351
Y18	11+74.00	36.00	816242.1644	2033503.8328
Y18	12+00.00	35.00	816240.5184	2033530.0309
Y18	12+25.00	32.00	816241.1270	2033555.4108
Y18	13+22.23	-43.91	816309.1135	2033658.1986
Y18	13+25.81	-47.25	816312.2102	2033661.9430
Y18	14+37.41	44.78	816214.4946	2033768.5574
Y18	16+84.94	45.00	816212.1899	2034017.9621
ALIGN	STATION	OFFSET	NORTH	EAST
Y22	12+76.28	32.00	816887.4302	2033600.3588
Y22	12+85.00	25.58	816893.7416	2033609.1625
Y22	12+85.00	32.00	816887.3204	2033609.0832
Y22	12+85.00	29.00	816890.3201	2033609.1203
Y22	13+51.90	33.00	816885.4937	2033675.9670
Y22	13+57.82	42.34	816876.0853	2033681.7678
Y22	16+90.00	30.00	816884.3154	2034014.0771
Y22	17+25.00	30.00	816883.8828	2034049.0743
Y22	17+75.00	36.00	816877.2654	2034098.9963
Y22	17+80.00	-23.00	816936.1991	2034104.7251
Y22	18+00.00	-36.00	816948.9510	2034124.8842
Y22	18+03.00	23.01	816889.9042	2034127.1547
Y22	18+40.00	-23.00	816935.4576	2034164.7205
Y22	18+40.00	-44.00	816956.4561	2034164.9800
Y22	18+40.00	-28.00	816940.4573	2034164.7823
Y22	18+64.00	-23.00	816935.1610	2034188.7186
Y22	18+64.00	-44.00	816956.1595	2034188.9782

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3308-1"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 812119.1565(ft) EASTING: 2032940.6980(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994270
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3308-1" TO -LALT- 13+50.00 IS
N 84° 58′ 17.0″ W 634.7202 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.*

2. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*

   HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U3308_CONTROL.TXT

   THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⊚ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

6/2/99
03-NOV-2015 09:40
R:\Roadway\Proj\U3308_LS_1c-10.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-1

RW SHEET NO.

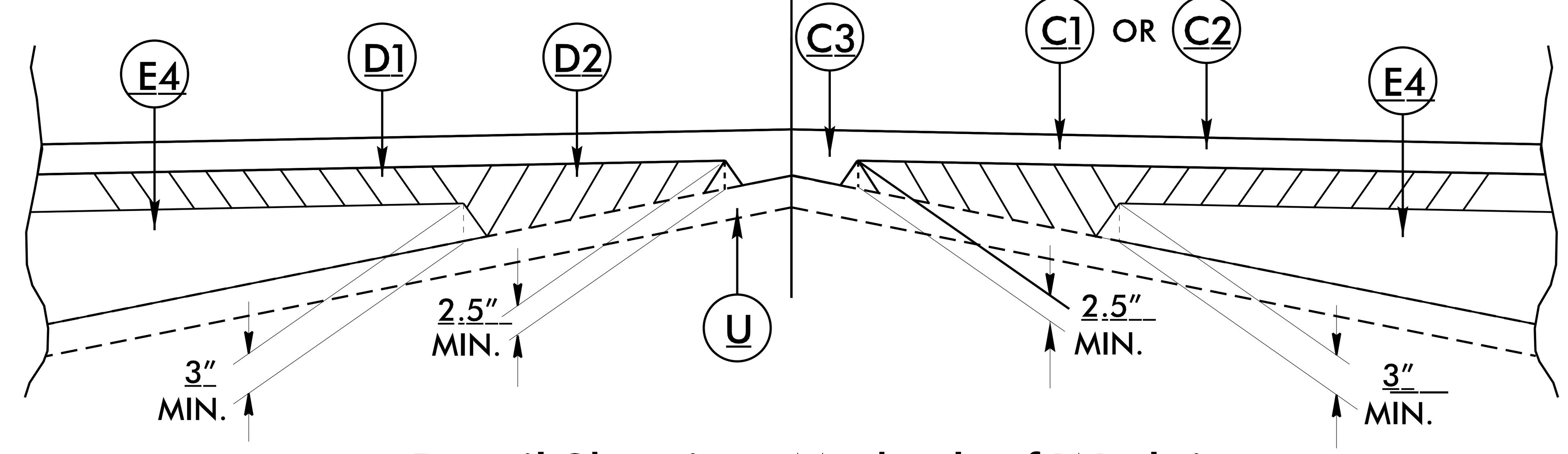
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 014571 James A. Speer — DocuSigned by: James Speer 11/23/2015

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITCHEV — DocuSigned by: Vladimir G Mitchev 11/19/2015

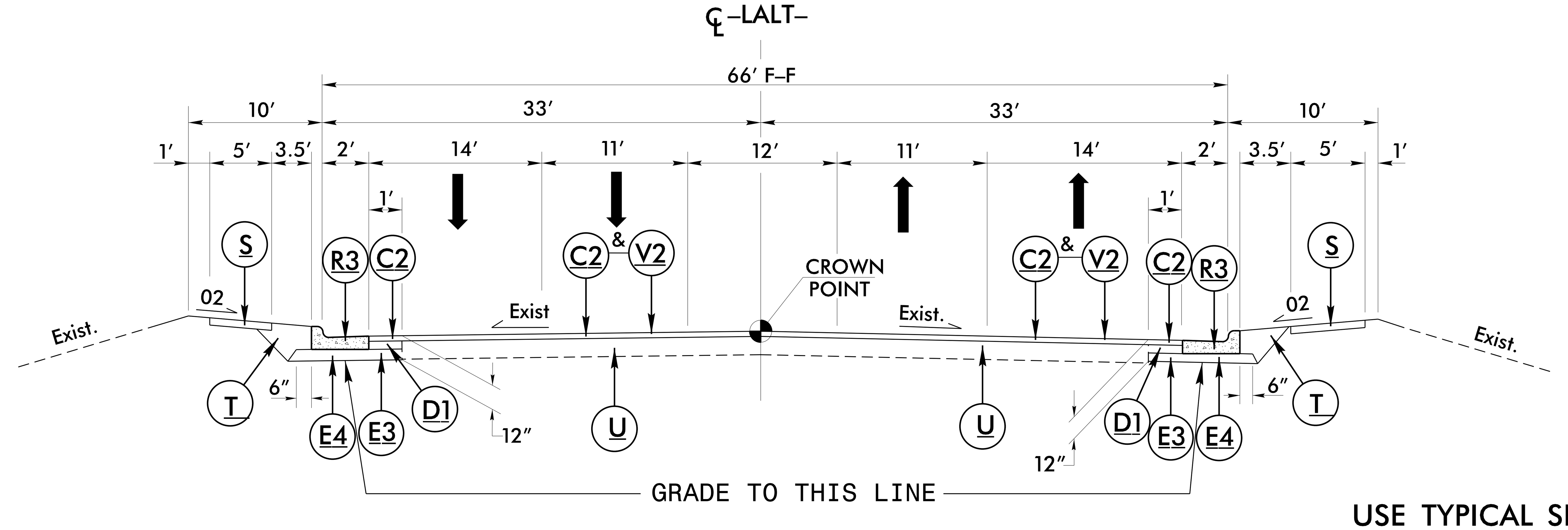
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE 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. VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH
E1	PROP. APPROX. 3″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ IN DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH
J	8″ AGGREGATE BASE COURSE
K	SUBGRADE TO BE TREATED WITH LIME TO A DEPTH OF 8″ AT A RATE OF 20 lbs/yd2 AS DIRECTED BY THE ENGINEER. —OR— SUBGRADE TO BE TREATED WITH CEMENT TO A DEPTH OF 7″ AT A RATE OF 55 lbs/yd2 AS DIRECTED BY THE ENGINEER.
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROPOSED 1′6″ CONCRETE CURB AND GUTTER
R2	EXISTING 2′6″ CONCRETE CURB AND GUTTER
R3	PROPOSED 2′6″ CONCRETE CURB AND GUTTER
R4	PROPOSED CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING ASPHALT PAVEMENT, 1.5″ DEPTH
V2	MILLING EXISTING ASPHALT PAVEMENT, 3″ DEPTH
V3	MILLING EXISTING ASPHALT PAVEMENT, VARIABLE DEPTH 0″ - 1.5″
W	ASPHALT WEDGING (SEE DETAIL)

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



Detail Showing Method of Wedging



TYPICAL SECTION NO. 1

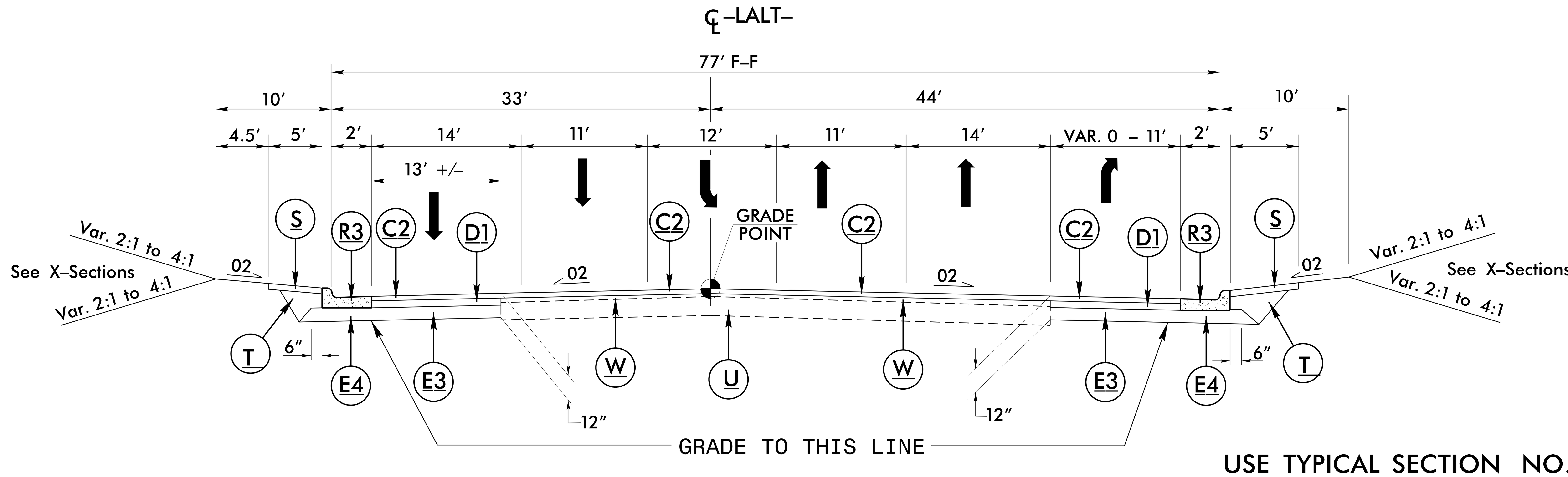
USE TYPICAL SECTION NO. 1

-LALT- Sta. 13+50.00 TO 14+00.00

MILL AND OVERLAY EXIST. -LALT- w/ V2 & C2

-LALT- STA. 12+00.00 TO 13+50.00

-LALT- STA. 66+10.00 TO 67+60.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-LALT- Sta. 14+00.00 TO Sta. 15+00.00

5/14/99

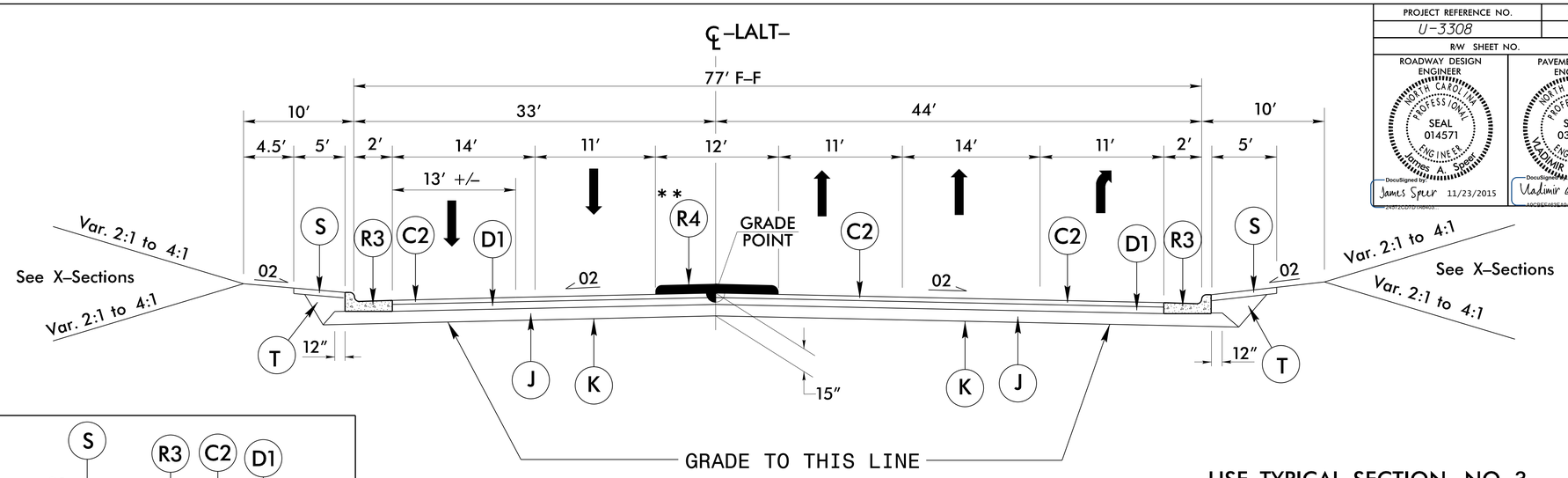
C1	1.5″ TYPE S9.5B
C2	3″ TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4″ TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3″ TYPE B25.0B
E2	4″ TYPE B25.0B
E3	5″ TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8″ AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1′6″ CONC. CURB AND GUTTER
R2	EXIST. 2′6″ CONC. CURB AND GUTTER
R3	PROP. 2′6″ CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5″ ASPHALT MILLING
V2	PROP. 3″ ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer
DocuSigned by: James Speer 11/23/2015

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
DocuSigned by: Vladimir G Mitchev 11/19/2015



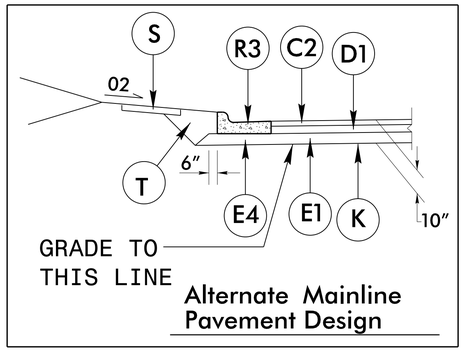
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

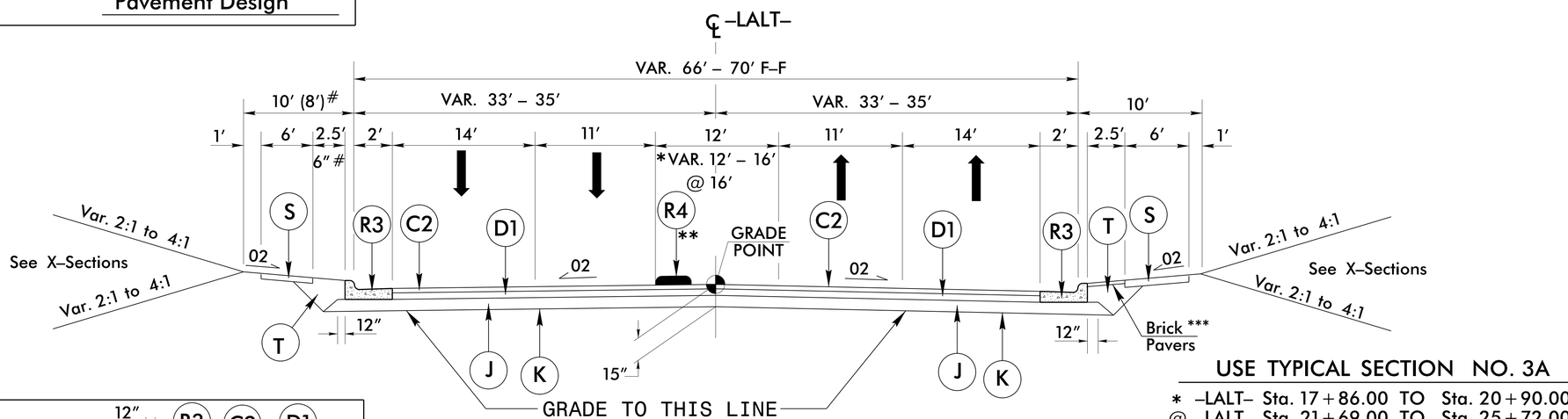
–LALT– Sta. 15+00.00 TO Sta. 15+55.95 (Begin Bridge)
–LALT– Sta. 17+36.20 (End Bridge) TO Sta. 17+86.00

** SEE PLANS FOR PROPOSED CONCRETE ISLAND LOCATION

(SEE PLAN VIEW AND INTERSECTION DETAILS FOR SIDEWALK TRANSITIONS)



Alternate Mainline Pavement Design



TYPICAL SECTION NO. 3A

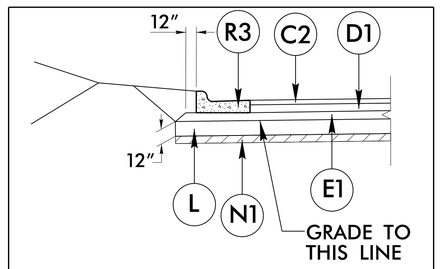
USE TYPICAL SECTION NO. 3A

* –LALT– Sta. 17+86.00 TO Sta. 20+90.00
@ –LALT– Sta. 21+69.00 TO Sta. 25+72.00
–LALT– Sta. 29+76.00 TO Sta. 38+67.00
–LALT– Sta. 46+76.00 TO Sta. 50+83.00
–LALT– Sta. 55+22.00 TO Sta. 59+12.00
–LALT– Sta. 61+67.00 TO Sta. 64+20.00
–LALT– Sta. 46+76.00 TO Sta. 48+36.77 Lt

** SEE PLANS FOR PROPOSED CONCRETE ISLAND LOCATION

* MEDIAN TAPER STA. 19+28.00 TO 21+24.00 –LALT–

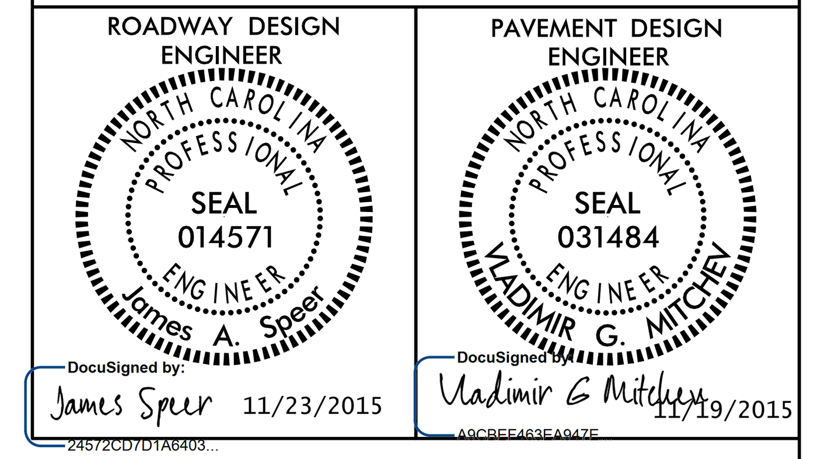
*** NOTE: BEGIN BRICK PAVERS NORTH OF THE –LALT– (ALSTON AVE) AND –Y4–/–Y5– (MAIN ST) INTERSECTION. END BRICK PAVERS SOUTH OF THE –LALT– (ALSTON AVE) AND –Y14–/–Y15– (TAYLOR ST.) INTERSECTION



SHALLOW UNDERCUT
Use With Typical Section 3A
Sta. 36+40.00 to 38+15.00 –LALT–

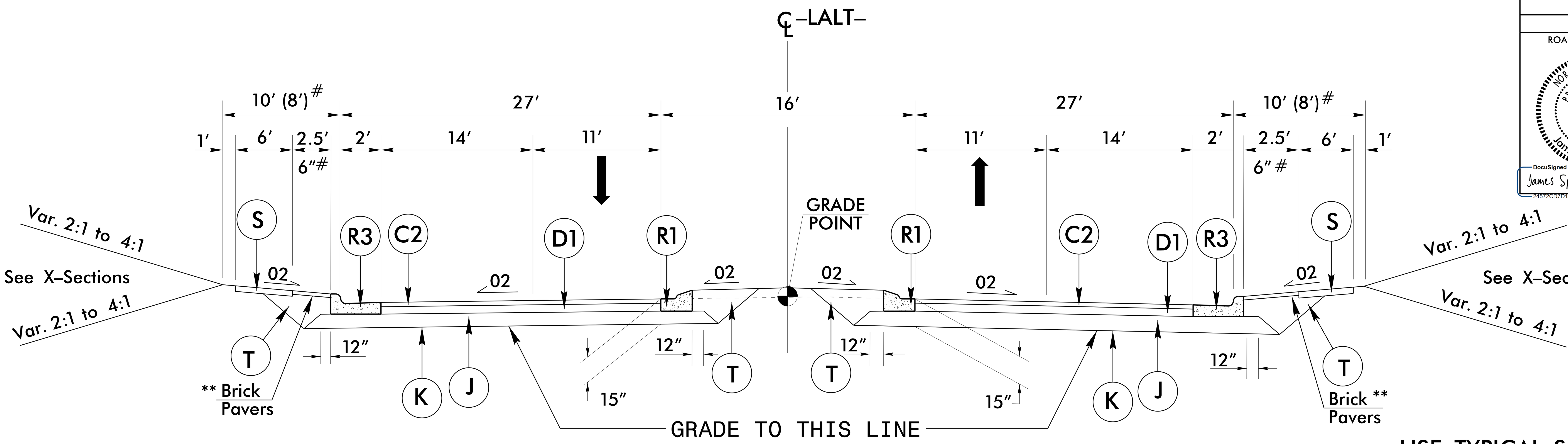
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — PAVEMENT DESIGN ENGINEER



C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

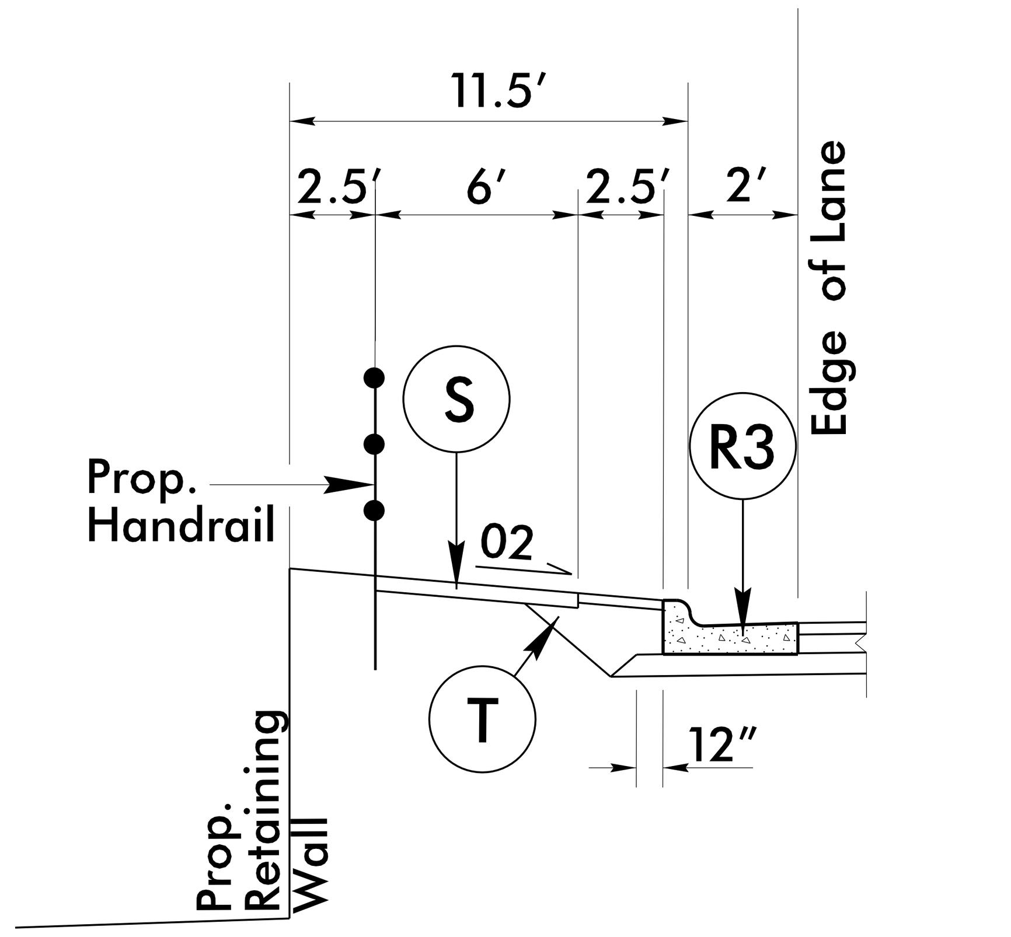


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

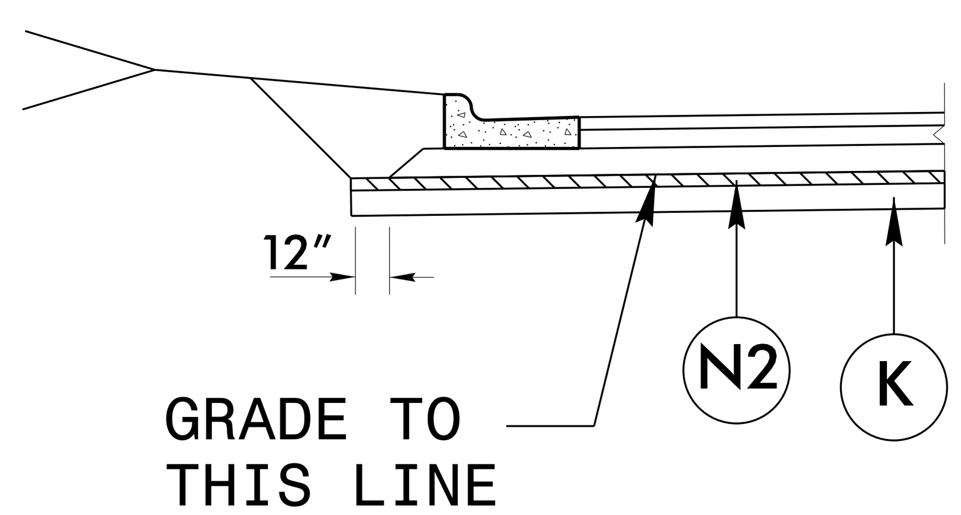
-LALT- Sta. 20+90.00 TO 22+37.00
-LALT- Sta. 25+72.00 TO 29+76.00
-LALT- Sta. 38+67.00 TO 41+24.64
#-LALT- Sta. 41+24.64 TO 46+76.00
-LALT- Sta. 50+83.00 TO 55+22.00
-LALT- Sta. 59+12.00 TO 61+67.00

** NOTE: BEGIN BRICK PAVERS NORTH OF THE -LALT- (ALSTON AVE) AND -Y4-/-Y5- (MAIN ST) INTERSECTION. END BRICK PAVERS SOUTH OF THE -LALT- (ALSTON AVE) AND -Y14-/-Y15- (TAYLOR ST.)

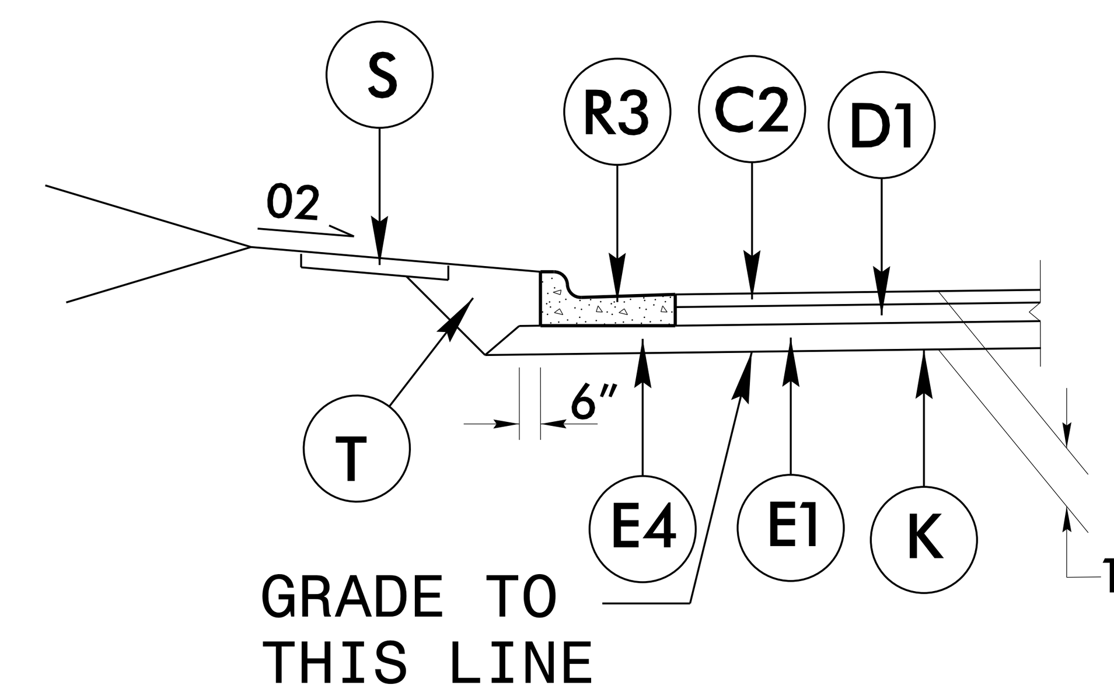


Use With Typical Sections 3A & #4

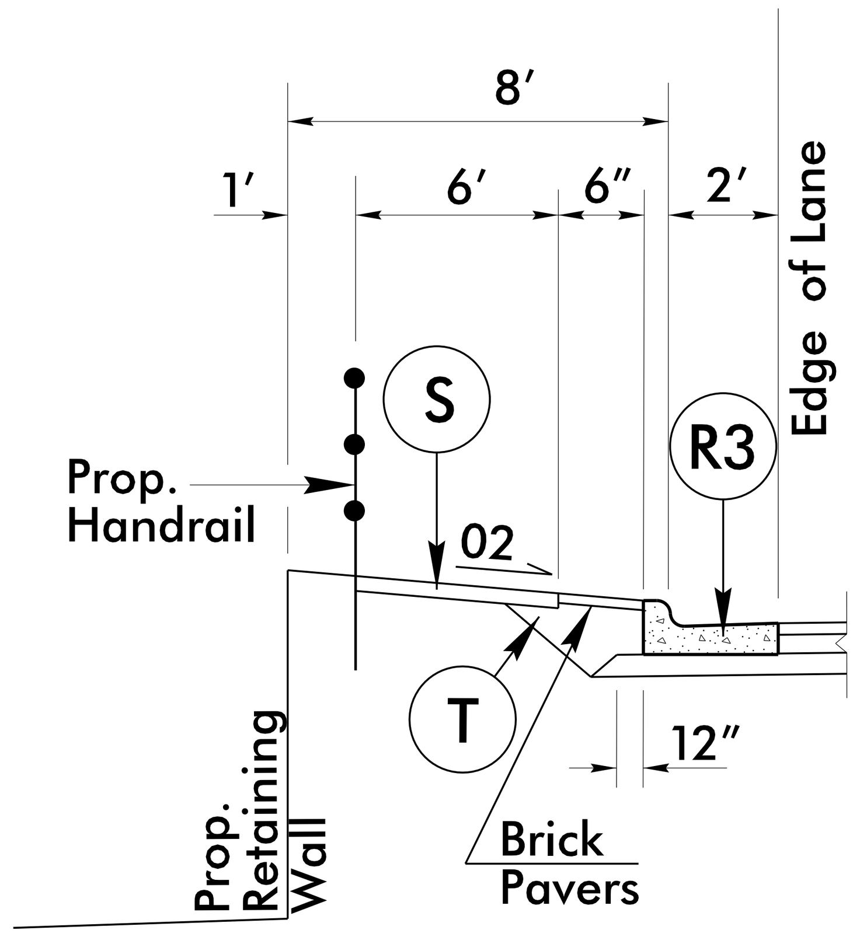
Sta. 49+72.00 to 52+50.00 Rt. -LALT-
Sta. 57+70.00 to 59+60.00 Rt. -LALT-



Geotextile for Pavement Stabilization (Contingencies)

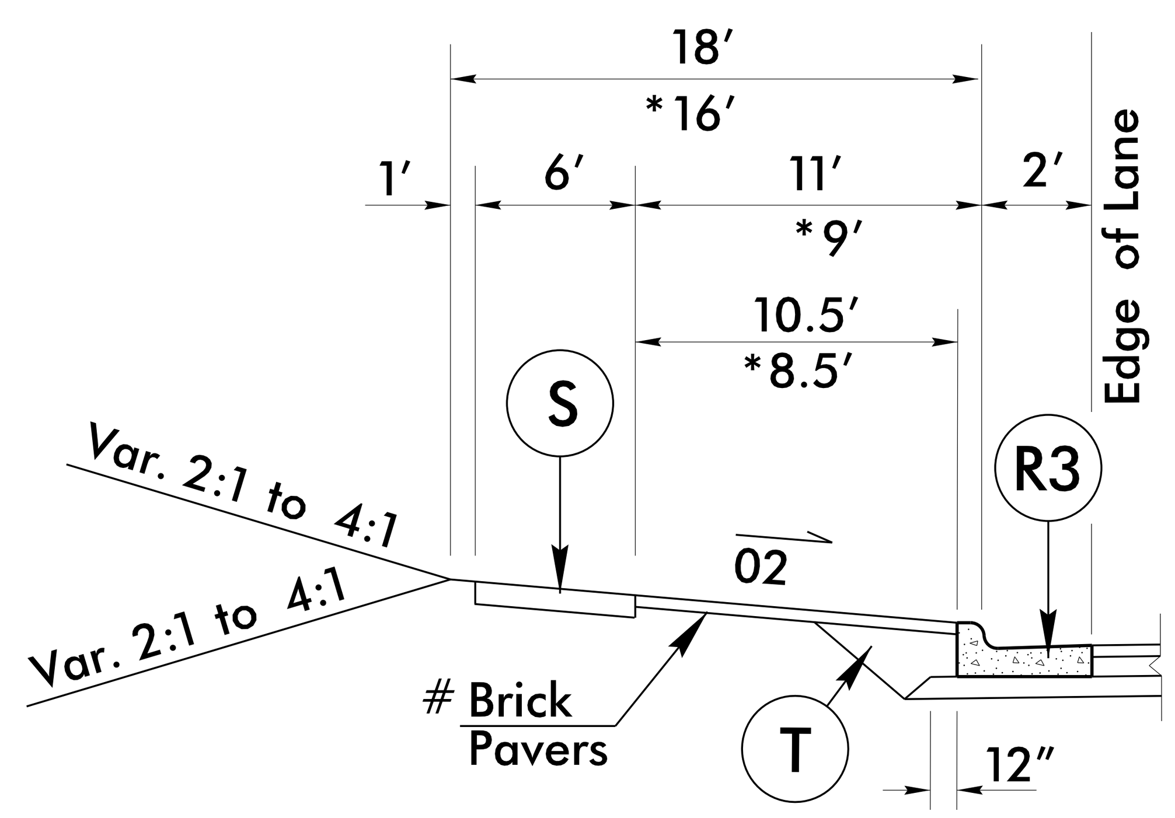


Alternate Mainline Pavement Design



Use With Typical Sections 3A & #4

Sta. 37+32.00 to 40+30.00 Lt. -LALT-
Sta. 46+73.00 to 48+71.00 Rt. -LALT-



Use With Typical Section #3A & #4

Sta. 31+82.98 to 31+98.22 Rt. -LALT-
#Sta. 36+84.27 to 37+02.08 Rt. -LALT-
#*Sta. 41+03.96 to 41+19.84 Lt. -LALT-
#*Sta. 41+10.30 to 41+24.64 Rt. -LALT-
#* Sta. 48+36.77 to 48+53.77 Lt. -LALT-
Sta. 49+03.52 to 49+19.96 Rt. -LALT-
Sta. 53+73.72 to 53+93.72 Lt. -LALT-
Sta. 53+74.33 to 53+94.15 Rt. -LALT-
Sta. 56+72.59 to 56+87.72 Lt. -LALT-
Sta. 57+51.51 to 57+64.43 Rt. -LALT-
Sta. 63+30.32 to 63+45.23 Lt. -LALT-

5/14/99

18-MAY-2015 08:19 R:\Roadway\Proj\u3308_rdy_typ.dgn $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-4

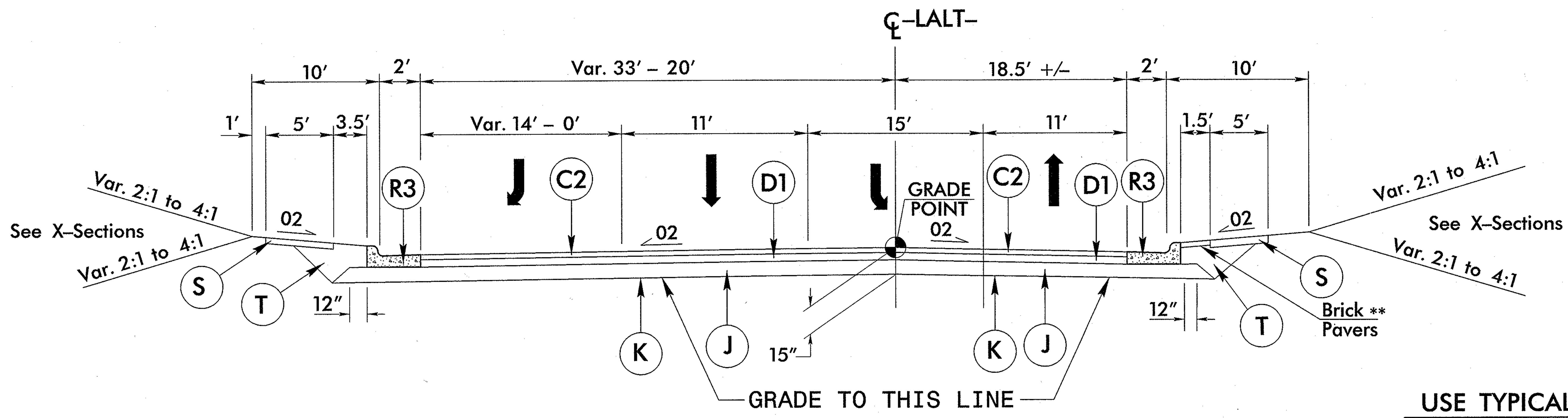
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19795 BRENDA L. MOORE — revision 7/16/18

PAVEMENT DESIGN ENGINEER — NOT A CERTIFIED DOCUMENT AS TO THE ORIGINAL DOCUMENT BUT ONLY AS TO THE REVISIONS. THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY: VLADIMIR G. MITCHEV, PE SEAL 031484 ON 11/19/2015. THIS DOCUMENT IS ONLY CERTIFIED AS TO THE REVISIONS.

C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

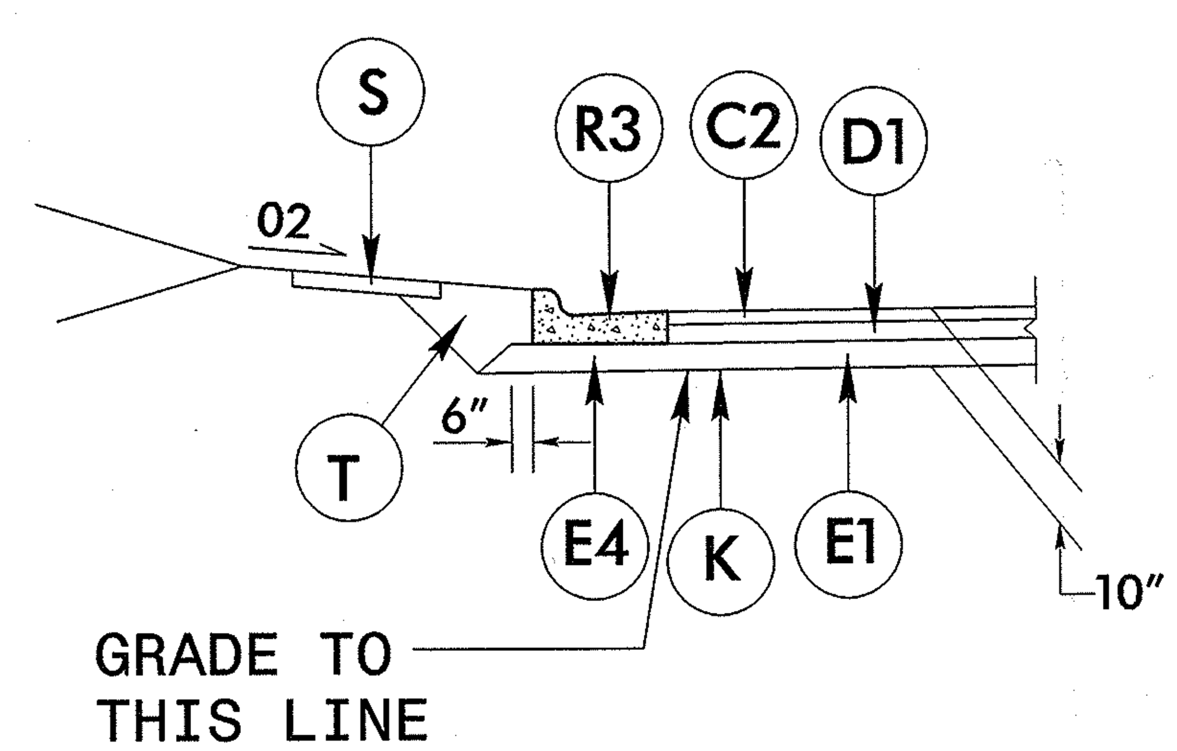


TYPICAL SECTION NO. 5

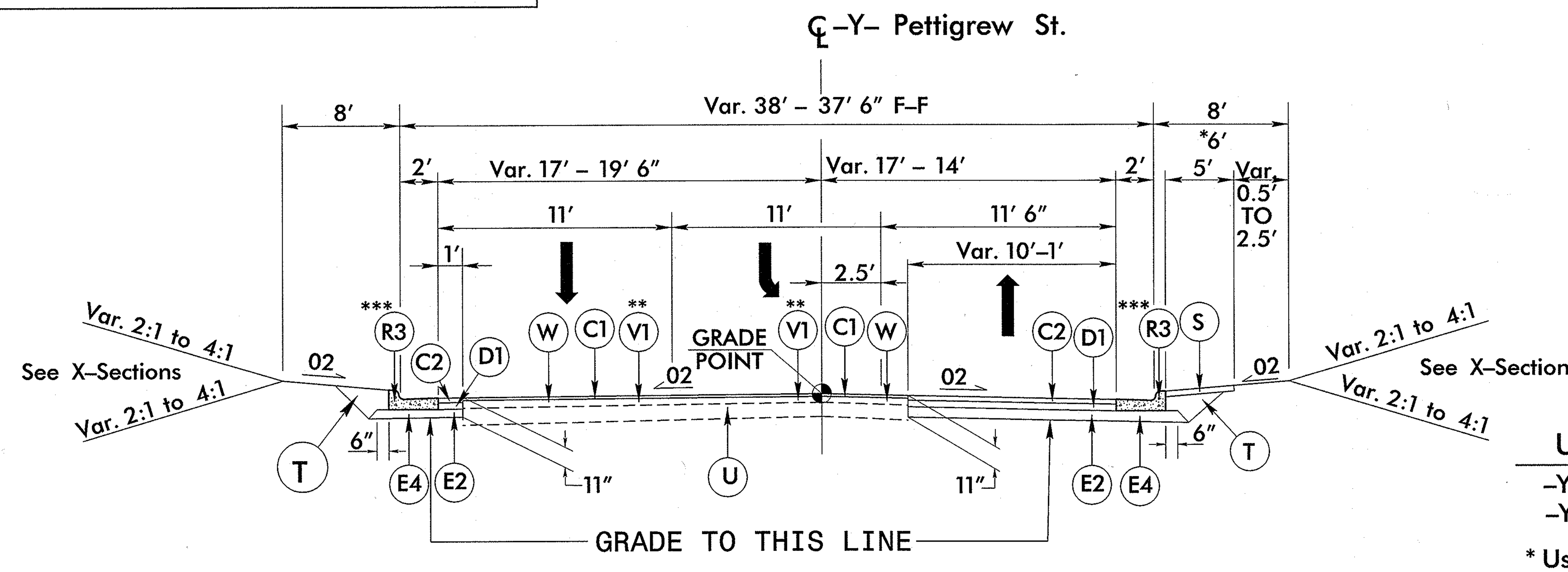
USE TYPICAL SECTION NO. 5

-LALT- Sta. 64+20.00 TO 66+10.00

** NOTE: BEGIN BRICK PAVERS NORTH OF THE -LALT- (ALSTON AVE) AND -Y22- (HOLLOWAY ST) INTERSECTION. END BRICK PAVERS -LALT- 66+10.00 (END OF PROJECT).



Alternate Mainline pavement Design



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

-Y- Pettigrew St. Sta. 12+00.00 to 15+00.00
-Y- Pettigrew St. Sta. 20+50.00 to 24+50.00

* Use 6' Berm Sta. 21+25.00 to 22+75.00 Rt.

** NOTE: TRANSITION BETWEEN EXISTING PAVEMENT AND TYP. SECTION NO. 6 USING (V1) AND (C1) AT
-Y- STA. 11+50 TO STA 12+00
-Y- STA. 24+50 TO STA. 25+00

*** NOTE: SEE PLANS FOR EXISTING CURB & GUTTER

5/14/99

12-JAN-2018 09:43 R:\Roadway\Proj\u3308_rdy_typ.dgn $$$$USERNAME$$$$

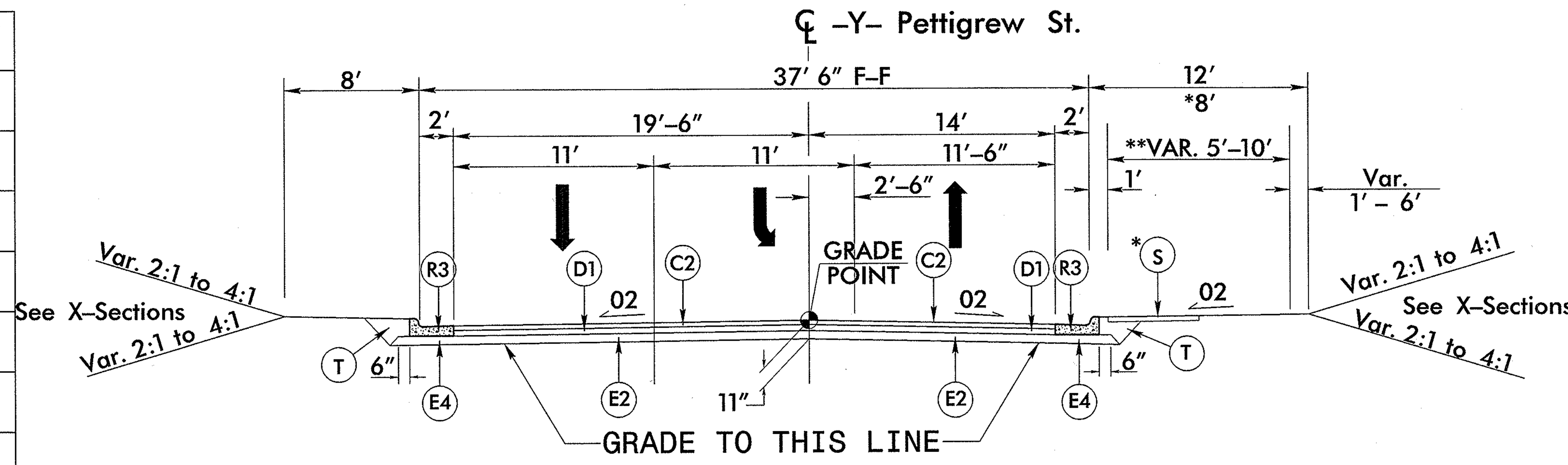
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19795 BRENDA L. MOORE — revision 1/16/18

PAVEMENT DESIGN ENGINEER — NOT A CERTIFIED DOCUMENT AS TO THE ORIGINAL DOCUMENT BUT ONLY AS TO THE REVISIONS. THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY: VLADIMIR G. MITCHEV, PE SEAL 031484 ON 11/19/2015. THIS DOCUMENT IS ONLY CERTIFIED AS TO THE REVISIONS.

C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
R5	SHOULDER BERM GUTTER, (SBG)
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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



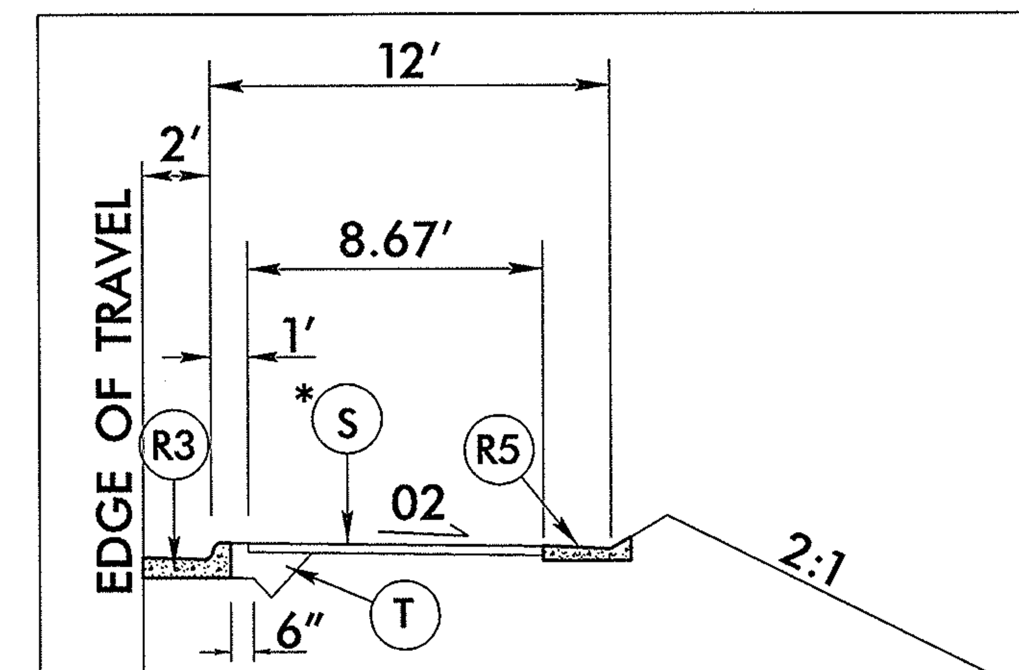
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7

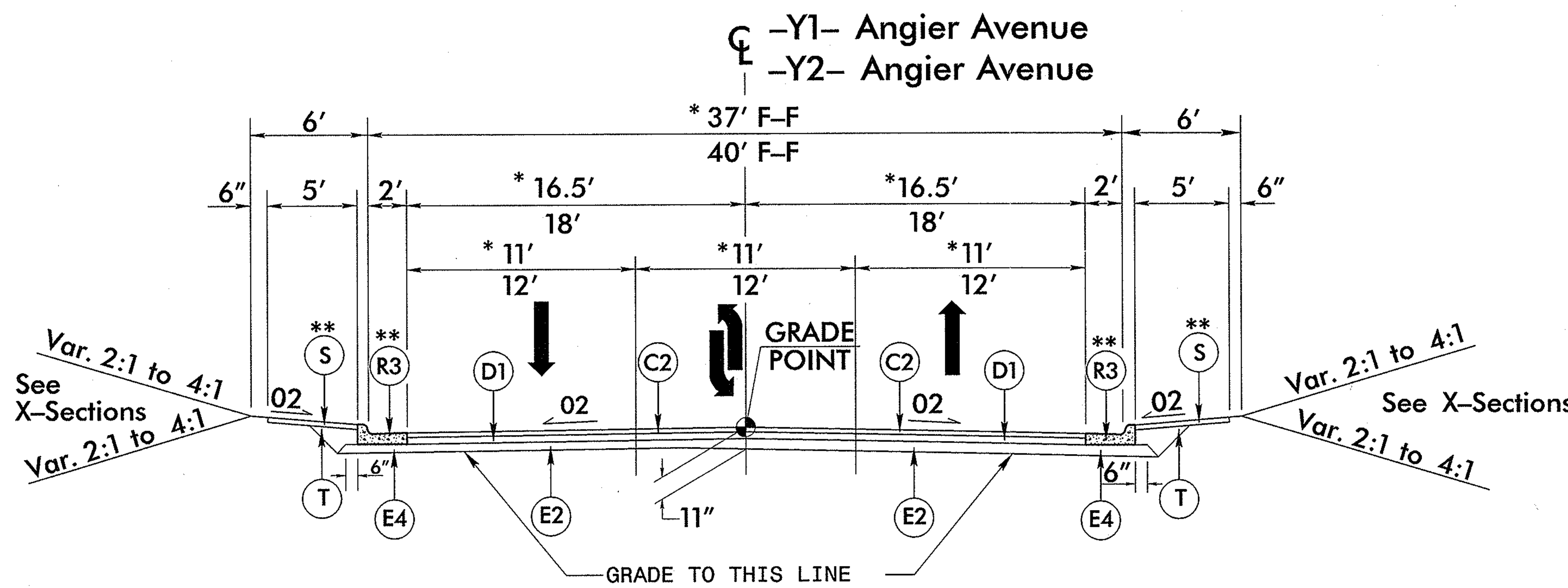
-Y- Pettigrew St. Sta. 15+00.00 to Sta. 16+27.05(Begin Bridge)
-Y- Pettigrew St. Sta. 17+84.55(End Bridge) to Sta. 20+50.00

*Use 8' Berm Sta. 19+00.00 to 20+50.00 Rt.

**NOTE: SEE PLANS FOR PROPOSED SIDEWALK LOCATION AND WIDTHS



USE ALONG WITH TYPICAL NO. 7
-Y- STA 15+92 TO 16+02.89 RT

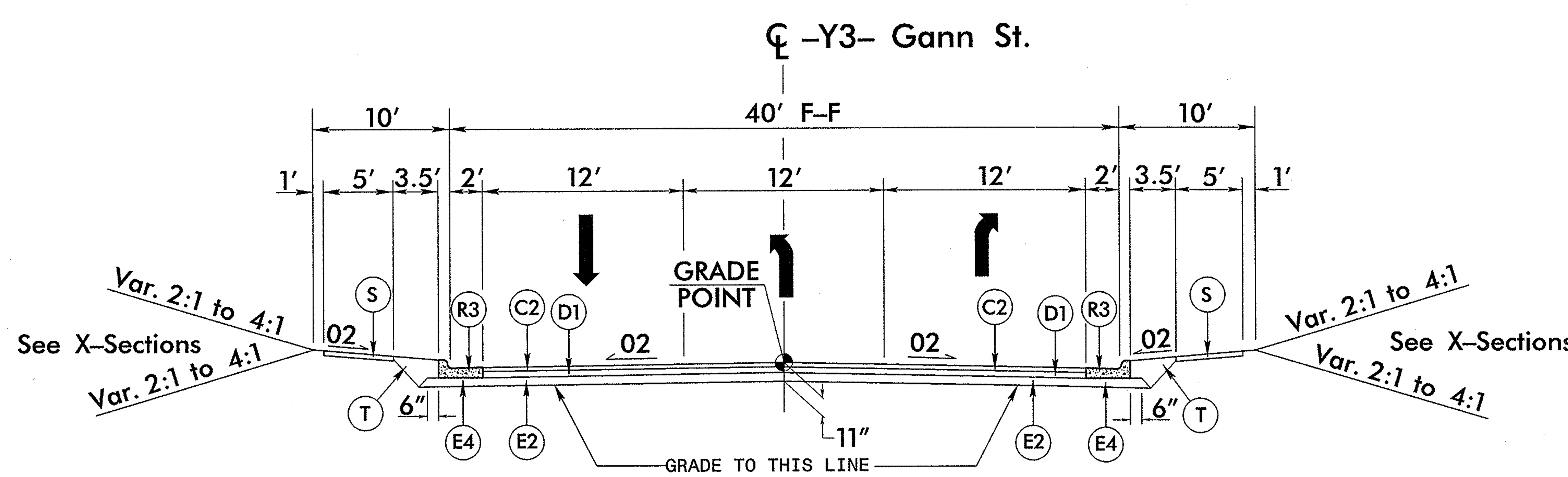


TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8

*-Y1- Angier Avenue Sta. 11+00.00 to 12+10.32
-Y2- Angier Avenue Sta. 10+76.99 to 11+00.00

** NOTE: SEE PLANS FOR EXISTING CURB & GUTTER AND EXISTING SIDEWALK



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9

-Y3- Gann St. Sta. 10+65.00 to 11+79.87

5/14/99

12-JAN-2018 09:13
R:\Roadway\Proj\u3308_rdy_typ.dgn
$$$$USERNAME$$$$

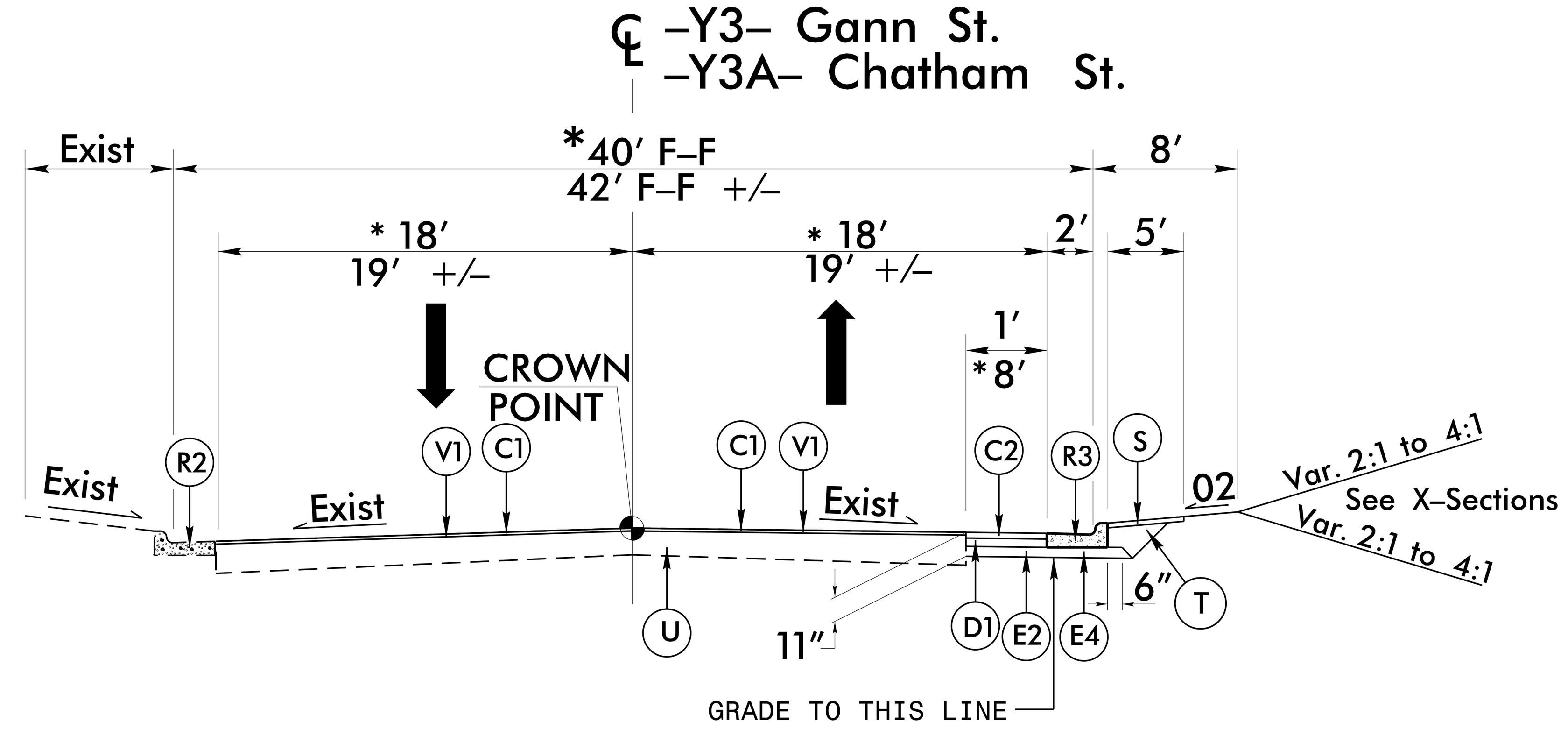
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 014571 James A. Speer — James Speer 11/23/2015

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 Vladimir G. Mitchev — Vladimir G Mitchev 11/19/2015

C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

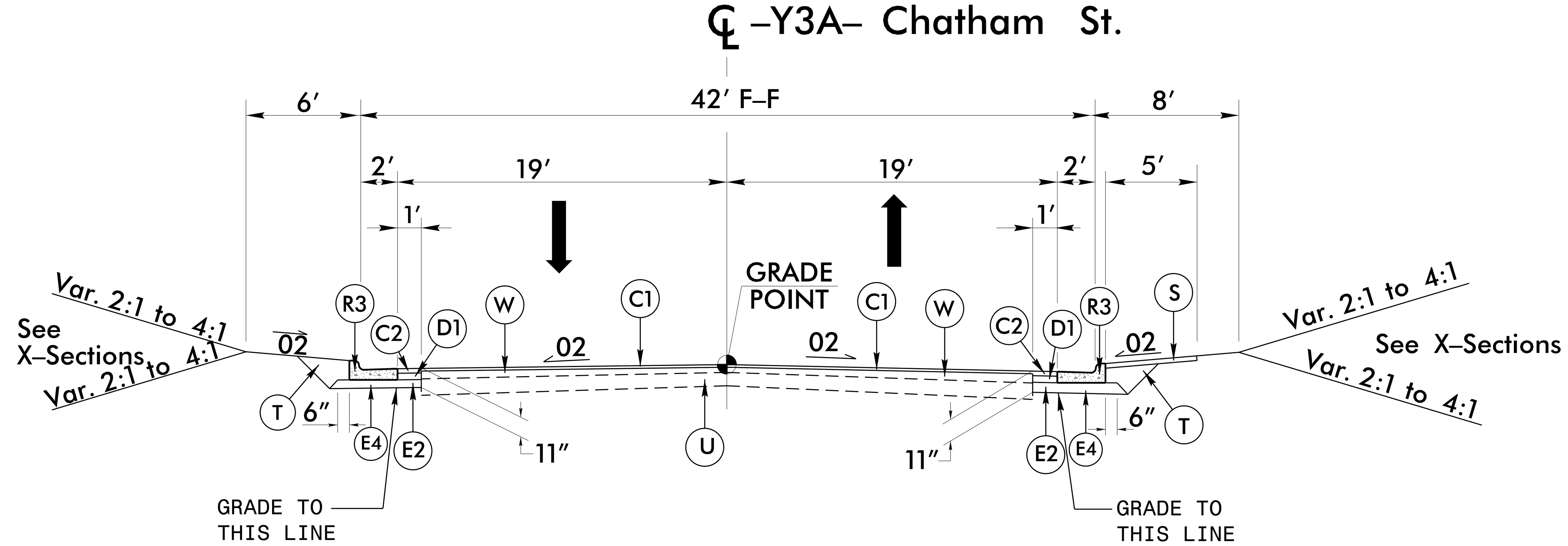
NOTE: ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10

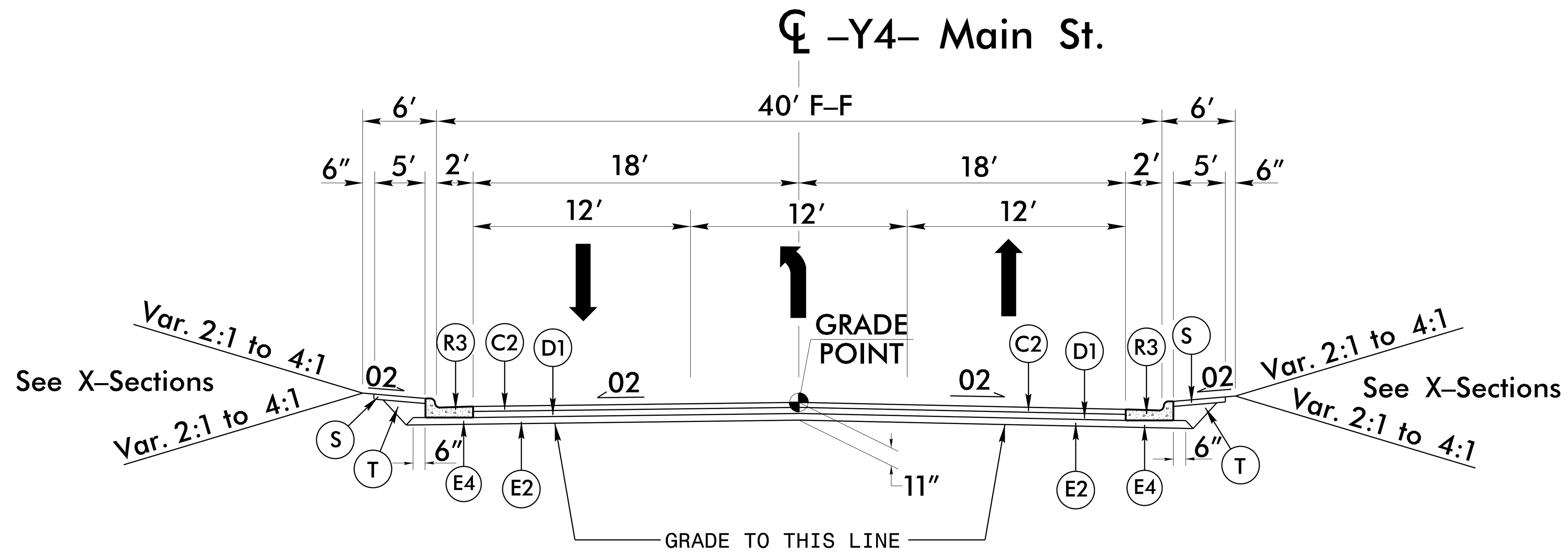
*-Y3- Gann St. Sta. 9+99.63 to 10+65.00
-Y3A- Chatham St. Sta. 10+00.00 to 11+50.00



TYPICAL SECTION NO. 10A

USE TYPICAL SECTION NO. 10A

-Y3A- Chatham St. Sta. 11+50.00 to 12+31.63



TYPICAL SECTION NO. 11

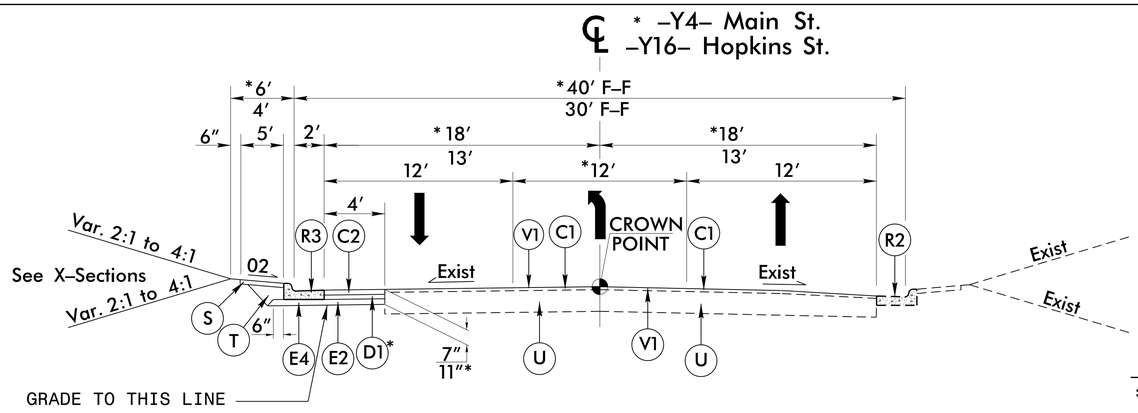
USE TYPICAL SECTION NO. 11

-Y4- Main St. Sta. 10+60.49 to 11+00.00

5/14/99

C1	1.5″ TYPE S9.5B
C2	3″ TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4″ TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3″ TYPE B25.0B
E2	4″ TYPE B25.0B
E3	5″ TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8″ AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1′6″ CONC. CURB AND GUTTER
R2	EXIST. 2′6″ CONC. CURB AND GUTTER
R3	PROP. 2′6″ CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5″ ASPHALT MILLING
V2	PROP. 3″ ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12

*–Y4– Main St. Sta. 11+00.00 to 12+45.00
–Y16– Hopkins St. Sta. 11+40.00 to 11+85.00
(No Sidewalk or (D1) on –Y16–)

TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13

–Y5– Main St. Sta. 10+96.85 to 11+55.00
*–Y15A– Sta. 10+60.00 to 10+80.00
–Y15A– NO SIDEWALK

TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO 14

*–Y6– Morning Glory Ave. Sta. 10+18.98 to 11+55.00
–Y7– Morning Glory Ave. Sta. 10+97.67 to 12+50.00
#–Y11– Franklin St. Sta. 10+76.87 to 10+90.00
Overlay –Y6– from 11+55.00 to 11+65.00 w/(C2)

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-7
R/W SHEET NO.	

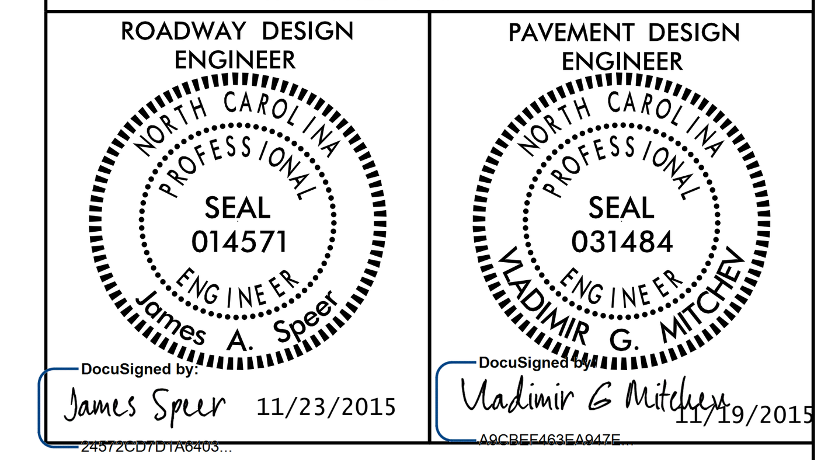
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 014571 James A. Speer
DocuSigned by: James Speer 11/23/2015

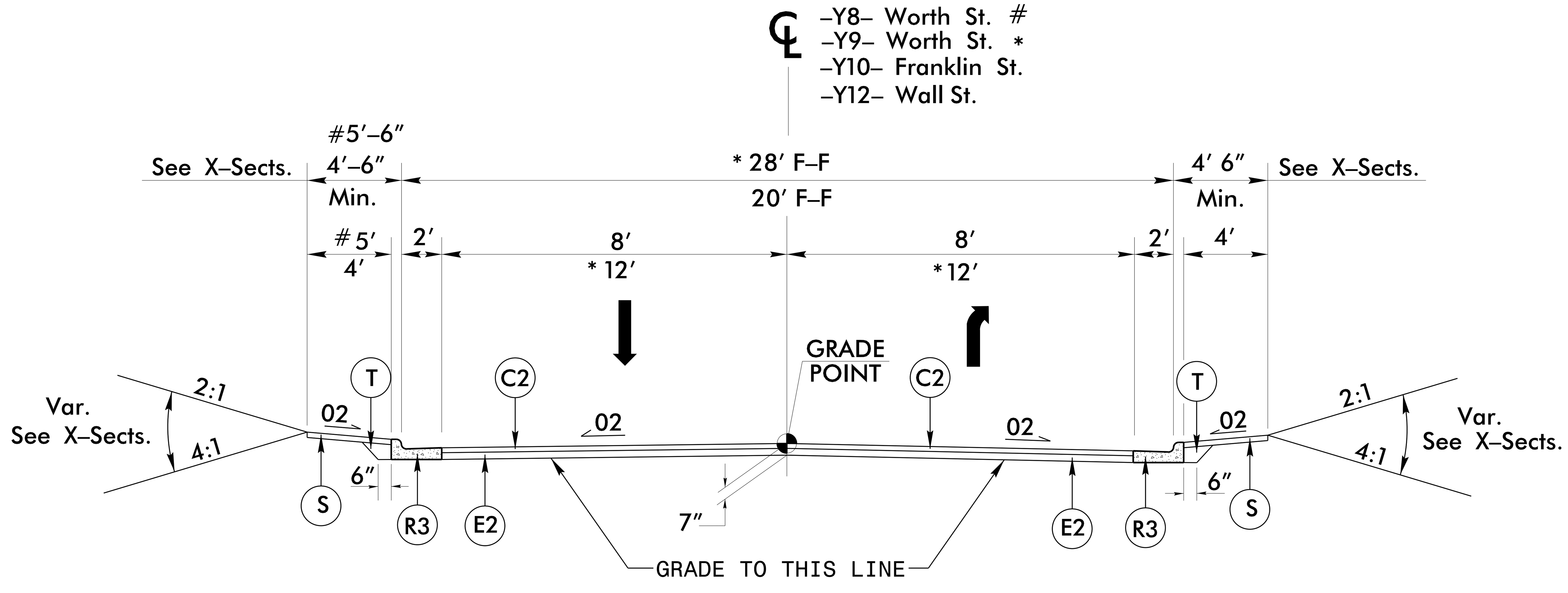
PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITCHEV
DocuSigned by: Vladimir G Mitchev 11/19/2015

C1	1.5″ TYPE S9.5B
C2	3″ TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4″ TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3″ TYPE B25.0B
E2	4″ TYPE B25.0B
E3	5″ TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8″ AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1′6″ CONC. CURB AND GUTTER
R2	EXIST. 2′6″ CONC. CURB AND GUTTER
R3	PROP. 2′6″ CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5″ ASPHALT MILLING
V2	PROP. 3″ ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-8
R/W SHEET NO.	





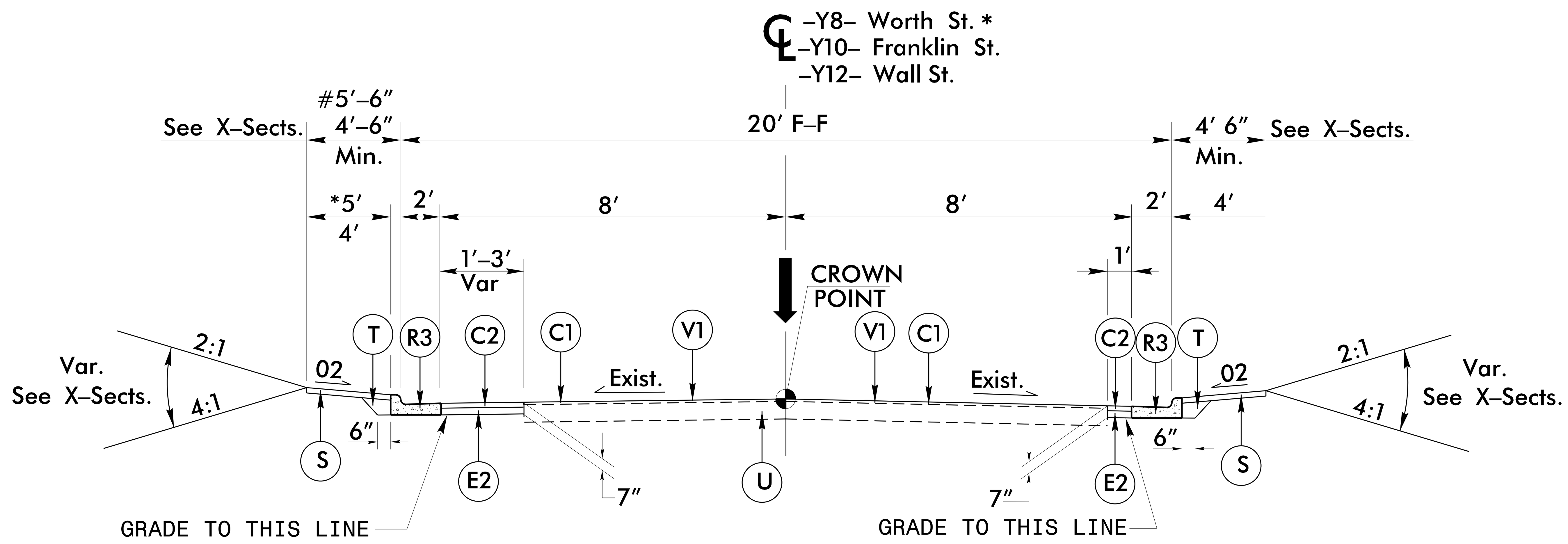
TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15

-Y8- Worth St. Sta. 10+14.08 to 12+55.00
*-Y9- Worth St. Sta. 10+92.59 to 11+25.00
-Y10- Franklin St. Sta. 10+29.46 to 10+90.00
-Y12- Wall St. Sta. 10+51.06 to 10+80.00

NO PROPOSED SIDEWALK ON -Y9-

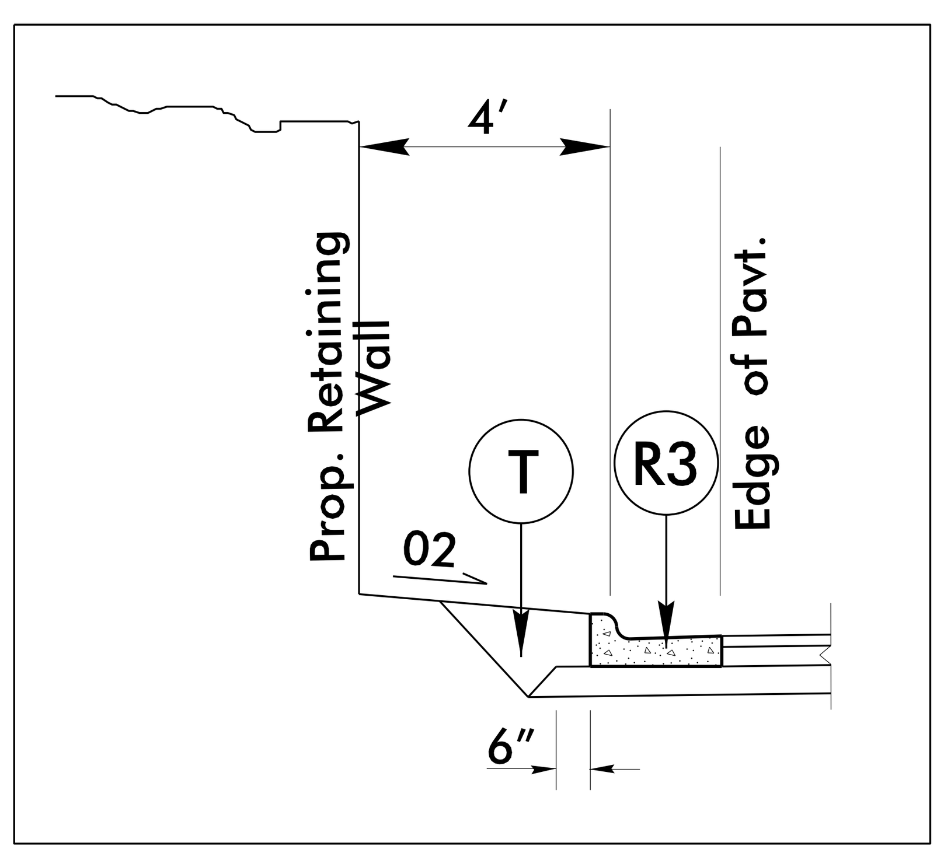
Overlay -Y9- from Sta. 11+25 to 11+35 with (C1)



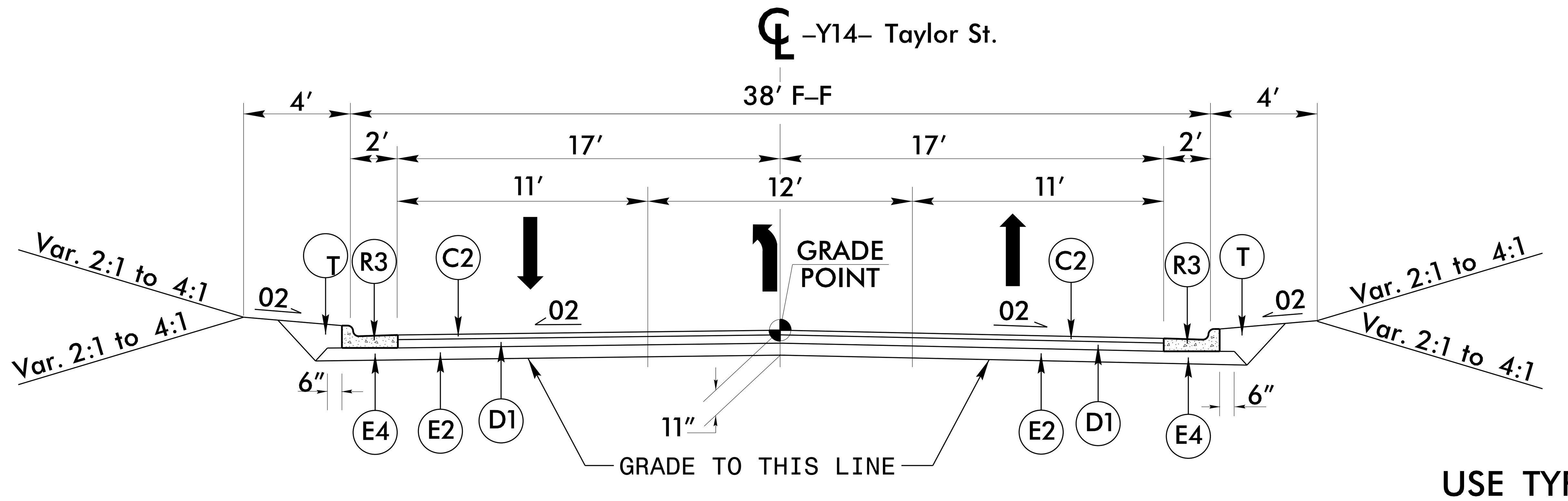
TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16

* -Y8- Worth St. Sta. 12+55.00 to 13+89.00
-Y10- Franklin St. Sta. 10+90.00 to 14+05.00
-Y12- Wall St. Sta. 10+80.00 to 14+20.00



USE WITH TYPICAL SECTION NO. 17
-Y14- Taylor St. Sta. 10+44.00 to 11+08.00 Lt.



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17
-Y14- Taylor St. Sta. 10+82.21 to 11+40.00

5/14/99

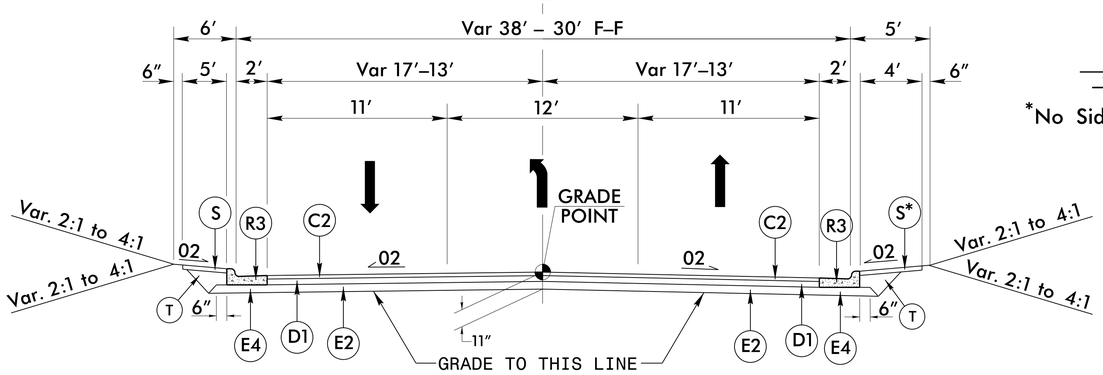
14-MAY-2015 12:30
u3308_rdy_typ.dgn

5/14/99

C1	1.5″ TYPE S9.5B
C2	3″ TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4″ TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3″ TYPE B25.0B
E2	4″ TYPE B25.0B
E3	5″ TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8″ AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6″ CONC. CURB AND GUTTER
R2	EXIST. 2'6″ CONC. CURB AND GUTTER
R3	PROP. 2'6″ CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5″ ASPHALT MILLING
V2	PROP. 3″ ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

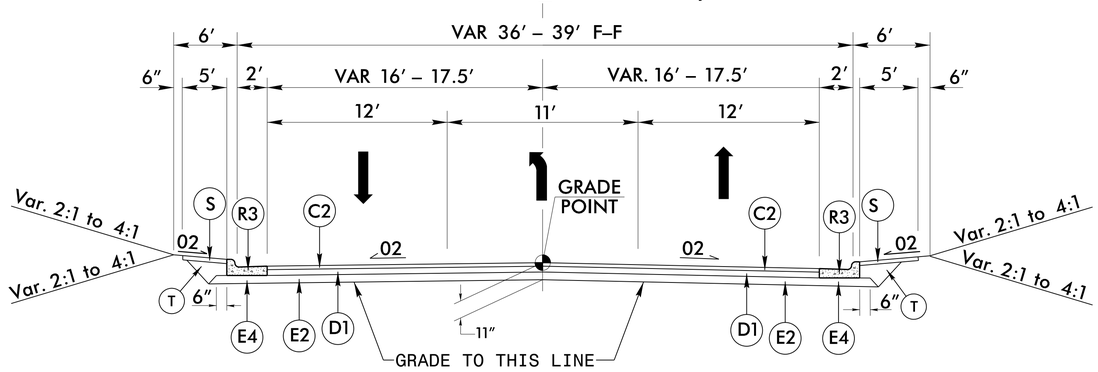
NOTE: ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

℄ –Y15– Taylor St.



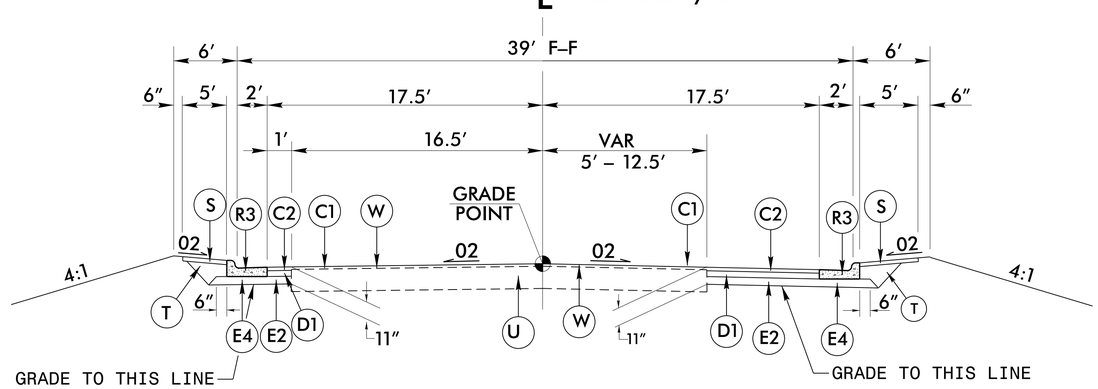
TYPICAL SECTION NO. 18

℄ –Y18– Liberty St.



TYPICAL SECTION NO. 19

℄ –Y18– Liberty St.



TYPICAL SECTION NO. 20

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-9
R/W SHEET NO.	

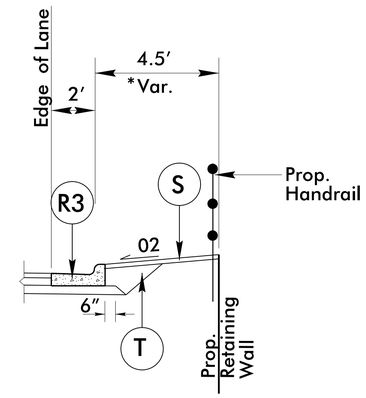
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer
DocuSigned by: James Speer 11/23/2015

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
DocuSigned by: Vladimir G Mitchev 11/19/2015

USE TYPICAL SECTION NO. 18

–Y15– Taylor St. Sta. 10+65.03 to 16+40.00

*No Sidewalk –Y15– Sta. 13+80.00 to 16+40.00 Rt.



Use With Typical Section # 18

Sta. 46+73.00 Rt. –LALT– TO 11+25.00 –Y15–
*Sta 48+21.00 –LALT– to Sta. 10+79.00 –Y15–

USE TYPICAL SECTION NO. 19

–Y18– Liberty St. Sta. 10+20.00 to 13+22.97
–Y18– Liberty St. Sta. 14+45.35 to 15+15.00

USE TYPICAL SECTION NO. 20

–Y18– Liberty St. Sta. 15+15.00 to 16+30.00

TRANSITION TO TYPICAL NO. 21:
–Y18– Liberty St. Sta. 16+30.00 to 17+05.00

14-MAY-2015 12:30
R:\Roadway Projects\u3308_rdy_typ.dgn
$$$$USERNAME$$$$

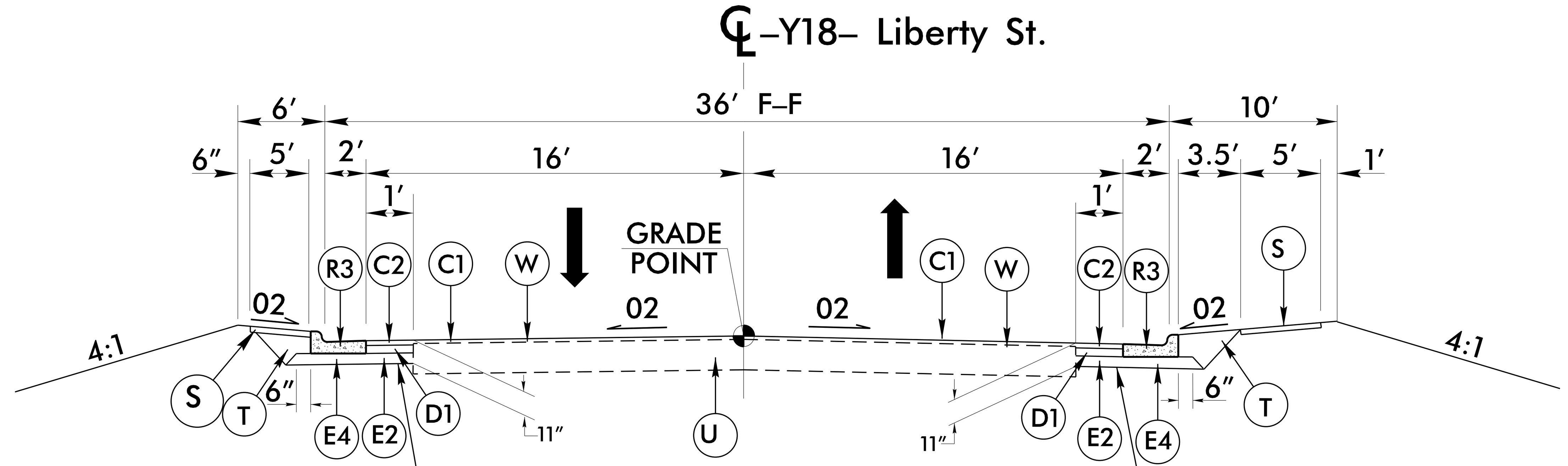
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 014571 — James A. Speer — 11/23/2015

PAVEMENT DESIGN ENGINEER — SEAL 031484 — Vladimir G. Mitchev — 11/19/2015

C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

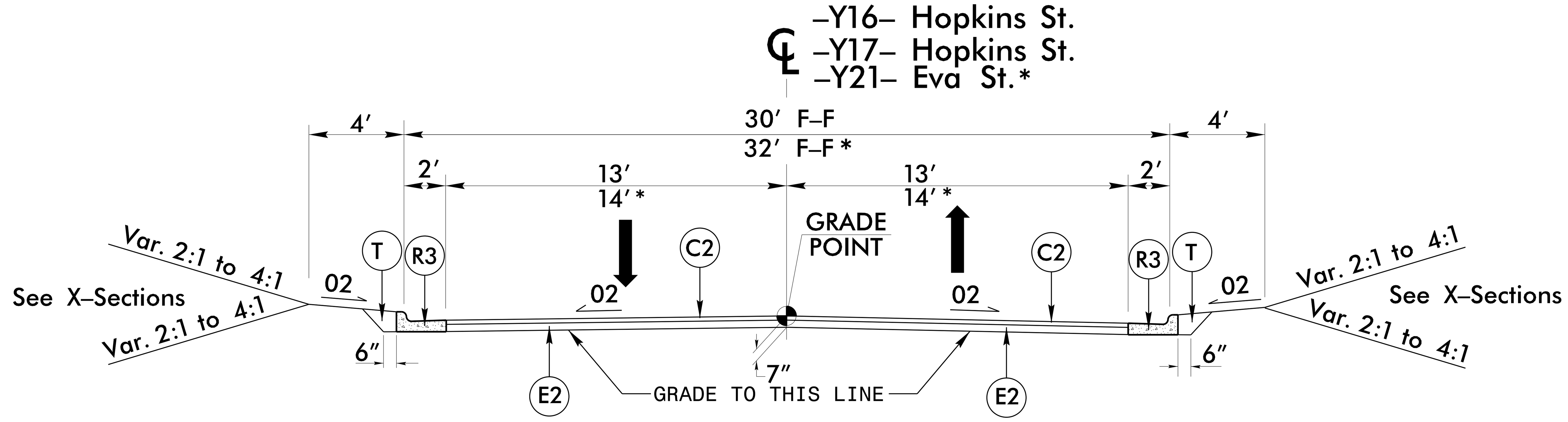


TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21

-Y18- Liberty St. Sta. 17+05.00 to 17+83.00

NOTE: USE (V1) AS DIRECTED BY ENGINEER TO TIE TO EXIST. PAVEMENT



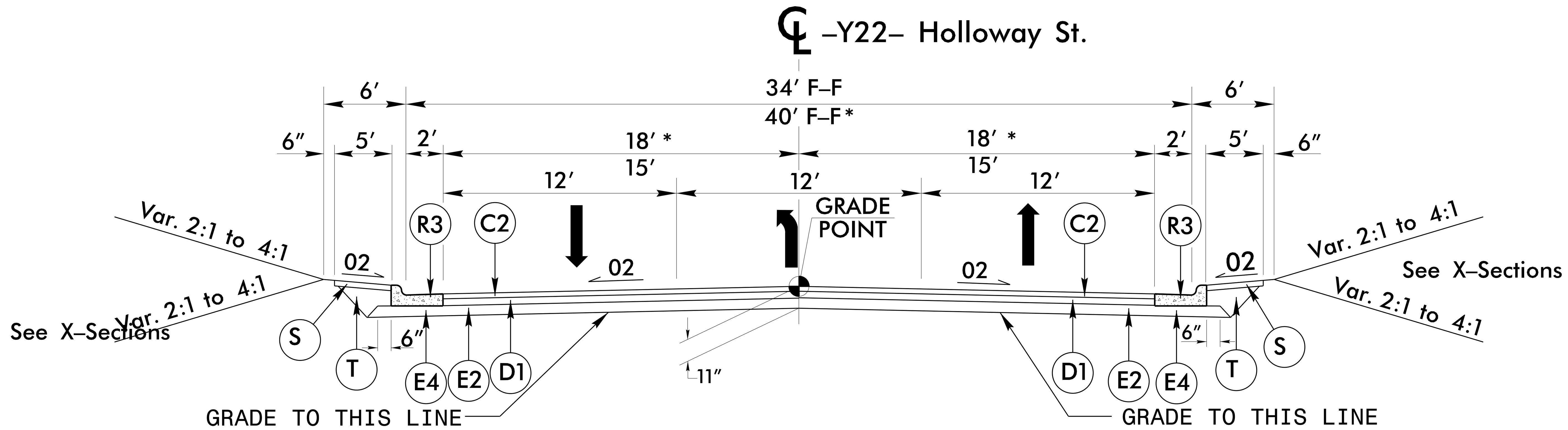
TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22

-Y16- Hopkins St. Sta. 10+51.06 to 11+40.00

-Y17- Hopkins St. Sta. 10+45.70 to 11+45.00

*-Y21- Eva St. Sta. 10+54.93 to 11+25.00

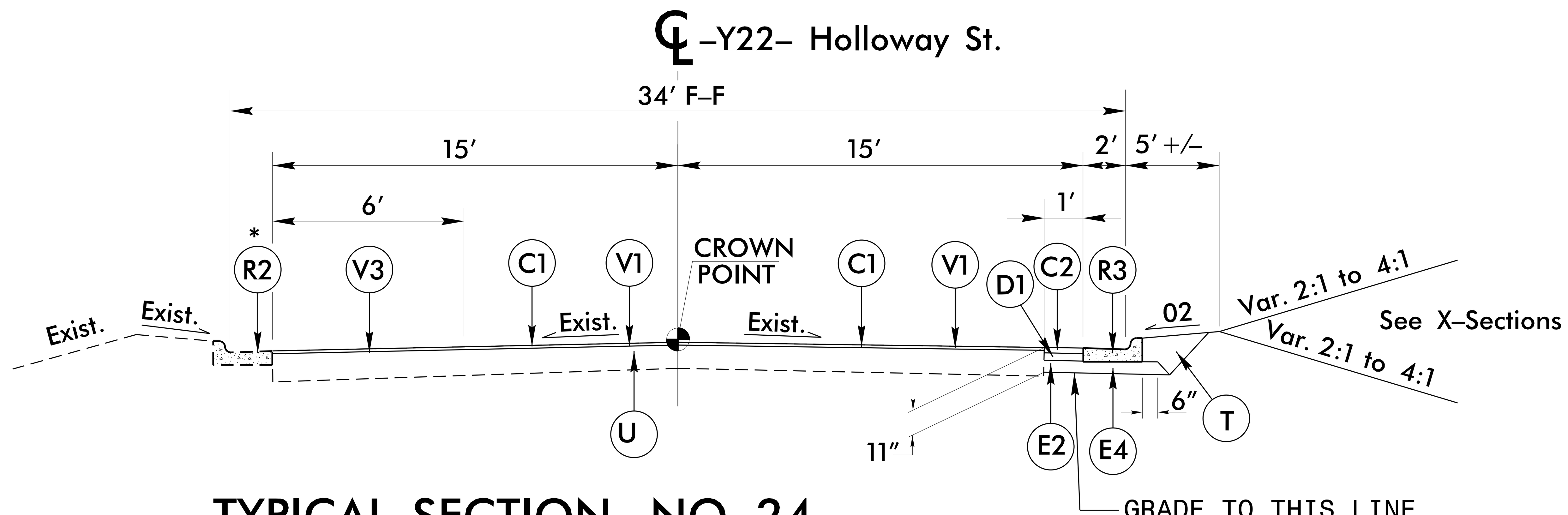


TYPICAL SECTION NO. 23

USE TYPICAL SECTION NO. 23

-Y22- Holloway St. Sta. 13+00.00 to 13+50.36

* -Y22- Holloway St. Sta. 15+10.34 to 16+00.00



TYPICAL SECTION NO. 24

USE TYPICAL SECTION NO. 24

-Y22- Holloway St. Sta. 12+55.00 to 13+00.00

* NOTE: SEE PLANS FOR EXISTING CURB & GUTTER AND EXISTING SIDEWALK

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-II
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 024641 — Tatia L. White — FOR REVISIONS ONLY

PAVEMENT DESIGN ENGINEER — SEAL 022896 — Clark S. Morrison

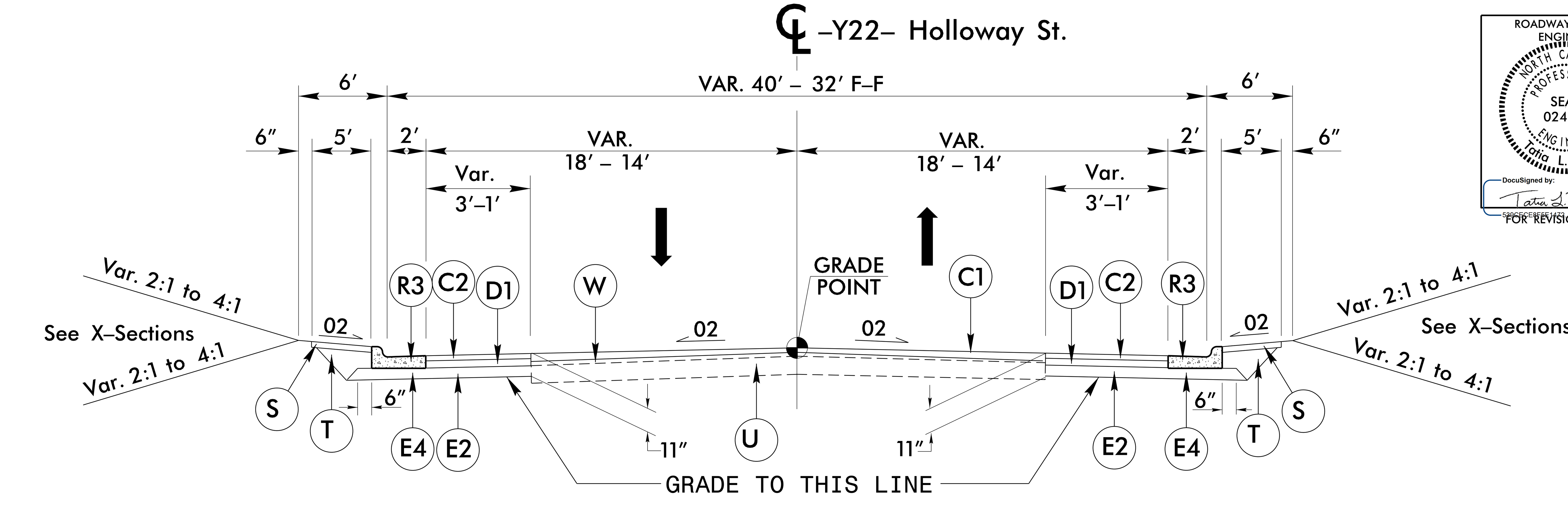
ROADWAY DESIGN ENGINEER: NOT A CERTIFIED DOCUMENT AS TO THE ORIGINAL DOCUMENT BUT ONLY AS TO THE REVISIONS. THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY : JAMES A. SPEER, PE SEAL 014571 ON 11/23/2015. THIS DOCUMENT IS ONLY CERTIFIED AS TO THE REVISIONS.

PAVEMENT DESIGN ENGINEER: NOT A CERTIFIED DOCUMENT AS TO THE ORIGINAL DOCUMENT BUT ONLY AS TO THE REVISIONS. THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY : VLADIMIR G. MITCHEV, PE SEAL 031484 ON 11/19/2015. THIS DOCUMENT IS ONLY CERTIFIED AS TO THE REVISIONS.

C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

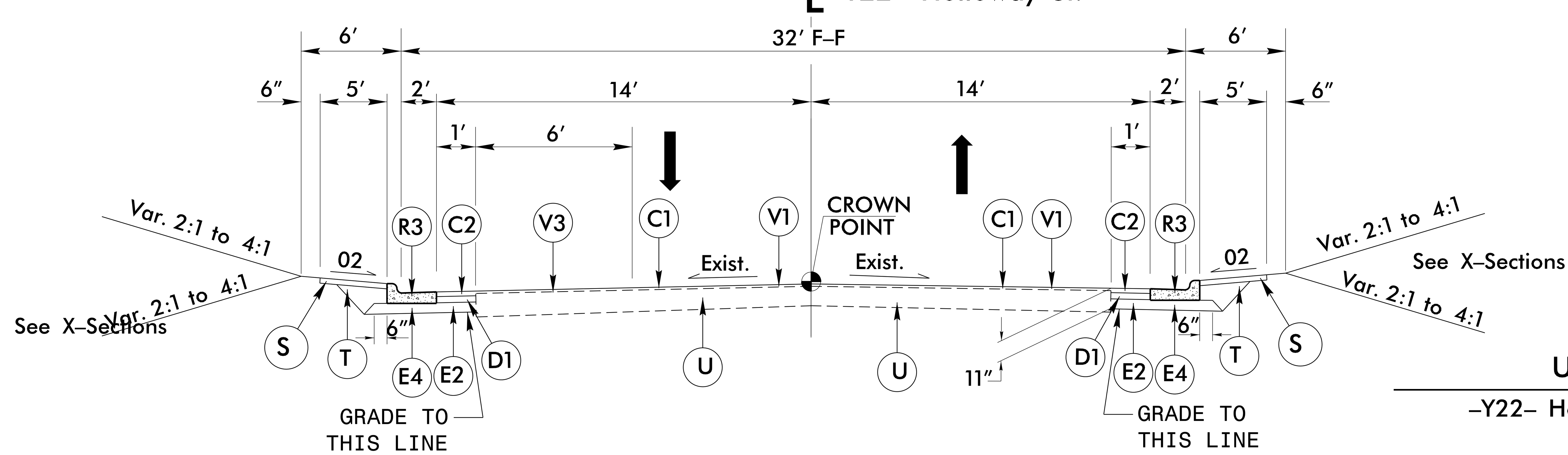
05/05/2020 CONSTRUCTION REVISION - TYPICAL SECTION NO. 25A ENDPOINT WAS CHANGED FROM 18+40 TO 18+50



TYPICAL SECTION NO. 25

USE TYPICAL SECTION NO. 25

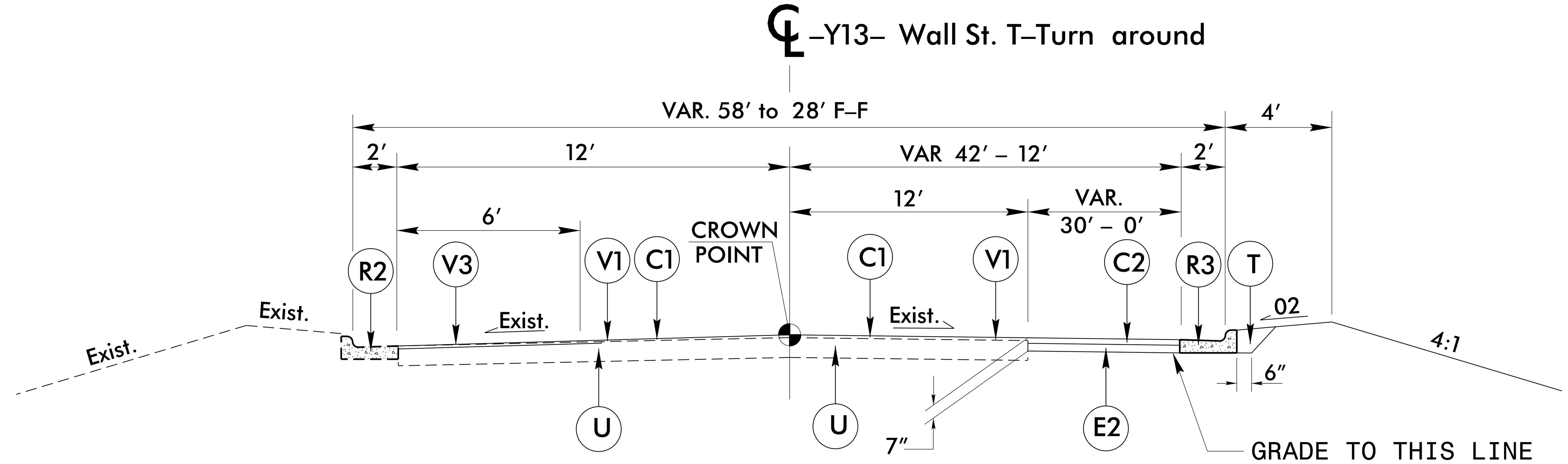
-Y22- Holloway St. Sta. 16+00.00 to 16+90.00



TYPICAL SECTION NO. 25A

USE TYPICAL SECTION NO. 25A

-Y22- Holloway St. Sta. 16+90.00 to 18+50.00 Rt.



TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26

-Y13- Wall St. T-Turn around Sta. 10+60.00 to 11+22.00

5/14/99

04-MAY-2020 15:58 R:\Roadway\Proj\u3308_rdy_typ.dgn $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-12

R/W SHEET NO.

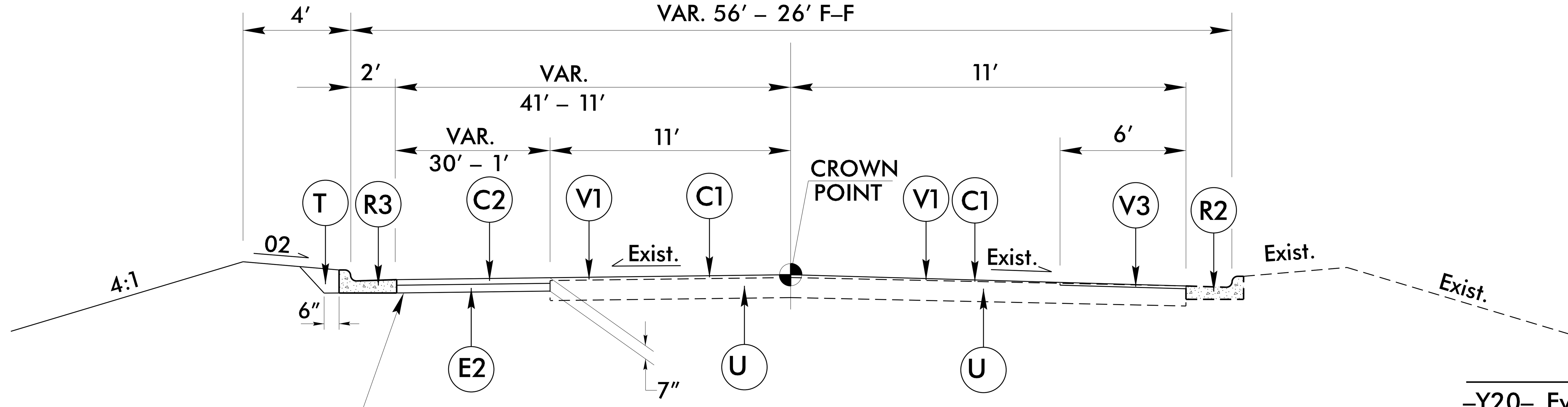
ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 014571 James A. Speer — DocuSigned by: James Speer 11/23/2015

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 Vladimir G. Mitchev — DocuSigned by: Vladimir G Mitchev 11/19/2015

C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

CL -Y20- Eva St. T-Turn around

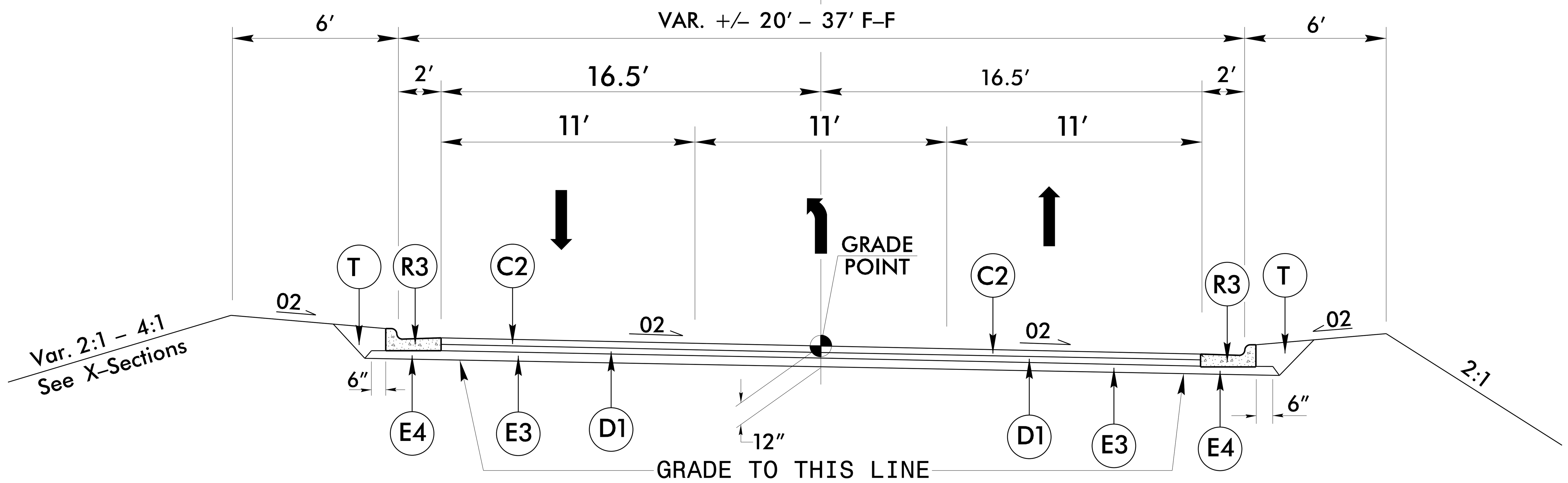


TYPICAL SECTION NO. 27

USE TYPICAL SECTION NO. 27

-Y20- Eva St. T-Turn around To Sta. 10+25.00 To 10+85.00

CL -R1-



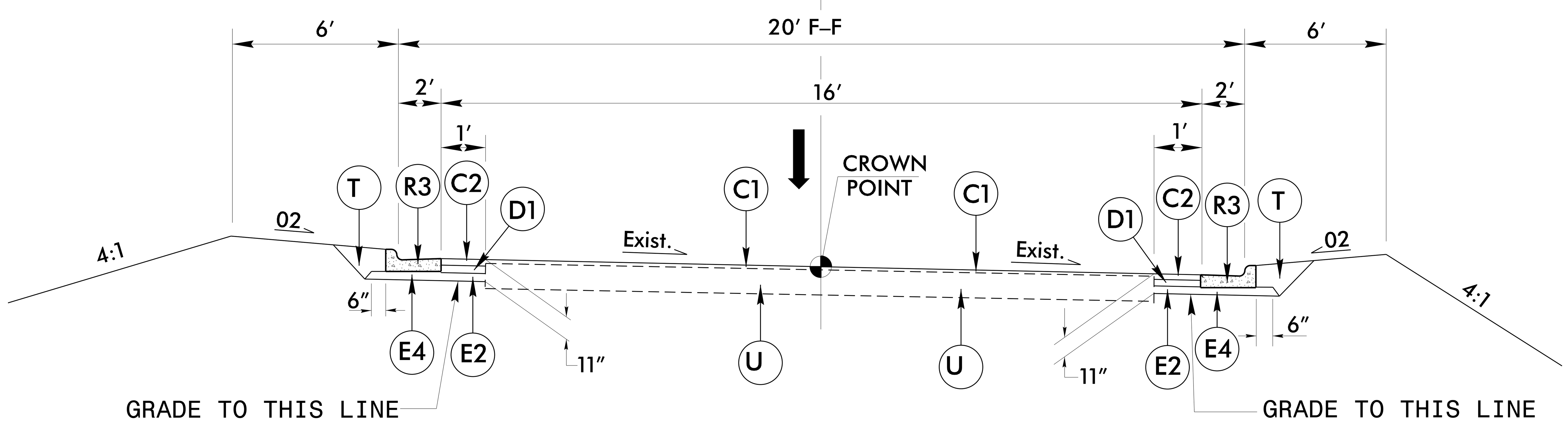
TYPICAL SECTION NO. 28

USE TYPICAL SECTION NO. 28

-R1- Sta. 11+00.00 to 14+80.05

Guardrail Placed @ Face of Curb and Gutter Along -R1- Rt.

CL -R2-



TYPICAL SECTION NO. 29

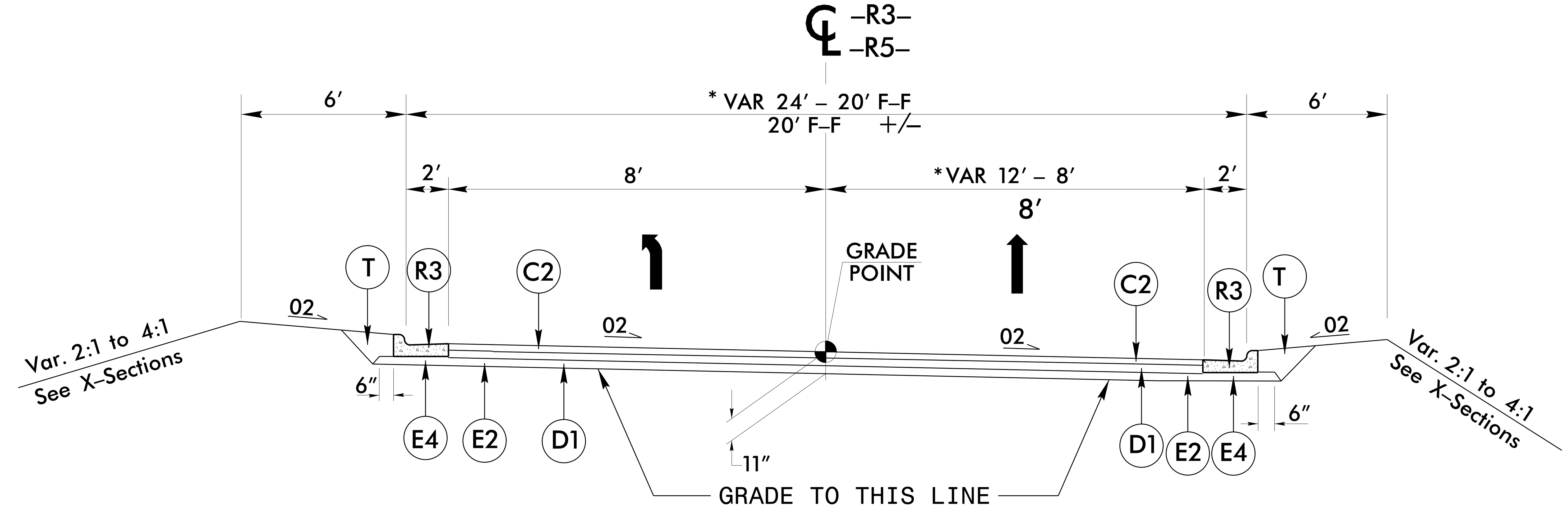
USE TYPICAL SECTION NO. 29

-R2- Sta. 10+69.54 to 11+00.00

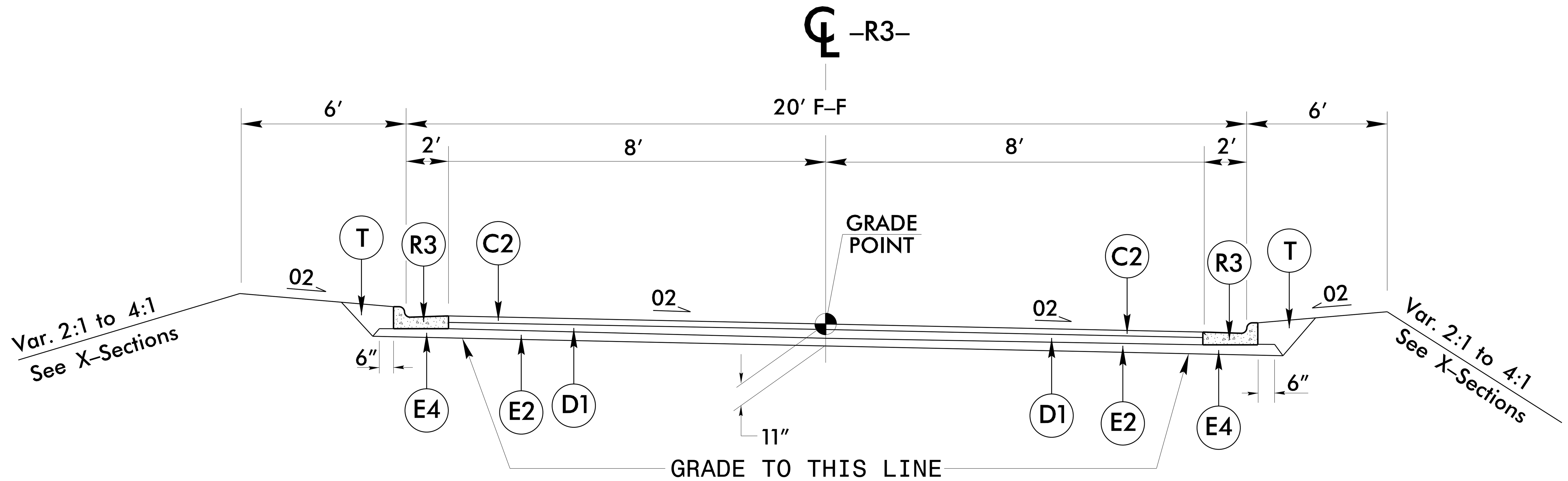
C1	1.5" TYPE S9.5B
C2	3" TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4" TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3" TYPE B25.0B
E2	4" TYPE B25.0B
E3	5" TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8" AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1'6" CONC. CURB AND GUTTER
R2	EXIST. 2'6" CONC. CURB AND GUTTER
R3	PROP. 2'6" CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5" ASPHALT MILLING
V2	PROP. 3" ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

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

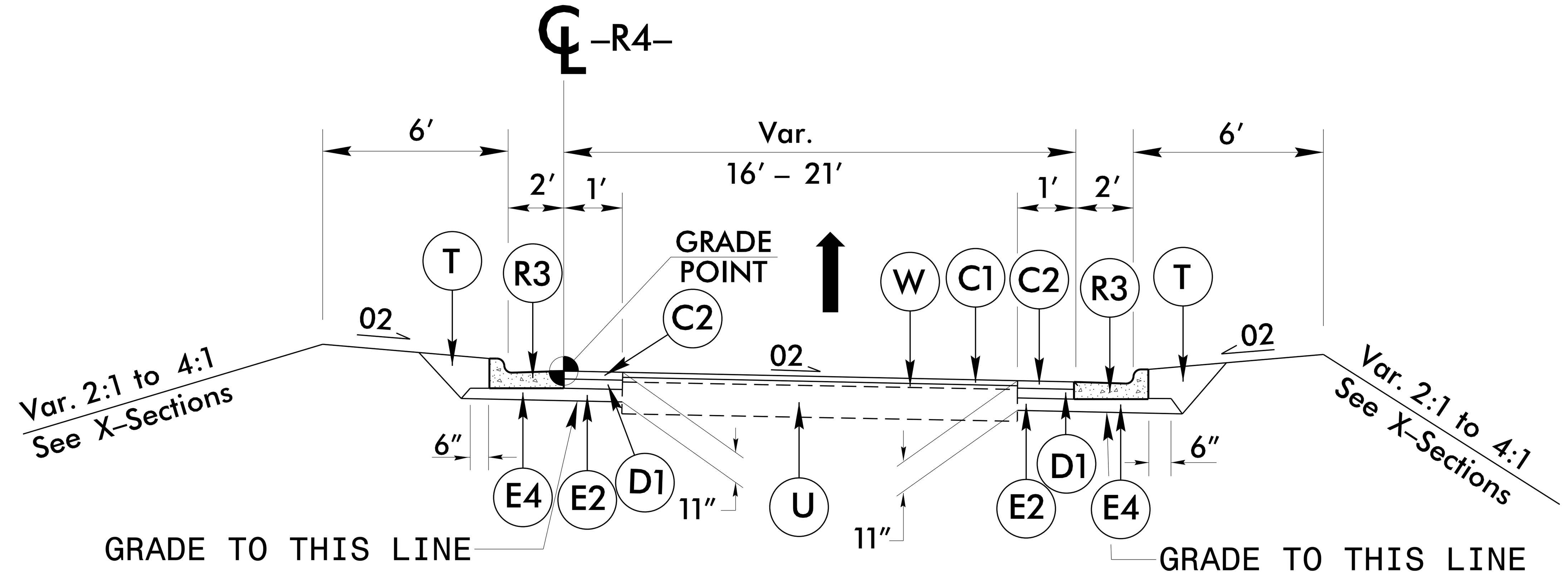
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 014571 James A. Speer	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031484 VLADIMIR G. MITCHEV
DocuSigned by: James Speer 11/23/2015	DocuSigned by: Vladimir G Mitchev 11/19/2015



TYPICAL SECTION NO. 30



TYPICAL SECTION NO. 31



TYPICAL SECTION NO. 32

USE TYPICAL SECTION NO. 30

*-R3- Sta. 10+85.34 to 11+50.00 (SEE PLANS FOR TAPER)

-R5- Sta. 10+91.69 to 11+50.00

Guardrail Placed @ Face of Curb and Gutter Along -R3- Lt. & Rt.

USE TYPICAL SECTION NO. 31

-R3- Sta. 11+50.00 to 13+60.00

USE TYPICAL SECTION NO. 32

-R4- Sta. 11+38.00 to 12+30.00

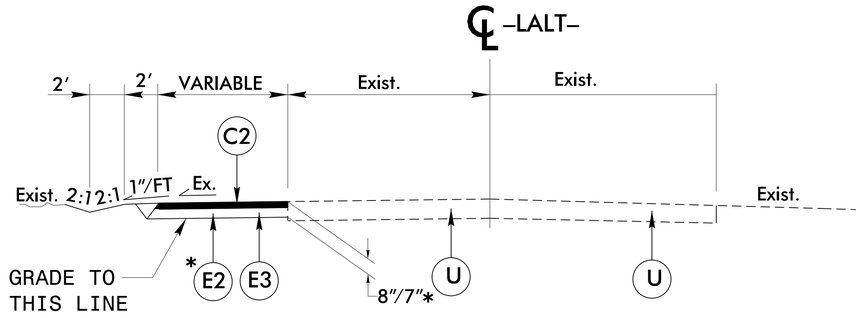
5/14/99

14-MAY-2015 12:30
R:\Roadway\Proj\u3308_rdy_typ.dgn
$$$$USERNAME$$$$

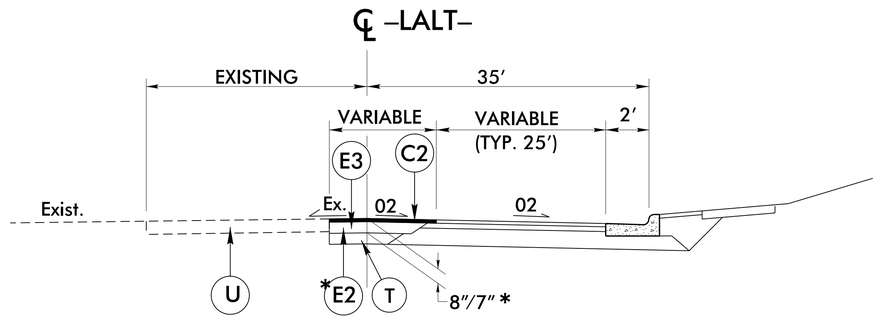
5/14/99

C1	1.5″ TYPE S9.5B
C2	3″ TYPE S9.5B
C3	VARIABLE DEPTH S9.5B
D1	4″ TYPE I19.0B
D2	VARIABLE DEPTH TYPE I19.0B
E1	3″ TYPE B25.0B
E2	4″ TYPE B25.0B
E3	5″ TYPE B25.0B
E4	VAR. DEPTH TYPE B25.0B
J	8″ AGGREGATE BASE COURSE
K	SUBGRADE STABILIZATION
L	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
N2	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	PROP. 1′6″ CONC. CURB AND GUTTER
R2	EXIST. 2′6″ CONC. CURB AND GUTTER
R3	PROP. 2′6″ CONC. CURB AND GUTTER
R4	PROP. CONCRETE ISLAND
S	PROPOSED CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	PROP. 1.5″ ASPHALT MILLING
V2	PROP. 3″ ASPHALT MILLING
V3	PROP. ASPHALT MILLING VARIABLE
W	ASPHALT WEDGING (SEE DETAIL)

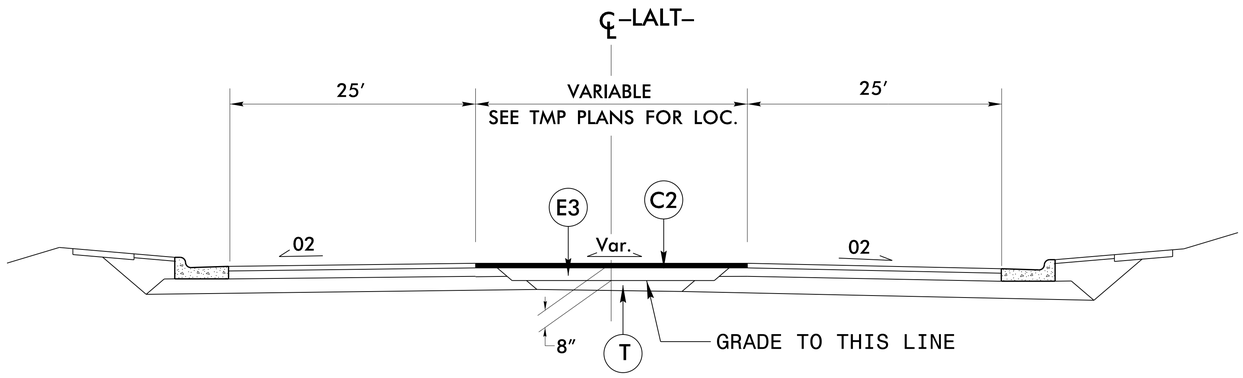
NOTE: ALL SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



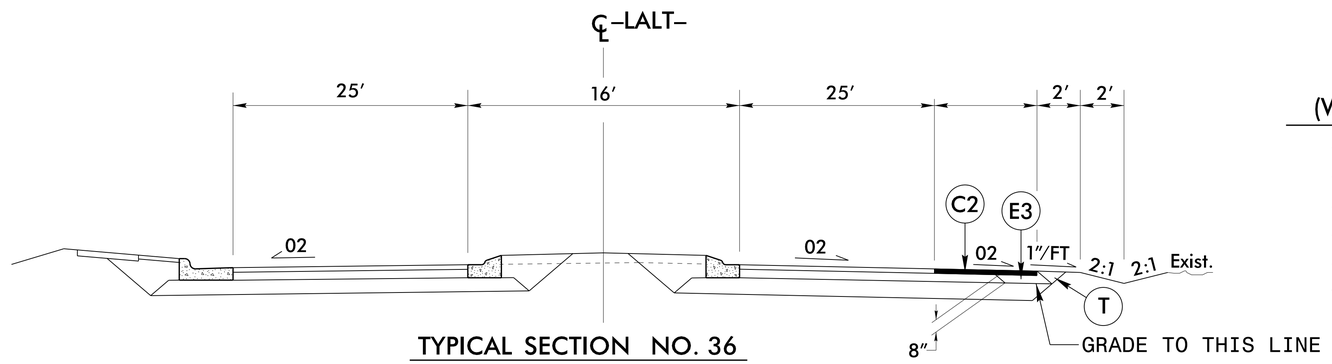
TYPICAL SECTION NO. 33



TYPICAL SECTION NO. 34



TYPICAL SECTION NO. 35



TYPICAL SECTION NO. 36

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2A-14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer
DocuSigned by: James Speer 11/23/2015

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031484 ENGINEER VLADIMIR G. MITCHEV
DocuSigned by: Vladimir G Mitchev 11/19/2015

USE TYPICAL SECTION 33 FOR TEMPORARY PAVEMENT (WIDENING TO THE OUTSIDE OF EXISTING)

–LALT– Sta. 14+58.00 to 15+35.00 LT. (TMP – 5 & 5A)
–LALT– Sta. 17+63.00 to 18+41.00 LT (TMP – 5)
–LALT– Sta. 36+71.00 to 40+62.00 RT (TMP – 6+7)
–LALT– Sta. 39+25.00 to 40+56.00 LT (TMP – 10+11)
–LALT– Sta. 47+36.00 to 48+74.00 LT (TMP – 7)
–LALT– Sta. 49+16.00 to 63+60.00 LT (TMP – 7+8)
–LALT– Sta. 63+90.00 to 66+10.00 LT (TMP – 8)
*–Y15– Sta. 10+05.00 to 10+75.00 LT (TMP – 13)

USE TYPICAL SECTION 34 FOR TEMPORARY PAVEMENT (CONNECTION FROM EXISTING TO PROP. PAVEMENT)

–LALT– Sta. 19+98.00 to 20+94.00 (TMP – 5)
–LALT– Sta. 31+00.00 to 32+00.00 (TMP – 6)
–LALT– Sta. 38+66.00 to 41+25.00 (TMP – 16 & 17)
–LALT– Sta. 42+55.00 to 42+73.00 (TMP – 11)
–LALT– Sta. 42+97.00 to 43+20.00 (TMP – 11)
–LALT– Sta. 44+30.00 to 44+48.00 (TMP – 11)
–LALT– Sta. 44+78.00 to 46+30.00 (TMP – 11)
–LALT– Sta. 48+25.00 to 49+50.00 (TMP – 13)
–LALT– Sta. 53+70.00 to 54+70.00 (TMP – 12)
–LALT– Sta. 56+70.00 to 57+75.00 (TMP – 12)
–LALT– Sta. 59+12.00 to 60+25.00 (TMP – 12)

USE TYPICAL SECTION 35 FOR TEMPORARY PAVEMENT (INSIDE THE PROPOSED MEDIAN)

–LALT– Sta. 28+60.00 to 29+76.00 (TMP – 6)
–LALT– Sta. 40+20.00 to 41+25.00 (TMP – 21)
–LALT– Sta. 50+84.00 to 51+75.00 (TMP – 11)
–LALT– Sta. 53+70.00 to 54+70.00 (TMP – 18)

USE TYPICAL SECTION 36 FOR TEMPORARY PAVEMENT (WIDENING TO THE OUTSIDE OF PROPOSED)

–LALT– Sta. 40+95.00 to 41+50.00 (TMP – 17)
–LALT– Sta. 48+80.00 to 49+30.00 RT (TMP – 13)
–LALT– Sta. 54+30.00 to 54+62.00 RT (TMP – 12)
–LALT– Sta. 57+36.00 to 57+69.00 @ Y18 (TMP – 12)
–LALT– Sta. 63+95.00 to 64+25.00 RT (TMP – 14)
–LALT– Sta. 64+25.00 to 65+10.00 RT (TMP – 12)

18-MAY-2015 08:18
N:\Roadway\Proj\u3308_rdy_typ.dgn
$$$$USERNAME$$$$

DETAIL OF –LALT– AND –R3–/–R4– INTERSECTION & –LALT– AND –Y3–/–R5– INTERSECTION

See Sheets 2C–1 Thru 2C–4 for Curb Ramp Details

See Plan Sheet 4

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-1
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 11/23/2015

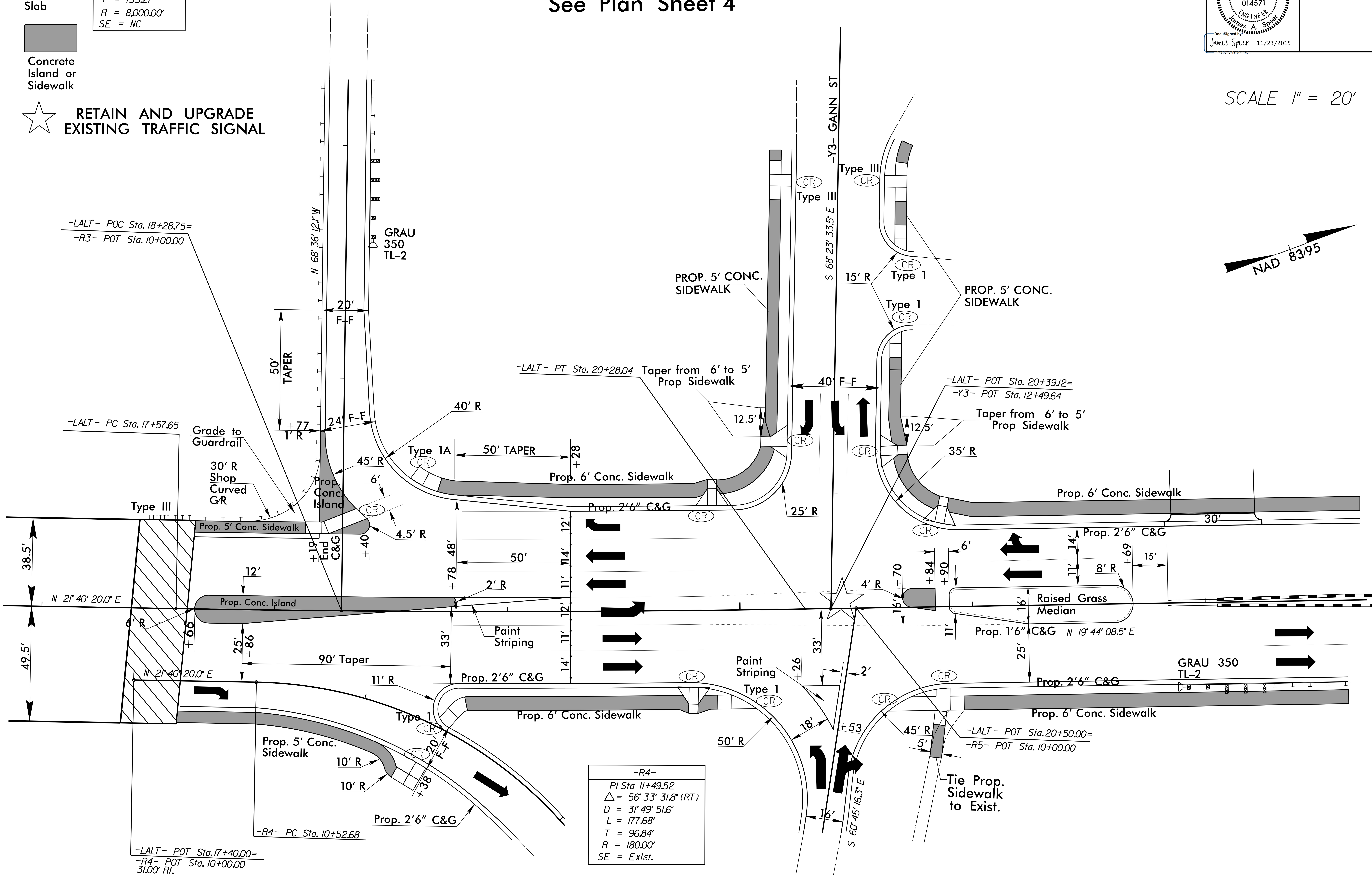
Proposed Approach Slab

Concrete Island or Sidewalk

☆ RETAIN AND UPGRADE EXISTING TRAFFIC SIGNAL

–LALT–
PI Sta 18+92.86
△ = 1° 56′ 11.5″ (LT)
D = 0° 42′ 58.3″
L = 270.39′
T = 135.21′
R = 8,000.00′
SE = NC

SCALE 1″ = 20′



–LALT– POC Sta. 18+28.75=
–R3– POT Sta. 10+00.00
N 68° 36′ 12.1″ W
GRAU 350 TL–2
20′ F–F
50′ TAPER
+77
1′ R
24′ F–F
–LALT– PC Sta. 17+57.65
Grade to Guardrail
30′ R Shop Curved G/R
45′ R
Prop. Conc. Island
6′
40′ R
Type 1A
50′ TAPER
+28
Prop. 6′ Conc. Sidewalk
Prop. 2′6″ C&G
Type III
Prop. 5′ Conc. Sidewalk
+19 End C&G
+40
4.5′ R
38.5′
48′
12′
14′
50′
+78
11′
2′ R
12′
Prop. Conc. Island
N 21° 40′ 20.0″ E
6′ R
+66
Paint Striping
33′
11′
25′ +86
90′ Taper
49.5′
14′
N 21° 40′ 20.0″ E
11′ R
Prop. 2′6″ C&G
Type 1
Prop. 5′ Conc. Sidewalk
10′ R
10′ R
20′ F–F
+38
Prop. 2′6″ C&G
–R4– PC Sta. 10+52.68
–LALT– POT Sta. 17+40.00=
–R4– POT Sta. 10+00.00 31.00′ Rt.
–LALT– PT Sta. 20+28.04
Taper from 6′ to 5′ Prop Sidewalk
PROP. 5′ CONC. SIDEWALK
12.5′
25′ R
–Y3– GANN ST
S 68° 23′ 33.5″ E
Type III
40′ F–F
Type III
15′ R
Type 1
Type 1
PROP. 5′ CONC. SIDEWALK
–LALT– POT Sta. 20+39.12=
–Y3– POT Sta. 12+49.64
Taper from 6′ to 5′ Prop Sidewalk
12.5′
35′ R
Prop. 6′ Conc. Sidewalk
30′
Prop. 2′6″ C&G
14′
6′
+70
+84
+90
+69
15′
8′ R
4′ R
11′
16′
Raised Grass Median
16′
11′
Prop. 1′6″ C&G
N 19° 44′ 08.5″ E
25′
33′
Paint Striping
+26
2′
Type 1
18′
+53
50′ R
45′ R
5′
–LALT– POT Sta. 20+50.00=
–R5– POT Sta. 10+00.00
Prop. 2′6″ C&G
Prop. 6′ Conc. Sidewalk
GRAU 350 TL–2
Tie Prop. Sidewalk to Exist.
16′
S 60° 45′ 16.3″ E
NAD 83/95
REVISIONS

–R4–
PI Sta 11+49.52
△ = 56° 33′ 31.8″ (RT)
D = 31° 49′ 51.6″
L = 177.68′
T = 96.84′
R = 180.00′
SE = Exist.

07-MAY-2015 13:50 R:\Roadway\Proj\U-3308_Rdy_dtl_Intersection.dgn $$$$USERNAME$$$$

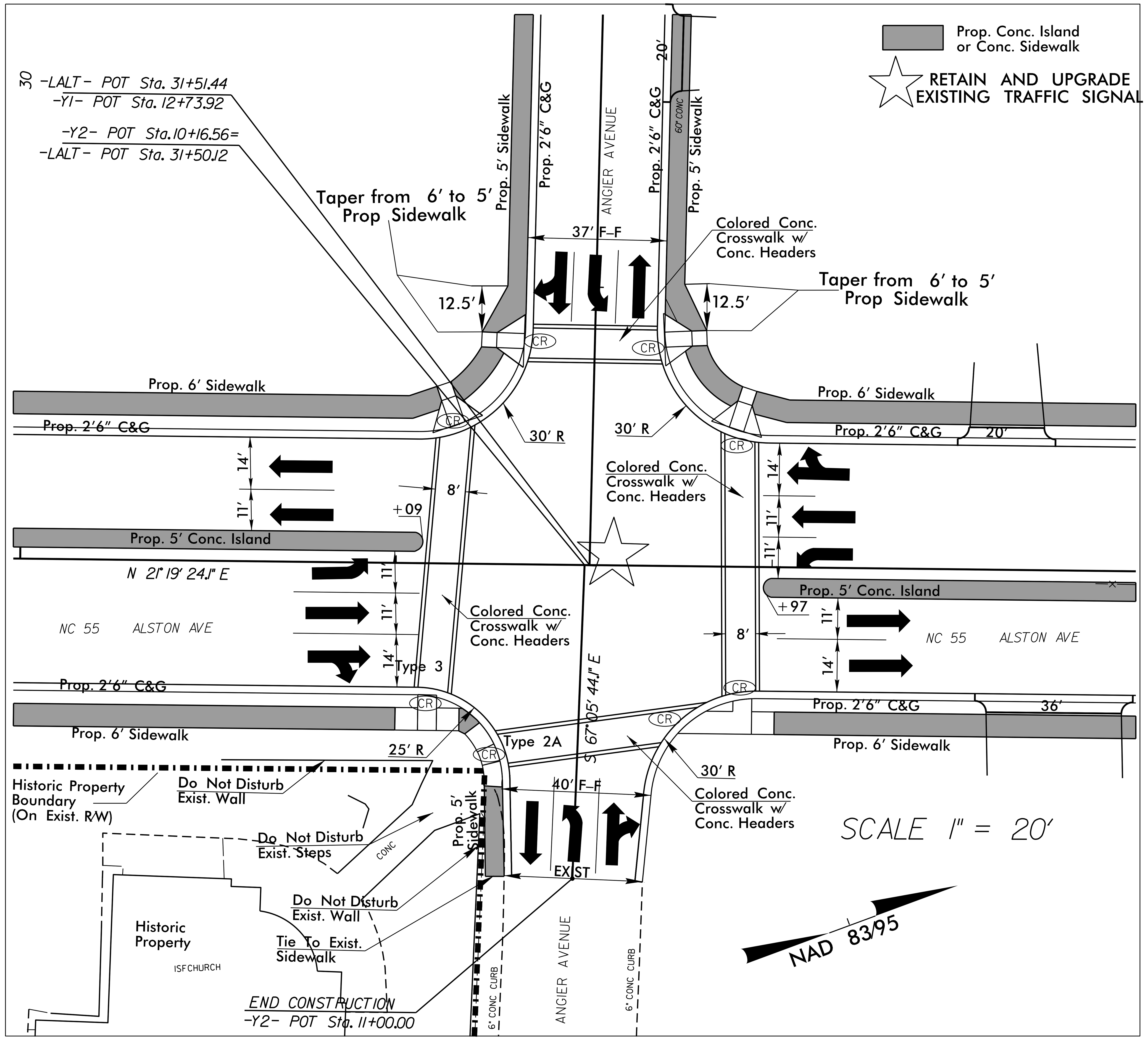
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	

NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 11/23/2015

REVISIONS



DETAIL OF -LALT- AND -Y1-/-Y2- INTERSECTION

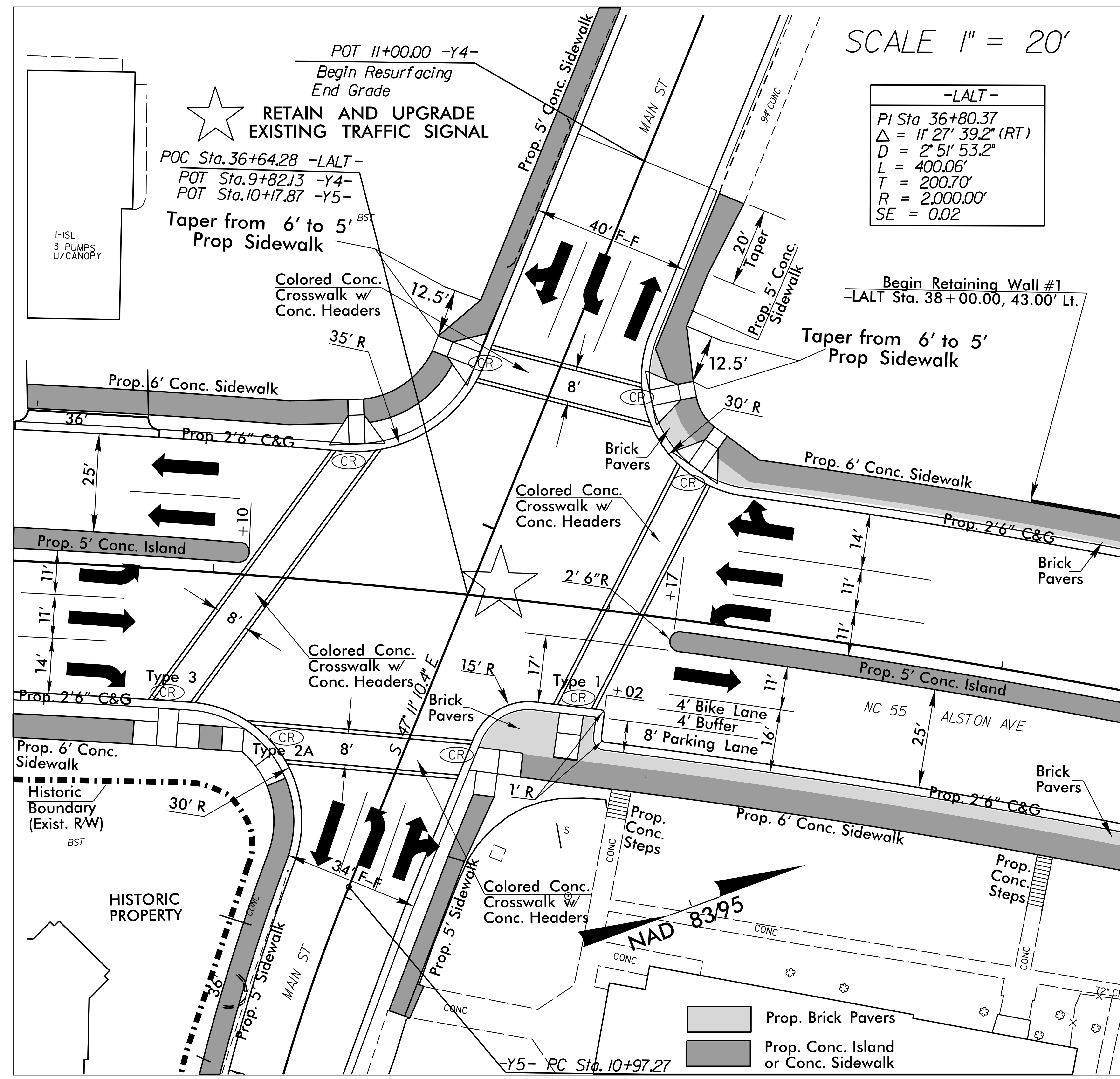
See Sheets 2C-1 Thru 2C-4 for Curb Ramp Details
See Sheet 2C-14 for Crosswalk Detail

See Plan Sheet 6

DETAIL OF -LALT- AND -Y4-/-Y5- INTERSECTION

See Sheets 2C-1 Thru 2C-4 for Curb Ramp Details
See Sheet 2C-14 for Brick Paver Detail
See Sheet 2C-14 for Crosswalk Detail

See Plan Sheet 7



07-MAY-2015 13:46
R:\Roadway\Proj\U-3308_Rdy_dtl_Intersection.dgn
$$$$USERNAME$$$$

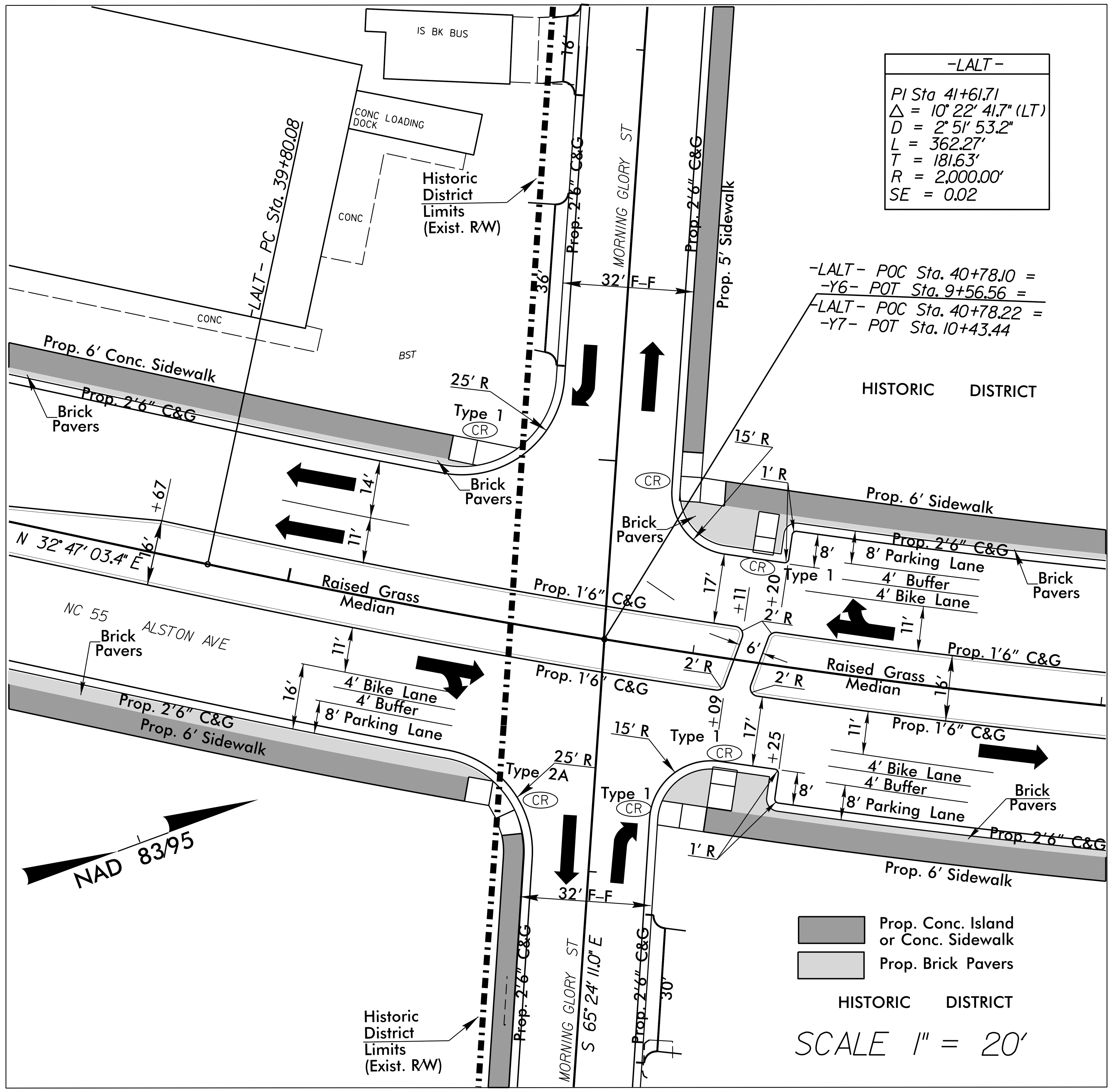
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 11/23/2015

REVISIONS



DETAIL OF –LALT– AND –Y6–/–Y7– INTERSECTION

See Plan Sheet 8

See Sheets 2C–1 Thru 2C–4 for Curb Ramp Details

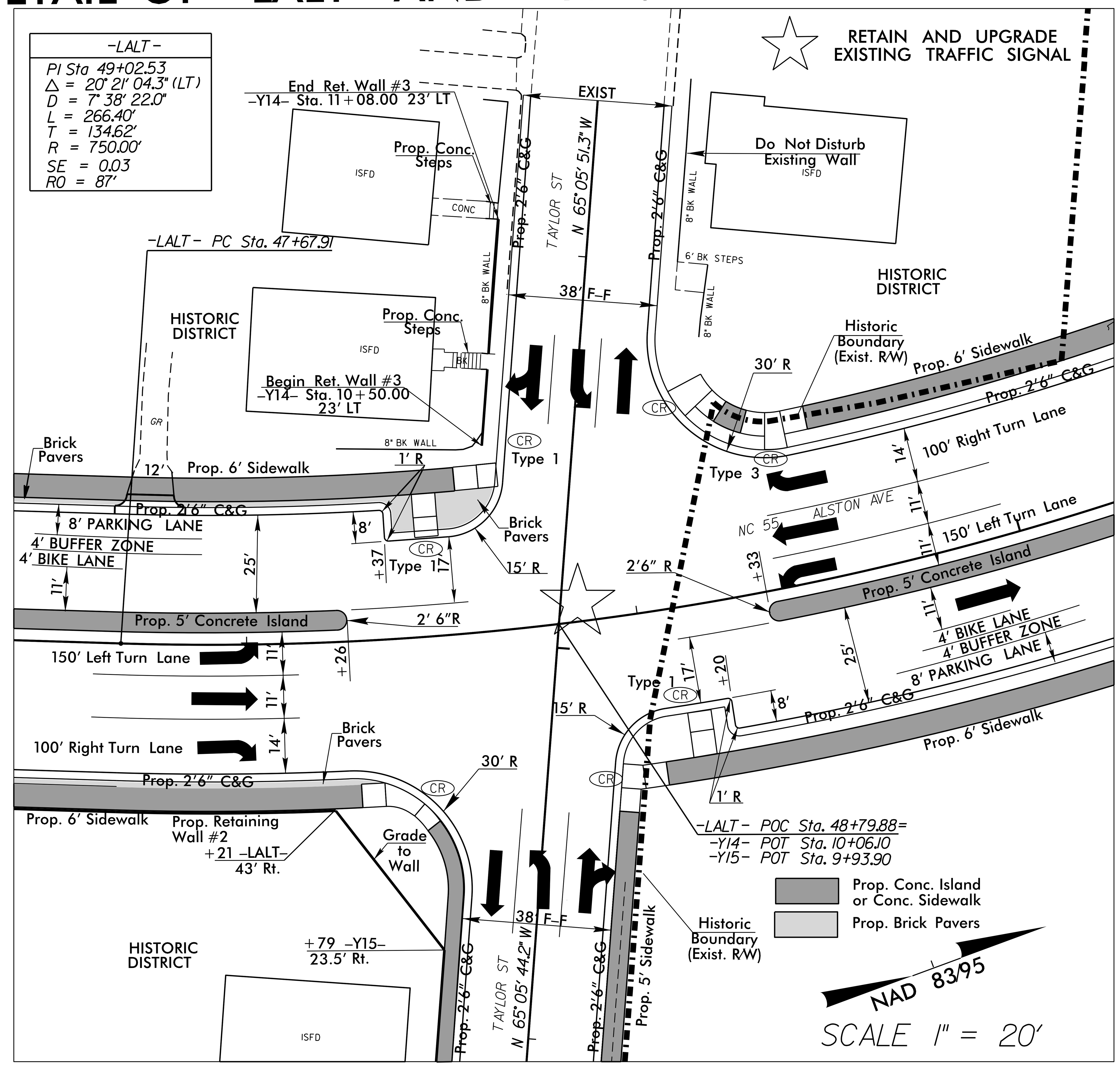
See Sheet 2C–14 for Brick Paver Detail

See Sheets 2C–1 Thru 2C–4 for Curb Ramp Details

See Sheet 2C–14 for Brick Paver Detail

See Plan Sheet 10

DETAIL OF –LALT– AND –Y14–/–Y15– INTERSECTION



07-MAY-2015 13:46
R:\Roadway\Proj\U-3308_Rdy_dtl_Intersection.dgn
$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

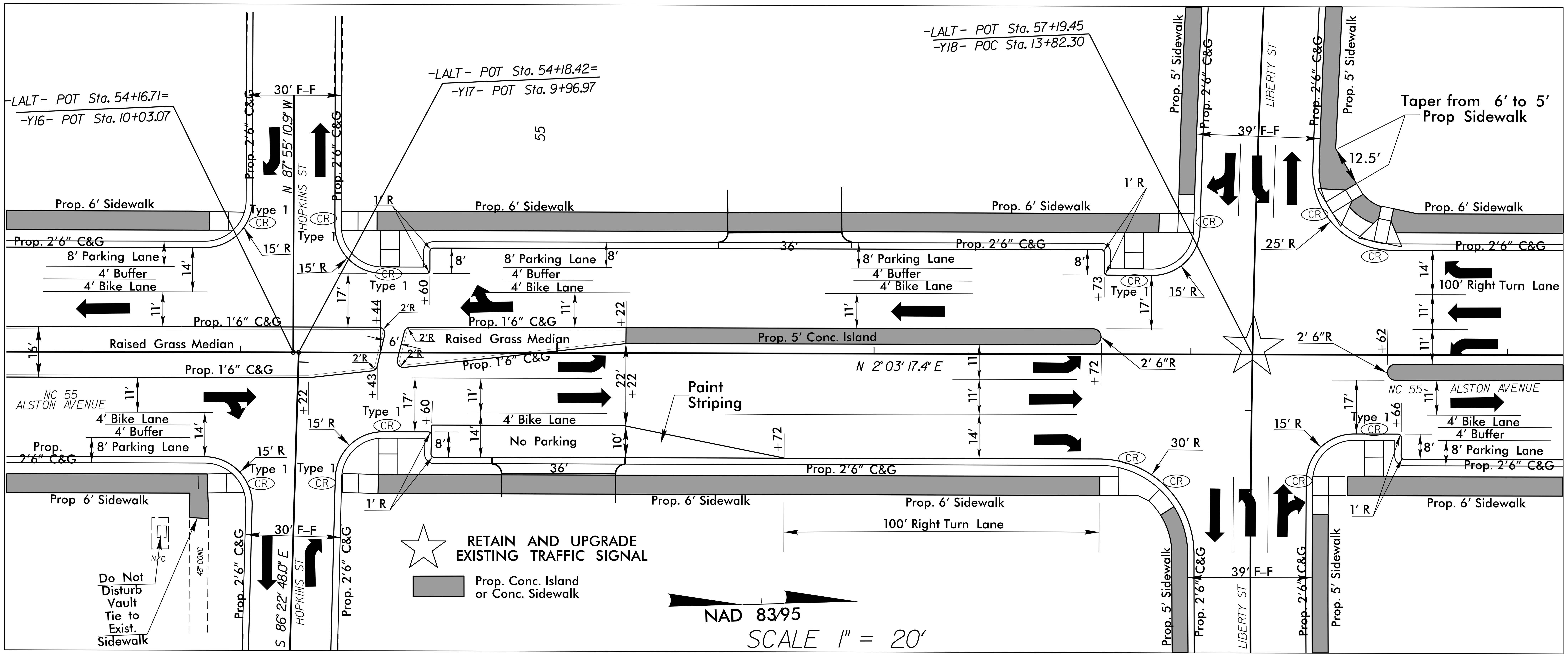
NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 11/23/2015

REVISIONS

8/17/99

-Y18-
PI Sta 14+09.52
Δ = 7° 10' 05.7" (LT)
D = 1° 25' 56.6"
L = 500.44'
T = 250.55'
R = 4,000.00'
SE = NC



See Sheets 2C-1 Thru 2C-4 for Curb Ramp Details

See Plan Sheet 11

DETAIL OF -LALT- AND -Y16-/-Y17- INTERSECTION
&
DETAIL OF -LALT- AND -Y18- INTERSECTION

07-MAY-2015 13:46
R:\Roadway\Proj\U-3308_Rdy_dtl_Intersection.dgn
$$$$USERNAME$$$$

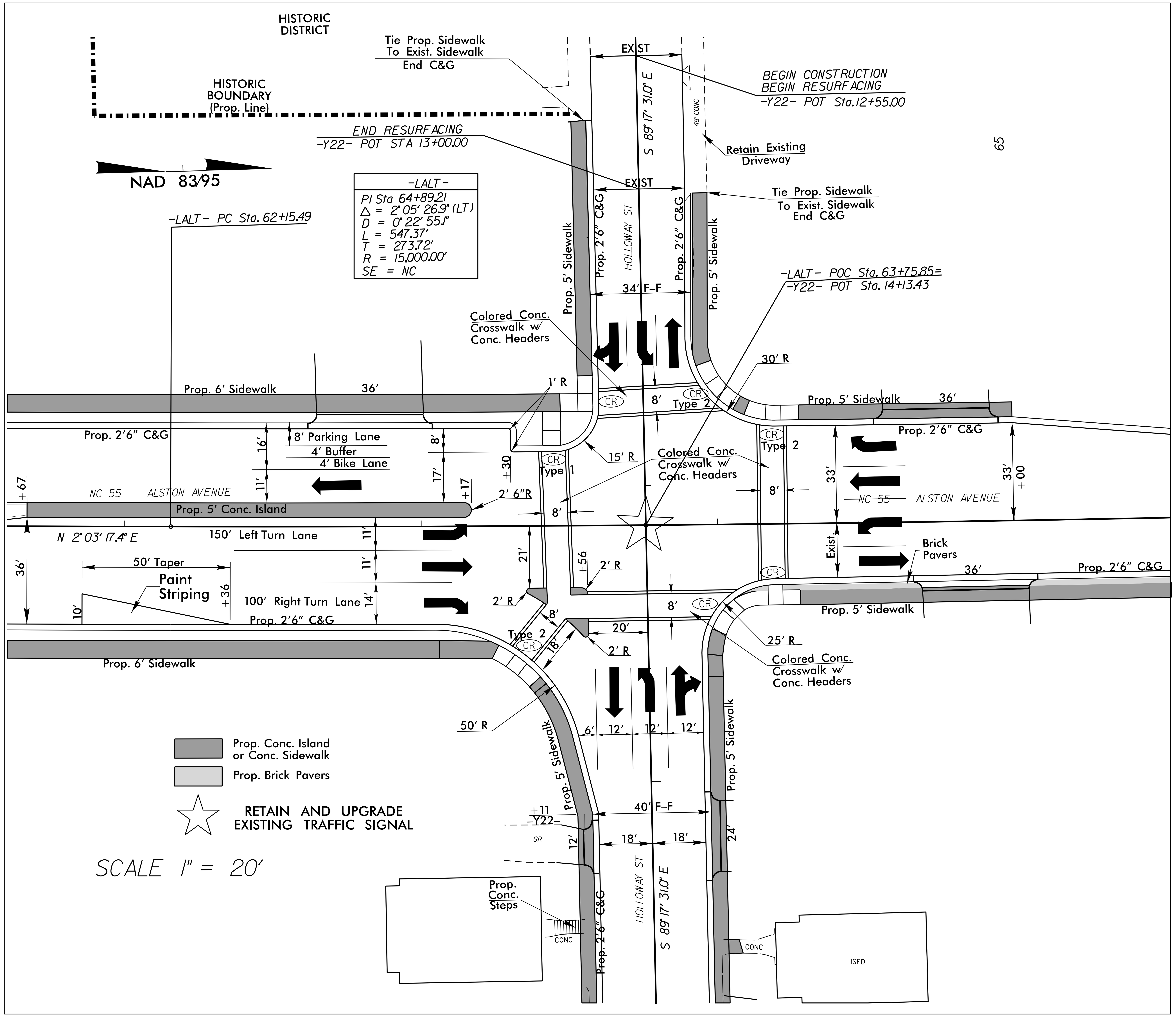
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-5
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 11/23/2015

REVISIONS



DETAIL OF -LALT- AND -Y22- INTERSECTION

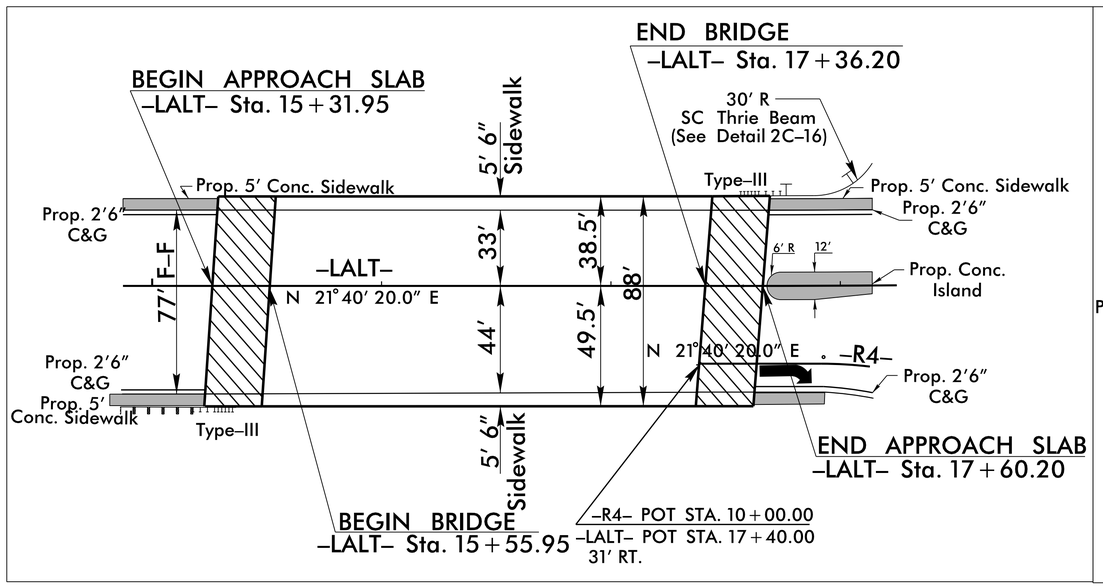
See Sheets 2C-1 Thru 2C-4 for Curb Ramp Details
See Sheet 2C-14 for Crosswalk Detail
See Sheet 2C-14 for Brick Paver Detail
See Plan Sheet 12

07-MAY-2015 13:46
R:\Roadway\Proj\U-3308_Rdy_dtl_Intersection.dgn
$$$$USERNAME$$$$

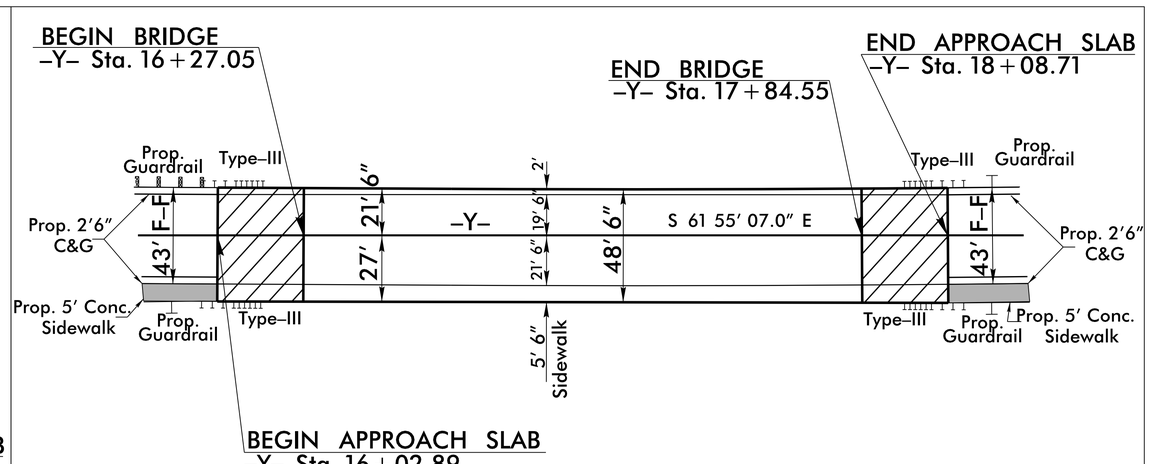
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 014571 ENGINEER James A. Speer

DocuSigned by: James Speer 11/23/2015
2457ZCD7D7A6403...



DETAIL SHOWING PAVEMENT-BRIDGE RELATIONSHIP FOR STRUCTURE ON -LALT- NC 55 (ALSTON AVE) OVER -YA- (NC 147/ I.L. "Buck" Dean Freeway)
NOT TO SCALE



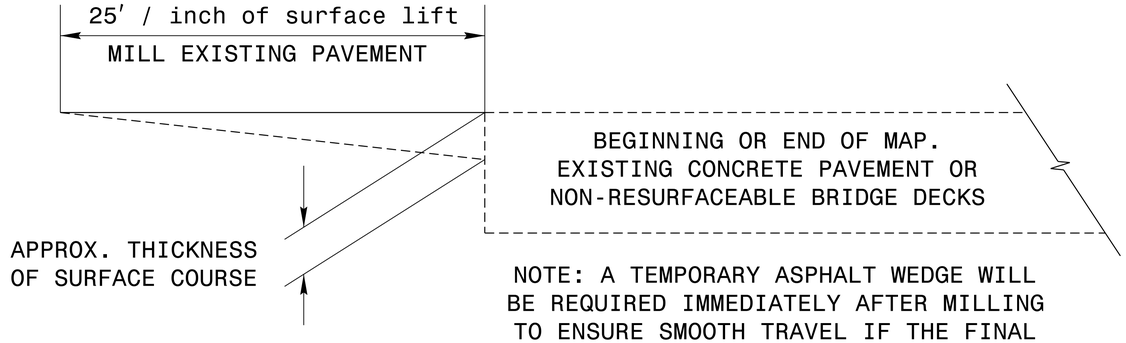
DETAIL SHOWING PAVEMENT-BRIDGE RELATIONSHIP FOR STRUCTURE ON -Y- (PETTIGREW ST.) OVER -LALT- (ALSTON AVE.)
NOT TO SCALE

NOTE: PROPOSED -Y- (PETTIGREW STREET) BRIDGE WILL BE CONSTRUCTED USING AN OFFSITE DETOUR TO MAINTAIN TRAFFIC DURING CONSTRUCTION

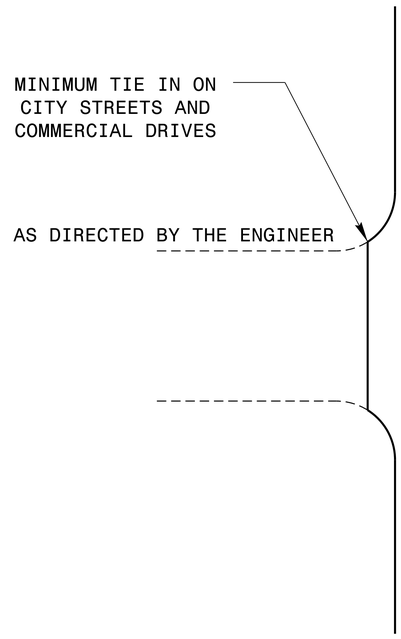
5/14/99

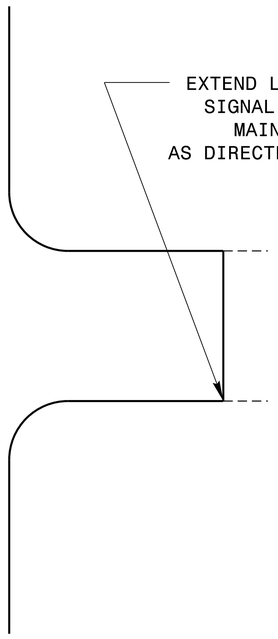
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

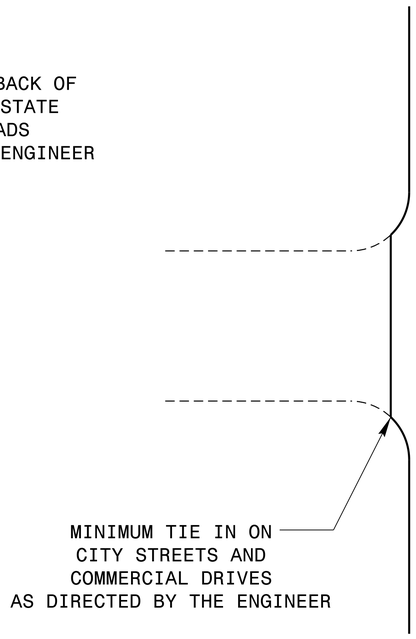


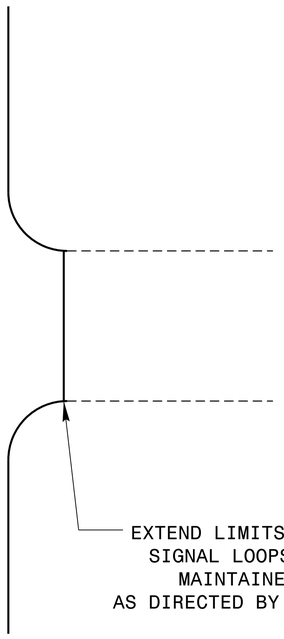
DETAIL OF INCIDENTAL MILLING





DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES





DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES

07-MAY-2015 13:46
N:\Roadway\Proj\u3308_rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2B-8
R/W SHEET NO.	

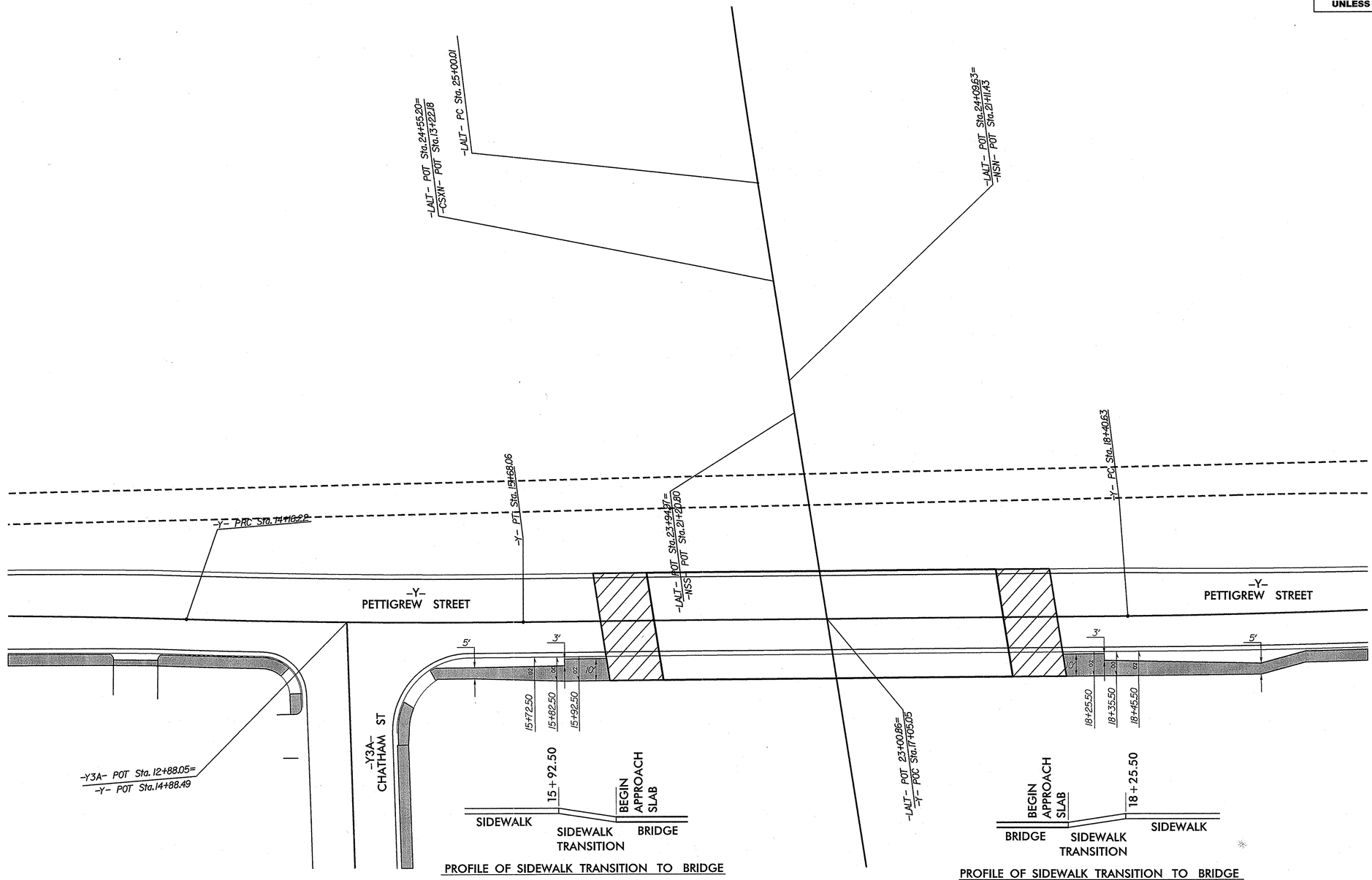
ROADWAY DESIGN
NORTH CAROLINA
PROFESSIONAL
SEAL
19795
ENGINEER
BRENDA L. MOORE
11/16/18

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

8/17/99

SIDEWALK SLOPE TRANSITION DETAILS



PROFILE OF SIDEWALK TRANSITION TO BRIDGE

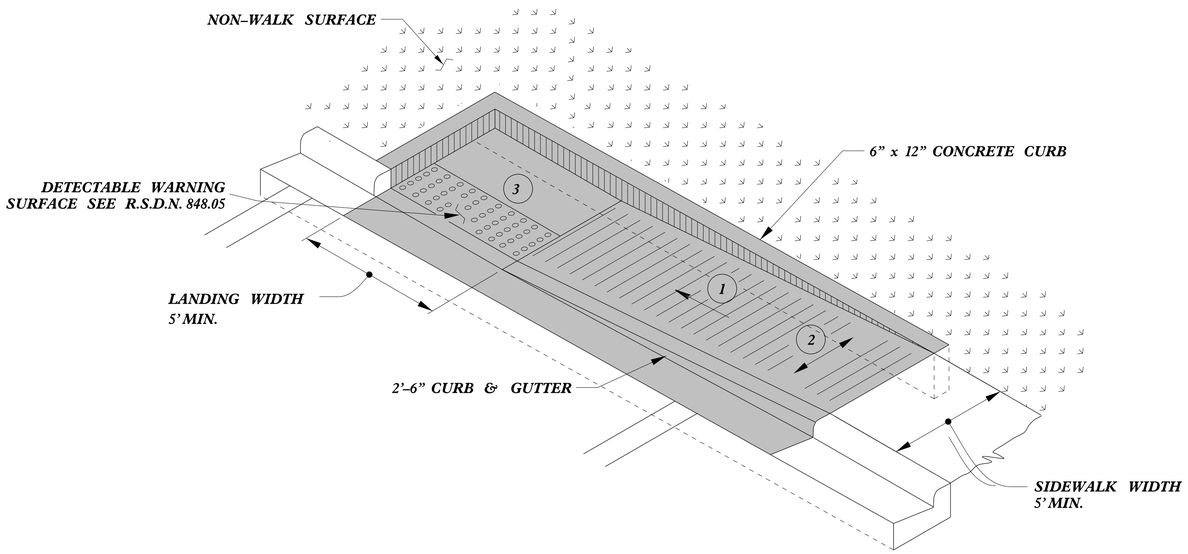
PROFILE OF SIDEWALK TRANSITION TO BRIDGE

12-JAN-2018 09:18
R:\Roadway\Proj\U-3308_Rdy_SIDEWALK_Detail.dgn
$$$$USERNAME$$$$

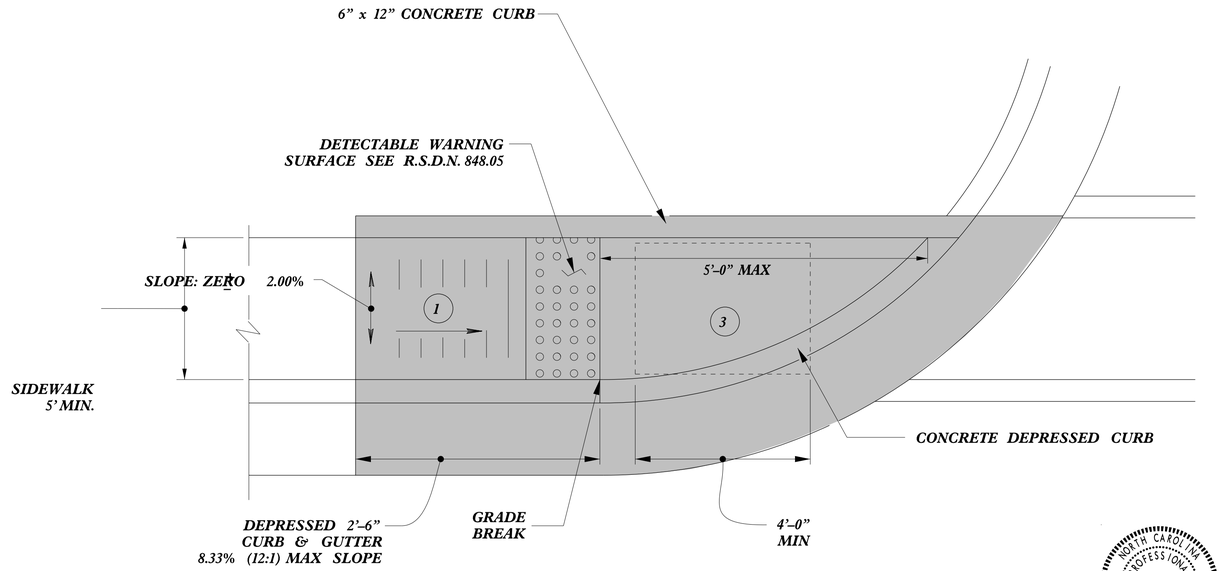
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-1

PAY LIMITS FOR 1 CURB RAMP



TYPE 1A



TYPE 1

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

11/16/2015

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

CURB RAMPS

Directional Ramps

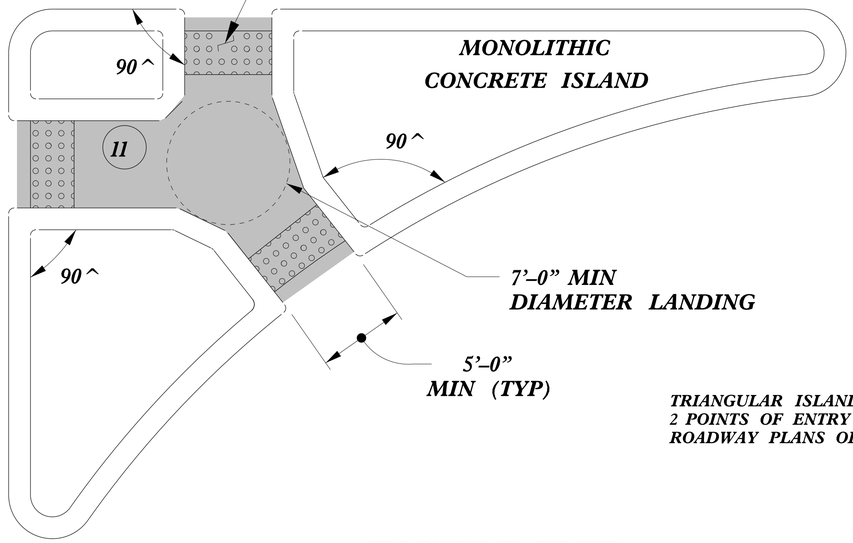
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$USERNAME$$$$
$$$$SYSTEM$$$$
$$$$DESIGN$$$$

5/14/99

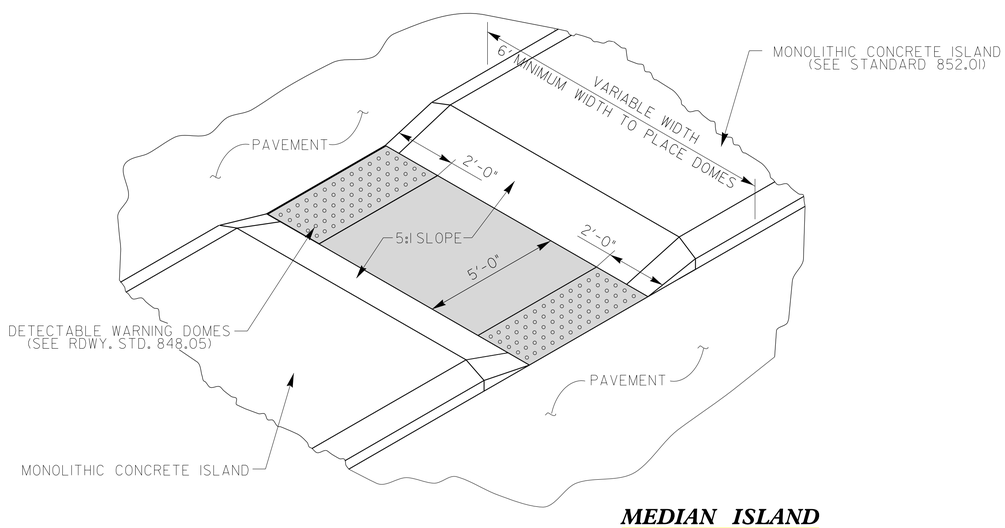
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-2

PAY LIMITS FOR 1 CURB RAMP

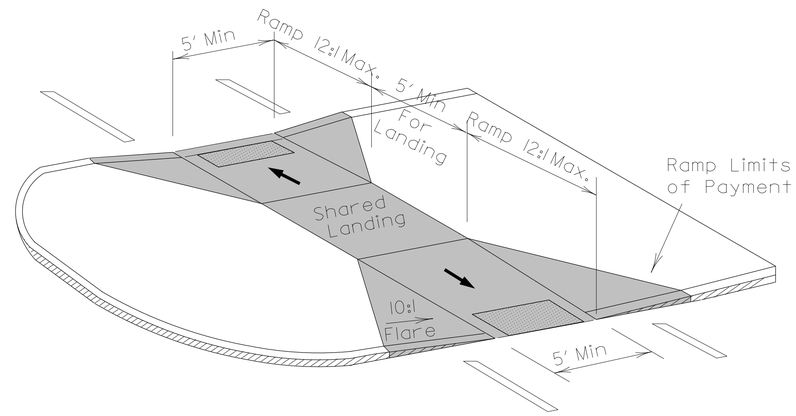


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

11/16/2015

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

CURB RAMPS

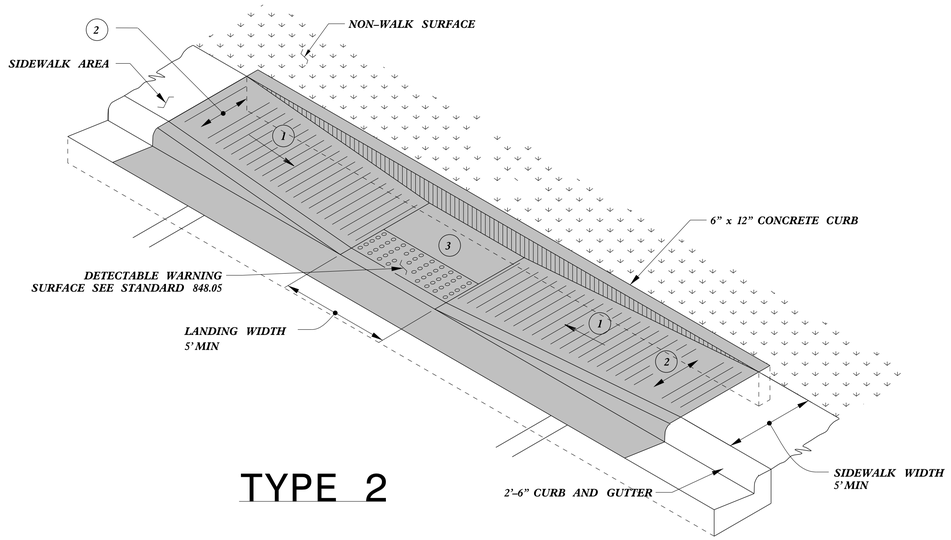
Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$SYSNAME$$$$

5/14/99

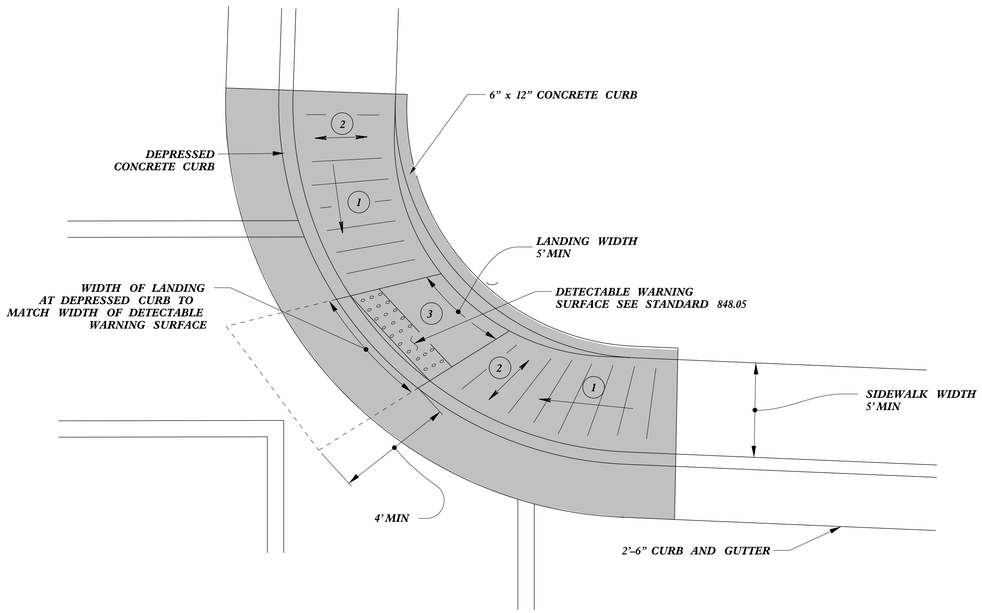
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-3



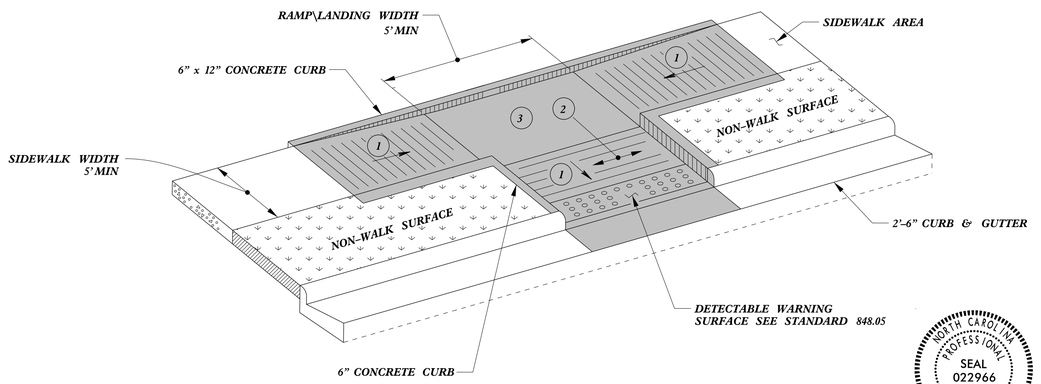
TYPE 2

PAY LIMITS FOR 1 CURB RAMP

1. *8.33% (12:1) MAX RAMP SLOPE*
2. *CROSS SLOPE: 2.00%*
3. *CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*



TYPE 2A



TYPE 3

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

11/16/2015

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

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

CURB RAMPS

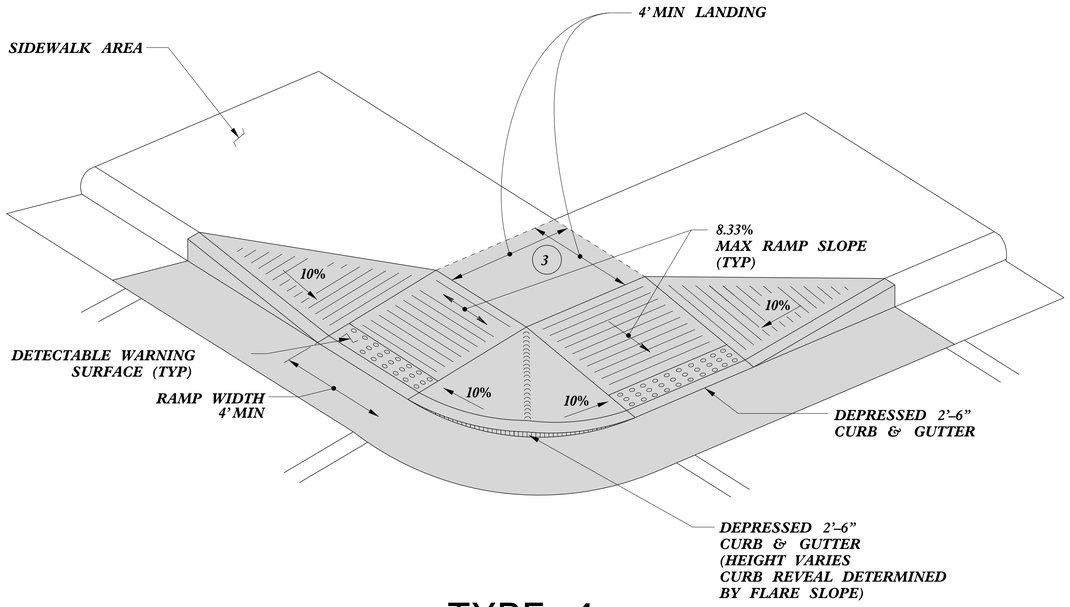
Parallel Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

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

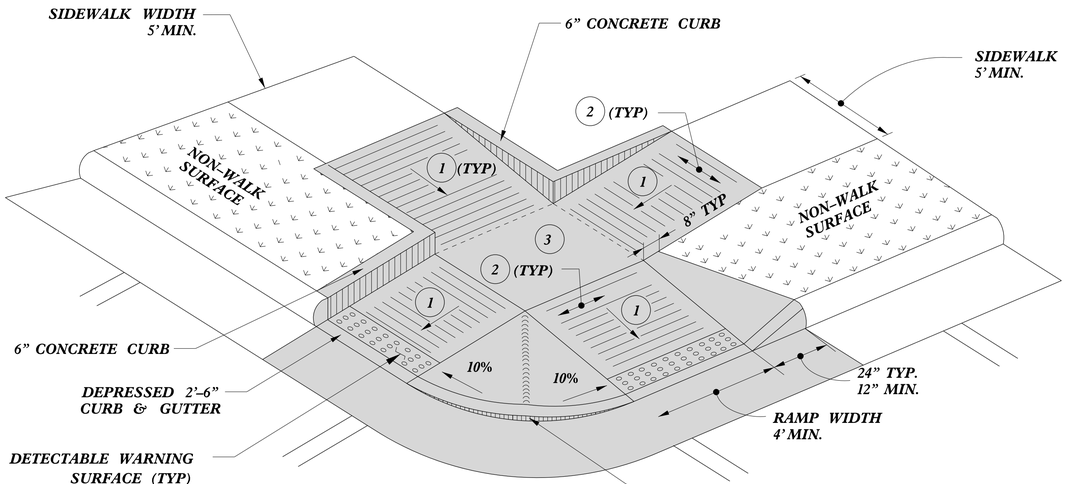
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-4

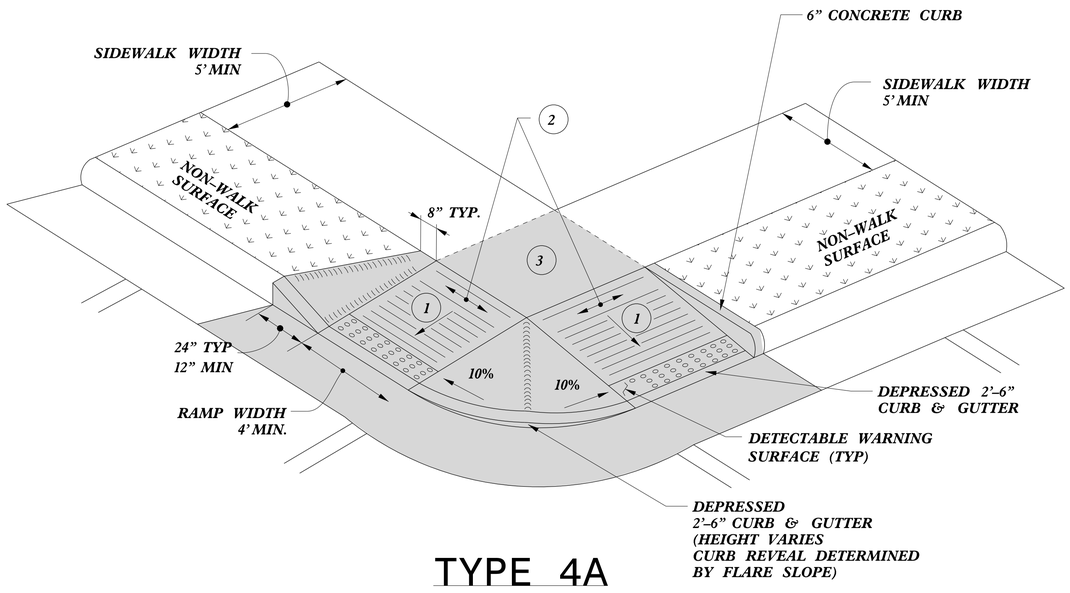


TYPE 4

PAY LIMITS FOR 1 CURB RAMP



TYPE 5



TYPE 4A

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

11/16/2015

(1) 8.33% (12:1) MAX RAMP SLOPE

(2) CROSS SLOPE: 2.00%

(3) CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

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

CURB RAMPS

Shared Landing

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGNS$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-5

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

ENGLISH DETAIL DRAWING FOR

CONCRETE STEPS WITH HANDRAIL

SHEET 1 OF 1

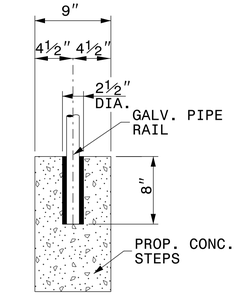
844D01

GENERAL NOTES :

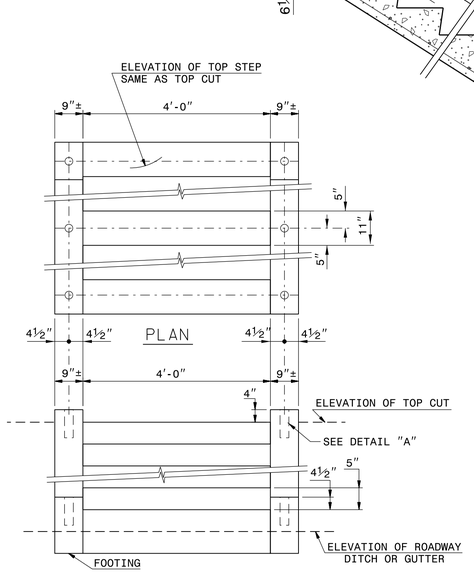
1- CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53. EMBED PIPE RAIL 8" INTO PROPOSED STEPS WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.
2- USE A ROTARY DRILL FOR DRILLING THE HOLES FOR THE PIPE RAIL. NO IMPACT DRILLS ALLOWED.
3- USE CLASS "B" CONCRETE THROUGHOUT FOR CONCRETE STEPS.
4- LOCATION AND QUANTIES SHOWN ARE APPROXIMATE ONLY. EXACT LOCATION AND QUANTIES WILL BE DETERMINED BY THE ENGINEER.
5- ALL WORK AS DIRECTED BY THE ENGINEER.
6- REPAIR OF GALVANIZING IN ACCORDANCE WITH SCT.1076 OF THE STANDARD SPECIFICATIONS.
7- WELD IN ACCORDANCE WITH ARTICLE 1072-20 OF THE STANDARD SPECIFICATIONS.
8- 2" CLEAR SPACING ON ALL REINFORCING BARS.
9- EXTEND HORIZONTAL REINFORCING BARS UPWARD INTO SIDE WALLS.
10- ALL HANDRAILS AND STEPS MUST COMPLY WITH ADA STANDARDS FOR ACCESSIBLE DESIGN.

CUBIC YARDS IN STANDARD CONCRETE STEPS

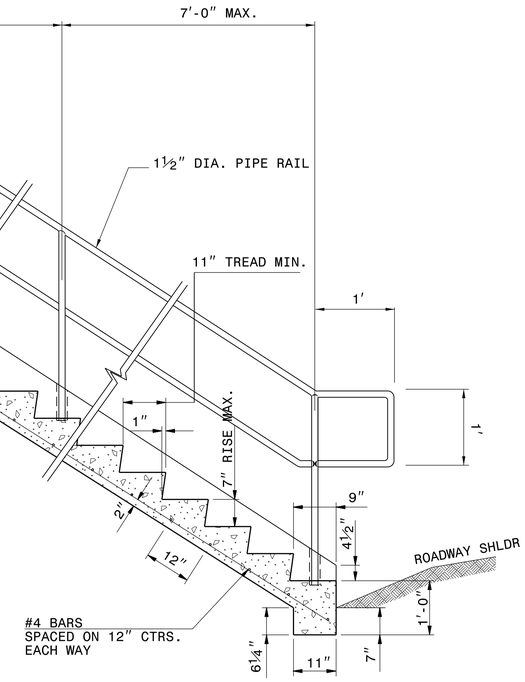
NO. OF STEPS	4' WIDE	5' WIDE	6' WIDE	7' WIDE	ADDITIONAL CU. YDS. PER 1' WIDTH
2	0.4	0.5	0.5	0.6	0.1
3	0.6	0.7	0.8	0.9	0.1
4	0.8	0.9	1.0	1.2	0.1
5	1.0	1.2	1.3	1.4	0.1
6	1.2	1.4	1.5	1.7	0.2
7	1.4	1.6	1.8	2.0	0.2
8	1.6	1.8	2.0	2.3	0.2
9	1.8	2.0	2.3	2.6	0.3
10	2.0	2.3	2.5	2.8	0.3
ADDITIONAL STEP INCREMENT	0.2	0.2	0.2	0.3	0.1



DETAIL "A"



FRONT ELEVATION



SECTION
CONCRETE STEPS

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

ENGLISH DETAIL DRAWING FOR

CONCRETE STEPS WITH HANDRAIL

SHEET 1 OF 1

844D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
DocuSigned by: Joel Howerton 873F3D17DCDC45F...
11/16/2015

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

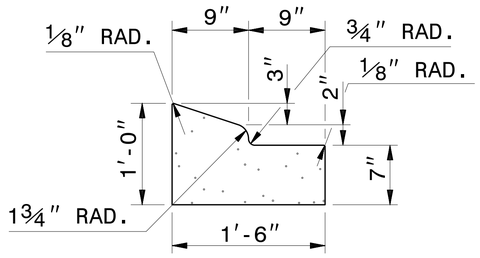
SEE PLATE FOR TITLE

ORIGINAL BY: T.Spell DATE: Oct.7,1998
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: s:usr/details/stand/844d01e.dgn

$$$$USERNAME=$$$$
$$$$USERNAME=$$$$
$$$$SYSTIME=$$$$

5/14/99

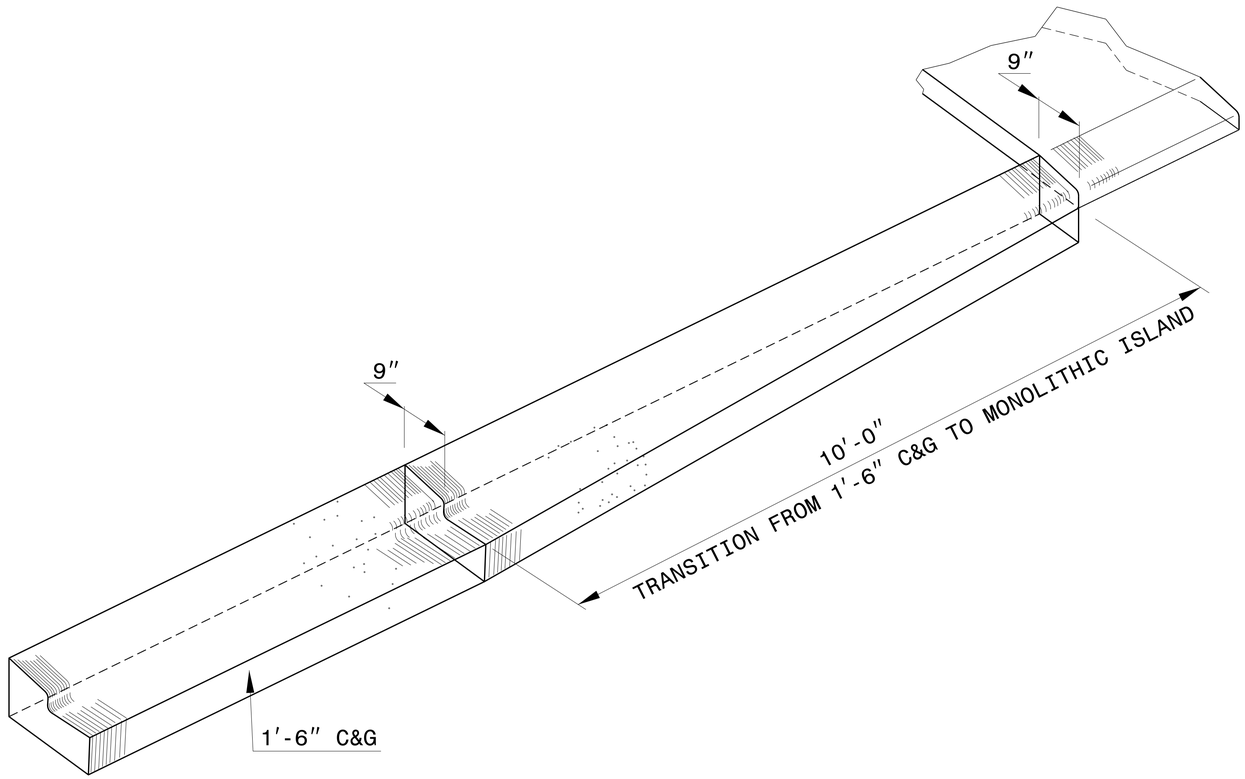
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-6



1′-6″ CURB AND GUTTER

NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

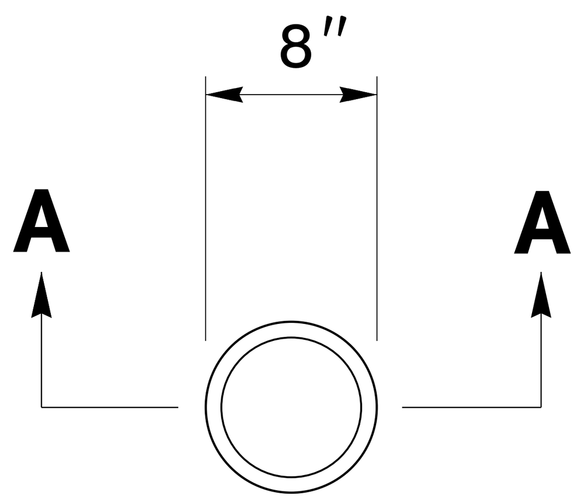
11/16/2015

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

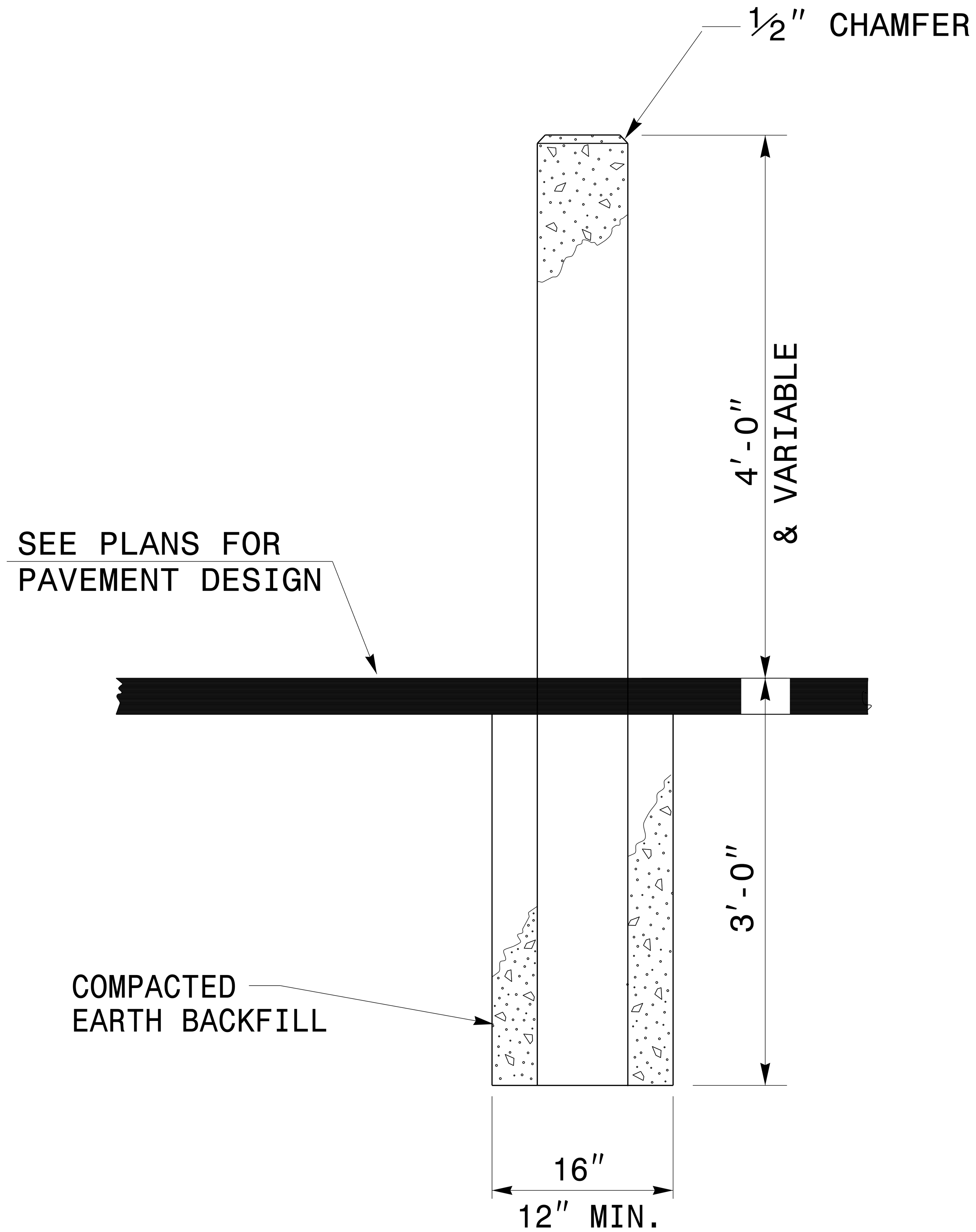
DETAIL OF 1′-6″ CURB & GUTTER TRANSITION SECTION

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: KKEMPF DATE: 09-24-14
CHECKED BY: _____ DATE: _____
FILE SPEC.: kkempf/english/curb gutter tansition.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-7

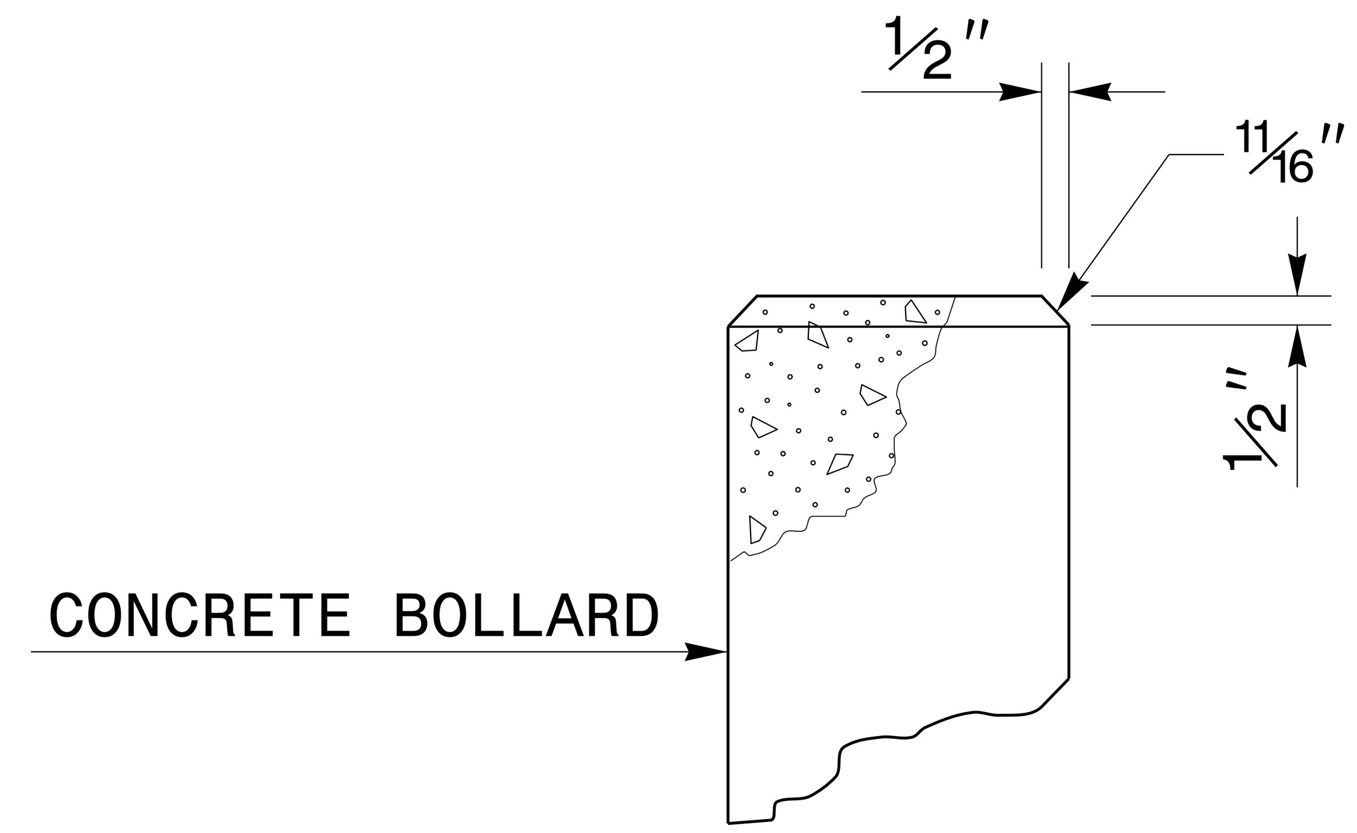


PLAN



CROSS-SECTION VIEW

SECTION A-A



BOLLARD ELEVATION VIEW

GENERAL NOTES:

-CONSTRUCT THE BOLLARDS CLASS "B" CONCRETE AND IN CONJUNCTION WITH THE NC ROADWAY SPECIFICATIONS.

-PLACE BOLLARDS AS SHOWN IN THE ROADWAY PLANS AND AS DIRECTED BY THE ENGINEER.

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

DETAIL OF CONCRETE BOLLARDS

ORIGINAL BY: T.S.Spell DATE: 6-15-01
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: w:detail/metric/stand/bollard.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-8

NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

ALL REINFORCING STEEL SHOULD BE ASTMA615-GRADE 60.

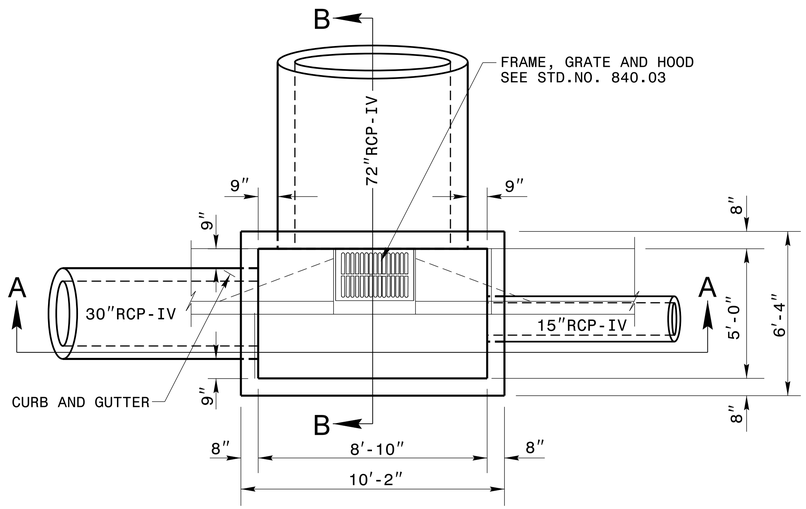
ALL REINFORCING STEEL SHOULD BE DEFORMED BARS. WHERE SPLICING OF REINFORCMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.

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

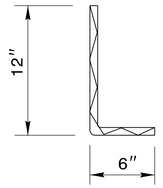
ALL EXPOSED CORNERS ARE TO BE CHAMFERED 1".

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

OPTIONAL CONSTRUCTION, MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.



PLAN

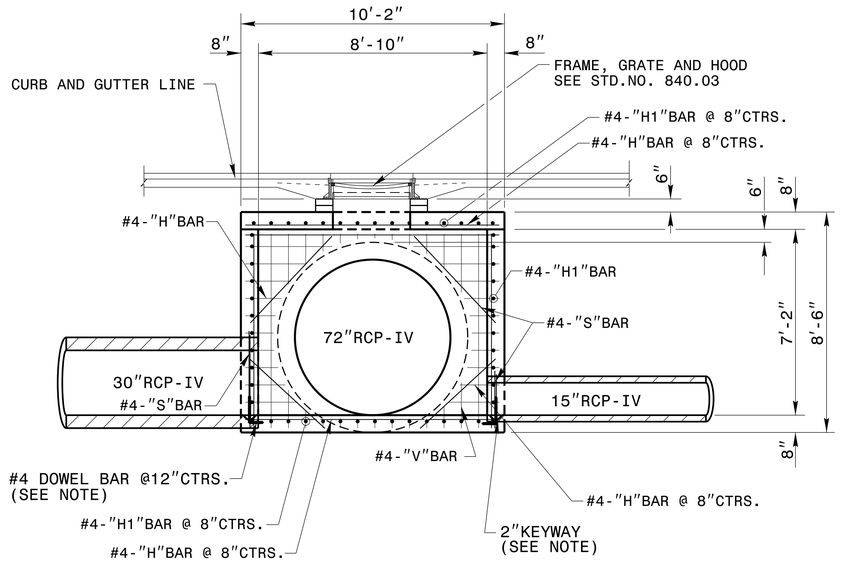


DOWEL

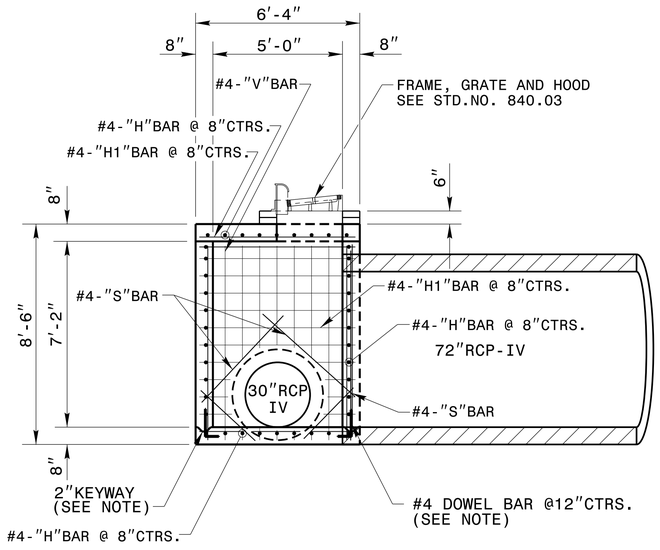
BILL OF MATERIAL

REINFORCING STEEL

BAR	SIZE	LENGTH	NO.	WEIGHT
H	#4	9'-10"	40	263
H1	#4	6'-0"	52	209
S	#4	5'-0"	10	34
V	#4	7'-6"	48	241
DOWEL (OPTION)			30	
REINF. STEEL LBS.				747
TOTAL CON./R.C. CU. YDS.				8.5
DEDUCTION FOR 1-15" RCP-IV				-0.1
DEDUCTION FOR 1-30" RCP-IV				-0.2
DEDUCTION FOR 1-72" RCP-IV				-1.0
CON./R.C. CU. YDS.				7.2



SECTION A-A



SECTION B-B

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

11/16/2015

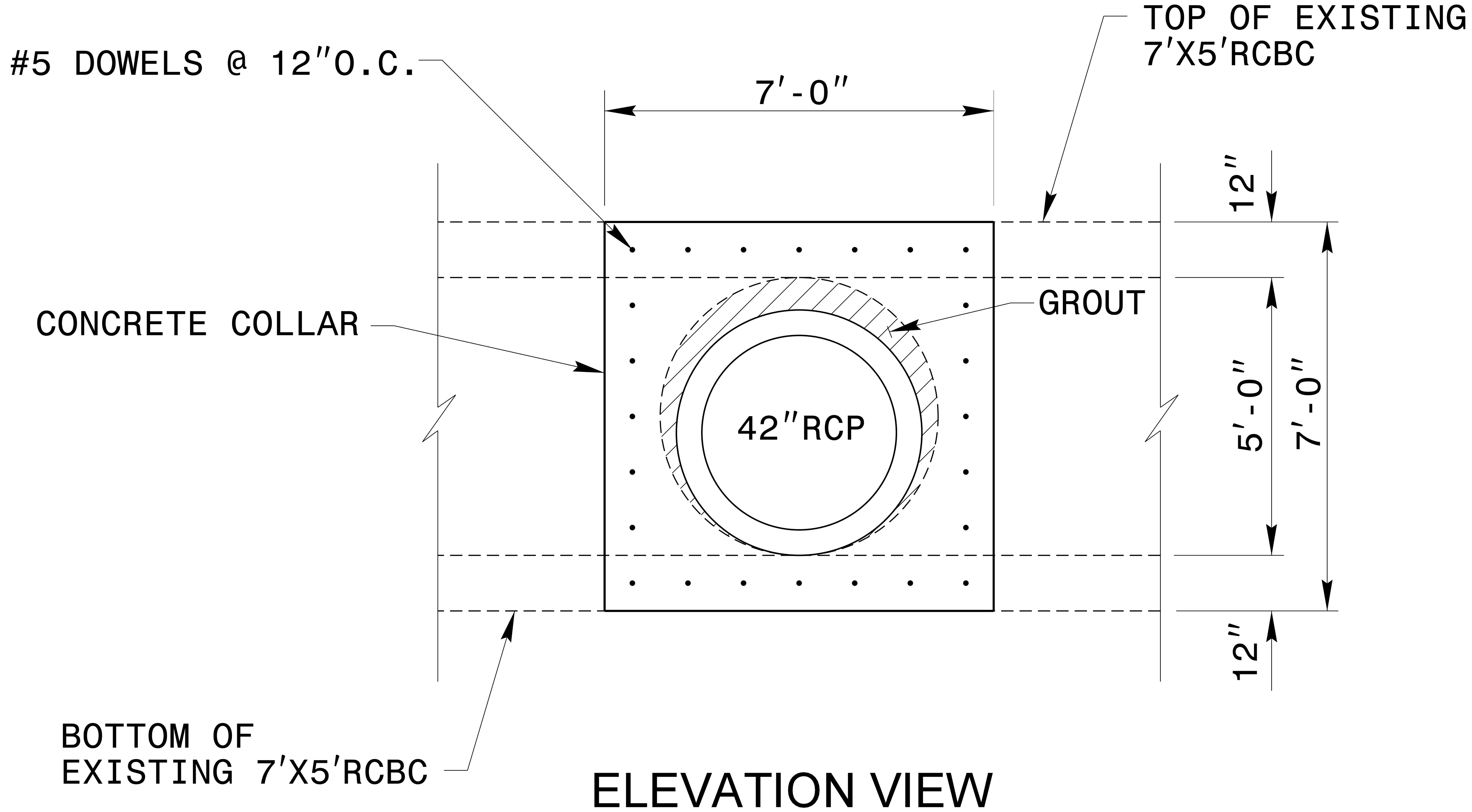
STRUCTURE #1013

CONTRACT SERVICES & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6900 FAX 919-250-4119

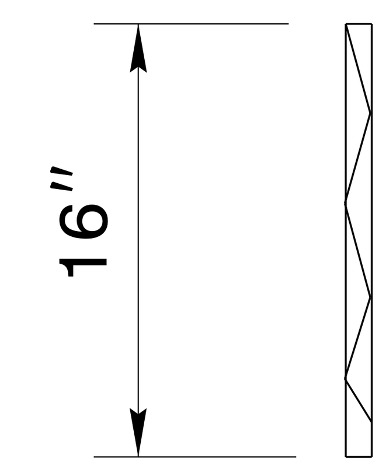
DETAIL OF SPECIAL CATCH BASIN

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 10-23-12
CHECKED BY: _____ DATE: _____
FILE SPEC.: details\nbritt\english\urban\u3308 72cb.dgn

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



ELEVATION VIEW



DOWEL

NOTES:

USE CLASS "AA" CONCRETE THROUGHOUT.

CORE 60" HOLE INTO THE SIDE OF THE EXISTING 7'X5'RCBC TO PLACE THE 42"RCP.

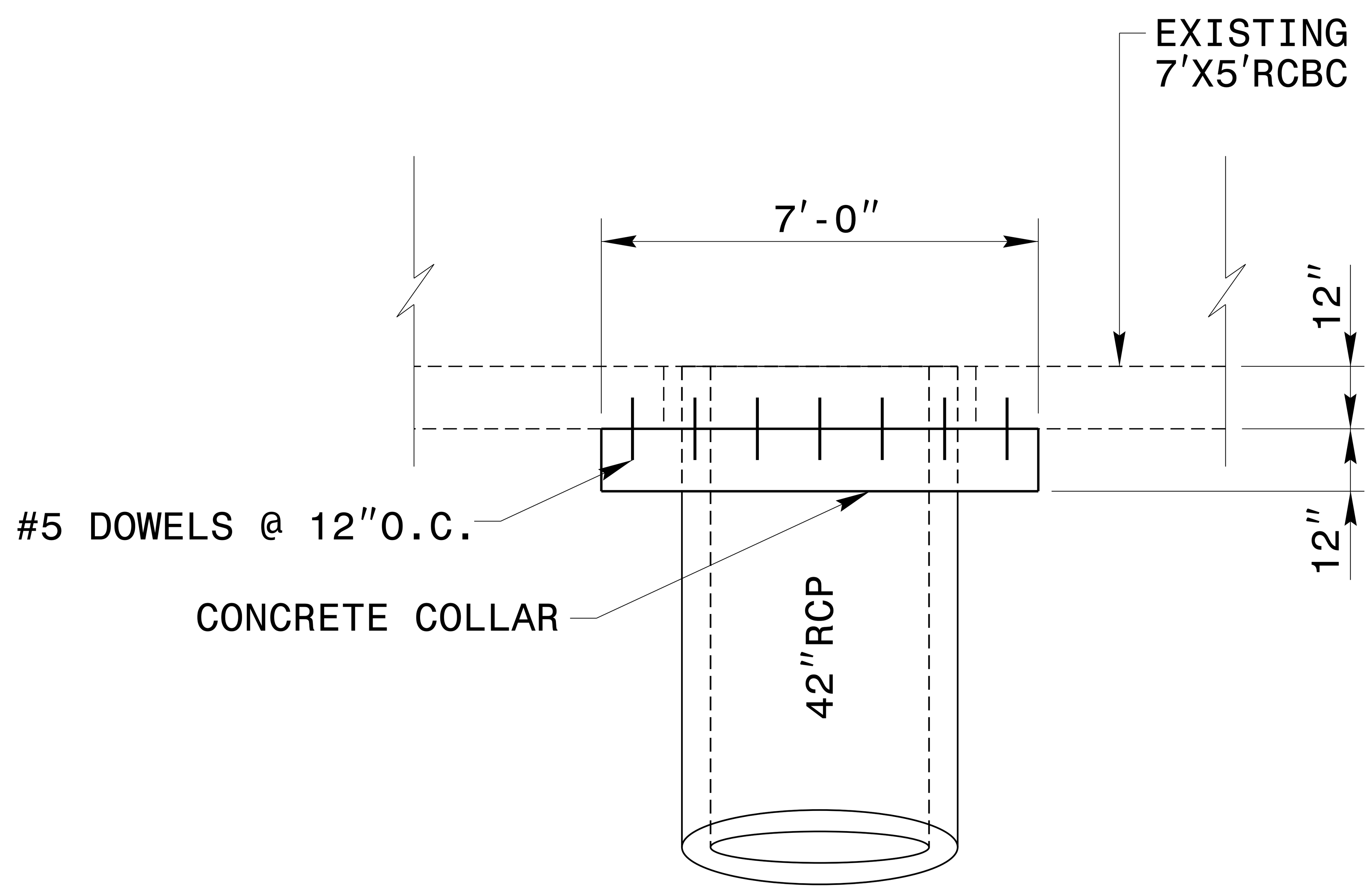
GROUT THE OPENING ONCE THE 42"RCP IS PLACED IN THE HOLE.

PLACE #5 DOWEL BARS IN THE BOX CULVERT. SECURE WITH AN APPROVED EPOXY OR GROUT.

POUR CONCRETE COLLAR AROUND THE 42"RCP. CONSTRUCT THE COLLAR FLUSH WITH TOP AND BOTTOM OF THE EXISTING 7'X5'RCBC.

ALL EXPOSED CORNERS ARE TO BE CHAMFERED 1".

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

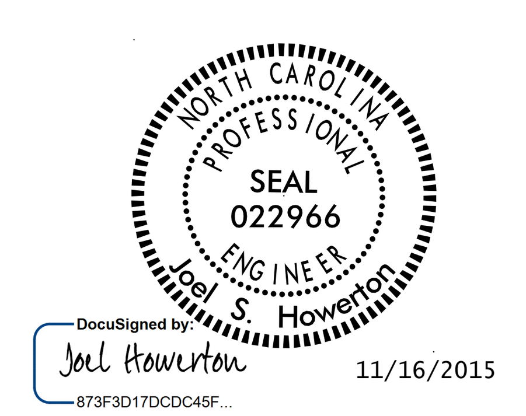


PLAN VIEW

BILL OF MATERIAL

REINFORCING STEEL

BAR	SIZE	LENGTH	NO.	WEIGHT
DOWEL	#5	1'-4"	24	34
REINF. STEEL LBS.				34
TOTAL CLASS "AA"CONCRETE CU. YDS.				1.3



DocuSigned by: Joel Howerton 11/16/2015

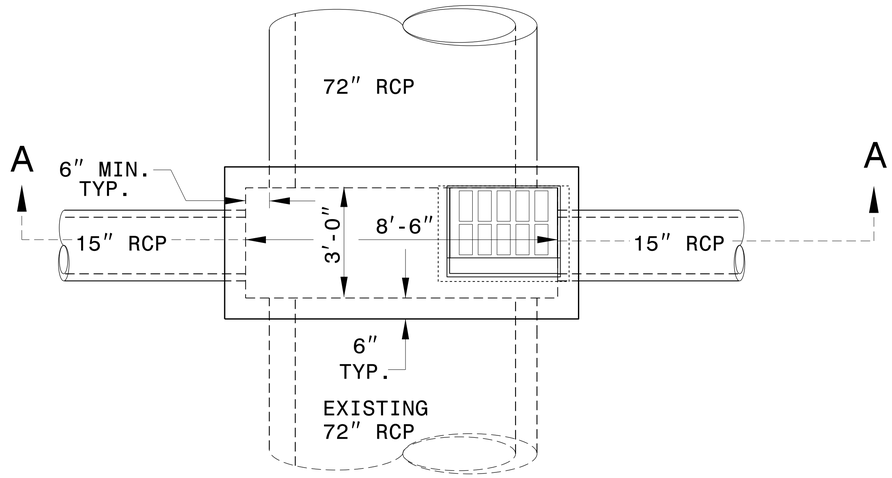
CONTRACT SERVICES & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6900 FAX 919-250-4119

DETAIL OF 42"RCP CONCRETE COLLAR

ORIGINAL BY: DATE:
MODIFIED BY: rnbritt DATE: 11-07-14
CHECKED BY: DATE:
FILE SPEC.: details\nbritt\english\urban\u3308 72cb.dgn

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

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-10

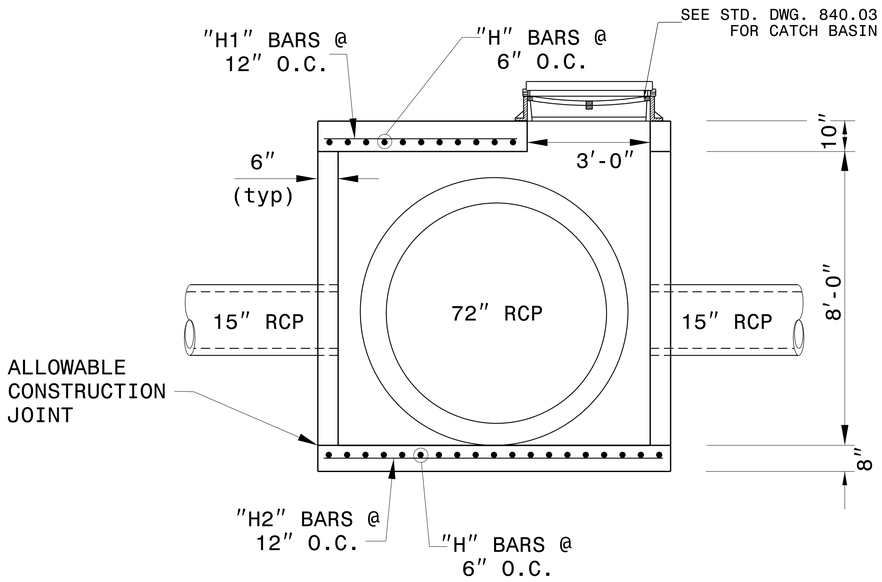


PLAN

BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	WEIGHT
H	31	#5	3′-8″	119
H1	3	#5	5′-8″	18
H2	5	#5	9′-2″	48
TOTAL REINF. STEEL (lbs.)				183
CLASS "B" CONC. (cu. yds.)				5.6
DEDUCTION FOR ONE PIPE (CY)				
72″ RCP				0.78
15″ RCP				0.04

NO DEDUCTIONS HAVE BEEN MADE FOR PIPE OPENINGS



SECTION A-A

GENERAL NOTES:

-CONSTRUCT THE BASE SLAB BY FORMING.

-SEE STD. DWG. 840.00 FOR CONSTRUCTION OF BASE SLAB IF PIPE IS SET INTO BASE SLAB.

-USE CLASS 'B' CONCRETE THROUGHOUT.

-CONSTRUCTION OPTIONS: MONOLITHIC POUR; CONSTRUCTION JOINTS AT UNION OF WALLS WITH FLOOR AND/OR TOP SLAB.

-CUT, BEND OR RELOCATE REINFORCING STEEL AS NEEDED TO POSITION PIPE AS DIRECTED BY THE ENGINEER.

-CHAMFER ALL EXPOSED CORNERS 1".

-JUNCTION BOXES OVER 3′-6" IN DEPTH WITH MANHOLES REQUIRE STEPS TO BE PLACED ON 1′-2" CTRS. REFERENCE STD. NO. 840.66.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

11/16/2015

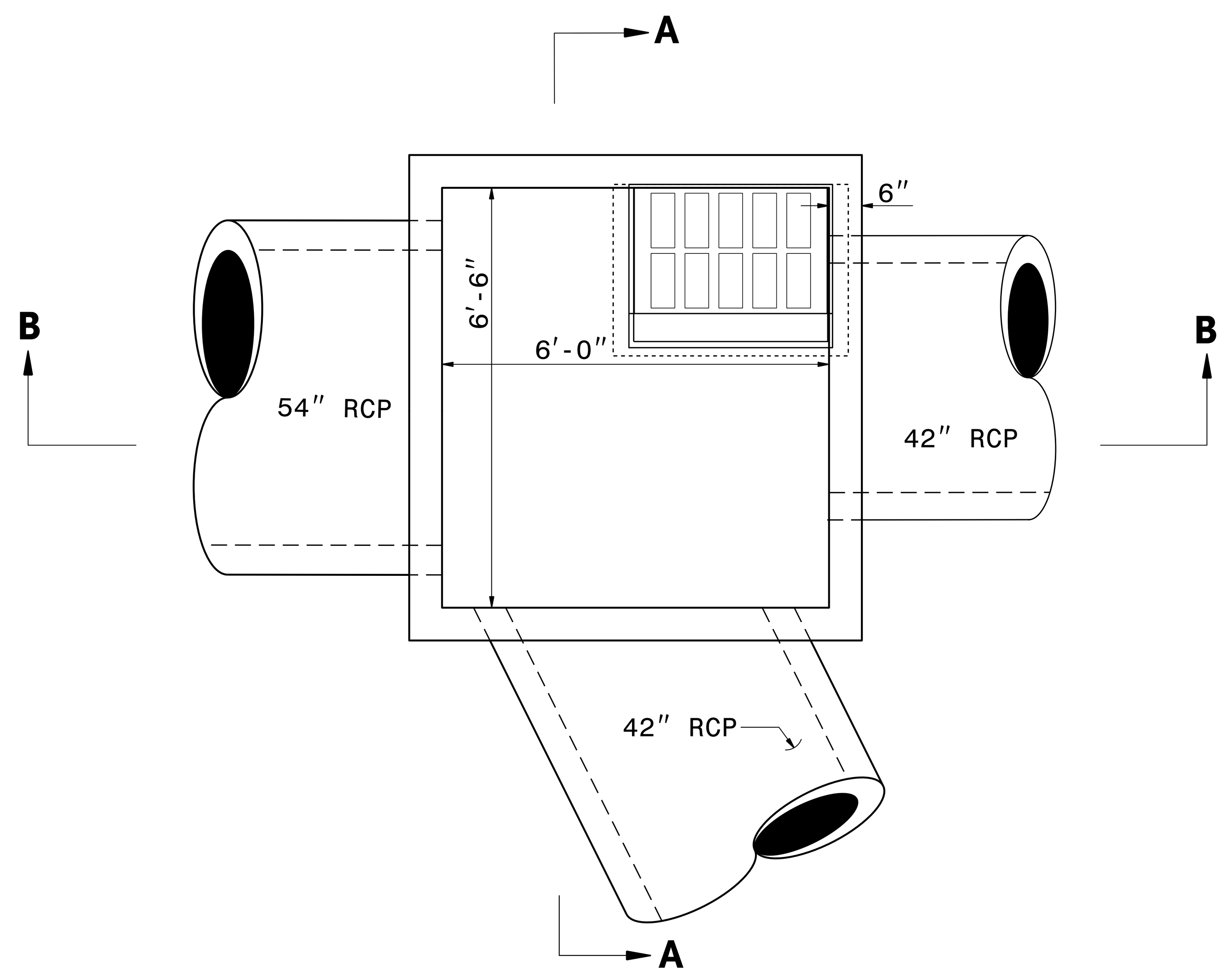
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF SPECIAL CATCH BASIN

ORIGINAL BY: rnbritt DATE: 05-10-06
MODIFIED BY: kakempf DATE: 09-12-14
CHECKED BY: DATE:
FILE SPEC.: details/kkempf/english/U3308_CB54-42rcp.dgn

$$$$SYSTIME$$$$
$$$$RUNS$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-11



PLAN

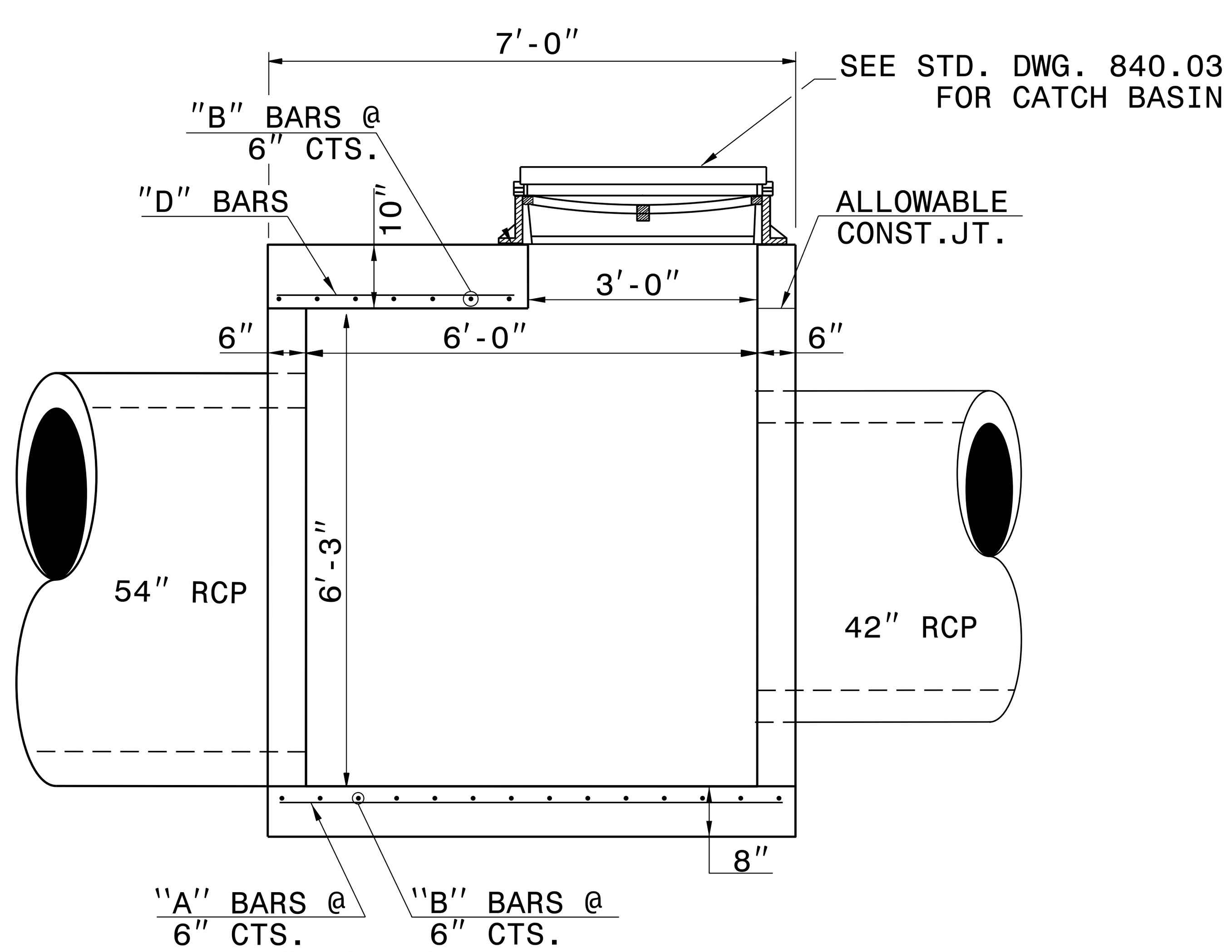
GENERAL NOTES:

1. USE CLASS "B" CONCRETE THROUGHOUT.
2. CONSTRUCT CONCRETE BOX IN ACCORDANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS.
3. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
4. ADJUST LENGTH OF STEEL BARS AS NEEDED TO COMPENSATE FOR PIPES AND FRAME AND GRATE OPENINGS.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 400.
6. CUT OR BEND STEEL BARS AS NEEDED TO PROVIDE 2" CLEARANCE.
7. LOCATE FRAME AND GRATE AS FIELD CONDITIONS DICTATE AND AS DIRECTED BY THE ENGINEER.
8. PROVIDE STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
9. DIMENSIONS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

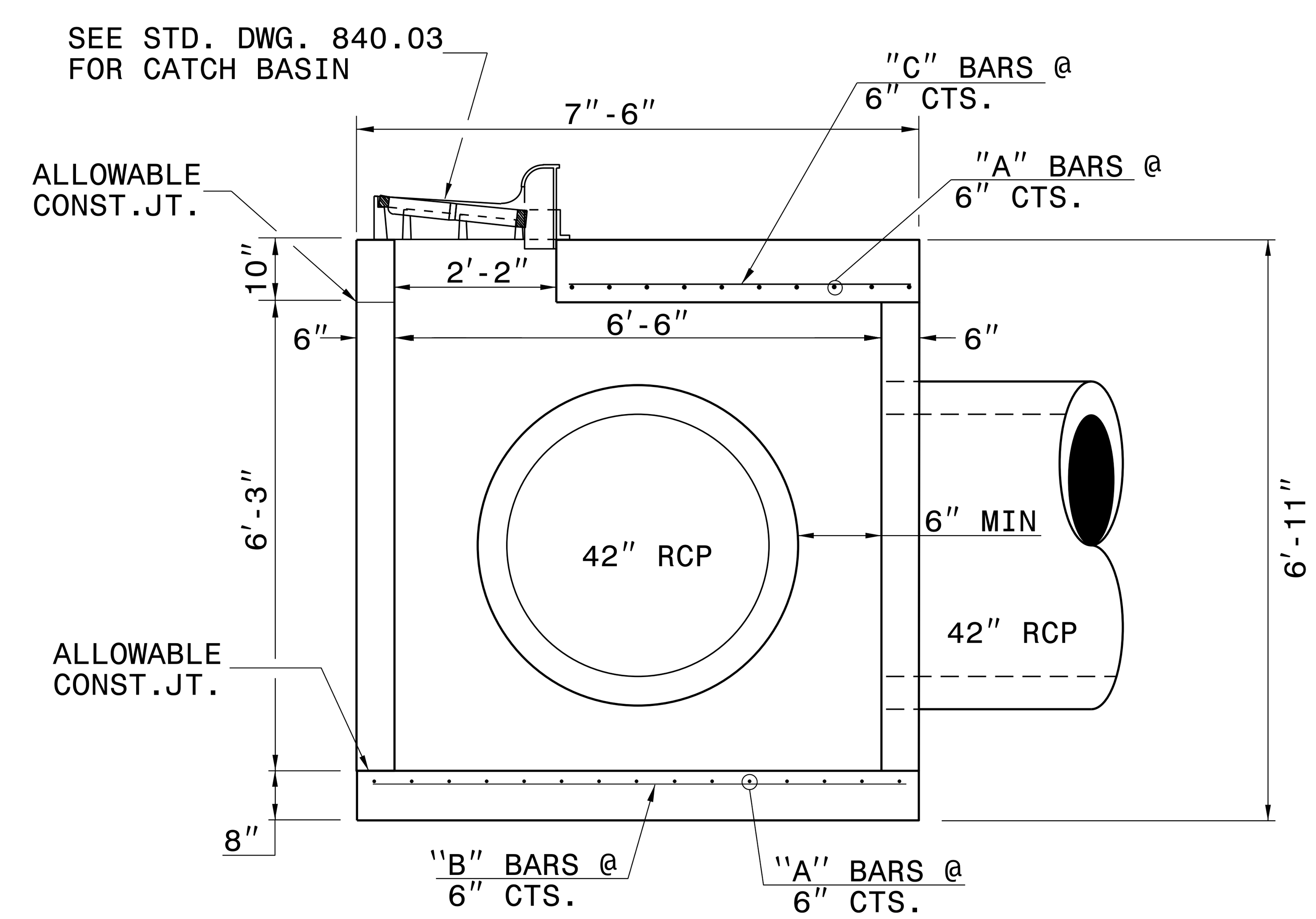
BILL OF MATERIALS

BAR	QTY	SIZE	LENGTH	WEIGHT
A	25	#5	6'-8"	174
B	21	#5	7'-2"	157
C	7	#5	4'-6"	33
D	5	#5	3'-2"	17
TOTAL REINF. STEEL (lbs.)				381
TOTAL CONC. CU. YDS.				6.3
DEDUCTIONS FOR ONE PIPE (CY)				
42" RC PIPE				0.32
54" RC PIPE				0.49

NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES OR CATCH BASIN OPENING.



SECTION B-B



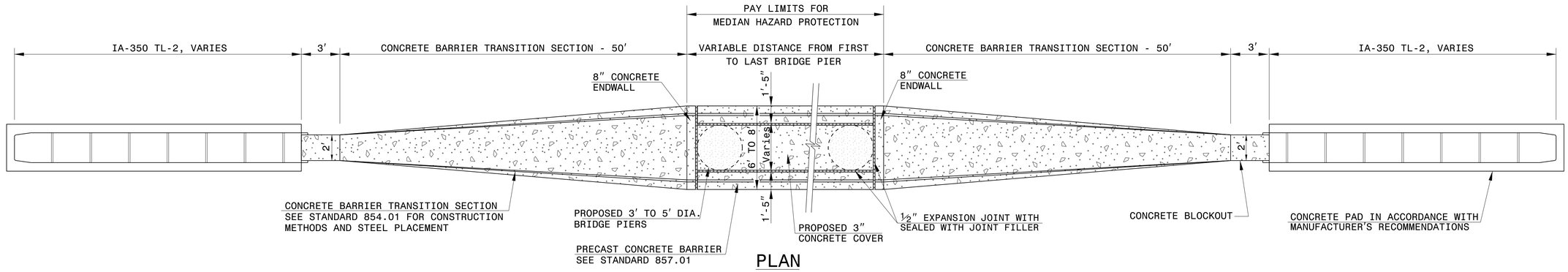
SECTION A-A

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

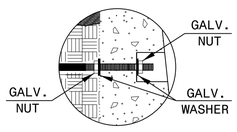
DETAIL OF SPECIAL CATCH BASIN

ORIGINAL BY: K.A.KEMPF DATE: AUG 08,2008
MODIFIED BY: K.A.KEMPF DATE: AUG 12,2014
CHECKED BY: DATE:
FILE SPEC.: s:details/kkempf/english/U3308_cb54-42rcp.dgn

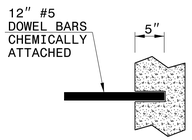
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-12



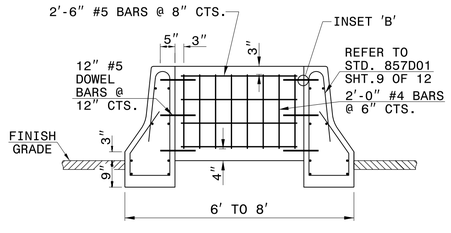
PLAN



INSET 'A'



INSET 'B'



8" CONCRETE ENDWALL

GENERAL NOTES:

CONSTRUCT CONCRETE BARRIER CLASS 'AA' CONCRETE. (SEE SPECIFICATIONS SECTION 854).

CONSTRUCT EXPANSION AND CONTRACTION JOINTS AS SHOWN IN STANDARD DRAWING 854.01 SHEET 2.

SEAL EXPANSION JOINTS WITH JOINT FILLER. (SEE SECTION 1028 OF THE SPECIFICATIONS).

SUBMIT ALTERNATIVE METHODS FOR STEEL FABRICATION PLACEMENT FOR REVIEW.

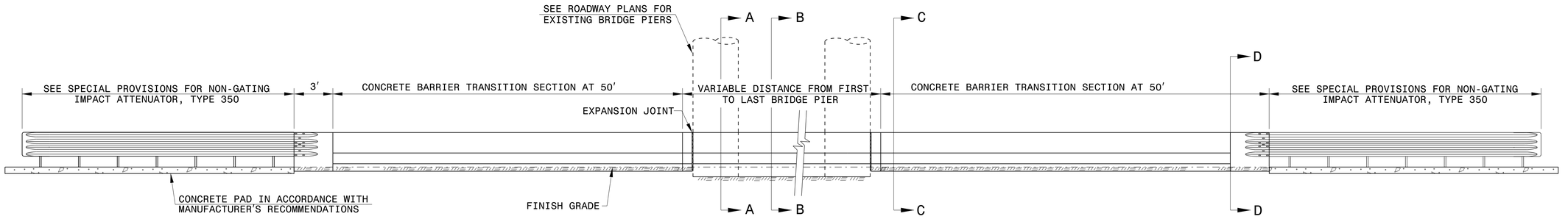
SEE STANDARD DRAWING 854.01 SHEET 3 FOR STEEL LAYOUT OF BARRIERS.

*THE 2" DIMENSION FROM FINSIH GRADE TO THE BASE IS A MINIMUM DIMENSION.

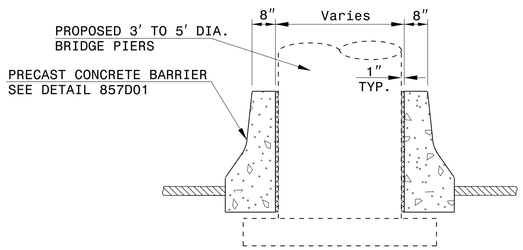
INSET FIRST 1" DIA. GALVANIZED BAR 12'-6" AND SPACE THE REMAINING 1' BARS AT 25'-0".

USE AN APPROVED BONDING SYSTEM IN ACCORDANCE WITH SECTION 1081-1, TYPE 3A OF THE STANDARD SPECIFICATIONS.

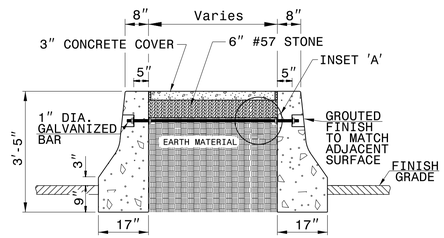
SEAL ALL EXPANSION JOINTS WITH JOINT FILLER (SEE SECTION 1028 OF THE SPECIFICATIONS).



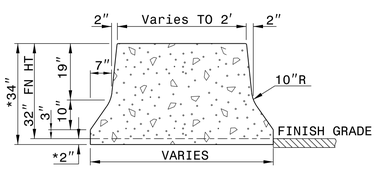
ELEVATION



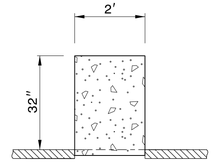
SECTION A-A



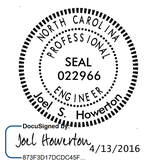
SECTION B-B



SECTION C-C



SECTION D-D



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

DETAIL OF MEDIAN HAZARD PROTECTION

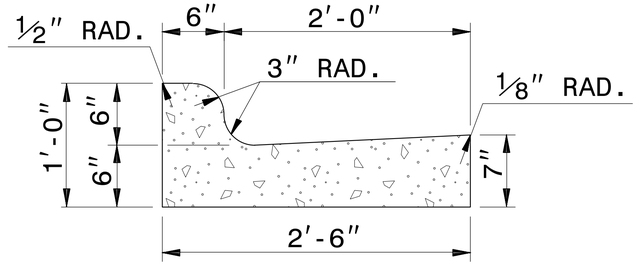
ORIGINAL BY: E.E. WARD DATE: 7-24-03
MODIFIED BY: rnbritt DATE: 7-18-08
CHECKED BY: DATE:
FILE SPEC.: s:usr\details\stand\transbarrier.dgn

revision: 7-18-08, rnbritt, changed bridge column width and barrier taper length.

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

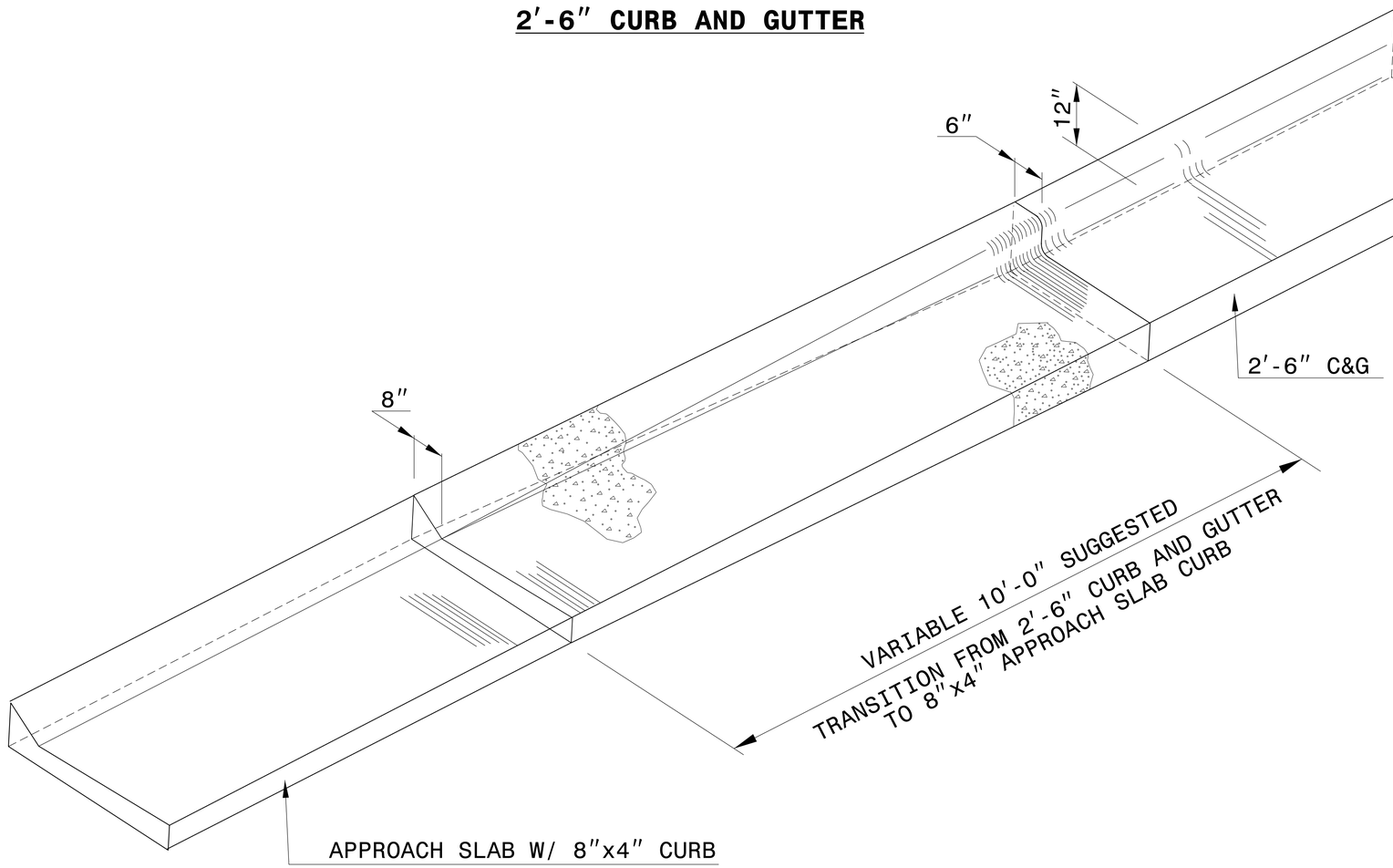
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-13



2'-6" CURB AND GUTTER

*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



ISOMETRIC VIEW OF TRANSITION

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

11/16/2015

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

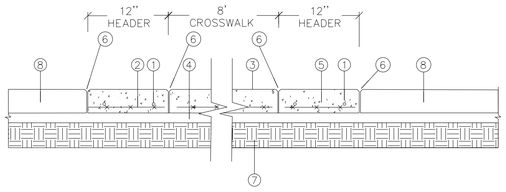
DETAIL OF 2'-6" CURB & GUTTER TO 8"x4" APPROACH SLAB CURB TRANSITION SECTION

ORIGINAL BY: E.E. WARD DATE: 5-29-02
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn

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

5/14/99

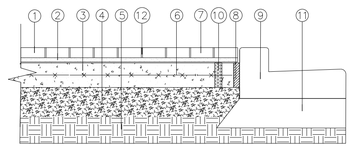
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-14



COLORED CONCRETE CROSSWALK WITH CONCRETE HEADERS

1 NOT TO SCALE

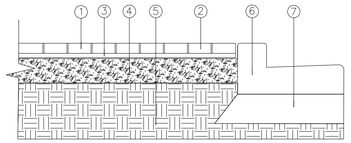
1. TWO (2) #4 REBAR FOR EACH HEADER (PROVIDE COVER FROM ALL SIDES)
2. CONTINUOUS 6" X 6" X W2.9 X W2.9 WELDED WIRE MESH (FOR CROSSWALK AND CONCRETE HEADERS ONLY)
3. IMPRINTED/COLORED CONCRETE (SEE PLAN FOR TYPE)
4. 4" B25.0 ASPHALT CONCRETE BASE
5. 8" CONCRETE
6. 1/4" TOOLED CHAMFERED EDGE (BOTH SIDES)
7. COMPACTED SUBGRADE
8. ADJACENT ASPHALT ROADWAY



REINFORCED PAVER WALKWAY WITH CONTINUOUS PAVER BAND AT CURB

2 NOT TO SCALE

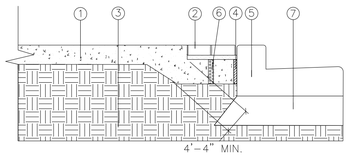
1. PAVER (SEE PLAN FOR TYPE)
2. 1 1/2" SETTING BED MATERIAL
3. 6" CONCRETE SLAB
4. 4" COMPACTED BASE COURSE
5. COMPACTED SUBGRADE
6. 6" X 6" X W2.9 X W2.9 WELDED WIRE MESH
7. CONTINUOUS PAVER BAND
8. EXPANSION JOINT (BETWEEN CONCRETE SUB-SLAB AND CURB)
9. CONCRETE CURB AND GUTTER (SEE ROADWAY PLANS)
10. 6-2" DIA DRAIN HOLES, 12" O.C. PARALLEL TO CURB - LOCATE AT LOWEST ELEV. FILL WITH PEA GRAVEL
11. ADJACENT ASPHALT ROADWAY
12. FILL THE BRICK JOINTS WITH POLYMERIC SAND



STANDARD PAVER WALKWAY WITH CONTINUOUS PAVER BAND AT CURB

3 NOT TO SCALE

1. PAVER (SEE PLAN FOR TYPE)
2. CONTINUOUS PAVER BAND
3. 1 1/2" SETTING BED MATERIAL
4. 6" COMPACTED BASE COURSE
5. COMPACTED SUBGRADE
6. CONCRETE CURB AND GUTTER (SEE ROADWAY PLANS)
7. ADJACENT ASPHALT ROADWAY



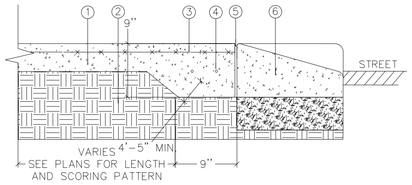
CONCRETE WALKWAY WITH CONTINUOUS PAVER BAND AT CURB

4 NOT TO SCALE

1. 4" CONCRETE SIDEWALK
2. CONTINUOUS PAVER BAND ON 3 1/2" SETTING BED
3. COMPACTED SUB-GRADE
4. EXPANSION JOINT (BETWEEN CONCRETE SUB-SLAB AND CURB)
5. CONCRETE CURB AND GUTTER (SEE ROADWAY PLANS)
6. 6-2" DIA DRAIN HOLES, 12" O.C. PARALLEL TO CURB - LOCATE AT LOWEST ELEVATIONS - FILL WITH PEA GRAVEL
7. ADJACENT ASPHALT ROADWAY

NOTE: REFER TO PEDESTRIAN CONCRETE FINISH DETAIL

PAVER SPECS:
8" THICK
STYLE: STONE TILE - STACKED STONE PATTERN
CONRETE: 4,000 PSI STRAIGHT CEMENT
COLOR TO MIX IN TRUCK CHILI PEPPER (1 BAG PER CY)(QC PRODUCTS)
COLOR HARDENER CHILI PEPPER (QC PRODUCTS)
RELEASE STONE GRAY (QC PRODUCTS)
CONCRETE RETARDER (IF NEEDED) FRITZ PACK
SEALER MATTE FINISH (QC PRODUCTS)

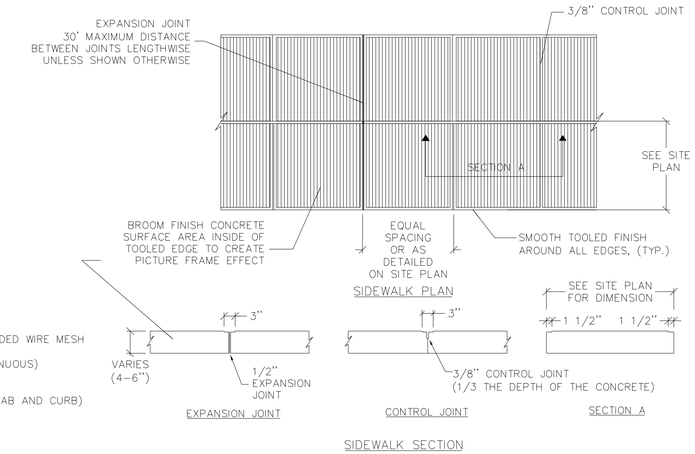


HEAVY DUTY CONCRETE WALKWAY AT CONCRETE DRIVEWAY APRONS

4A NOT TO SCALE

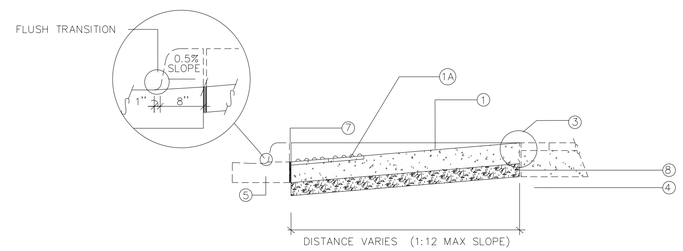
1. 6" CONCRETE
2. COMPACTED SUB-GRADE
3. 6" X 6" X W2.9 X W2.9 WELDED WIRE MESH
4. 2 EACH - #4 REBAR (CONTINUOUS)
5. EXPANSION JOINT (BETWEEN CONCRETE SUB-SLAB AND CURB)
6. CONCRETE DRIVEWAY APRON (SEE ROADWAY PLANS)

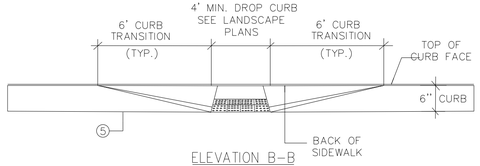
NOTE: REFER TO PEDESTRIAN CONCRETE FINISH DETAIL

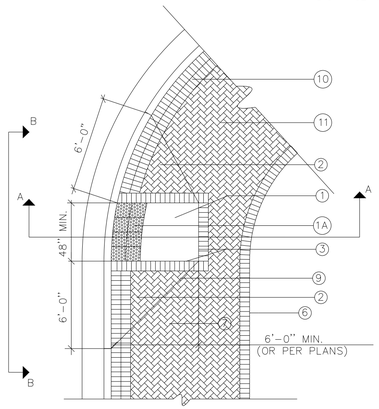


5 CONCRETE WALKWAY FINISH DETAIL

NOT TO SCALE







1. 8" HEAVY DUTY CONCRETE HANDICAP RAMP (RAMP DOWN TOWARD STREET AT 12:1 MAX.)
- 1A. ADA APPROVED POLYMER CONCRETE DETECABLE WARNING TILES TO BE PLACED IN A 2' BAND FROM BACK OF CURB-COLOR TO BE CHARCOAL GRAY (SEE NOTE B BELOW)
2. 12:1 MAX SLOPES ON SIDE FLARES
3. RAMP TO PAVER FIELD TRANSITION
4. COMPACTED SUBGRADE
5. CURB AND GUTTER. (REF. TO ROADWAY PLANS)
6. EDGE OF WALK OR FACE OF BUILDING
7. EXPANSION JOINT
8. 4" COMPACTED BASE COURSE
9. RAMP FLARE TRANSITION LINE
10. RED BORDER BRICK: SINGLE/DOUBLE SOLDIER COURSE MANUFACTURER: PINE HALL BRICK STYLE: ENGLISH EDGE-IRON SPOT
11. RED FIELD BRICK: 45 DEGREE HERRINGBONE PATTERN MANUFACTURER: PINE HALL BRICK STYLE: ENGLISH EDGER-FULL RANGE

GENERAL NOTES

A. REFER TO ROADWAY PLANS FOR LOCATIONS OF CURB-CUT RAMPS.

B. INSTALL TILES PER MANUFACTURUERS RECOMENDATIONS.

C. TRANSISTION CURB FROM FLUSH/DROP TO 6" STANDARD CURB SHALL BE 6'0" TYPICAL.

6 CONCRETE HANDICAP RAMP

NOT TO SCALE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

11/16/2015

CONTRACT STANDARDS AND DEVELOPMENT UNIT

Office 919-707-6950 FAX 919-250-4119

BRICK PAVERS FOR SIDEWALK AND CURB RAMPS

ORIGINAL BY: J. Howerton DATE: 1/26/15
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/City of Durham Brick Pavers.dgn

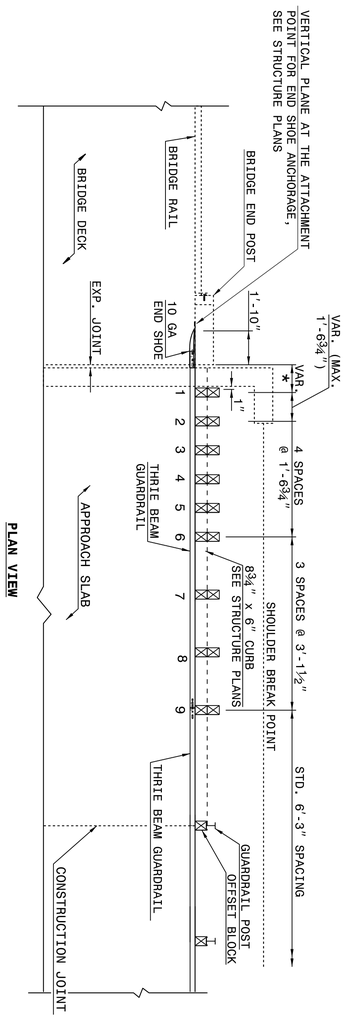
$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$SCENE$$$$ $$$$SCENE$$$$ $$$$SCENE$$$$ $$$$SCENE$$$$ $$$$SCENE$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-15

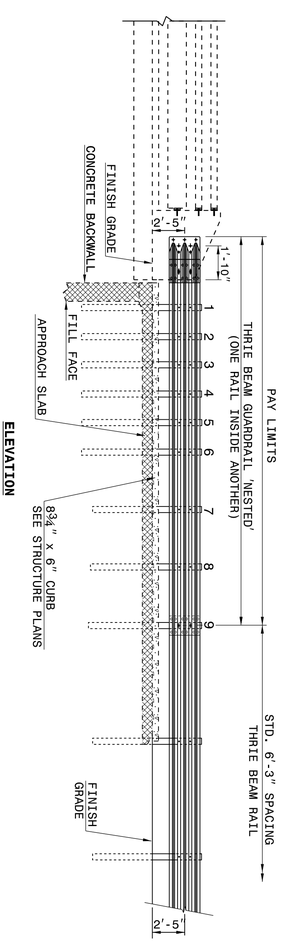
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III MODIFIED
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 2
862D03



PLAN VIEW



ELEVATION

NOTE:
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 2 FOR POST SECTIONS 1 THRU 9.

GUARDRAIL ANCHOR UNIT, TYPE III MODIFIED FOR ATTACHMENT TO RAIL ON BRIDGE

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

SEE TITLE BLOCK

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: nbritt\english\urban\Type III Modified.dgn

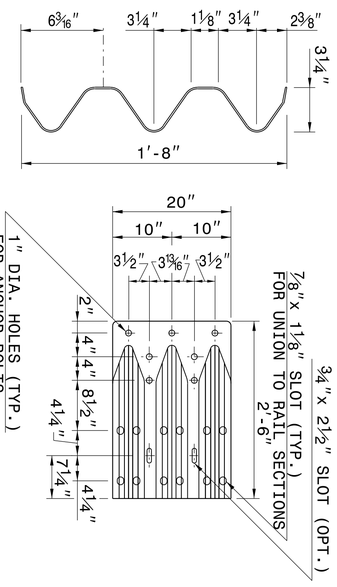
ENGLISH STANDARD DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III MODIFIED

SHEET 1 OF 2	862D03	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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

ENGLISH STANDARD DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III MODIFIED

SHEET 2 OF 2
862D03

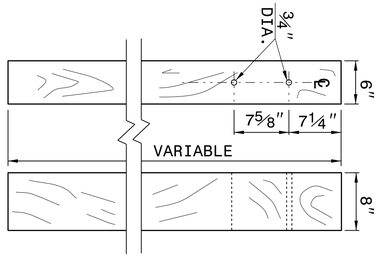


SECTION OF THRIE BEAM POSTS 1 THRU 6

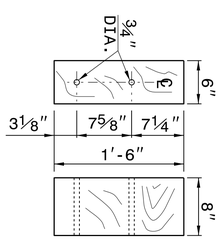
SECTION OF THRIE BEAM POST 7-9

THRIE-BEAM SECTION

END SHOE



THRIE BEAM LINE POST



THRIE BEAM OFFSET BLOCK

ENGLISH STANDARD DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III MODIFIED

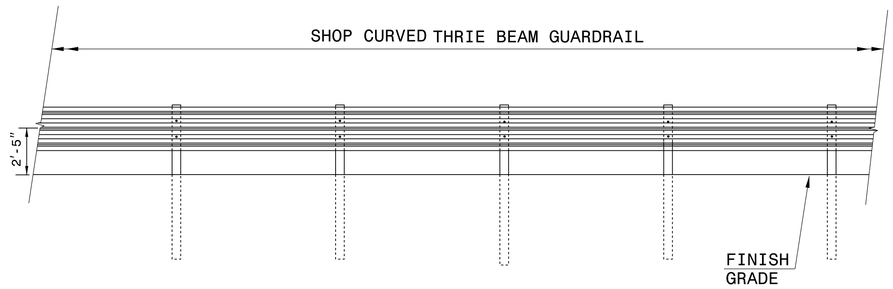
SHEET 2 OF 2	862D03	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

5/14/96

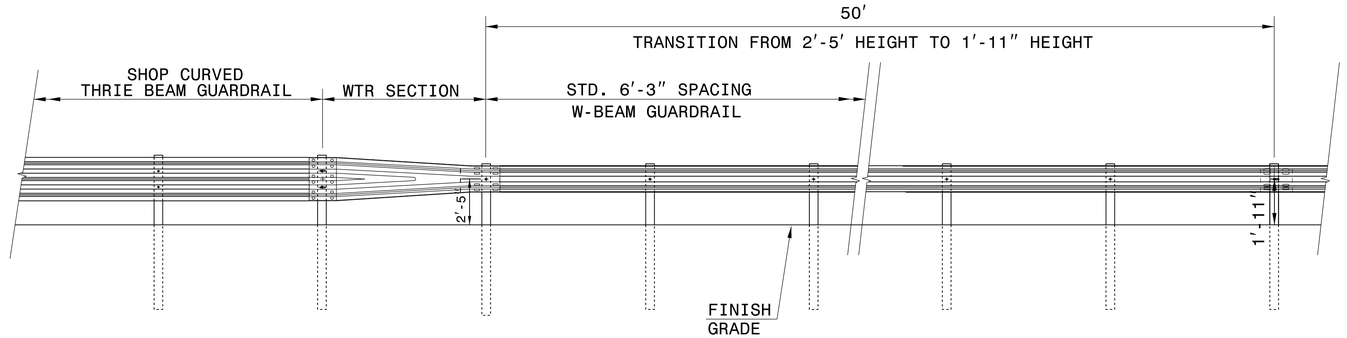
$$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$DGNFILE$$$$

5/14/99

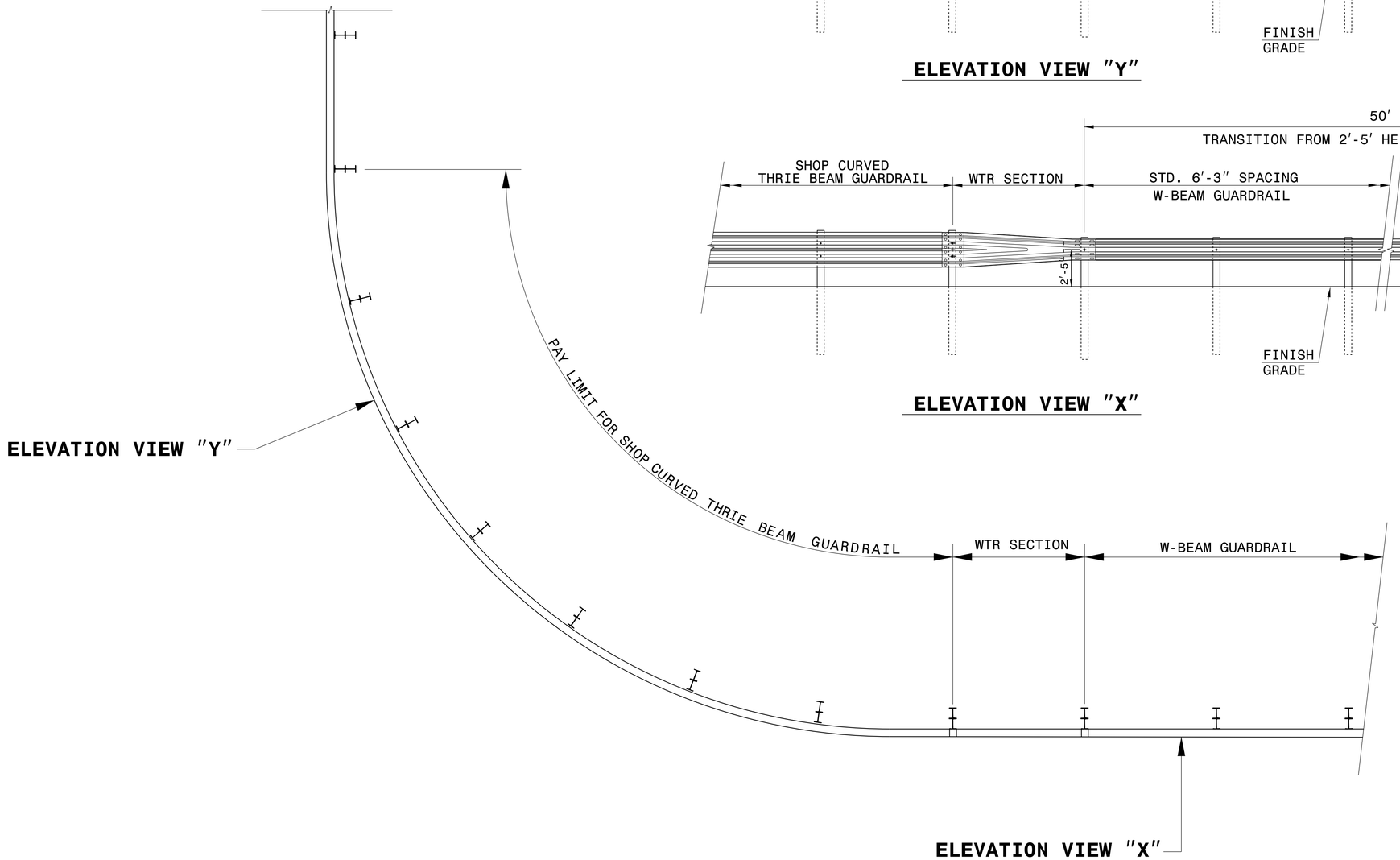
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-16



ELEVATION VIEW "Y"



ELEVATION VIEW "X"



PLAN

NOTES:

- **USE STD. 6′-3″ POST SPACING IN THIS AREA.**
- **REFER TO RDWY. STDS. 862.01, 862.02 AND 862.03 FOR PLACEMENT AND OTHER GUARDRAIL DETAIL INFORMATION.**

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 Joel S. Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

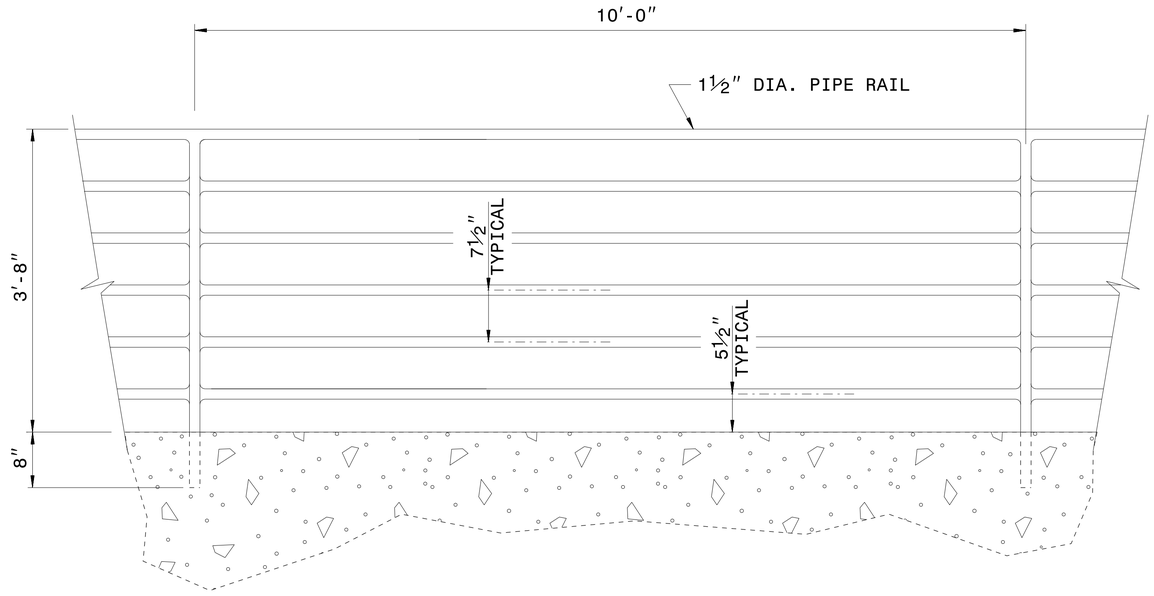
11/16/2015

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

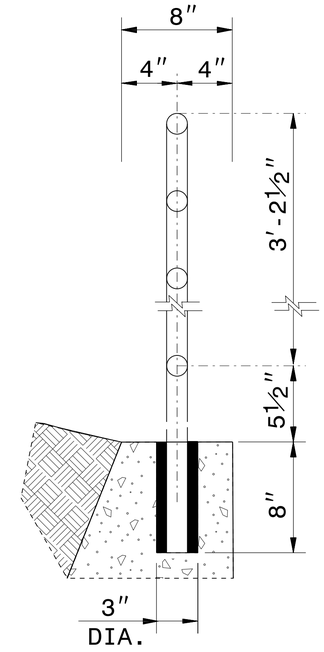
SHOP CURVED THRIE BEAM GUARDRAIL

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 02-23-15
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/guardrail/scthri beam rail.dgn

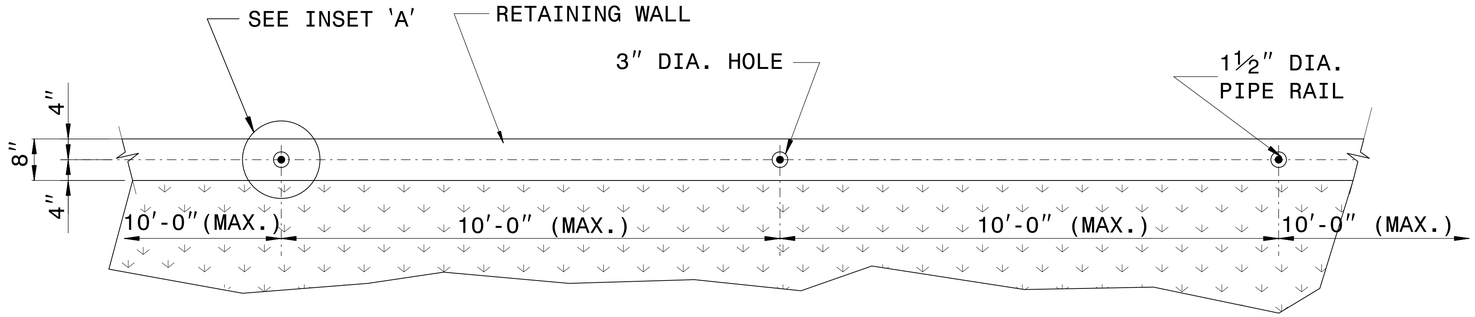
PROJECT REFERENCE NO.	SHEET NO.
U-3308	2C-17



ELEVATION OF HANDRAIL



INSET 'A'



PLAN VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

EMBED PIPE RAIL 8" INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.

USE A ROTARY DRILL IF NEEDED FOR EMBEDMENT HOLES OF RAIL IN WALL. ROTARY DRILL ONLY (NO ROTARY-IMPACT DRILLS).

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S Howerton

DocuSigned by: Joel Howerton 873F3D17DCDC45F...

11/16/2015

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

DETAIL OF PIPE HANDRAIL MOUNTED ON RETAINING WALL

ORIGINAL BY: E.E. WARD DATE: 12-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/handrail on retaining wall.dgn