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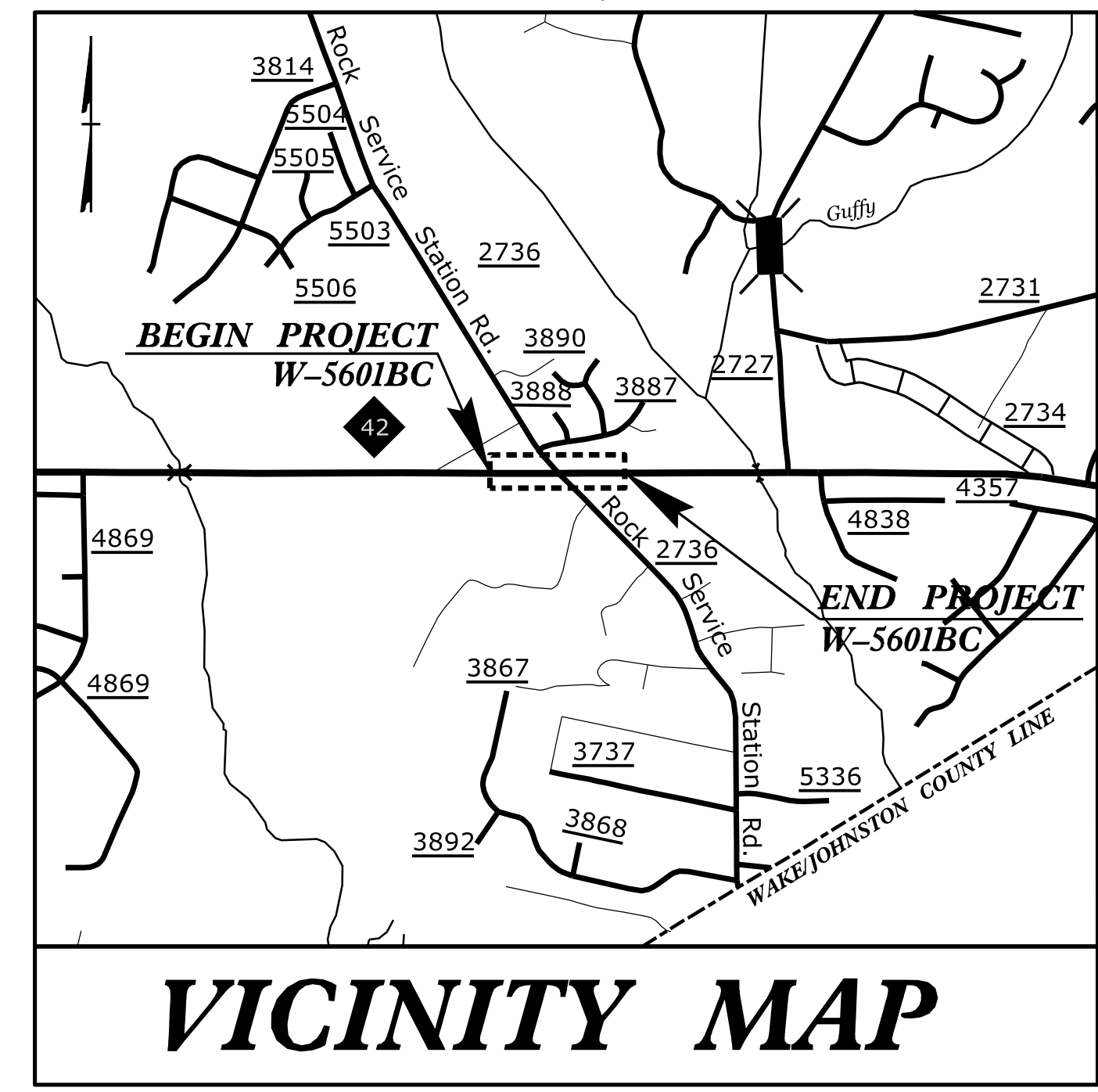
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09/28/2016

TIP PROJECT: W-5601BC

CONTRACT: DE00165

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



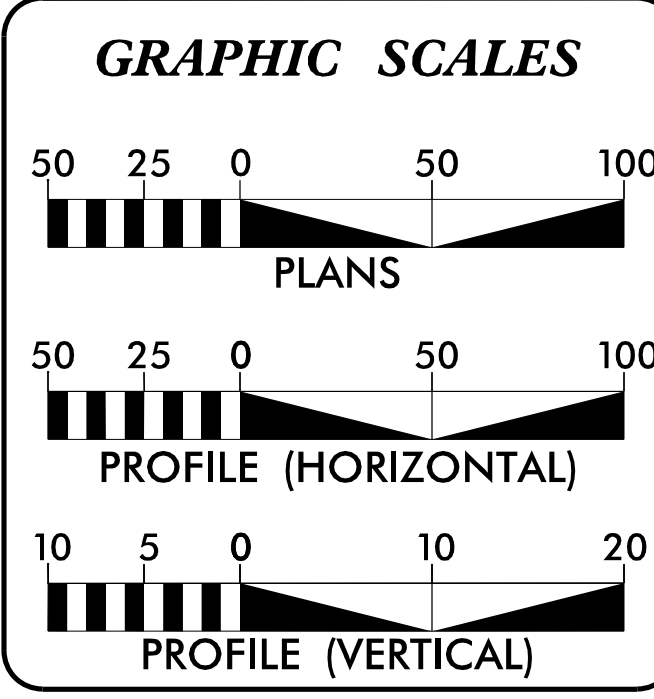
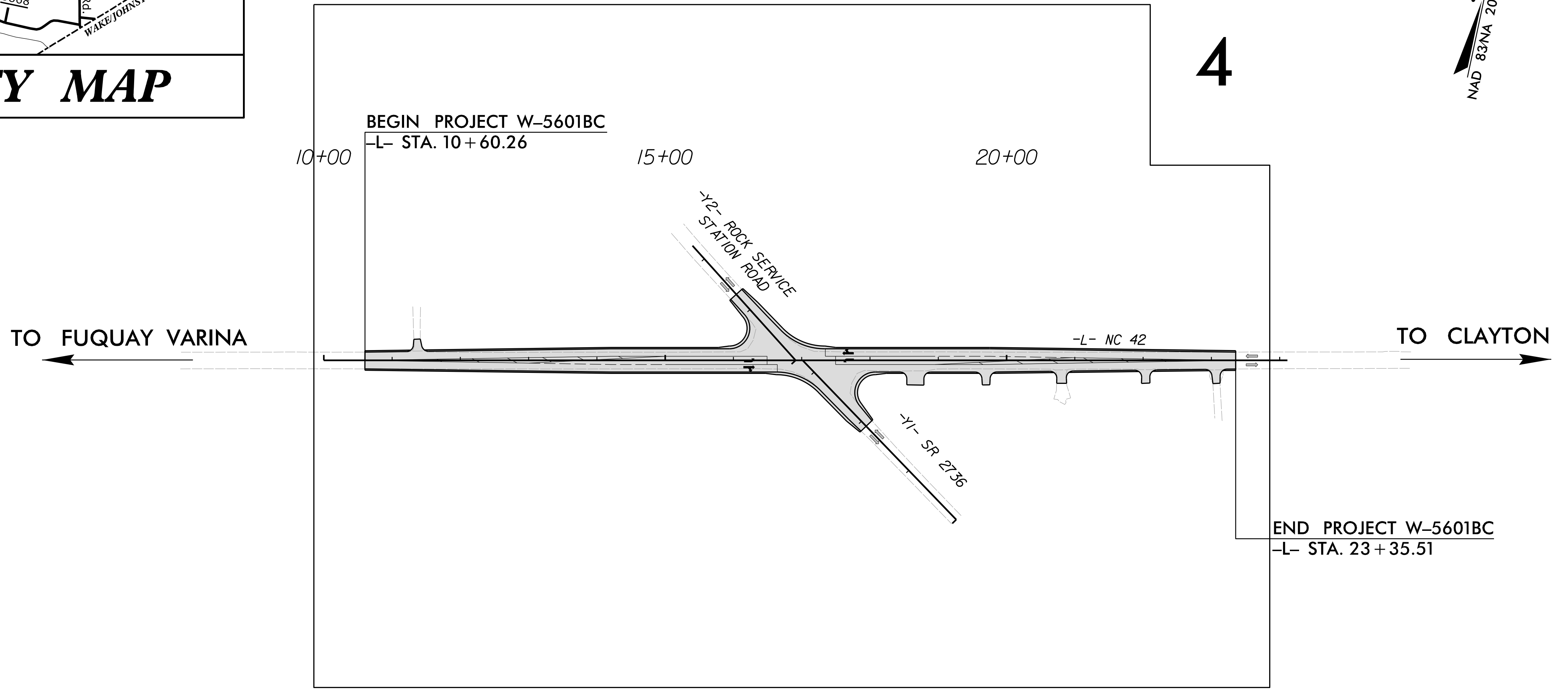
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WAKE COUNTY

LOCATION: NC 42 AT SR 2736 (ROCK SERVICE STATION ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601BC	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50138.1.56	HSIP-0042(62)	PE	
50138.2.56		RW & UTIL	
50138.3.56		CONST	

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



DESIGN DATA
ADT 2013 = 8,800

V = 60 MPH

PROJECT LENGTH
LENGTH ROADWAY PROJECT W-5601BC = 0.242 MILES

NCDOT CONTACT: BEN UPSHAW, PE
DIVISION DESIGN ENGINEER- DIVISION 5
PH: 919-220-4600

Prepared in the Office of:
RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100 - Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax. - www.rameykemp.com
NC License No. C-0910

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

CLAUDETTE M.K. ROQUE, PE
PROJECT ENGINEER

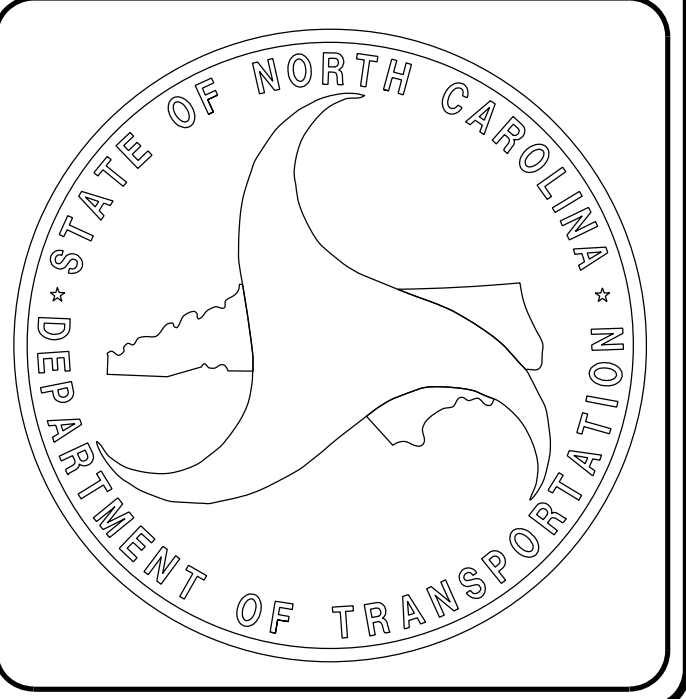
BRET PALIS
PROJECT DESIGNER

HYDRAULICS ENGINEER

6/13/2016
 SIGNATURE:

ROADWAY DESIGN ENGINEER

6/13/2016
 SIGNATURE:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS, LIST OF STANDARD DRAWINGS & GENERAL NOTES

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
1D-1	CENTERLINE COORDINATE LIST
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS AND MILLING DETAIL
2D-1	SHOULDER WEDGE DETAIL
3B-1	SUMMARY OF EARTHWORK AND DRAINAGE SUMMARY
4 THRU 5	PLAN AND PROFILE SHEETS
TMP-1	TRANSPORTATION MANAGEMENT PLAN
PMP-1	SIGNING AND PAVEMENT MARKING PLAN
EC-1 THRU EC-4	EROSION CONTROL PLANS
SIG-1.0 THRU SIG-1.1	SIGNAL PLANS
UC-1 THRU UC05	UTILITY CONSTRUCTION PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-9	CROSS-SECTIONS

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	
200.02	METHOD OF CLEARING - METHOD II
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.06	METHOD OF GRADING SIGHT DISTANCE AT INTERSECTIONS
DIVISION 3 - PIPE CULVERTS	
300.01	METHOD OF PIPE INSTALLATION
310.10	DRIVEWAY PIPE CONSTRUCTION
DIVISION 5 - SUBGRADE, BASES, AND SHOULDERS	
560.01	METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	PAVEMENT REPAIRS
DIVISION 8 - INCIDENTALS	
815.02	SUBSURFACE DRAIN
876.04	DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

GENERAL NOTES:

2012 SPECIFICATIONS

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

GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY. 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 II.

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.

SUBSURFACE DRAINS:

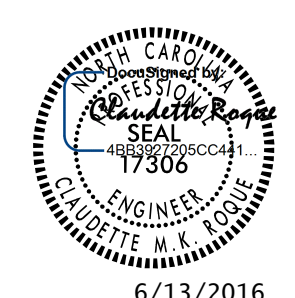

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
JOHNSTON COUNTY WATER, DUKE ENERGY PROGRESS, AT&T, TIME WARNER CABLE
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

PROJECT REFERENCE NO. W-5601BC	SHEET NO. 1A
ROADWAY DESIGN ENGINEER	
	
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 RAMEY KEMP & ASSOCIATES, INC. Transportation Engineers 5808 Faringdon Place, Suite 100 Raleigh, North Carolina 27609 919-872-5115 Tel. 919-878-5416 Fax. www.rameykemp.com NC License No. C-0910	

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

04/06/15

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	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	☠ ☠
Potential Contamination Area: Soil	☒ ☒
Known Contamination Area: Water	☠ ☠
Potential Contamination Area: Water	☒ ☒
Contaminated Site: Known or Potential	☠ ☒

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	○ 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	○ R/W
Proposed Right of Way Line with Iron Pin and Cap Marker	○ R/W ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	▲ R/W
Proposed Control of Access Line with Concrete C/A Marker	○ C/A
Existing Control of Access	○ C/A
Proposed Control of Access	○ C/A
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	●
U/G Power Line LOS B (S.U.E.*)	-----P-----
U/G Power Line LOS C (S.U.E.*)	-----P-----
U/G Power Line LOS D (S.U.E.*)	-----P-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○ T
Telephone Pedestal	□
Telephone Cell Tower	▬
U/G Telephone Cable Hand Hole	○ TH
U/G Telephone Cable LOS B (S.U.E.*)	-----T-----
U/G Telephone Cable LOS C (S.U.E.*)	-----T-----
U/G Telephone Cable LOS D (S.U.E.*)	-----T-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----TC-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----TC-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----TC-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----TFD-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----TFD-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----TFD-----

WATER:

Water Manhole	○ W
Water Meter	○
Water Valve	⊗
Water Hydrant	○
U/G Water Line LOS B (S.U.E.*)	-----W-----
U/G Water Line LOS C (S.U.E.*)	-----W-----
U/G Water Line LOS D (S.U.E.*)	-----W-----
Above Ground Water Line	-----A/G Water-----

TV:

TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	○ TH
U/G TV Cable LOS B (S.U.E.*)	-----TV-----
U/G TV Cable LOS C (S.U.E.*)	-----TV-----
U/G TV Cable LOS D (S.U.E.*)	-----TV-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----TV FO-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----TV FO-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----TV FO-----

GAS:

Gas Valve	◇
Gas Meter	◇
U/G Gas Line LOS B (S.U.E.*)	-----G-----
U/G Gas Line LOS C (S.U.E.*)	-----G-----
U/G Gas Line LOS D (S.U.E.*)	-----G-----
Above Ground Gas Line	-----A/G Gas-----

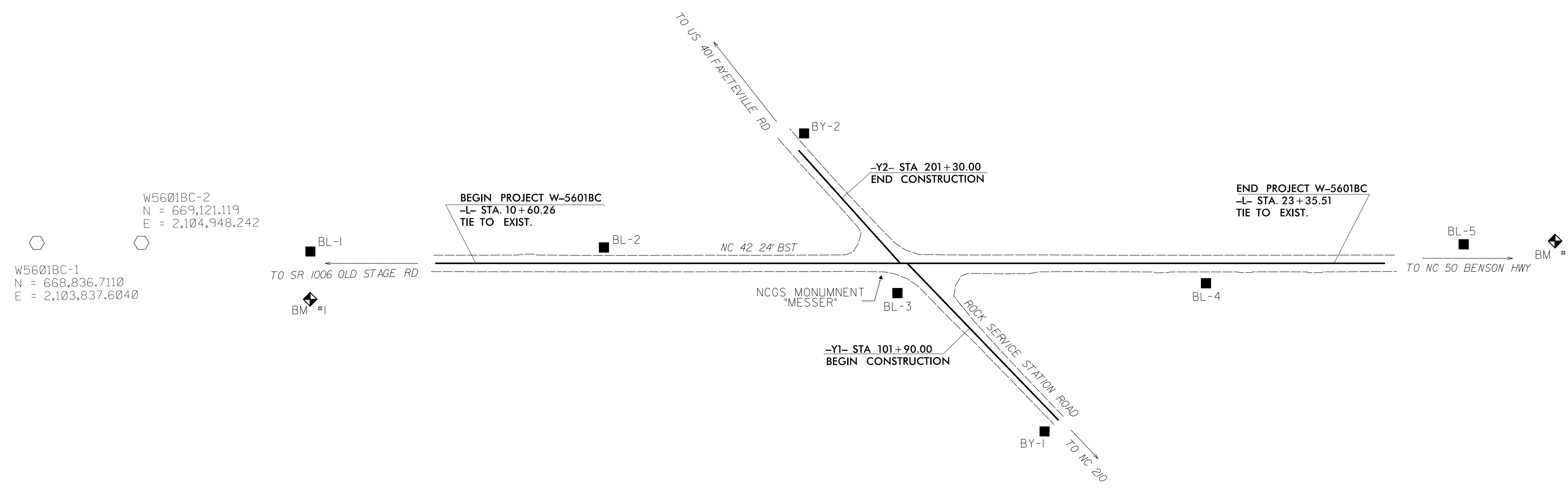
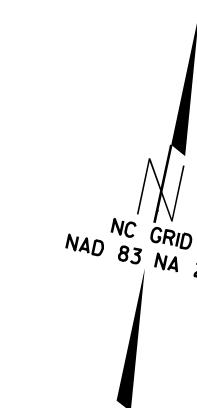
SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----SS-----
Above Ground Sanitary Sewer	-----A/G Sanitary Sewer-----
SS Forced Main Line LOS B (S.U.E.*)	-----FSS-----
SS Forced Main Line LOS C (S.U.E.*)	-----FSS-----
SS Forced Main Line LOS D (S.U.E.*)	-----FSS-----

MISCELLANEOUS:

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

SURVEY CONTROL SHEET W-5601BC



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	669259.0150	2105571.1690	325.50	OUTSIDE PROJECT LIMITS	
2	BL-2	669340.6590	2105998.7680	336.64	12+50.66	23.48 LT
3	BL-3	669365.4830	2106439.4500	335.98	16+86.85	44.04 RT
4	BL-4	669475.1390	2106884.8840	313.69	21+45.36	29.58 RT
5	BL-5	669611.3960	2107247.1180	293.19	OUTSIDE PROJECT LIMITS	

BY POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
6	BY-1	669209.9770	2106696.0230	330.82	19+05.40	249.58 RT
3	BL-3	669365.4830	2106439.4500	335.98	16+86.85	44.04 RT
7	BY-2	669568.3740	2106254.4900	338.69	15+48.21	192.93 LT

BENCH MARK DATA

..... BM#1 ELEVATION = 326.86 N 669175 E 2105588 L STATION 10+00.00 S 61°57'19.46" W DIST 193.40 BENCHTIE NAIL SET IN 18" PINE TREE BM#2 ELEVATION = 285.48 N 669644 E 2107379 L STATION 10+00.00 N 76°50'20.61" E DIST 1664.38 BENCHTIE NAIL SET IN 24" SWEET GUM TREE
---	---

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "W5601BC-1" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 668836.711(±ft) EASTING: 2103837.604(±ft) ELEVATION: 266.591(±ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988135

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "W5601BC-1" TO -L- STATION 10+00 IS S 77°25'1.18" W 1,968.1611'

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

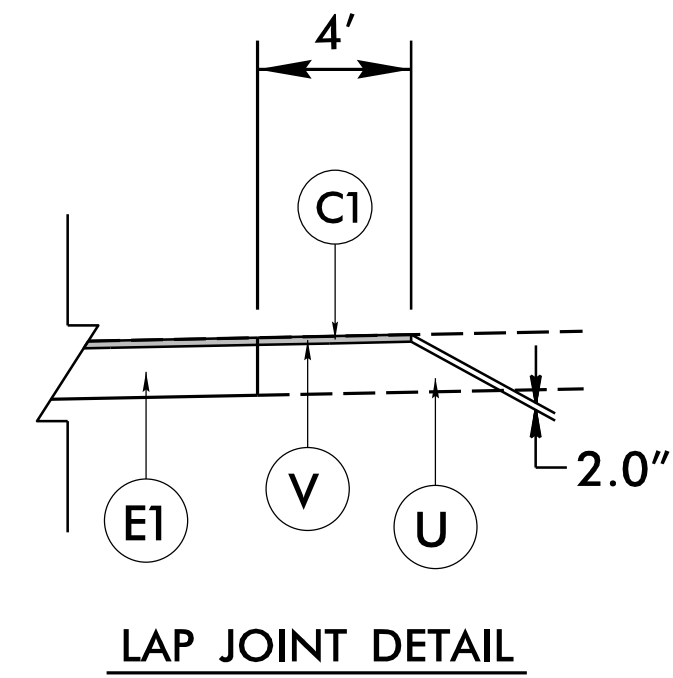
NOTES:

- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

GEOID G12NC
 NOTE: DRAWING NOT TO SCALE

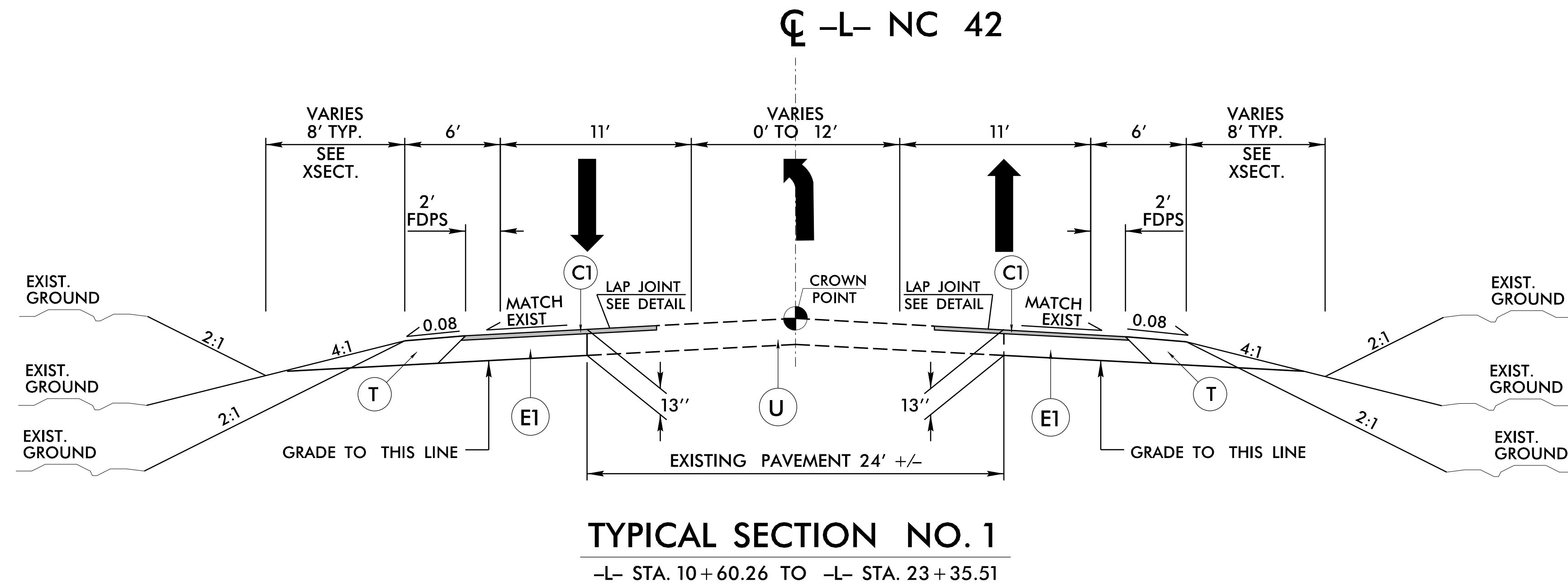
6/2/2016

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
E1	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
T	COMPACTED EARTH MATERIAL
U	EXISTING PAVEMENT
V	2" DEPTH MILLING



NOTES: ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SPECIFIED.

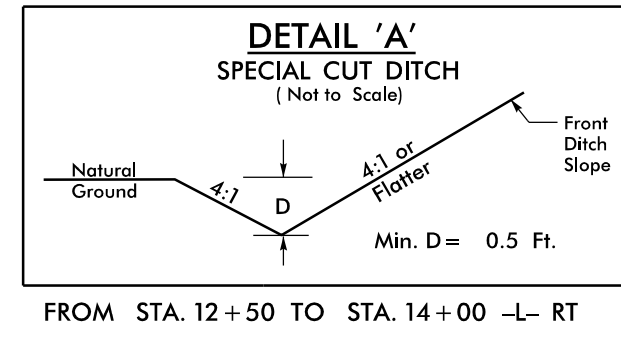
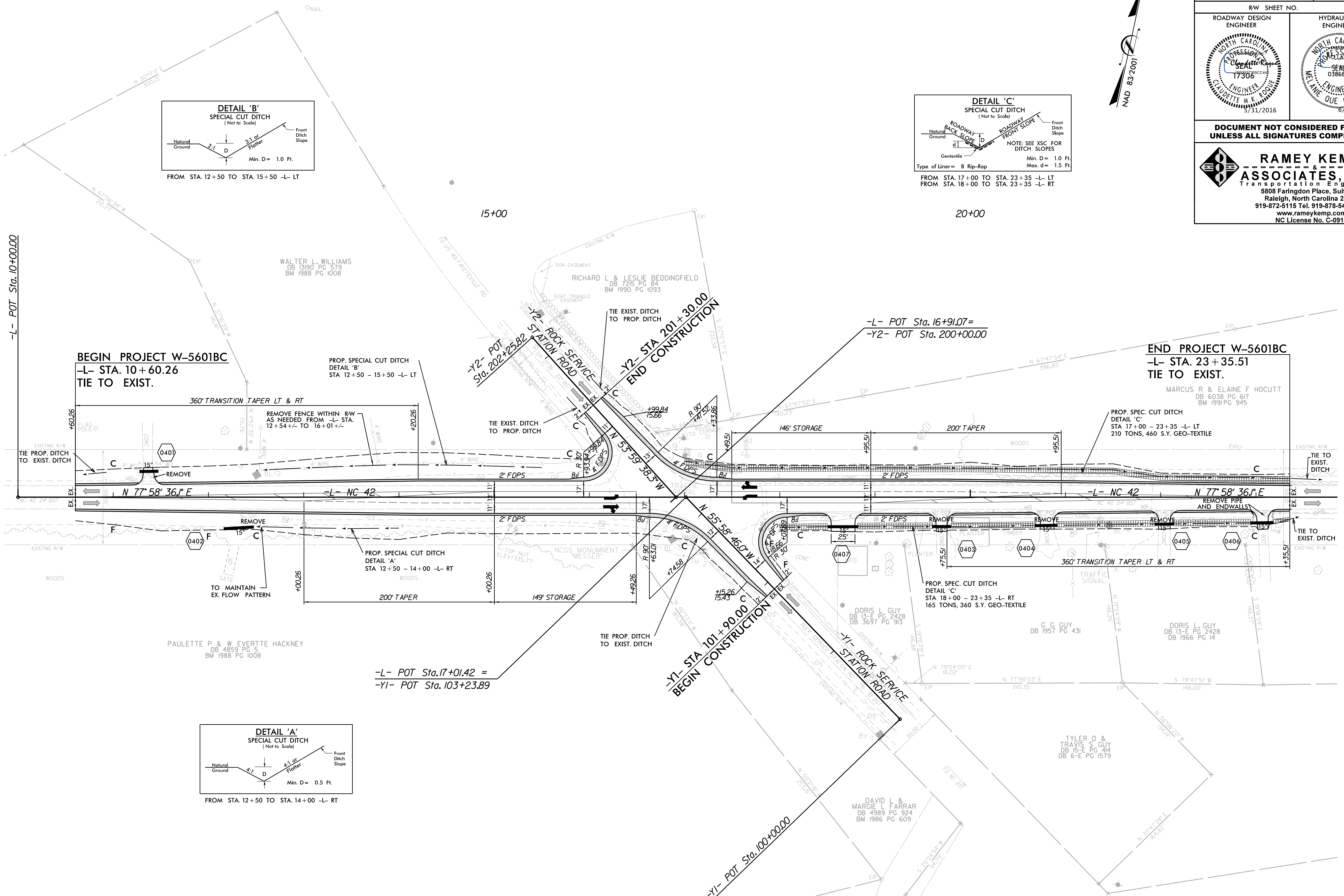
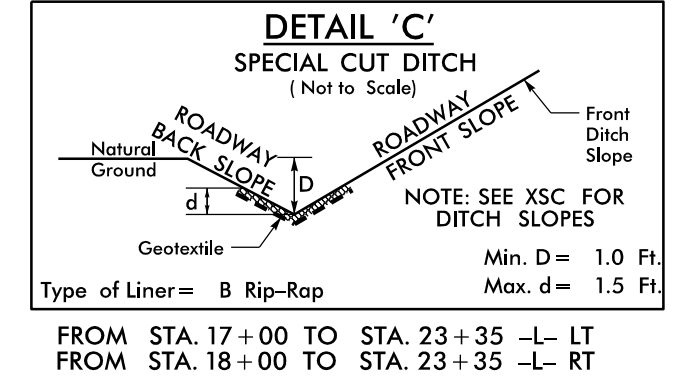
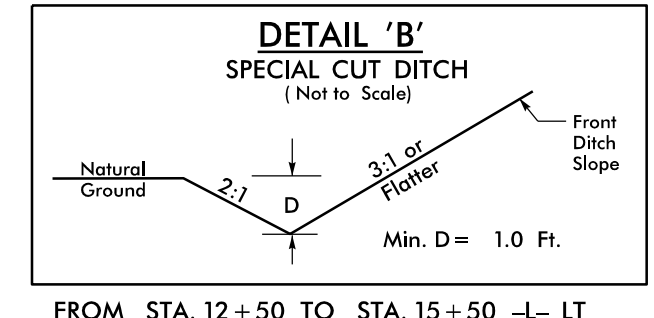
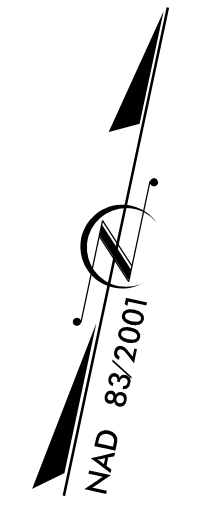
PROJECT REFERENCE NO. W-5601BC	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
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RAMEY KEMP ASSOCIATES, INC. Transportation Engineers 5808 Faringdon Place, Suite 100 Raleigh, North Carolina 27609 919-872-5115 Tel. 919-878-5416 Fax. www.rameykemp.com NC License No. C-0910	



PROJECT REFERENCE NO. W-5601BC	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER

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 919-872-5115 Tel. 919-878-5416 Fax.
 www.rameykemp.com
 NC License No. C-0910



- NOTES:
- FOR -L- EXIST. PROFILE & DITCH PROFILES, SEE SHEET 5
 - USE 12' MIN WIDTH & 10' RADII FOR DRIVEWAY CONNECTIONS UNLESS OTHERWISE SPECIFIED.

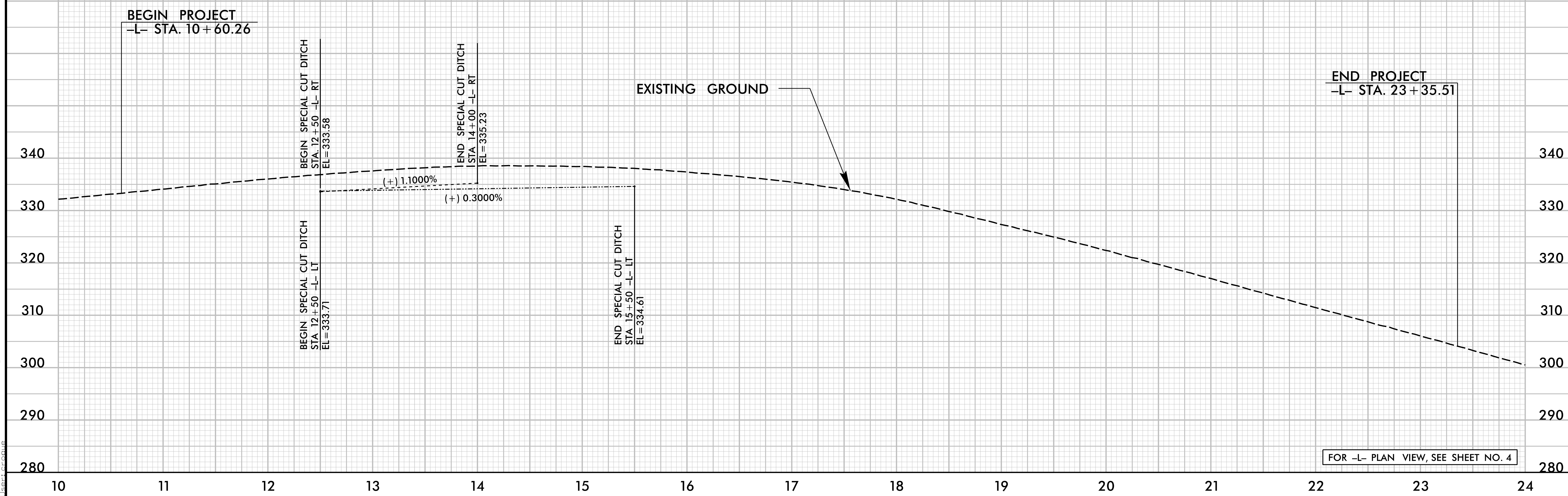
REVISIONS

5/31/2016
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User: craque

5/14/99

PROJECT REFERENCE NO. W-5601BC		SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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RAMEY KEMP & ASSOCIATES, INC. Transportation Engineers 5808 Faringdon Place, Suite 100 Raleigh, North Carolina 27609 919-872-5115 Tel. 919-878-5416 Fax. www.rameykemp.com NC License No. C-0910		

-L- NC 42

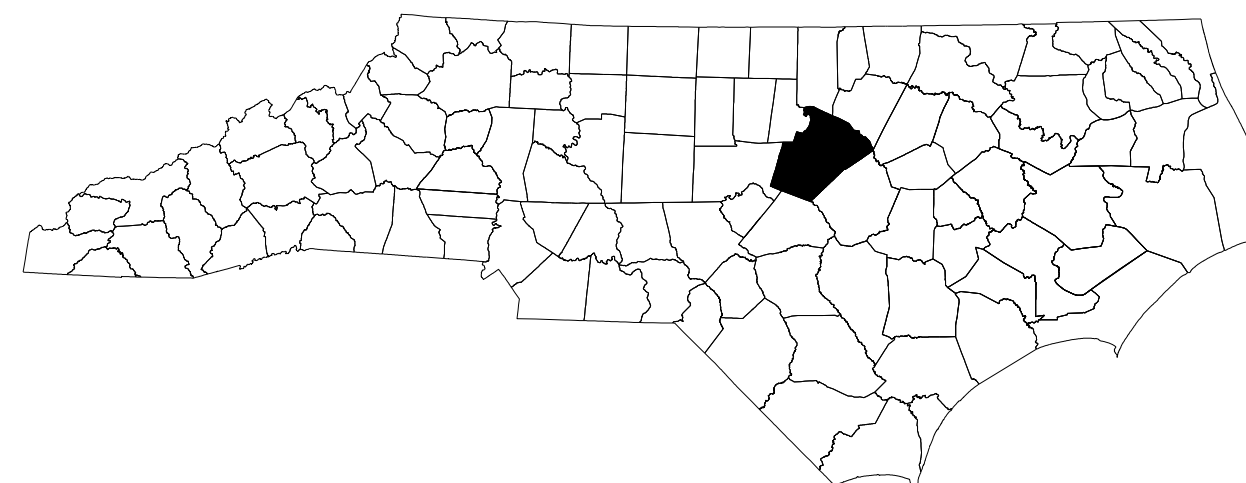


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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY



GENERAL NOTES

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

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

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
-L-NC 42	MONDAY- FRIDAY 6:00 AM - 9:00 AM
-Y1-/-Y2- SR 2736	4:00 PM - 7:00 PM

LANE AND SHOULDER CLOSURE REQUIREMENTS

- B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

- G) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON NC 42.
- H) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- I) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- J) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- L) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- N) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

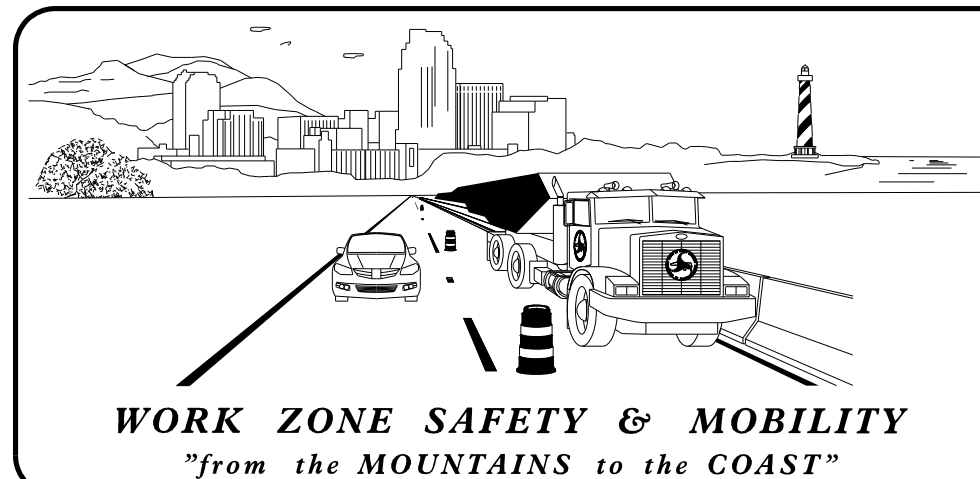
- O) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- P) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

- Q) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- NC 42	PAINT	NONE
-Y1-/-Y2- SR 2736		

- R) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX(6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- S) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.



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

- _____ STATE TRAFFIC MANAGEMENT ENGINEER
- _____ TRAFFIC CONTROL PROJECT ENGINEER
- _____ TRAFFIC CONTROL PROJECT DESIGN ENGINEER
- _____ TRAFFIC CONTROL DESIGN ENGINEER



ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1180.01	SKINNY-DRUM

PHASING NOTES

THE CONTRACTOR SHALL MAINTAIN ACCESS TO THE EXISTING DRIVEWAYS AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR MUST RETURN TRAFFIC TO THE EXISTING PATTERN AT THE END OF EACH WORK DAY UNLESS OTHERWISE NOTED IN THE PHASING BELOW OR DIRECTED BY THE ENGINEER.

STEP 1: INSTALL WORK ZONE ADVANCE WARNING SIGNS (SEE RSD 1101.01)

STEP 2: USING RSD 1101.02 (SHEET 1 OF 15), CONSTRUCT THE ROADWAY IMPROVEMENTS INCLUDING THE 4' EDGE MILL, WIDENING AND DRAINAGE UP TO AND INCLUDING THE FINAL SURFACE COURSE.

STEP 3: USING RSD 1101.02 (SHEET 1 OF 15), INSTALL FINAL PAVEMENT MARKINGS (SEE PMP-1). REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES AND WORK ZONE SIGNS.

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

CLAUDETTE M.K ROQUE, P.E.
PROJECT ENGINEER
KAYLA M. WISE, E.I.
PROJECT DESIGN ENGINEER

Prepared in the Office of:

RAMEY KEMP ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com
NC License No. C-0910

APPROVED: _____
DATE: _____

SEAL

3/31/2016

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**SIGNING AND PAVEMENT MARKING PLAN
WAKE COUNTY**

LOCATION: NC 42 AT SR 2736 (ROCK SERVICE STATION ROAD)

T.I.P.: W-5601BC

CONTRACT: DE00165

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE	STD. NO.	TITLE
903.10	GROUND MOUNTED SIGN SUPPORTS	1205.05	PAVEMENT MARKINGS - TURN LANES
904.10	ORIENTATION OF GROUND MOUNTED SIGNS	1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS	1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS	1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS	1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE
1205.04	PAVEMENT MARKINGS - INTERSECTIONS		

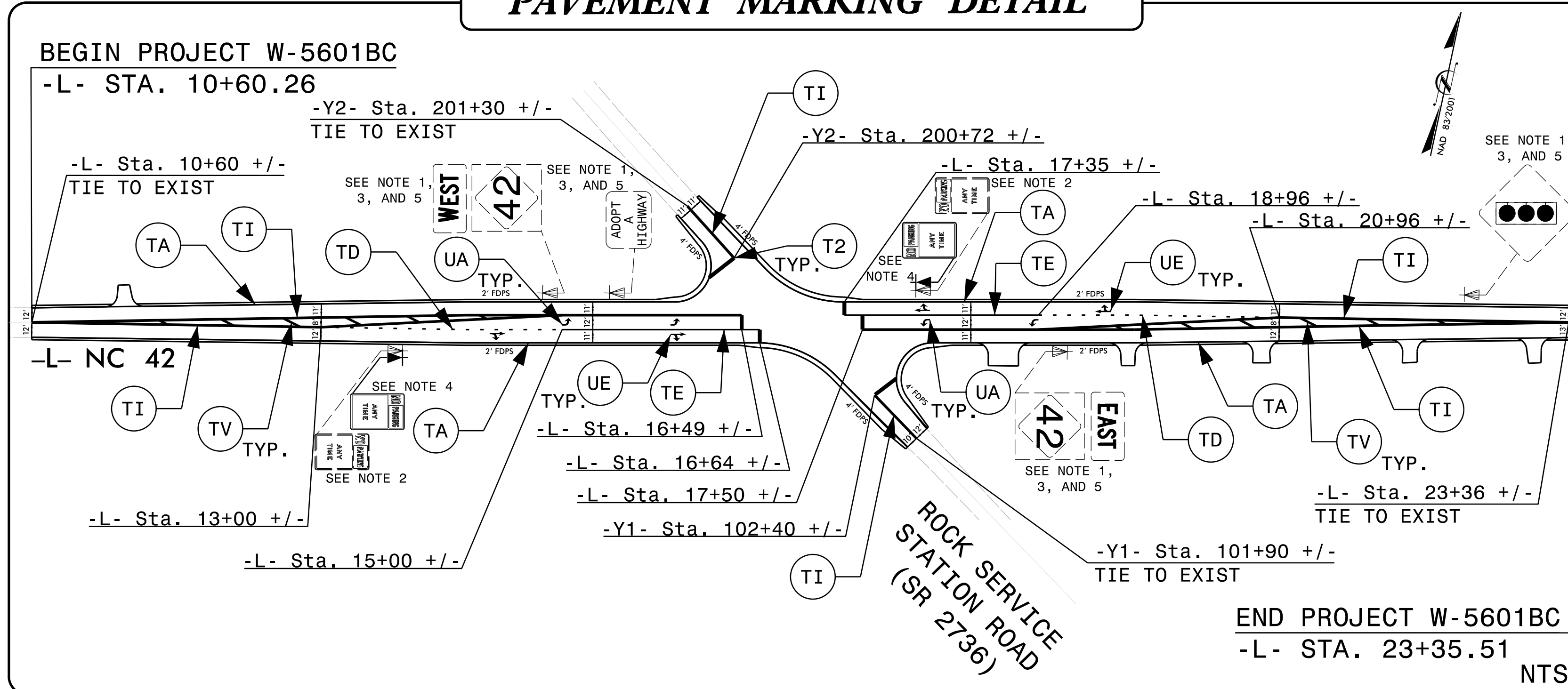
**GENERAL NOTES
PAVEMENT MARKING**

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

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

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	SNOWPLOWABLE
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) REFER TO APPROVED SIGNAL PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS.

PAVEMENT MARKING DETAIL



**GENERAL NOTES
SIGNING**

- A) SIGNS FURNISHED BY STATE.
- B) ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- C) SIGNING PLANS DO NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING OR PAVEMENT MARKINGS.
- D) WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.
- E) WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- F) ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- G) THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- H) MAINTAIN CURRENT OFFSET FROM EOP OR 6' MINIMUM TO NEAR EDGE OF SIGN, WHICHEVER IS GREATER, WHEN REPLACING/RELOCATING EXISTING SIGNS.

PROJECT NOTES

1. RELOCATE SIGN, TYPE E AND F.
2. DISPOSAL OF SIGN SYSTEM, U-CHANNEL.
3. DISPOSAL OF SUPPORT, U-CHANNEL.
4. SIGN ERECTION, TYPE E.
5. SIGN ERECTION, RELOCATE, TYPE E AND F.

**PAVEMENT
MARKING SCHEDULE**

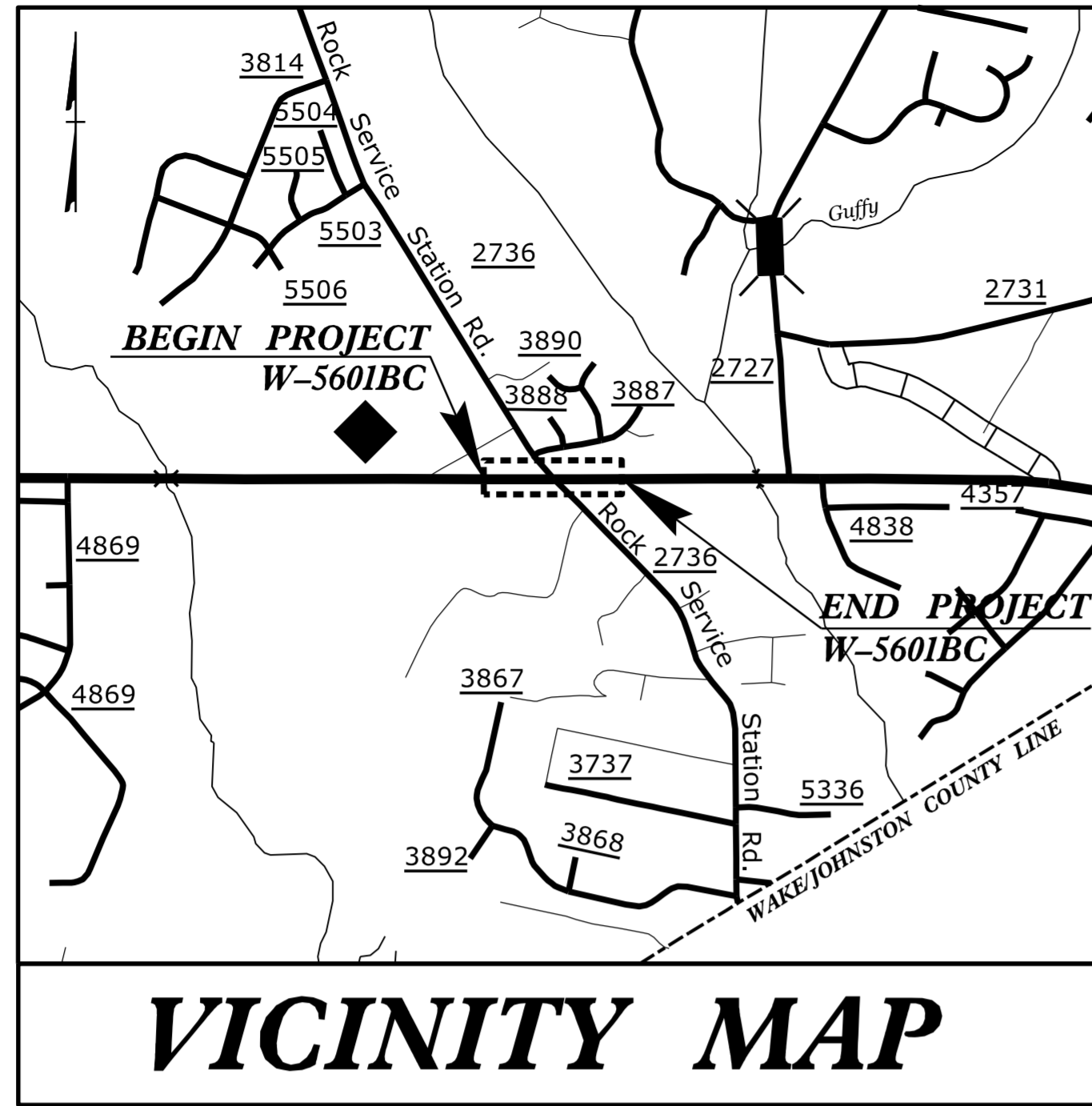
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
TA	WHITE EDGELINE	TV	YELLOW DIAGONAL
TD	3 FT. - 9 FT./SP WHITE MINISKIP	T2	WHITE STOPBAR
TE	WHITE SOLID LANE LINE	UE	COMBO. RIGHT/STRAIGHT ARROW
TI	YELLOW DOUBLE CENTER	UA	LEFT TURN ARROW
		UE	COMBO. RIGHT/STRAIGHT ARROW

PLAN PREPARED BY: Ramey Kemp & Associates

CLAUDETTE M.K. ROQUE, P.E. PROJECT MANAGER
KAYLA M. WISE, E.I. PROJECT ENGINEER



TIP PROJECT: W-5601BC



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
WAKE COUNTY

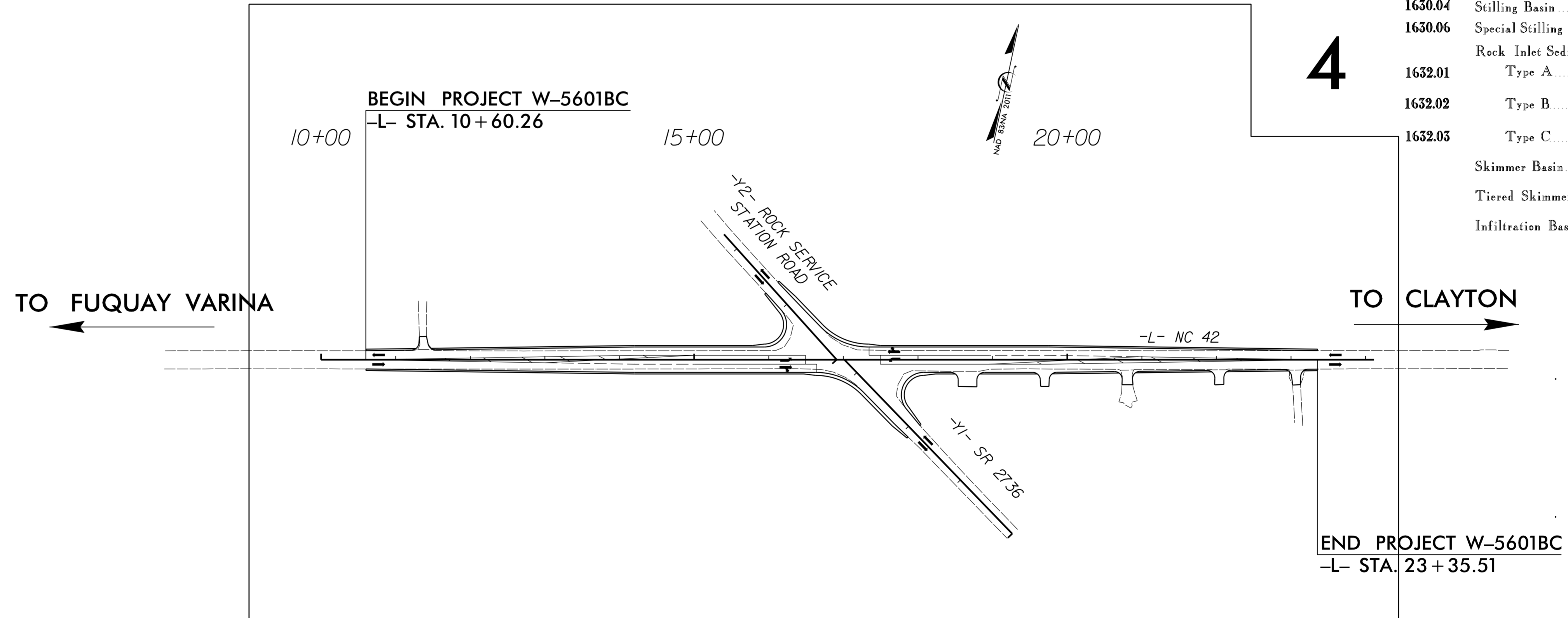
LOCATION: NC 42 AT SR 2736 (ROCK SERVICE STATION ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & SIGNALS

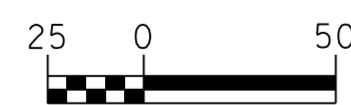
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601BC	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50138.1.56	HSIP-0042(62)	PE	
50138.2.56		RW & UTIL	
50138.3.56		CONST	

EROSION AND SEDIMENT CONTROL MEASURES

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



GRAPHIC SCALE



PLANS

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

Prepared in the Office of:

CH Engineering
3220 Glen Royal Road
Raleigh, NC 27617

Designed by:

Brian Wiles 3759
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1425 Rock Quarry Road
Raleigh, NC 27610

Reviewed by:

Aaron Harper

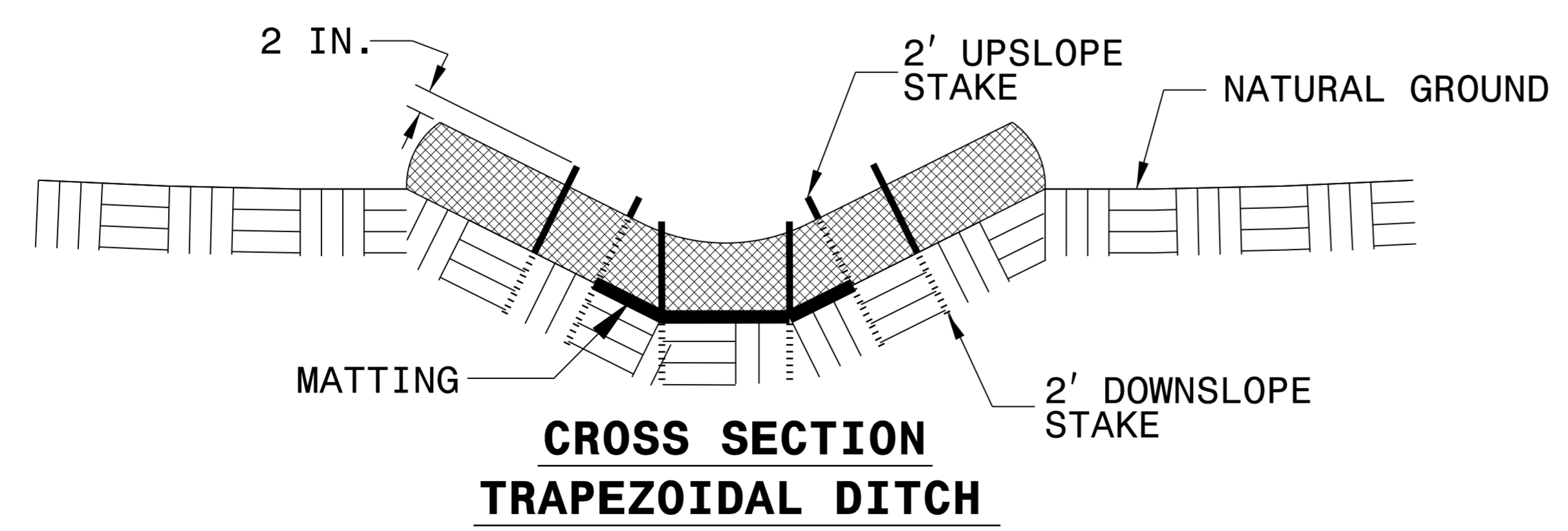
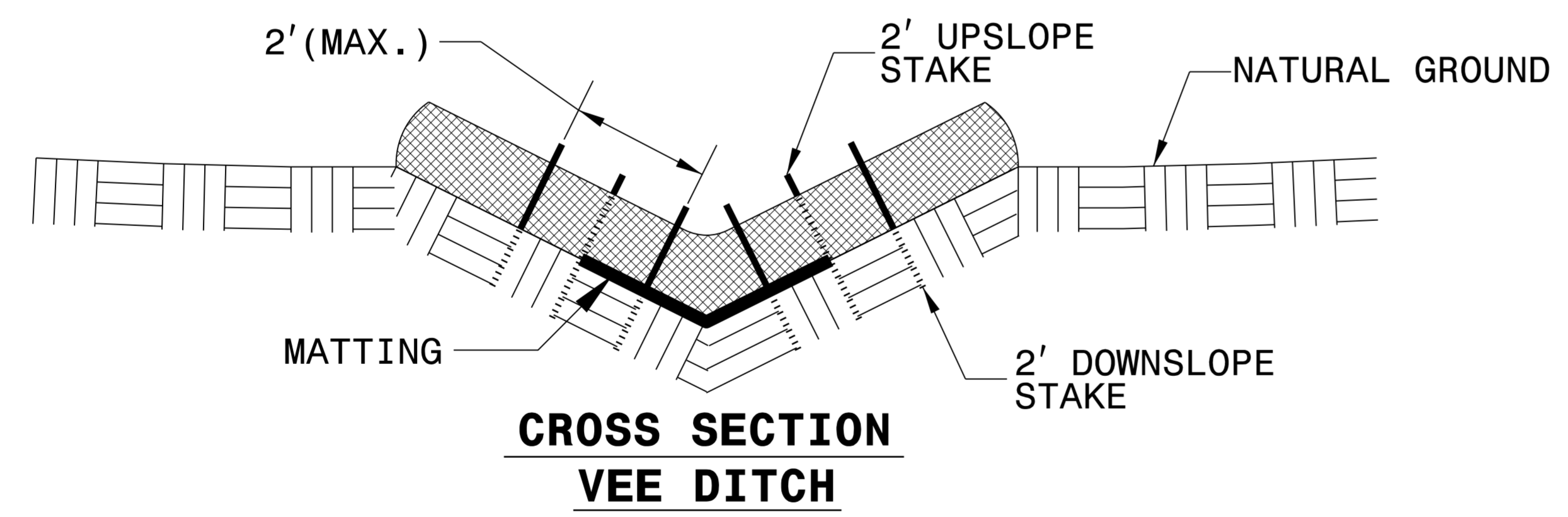
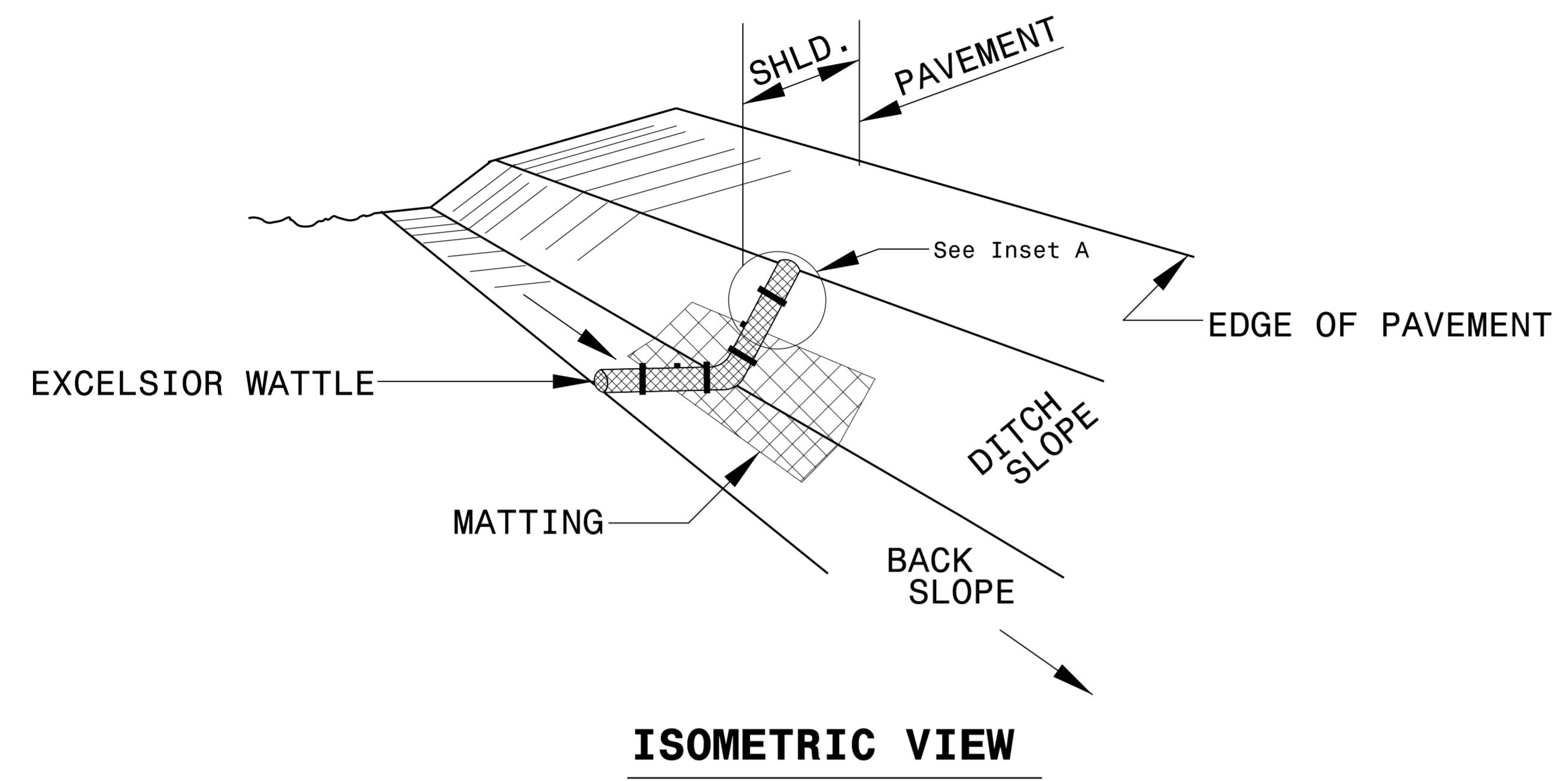
Roadway Standard Drawings

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

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

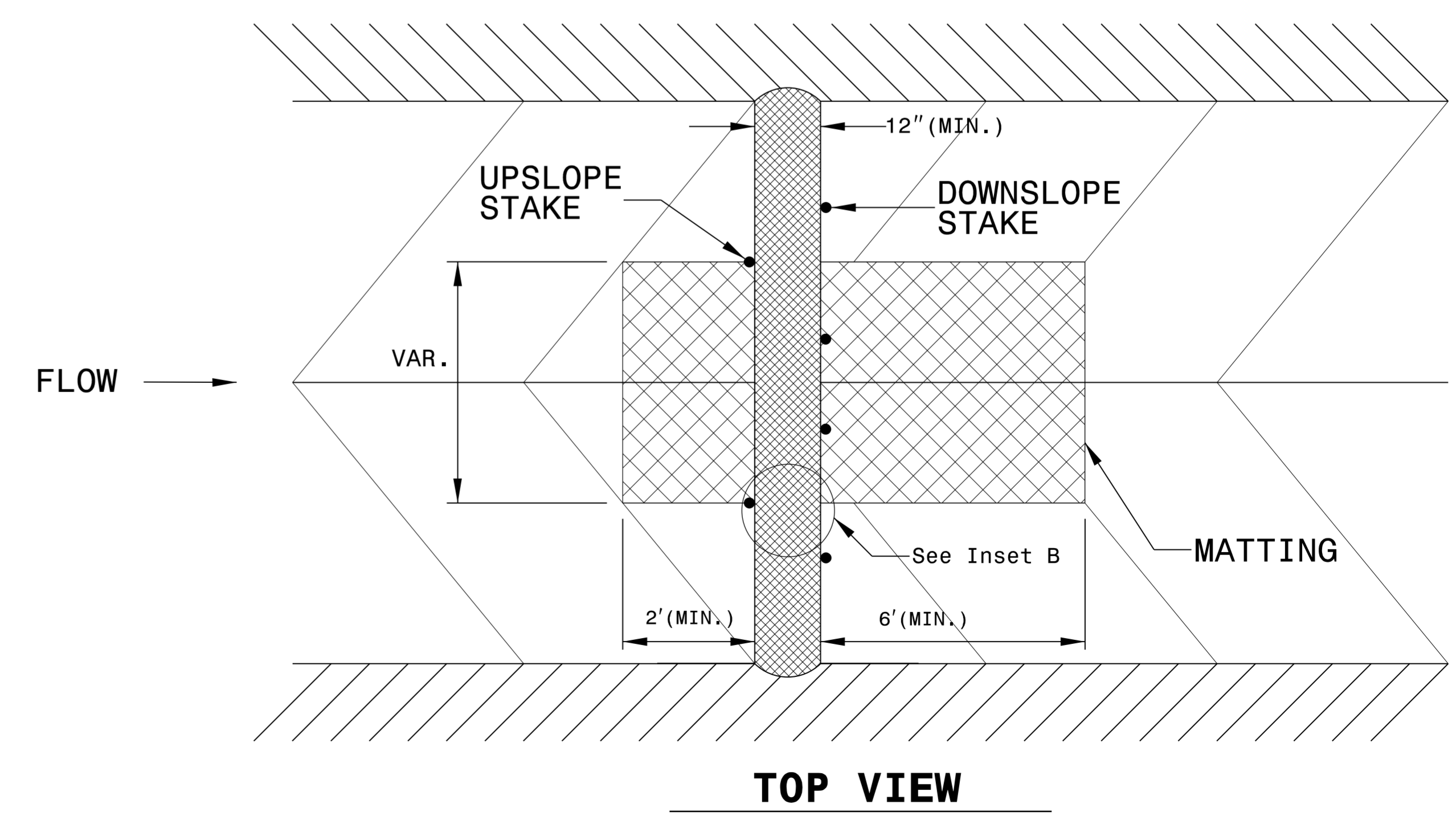
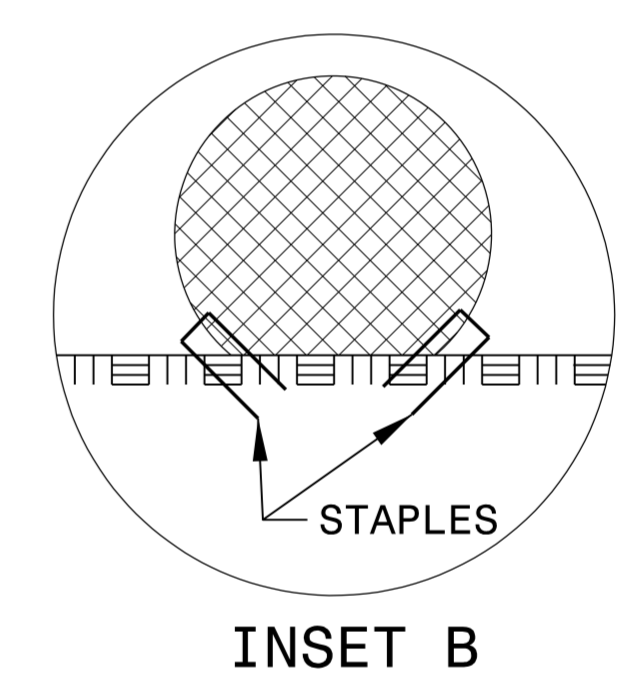
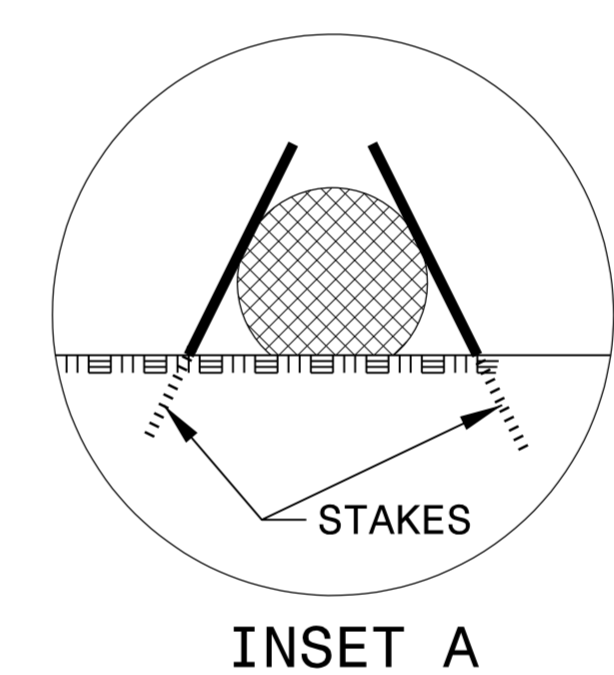
PROJECT REFERENCE NO. W-5601BC	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE DETAIL



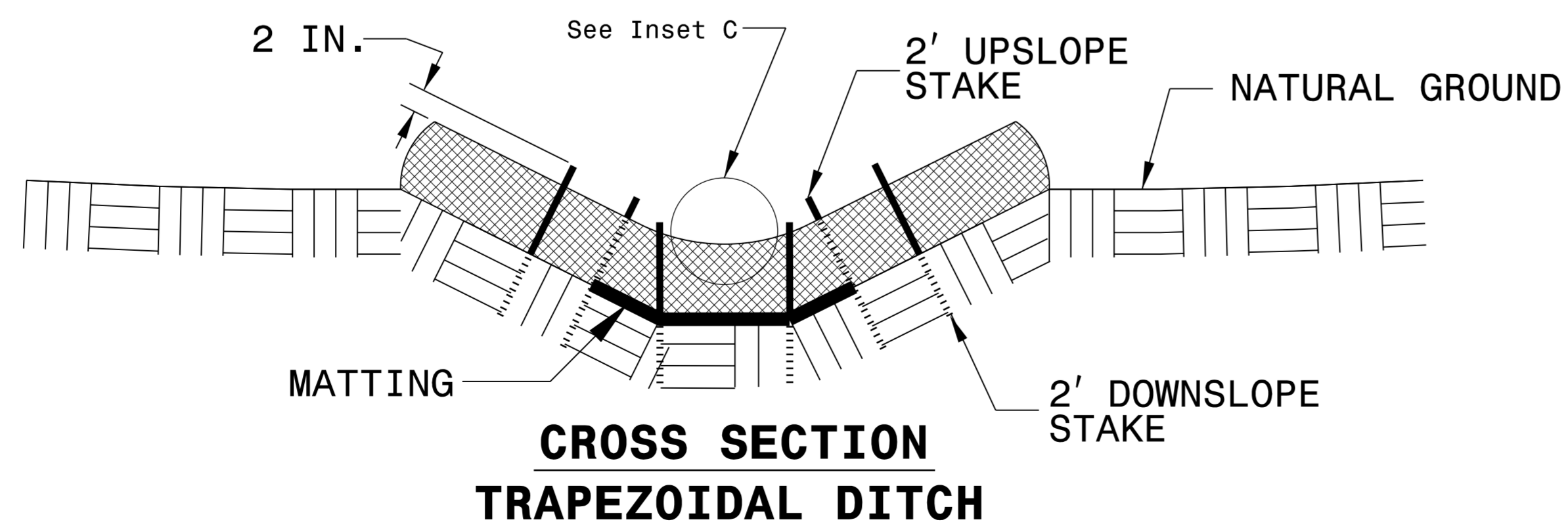
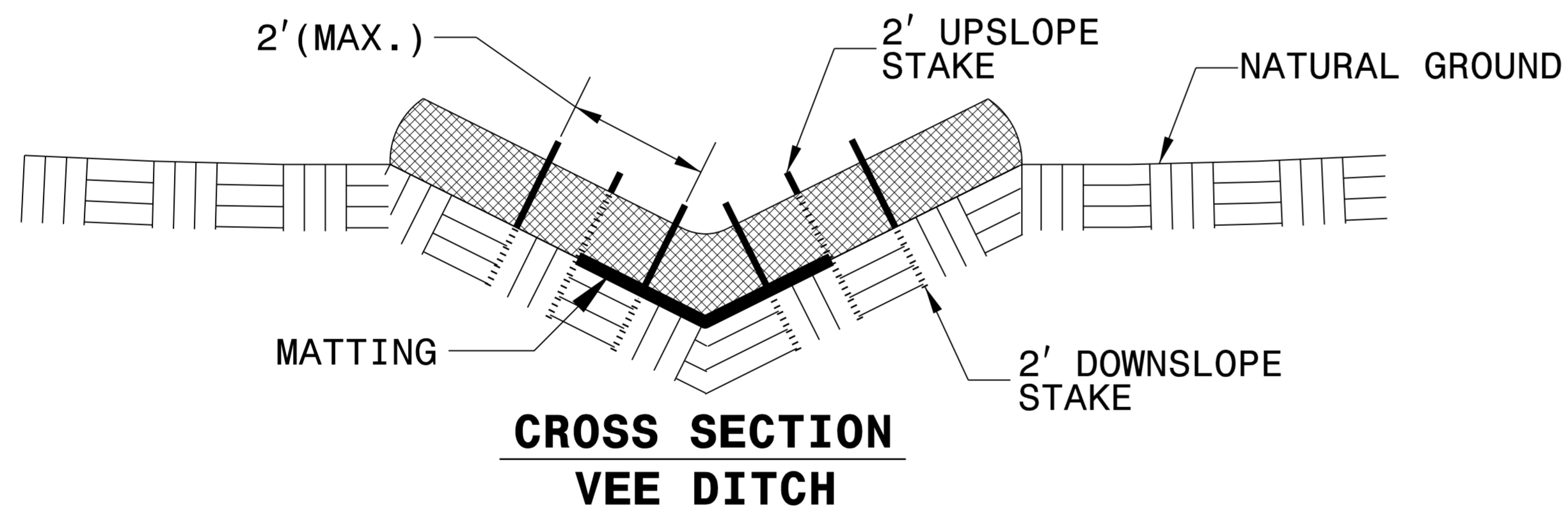
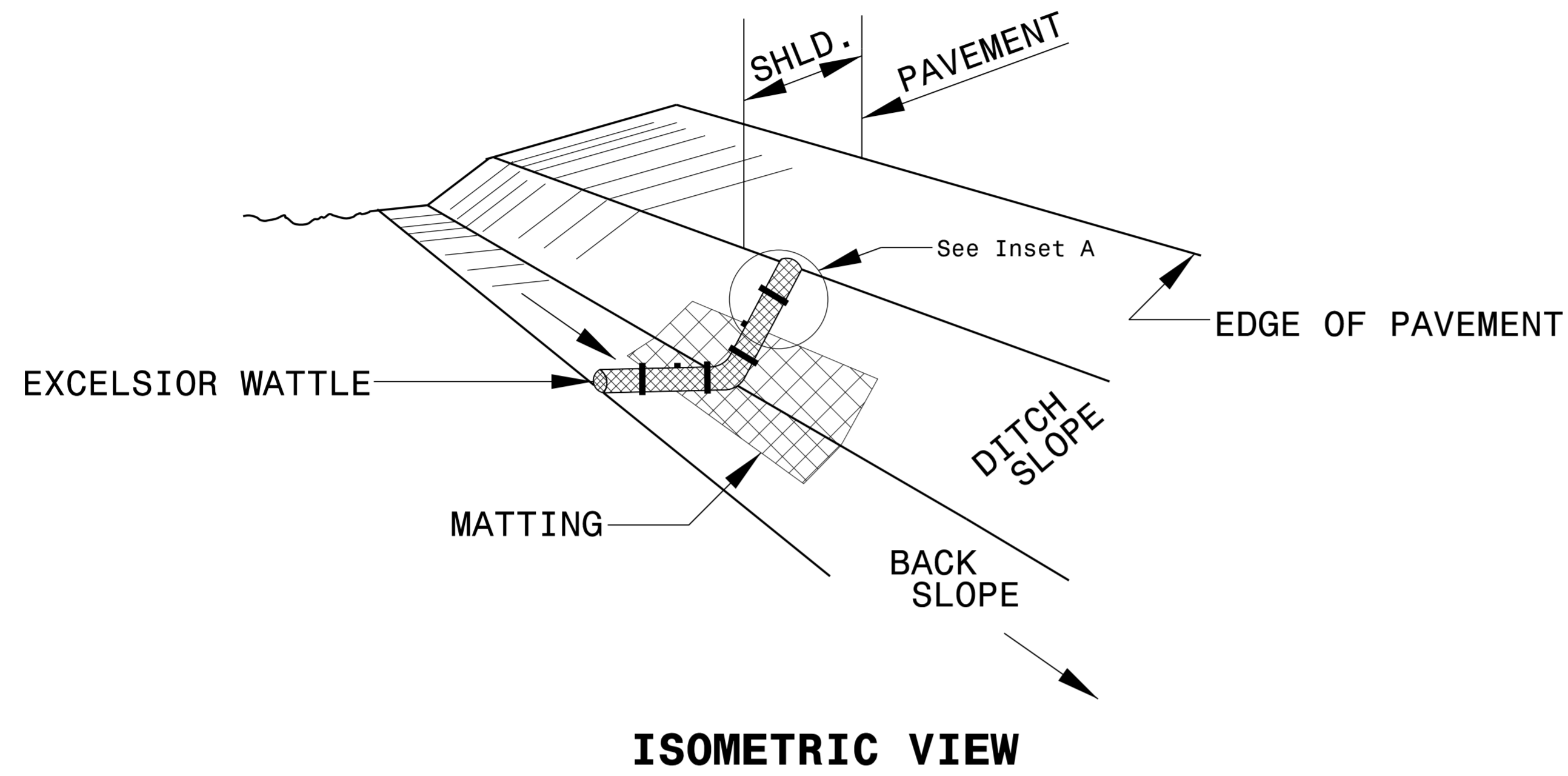
NOTES:

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



PROJECT REFERENCE NO. W-5601BC	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

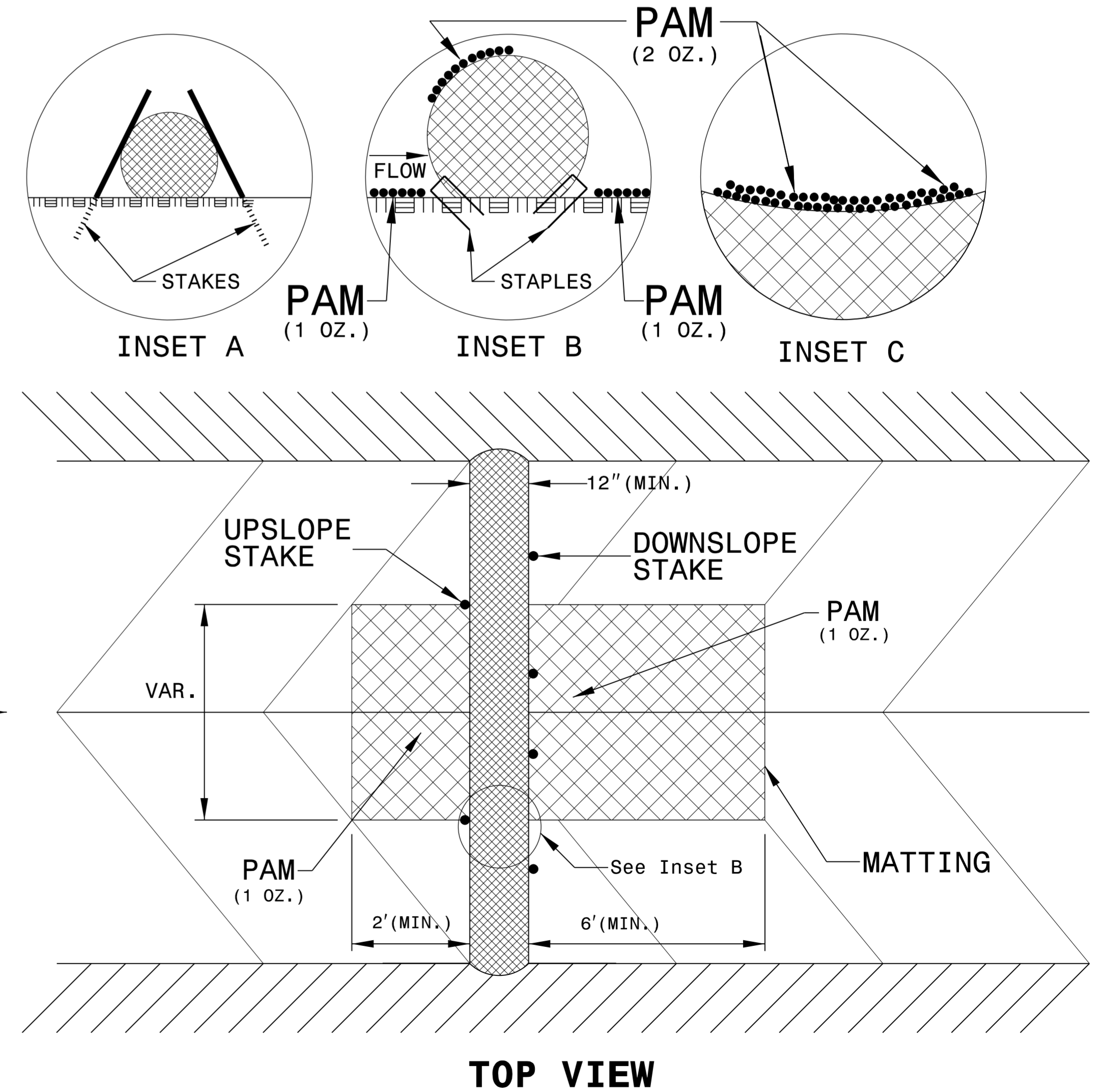
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

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

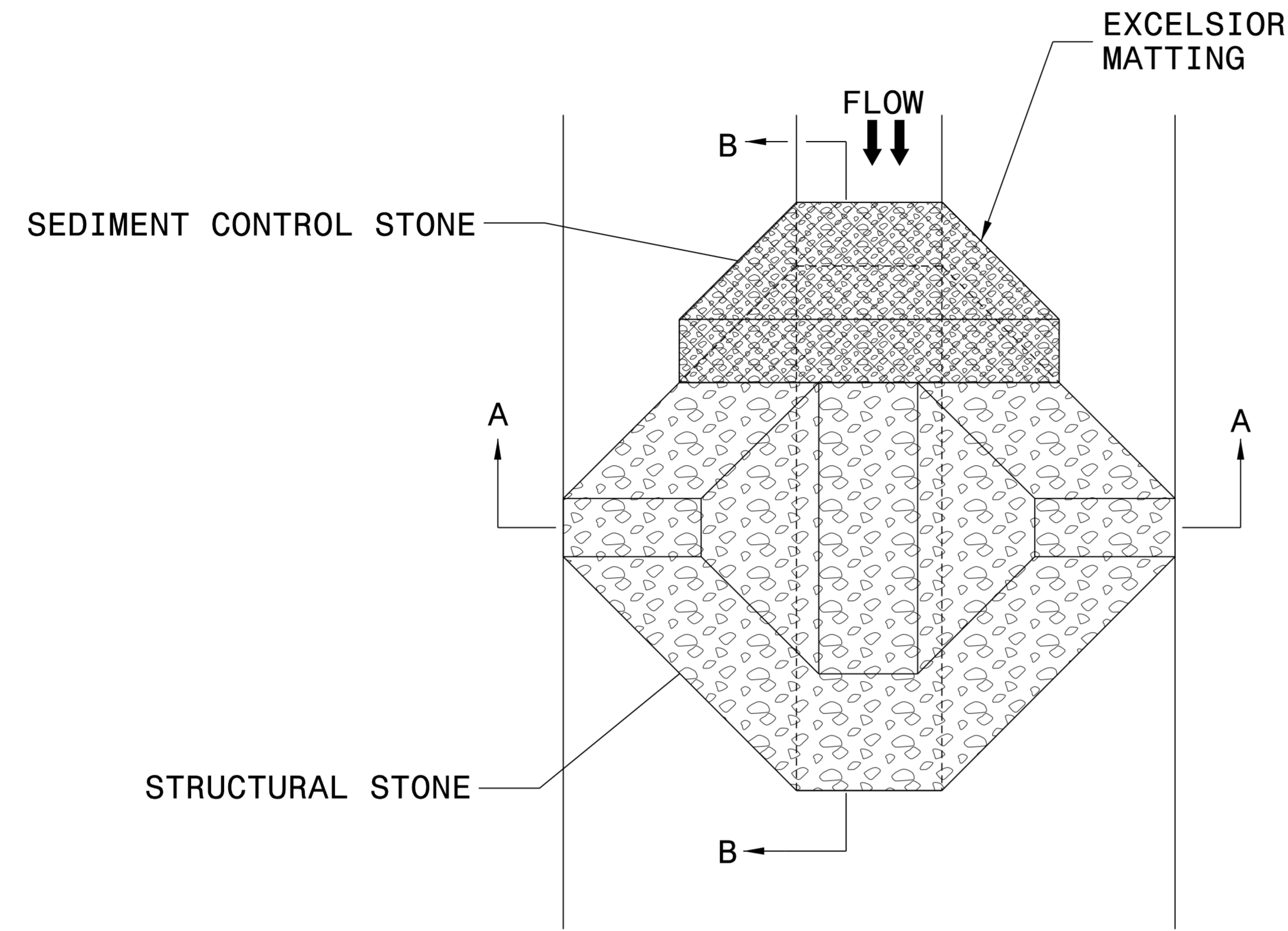
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

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



PROJECT REFERENCE NO. W-5601BC	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

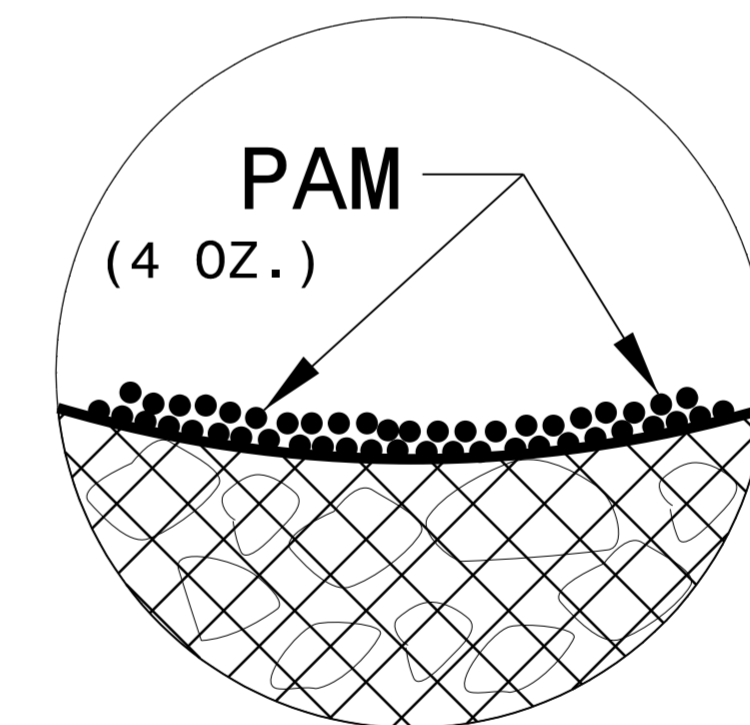
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

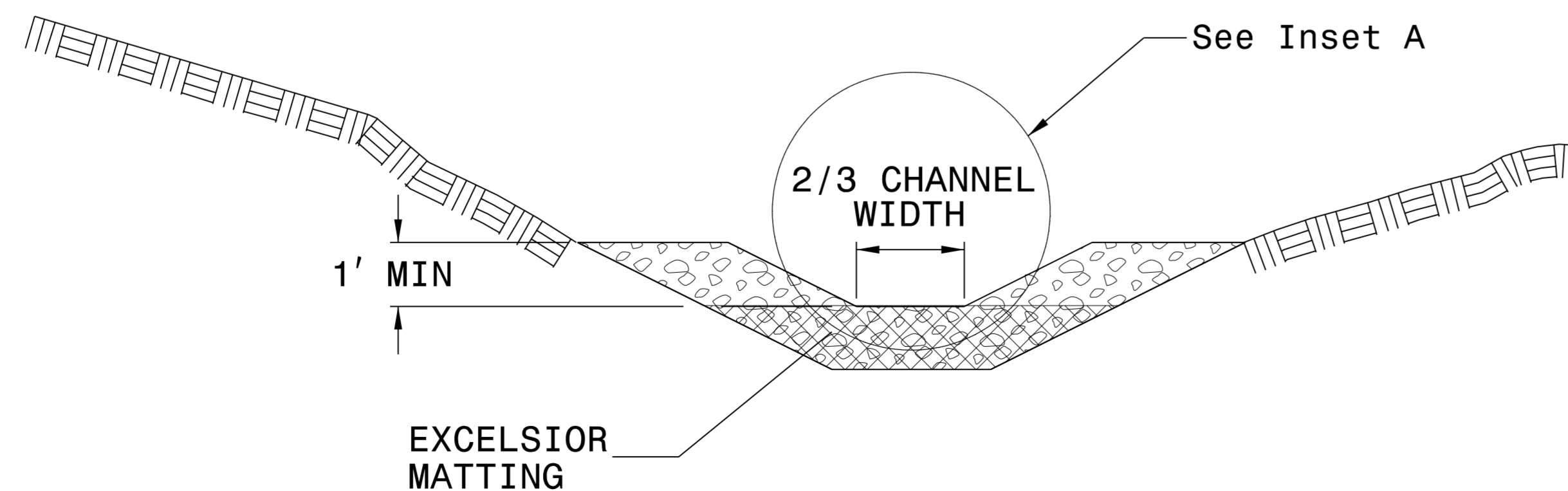
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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 ROCK SILT CHECK.

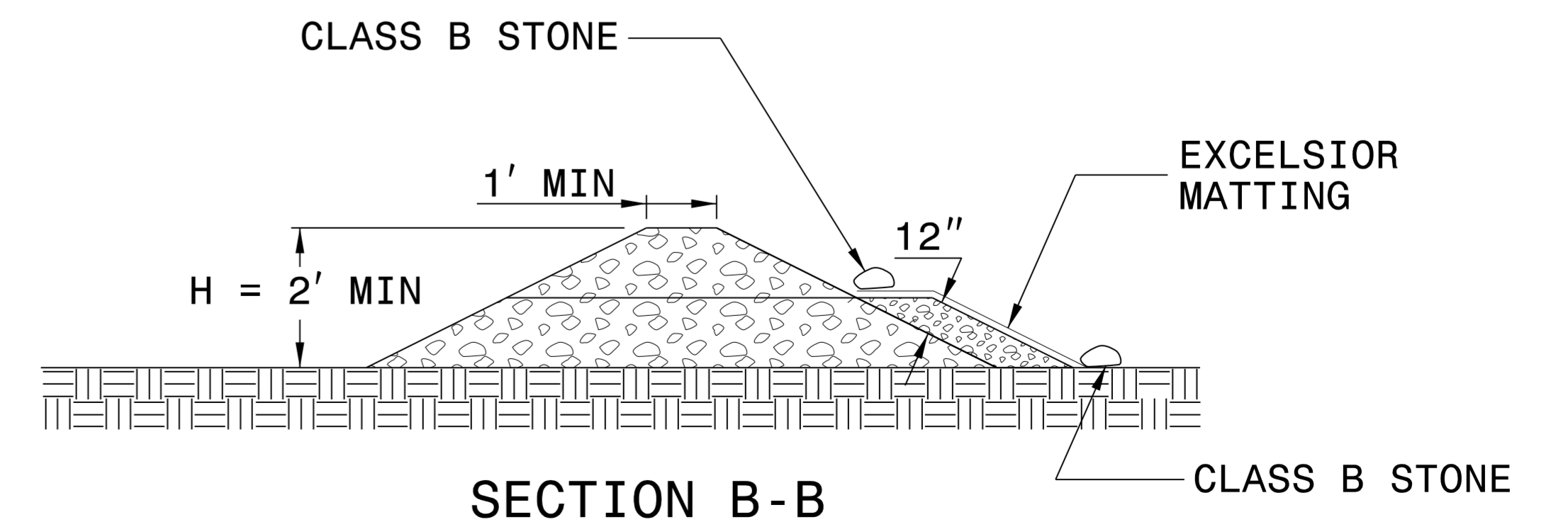
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

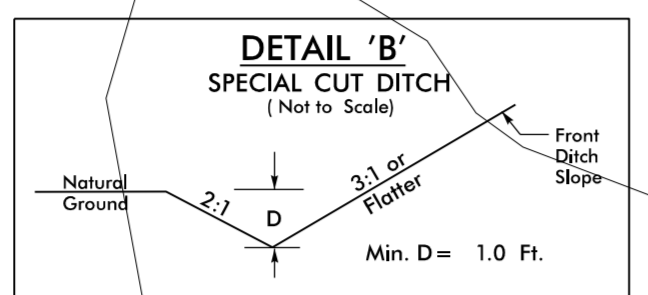
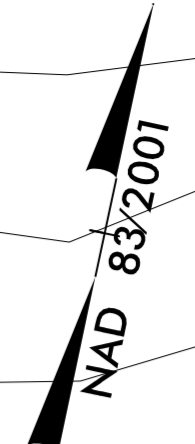
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>W-5601BC</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

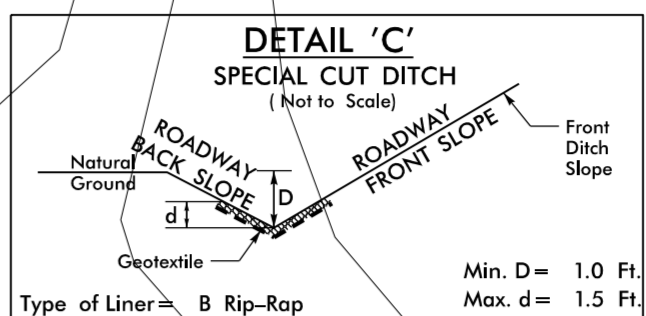
SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
W-5601BC	EC-4CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



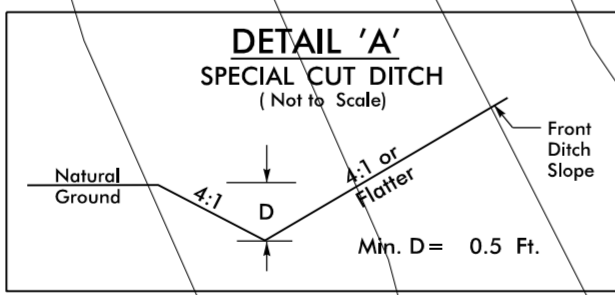
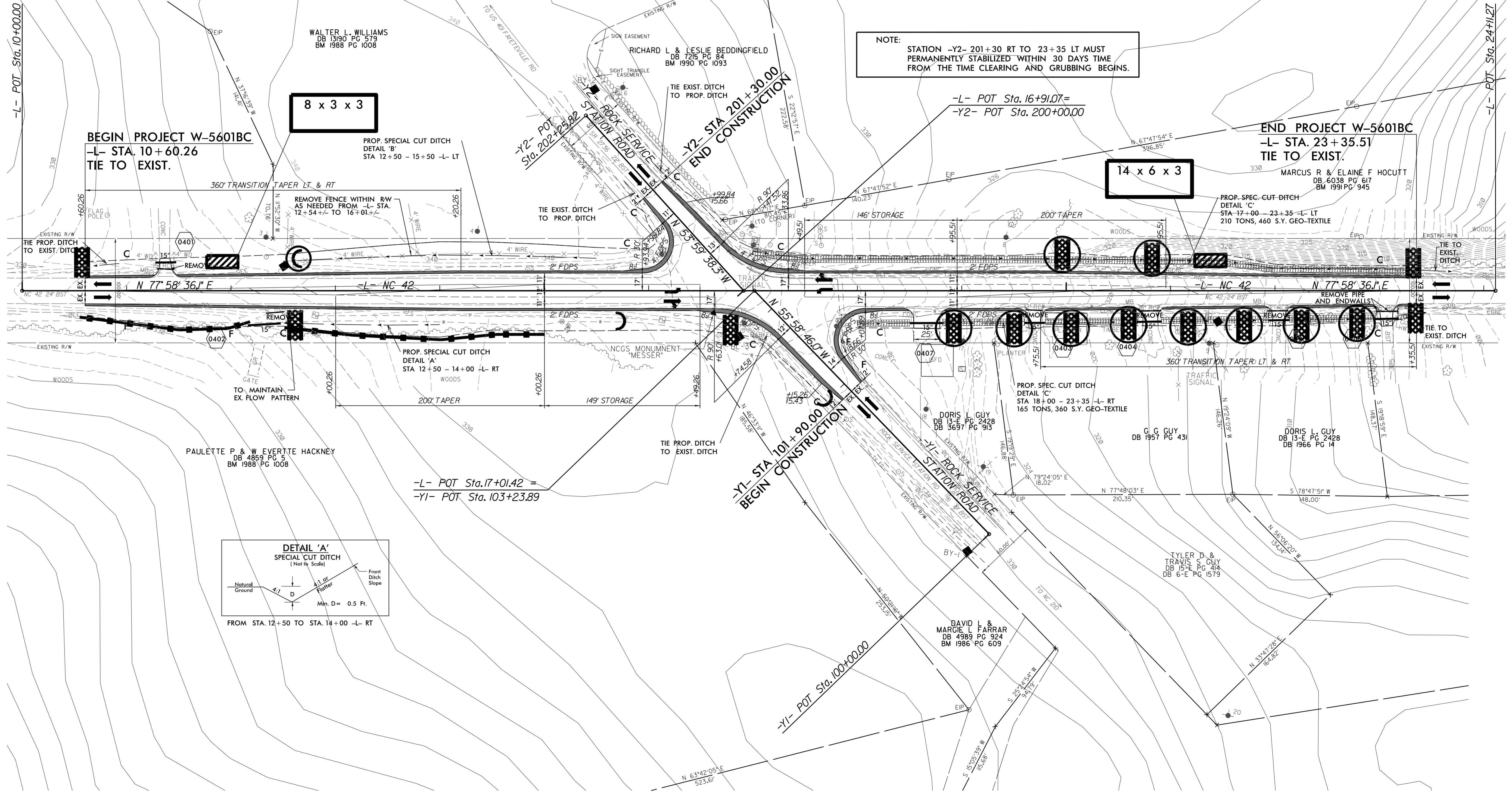
FROM STA. 12+50 TO STA. 15+50 -L- LT



FROM STA. 17+00 TO STA. 23+35 -L- LT
FROM STA. 18+00 TO STA. 23+35 -L- RT

NOTE:
STATION -L- 10+60 LT TO -Y2- 201+30 LT MUST PERMANENTLY STABILIZED WITHIN 30 DAYS TIME FROM THE TIME CLEARING AND GRUBBING BEGINS.

NOTE:
STATION -Y2- 201+30 RT TO 23+35 LT MUST PERMANENTLY STABILIZED WITHIN 30 DAYS TIME FROM THE TIME CLEARING AND GRUBBING BEGINS.

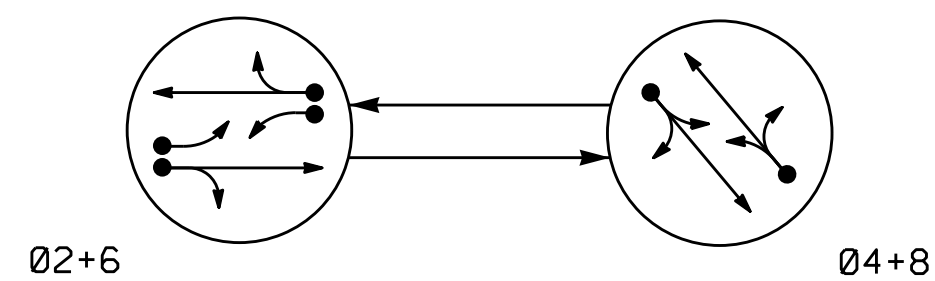


FROM STA. 12+50 TO STA. 14+00 -L- RT

8/17/99

6/14/2016
R:\Drawings\EC-plans\W5601BC-ec-rdy04-ec04_psh.dgn
USERNAME

PHASING DIAGRAM

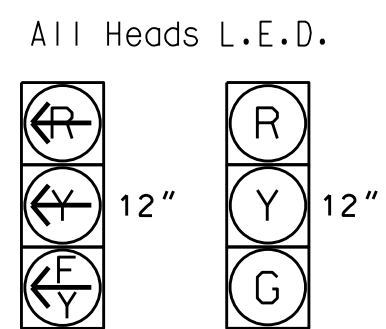


PHASING DIAGRAM DETECTION LEGEND

- ● → DETECTED MOVEMENT
- — → UNDETECTED MOVEMENT (OVERLAP)
- - - - UNSIGNALIZED MOVEMENT
- - - - PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE		
	02+6	04+8	F L C S H
21	F	R	Y
22, 23, 24	G	R	Y
41, 42	R	G	R
62, 63	G	R	Y
61	F	R	Y
81, 82	R	G	R

SIGNAL FACE I.D.



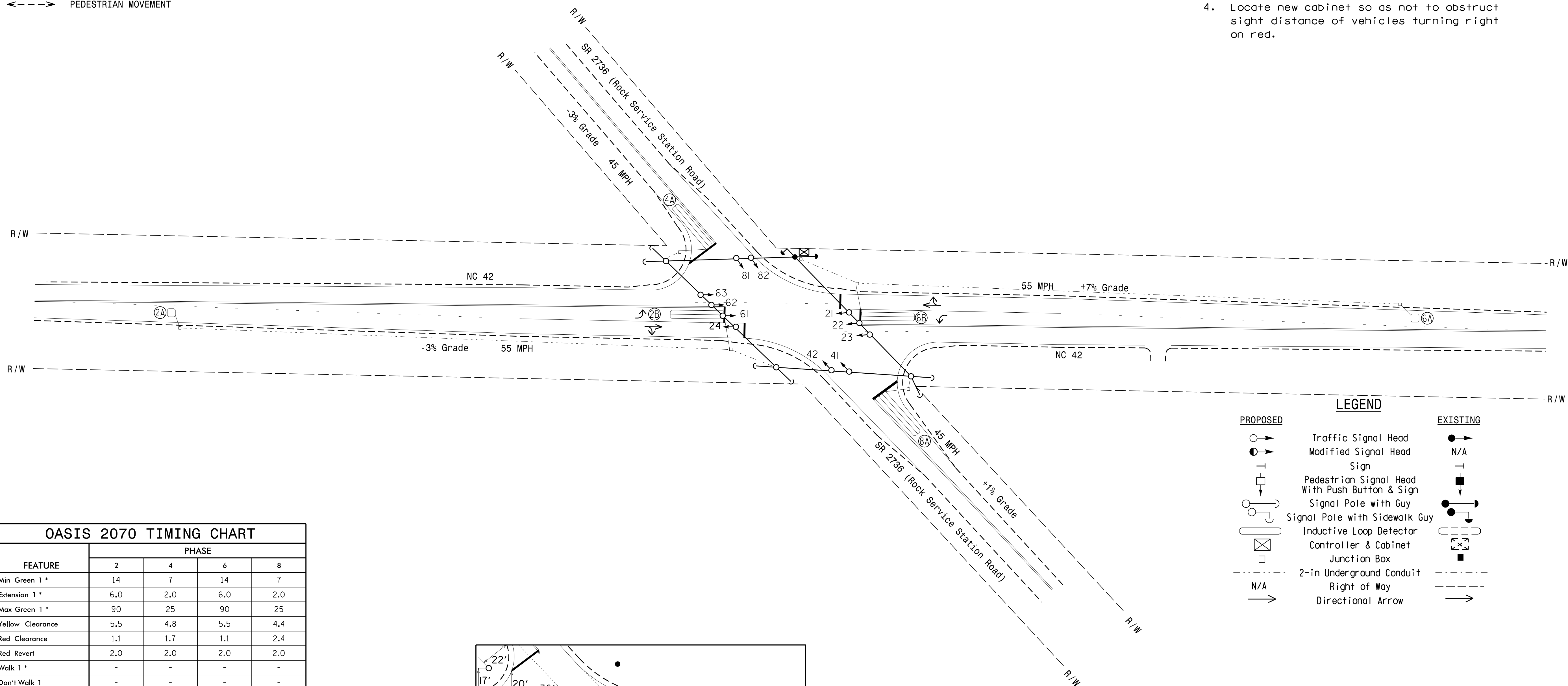
All Heads L.E.D.
 21 22, 23, 24
 61 41, 42
 62, 63
 81, 82

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X40	0	2-4-2	Y	2	Y	Y	Y	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	5	-	Y
6A	6X6	420	5	Y	6	Y	Y	-	-	-	-	Y
6B	6X40	0	2-4-2	Y	6	Y	Y	Y	-	3	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	5	-	Y

2 Phase
Fully Actuated
(Isolated)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.

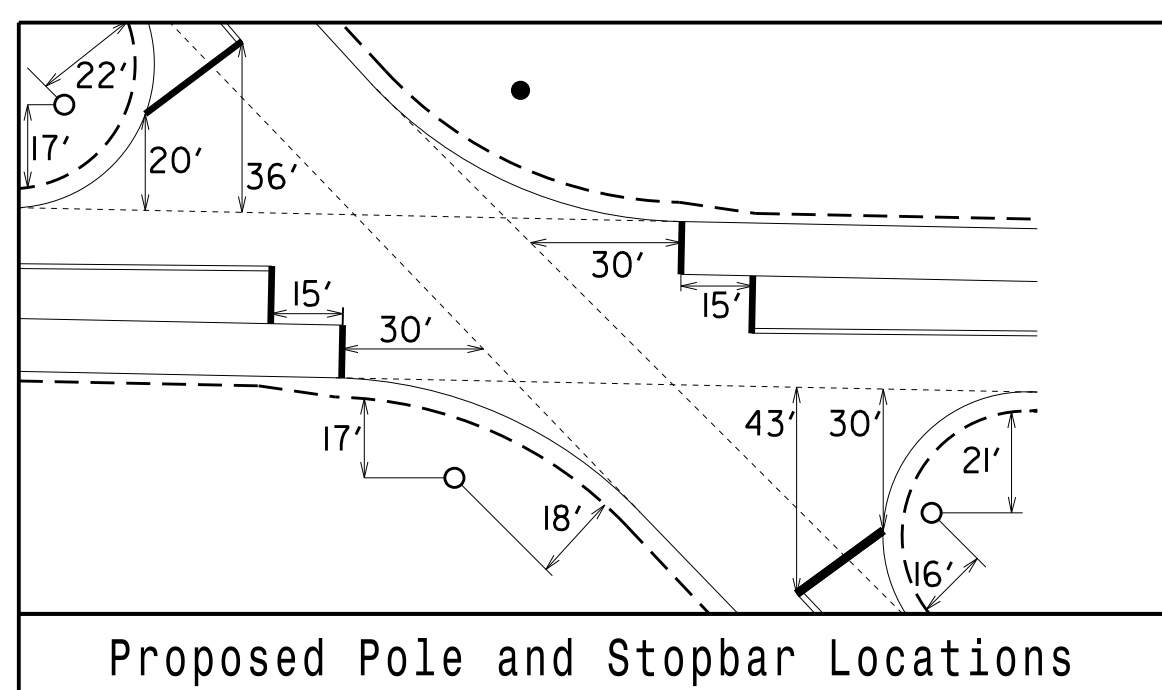


LEGEND

- | PROPOSED | EXISTING |
|----------|----------|
| ○ → | ● → |
| ○ → ● → | N/A |
| ⊥ | ⊥ |
| ⊥ □ | ⊥ □ |
| ○ ⊥ | ○ ⊥ |
| ○ ⊥ ⊥ | ○ ⊥ ⊥ |
| ⊠ | ⊠ |
| □ | □ |
| - - - | - - - |
| → | → |

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	14	7	14	7
Extension 1 *	6.0	2.0	6.0	2.0
Max Green 1 *	90	25	90	25
Yellow Clearance	5.5	4.8	5.5	4.4
Red Clearance	1.1	1.7	1.1	2.4
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	2.5	-	2.5	-
Max Variable Initial *	46	-	46	-
Time Before Reduction *	20	-	20	-
Time To Reduce *	40	-	40	-
Minimum Gap	3.4	-	3.4	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	-	-	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



Signal Upgrade

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

Scale: 1" = 40'

Division 5 Wake County Willow Spring

SR 2736 (Rock Service Station Rd.)

PLAN DATE: October 2015 REVIEWED BY: J.R. Howell

PREPARED BY: J.R. Howell REVIEWED BY: Ryan W. Hough

REVISIONS: _____ INIT. DATE

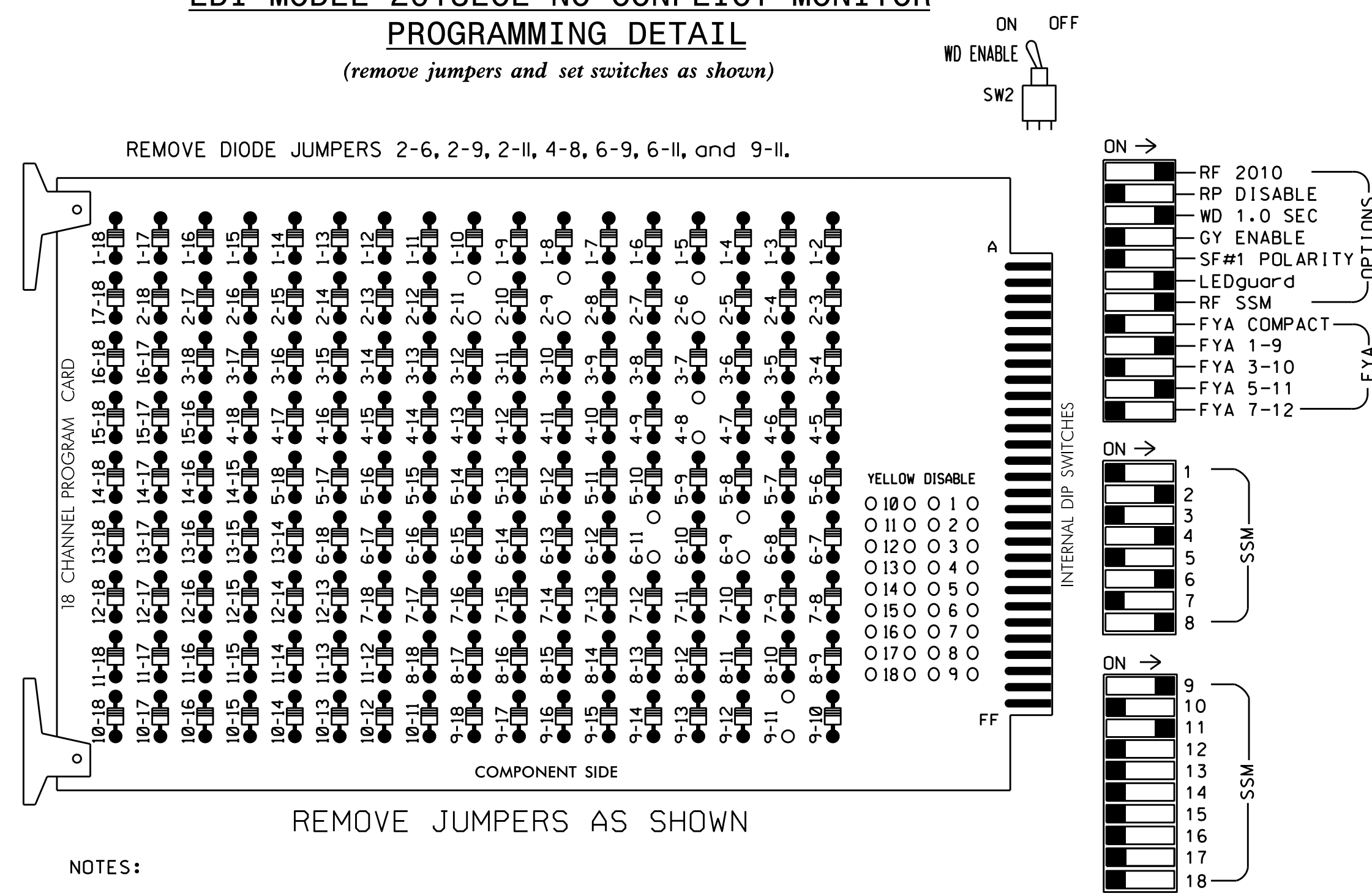
DATE: 12/11/2015

SIG. INVENTORY NO. 05-1186

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**EDI MODEL 2018ECL-NC CONFLICT MONITOR
PROGRAMMING DETAIL**

(remove jumpers and set switches as shown)



NOTES:

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

- NOTES**
1. 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.
 2. Program phases 4 and 8 for Dual Entry.
 3. Enable Simultaneous Gap-Out for all phases.
 4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
 5. Program phases 2 and 6 for Start Up In Green.
 6. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

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	22,23 24	NU	NU	41,42	NU	NU	62,63	NU	NU	81,82	NU	61	NU	NU	21	NU	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																		

NU = Not Used
★ See pictorial of head wiring in detail below.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE LOAD SWITCHES USED.....S2,S5,S8,S11,AUX S1,AUX S4
PHASES USED.....2,4,6,8
OVERLAP "A".....6
OVERLAP "B".....NOT USED
OVERLAP "C".....2
OVERLAP "D".....NOT USED

INPUT FILE POSITION LAYOUT

(front view)

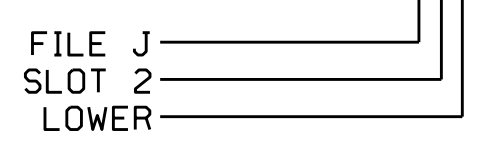
FILE	U	1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	∅ 2	2A	∅ 2	∅ 2	∅ 4	4A	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	FS
	L	∅ 2	2B	∅ 2	∅ 2	NOT USED	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	ISOLATOR
"J"	U	∅ 6	6A	∅ 6	∅ 6	∅ 8	8A	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	FS
	L	∅ 6	6B	∅ 6	∅ 6	NOT USED	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S
FS = FLASH SENSE
ST = STOP TIME

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			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	Y		3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			5
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y	Y		3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			5

INPUT FILE POSITION LEGEND: J2L



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
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

```

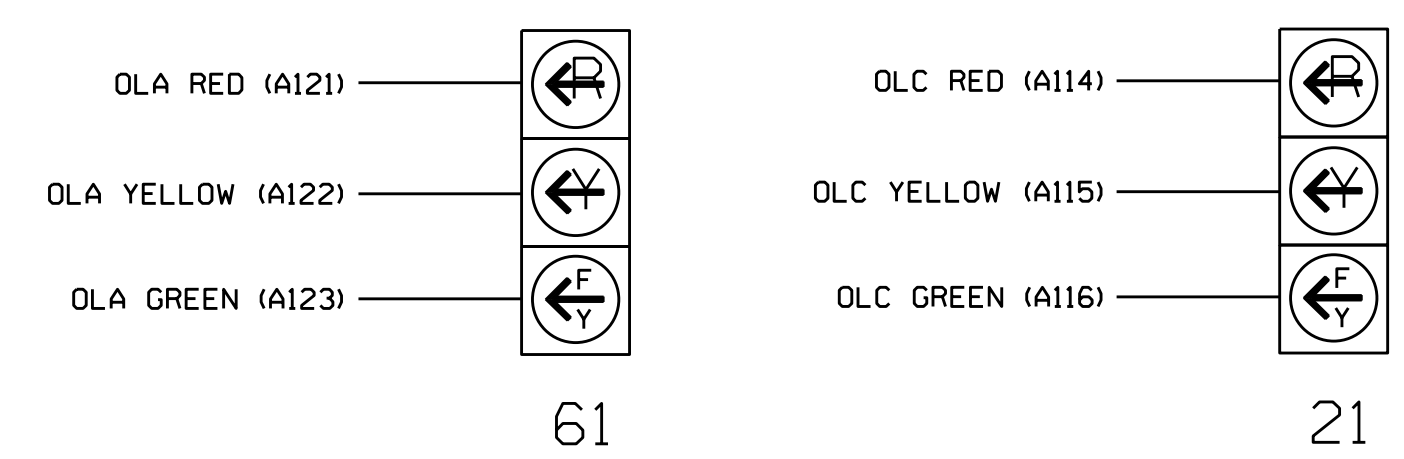
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: :12345678910111213141516
VEH OVL PARENTS: : X
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0
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

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1186
DESIGNED: October 2015
SEALED: 12/11/2015
REVISED: N/A

Electrical Detail

Electrical and Programming Details For: **NC 42 at SR 2736 (Rock Service Station Rd)**

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

Division 5 Wake County Willow Spring

PLAN DATE: December 2015 REVIEWED BY: T. Joyce

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL: **KEITH M. MIMS**, Professional Engineer, No. 036880

DocuSigned by: **Keith M. Mims**, 12/15/2015

SIG. INVENTORY NO. 05-1186

14-BEC-2015-18-11
S:\IT\SAS\15\Sigmod\work\hgr\oups\g_Morph\mstron\051186_sml.ele.xxx.dgn
sarmstrong

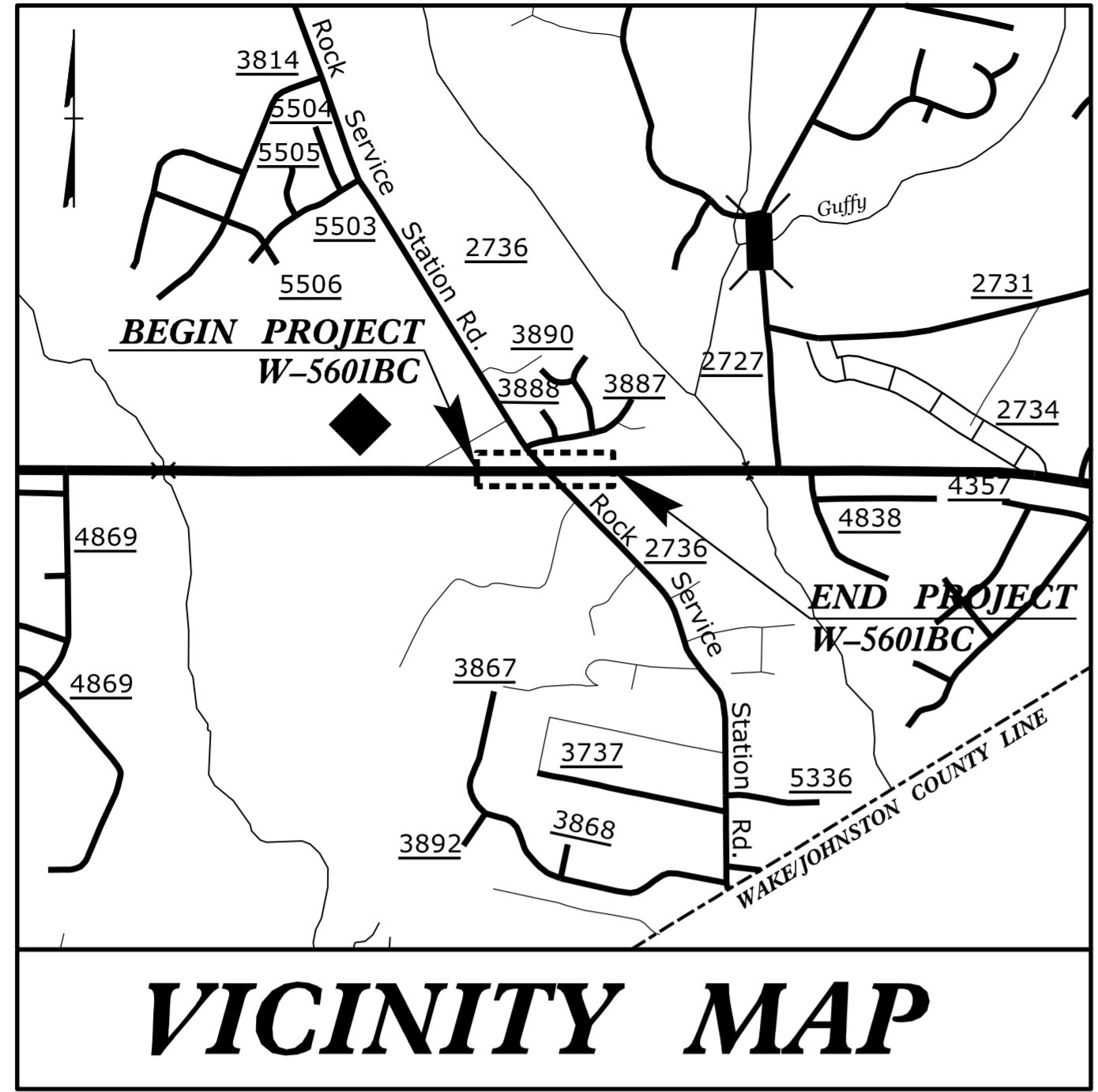
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
W-5601BC	UC-1

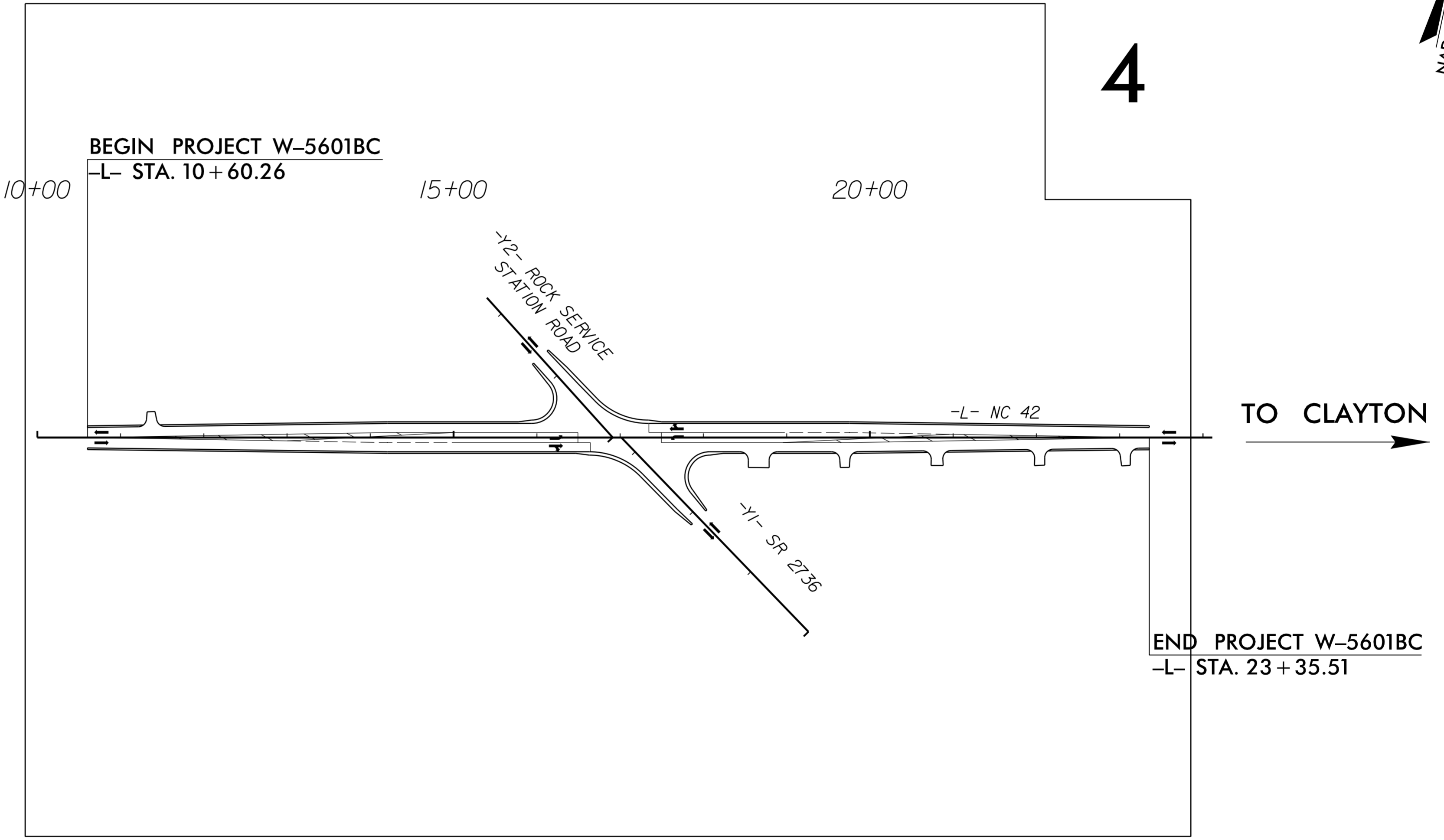
CH ENGINEERING
3220 GLEN ROYAL RD. RALEIGH, NC 27617
TELE 919.788.0224 FAX 919.788.0232
NC LICENSE #P-0189

**UTILITY CONSTRUCTION PLANS
WAKE COUNTY**

LOCATION: NC 42 AT SR 2736 (ROCK SERVICE STATION ROAD)
TYPE OF WORK: WATER LINE CONSTRUCTION



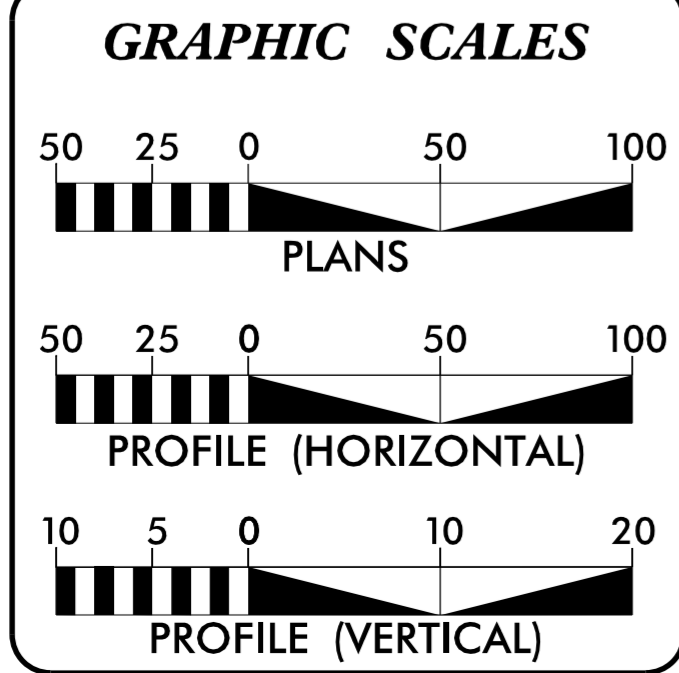
VICINITY MAP



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UNLESS ALL SIGNATURES COMPLETED

TIP PROJECT: W-5601BC

CONTRACT:



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	DETAILS
UC-4	UTILITY CONSTRUCTION SHEETS
UC-5	PROFILE SHEETS

WATER OWNERS ON PROJECT

(1) WATER JOHNSTON COUNTY

SEAL

PREPARED IN THE OFFICE OF:
**DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING**

1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Ben Upshaw, P.E. DIVISION DESIGN ENGINEER- DIVISION 5
Eric Tweed, P.E. UTILITIES PROJECT DESIGNER

\$\$\$SYTIME\$\$\$\$
 \$\$\$DCN\$\$\$\$
 \$\$\$USERNAME\$\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

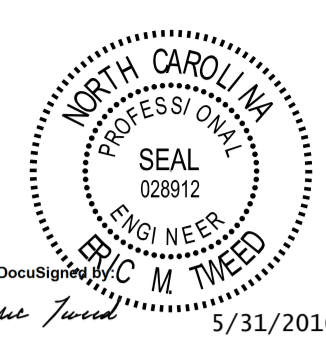
Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

EXISTING UTILITIES SYMBOLS

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

*For Existing Utilities
 Utility Line Drawn from Record (Type as Shown) _____
 Designated Utility Line (Type as Shown) _____

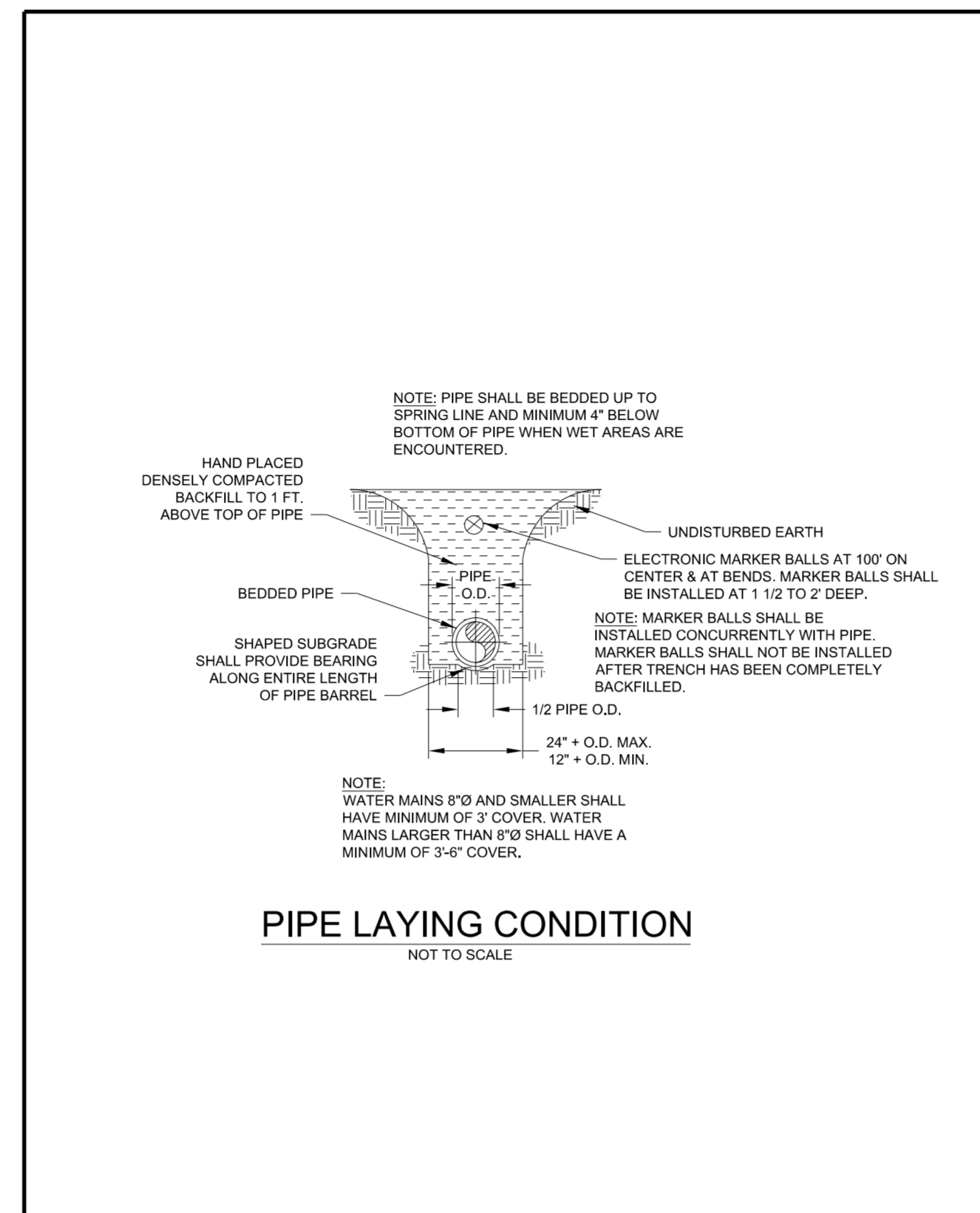
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5/23/2006 UC:\Projs\W5601BC\ut_sym\UC02_psh.dgn
REV: 2/1/2012



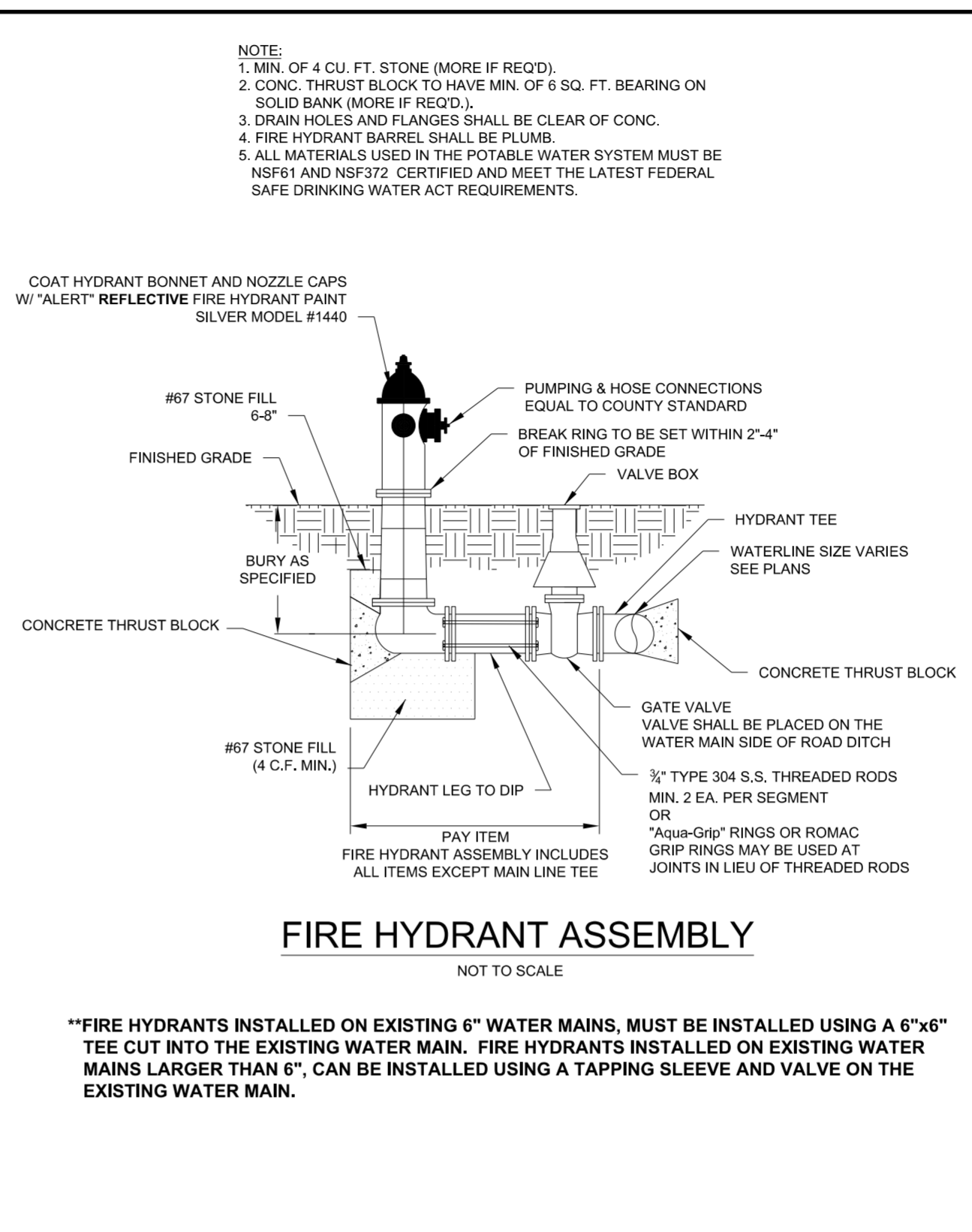
PROJECT TYPICAL DETAILS

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PIPE LAYING CONDITION
NOT TO SCALE



FIRE HYDRANT ASSEMBLY
NOT TO SCALE

****FIRE HYDRANTS INSTALLED ON EXISTING 6" WATER MAINS, MUST BE INSTALLED USING A 6"x6" TEE CUT INTO THE EXISTING WATER MAIN. FIRE HYDRANTS INSTALLED ON EXISTING WATER MAINS LARGER THAN 6", CAN BE INSTALLED USING A TAPPING SLEEVE AND VALVE ON THE EXISTING WATER MAIN.**

Drawn By:	Name	Date	
Checked By:			
Approved By:			
Scale:			
Rev.	Description	Date	Init.

JOHNSTON COUNTY
Department of Public Utilities
P.O. Box 2263
Smithfield, NC 27577

WATER STANDARD DETAIL
Pipe Laying Condition

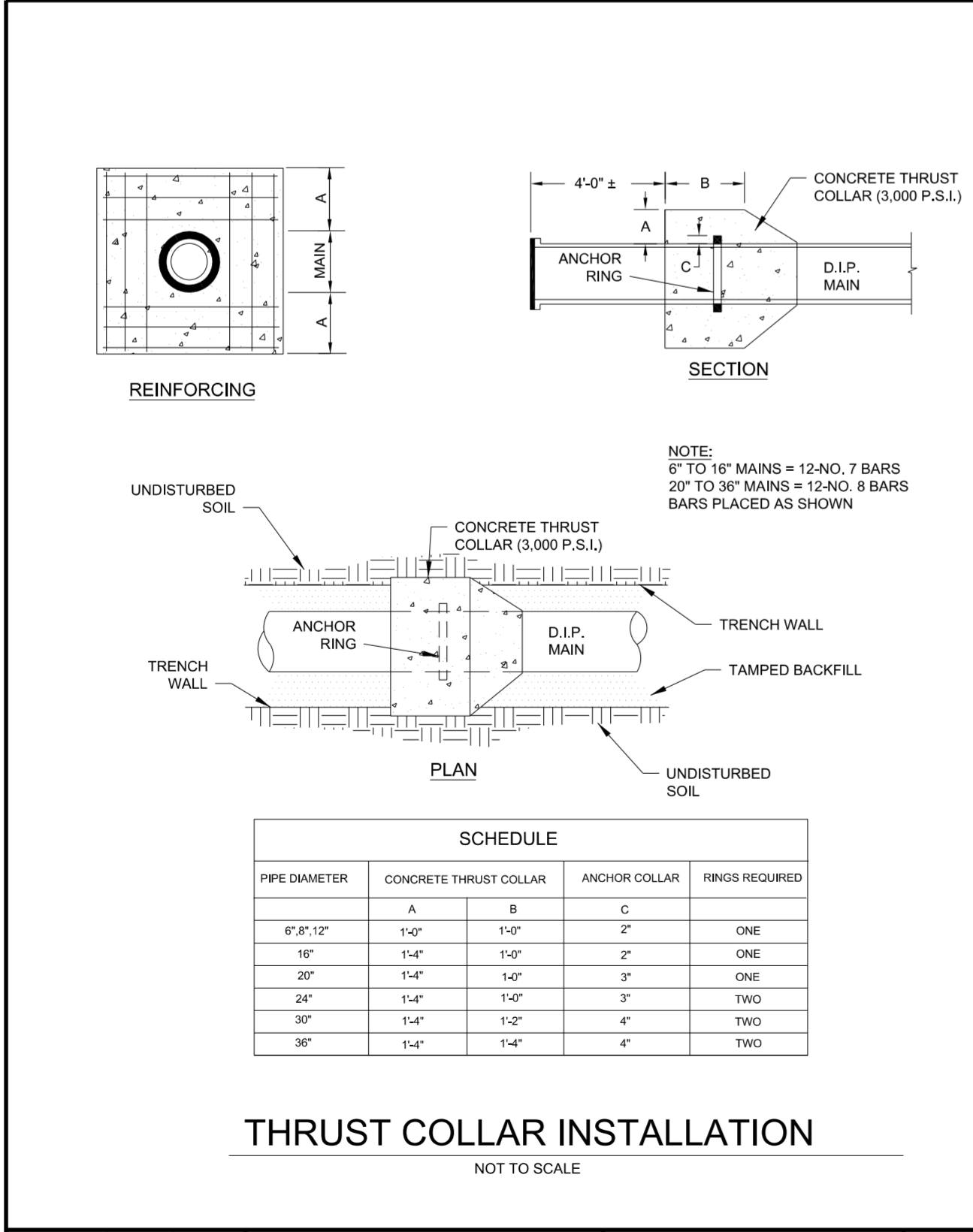
PAGE **17**

Drawn By:	Name	Date	
Checked By:			
Approved By:			
Scale:			
Rev.	Description	Date	Init.

JOHNSTON COUNTY
Department of Public Utilities
P.O. Box 2263
Smithfield, NC 27577

WATER STANDARD DETAIL
Fire Hydrant Assembly

PAGE **4**



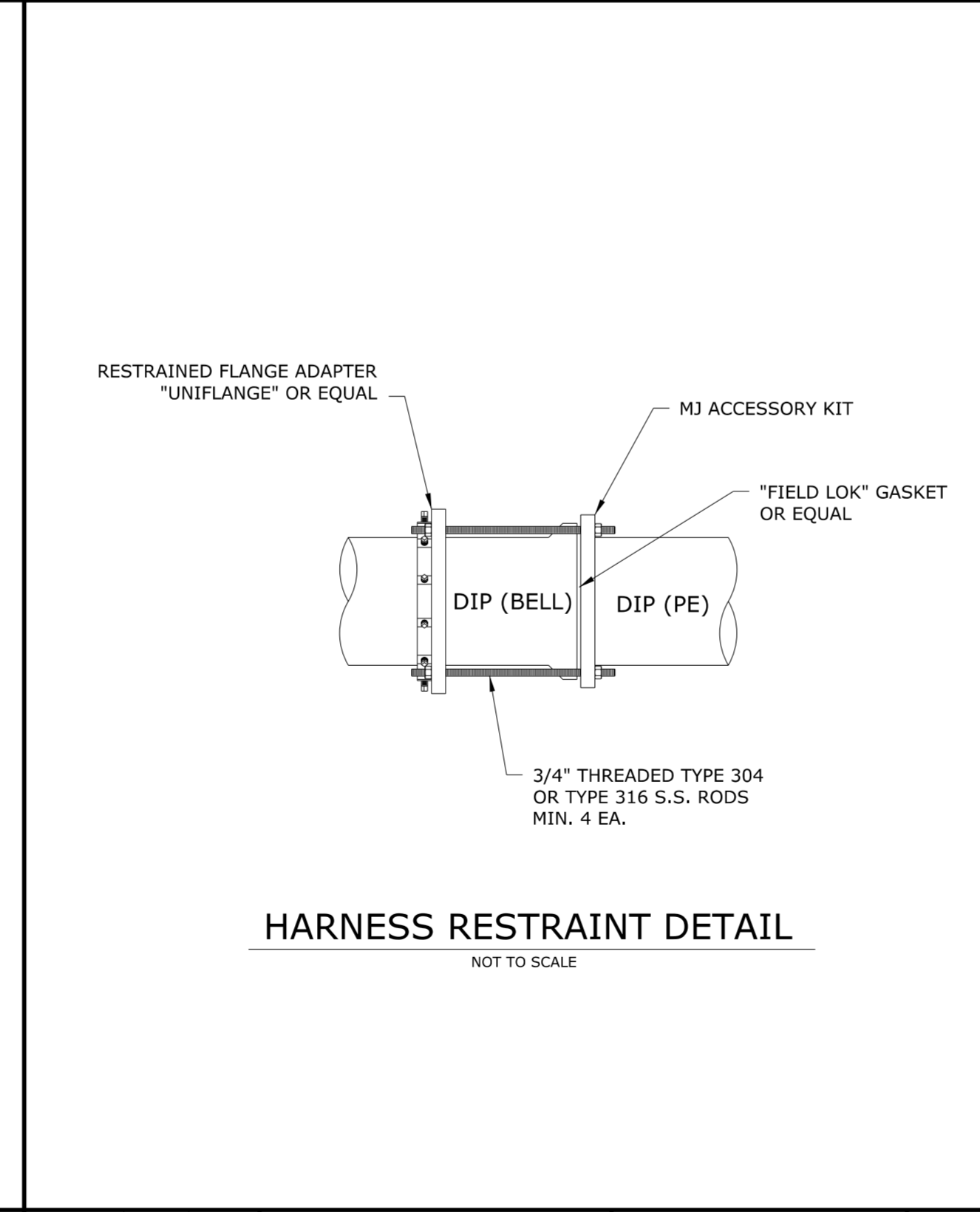
THRUST COLLAR INSTALLATION
NOT TO SCALE

Drawn By:	Name	Date	
Checked By:			
Approved By:			
Scale:			
Rev.	Description	Date	Init.

JOHNSTON COUNTY
Department of Public Utilities
P.O. Box 2263
Smithfield, NC 27577

WATER STANDARD DETAIL
Thrust Collar Installation

PAGE **9**



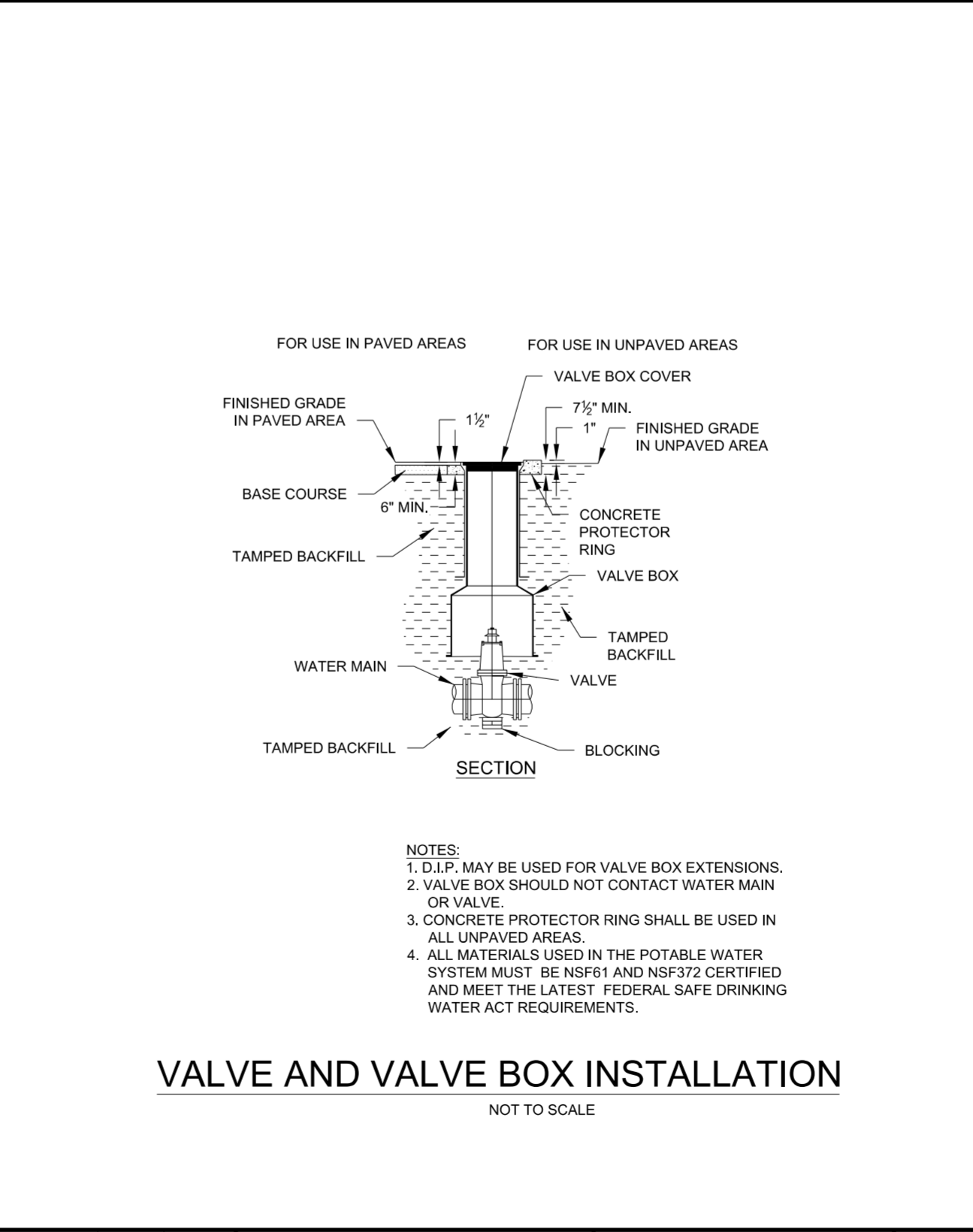
HARNES RESTRAINT DETAIL
NOT TO SCALE

Drawn By:	Name	Date	
Checked By:			
Approved By:			
Scale:			
Rev.	Description	Date	Init.

JOHNSTON COUNTY
Department of Public Utilities
P.O. Box 2263
Smithfield, NC 27577

WATER STANDARD DETAIL
Restraint Harness

PAGE **10**



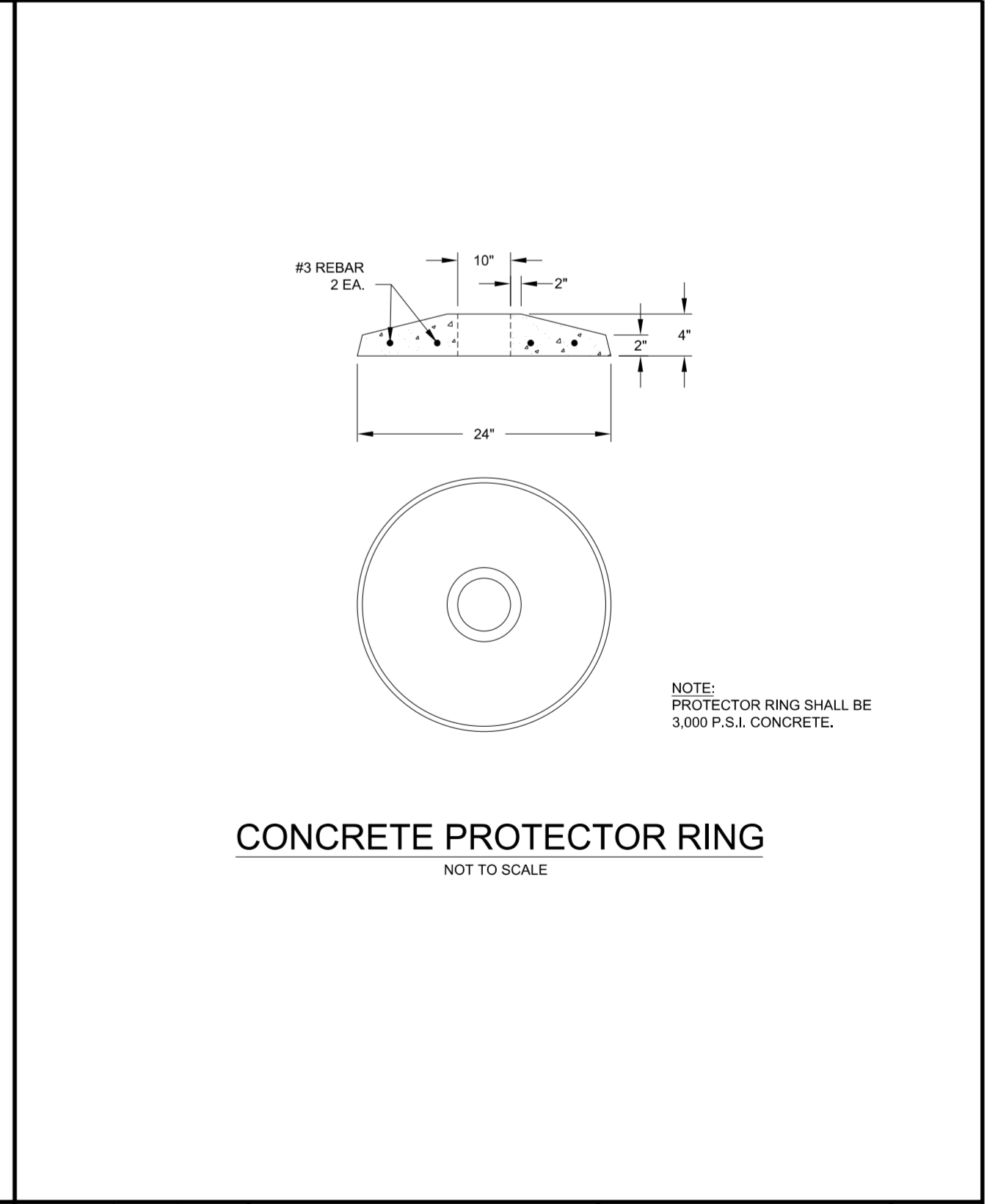
VALVE AND VALVE BOX INSTALLATION
NOT TO SCALE

Drawn By:	Name	Date	
Checked By:			
Approved By:			
Scale:			
Rev.	Description	Date	Init.

JOHNSTON COUNTY
Department of Public Utilities
P.O. Box 2263
Smithfield, NC 27577

WATER STANDARD DETAIL
Valve and Valve Box Installation

PAGE **13**



CONCRETE PROTECTOR RING
NOT TO SCALE

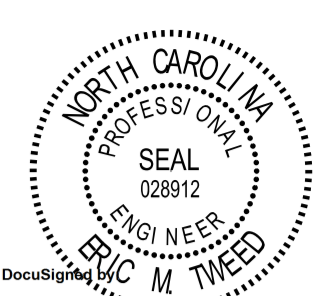
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Approved By:			
Scale:			
Rev.	Description	Date	Init.

JOHNSTON COUNTY
Department of Public Utilities
P.O. Box 2263
Smithfield, NC 27577

WATER STANDARD DETAIL
Concrete Protector Ring

PAGE **14**

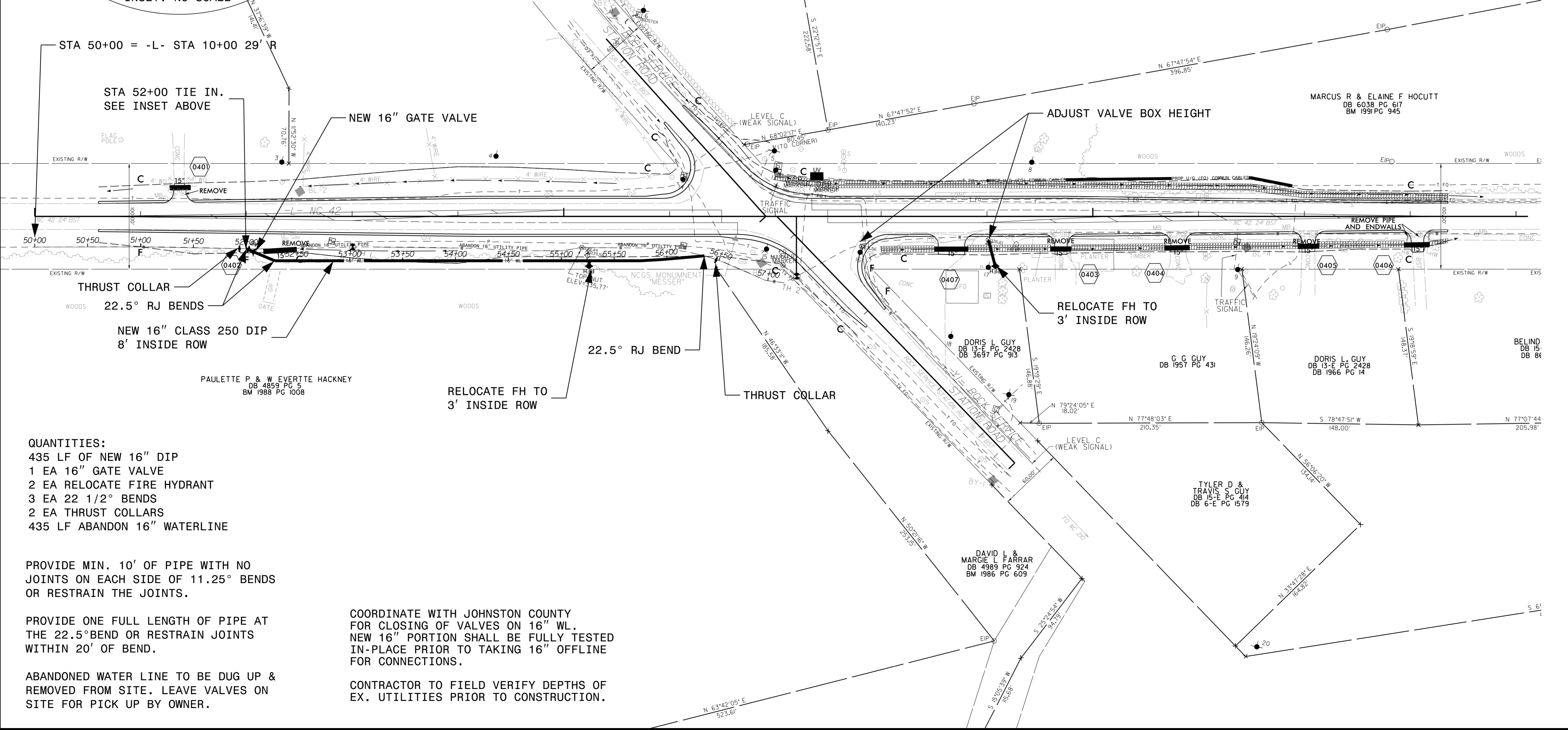
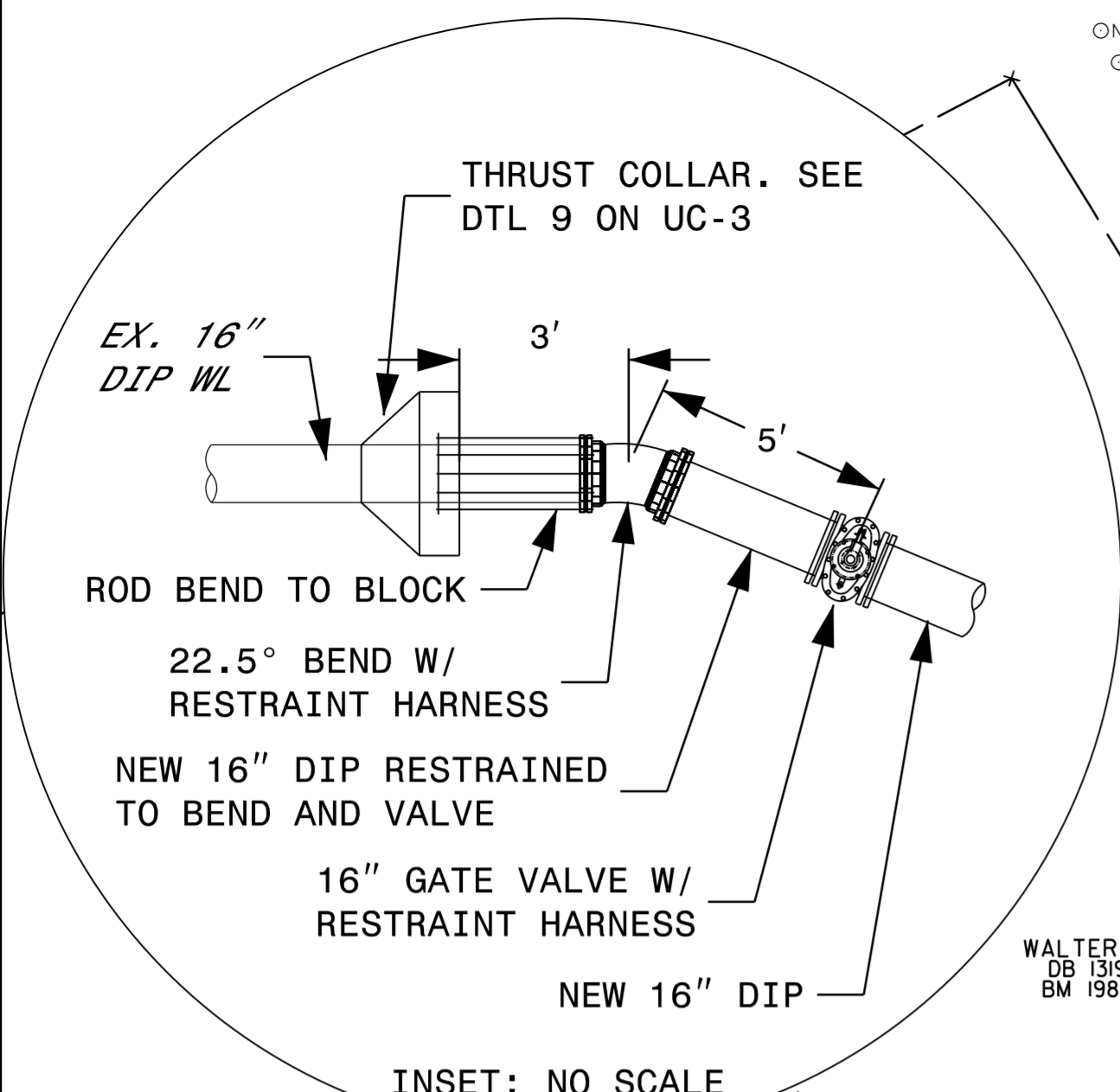
5/14/1999
5/31/2016 UC\N\Proj\W5601BC.ut.dtl_UC03.psh.dgn

PROJECT REFERENCE NO.	W-5601BC	SHEET NO.	UC04
DESIGNED BY:	EMT		
DRAWN BY:	EMT		
CHECKED BY:	MAC		
APPROVED BY:			
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		5/24/2016	
UTILITIES ENGINEERING SECTION		UTILITY CONSTRUCTION PLANS ONLY	
PHONE: (919) 707-6690			
FAX: (919) 1250-4151			

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

EXISTING UTILITIES SHOWN ARE APPROXIMATE AND MAY NOT REFLECT ALL UTILITIES AT THE SITE. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS PRIOR TO CONSTRUCTION.



- QUANTITIES:**
- 435 LF OF NEW 16" DIP
 - 1 EA 16" GATE VALVE
 - 2 EA RELOCATE FIRE HYDRANT
 - 3 EA 22 1/2° BENDS
 - 2 EA THRUST COLLARS
 - 435 LF ABANDON 16" WATERLINE

PROVIDE MIN. 10' OF PIPE WITH NO JOINTS ON EACH SIDE OF 11.25° BENDS OR RESTRAIN THE JOINTS.

PROVIDE ONE FULL LENGTH OF PIPE AT THE 22.5° BEND OR RESTRAIN JOINTS WITHIN 20' OF BEND.

ABANDONED WATER LINE TO BE DUG UP & REMOVED FROM SITE. LEAVE VALVES ON SITE FOR PICK UP BY OWNER.

COORDINATE WITH JOHNSTON COUNTY FOR CLOSING OF VALVES ON 16" WL. NEW 16" PORTION SHALL BE FULLY TESTED IN-PLACE PRIOR TO TAKING 16" OFFLINE FOR CONNECTIONS.

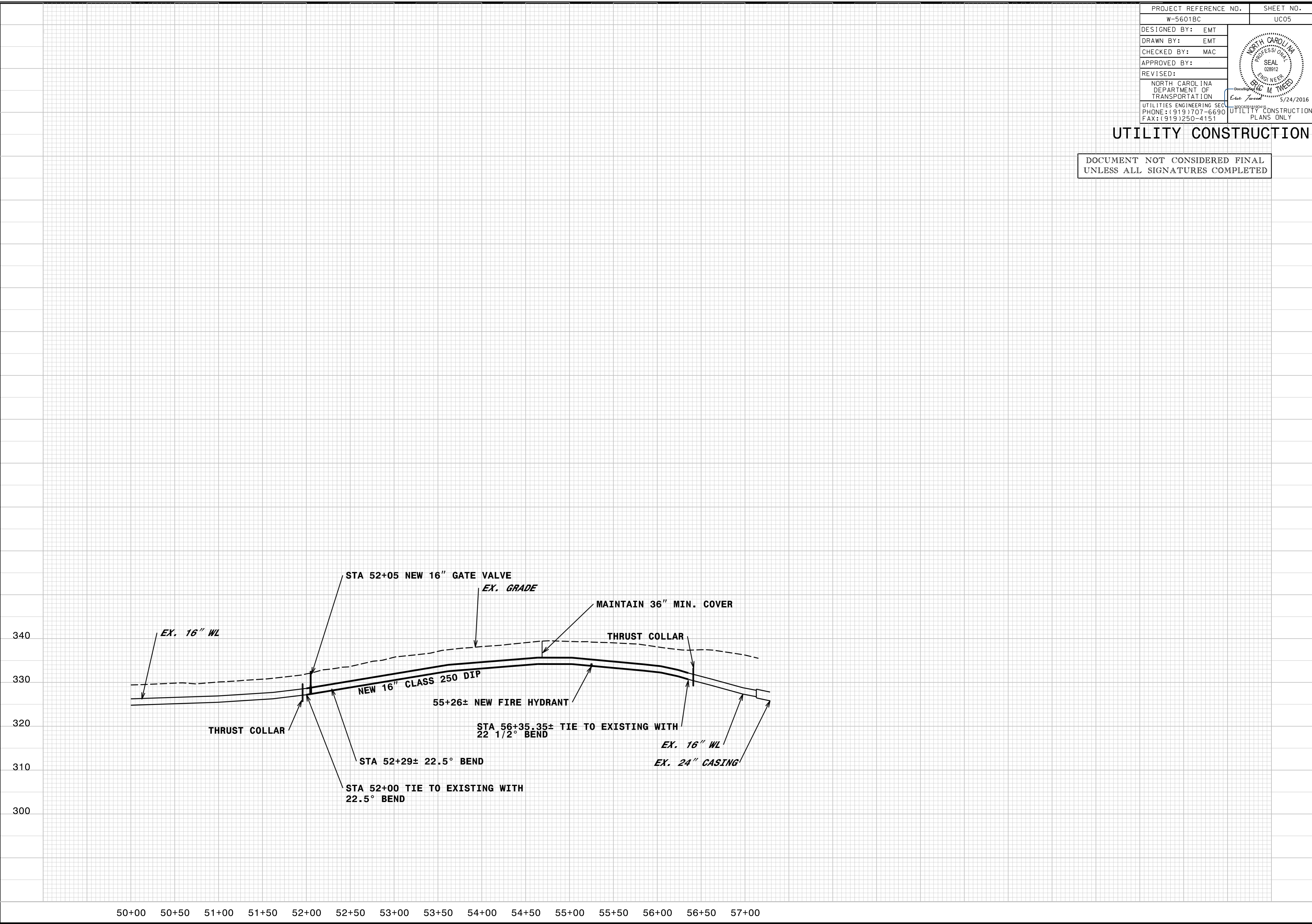
CONTRACTOR TO FIELD VERIFY DEPTHS OF EX. UTILITIES PRIOR TO CONSTRUCTION.

5/14/1999
S:\LINE\CONSTRUCTION\5601BC\UC04.DWG

PROJECT REFERENCE NO.	SHEET NO.
W-5601BC	UC05
DESIGNED BY: EMT	
DRAWN BY: EMT	
CHECKED BY: MAC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	
5/24/2016 UTILITY CONSTRUCTION PLANS ONLY	

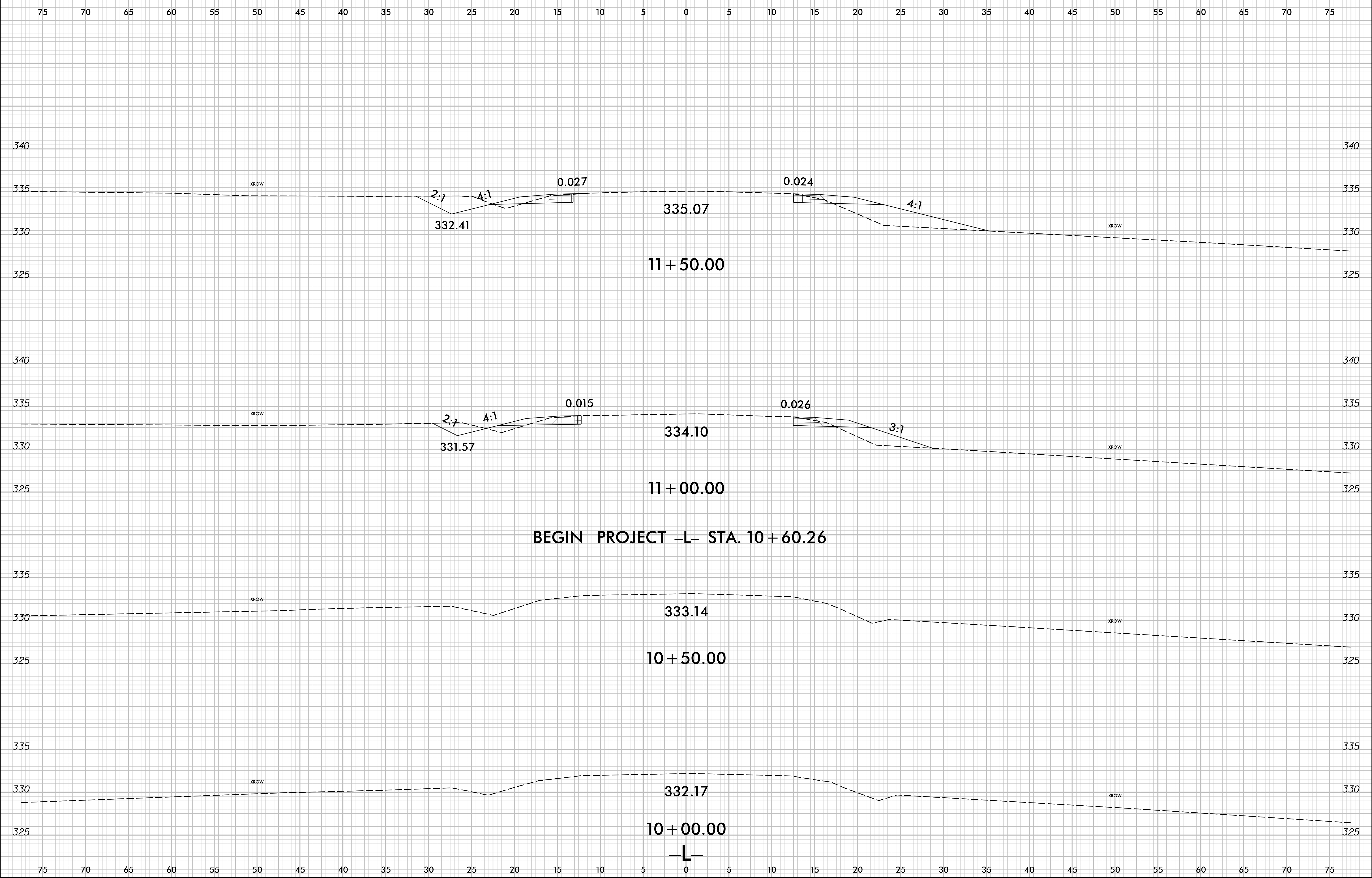
UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
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5/14/99
UTILITY CONSTRUCTION

8/23/99



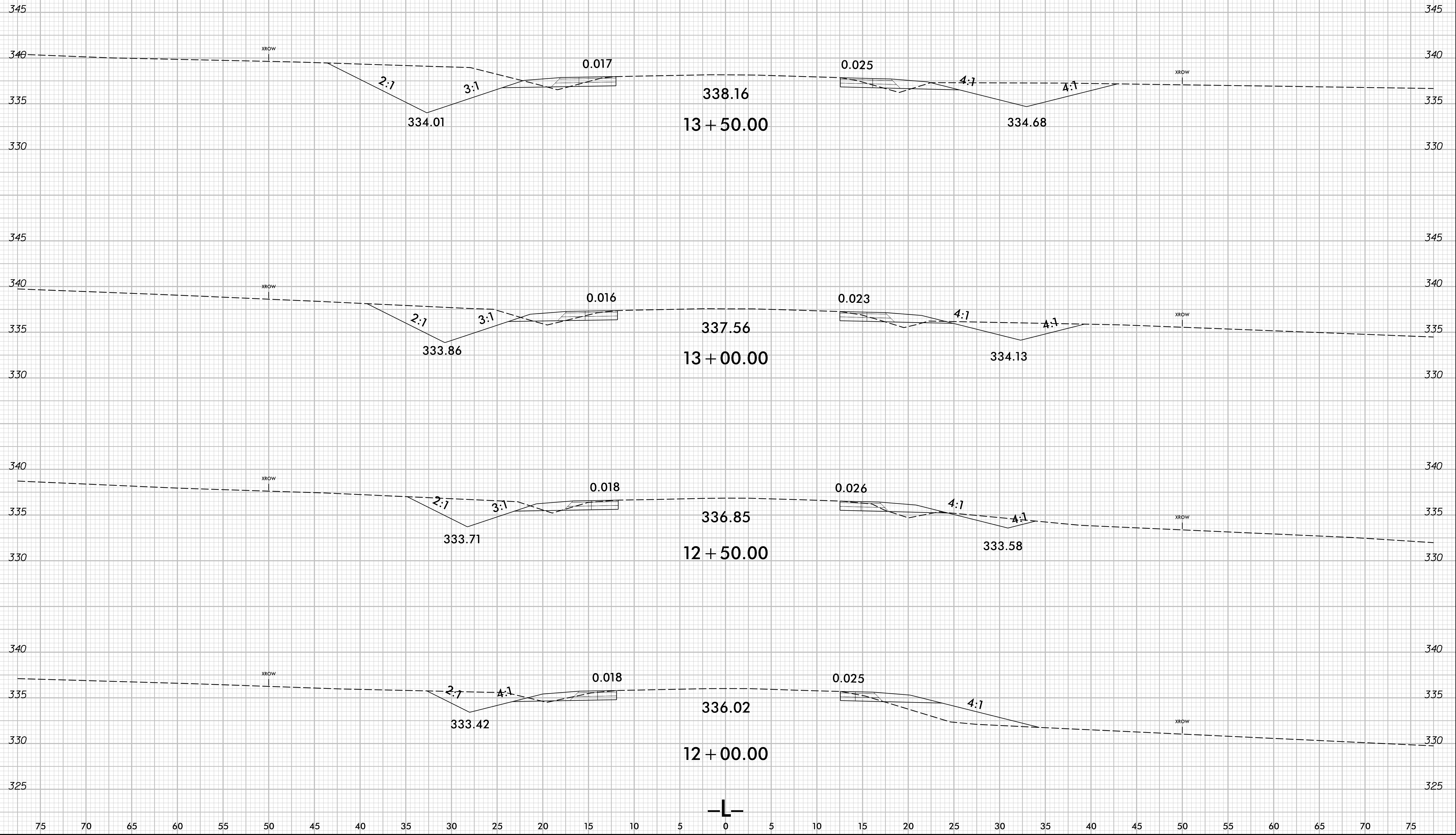
5/31/2016
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User: crdque

8/23/99



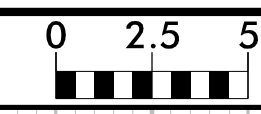
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W-5601BC	X-2

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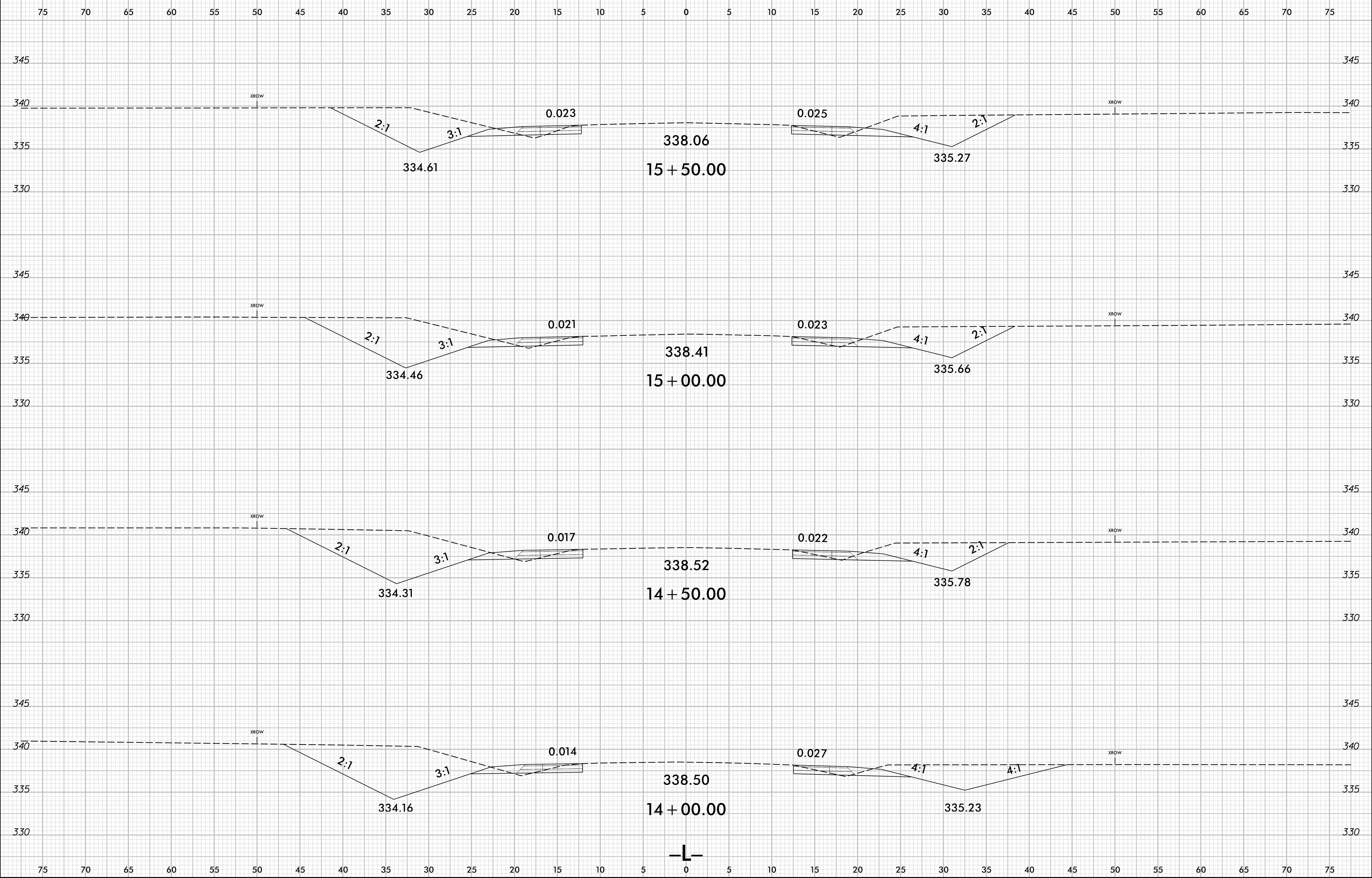


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User: cradue

8/23/99



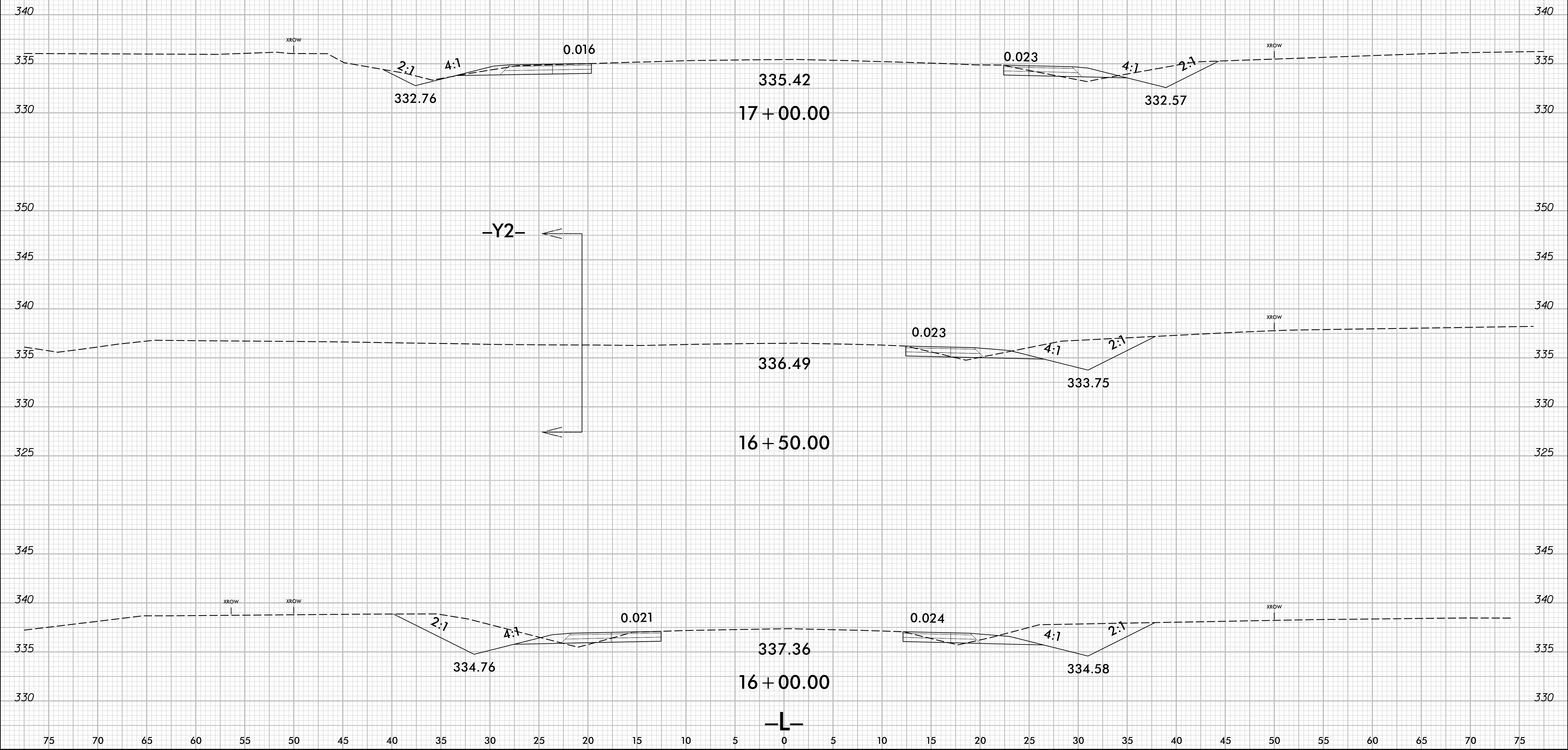
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8/23/99

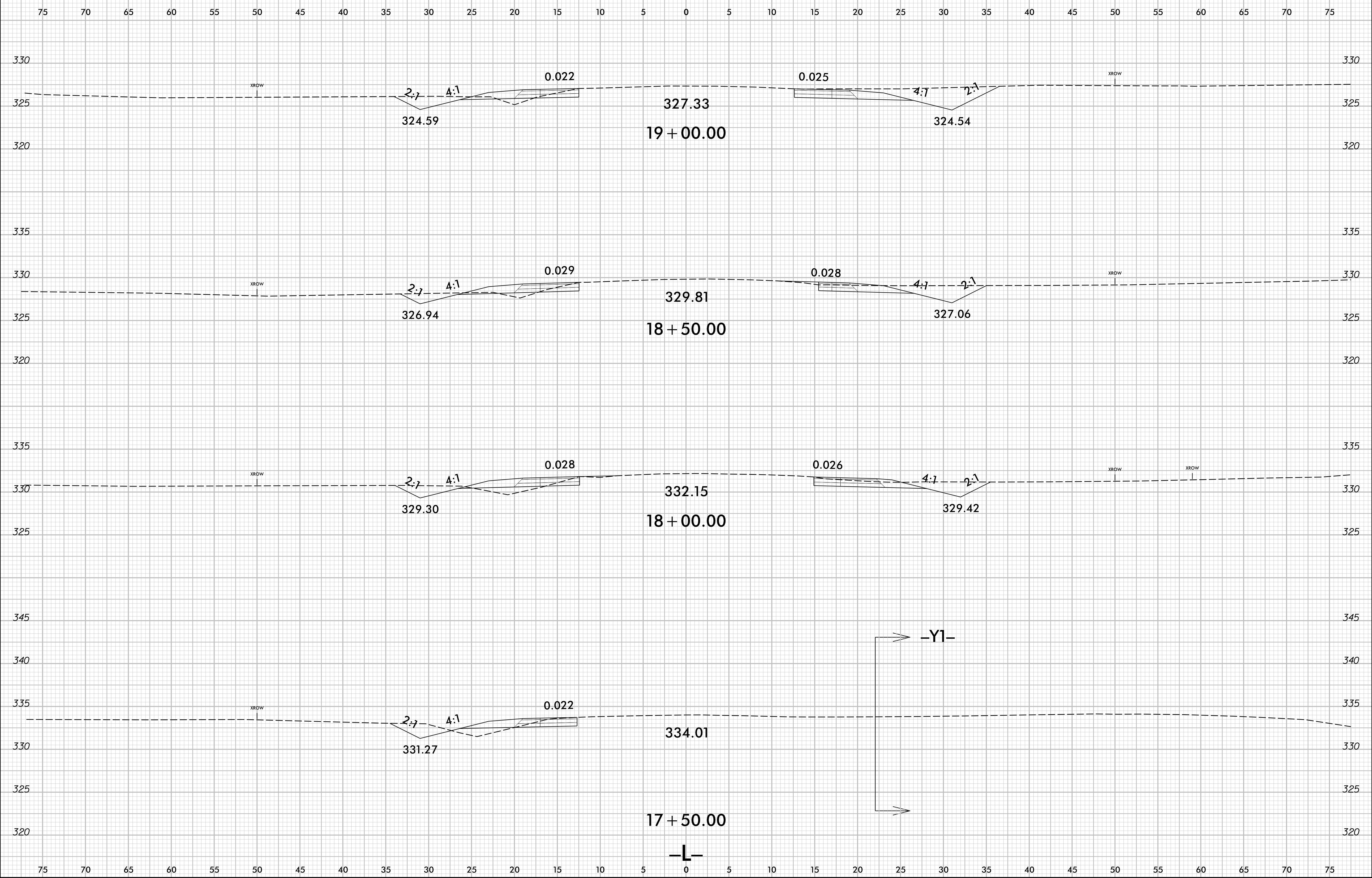
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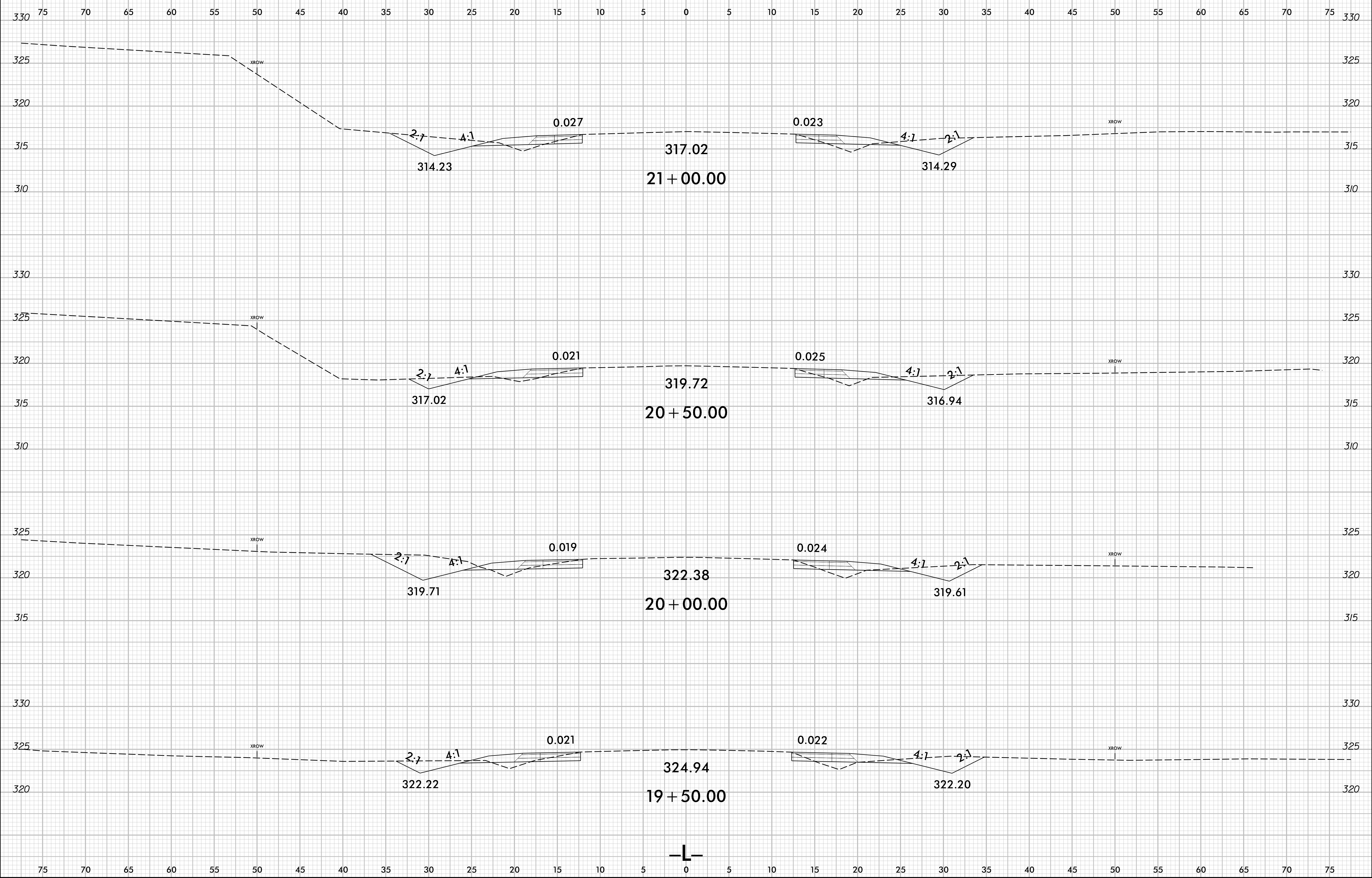
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User: cradue

8/23/99



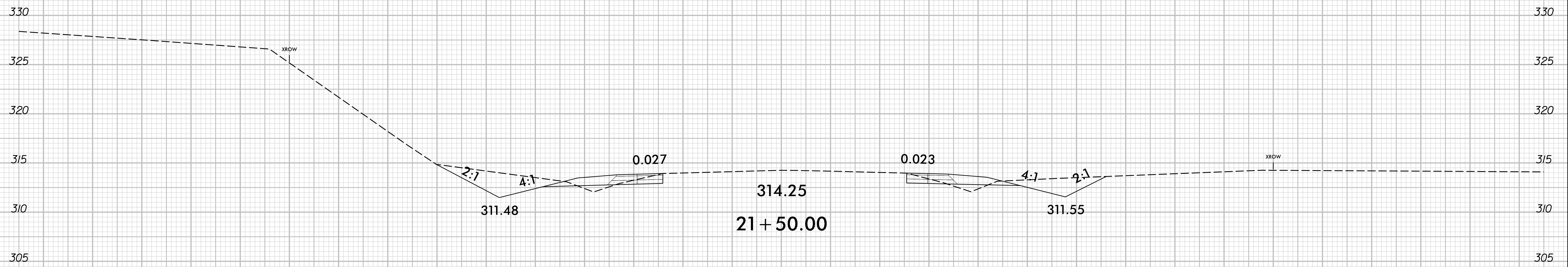
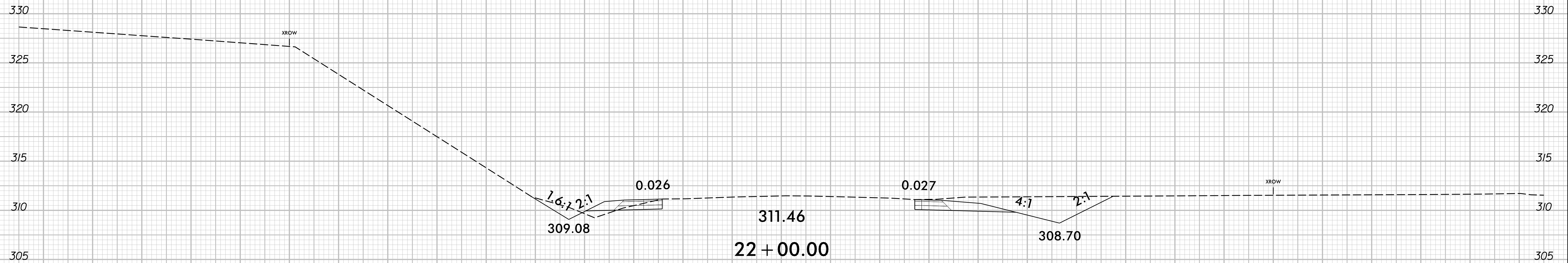
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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
W-5601BC	X-7

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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

5/31/2016
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 User: cradue

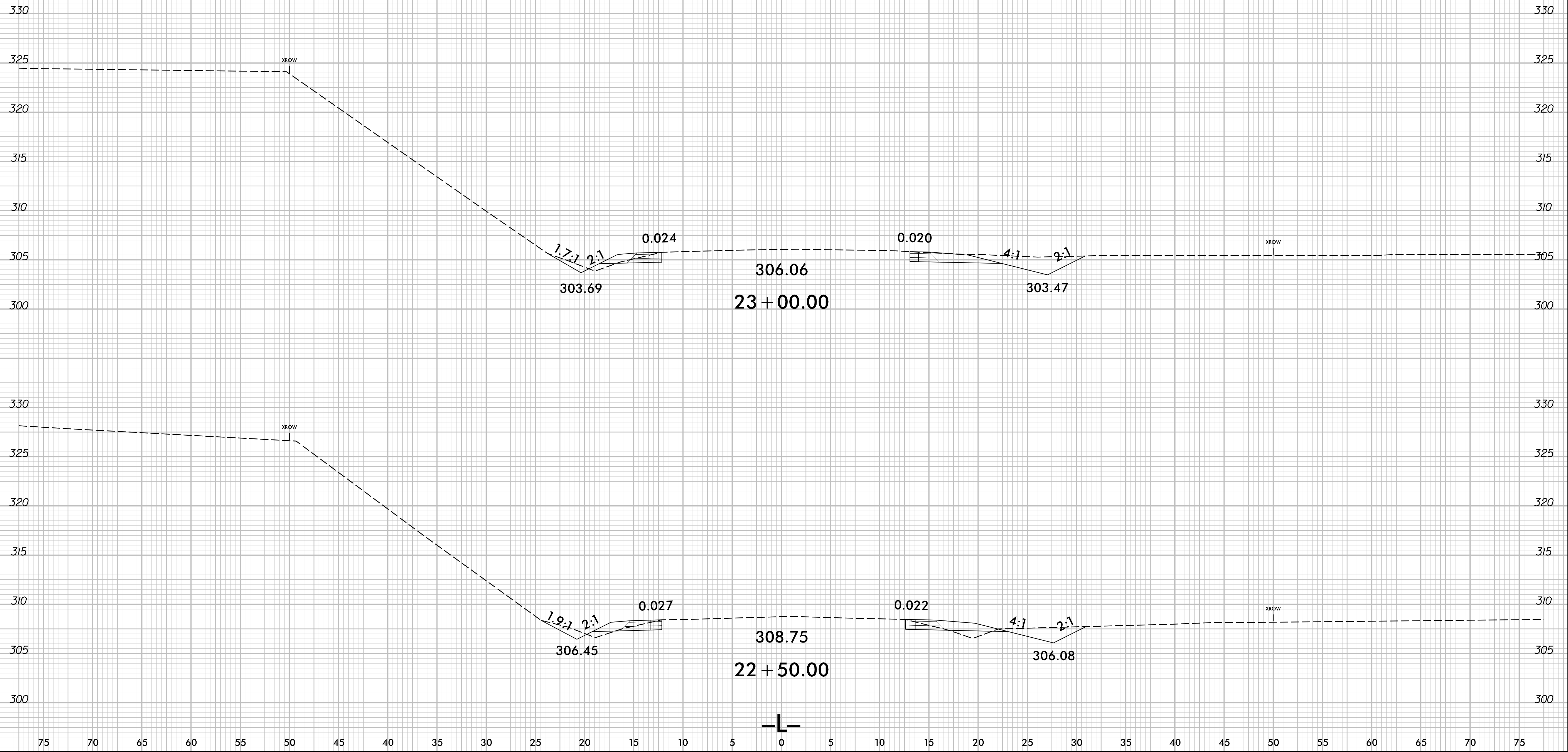
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PROJ. REFERENCE NO.	SHEET NO.
W-5601BC	X-8

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

END PROJECT -L- STA. 23 + 35.51



5/31/2016
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 User: crague

