

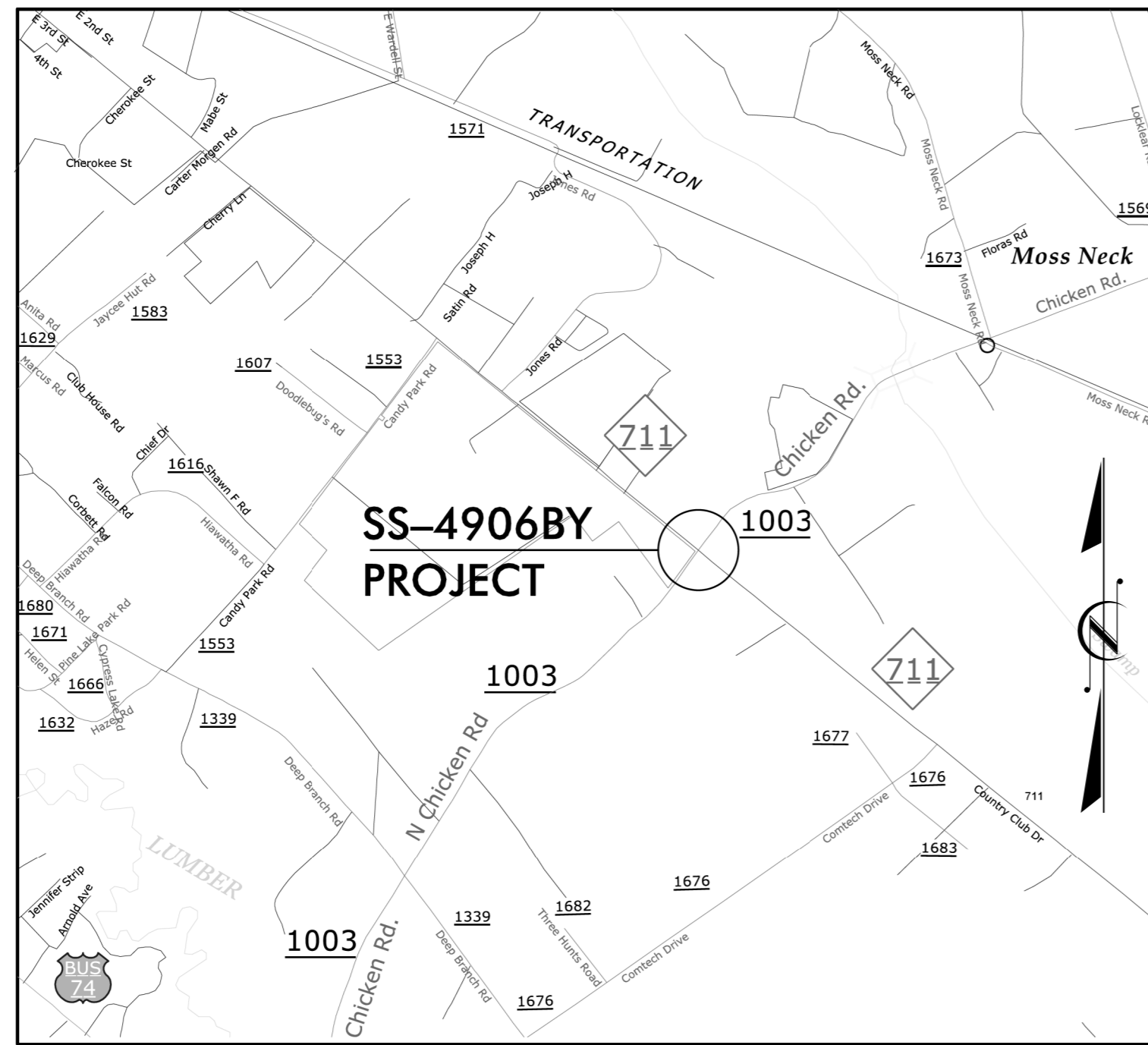
| | | | |
|-----------------|-----------------------------|-------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | SS-4906BY | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 44190.1.FR1 | HSIP-0711 (15) | PE | |
| 44190.2.1 | | ROWUTIL | |
| 44190.3.1 | | CONST | |
| | | | |
| | | | |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

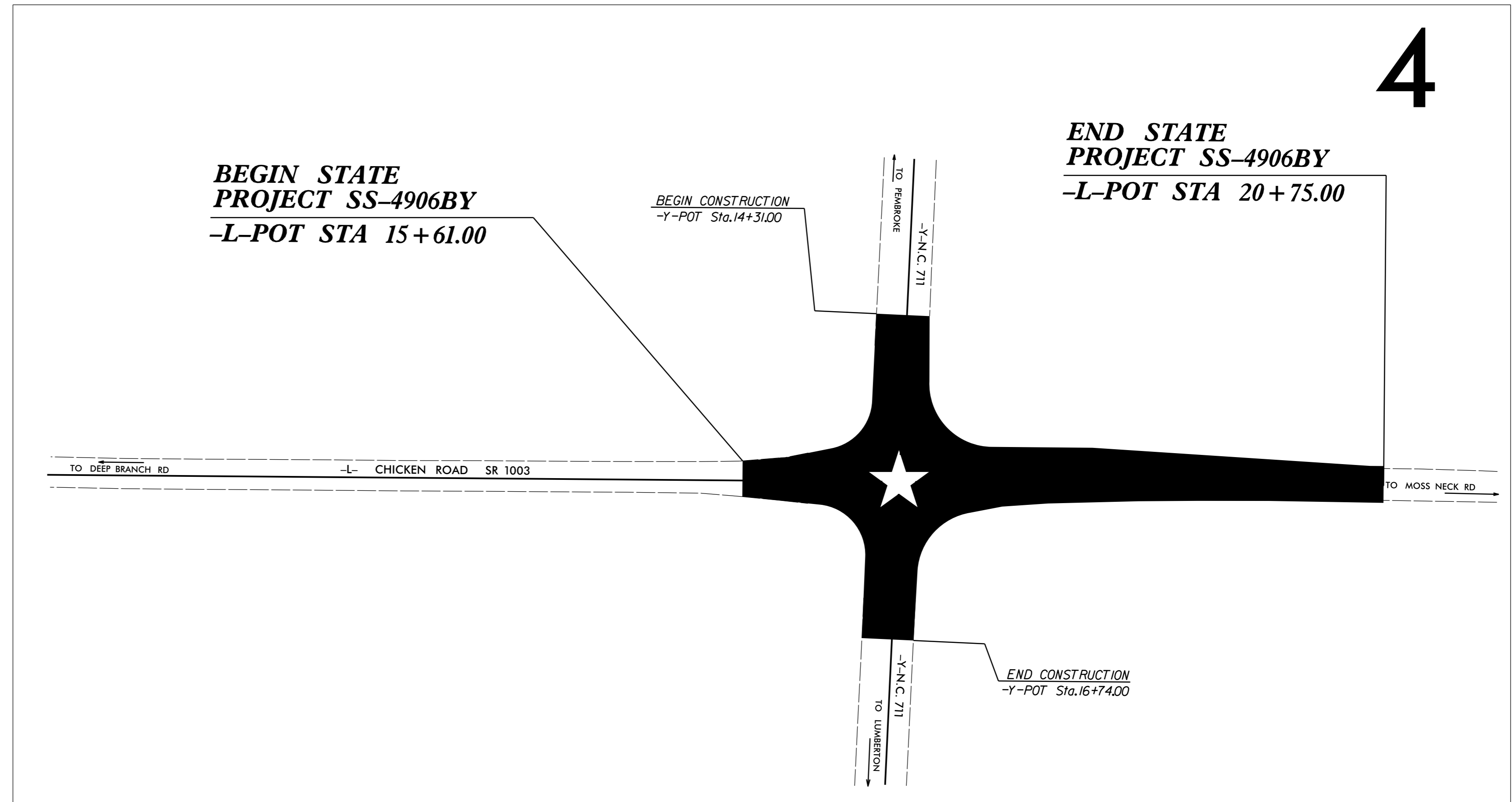
ROBESON COUNTY

LOCATION: INTERSECTION OF SR 1003 (CHICKEN ROAD) & NC HWY. 711

TYPE OF WORK: GRADING, PAVING, SIGNING, SIGNAL INSTALLATION,
UTILITY CONSTRUCTION & PAVEMENT MARKINGS



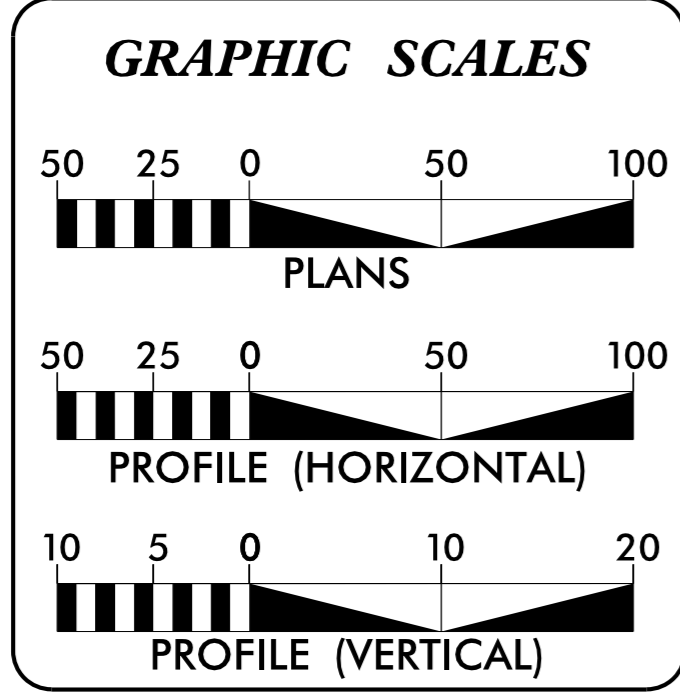
VICINITY MAP
(N.T.S.)



4

TIP PROJECT: SS-4906BY

CONTRACT: DF00110



DESIGN DATA

| | |
|------------|--------|
| ADT 2013 = | 2,000 |
| ADT 2014 = | 2,060 |
| V = | 60 MPH |

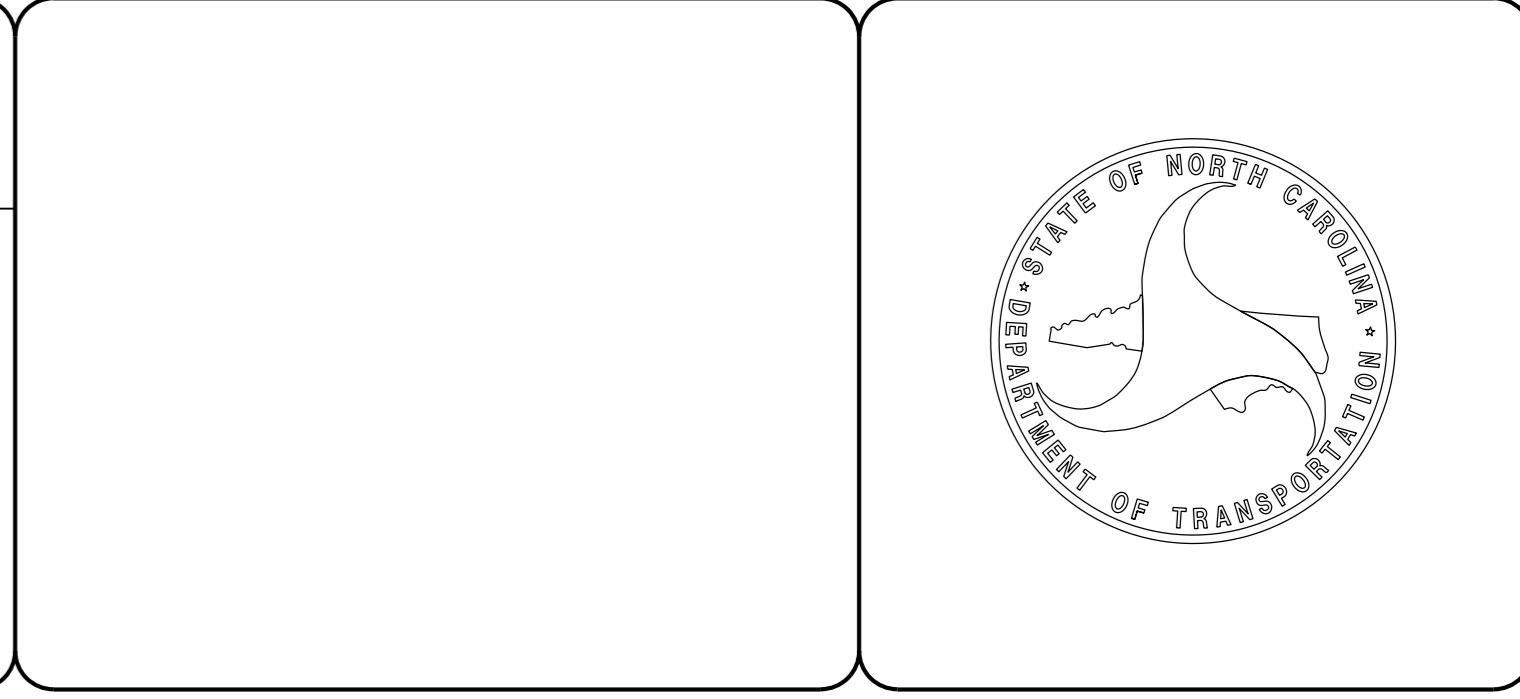
PROJECT LENGTH

| | |
|------------------------------------|---------|
| LENGTH ROADWAY PROJECT SS-4906BY = | 0.20 MI |
|------------------------------------|---------|

Prepared in the Office of:

DIVISION OF HIGHWAYS
431 Transportation Drive, Fayetteville, NC 28301

| | |
|---|--|
| 2012 STANDARD SPECIFICATIONS | |
| RIGHT OF WAY DATE: FEBRUARY 27, 2015 | SEAN MATUSZEWSKI PROJECT ENGINEER |
| LETTING DATE: SEPTEMBER 16, 2015 | GLEND A SNIVELY PROJECT DESIGN ENGINEER |



25-AUG-2015 09:59 H:\DDC\Projects\SS-4906BY\NC 711 at SR 1003\Roadway\proj\SS4906BY_Rdy_Tsh.dgn \$\$\$USERNAME\$\$\$

12/05/11

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 | ○ EP |
| Property Corner | -----> |
| Property Monument | □ ECM |
| Parcel/Sequence Number | ①23 |
| Existing Fence Line | -x-x-x- |
| Proposed Woven Wire Fence | ○ |
| Proposed Chain Link Fence | □ |
| Proposed Barbed Wire Fence | ◇ |
| Existing Wetland Boundary | --- MLB |
| Proposed Wetland Boundary | --- MLB |
| 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 | ▭ |
| False Sump | ▭ |

RAILROADS:

| | |
|--------------------|-------------------------------------|
| Standard Gauge | ----- |
| RR Signal Milepost | ○ CSX TRANSPORTATION 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 CA 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 | ⊕ |
| 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 | ⊕ |
| Telephone Booth | ▭ |
| Telephone Pedestal | ⊕ |
| Telephone Cell Tower | ⊕ |
| U/G Telephone Cable Hand Hole | ▭ |
| 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 | ⊕ |
| 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 | ⊕ |
| TV Tower | ⊗ |
| U/G TV Cable Hand Hole | ▭ |
| 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 |

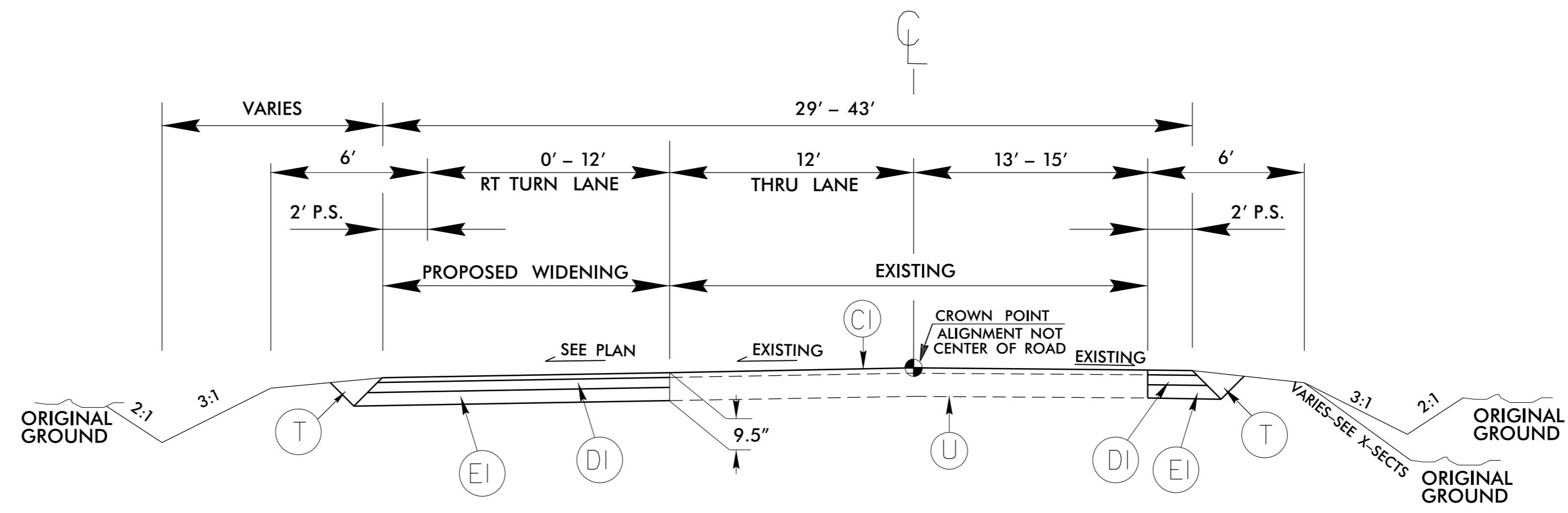
MISCELLANEOUS:

| | |
|--|------------|
| Utility Pole | ● |
| Utility Pole with Base | □ |
| Utility Located Object | ○ |
| Utility Traffic Signal Box | ⊕ |
| Utility Unknown U/G Line | ----- ?UTL |
| U/G Tank; Water, Gas, Oil | ▭ |
| Underground Storage Tank, Approx. Loc. | ⊕ |
| 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. |

PAVEMENT SCHEDULE

| | |
|----|--|
| C1 | PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. |
| D1 | PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. |
| E1 | PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD. |
| T | EARTH MATERIAL. |
| U | EXISTING PAVEMENT. |

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



TYPICAL SECTION No. 1
-L-LINE (CHICKEN RD) STA. 15+61.00 TO 20+75.00

PROJECT NOTES

1. The Contractor shall not work on both sides of the road simultaneously within the same area.
2. Ingress and egress shall be maintained to all businesses and dwellings on the project.
3. At the end of each workday, the Contractor shall be required to backfill any area adjacent to existing travelway that has been graded leaving no more than a 2" drop-off.
4. A minimum of two-way, two-lane traffic (plus all existing left and right turn lanes) shall be maintained during periods of construction inactivity.
5. The Contractor shall not be allowed to stop traffic for more than 5 minutes at a time in any one direction.
6. During periods of construction inactivity, the difference in elevation between lanes shall not exceed 1 1/2 inch.
7. During periods of construction inactivity, place cones/drums 3' from existing edge of pavement (travelway) as directed by the Engineer.
8. Contractor to install Erosion Control devices as directed by the Engineer.
9. Contractor shall coordinate with the Division Six Traffic Services Unit for placement of all pavement markings and signs.
10. Removal of existing road signs is incidental to the project.
11. Access to police and fire station, fire hydrants, and hospitals shall be maintained at all times.

MILLING AT PAVEMENT TIE-INS

NOTES TO CONTRACTOR

For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing map.

Perform the work in accordance with Section 607 of the January 2012 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.

The sketch shows a 25'-75' area to be milled. It includes a dashed line for the 'BEGINNING OR ENDING OF MAP', a solid line for 'EXISTING CONCRETE PAVEMENT OR NON-RESURFACEABLE BRIDGE DECKS', and a vertical dimension for 'APPROX. THICKNESS OF SURFACE COURSE'.

CONTRACTOR SHALL COORDINATE WITH LOCAL TRAFFIC SERVICES UNIT FOR PROPOSED SIGNAL DESIGN AND PLACEMENT OF ALL PAVEMENT MARKINGS.

FOR SIGNAL WORK, CONTACT FRANK WEST 910-486-1452, 28 DAYS PRIOR TO PLACEMENT.

FOR PAVEMENT MARKING, CONTACT KENT LANGDON 910-486/452, 14 DAYS PRIOR TO FINAL PLACEMENT.

6/2/09
 18-AUG-2015 08:06
 C:\Users\jg\Documents\18-AUG-2015 08:06 SS-4906BY_Prdj_4.jp.dgn

| | |
|------------------------------------|---------------------|
| PROJECT REFERENCE NO. SS-4906BY | SHEET NO. 2A |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

WATTLE WITH POLYACRYLAMIDE DETAIL

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

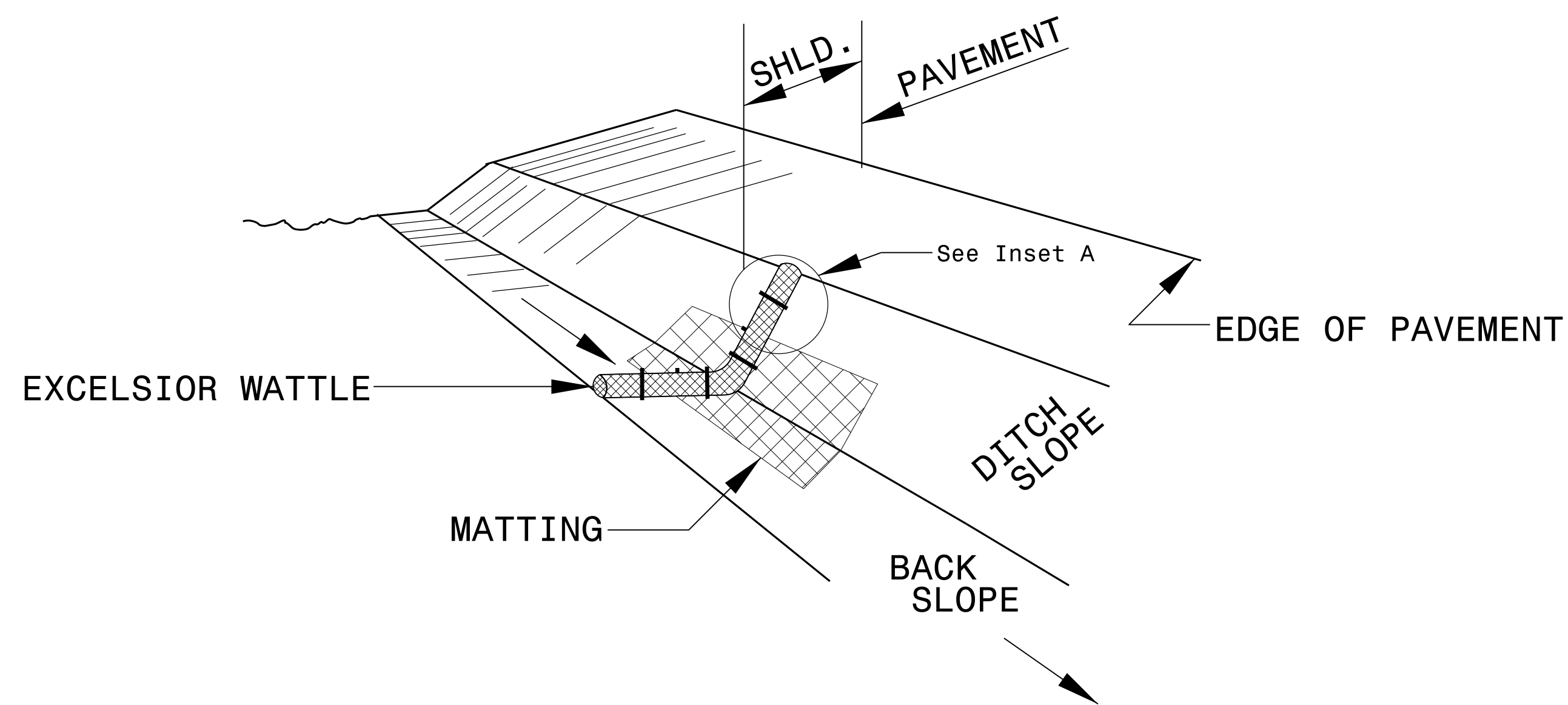
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

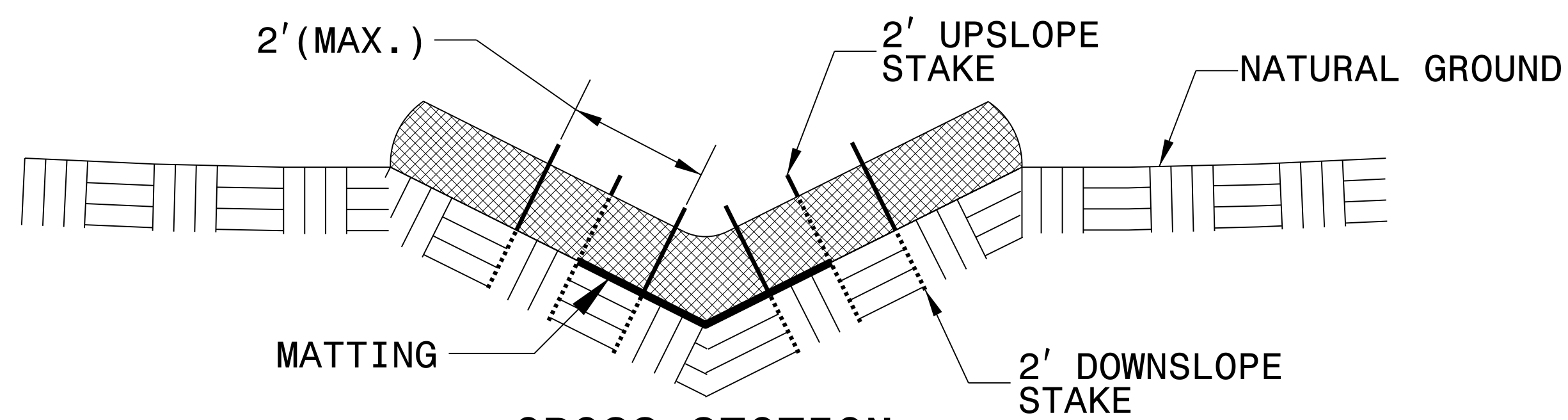
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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

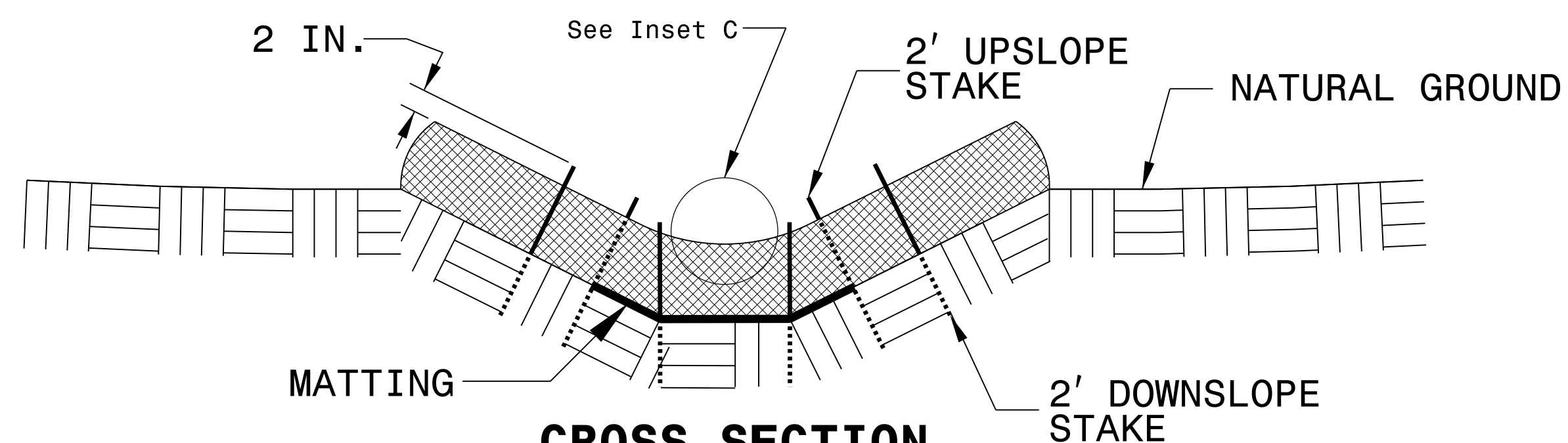
INITIALLY APPLY 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



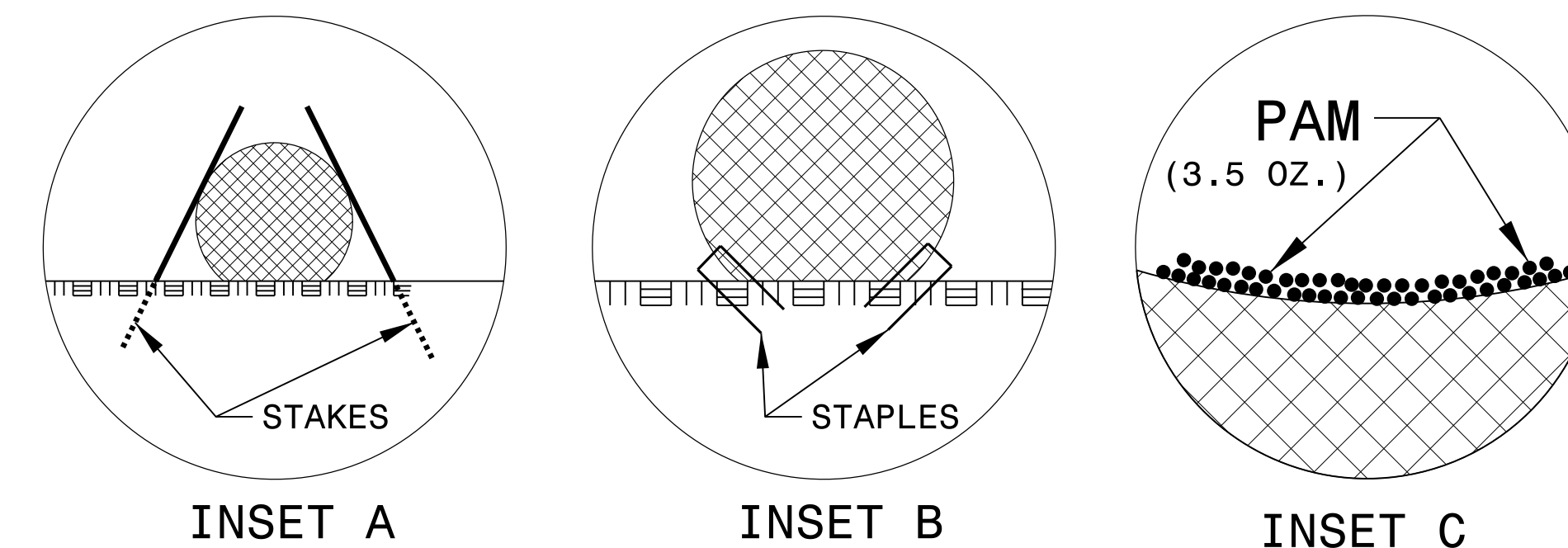
ISOMETRIC VIEW



**CROSS SECTION
VEE DITCH**



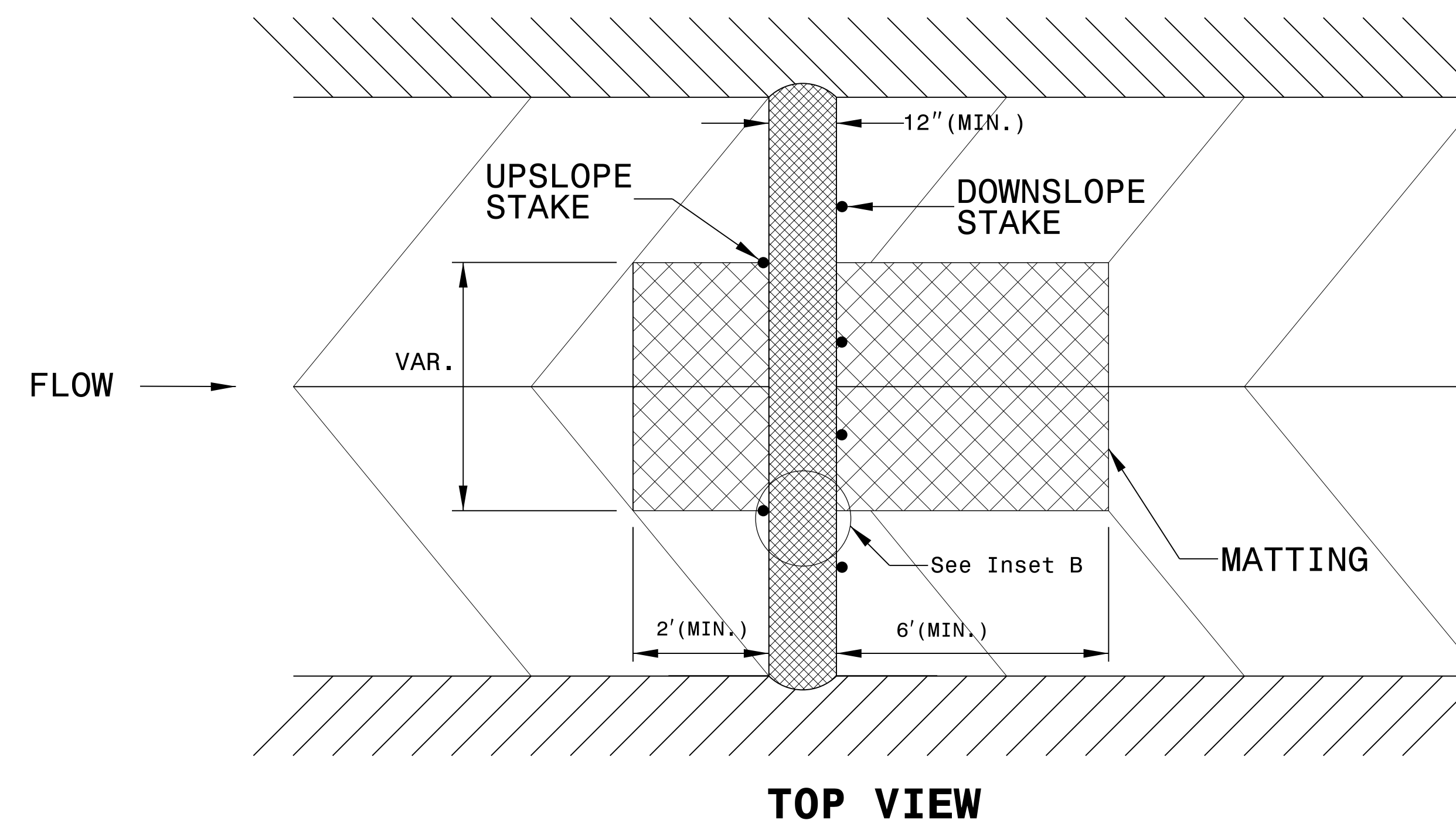
**CROSS SECTION
TRAPEZOIDAL DITCH**



INSET A

INSET B

INSET C



TOP VIEW

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

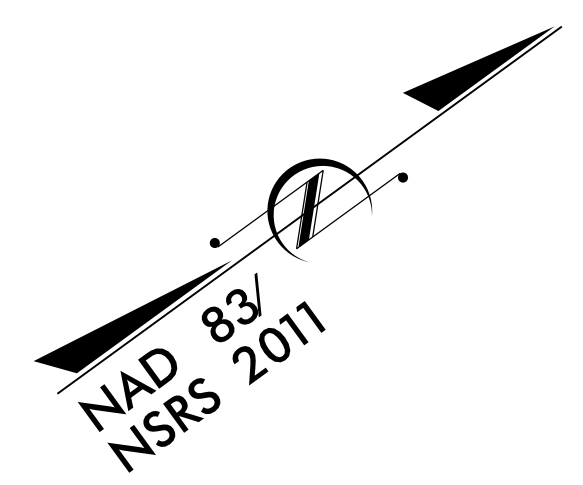
SUMMARY OF EARTHWORK
IN CUBIC YARDS

| STATION | STATION | UNCL. EXCAV. | EMBANK. + % | BORROW | WASTE |
|--------------------------------------|-------------|-----------------|----------------|--------|-------|
| 16+00 (-L-) | 20+50 (-L-) | 103 | 140 | 37 | 0 |
| 14+50 (-Y-) | 15+00 (-Y-) | 111 | 141 | 30 | 0 |
| 5% TO REPLACE TOP SOIL ON BORROW PIT | | | | 14 | |
| TOTALS | | 111 | 0 | 81 | 0 |
| SAY | | | | 100 | |

Note: Approximate quantities only. Unclassified Excavation, and Borrow Excavation will be paid for at the contract lump sum price for "Grading."

Earthwork quantities are calculated by the Roadway Design Unit.
No subsurface data provided by the Geotechnical Engineering Unit.

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| SS-4906BY | 4 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |



BEGIN STATE PROJECT SS-4906BY
-L-POT STA 15+61.00

END STATE PROJECT SS-4906BY
-L-POT STA 20+75.00

BL-1
 N 330,713.8262
 E 1,950,080.0904
 ELEV 159.73
 STA 9+55.19
 17.19' LT -L-

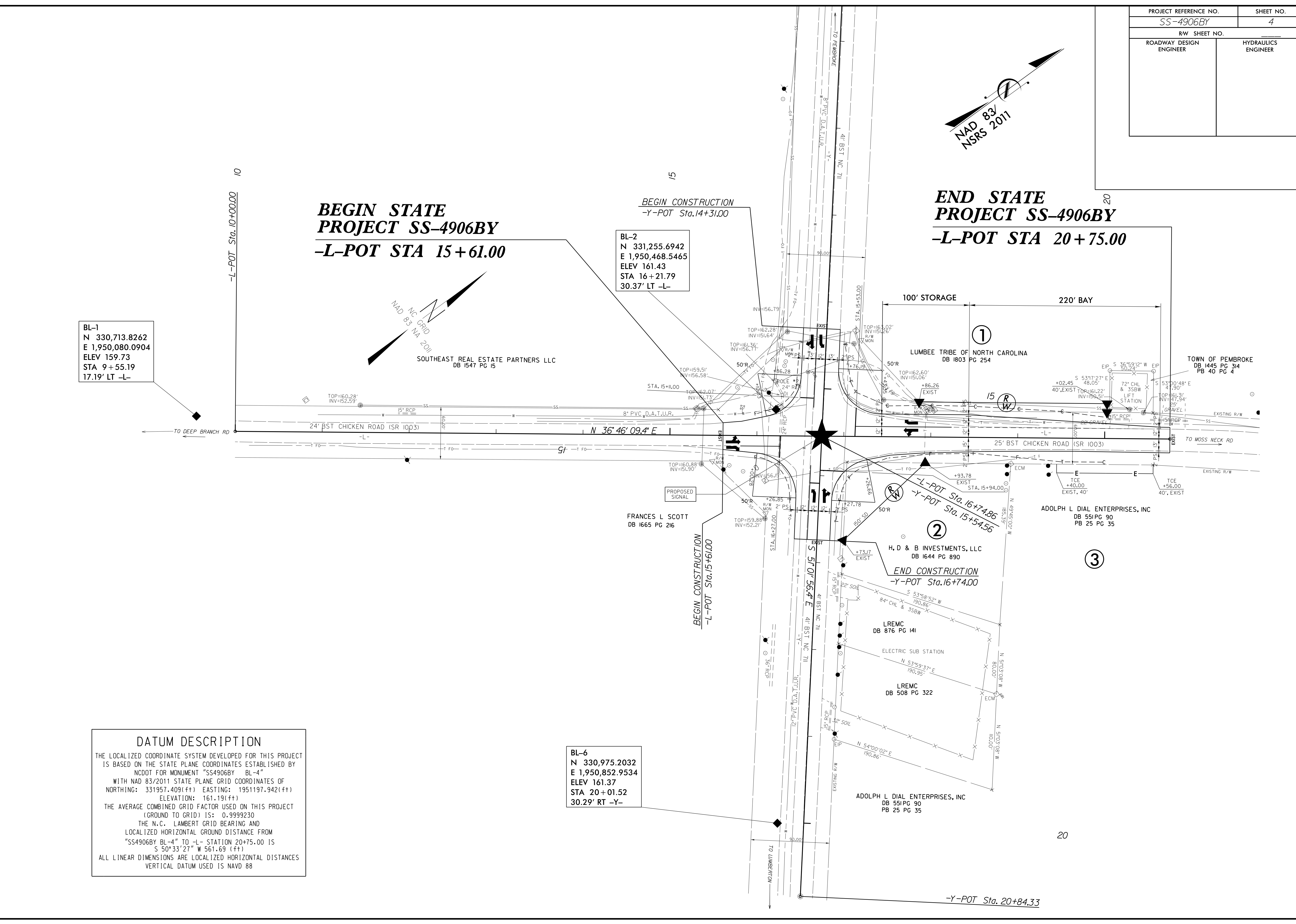
BL-2
 N 331,255.6942
 E 1,950,468.5465
 ELEV 161.43
 STA 16+21.79
 30.37' LT -L-

BL-6
 N 330,975.2032
 E 1,950,852.9534
 ELEV 161.37
 STA 20+01.52
 30.29' RT -Y-

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SS4906BY BL-4"
 WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF
 NORTHING: 331957.409(ft) EASTING: 1951197.942(ft)
 ELEVATION: 161.19(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999230
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SS4906BY BL-4" TO -L- STATION 20+75.00 IS
 S 50°33'27" W 561.69 (ft)
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

REVISIONS

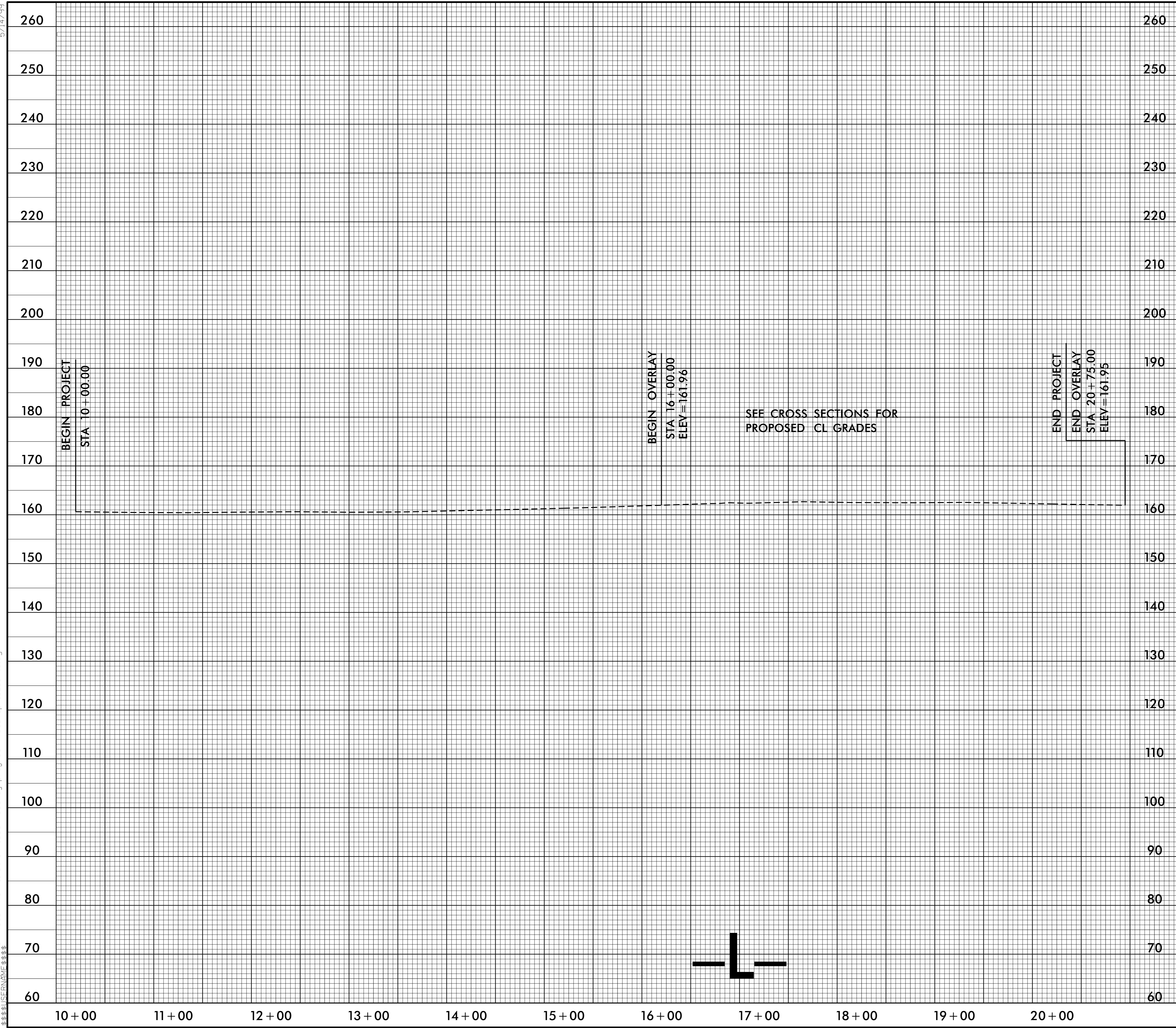
18-AUG-2015 09:08 SS-4906BY NC 711 at SR 1003\Roadway\proj\SS4906BY_Bldg_psh_4.dgn 8/17/99



5/14/99

18-AUG-2015 09:16 I:\003\Roadway\proj\SS-4906BY.pfl.L.Sht5.dgn

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| SS-4906BY | 5 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |



SEE CROSS SECTIONS FOR PROPOSED CL GRADES

BEGIN PROJECT
STA 10+00.00

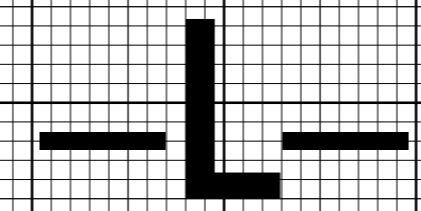
BEGIN OVERLAY
STA 16+00.00
ELEV = 161.96

END PROJECT
END OVERLAY
STA 20+75.00
ELEV = 161.95

260
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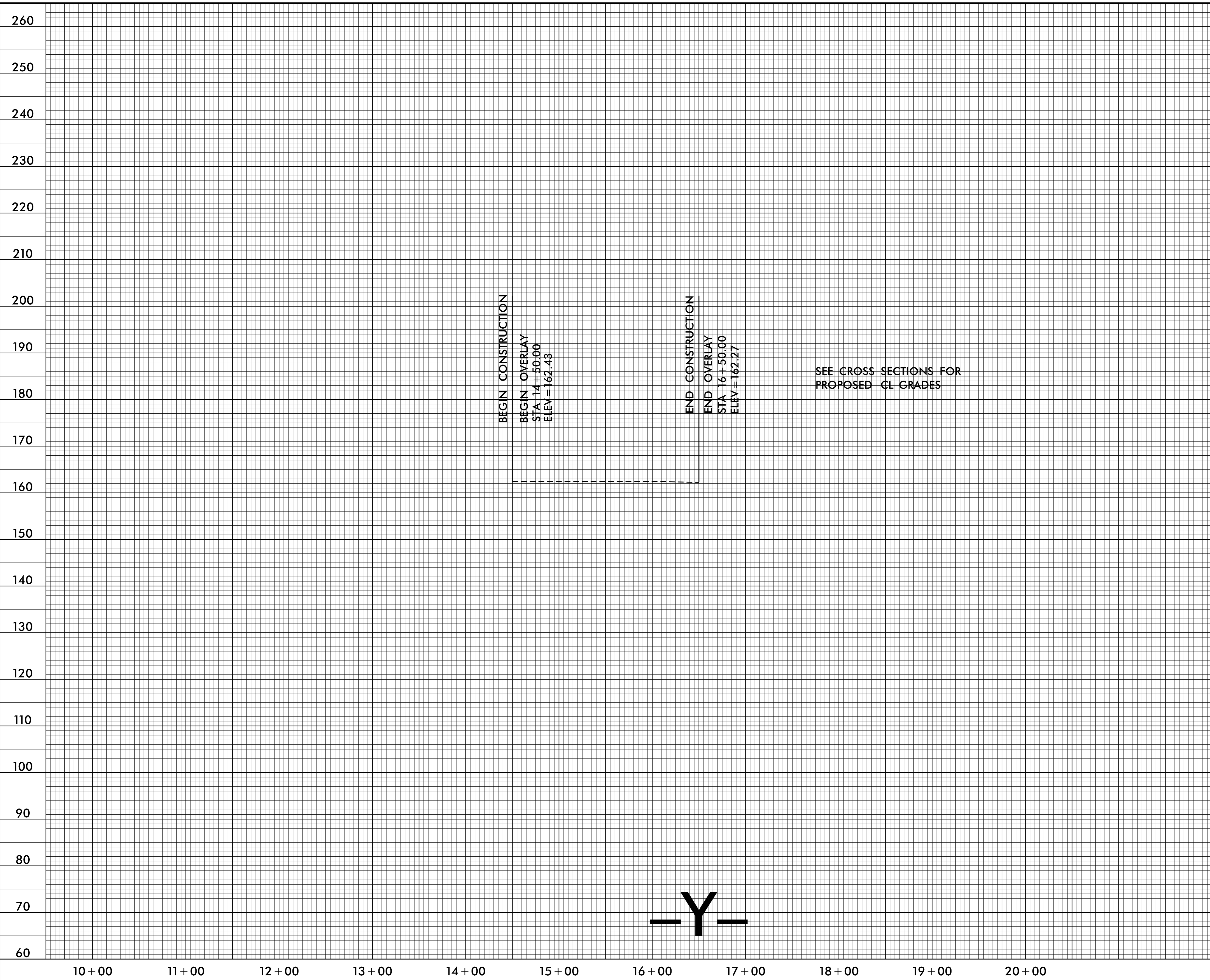
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00



5/14/99

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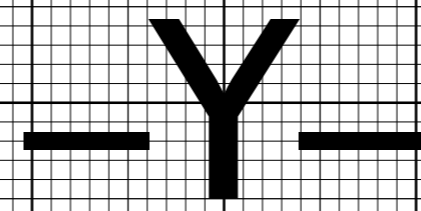
| | |
|---|------------------------|
| PROJECT REFERENCE NO. SS-4906BY | SHEET NO. 6 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |



BEGIN CONSTRUCTION
 BEGIN OVERLAY
 STA 14+50.00
 ELEV = 162.43

END CONSTRUCTION
 END OVERLAY
 STA 16+50.00
 ELEV = 162.27

SEE CROSS SECTIONS FOR
 PROPOSED CL GRADES



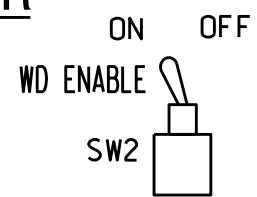
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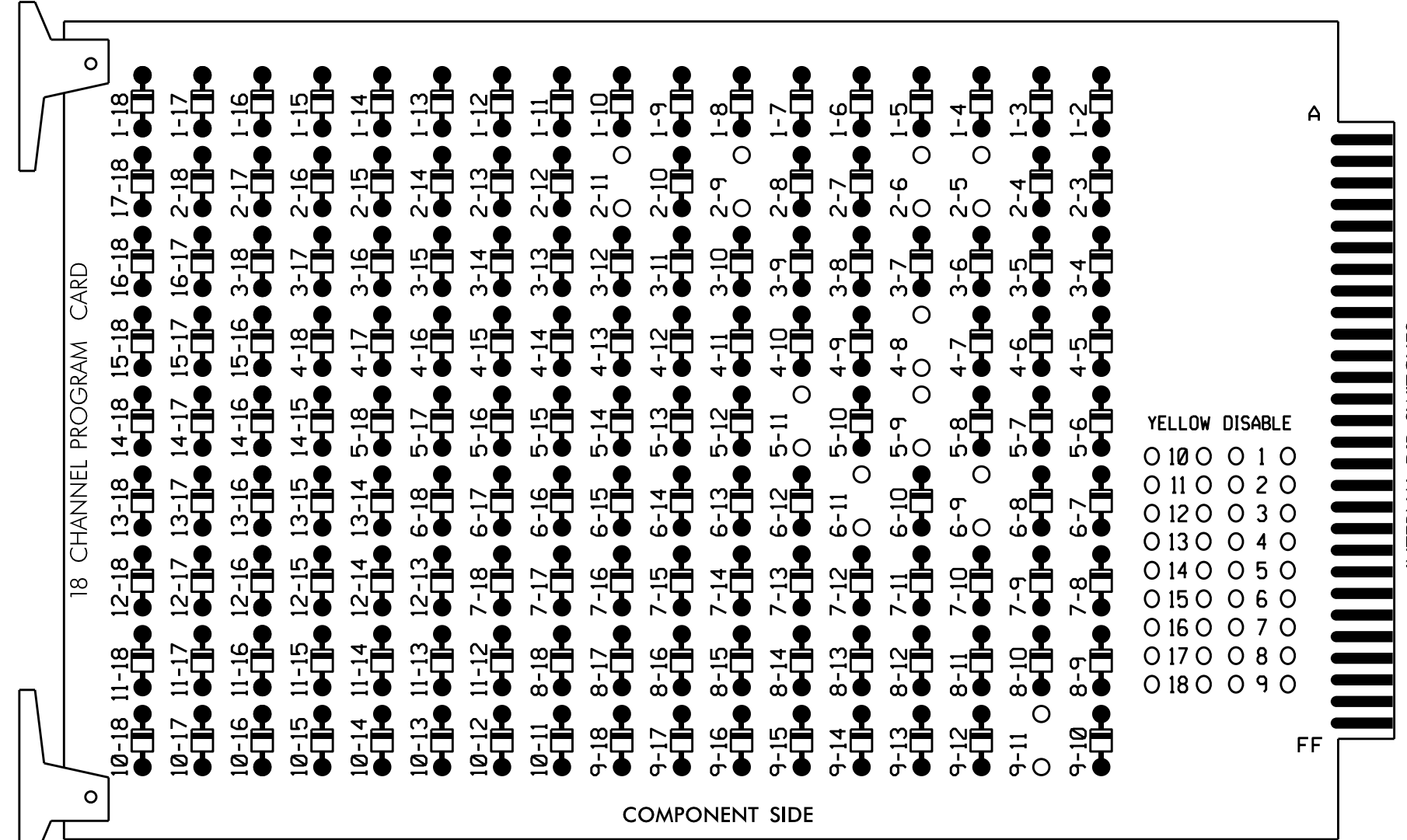
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



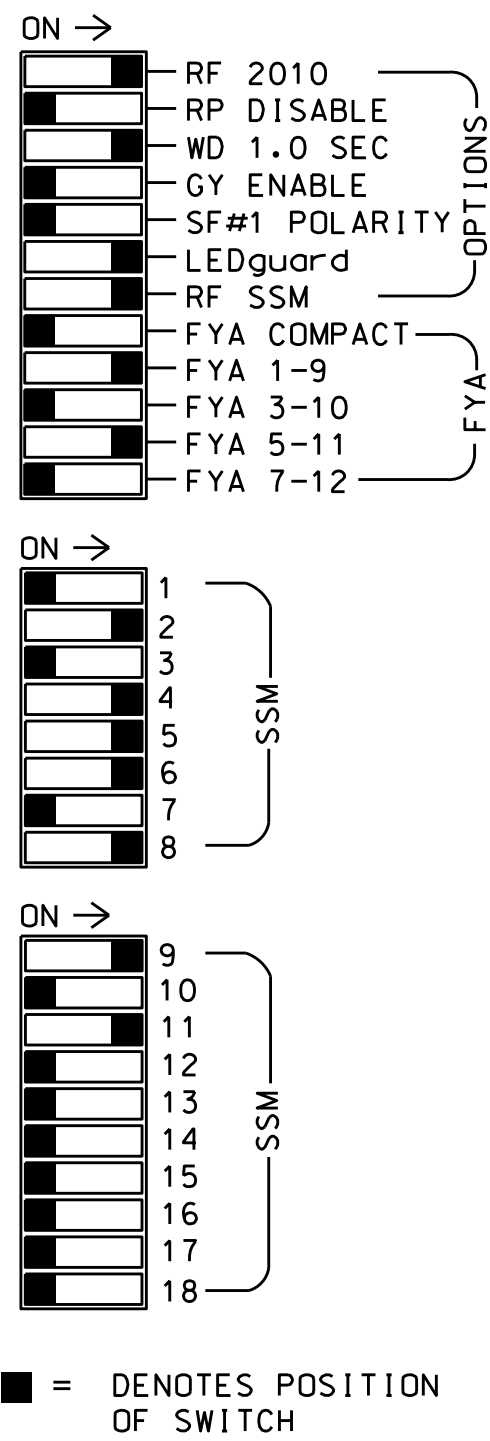
REMOVE DIODE JUMPERS 2-5, 2-6, 2-9, 2-11, 4-8, 5-9, 5-11, 6-9, 6-11 and 9-11.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.



NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 (12-STD; 6-AUX)
 LOAD SWITCHES USED.....S2,S5,S7,S8,S11
 AUX S1,AUX S4
 PHASES USED.....2,4,5,6,8
 OVERLAP 'A'.....2
 OVERLAP 'B'.....NOT USED
 OVERLAP 'C'.....5+6
 OVERLAP 'D'.....NOT USED

SIGNAL HEAD HOOK-UP CHART

| LOAD SWITCH NO. | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | AUX S1 | AUX S2 | AUX S3 | AUX S4 | AUX S5 | AUX S6 |
|-----------------------|----|-------|-------|----|-------|-------|-----|-----|-------|-----|-----|-------|--------|--------|--------|--------|--------|--------|
| CMU CHANNEL NO. | 1 | 2 | 13 | 3 | 4 | 14 | 5 | 6 | 15 | 7 | 8 | 16 | 9 | 10 | 17 | 11 | 12 | 18 |
| PHASE | 1 | 2 | 2 PED | 3 | 4 | 4 PED | 5 | 6 | 6 PED | 7 | 8 | 8 PED | OLA | OLB | SPARE | OLC | OLD | SPARE |
| SIGNAL HEAD NO. | NU | 21,22 | NU | NU | 41,42 | NU | 51 | 42 | 62,63 | NU | NU | 81,82 | NU | 61 | NU | NU | 51 | NU |
| RED | | 128 | | | 101 | * | | 134 | | | 107 | | | | | | | |
| YELLOW | | 129 | | | 102 | | | 135 | | | 108 | | | | | | | |
| GREEN | | 130 | | | 103 | | | 136 | | | 109 | | | | | | | |
| RED ARROW | | | | | | | | | | | | | | A121 | | | A114 | |
| YELLOW ARROW | | | | | | | | | | | | | | A122 | | | A115 | |
| FLASHING YELLOW ARROW | | | | | | | | | | | | | | A123 | | | A116 | |
| GREEN ARROW | | | | | | | 133 | 133 | | | | | | | | | | |

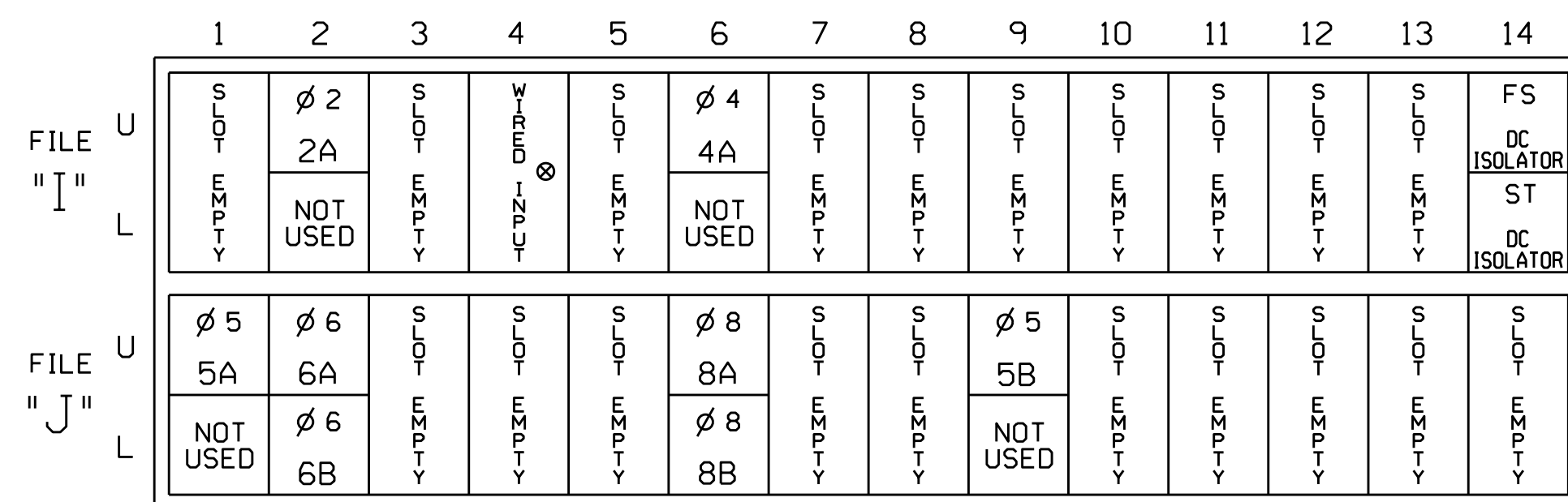
NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

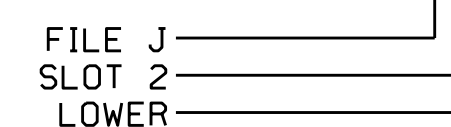
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO. | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | INPUT ASSIGNMENT NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND | FULL TIME DELAY | STRETCH TIME | DELAY TIME |
|-----------------|---------------|-----------------|---------|----------------------|--------------|------------|------|--------|-----------------|--------------|------------|
| 2A | TB2-5,6 | I2U | 39 | 1 | 2 | 2 | Y | Y | | | |
| 4A | TB4-9,10 | I6U | 41 | 3 | 4 | 4 | Y | Y | | | 3 |
| 5A ¹ | TB3-1,2 | J1U | 55 | 17 | 5 | 5 | Y | Y | | | 15 |
| | | I4U | 47 | 9 | 22 | 2 | Y | Y | Y | | 3 |
| 5B | TB7-9,10 | J9U | 59 | 21 | 15 | 5 | Y | Y | | | 15 |
| 6A | TB3-5,6 | J2U | 40 | 2 | 6 | 6 | Y | Y | | | 3 |
| 6B | TB3-7,8 | J2L | 44 | 6 | 16 | 6 | Y | Y | Y | | 3 |
| 8A | TB5-9,10 | J6U | 42 | 4 | 8 | 8 | Y | Y | | | 3 |
| 8B | TB5-11,12 | J6L | 46 | 8 | 18 | 8 | Y | Y | | | 15 |

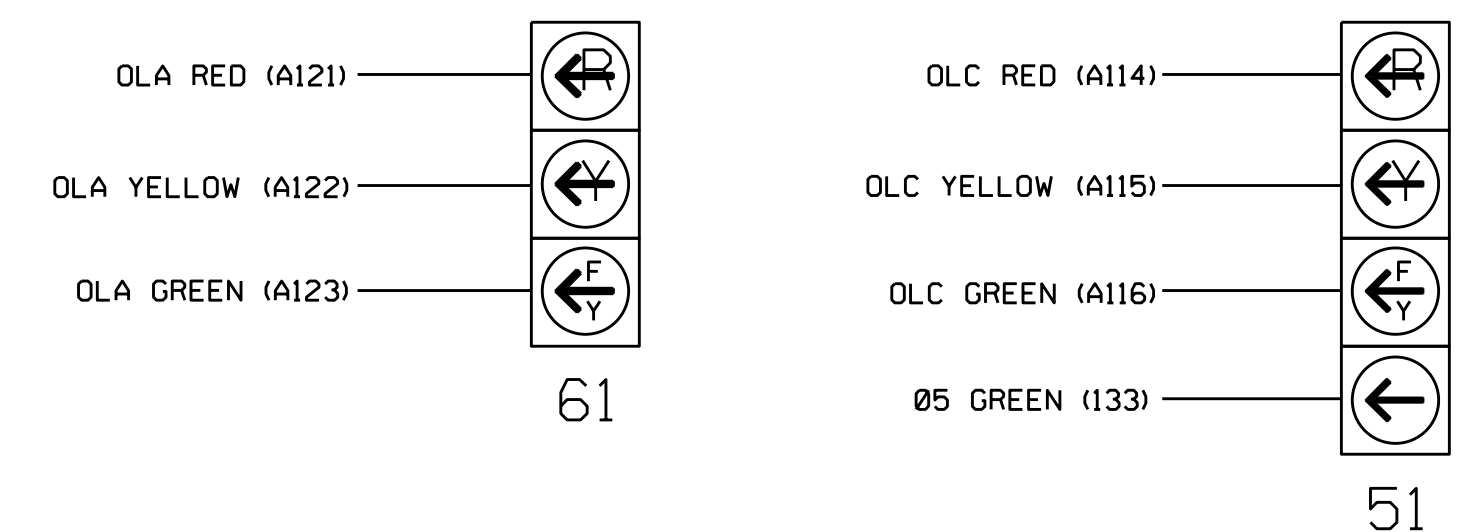
¹Add jumper from J1-W to I4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



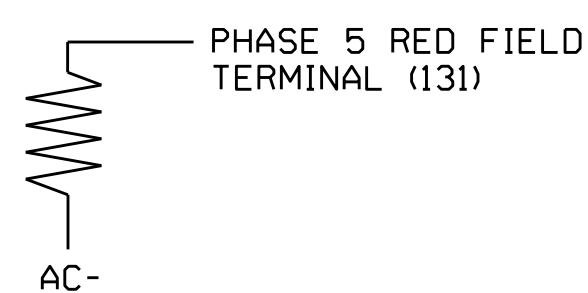
NOTE

The sequence display for signal head 51 requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1340
 DESIGNED: April 2015
 SEALED: 4/16/15
 REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

| VALUE (ohms) | WATTAGE |
|--------------|-----------|
| 1.5K - 1.9K | 25W (min) |
| 2.0K - 3.0K | 10W (min) |



Electrical Detail - Sheet 1 of 2

Electrical and Programming Details For: NC 711 at SR 1003 (Chicken Road)

Prepared In the Offices of: **Transporatio Mobility and Safety Solutions**

750 N. Greenfield Pkwy, Garner, NC 27529

Division 6 Robeson County Pembroke

PLAN DATE: April 2015 REVIEWED BY:

PREPARED BY: B. SIMMONS REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: **George C. Brown** 4/21/2015

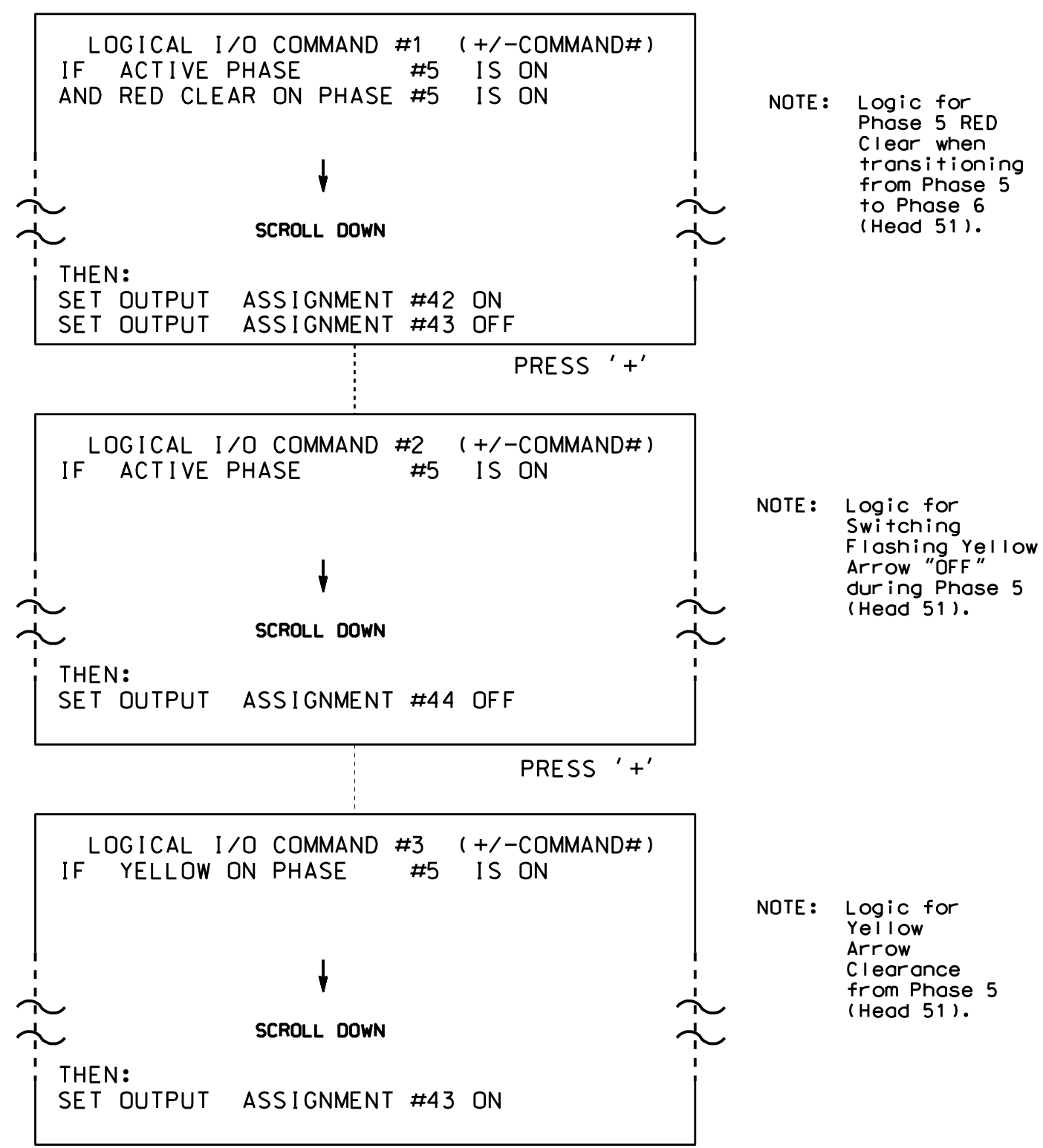
SEAL: PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN

SIG. INVENTORY NO. 06-1340

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

- From Main Menu press '2' (PHASE CONTROL), then '1' (PHASE CONTROL FUNCTIONS). Scroll to the bottom of the menu and Enable ACT Logic Commands 1, 2 and 3.
- From Main Menu press '6' (OUTPUTS), then '3' (LOGICAL I/O PROCESSOR).



LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

| |
|----------------------------------|
| OUTPUT REFERENCE SCHEDULE |
| OUTPUT 42 = Overlap C Red |
| OUTPUT 43 = Overlap C Yellow |
| OUTPUT 44 = Overlap C Green |

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:      |12345678910111213141516
VEH OVL PARENTS: | X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS:  - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```


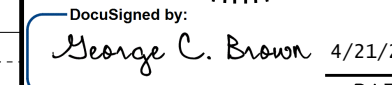
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      |12345678910111213141516
VEH OVL PARENTS: | XX
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS:  - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

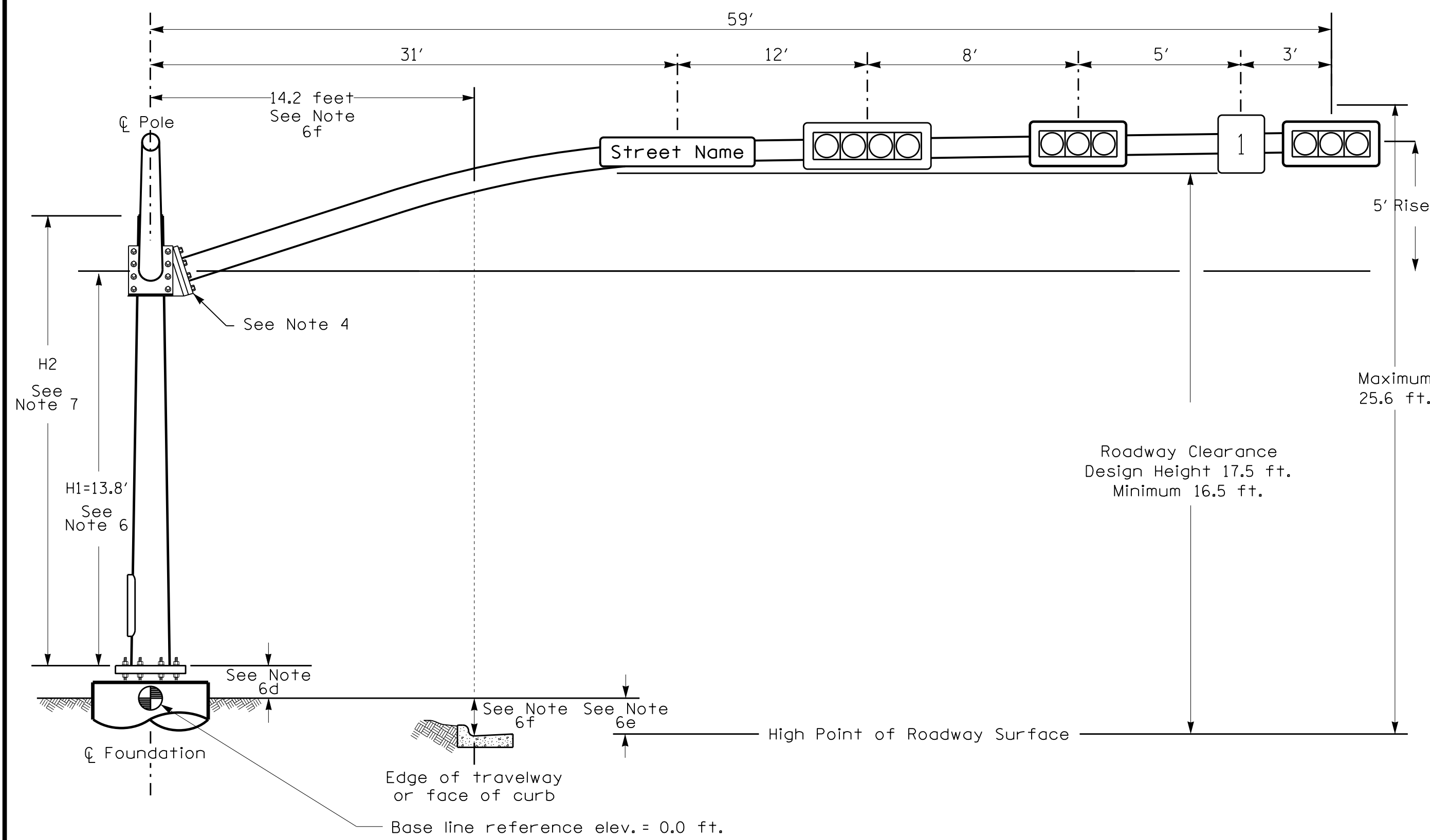
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-1340
DESIGNED: April 2015
SEALED: 4/16/15
REVISED: N/A

Electrical Detail - Sheet 2 of 2

| | | |
|--|--|--|
| ELECTRICAL AND PROGRAMMING DETAILS FOR: | NC 711 at SR 1003 (Chicken Road) | SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN |
| Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529 | Division 6 Robeson County Pembroke PLAN DATE: April 2015 REVIEWED BY: PREPARED BY: B. SIMMONS REVIEWED BY: | DocuSigned by:  4/21/2015 F12061ED08E8434 DATE |
| | REVISIONS INIT. DATE | SIG. INVENTORY NO. 06-1340 |

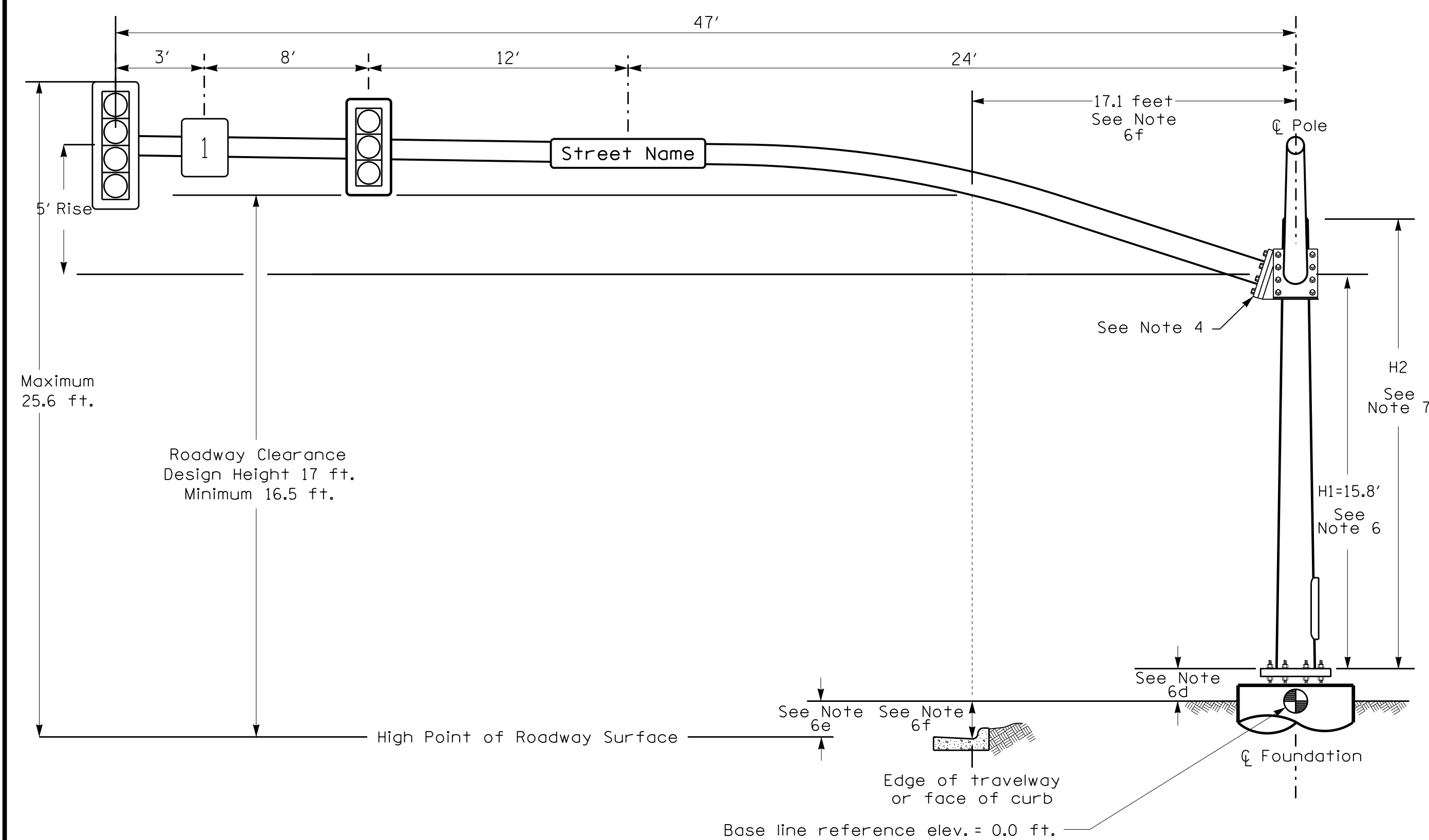
C:\Users\simmons\Documents\Working Folder\Electrical Detail\061340\smc\ele_xxx.dgn
 SS-4906BY-1.2-11
 S:\IT\SSU\TIS\Sig\061340\Working Folder\Electrical Detail\061340\smc\ele_xxx.dgn
 bis\simmons

Design Loading for METAL POLE NO. 1, MAST ARM A



Elevation View @ 270°

Design Loading for METAL POLE NO. 1, MAST ARM B



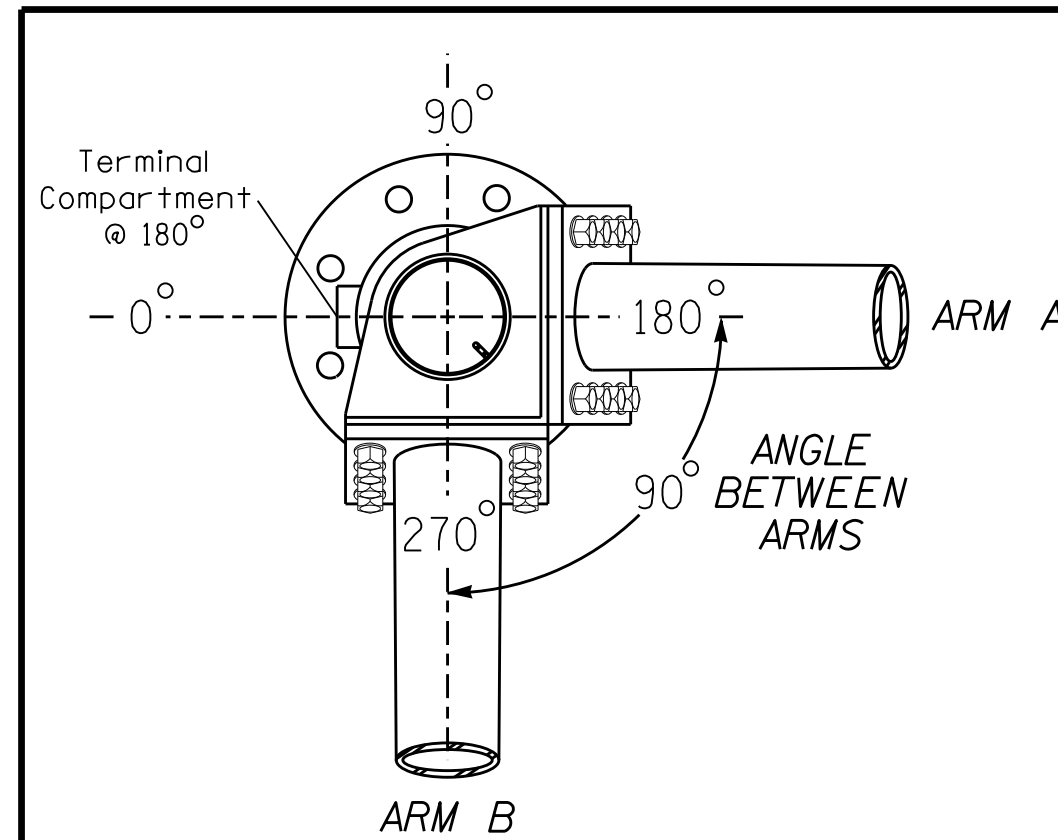
Elevation View @ 180°

SPECIAL NOTE

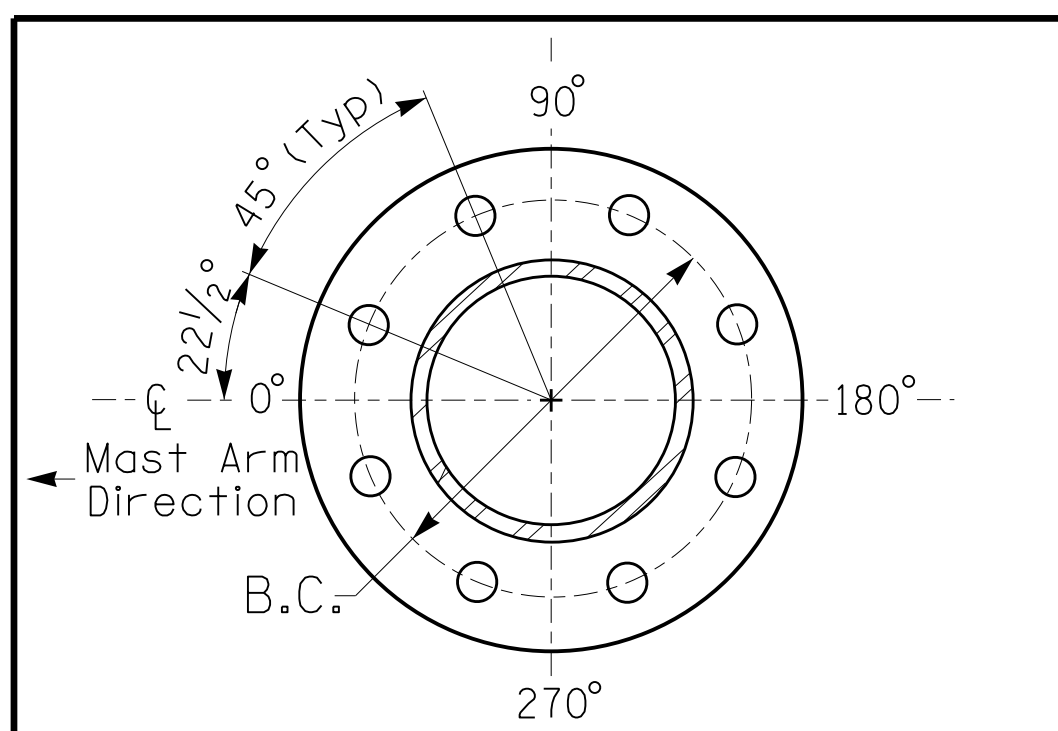
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

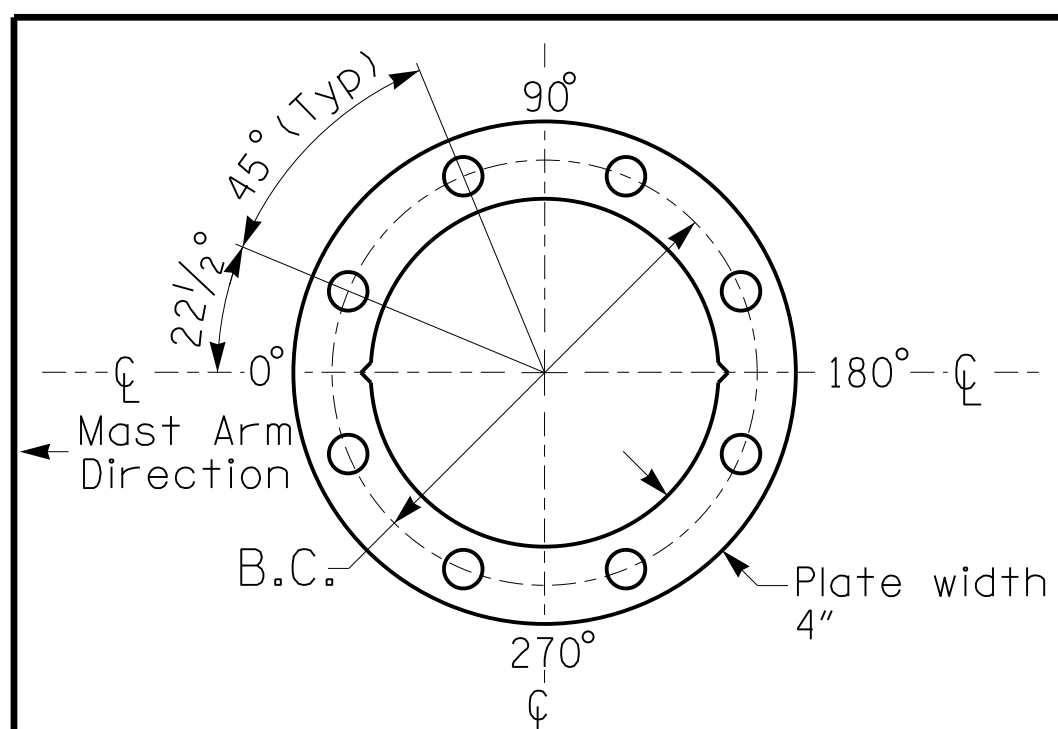
| Elevation Differences for: | Arm A | Arm B |
|---|----------|----------|
| Baseline reference point at Foundation @ ground level | 0.0 ft. | 0.0 ft. |
| Elevation difference at High point of roadway surface | +0.9 ft. | +0.9 ft. |
| Elevation difference at Edge of travelway or face of curb | +0.4 ft. | +0.3 ft. |



POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL For 8 Bolt Base Plate

METAL POLE No. 1

| | |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| SS-4906BY | Sig. 1.3 |

MAST ARM LOADING SCHEDULE

| LOADING SYMBOL | DESCRIPTION | AREA | SIZE | WEIGHT |
|----------------|--|-----------|-------------------|--------|
| [Symbol] | RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE | 9.3 S.F. | 25.5" W X 52.5" L | 60 LBS |
| [Symbol] | RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE | 11.5 S.F. | 25.5" W X 66.0" L | 74 LBS |
| [Symbol] | STREET NAME SIGN RIGID MOUNTED | 16.0 S.F. | 24.0" W X 96.0" L | 36 LBS |
| [Symbol] | SIGN RIGID MOUNTED | 5.0 S.F. | 24.0" W X 30.0" L | 11 LBS |

NOTES

DESIGN REFERENCE MATERIAL

- Design the traffic signal structure and foundation in accordance with:
 - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
 - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
 - The 2012 NCDOT Roadway Standard Drawings.
 - The traffic signal project plans and special provisions.
 - The NCDOT "Metal Pole Standards" located at the following NCDOT website: <https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

DESIGN REQUIREMENTS

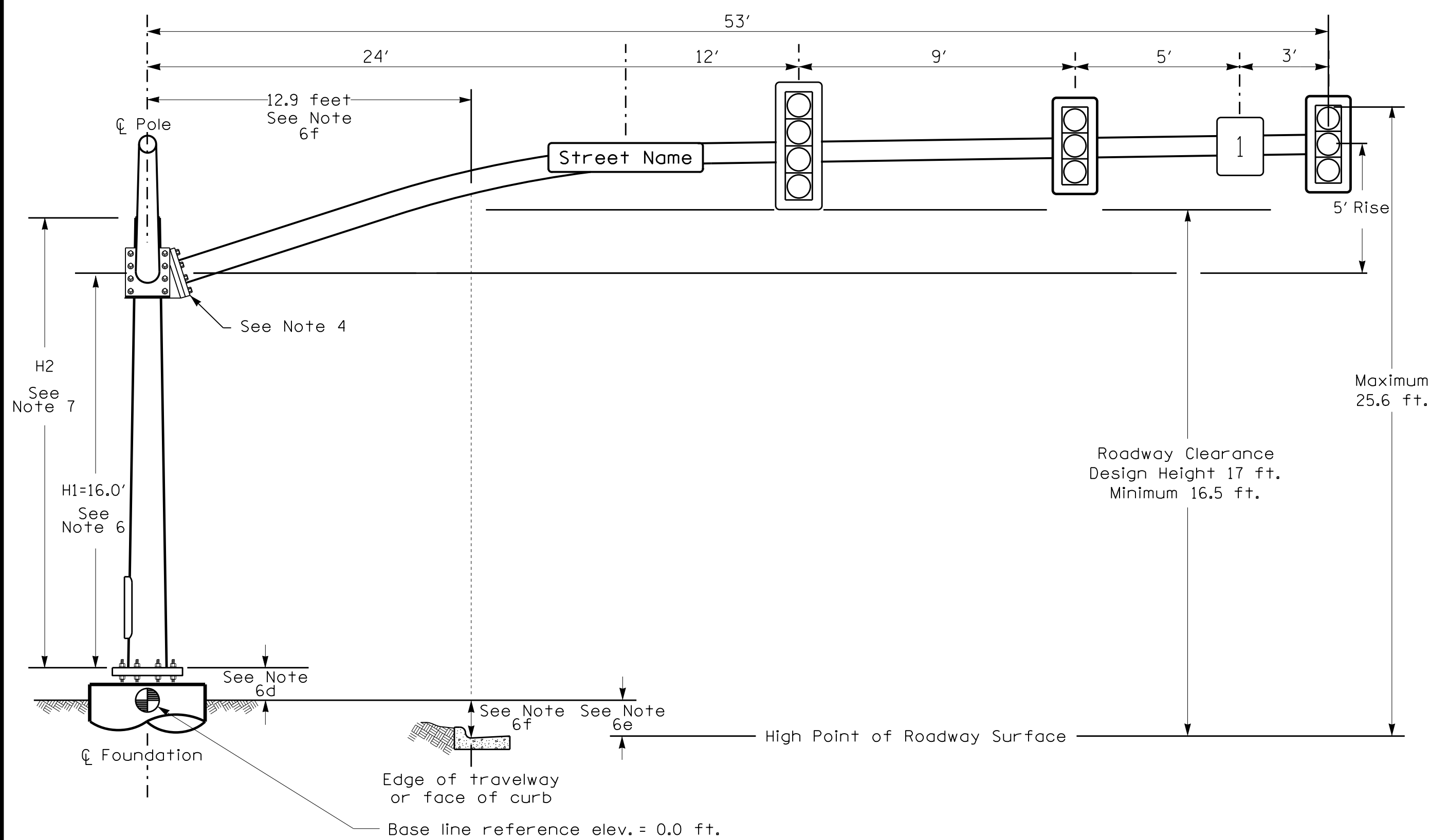
- Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- Design all signal supports using stress ratios that do not exceed 0.9.
- A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate connection points.
- Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- The mast arm attachment height (H1) shown is based on the following design assumptions:
 - Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
 - Signal heads are rigidly mounted and vertically centered on the mast arm.
 - The roadway clearance height for design is as shown in the elevation views.
 - The top of the pole base plate is 0.75 feet above the ground elevation.
 - Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
 - Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
- The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
- The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 3 (110 mph)

| <p>Prepared in the Offices of: TRANSPORTATION MOBILITY AND SAFETY DIVISION SIGNAL DESIGN SECTION</p> | <p>NC 711 at SR 1003 (Chicken Road)</p> | | | | | |
|--|---|---|-----------------------------------|-------|------|--|
| | <p>Division 6 Robeson County Pembroke</p> <p>PLAN DATE: April 2015 REVIEWED BY: Jason Galloway</p> <p>PREPARED BY: K.G. Peedin, Jr REVIEWED BY:</p> | <p>REVISIONS</p> <table border="1"> <tr> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> </tr> </table> | | INIT. | DATE | |
| INIT. | DATE | | | | | |
| | | | | | | |
| <p>SCALE: 0 N/A</p> | <p>DocuSigned by: Jason Galloway 6/8/2015</p> | | <p>SIG. INVENTORY NO. 06-1340</p> | | | |

03-july-2015 14:53
 S:\ITS\SSU\ITS_Signal\Eastern Region\01-06-06-1340-2015\mddm\202.dgn
 kspedini

Design Loading for METAL POLE NO. 2. MAST ARM A



Elevation View @ 270°

SPECIAL NOTE

The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

| Elevation Differences for: | Arm A | Arm B |
|---|----------|----------|
| Baseline reference point at Foundation @ ground level | 0.0 ft. | 0.0 ft. |
| Elevation difference at High point of roadway surface | +1.4 ft. | +1.1 ft. |
| Elevation difference at Edge of travelway or face of curb | +1.0 ft. | +0.5 ft. |

MAST ARM LOADING SCHEDULE

| LOADING SYMBOL | DESCRIPTION | AREA | SIZE | WEIGHT |
|----------------|--|-----------|-------------------|---------|
| | RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE | 9.3 S.F. | 25.5" W X 52.5" L | 60 LBS |
| | RIGID MOUNTED SIGNAL HEAD 12"-5 SECTION-WITH BACKPLATE | 23.2 S.F. | 25.5" W X 79.5" L | 103 LBS |
| | RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE | 11.5 S.F. | 25.5" W X 66.0" L | 74 LBS |
| | STREET NAME SIGN RIGID MOUNTED | 16.0 S.F. | 24.0" W X 96.0" L | 36 LBS |
| | SIGN RIGID MOUNTED | 5.0 S.F. | 24.0" W X 30.0" L | 11 LBS |

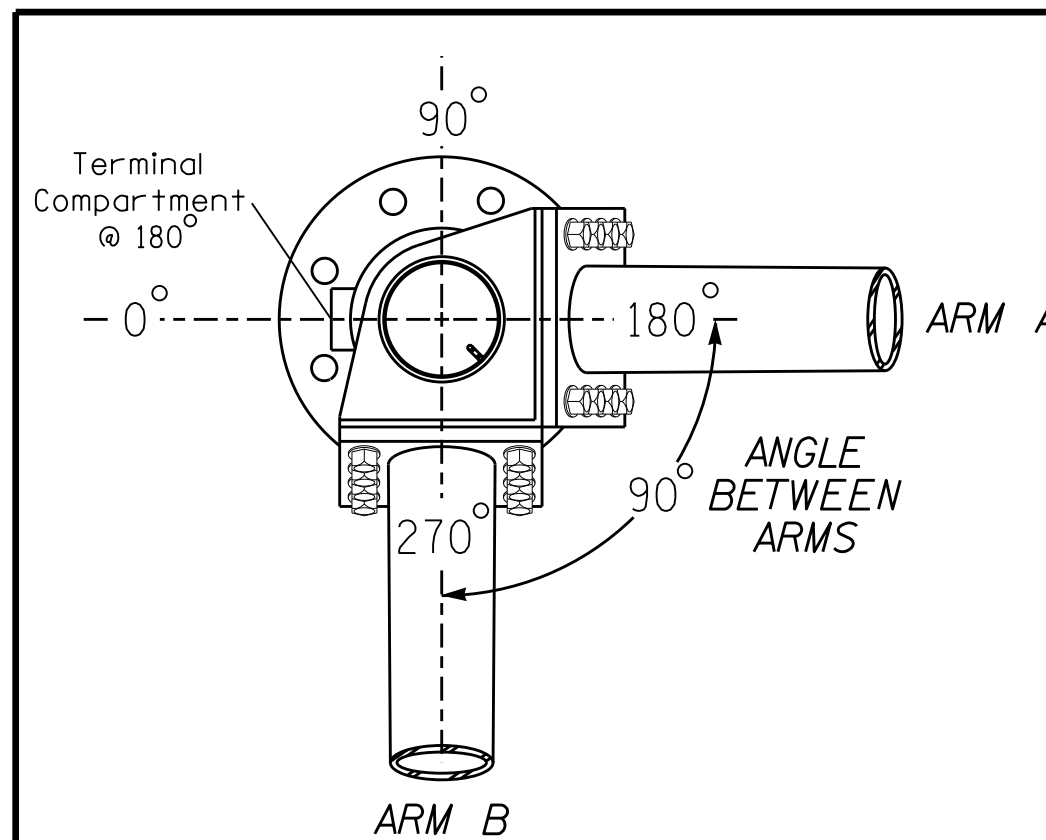
NOTES

DESIGN REFERENCE MATERIAL

- Design the traffic signal structure and foundation in accordance with:
 - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
 - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
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 - The traffic signal project plans and special provisions.
 - The NCDOT "Metal Pole Standards" located at the following NCDOT website: <https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

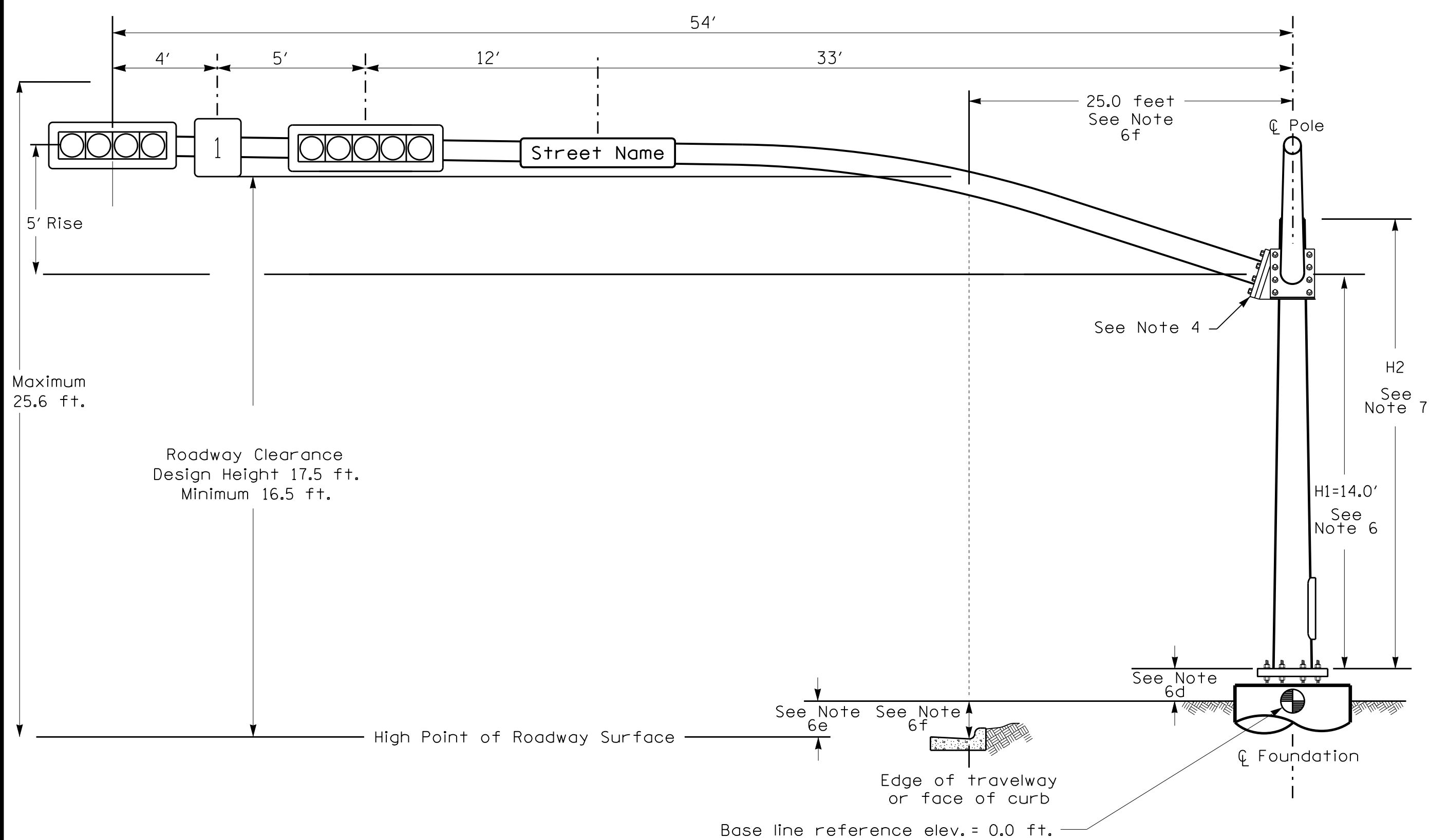
DESIGN REQUIREMENTS

- Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
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- Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- The mast arm attachment height (H1) shown is based on the following design assumptions:
 - Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
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 - Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
 - Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
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 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
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- The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

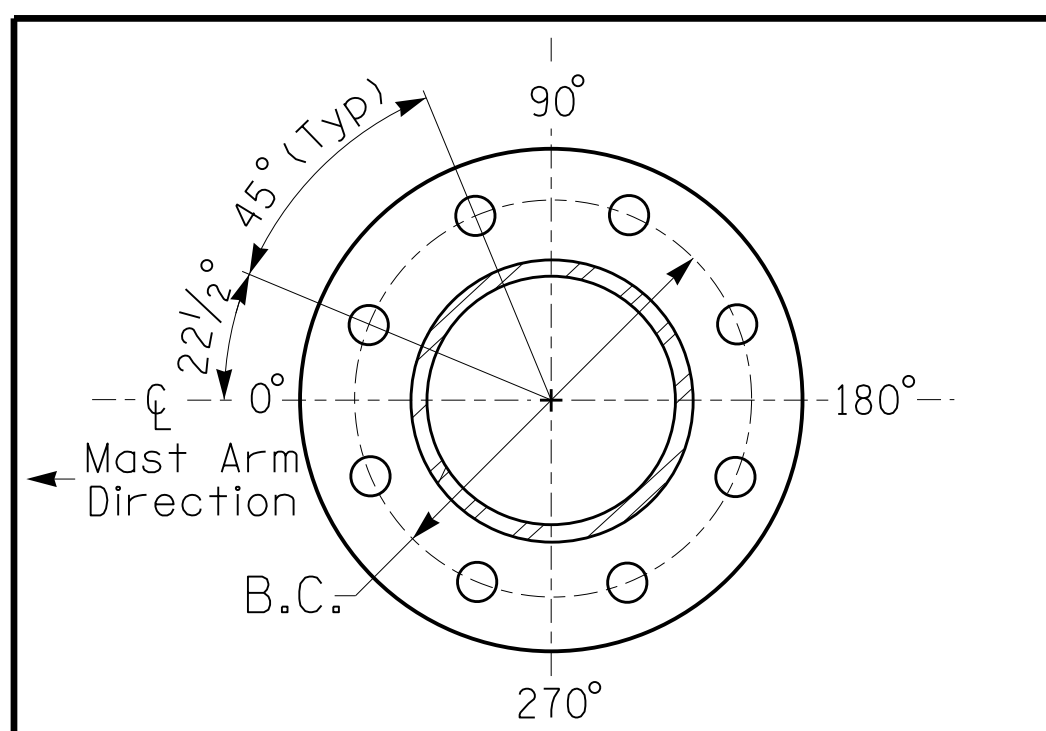


POLE RADIAL ORIENTATION

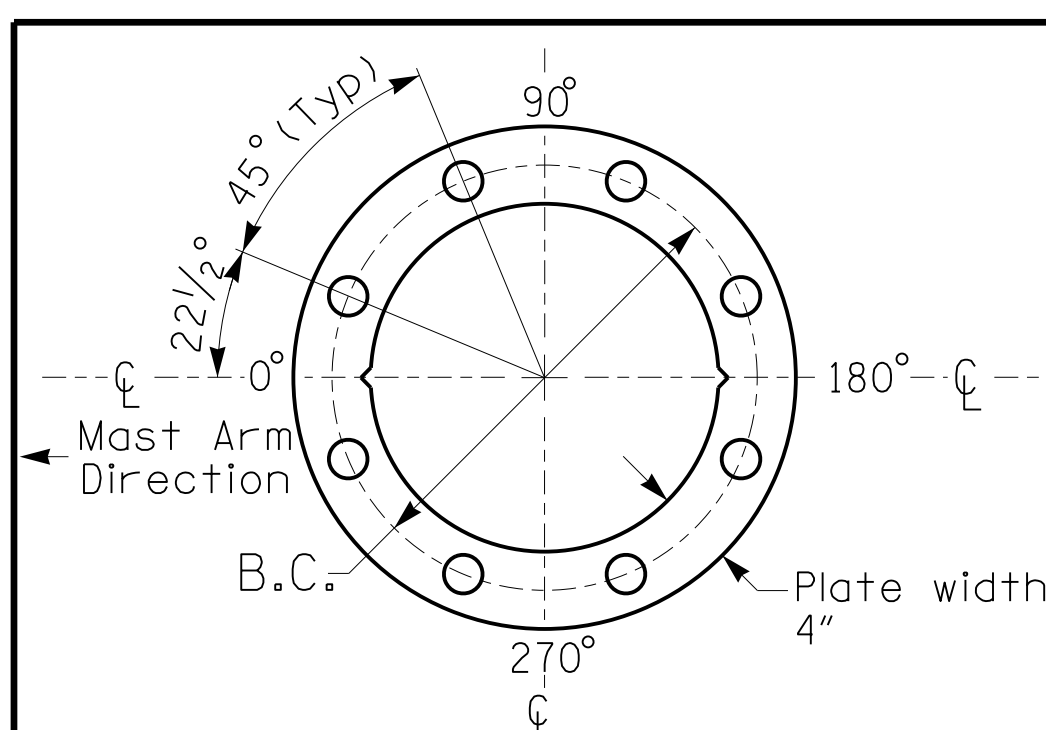
Design Loading for METAL POLE NO. 2, MAST ARM B



Elevation View @ 180°



8 BOLT BASE PLATE DETAIL

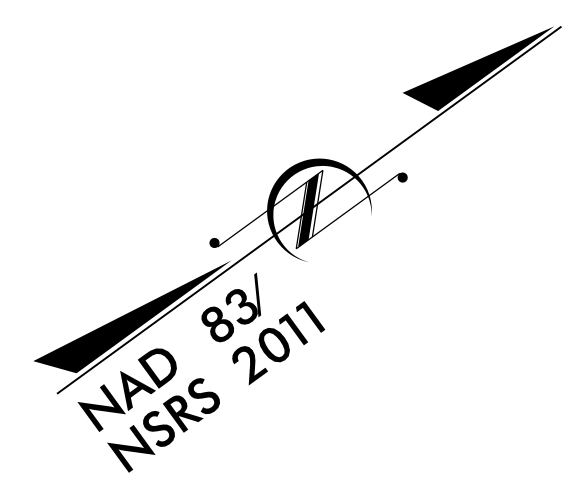


BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL For 8 Bolt Base Plate

NCDOT Wind Zone 3 (110 mph)

| | | | |
|-----------------------|---|---|----------------------------|
| | NC 711 at SR 1003 (Chicken Road) | | |
| | Division 6 Robeson County PLAN DATE: April 2015 PREPARED BY: K.G. Peedin, Jr. | Pembroke REVIEWED BY: Jason Galloway REVIEWED BY: | |
| SCALE 0 N/A N/A | REVISIONS INIT. DATE | DATE | SIG. INVENTORY NO. 06-1340 |

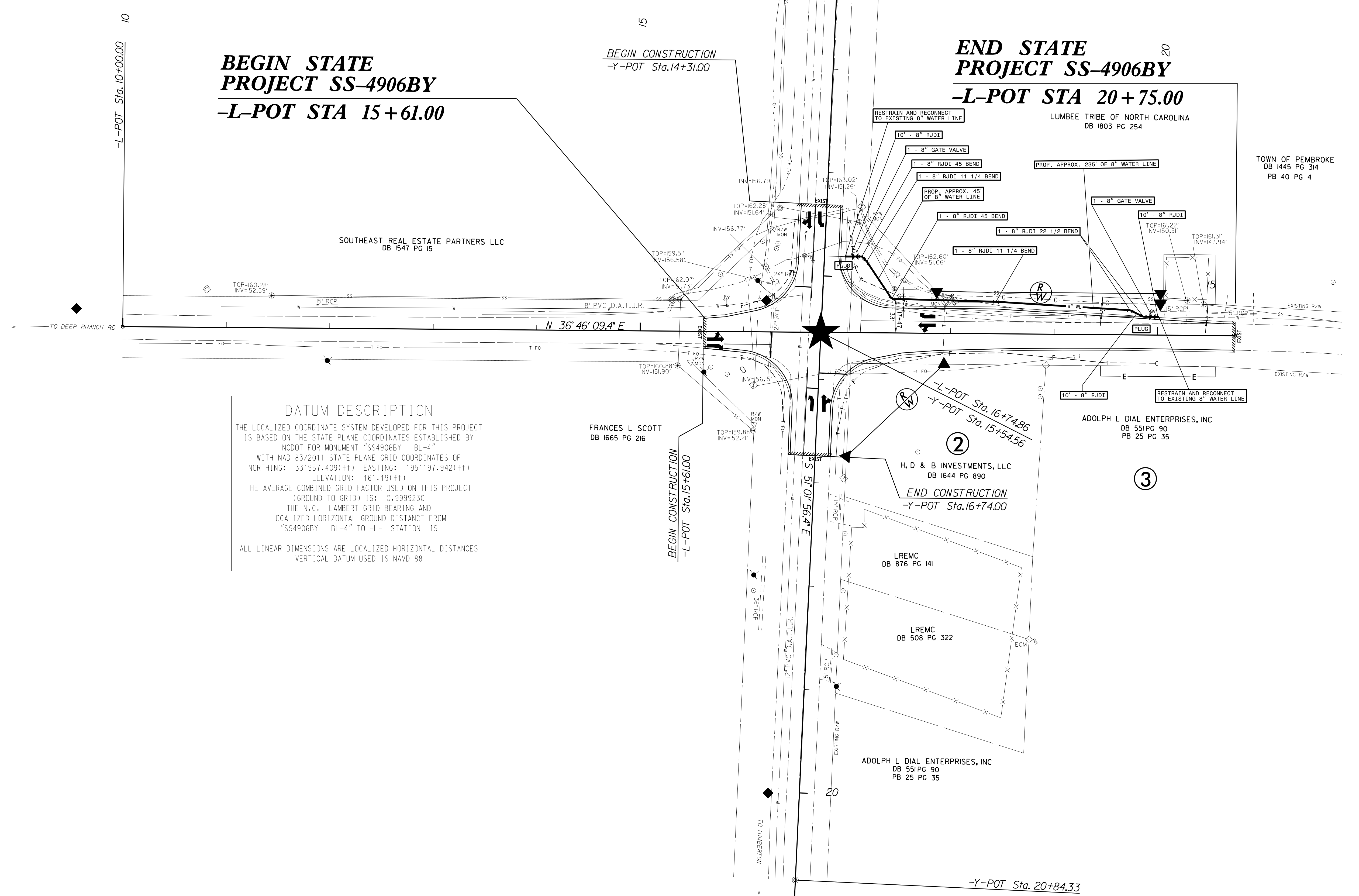
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 kspedf



**BEGIN STATE
PROJECT SS-4906BY
-L-POT STA 15+61.00**

**END STATE
PROJECT SS-4906BY
-L-POT STA 20+75.00**

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "SS4906BY BL-4" WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 331957.409(ft) EASTING: 1951197.942(ft) ELEVATION: 161.19(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999230
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SS4906BY BL-4" TO L- STATION IS
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88



8/17/99

25-AUG-2015 08:37:55 SS-4906BY NC 711 at SR 1003 \Roadway\proj\SS4906BY_Rdy_UC1.dgn

PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION

NOTES:

1. CONCRETE SHALL BE 3,000 PSI MIN.
2. CONCRETE FOR THRUST BLOCKING SHALL BE KEPT FAIRLY DRY, THUS MAKING THE CONCRETE WEDGE SHAPE MORE EASILY FORMED WITH THE WIDEST PART (BLOCKING AREA) AGAINST UNDISTURBED SOIL.
3. NO CONCRETE SHALL COVER ANY BOLTS OR GLANDS.
4. ALL PIPING AND ACCESSORIES TO BE WRAPPED WITH 10 MIL. POLYETHYLENE PRIOR TO POURING BLOCKING.
5. VOLUME OF THRUST BLOCKING SHALL BE AS SHOWN ON THE THRUST BLOCKING SCHEDULE.

MIN. 1/3 C.Y. AT 3000 P.S.I.

PLAN BENDS

THRUST BLOCK DETAIL

| PIPE SIZE | 90° BEND | | 45° BEND | | 22 1/2° BEND | | 11 1/4° BEND | | TEE | | PLUG | |
|-----------|----------|-----|----------|-----|--------------|-----|--------------|-----|-----|-----|------|-----|
| | A | B | A | B | A | B | A | B | A | B | C | D |
| 4" | 8" | 12" | 8" | 8" | 6" | 6" | 6" | 6" | 8" | 9" | 10" | 16" |
| 6" | 10" | 12" | 8" | 10" | 8" | 8" | 8" | 8" | 10" | 10" | 12" | 18" |
| 8" | 15" | 13" | 10" | 10" | 8" | 8" | 8" | 8" | 10" | 12" | 12" | 24" |
| 10" | 16" | 14" | 10" | 12" | 6" | 10" | 6" | 10" | 11" | 14" | 14" | 25" |
| 12" | 20" | 16" | 12" | 14" | 8" | 12" | 8" | 12" | 14" | 16" | 16" | 30" |
| 14" | 22" | 18" | 14" | 16" | 10" | 14" | 10" | 14" | 16" | 18" | 18" | 34" |
| 16" | 26" | 20" | 16" | 18" | 12" | 16" | 12" | 16" | 18" | 20" | 20" | 36" |

15

MAXIMUM TRENCH WIDTH AT TOP OF PIPE

| NOMINAL PIPE SIZE (INCHES) | TRENCH WIDTH (INCHES) | NOMINAL PIPE SIZE (INCHES) | TRENCH WIDTH (INCHES) |
|----------------------------|-----------------------|----------------------------|-----------------------|
| 4 | 28 | 20 | 44 |
| 6 | 30 | 24 | 48 |
| 8 | 32 | 30 | 54 |
| 10 | 34 | 36 | 60 |
| 12 | 36 | 42 | 66 |
| 14 | 38 | 48 | 72 |
| 16 | 40 | 54 | 78 |
| 18 | 42 | | |

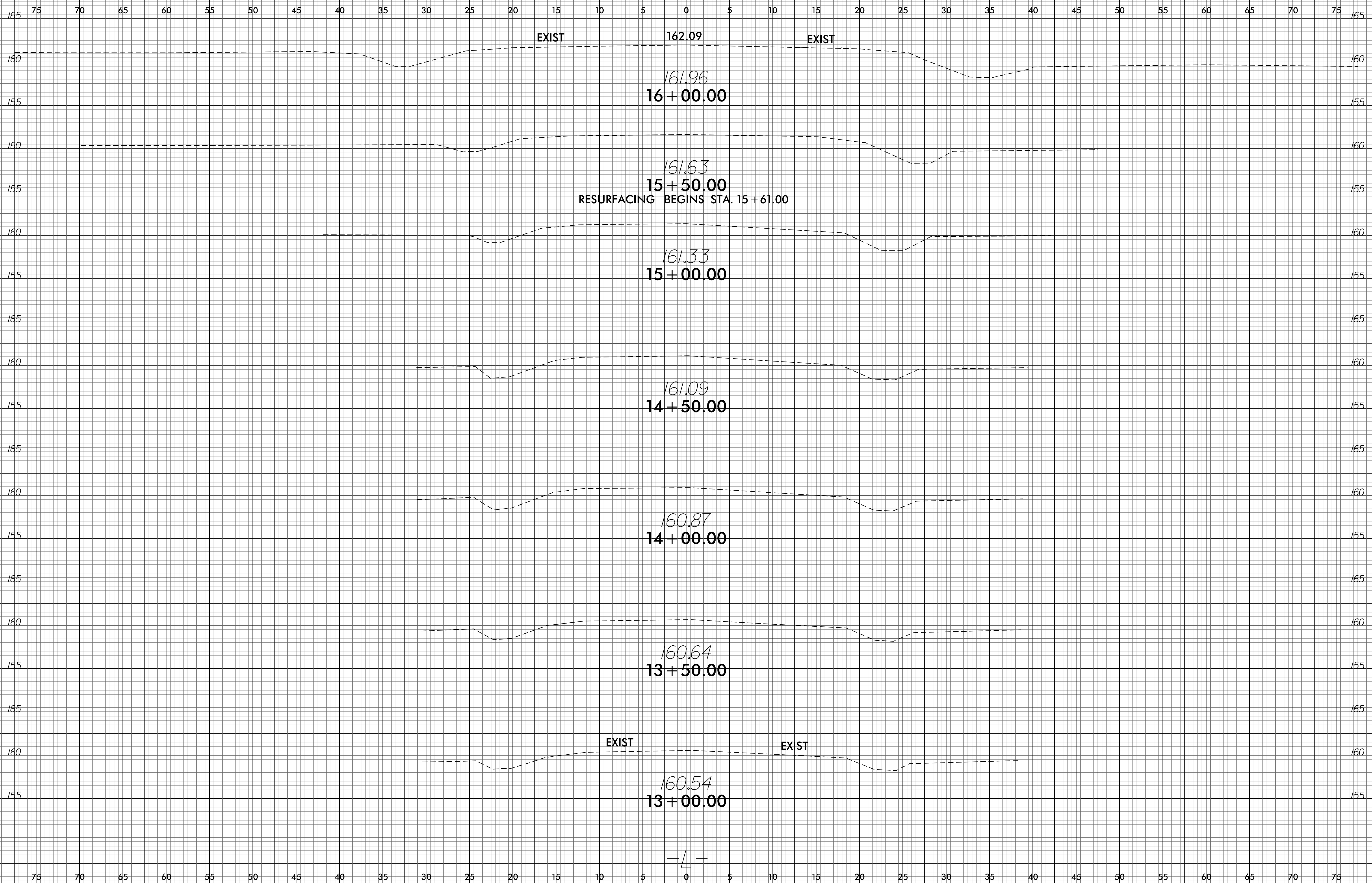
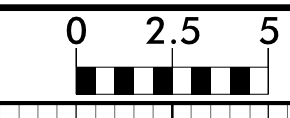
| LAYING CONDITIONS | DESCRIPTION | PROJECT USE |
|-------------------|--|--|
| <p>TYPE 1</p> | FLAT BOTTOM UNDISTURBED EARTH TRENCH, LOOSE BACKFILL | NOT USED. |
| <p>TYPE 2</p> | FLAT BOTTOMED UNDISTURBED EARTH TRENCH. BACKFILL LIGHTLY CONSOLIDATED TO CENTERLINE OF PIPE. | NOT USED. |
| <p>TYPE 3</p> | PIPE BEDDED IN 4" MINIMUM JOB EXCAVATED MATERIAL. BACKFILL LIGHTLY CONSOLIDATED TO TOP OF PIPE. | ALL DUCTILE IRON GRAVITY SEWER LINE. |
| <p>TYPE 4</p> | PIPE BEDDED IN SAND, GRANULAR MATERIAL OR GRADED GRAVEL TO THE DEPTH OF 1/8 PIPE DIAMETER, 4" MIN. JOB EXCAVATED MATERIAL COMPACTED TO 4" ABOVE TOP OF PIPE. (APPROX. 95% STANDARD PROCTOR, AASHTO T-99) | ALL PVC WATER LINE AND PVC FORCE MAIN. |
| <p>TYPE 5</p> | PIPE BEDDED TO ITS CENTERLINE IN COMPACTED GRANULAR MATERIAL 4" MIN. UNDER PIPE. COMPACTED GRANULAR OR SAND MATERIAL TO 4" ABOVE TOP OF PIPE. (APPROX. 95% STANDARD PROCTOR, AASHTO T-99) | ALL PVC GRAVITY SEWER LINE. |

TYPICAL LAYING CONDITIONS

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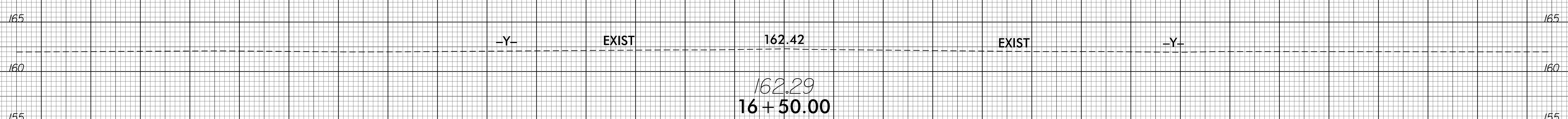
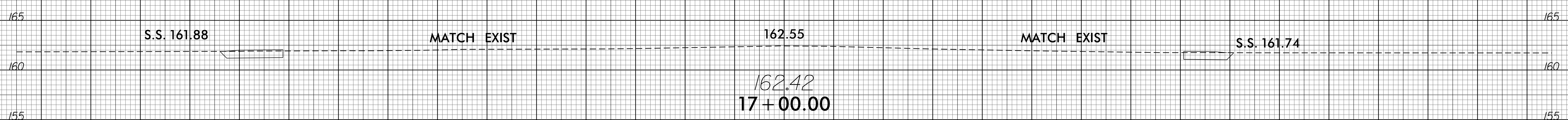
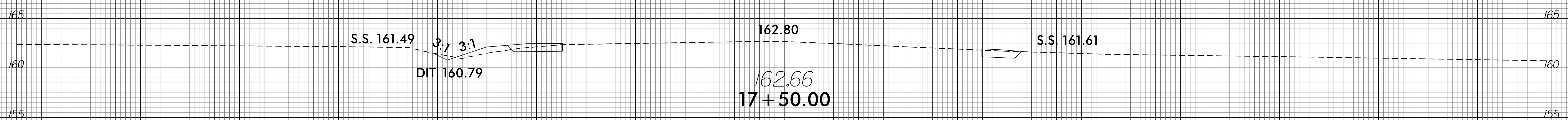
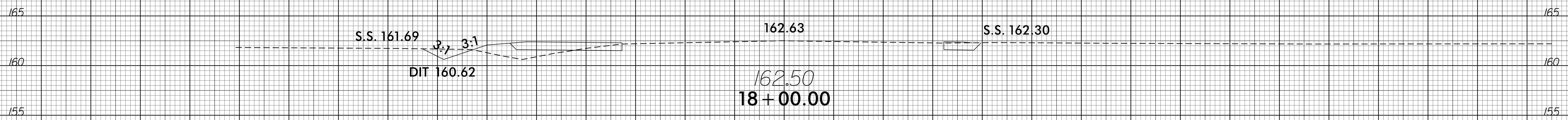
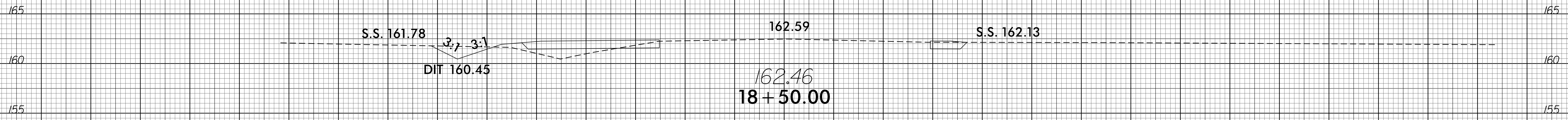
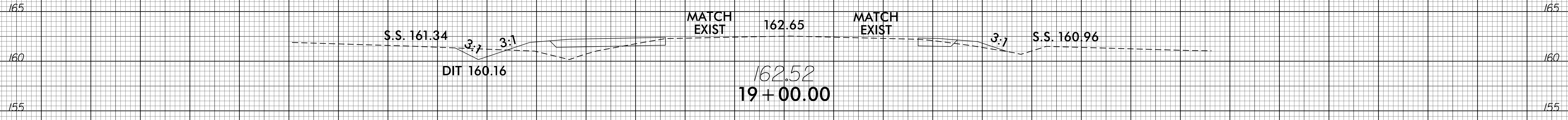
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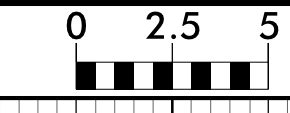




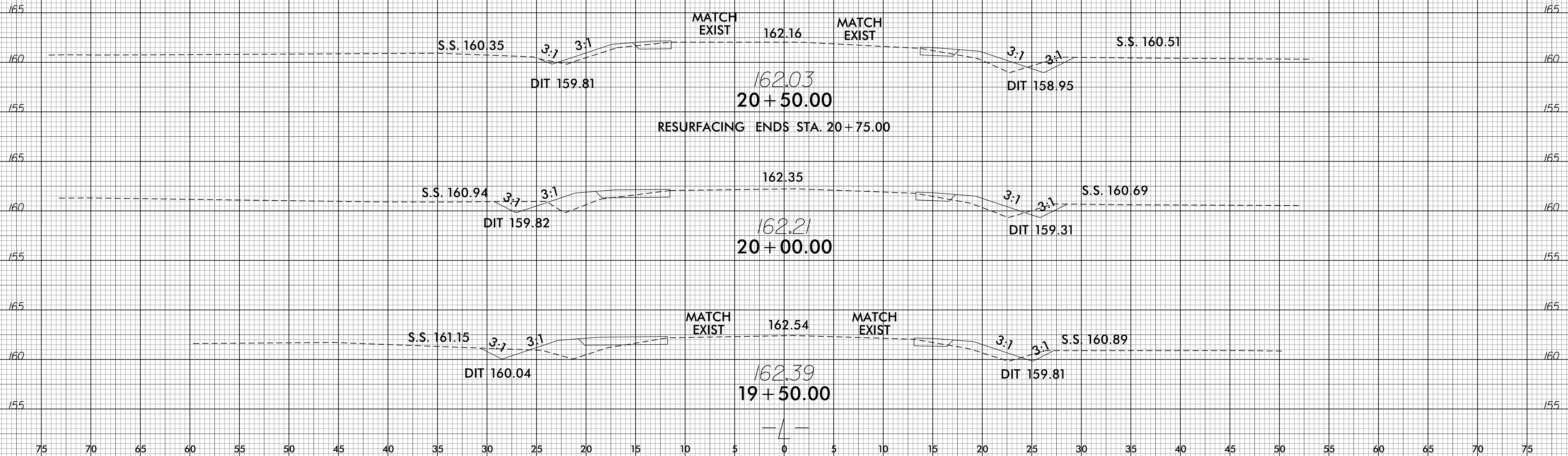
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