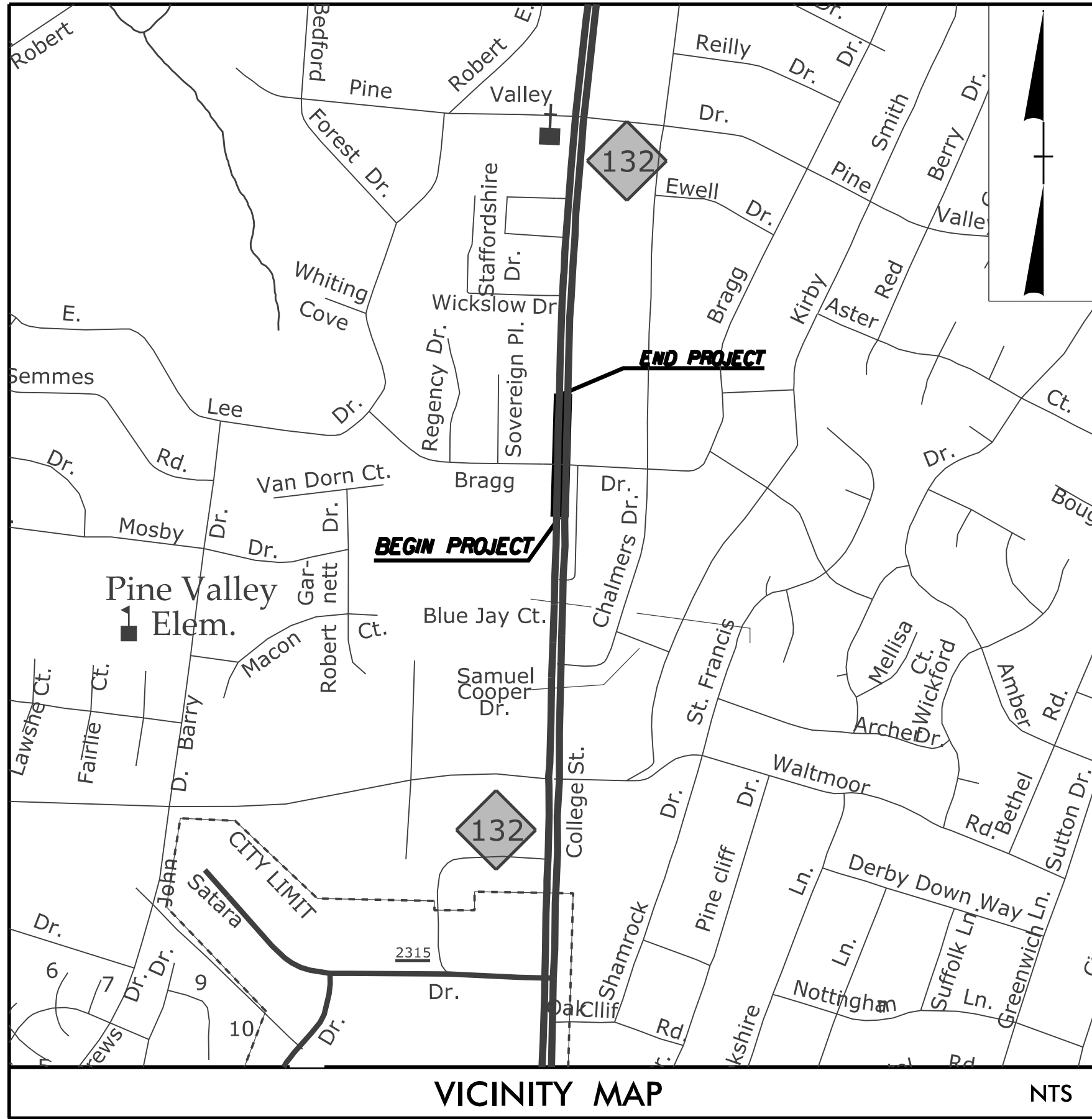


09/08/19

TIP PROJECT: W-5703R

CONTRACT: DC000408

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



VICINITY MAP

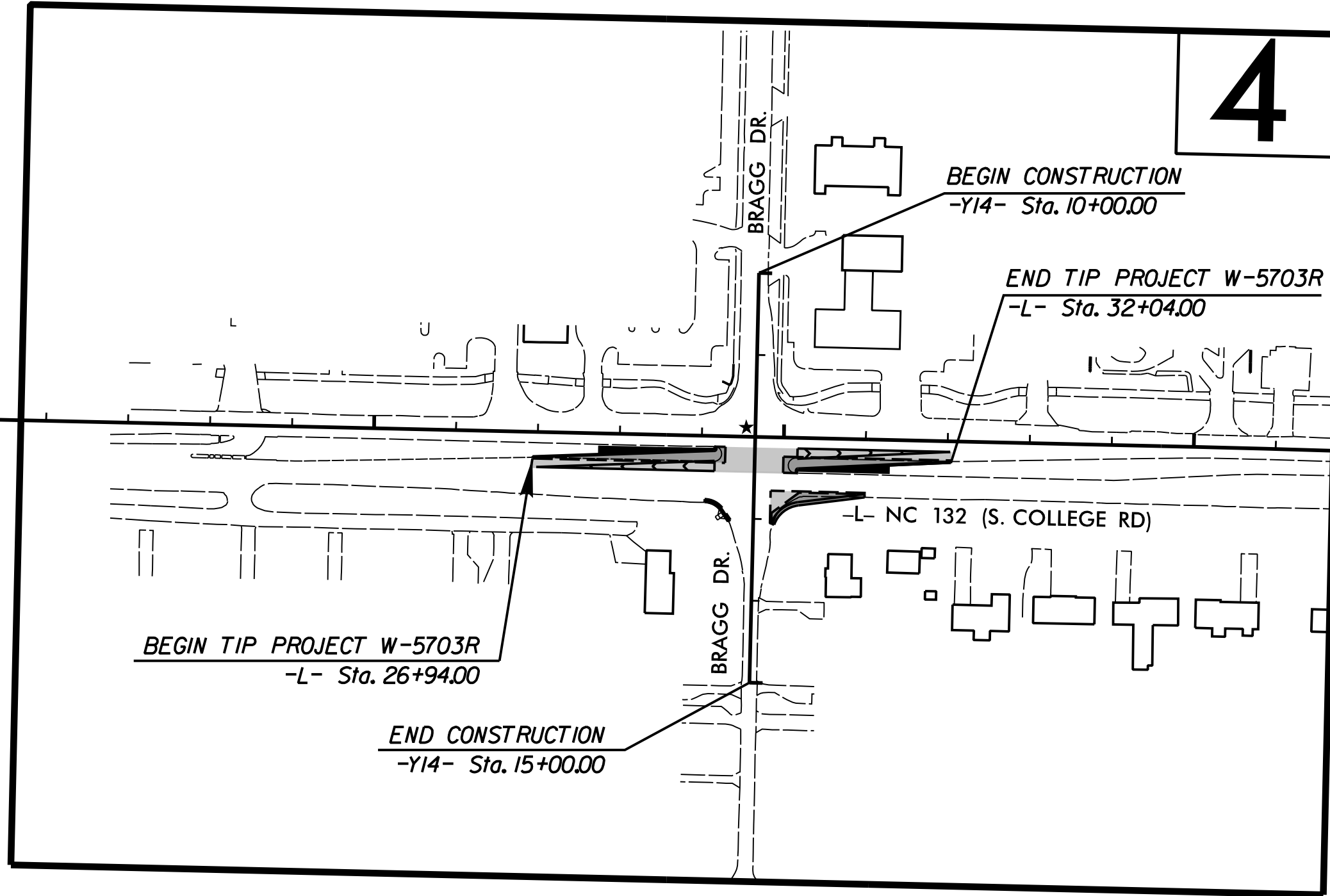
FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

LOCATION: INTERSECTION OF NC 132 (COLLEGE ROAD)
AND BRAGG DRIVE (CITY STREET)

TYPE OF WORK: GRADING, PAVING, PAVEMENT MARKINGS,
SIGNALS AND DRAINAGE



TO S. 17TH STREET

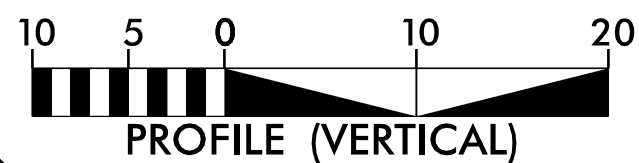
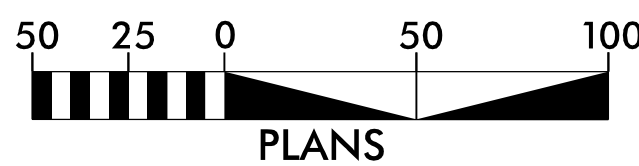
TO PINE VALLEY DRIVE

NAD 83/2011

- THIS IS A NO CONTROLLED ACCESS PROJECT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2021 = 38,000
V = 50 MPH

FUNC CLASS =
PRINCIPAL ARTERIAL

STATEWIDE TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT = 0.097 MI
TOTAL LENGTH OF W-5703R PROJECT = 0.097 MI

NCDOT CONTACT: TRACE HOWELL, PE
DIVISION 3 DESIGN ENGINEER



Prepared In the Office of:

LJB INC.

We think bigger. 1401 Aversboro Road Suite 215, Garner, NC 27529
NC LICENSE NO. C-4123

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
N/A

LETTING DATE:
SEPTEMBER 8, 2022

FARRELL NICHOLSON, PE
PROJECT ENGINEER

FARRELL NICHOLSON, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

8/17/2022

DocuSigned by:
Farrell Nicholson
327F12B9153D486...

SIGNATURE:

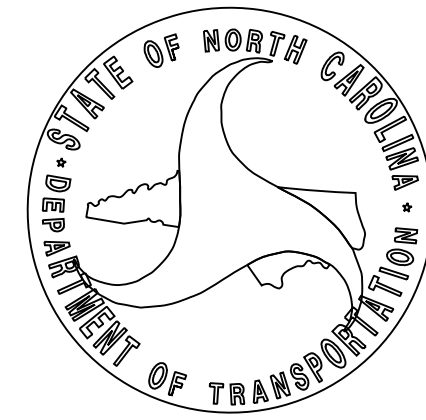
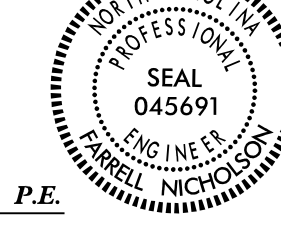


ROADWAY DESIGN
ENGINEER

8/17/2022

DocuSigned by:
Farrell Nicholson
327F12B9153D486...

SIGNATURE:



8/17/99

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M57038 RNY PSIA.dgn



1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123

PROJECT REFERENCE NO.	SHEET NO.
W-5703R	1A

ROADWAY DESIGN ENGINEER

SEAL 045691

8/17/2022

Farrell Nicholson

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

EFF. 01-16-2018
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.D03	Method of Clearing - Modified Method III (Use detail in lieu of Standard)
225.02	Guide for Grading Subgrade - Secondary and Local
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

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.

STREET TURNOUT:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

GAS - PIEDMONT NATURAL GAS (ROSS WILCOX 910-251-2808 HAROLD.WILCOX@PIEDMONTNG.COM),
WATER/SEWER - CAPE FEAR PUBLIC UTILITY (DAVID DAILEY 910-332-6626 DAVID.DAILEY@CFPUA.ORG),
COMMUNICATIONS - AT&T (ELIZABETH PATE 919-917-4256 ELIZABETH.PATE@ATT.COM),
COMMUNICATIONS - SPECTRUM (STEVE BARNETTE 910-772-5755 STEVE.BARNETTE@CHARTER.COM),
COMMUNICATIONS - SEGRA (MICHAEL WORNOM 803-609-1860 MICHAEL.WORNOM@SEGRA.COM),
POWER (DISTRIBUTION) - DUKE POWER (CYNTHIA ROARTY 919-327-7928 CYNTHIA.ROARTY@DUKE-ENERGY.COM)

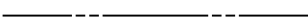
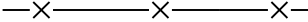
CURB RAMPS

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

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

PROJECT REFERENCE NO.	SHEET NO.
W-5703R	I-B

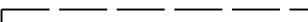
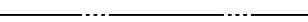
BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

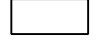
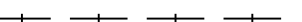
BUILDINGS AND OTHER CULTURE:

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

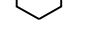
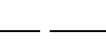
HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	

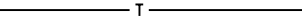
EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

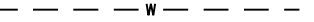
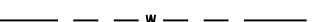
UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

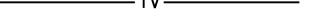
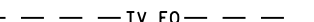
TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

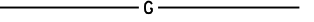
WATER:

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

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	

GAS:

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

SANITARY SEWER:

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

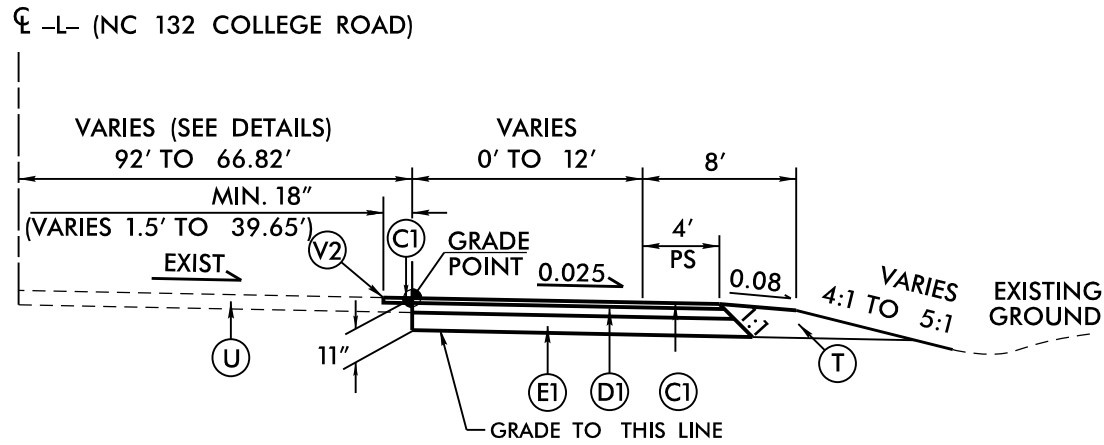
MISCELLANEOUS:

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

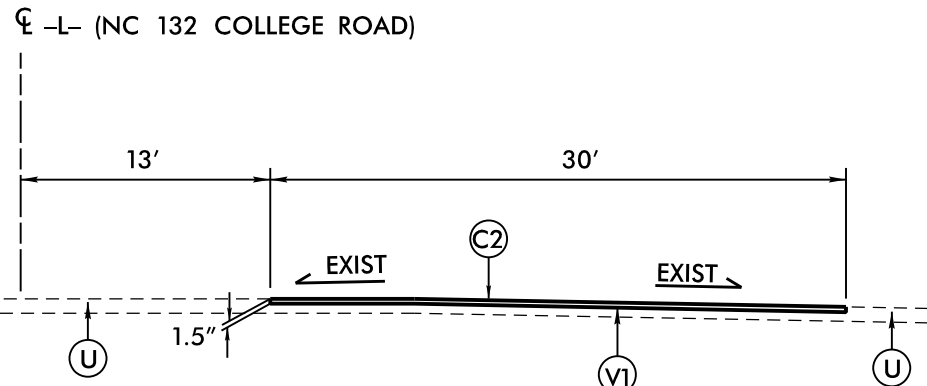
6/2/2022

PAVEMENT SCHEDULE	
(FINAL PAVEMENT DESIGN)	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
R1	1'-6" CONCRETE CURB
R2	4" CONCRETE ISLAND CAP
R3	EXISTING 1'-6" CONCRETE CURB TO BE RETAINED
R4	2'-6" CONCRETE CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING EXISTING PAVEMENT, 1 1/2" DEPTH
V2	MILLING EXISTING PAVEMENT, 3" DEPTH

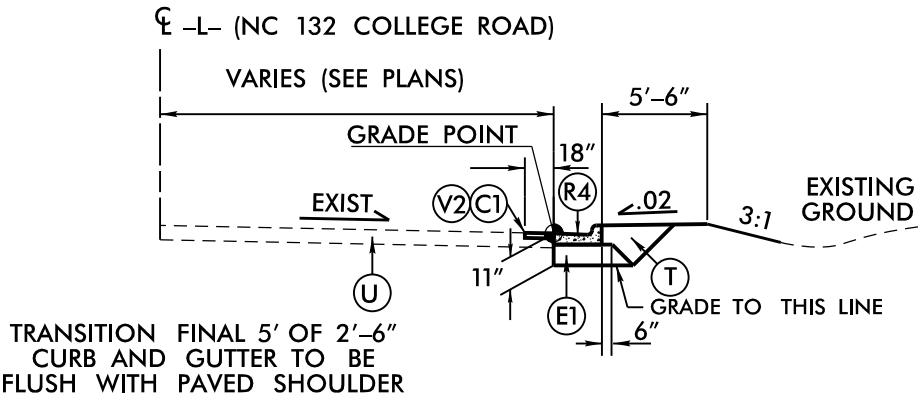
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 5
NORTHBOUND U-TURN LANE WIDENING
-L- STA. 29+85.35 TO 31+00.00



TYPICAL SECTION NO. 6
NORTHEAST CORNER INTERSECTION MILLING AND OVERLAY
-L- STA. 29+29.00 TO 30+00.00



TYPICAL SECTION NO. 7
SOUTHEAST CORNER INTERSECTION MILLING AND OVERLAY
-L- STA. 29+05.06 TO 29+35.84

*GRADE POINT DENOTES THE TOP ELEVATION OF THE EXISTING PAVEMENT.

**REFER TO PS# 04 AND RSD 848.05 FOR ADDITIONAL DIMENSIONS REGARDING CURB RAMP.



1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123

PROJECT REFERENCE NO.

W-5703R

SHEET NO.

2A-1

ROADWAY DESIGN

ENGINEER

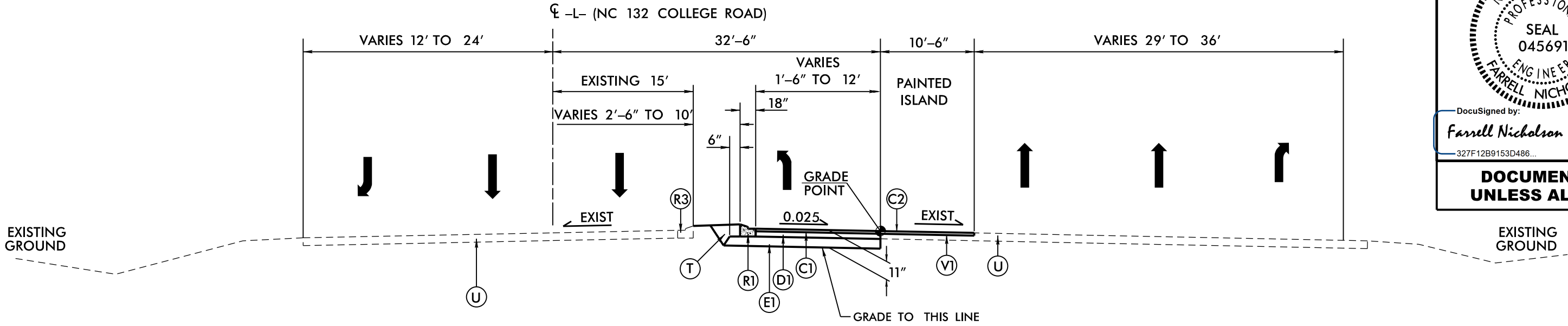
PAVEMENT DESIGN

ENGINEER

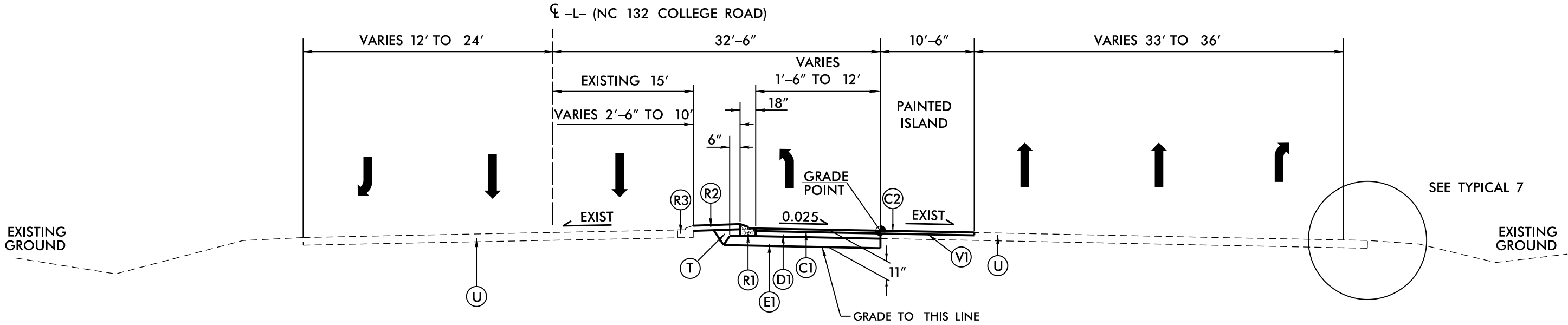


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Farrell Nicholson 8/4/2022
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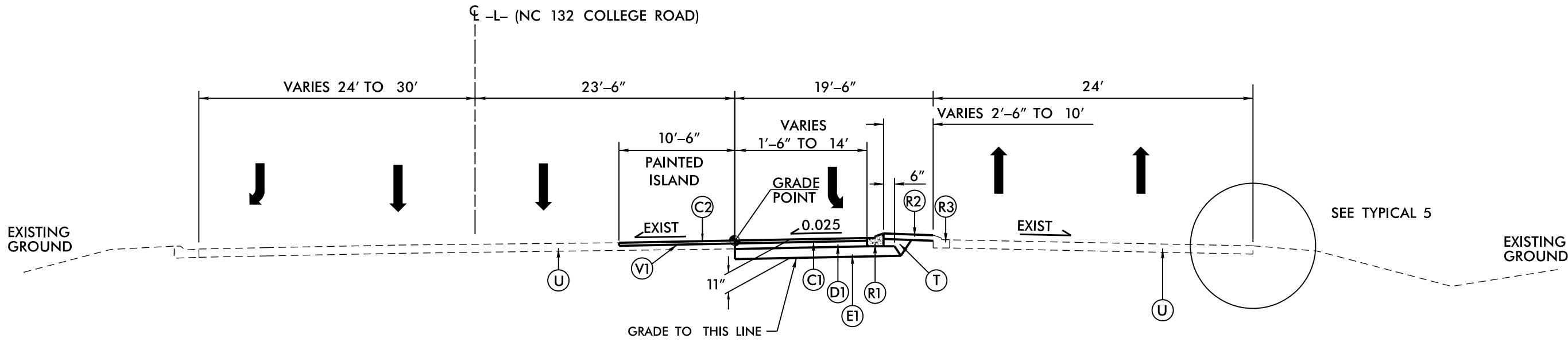
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UNLESS ALL SIGNATURES COMPLETED



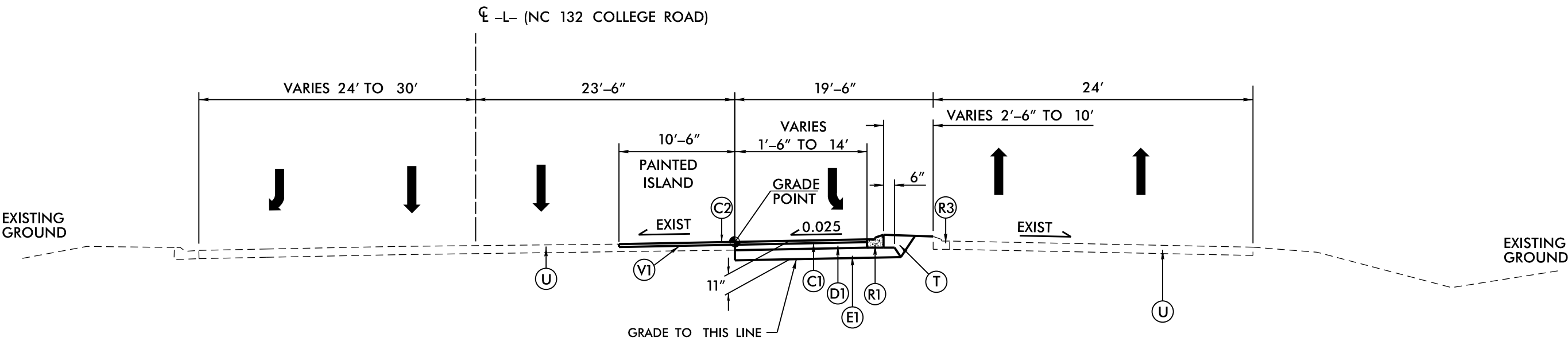
TYPICAL SECTION NO. 1
TURN LANE WIDENING FOR NORTHBOUND LANES
-L- STA. 26+94.00 TO 27+75.00



TYPICAL SECTION NO. 2
TURN LANE WIDENING FOR NORTHBOUND LANES
-L- STA. 27+75.00 TO 29+29.00



TYPICAL SECTION NO. 3
TURN LANE WIDENING FOR SOUTHBOUND LANES
-L- STA. 30+00.00 TO 31+30.00

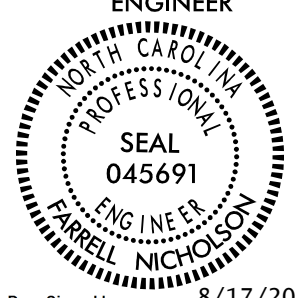


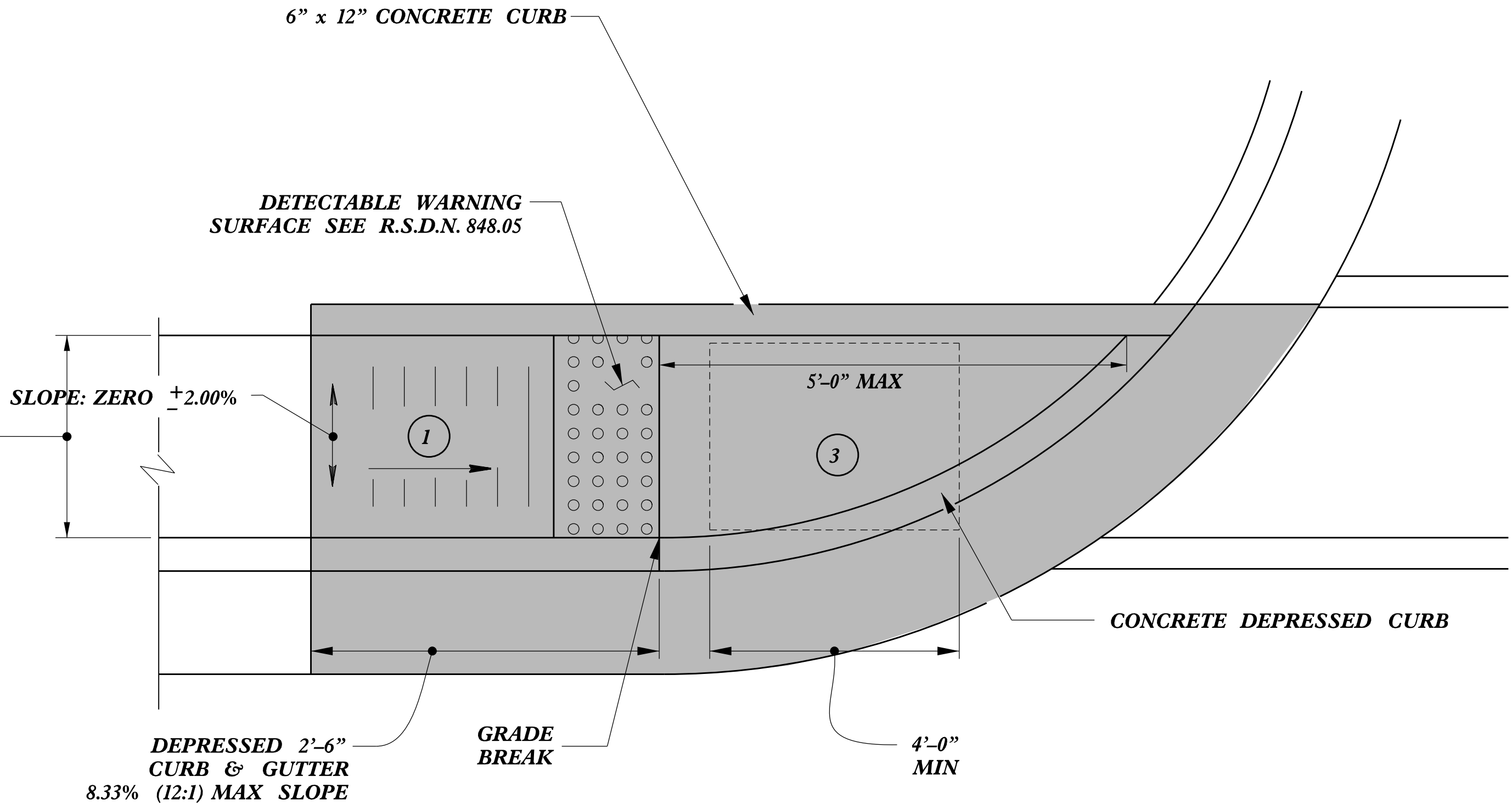
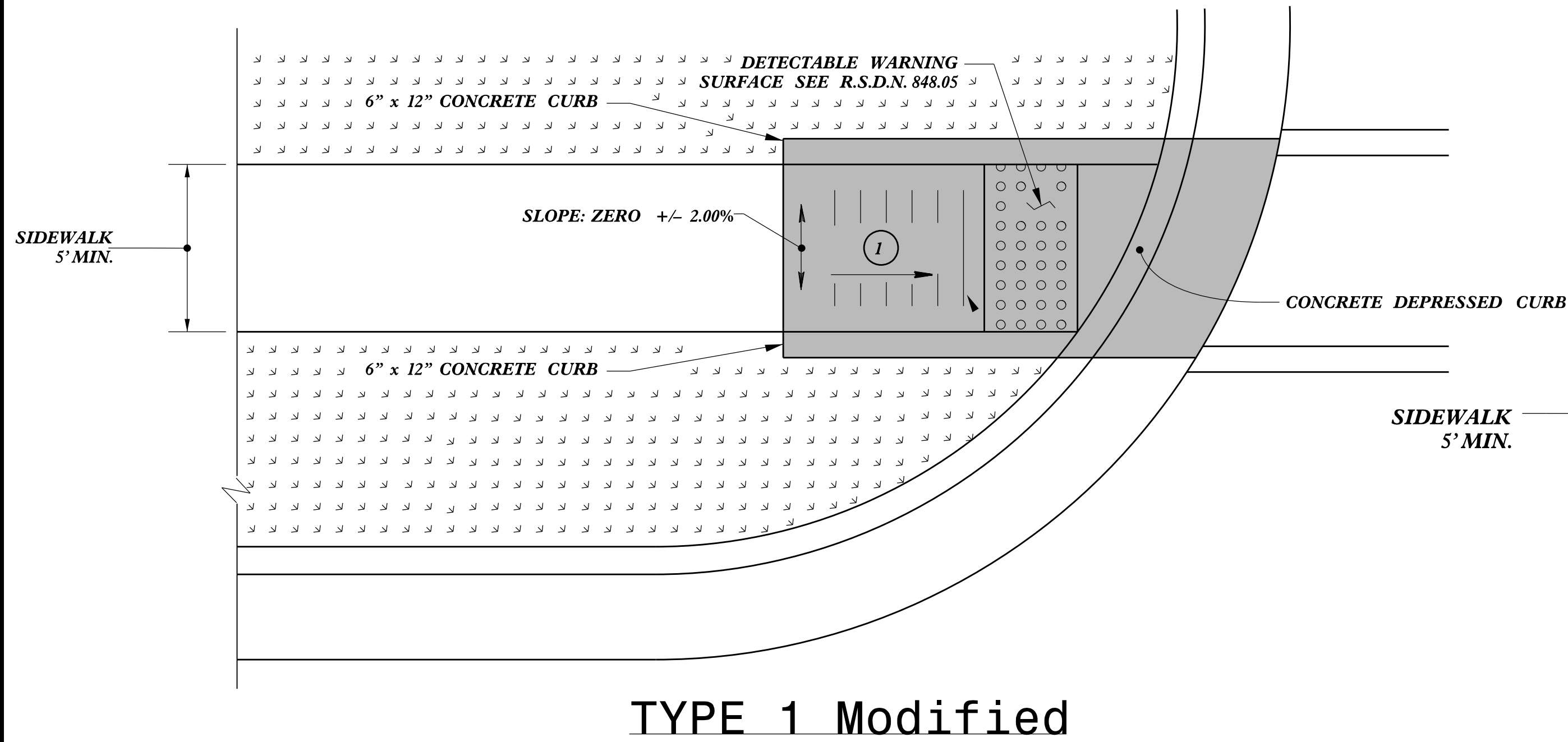
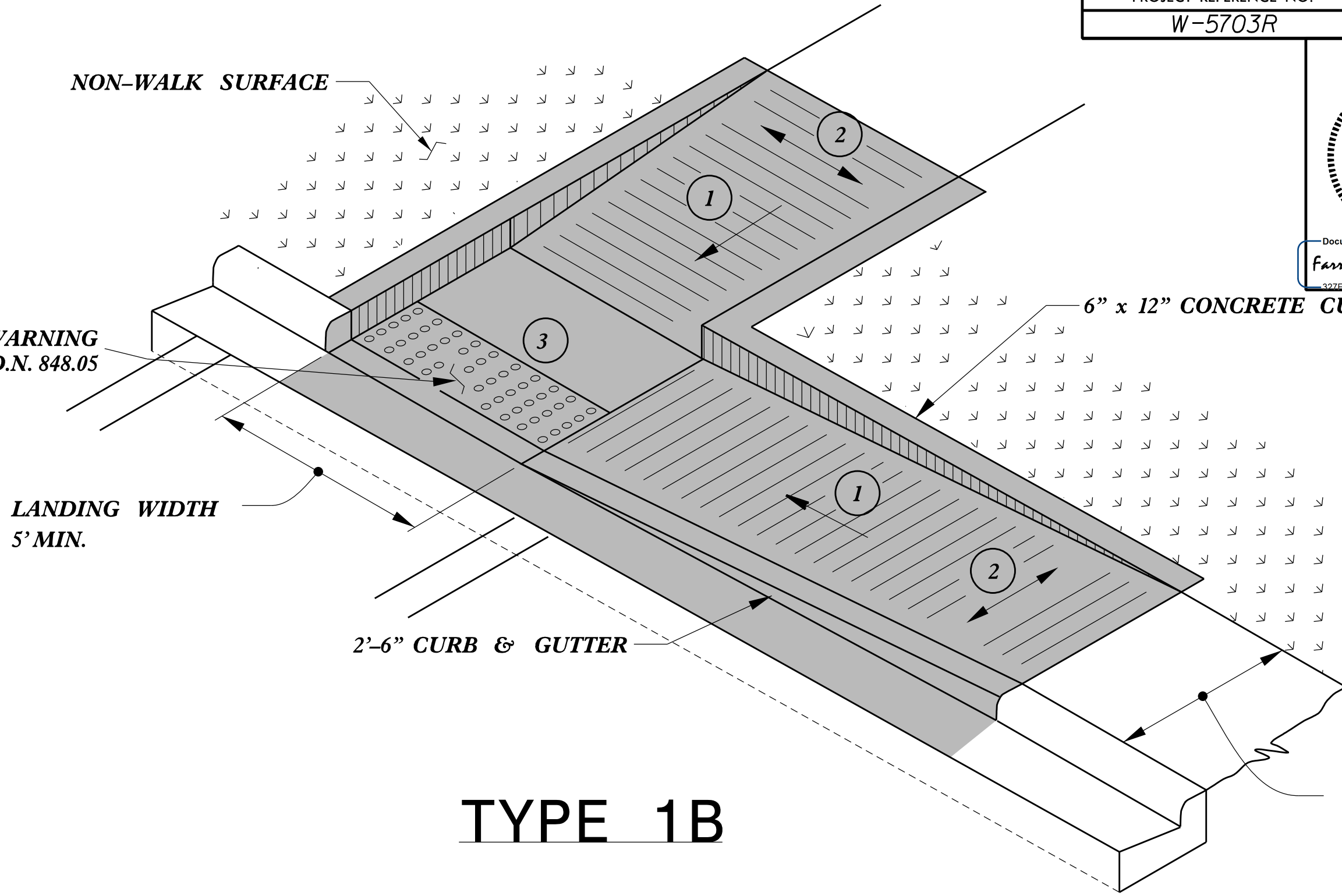
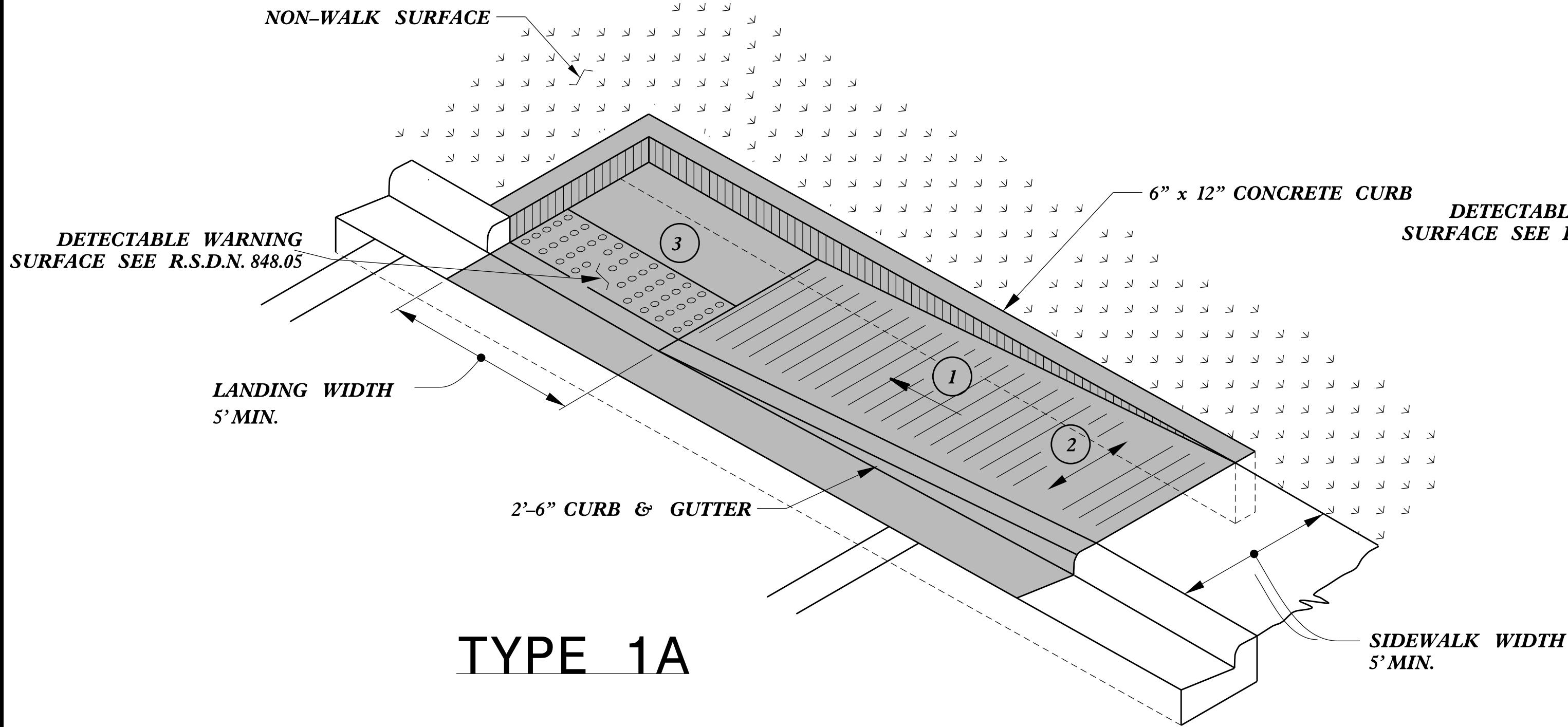
TYPICAL SECTION NO. 4
TURN LANE WIDENING FOR SOUTHBOUND LANES
-L- STA. 31+30.00 TO 32+50.00

8/4/2022 2:04 PM
W-5703R.DWG
TYP.dwg

8/17/22

8/17/2022
9:36:07 PM
Curb Ramps Sheets.dgn

PROJECT REFERENCE NO. W-5703R	SHEET NO. 2B-1
ROADWAY DESIGN ENGINEER	
	
DocuSigned by Farrell Nicholson 8/17/2022	



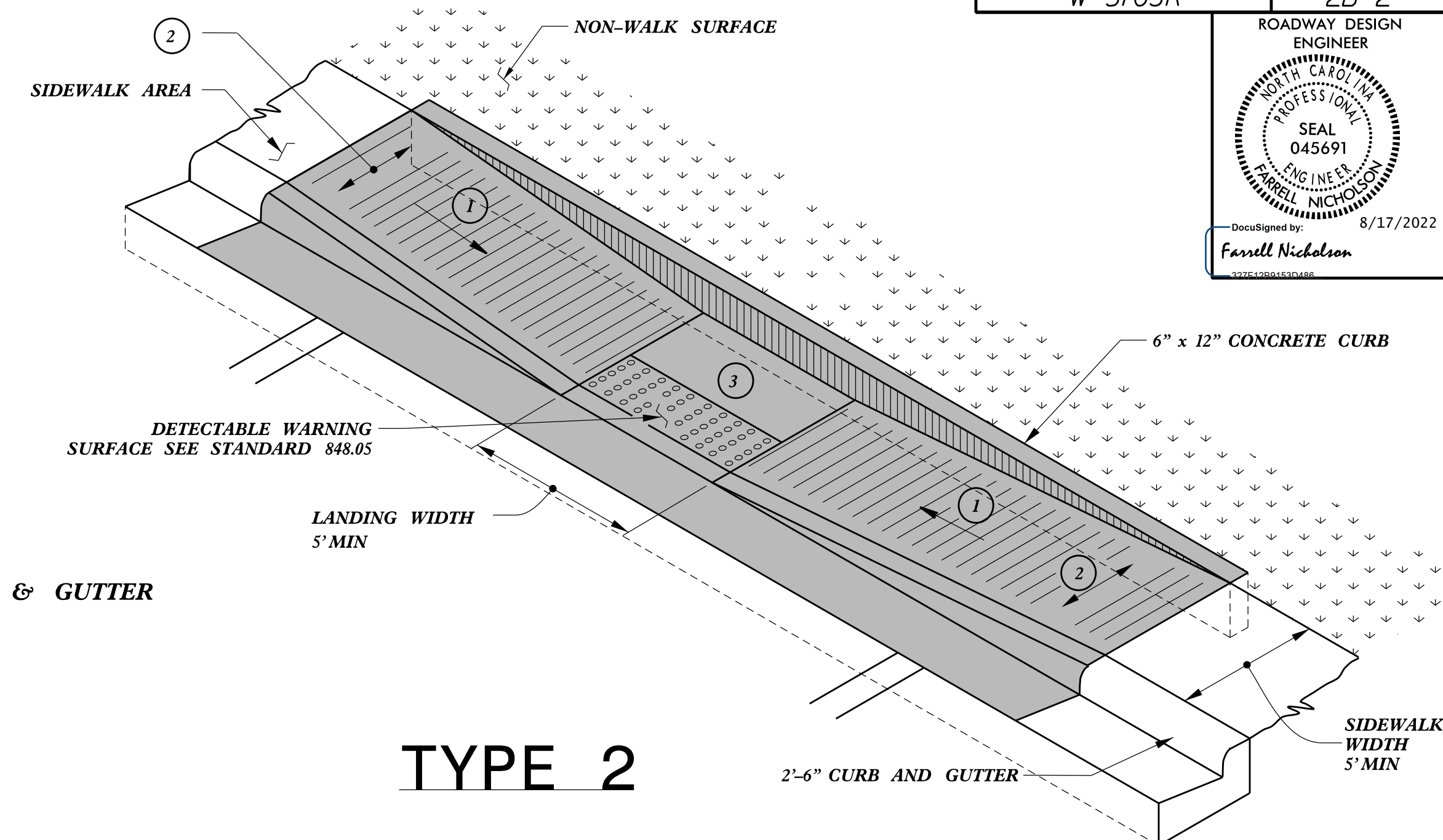
- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



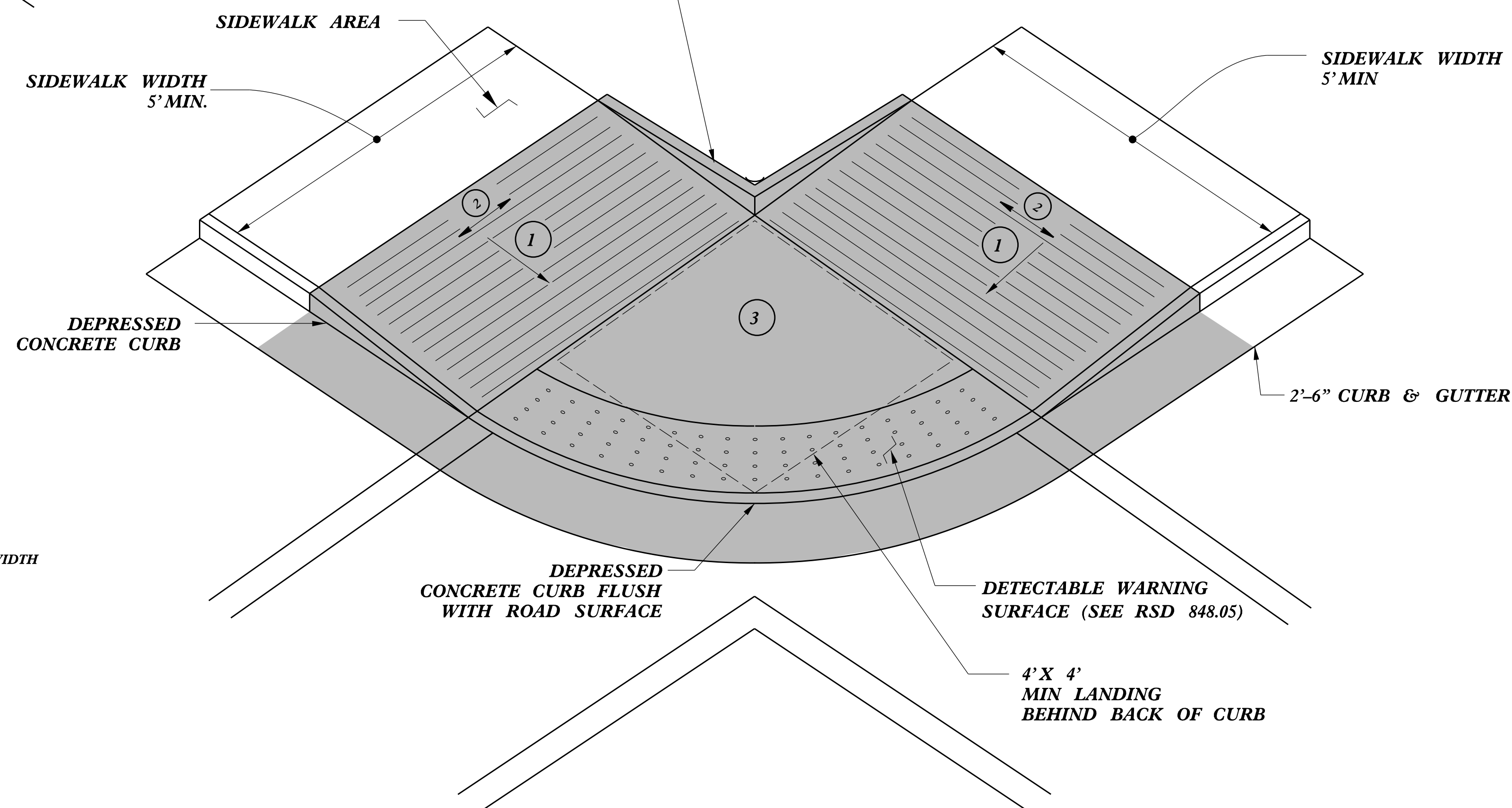
PAY LIMITS FOR 1 CURB RAMP

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

CURB RAMPS
Directional Ramps



TYPE 2



TYPE 2A

- PAY LIMITS FOR 1 CURB RAMP

CURB RAMPS

Parallel Ramps

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5703R	2B-3

ROADWAY DESIGN ENGINEER

SEAL 045691

ENGINEER

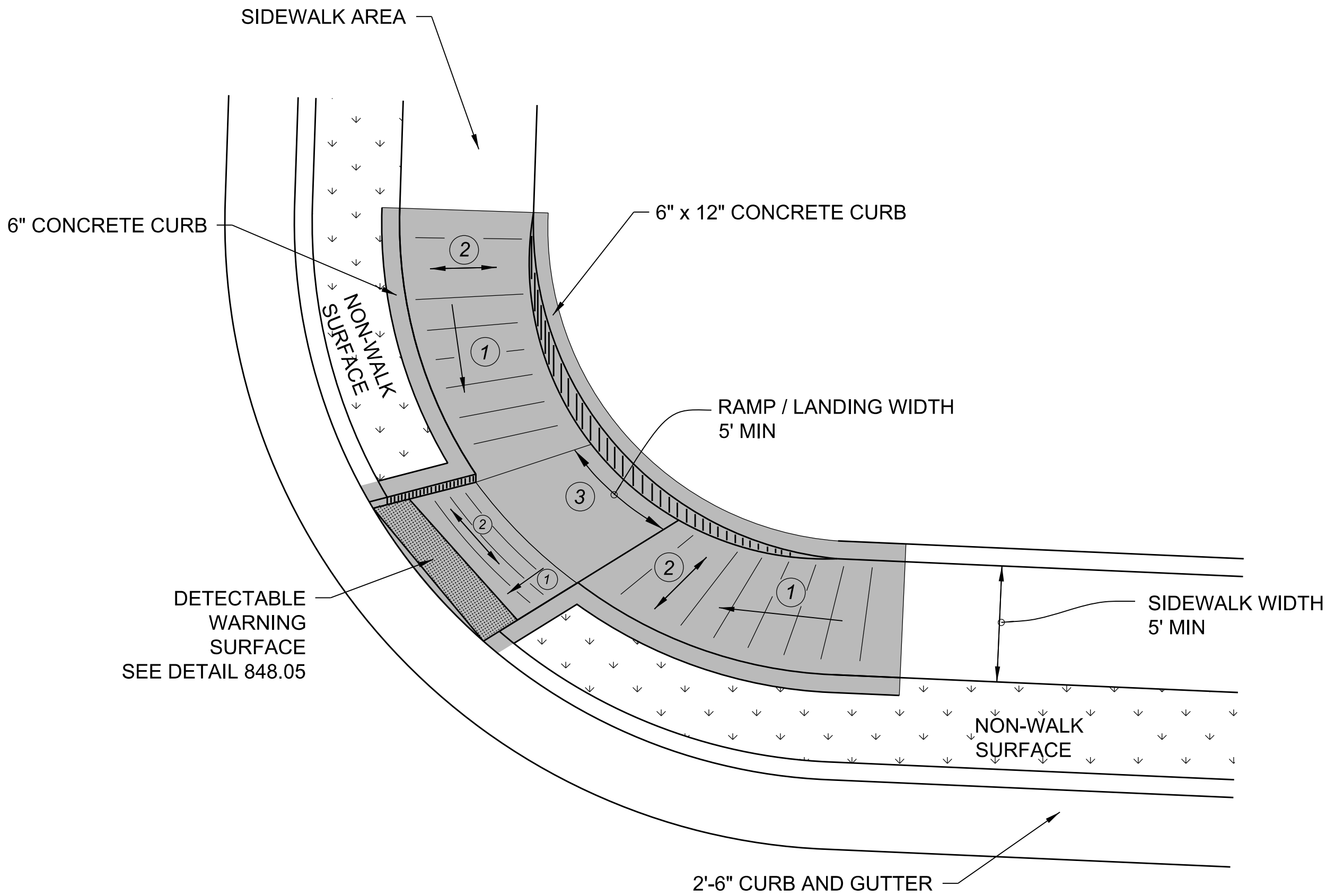
FARRELL NICHOLSON

DocuSigned by: 8/17/2022

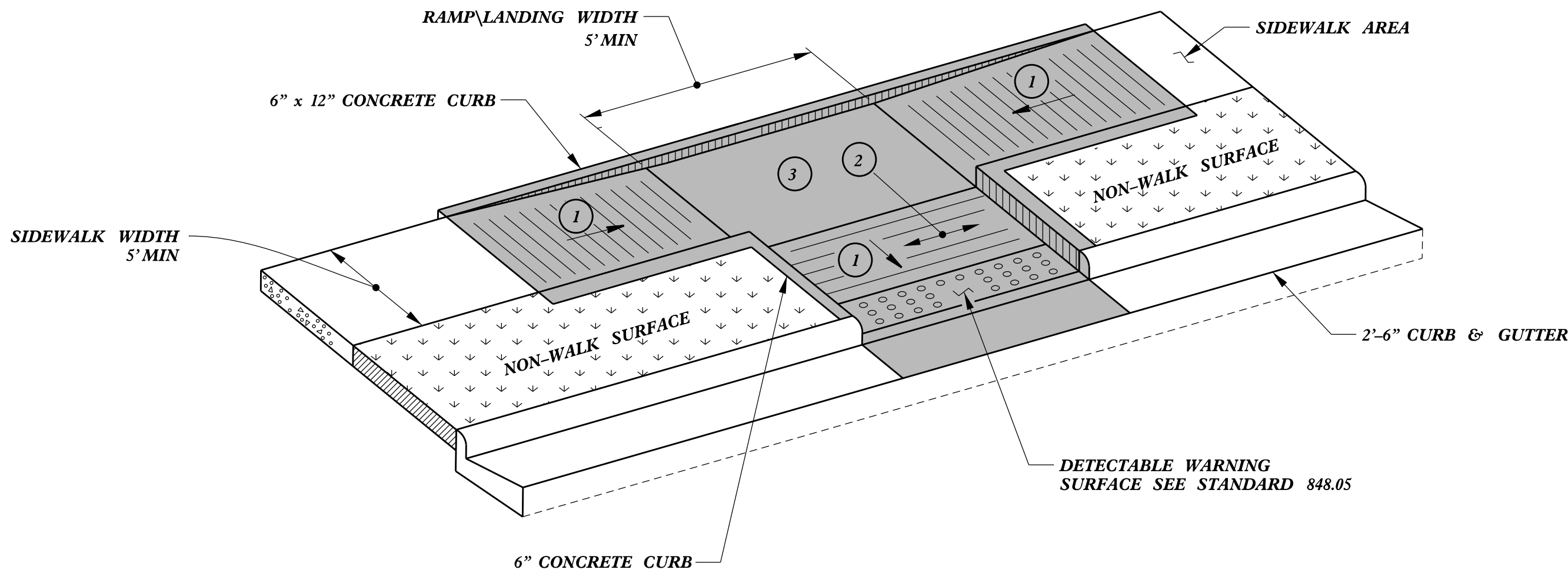
Farrrell Nicholson

3272 12691530488

PAY LIMITS FOR 1 CURB RAMP



TYPE 3 MODIFIED
INSTALLATION IN A RADIUS

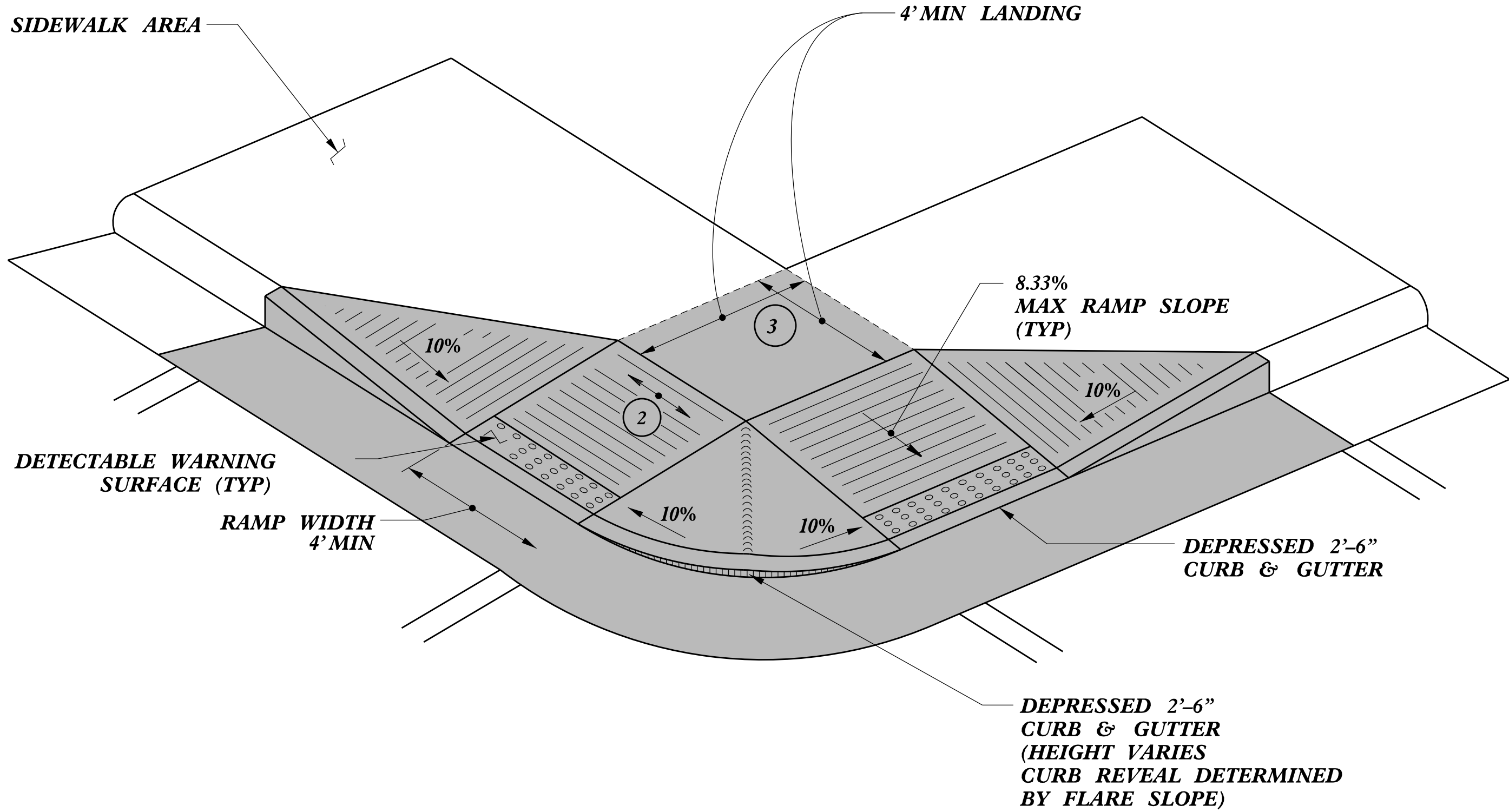


TYPE 3

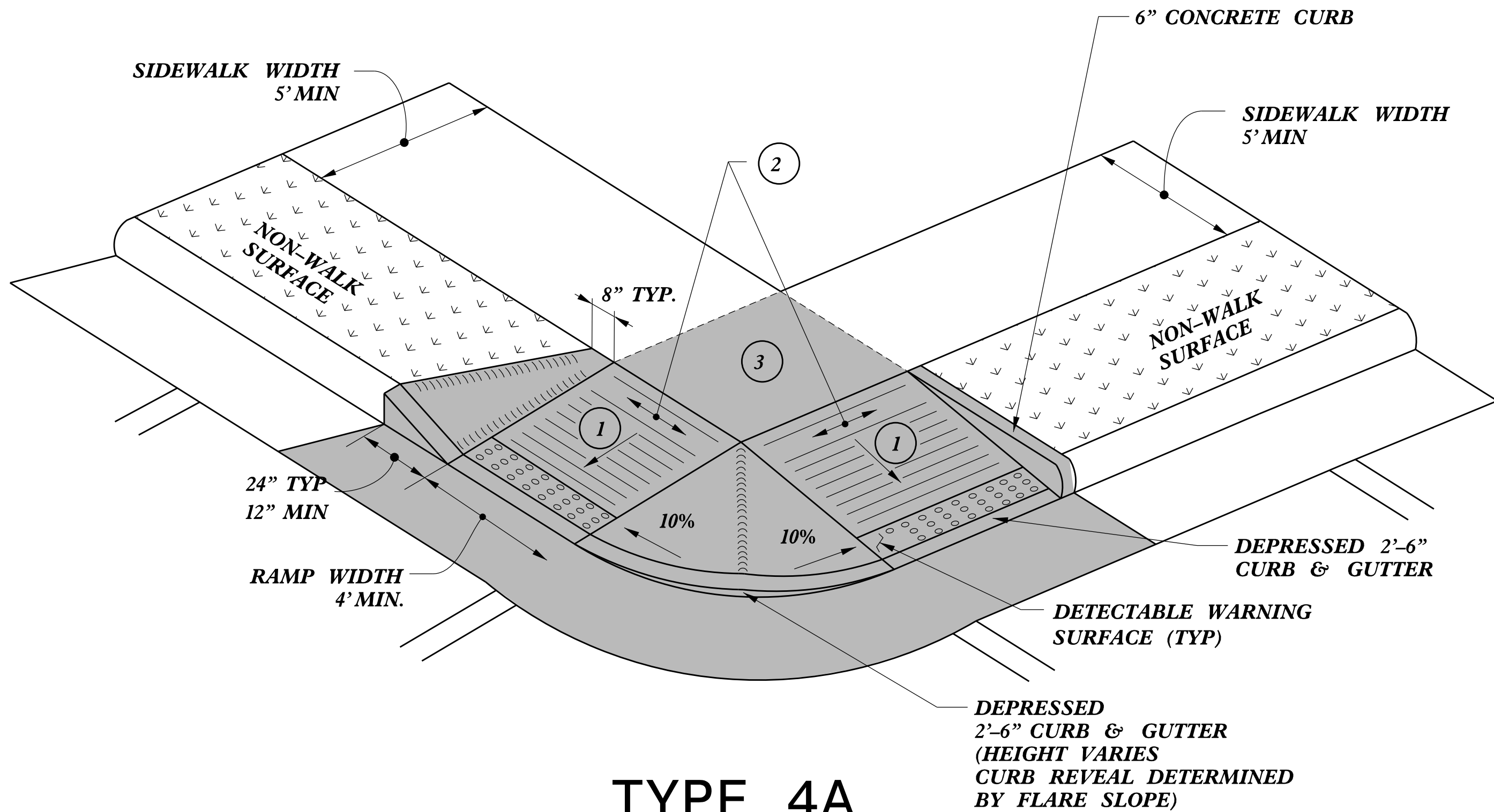
- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

8/17/2022 8:46:52 PM
Curb Ramp Sheets.dgn

8/17/99

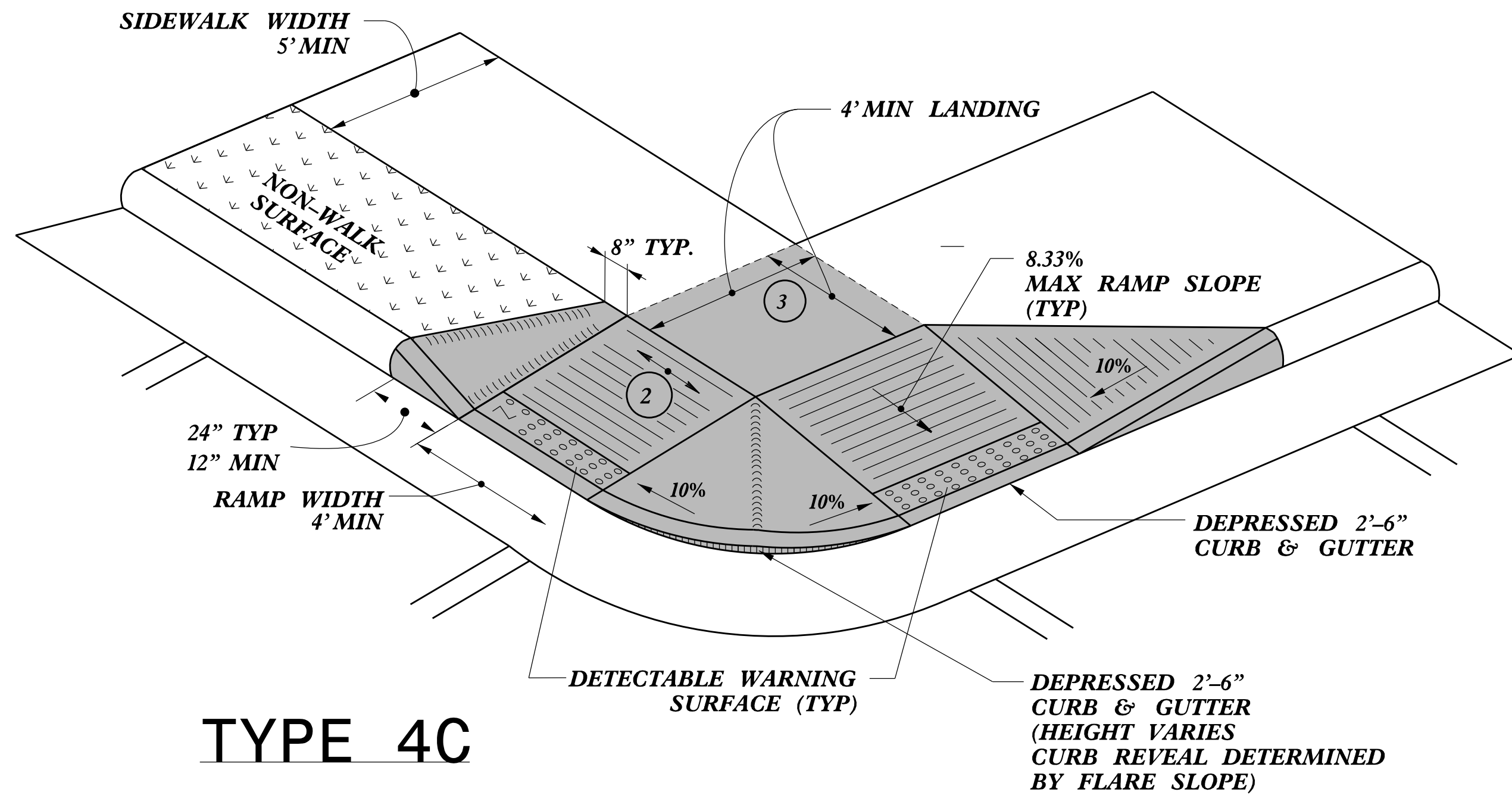
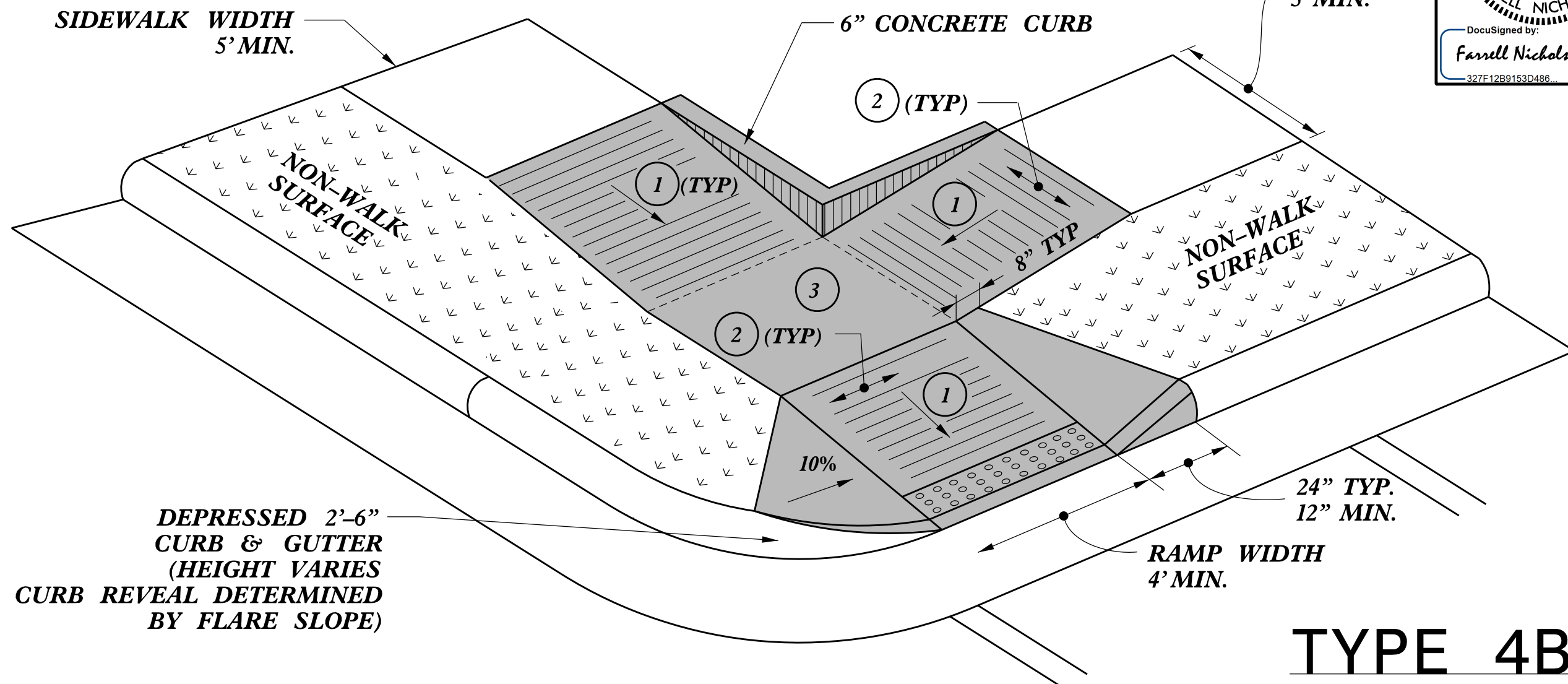


TYPE 4



TYPE 4A

PAY LIMITS FOR 1 OR 2 CURB RAMPS
(CALCULATE BASED ON NUMBER OF SETS
OF TRUNCATED DOMES)



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

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

PROJECT REFERENCE NO.	SHEET NO.
W-5703R	2B-4
ROADWAY DESIGN ENGINEER	

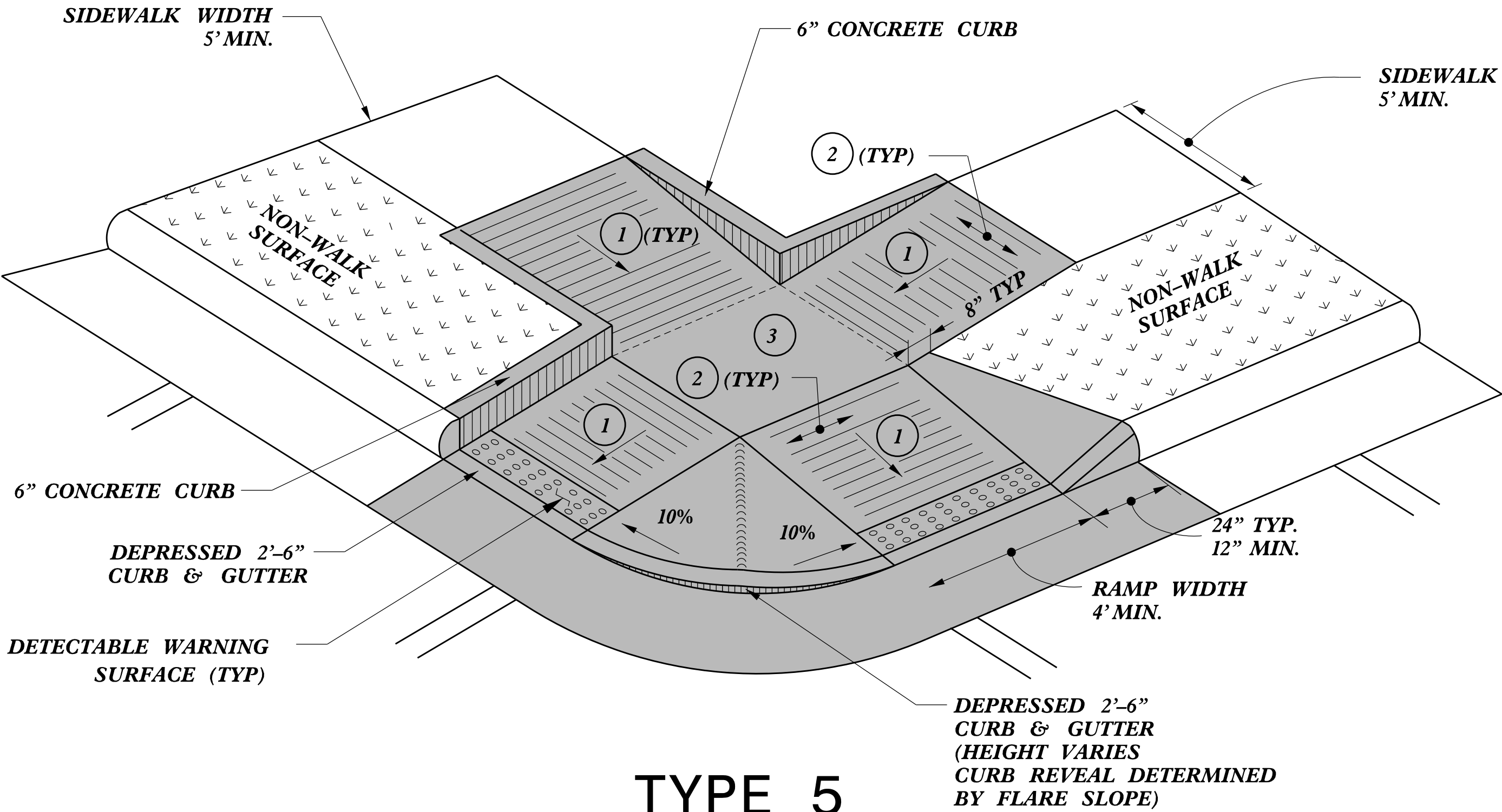
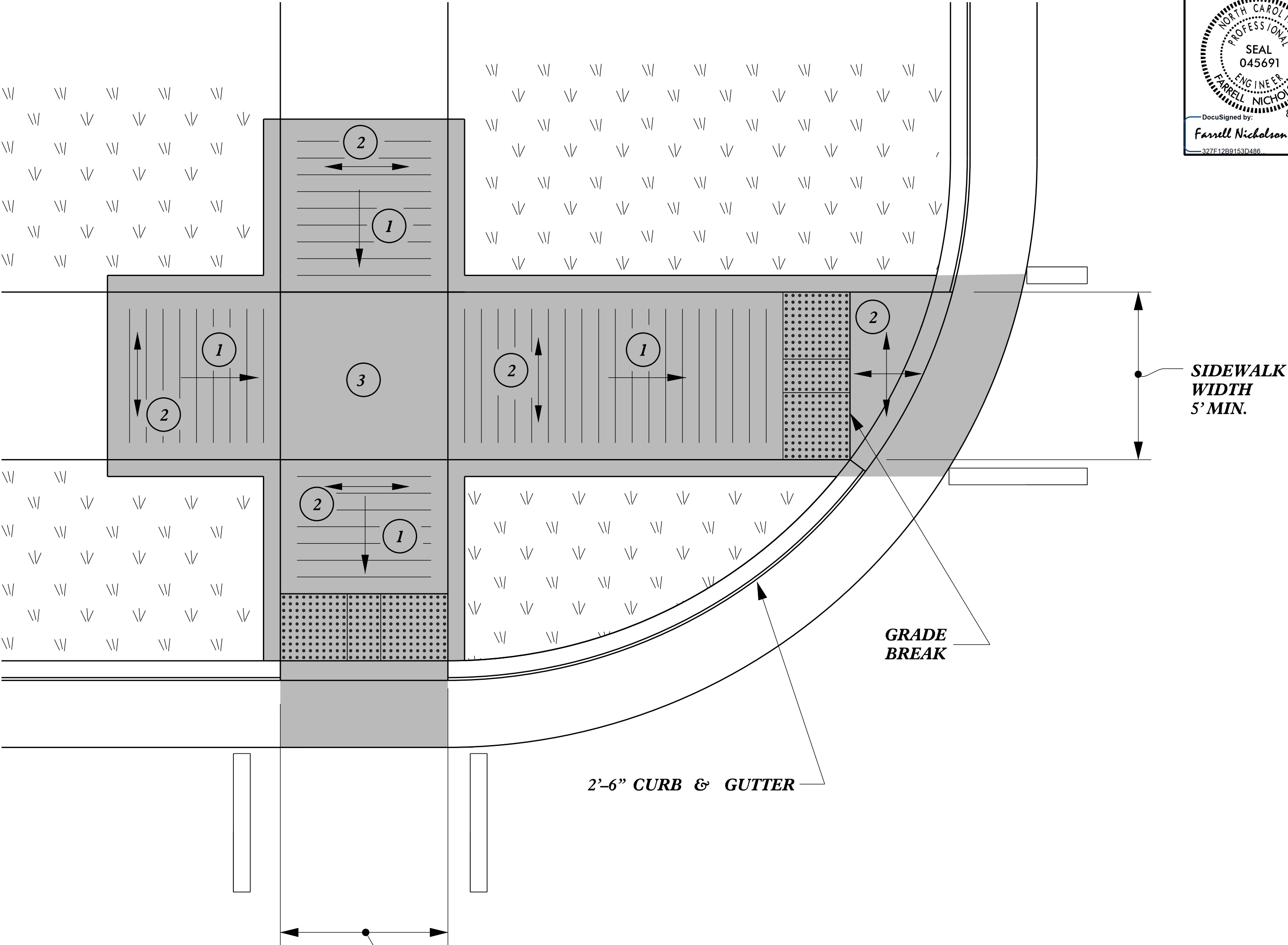
CURB RAMPS

8/17/99



PAY LIMITS FOR 1 OR 2 CURB RAMPS
(CALCULATE BASED ON NUMBER OF SETS
OF TRUNCATED DOMES)

PROJECT REFERENCE NO. <i>W-5703R</i>	SHEET NO. <i>2B-5</i>
ROADWAY DESIGN ENGINEER	



TYPE 5A

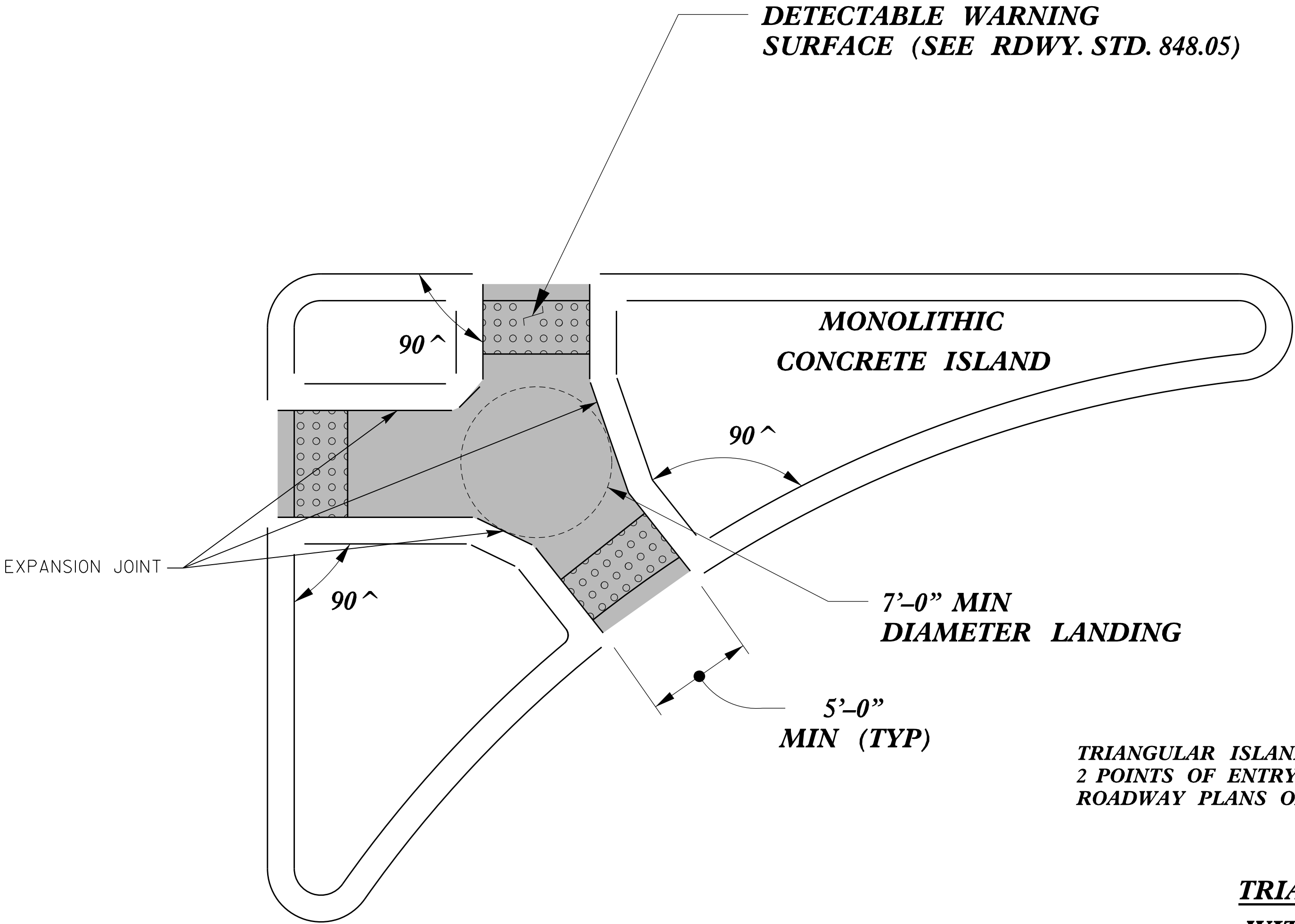
- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

TYPE 5

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

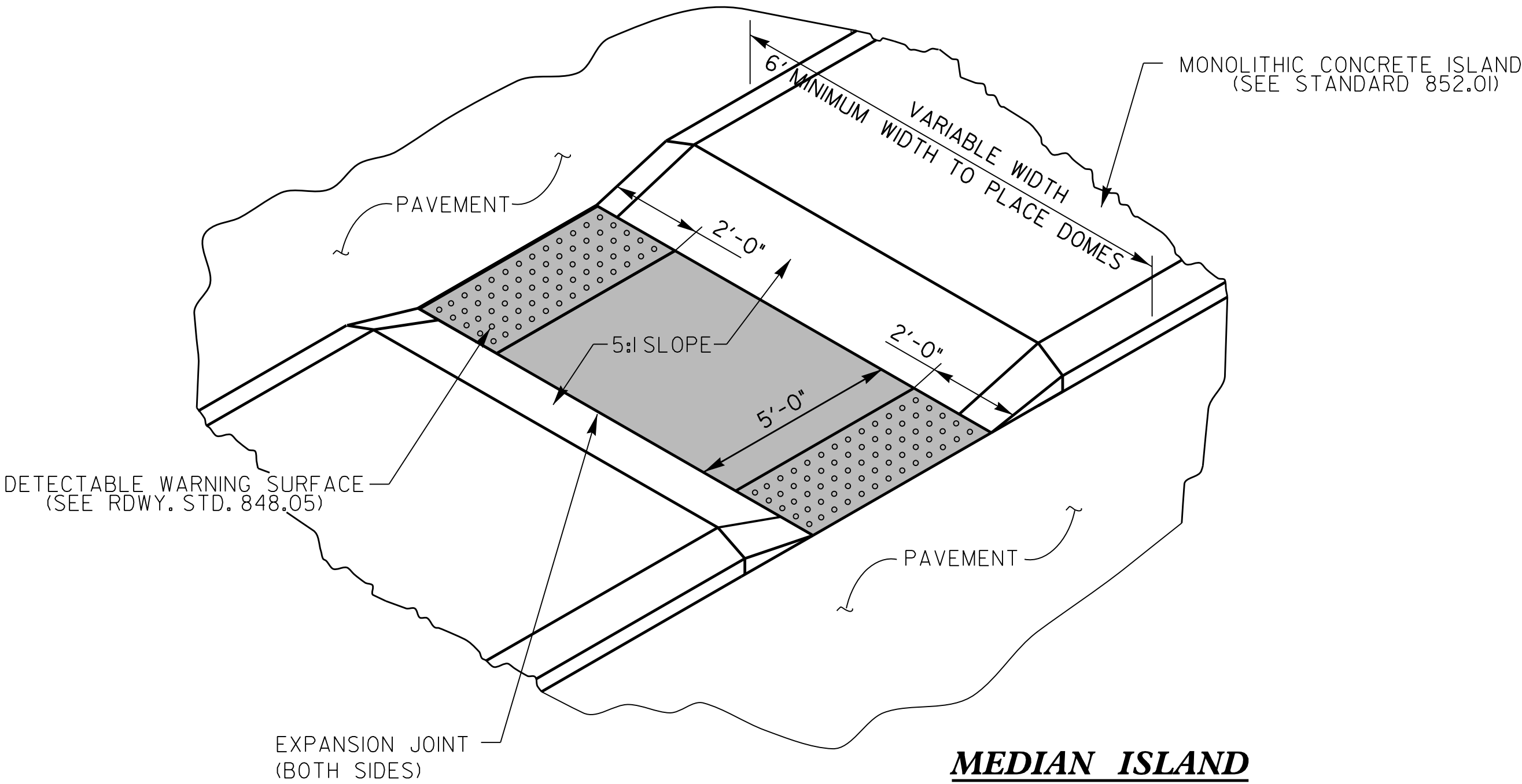
CURB RAMPS

8/17/2022 8:46:58 PM
Curb Ramp Sheets.dgn

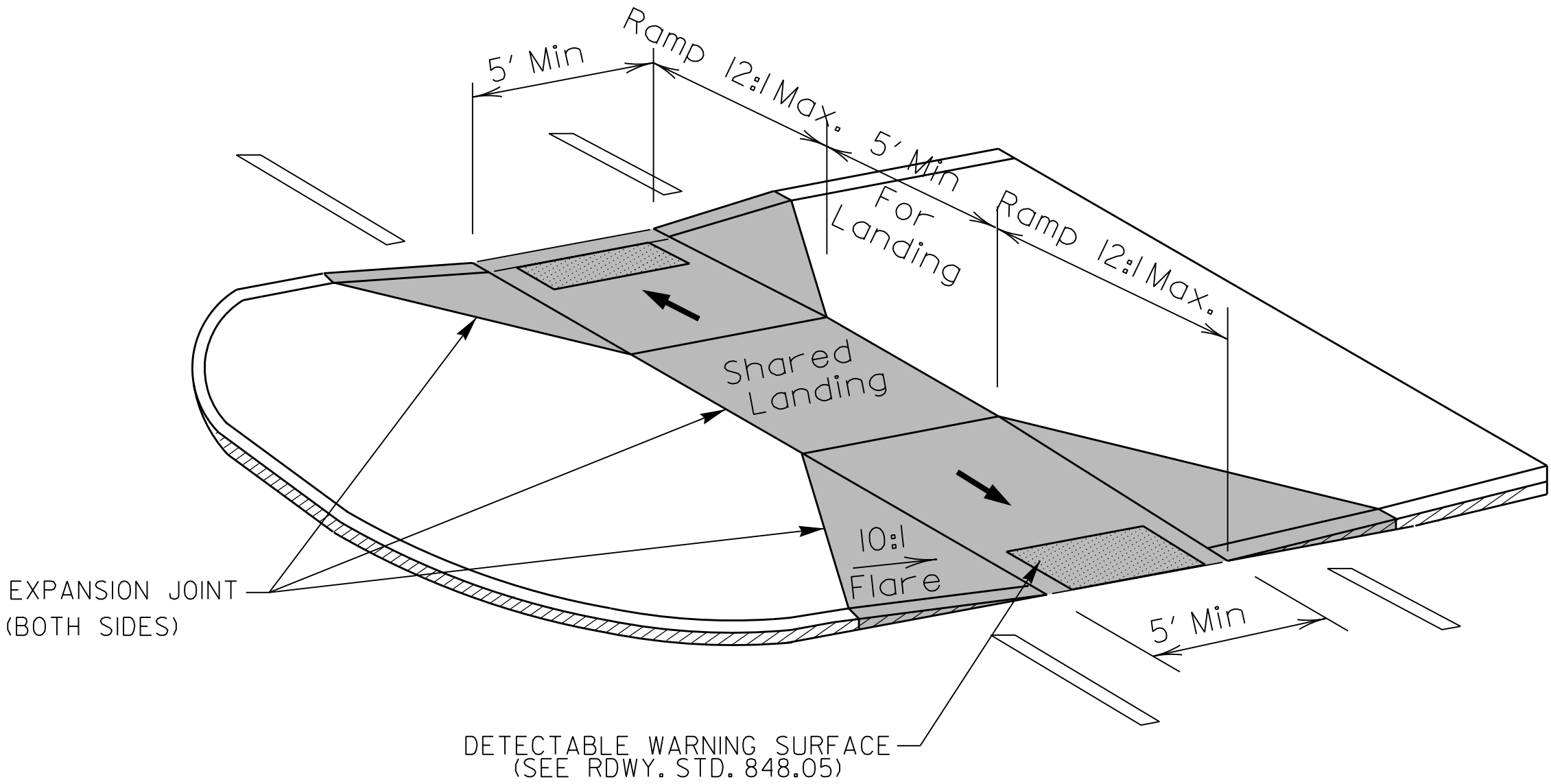


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND
WITH CUT THROUGH
TYPE 6



MEDIAN ISLAND
WITH CUT THROUGH
TYPE 7



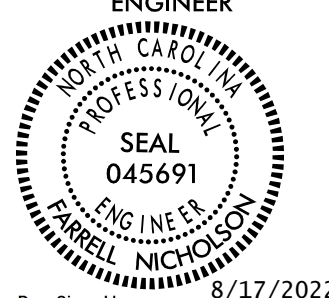
MEDIAN ISLAND
CURB RAMPS
TYPE 8

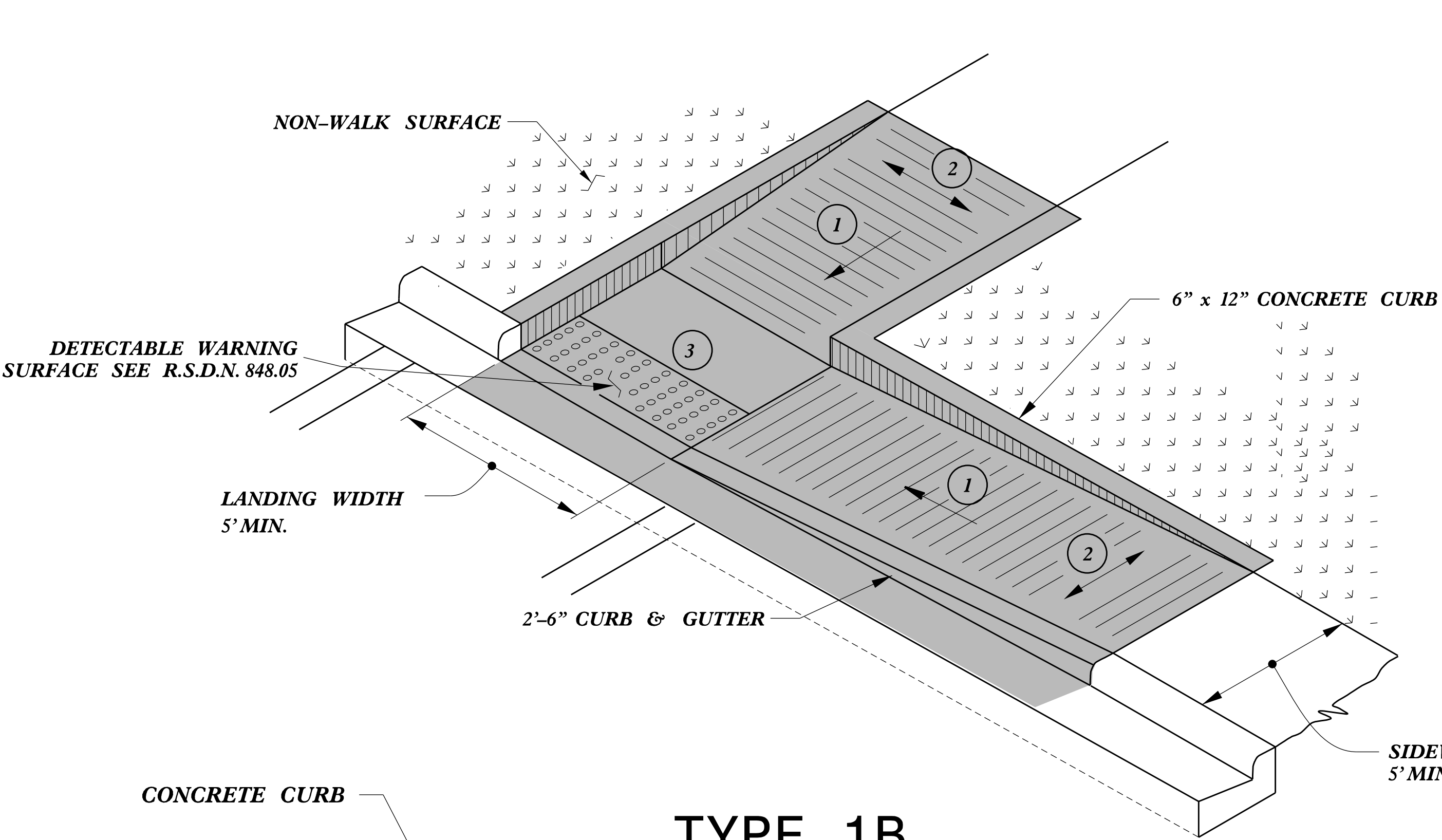
PAY LIMITS FOR 2 OR 3 CURB RAMPS
(CALCULATE BASED ON NUMBER OF
SETS OF TRUNCATED DOMES)

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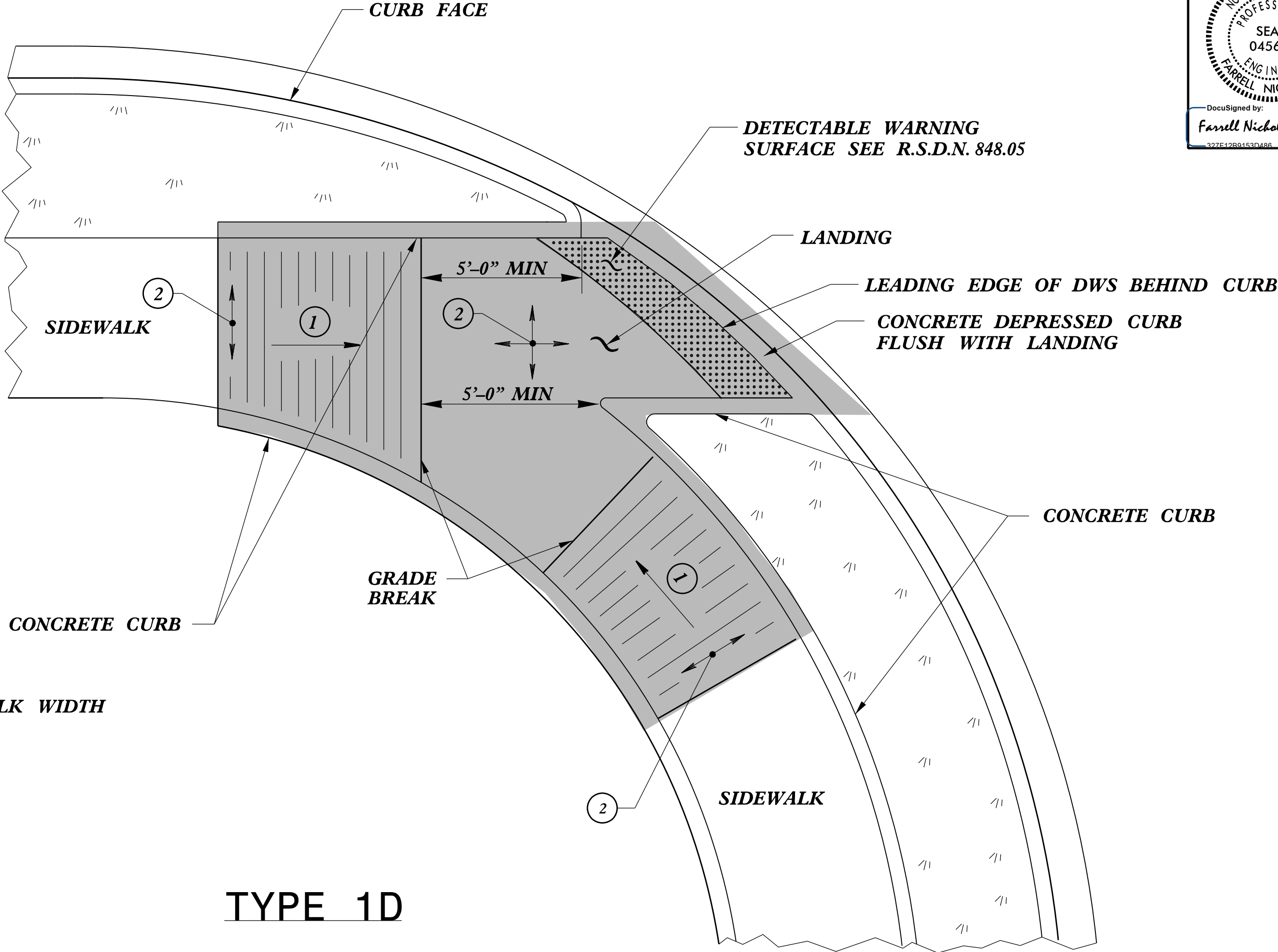
8/17/99

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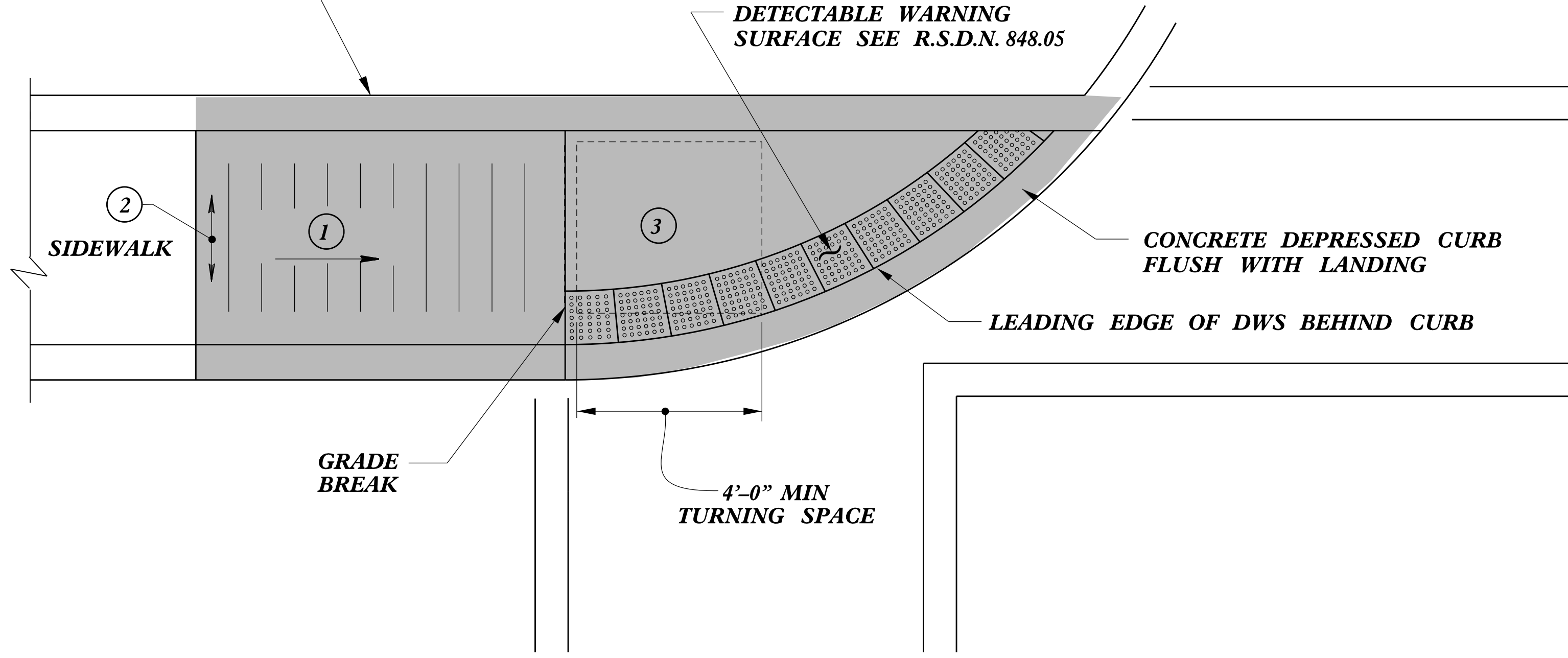
PROJECT REFERENCE NO. <i>W-5703R</i>	SHEET NO. <i>2B-7</i>
ROADWAY DESIGN ENGINEER	
	
DocuSigned by: <i>Funell Nicholson</i> 8/17/2022	



TYPE 1B



TYPE 1D



TYPE 1C

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

 PAY LIMITS FOR 1 CURB RAMP

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

CURB RAMPS

Directional Ramps

6/22/99



1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123

PROJECT REFERENCE NO.

W-5703R

SHEET NO.

2C-1

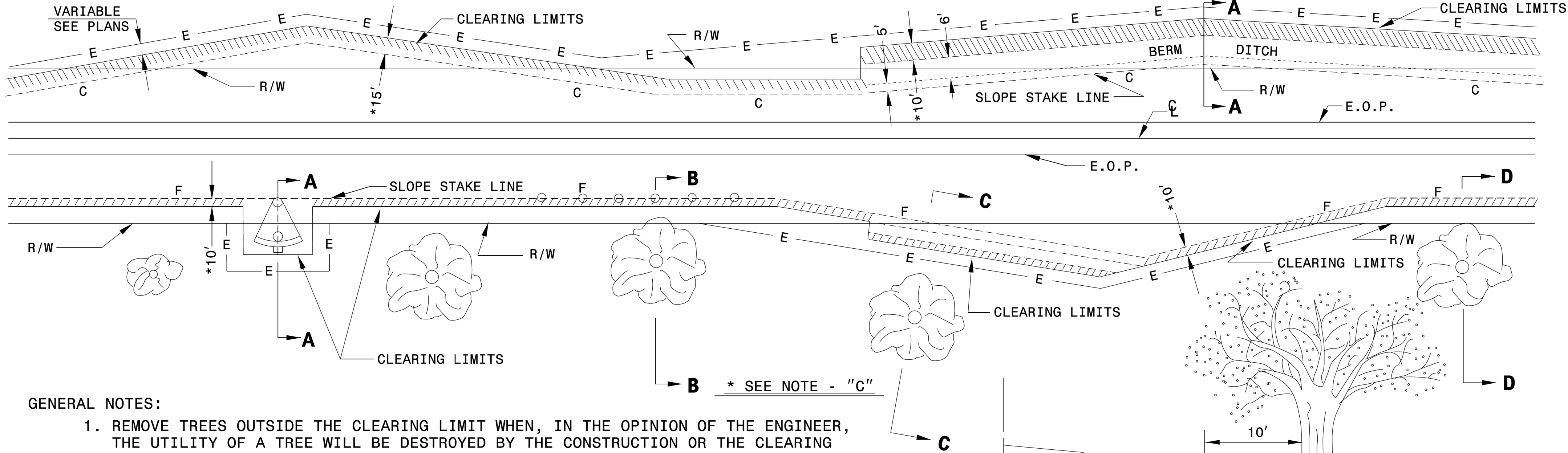
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

ENGLISH DETAIL DRAWING FOR
METHOD OF CLEARING
MODIFIED METHOD - III

SHEET 1 OF 1

200D03



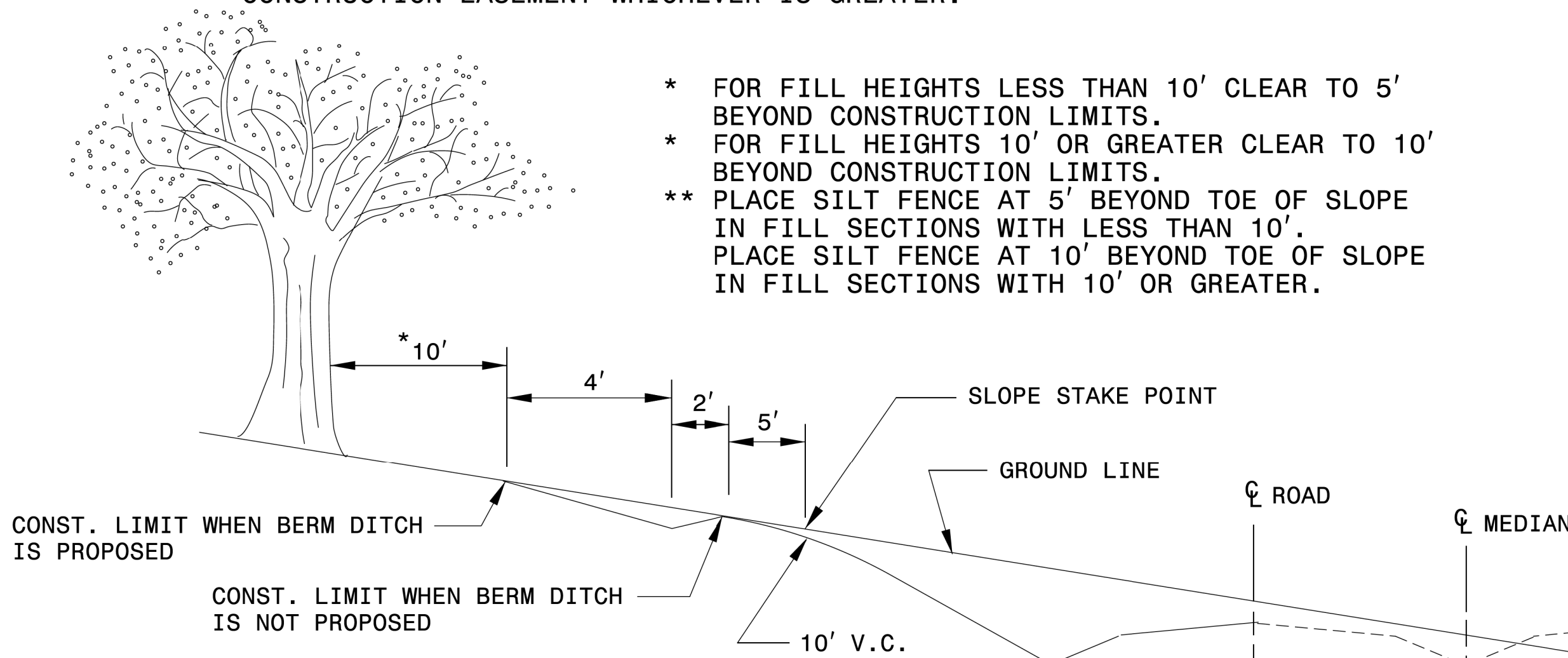
GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.

METHOD III CLEARING LIMITS

- (A) CUTS -- CLEAR TO CONSTRUCTION LIMITS.
- (B) FILLS - CLEAR TO 5'/10' * BEYOND CONSTRUCTION LIMITS, UNLESS SPECIFIED OTHERWISE BY WETLAND PERMIT.
- (C) CUTS AND FILLS - WHEN THE CLEARING LIMITS (A AND B) EXCEED THE PROPOSED R/W OR PROPOSED CONSTRUCTION EASEMENTS, THEN CLEAR ONLY TO THE R/W OR CONSTRUCTION EASEMENT WHICHEVER IS GREATER.

- * FOR FILL HEIGHTS LESS THAN 10' CLEAR TO 5' BEYOND CONSTRUCTION LIMITS.
- * FOR FILL HEIGHTS 10' OR GREATER CLEAR TO 10' BEYOND CONSTRUCTION LIMITS.
- ** PLACE SILT FENCE AT 5' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH LESS THAN 10'. PLACE SILT FENCE AT 10' BEYOND TOE OF SLOPE IN FILL SECTIONS WITH 10' OR GREATER.



PART SECTION D-D

LATERAL DITCH, CHECK DAM,
SILT BASIN, SILT DITCH,
TEMPORARY DIVERSION

PART SECTION C-C

PART SECTION B-B

SECTION A-A

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

ENGLISH DETAIL DRAWING FOR
METHOD OF CLEARING
MODIFIED METHOD - III

SHEET 1 OF 1

200D03

COMPUTED BY: FSN DATE: 10/18/2021
CHECKED BY: SEC DATE: 10/19/2021

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS



1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123

PROJECT REFERENCE NO.	SHEET NO.
W-5703R	3B-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

[illegible]

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. + %	BORROW	WASTE
-L- 26 + 94.00 (MED)	-L- 29 + 25.00 (MED)	67	6		61
-L- 30 + 00.00 (MED)	-L- 32 + 00.00 (MED)	57	6		51
-L- 29 + 05.00 (RT)	-L- 29 + 35.00 (RT)	4	24	20	
-L- 29 + 85.00 (RT)	-L- 31 + 00.00 (RT)	21	51	30	
SUBTOTALS:		110	84	110	112
LOSS DUE TO CLEARING & GRUBBING					
ADDITIONAL UNDERCUT					
ROCK WASTE TO REPLACE BORROW					
WASTE IN LIEU OF BORROW					
GRAND TOTALS:		149	148		2
SAY		160			
MATERIAL FOR SHOULDER CONSTRUCTION = 60 CY					

PER GEOTECHNICAL RECOMMENDATIONS:

ESTIMATED UNDERCUT = 200 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

SELECT GRANULAR MATERIAL = 200 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

GEOTEXTILE FOR SOIL STABILIZATION = 200 SY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

6" PERFORATED SUBDRAIN PIPE = 200 LF (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

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

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

SUMMARY OF PAVEMENT REMOVAL

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	26 + 94.00	29 + 29.00	RT (MEDIAN)	96*
-L-	30 + 00.00	32 + 04.00	RT (MEDIAN)	82*
-L-	29 + 05.06	29 + 35.84	RT	10
-L-	29 + 86.85	31 + 00.00	RT	54
TOTAL:				242
SAY:				245

* INCLUDES PORTION IN MEDIAN WITH REMOVAL OF EXISTING C&G

5/14/99

-L-
PI Sta 45+95.44
 $\Delta = 5^{\circ} 39' 54.2''$ (RT)
 $D = 0^{\circ} 14' 58.9''$
 $L = 2268.69'$
 $T = 1135.27'$
 $R = 22945.31'$
 $SE = NC$
 $DS = 50$ MPH



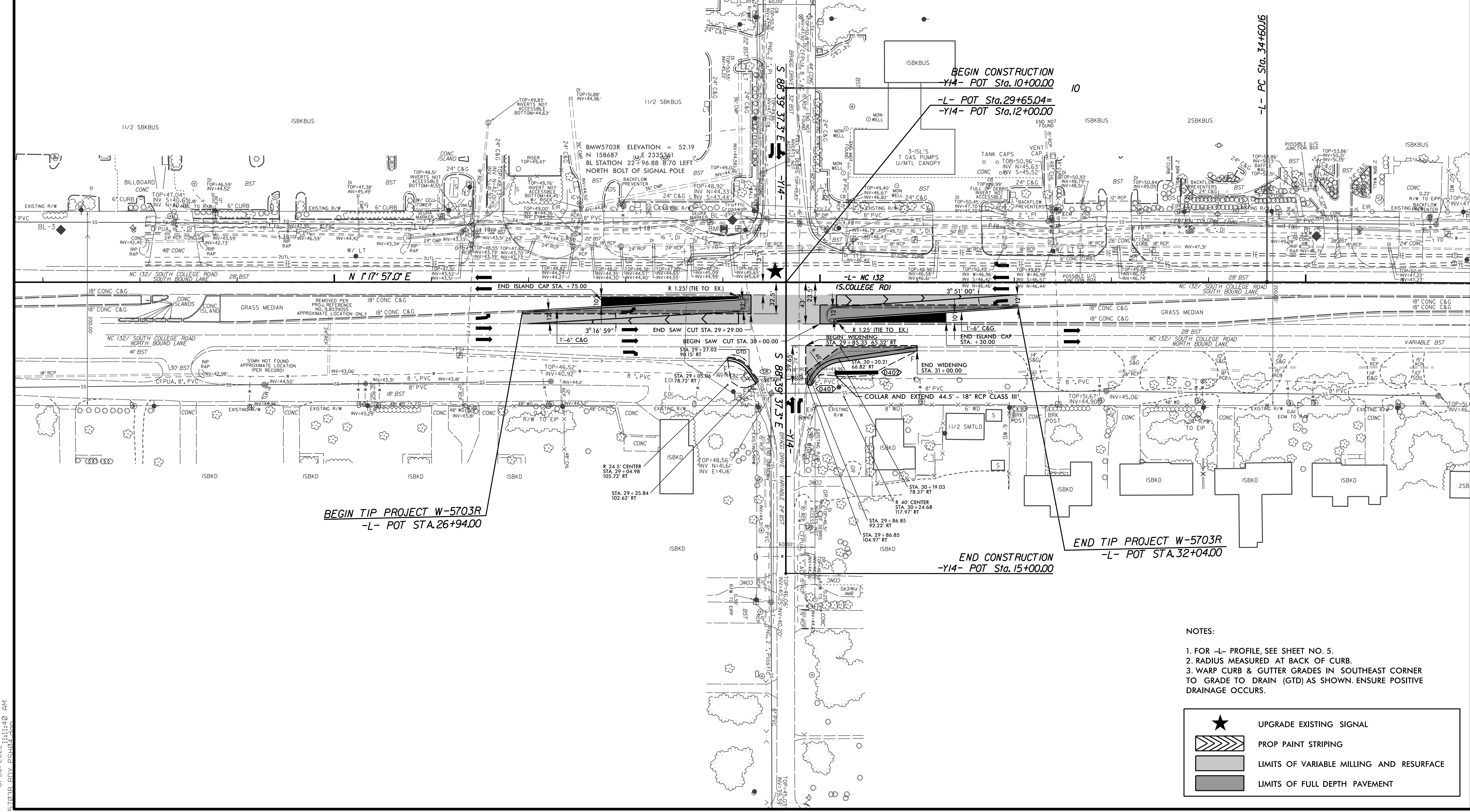
1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123

NAD 83/2011

PROJECT REFERENCE NO.		SHEET NO.
W-5703R		04
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
Documented by: Farrell Nicholson 327F1289153D486 6/30/2022		Documented by: Farrell Nicholson 327F1289153D486 6/30/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

25

35



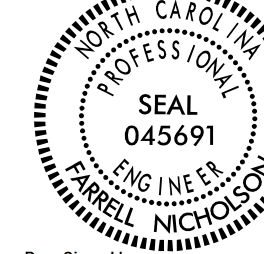
- NOTES:
- FOR -L- PROFILE, SEE SHEET NO. 5.
 - RADIUS MEASURED AT BACK OF CURB.
 - WARP CURB & GUTTER GRADES IN SOUTHEAST CORNER TO GRADE TO DRAIN (GTD) AS SHOWN. ENSURE POSITIVE DRAINAGE OCCURS.
- | | |
|--|--|
| | UPGRADE EXISTING SIGNAL |
| | PROP PAINT STRIPING |
| | LIMITS OF VARIABLE MILLING AND RESURFACE |
| | LIMITS OF FULL DEPTH PAVEMENT |

6/30/2022 11:11:40 AM
W5703R RDY_PSH04.dwg

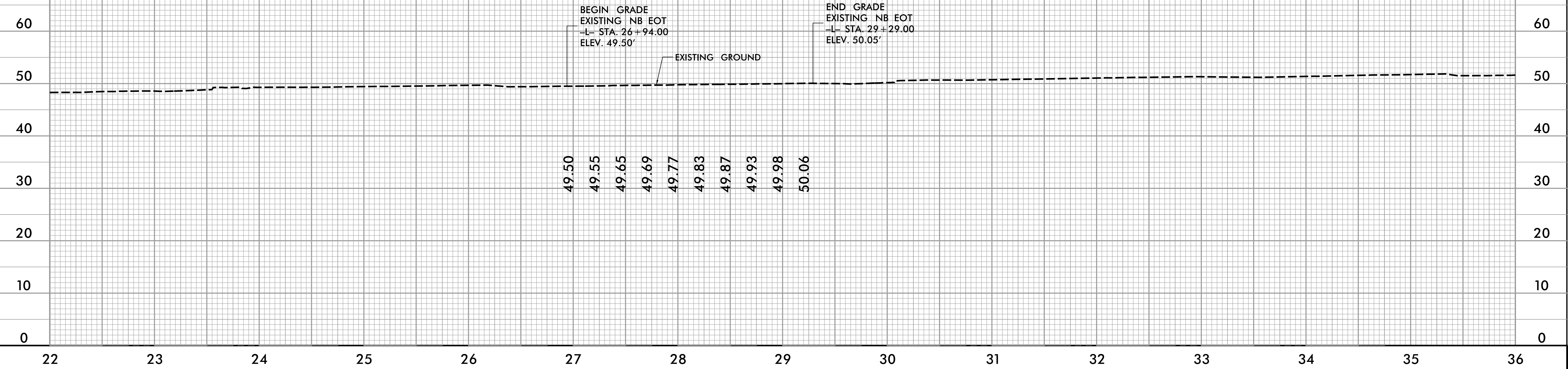
5/28/99



1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123

PROJECT REFERENCE NO. W-5703R		SHEET NO. 5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 	
DocuSigned by: Farrell Nicholson 327F12B9153D486...		DocuSigned by: Farrell Nicholson 327F12B9153D486...
6/30/2022		6/30/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

32.5' RIGHT OFFSET -L- EXISTING



23.5' RIGHT OFFSET -L- EXISTING



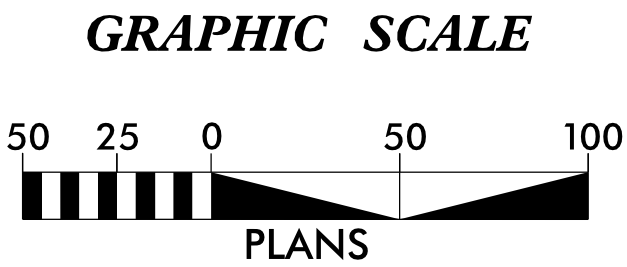
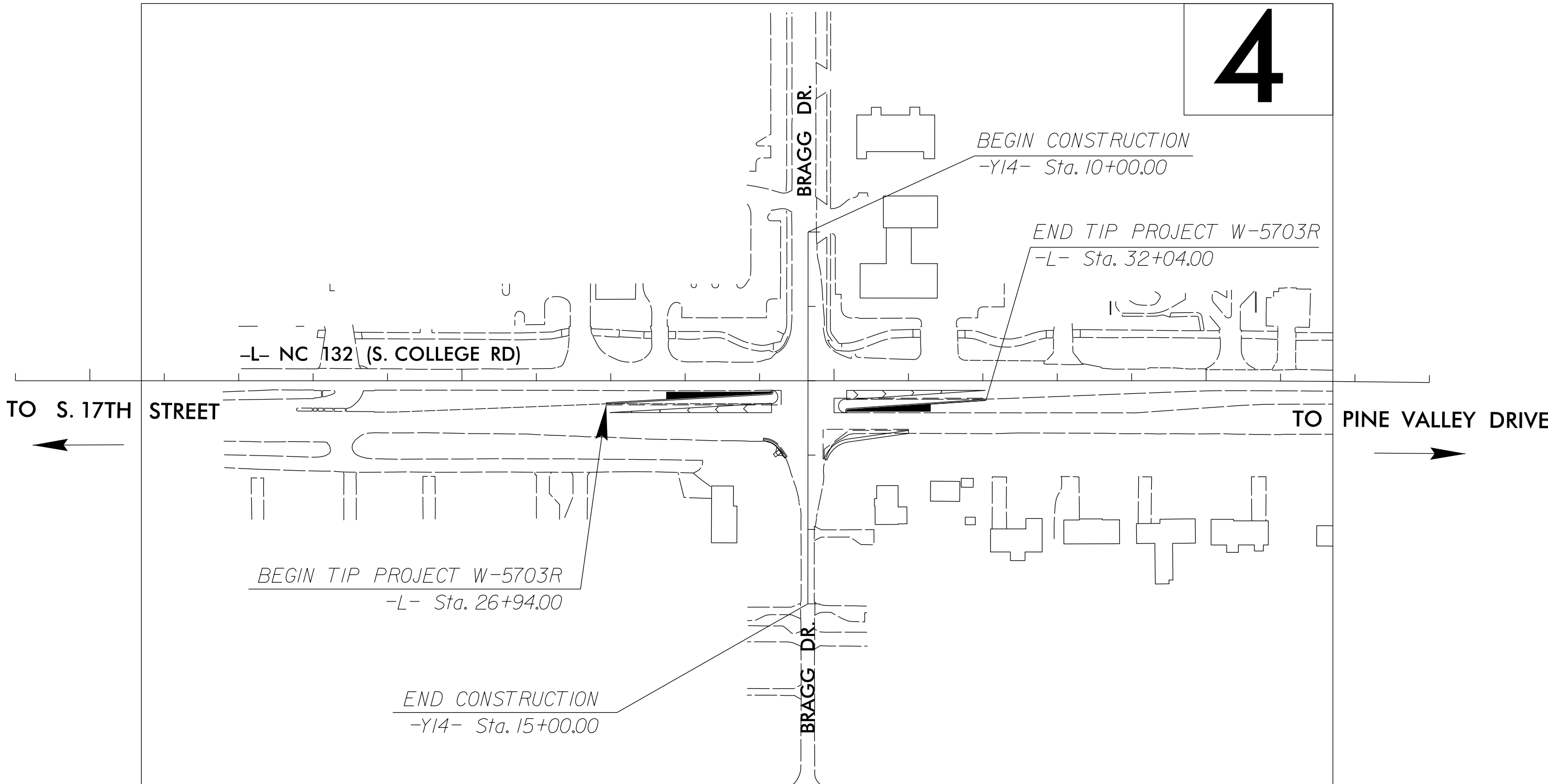
6/30/2022
W-5703R RDY_PSH05.dwg

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W5703R	RW01	02

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL AND EXISTING CENTERLINES

NEW HANOVER COUNTY



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "MCDONALDS" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 162,378.787(ft) EASTING: 2,322,247.834(ft) ELEVATION: 43.32(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000046352 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "MCDONALDS" TO -L- STATION 10+00.00 IS S 66-54'59.3" E 14,267.04(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

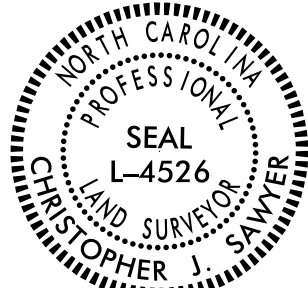
LOCATION AND SURVEY'S UNIT
DIVISION 3
5310 BARBADOS BLVD., SUITE 102
CASTLE HAYNE, N.C., 24289

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
N/A

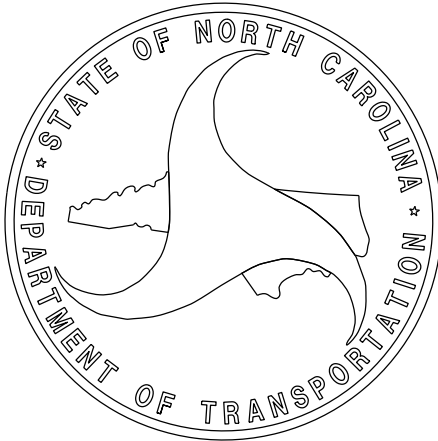
LETTING DATE:
09/15/2022

PROFESSIONAL LAND
SURVEYOR



DocuSigned by:
Christopher J. Sawyer
06/07/2022
SIGNATURE:

Date:



TIP PROJECT: W5703R

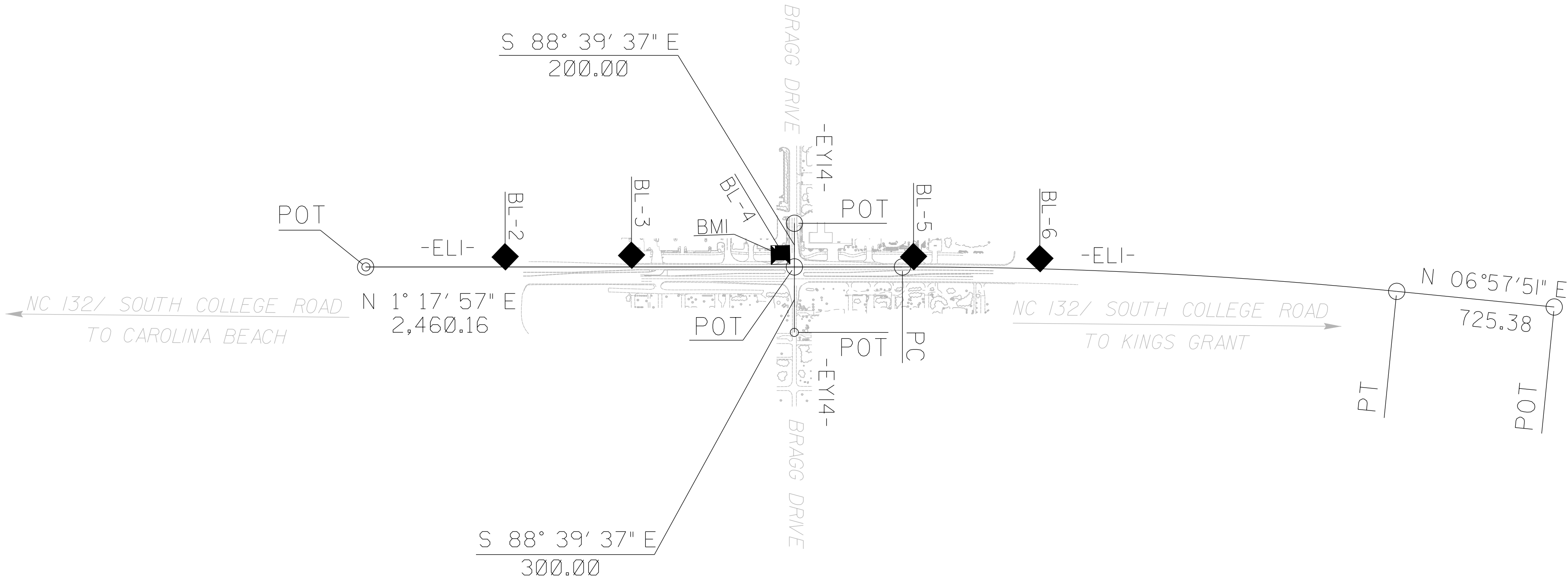
6/2/99
07-JUN-2022 12:03
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mduval AT LS-298896

SURVEY CONTROL SHEET
W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

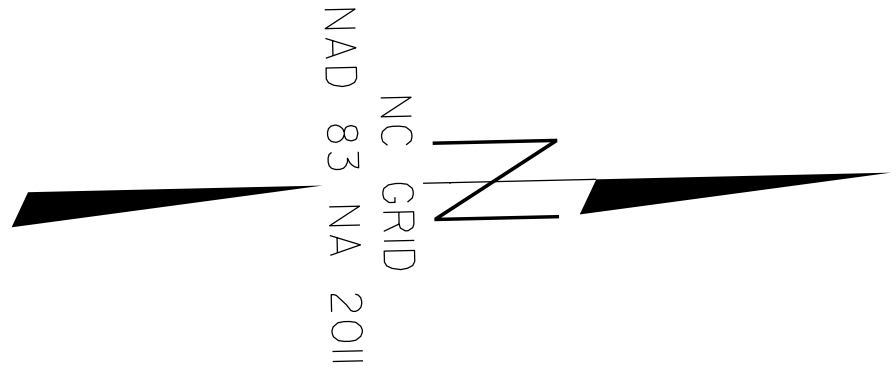
EL1									
POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	156785.072	2335372.573							
LINE			N 01°17'57.0" E	2460.16					
PC	159244.603	2335428.351							
CURVE			N 04°07'54.1" E	2267.77	05°39'54.2*(RT)	00°14'58.9"	2268.69	1135.27	22945.31
PT	161506.480	2335591.741							
			N 06°57'51.2" E	725.38					
POT	162226.505	2335679.693							

EY14				
POINT	N	E	BEARING	DIST
POT	158754.285	2335217.180		
LINE			S 88°39'37.3" E	200.00
POT	158749.609	2335417.125		
LINE			S 88°39'37.3" E	300.00
POT	158742.595	2335717.043		

BM1 ELEVATION = 52.19
N 158687 E 2335361
BL STATION 40+90.00 9 RIGHT
NORTH BOLT OF SIGNAL POLE



BL	POINT	DESC.	NORTH	EAST	ELEVATION
BL2	BL-2	REBAR & CAP	157425.4700	2335340.3570	45.66
BL3	BL-3	REBAR & CAP	158004.5702	2335346.2990	46.01
BL4	BL-4	REBAR & CAP	158695.9399	2335351.8940	50.80
BL5	BL-5	REBAR & CAP	159296.4941	2335382.0290	51.12
BL6	BL-6	REBAR & CAP	159875.0497	2335404.4290	48.24



PROJECT REFERENCE NO.
W-5703R

SHEET NO.
RW02C-1

Location and Surveys

LOCATION AND SURVEY'S UNIT
DIVISION 3
5310 BARBADOS BLVD., SUITE 102
CASTLE HAYNE, NORTH CAROLINA 28429

PROJECT SURVEYOR

SEAL

L-4526

CHRISTOPHER J. SAWYER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I, Christoper J. Sawyer, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
Type of GPS field procedure: VRS
Dates of survey: 05/17/2021 to 07/15/2021
Datum/Epoch: NAD 83/NA 2011 NAVD88
Published/Fixed-control use: N/A
Localized around: MCDONALDS
Northing: 162378.787
Easting: 2322247.834
Combined grid factor: 1.000046352
Geoid model: 18
Units: US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from 05/17/2021 to 07/15/2021 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 6TH day of June, 2022.

DocuSigned by:
Christopher J Sawyer

0700c62e1021467

Professional Land Surveyor L-4526

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

8/4/2022,
1:45:33 PM
W-5703R-PMP-ISH.dgn

CONTRACT:

T.I.P.: W-5703R

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
NEW HANOVER COUNTY

LOCATION: INTERSECTION OF NC 132 (COLLEGE ROAD)
AND BRAGG DRIVE (CITY STREET)

TIP NO.	SHEET NO.
W-5703R	PMP - 1
APPROVED: LocaSigned by:  20771289153D486...	
DATE: 8/4/2022	
SEAL 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN COVER SHEET
PMP-1A	HI-VISIBILITY CROSSWALKS NO-TRACK MARKING GUIDANCE
PMP-1B	REVISED SIGNING RSD
PMP-2	E SIGNS
PMP-3	PAVEMENT MARKING DETAIL

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 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

MARKING SCHEDULE

SYMBOL	DESCRIPTION	
T1	WHITE EDGELINE	THERMOPLASTIC (4", 90 MIL)
T40	WHITE GORELINE	THERMOPLASTIC (8", 90 MIL)
T41	WHITE DIAGONAL	THERMOPLASTIC (8", 90 MIL)
T61	WHITE STOPBAR	THERMOPLASTIC (24", 90 MIL)
T62	WHITE CROSSWALK	THERMOPLASTIC (24", 90 MIL)
T70	LEFT TURN ARROW	THERMOPLASTIC (90 MIL)
T71	RIGHT TURN ARROW	THERMOPLASTIC (90 MIL)
T73	COMBO. LEFT/STRAIGHT ARROW	THERMOPLASTIC (90 MIL)
MA	YELLOW & YELLOW	PERMANENT RAISED MARKER
MF	CRYSTAL & RED	SNOWPLOWABLE MARKER

PLAN PREPARED BY: LJB Inc.

Farrell Nicholson, PE PROJECT ENGINEER
Haley Vozzella DESIGN ENGINEER



1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
-L- NC 132 (COLLEGE RD)	THERMO	SNOWPLOWABLE
-Y14- (BRAGG DRIVE)	THERMO	PERM. RAISED

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

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

D) REPLACE ANY PAVEMENT MARKINGS BEYOND THE PROJECT LIMITS DAMAGED BY THE CONTRACTORS' OPERATIONS DURING CONSTRUCTION.

E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

F) SIGNS FURNISHED BY CONTRACTOR.

G) WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.

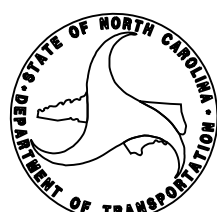
H) THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.	PROPOSED ROADWAY IMPROVEMENTS		
4025000000-E	901	CONTRACTOR FURNISHED, TYPE E SIGN	6.25	SF
4072000000-E	903	SUPPORTS, 3 LB STEEL U-CHANNEL	13	LF
4102000000-N	904	SIGN ERECTION, TYPE E	1	EA
4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	126	LF
4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	888	LF
4709000000-E	1205	THERMOPLASTIC WHITE STOPBAR (24", 90 MIL)	290	LF
4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MIL)	8	EA
4875000000-N	1205	REMOVAL OF PAVEMENT PARKING SYMBOLS & CHARACTERS	4	EA
4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	16	EA
4895000000-N	1251	NON-CAST IRON SNOWPLOWABLE MARKER	40	EA
4915000000-E	1264	7' U-CHANEL POSTS	2	EA
4957000000-N	1264	OBJECT MARKERS (TYPE 3)	2	EA

PLAN SUBMITTED TO:

TRACE HOWELL, PE - DIVISION 3 DESIGN ENGINEER

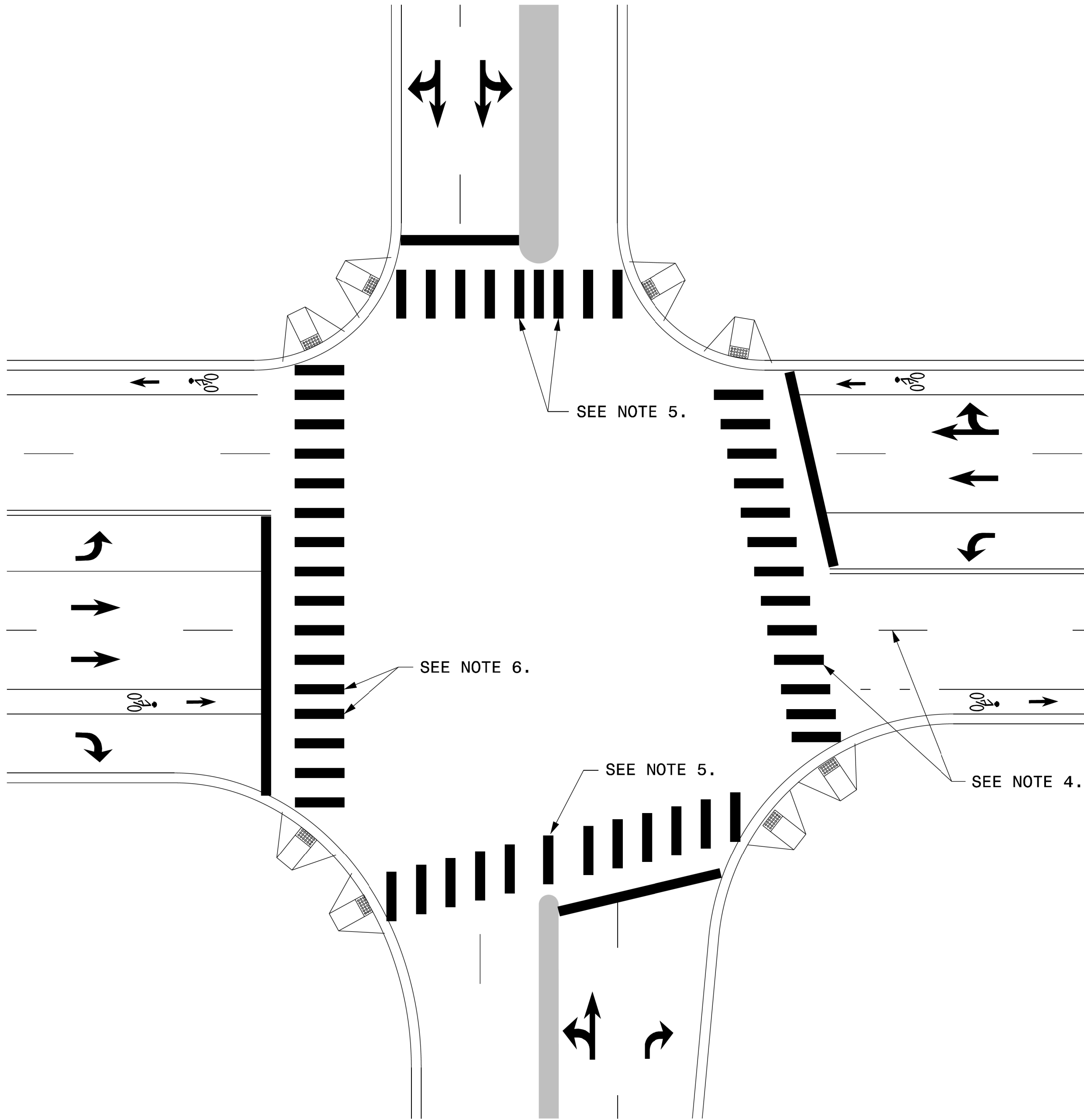


STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

5-18

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
HI-VISIBILITY CROSSWALKS
NO-TRACK MARKING GUIDANCE

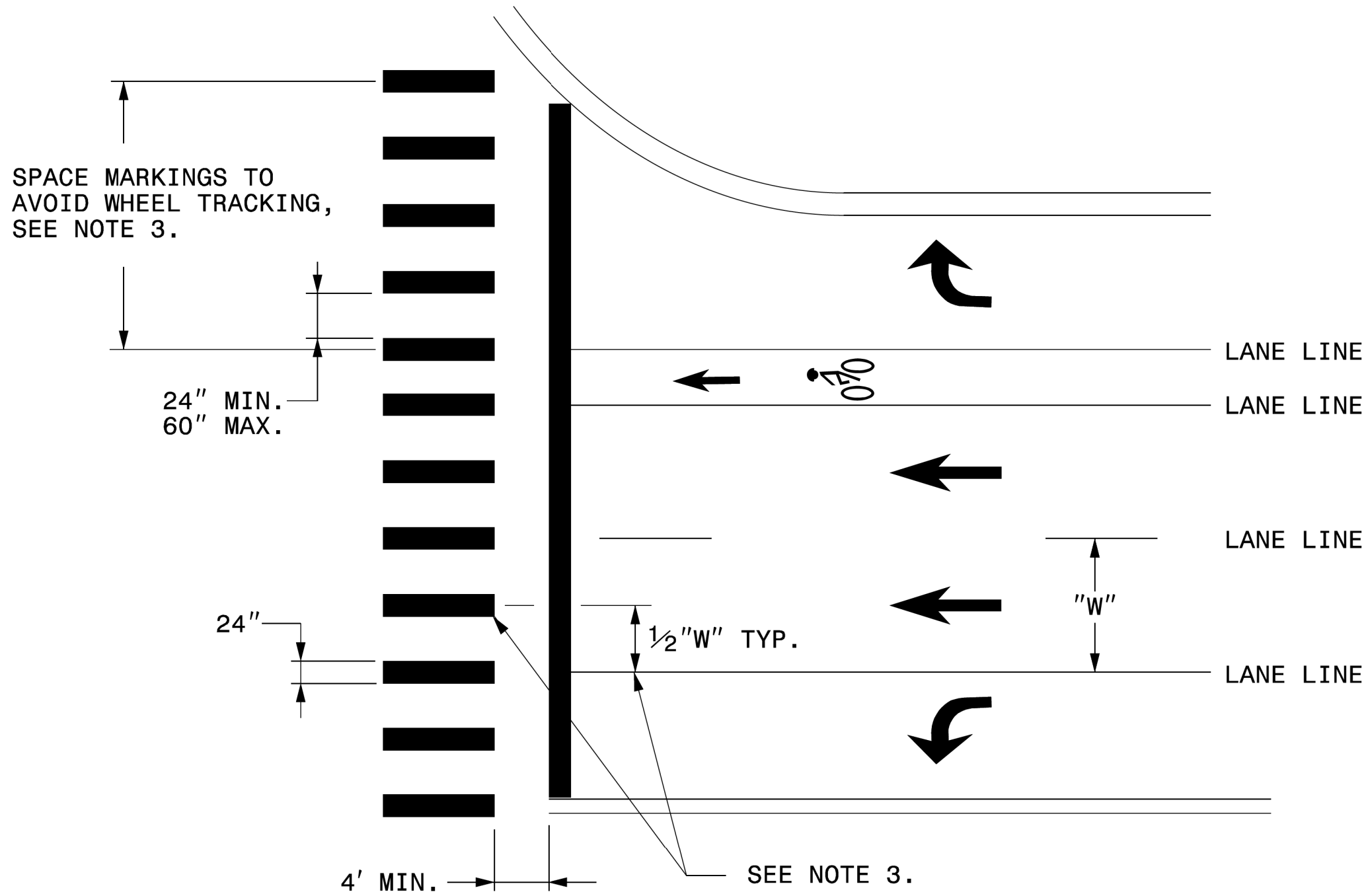
SHEET 1 OF 1



CROSSWALK INTERSECTION DETAIL

GENERAL NOTES:

- 1- THE GUIDANCE IN THIS DETAIL IS TO BE USED WHEN NO-TRACK SPACING OF HI-VISIBILITY MARKINGS IS REQUESTED.
- 2- USE THE GUIDANCE SHOWN ON THE ABOVE DETAILS IN CONJUNCTION WITH PAVEMENT MARKING GUIDANCE SHOWN ON ROADWAY STANDARD DRAWINGS 1205.01 AND 1205.07.
- 3- PLACE MARKINGS TO AVOID WHEELPATH OF VEHICLES. MARKINGS TYPICALLY WILL BE LOCATED CENTERED AT THE LANE LINES AND EDGE LINES WITH ONE ADDITIONAL MARKING CENTERED IN THE MIDDLE OF THE LANE. AT WIDE LANE WIDTHS DUE TO TAPERS AND LARGE RADII, LOCATE MARKINGS AT BEST SPACING TO AVOID WHEEL TRACKING. THE SPACE BETWEEN MARKINGS SHALL NOT BE LESS THAN 24 INCHES OR GREATER THAN 60 INCHES.



CROSSWALK MARKING DETAIL

- 4- WHERE THE CROSSWALK IS SKEWED TO THE LANE LINES, THE MARKINGS SHOULD BE PARALLEL TO THE LANE LINES.
- 5- PLACE MARKINGS ON BOTH EDGES OF THE NOSE OF A MEDIAN. FOR NARROW MEDIANS LESS THAN 4 FEET, A SINGLE MARKING MAY BE USED. FOR WIDE MEDIANS, INSTALL ADDITIONAL MARKINGS IN THE MEDIAN AREA. THE SPACE BETWEEN THE MARKINGS SHALL NOT TO BE LESS THAN 24 INCHES OR GREATER THAN 60 INCHES.
- 6- LOCATE MARKINGS CENTERED ON BICYCLE LANE LINES. MARKINGS SHALL NOT BE LOCATED IN THE CENTER OF THE BICYCLE PATH.

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

5-18

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
HI-VISIBILITY CROSSWALKS
NO-TRACK MARKING GUIDANCE

SHEET 1 OF 1

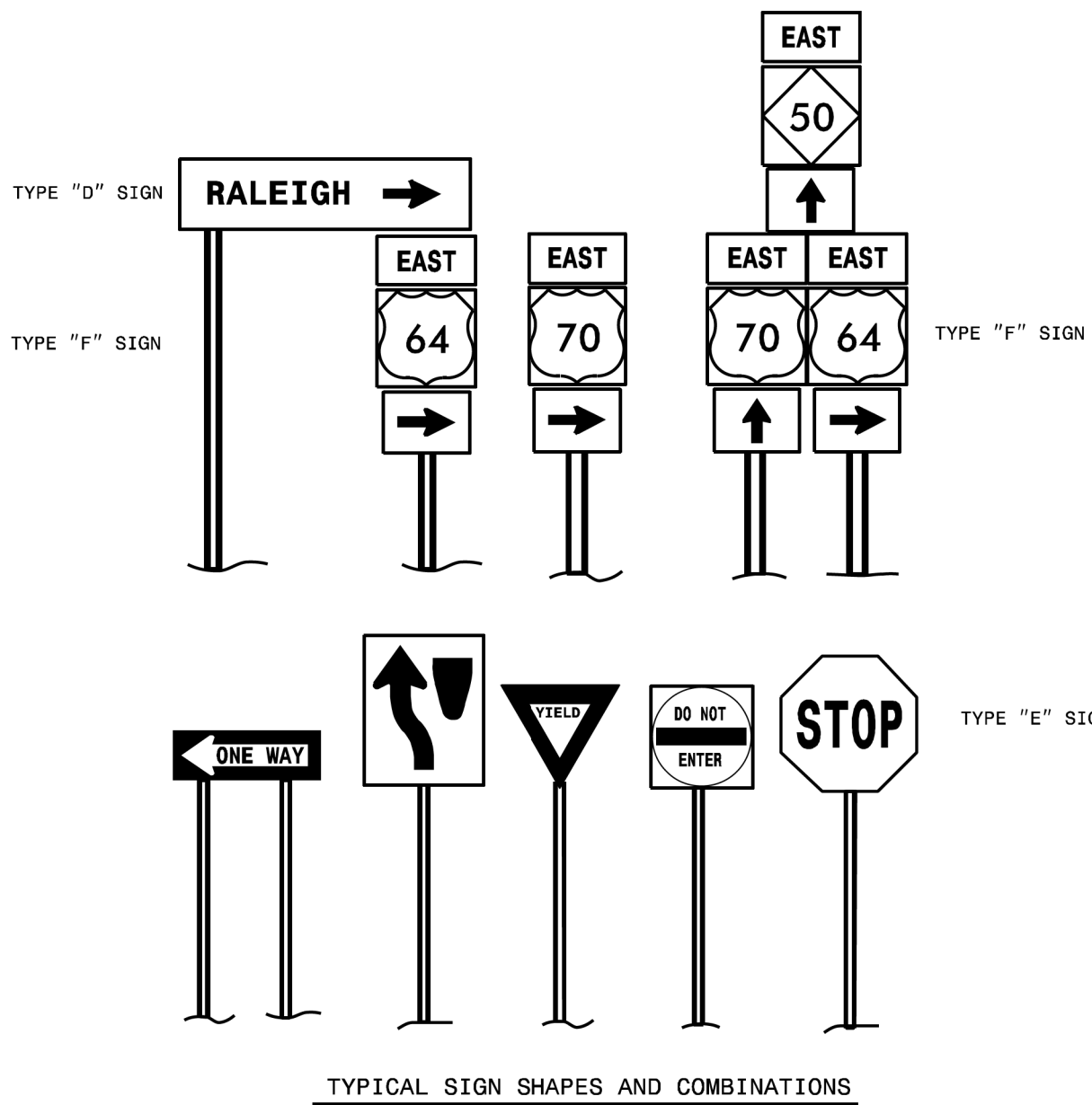
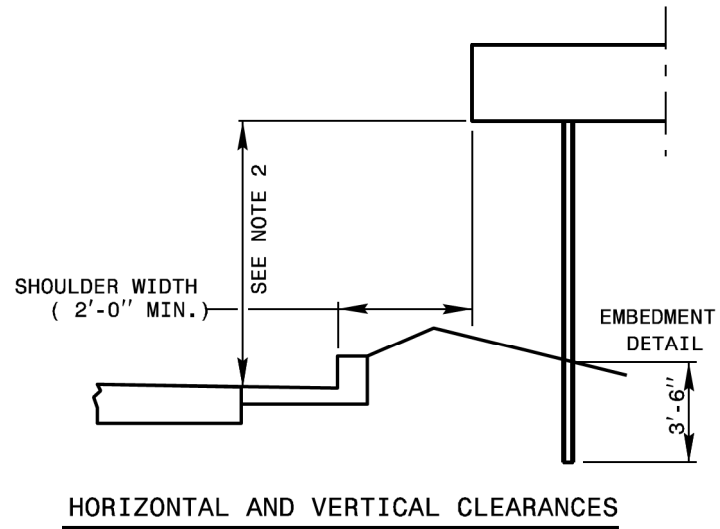
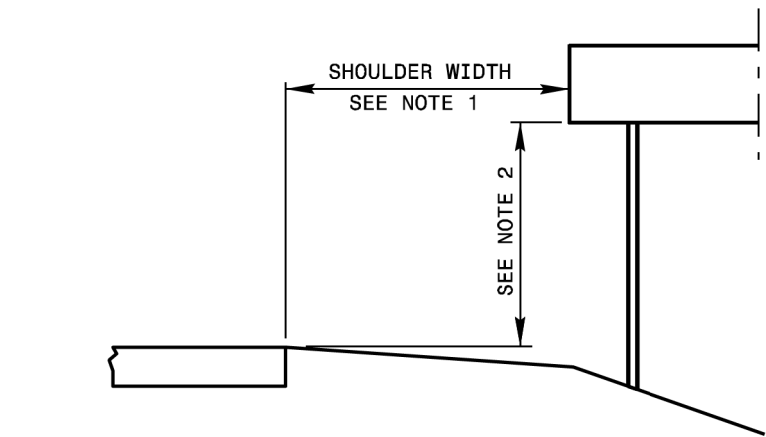
6/18/2021
S:\S&D\Standards Group\Standards and Drawings\Drawings\2018 Standard Dwg\Division 9 Final\090450_sgn_sht01_uchannelpost_6-21.dgn
User:dstakes

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

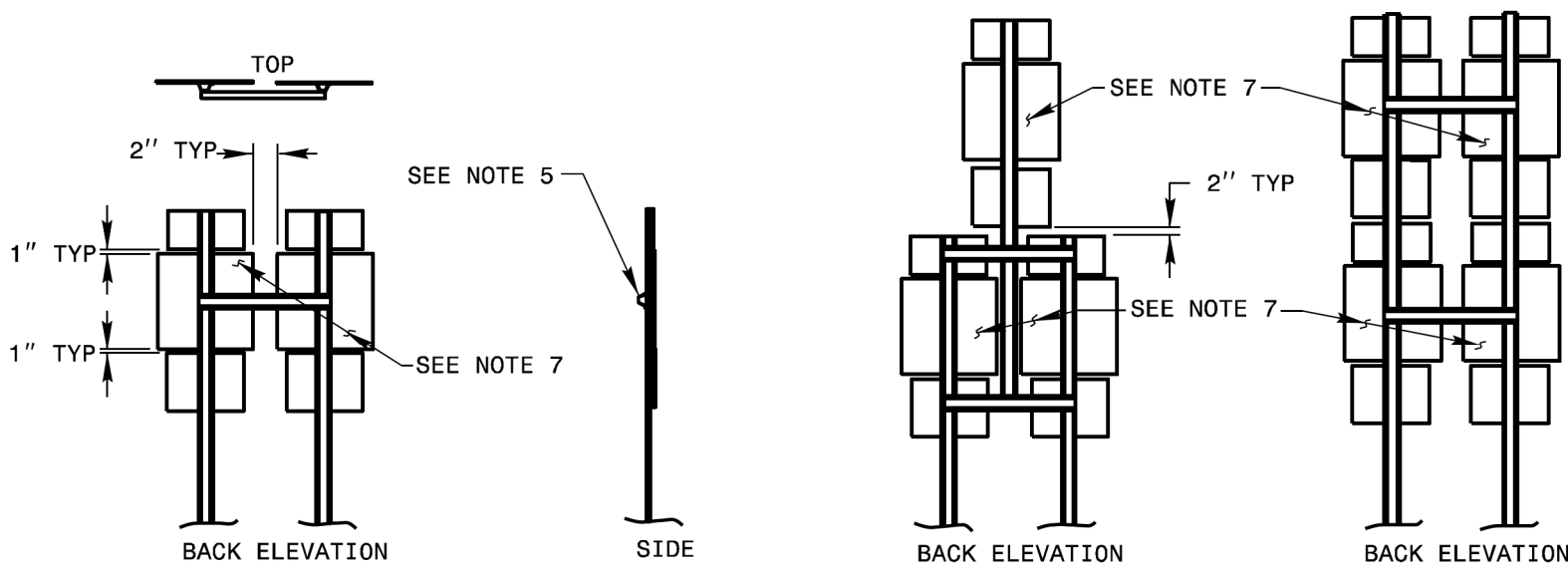
6-21

ENGLISH DETAIL DRAWING FOR
MOUNTING OF
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

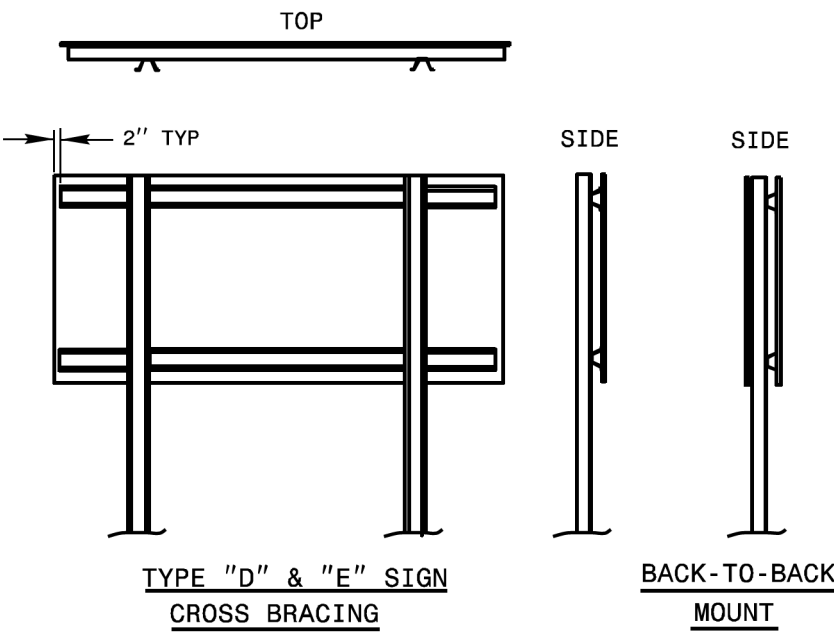
SHEET 1 OF 2
904D50



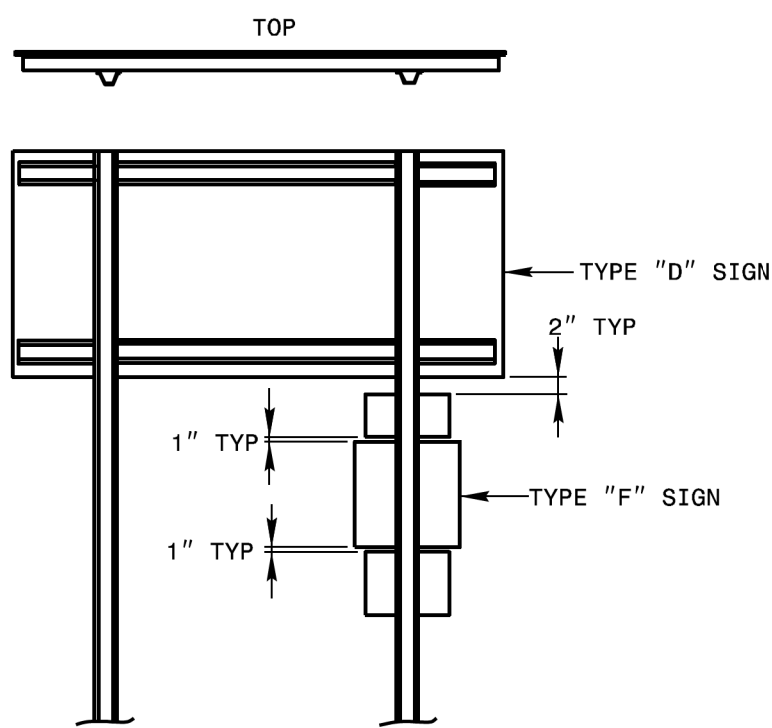
TYPICAL SIGN SHAPES AND COMBINATIONS



FRAMING AND CROSS-BRACING DETAILS
TYPE "F" SIGNS



FRAMING AND CROSS BRACE DETAILS
FOR COMBINATION TYPE "D" & "E" SIGNS
WIDE SIDE OF CROSS BRACE GOES TO BACK OF SIGN



FRAMING AND CROSS BRACE DETAILS
FOR COMBINATION TYPE "D" & "F" SIGNS
WIDE SIDE OF FLANGE TO BACK OF "F" SIGN

NOTES:

1. ERECT TYPE "D", "E", AND "F" SIGNS ON FREEWAYS WITH THE NEAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL OTHER "D", "E", AND "F" SIGNS WITH THE NEAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (6 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE), OR AS DIMENSIONED ON PLAN SHEETS.
2. ERECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE ON ROADS WITH 2 OR MORE LANES IN THE SAME DIRECTION AND AT LEAST 5 FT. ON OTHER ROUTES. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
3. THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "D", "E", AND "F" SIGNS IS 30" MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
4. ATTACH SIGN W/ 5/16" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT. NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET# 2 OF 904.50.
5. FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT ENDS OF CROSS BRACES W/ APPROVED. ZINC PAINT.
6. INSTALL POST AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "D" AND "F" SIGNS.
7. THE SHIELD HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LARGER THAN 24".
8. IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO U-CHANNEL SUPPORTS, THE SUPPORTS SHALL BE PLACED A MINIMUM OF 4 FT. BETWEEN POSTS. NO MORE THAN TWO POSTS SHALL FALL WITHIN 7 FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.

TIP NO.	SHEET NO.
W-5703R	PMP - 1B
APPROVED:	Matthew V. Springer
DATE:	6/23/2021
SEAL	

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

6-21

ENGLISH DETAIL DRAWING FOR
MOUNTING OF
TYPE 'D', 'E' AND 'F' SIGNS
ON 'U' CHANNEL POSTS

SHEET 1 OF 2
904D50

REVISED SIGNING
ROADWAY STANDARD DRAWING

06-18-21

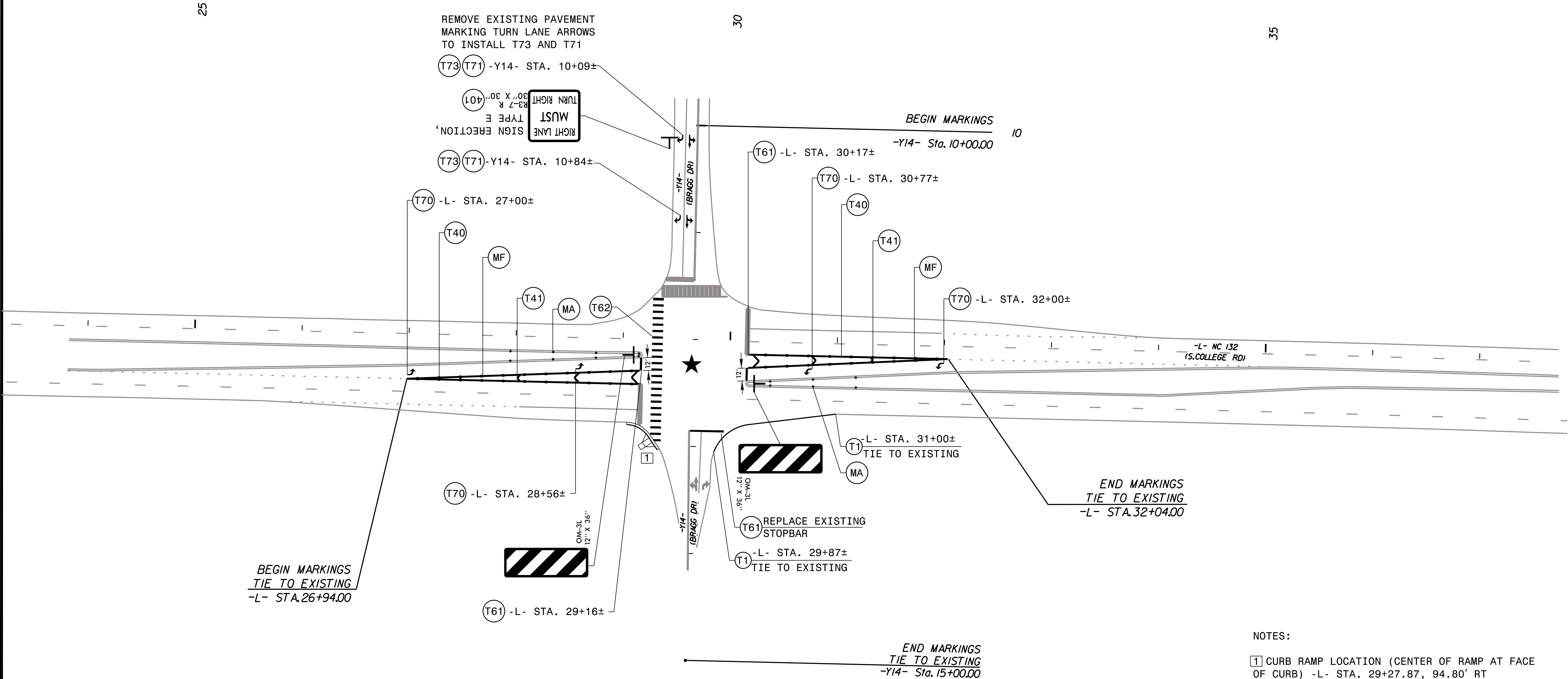
TYPE "E" SIGNS



1401 Aversboro Road
Suite 215
Garner, NC 27529
(919) 594-6710
NCBELS C-4123



TIP NO.		SHEET NO.	
W-5703R		PMP - 3	
APPROVED: <i>Farrell Nicholson</i>			
DATE: 8/4/2022			
SEAL			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



PAVEMENT MARKING SCHEDULE		
T1	-	THERMO (4", 90 MIL)
T40	-	THERMO (8", 90 MIL)
T41	-	THERMO (8", 90 MIL)
T61	-	THERMO (24", 90 MIL)
T62	-	THERMO (24", 90 MIL)
T70	-	THERMO (90 MIL)
T71	-	THERMO (90 MIL)
T73	-	THERMO (90 MIL)
MF	-	CRYSTAL & RED
MA	-	YELLOW & YELLOW
		WHITE EDGE LINE
		WHITE GORE LINE
		WHITE DIAGONAL
		WHITE STOP BAR
		WHITE CROSSWALK LINE
		LEFT TURN ARROW
		RIGHT TURN ARROW
		COMBO. LEFT/STRAIGHT ARROW
		SNOWPLOWABLE MARKER
		PERMANENT RAISED MARKER

NOTES:

1 CURB RAMP LOCATION (CENTER OF RAMP AT FACE OF CURB) -L- STA. 29+27.87, 94.80' RT

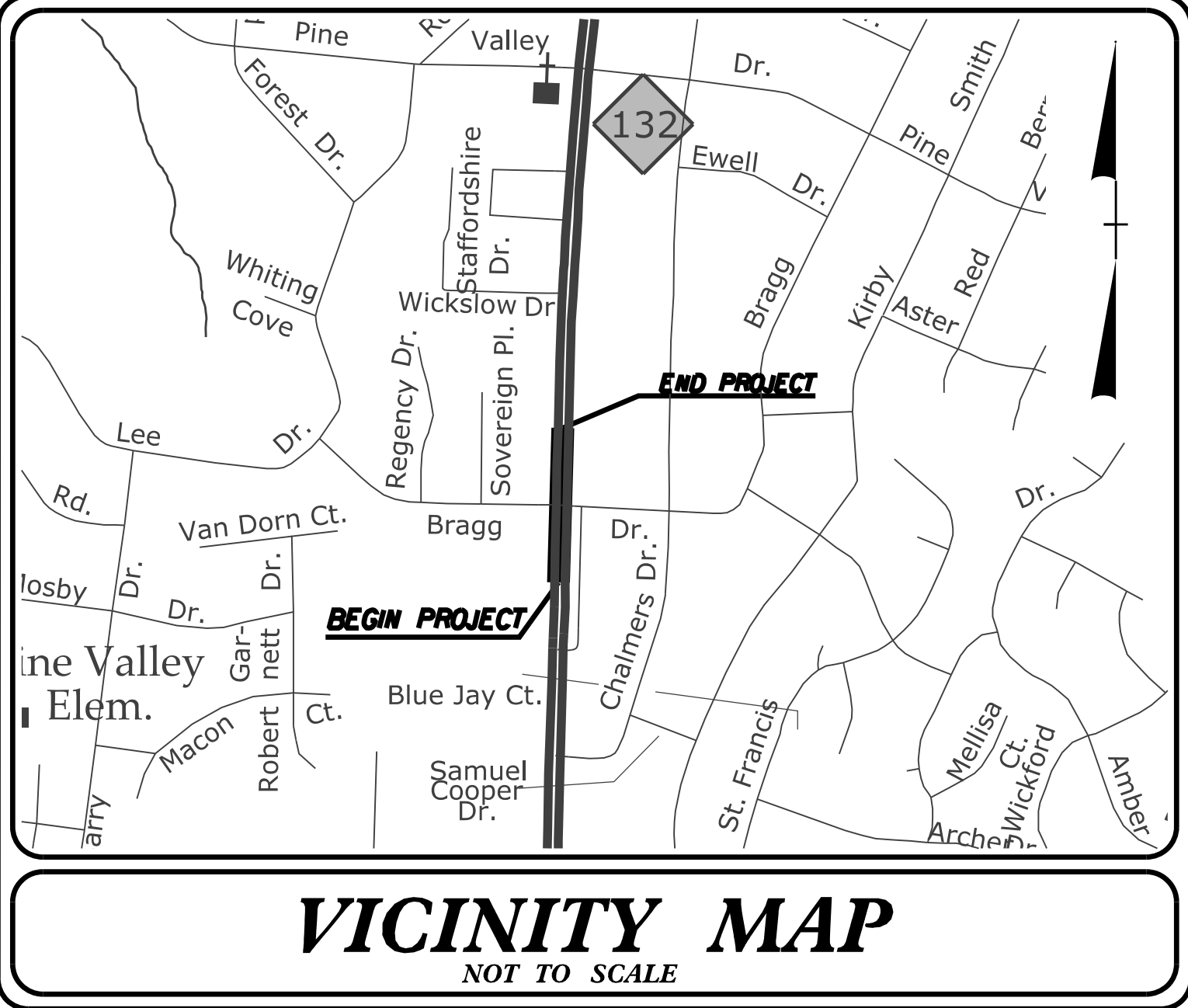
FOR CROSSWALKS, USE ROADWAY STANDARD DRAWING ON PMP-1B. ALL SPACING IS 6' ON CENTER, UNLESS SHOWN DIFFERENTLY ON THIS SHEET.

STOP BARS ARE TO BE LOCATED ACCORDING TO SIGNAL PLANS.

PAVEMENT MARKING DETAIL

8/4/2022
04:05 PM
W5703R.PMP_PSH03.dgn

TIP PROJECT: W-5703R



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

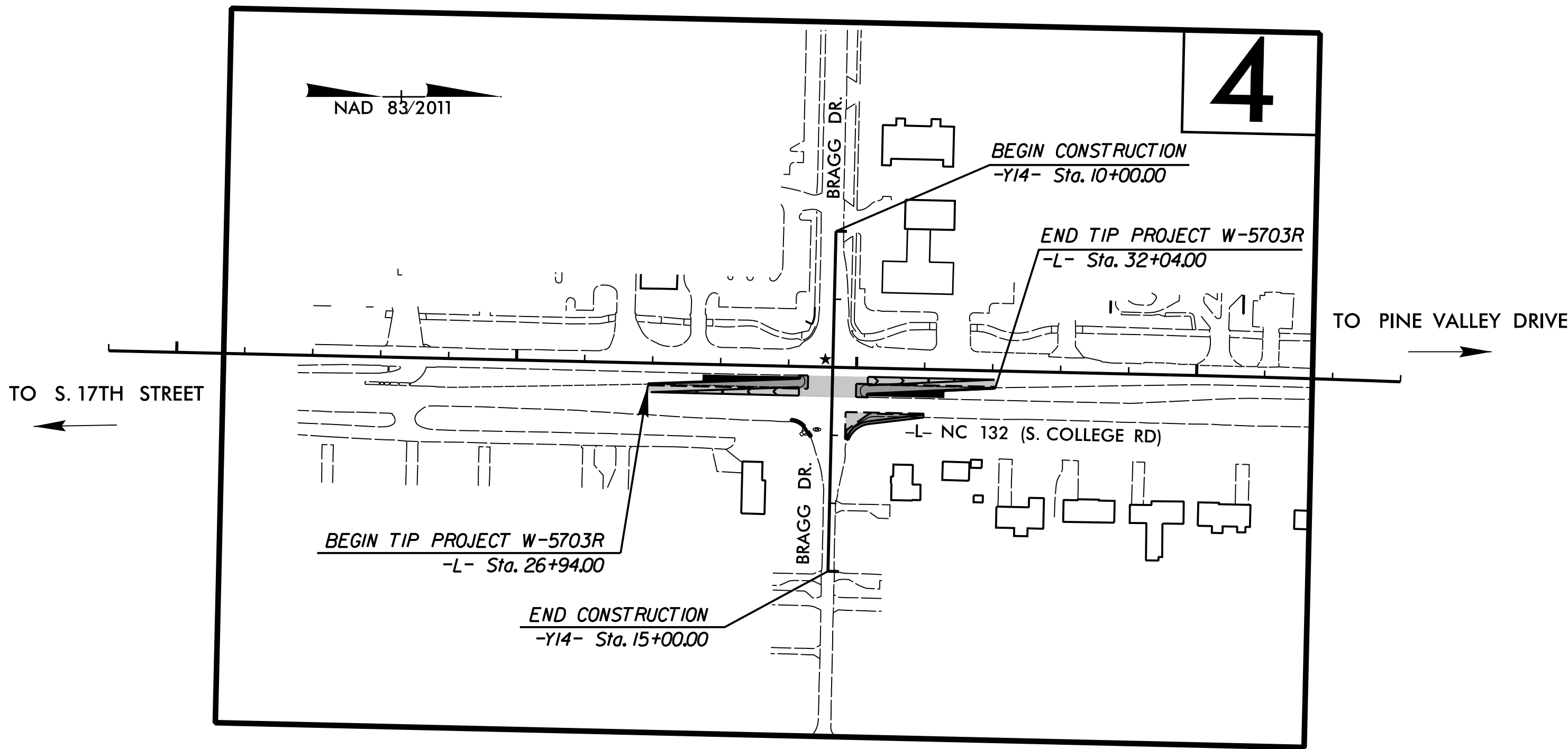
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

NEW HANOVER COUNTY

LOCATION: INTERSECTION OF NC 132 (COLLEGE ROAD)
AND BRAGG DRIVE (CITY STREET)

TYPE OF WORK: GRADING, PAVING, PAVEMENT MARKINGS,
SIGNALS AND DRAINAGE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5703R	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44849.1.18	HSIP-0132(013)	P.E.	
44849.2.18	HSIP-0132(013)	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	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	TD
1630.02	Silt Basin Type B	TD
1633.01	Temporary Rock Silt Check Type-A	TD
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	TD
1633.02	Temporary Rock Silt Check Type-B	TD
	Wattle / Coir Fiber Wattle	TD
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	TD
1634.01	Temporary Rock Sediment Dam Type-A	TD
1634.02	Temporary Rock Sediment Dam Type-B	TD
1635.01	Rock Pipe Inlet Sediment Trap Type-A	TD
1635.02	Rock Pipe Inlet Sediment Trap Type-B	TD
1630.04	Stilling Basin	TD
1630.06	Special Stilling Basin	TD
	Rock Inlet Sediment Trap:	TD
1632.01	Type A	TD
1632.02	Type B	TD
1632.03	Type C	TD
	Skimmer Basin	TD
	Tiered Skimmer Basin	TD
	Infiltration Basin	TD
	Fabric Insert Inlet Protection Device	TD

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

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH
THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000
GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019
AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.



We think bigger.

Prepared In the Office of:

LJB, INC.

1401 Aversboro Road Suite 215.
Garner, NC 27529
NC LICENSE NO. C-4123

Designed by:

FARRELL NICHOLSON

3905

NAME

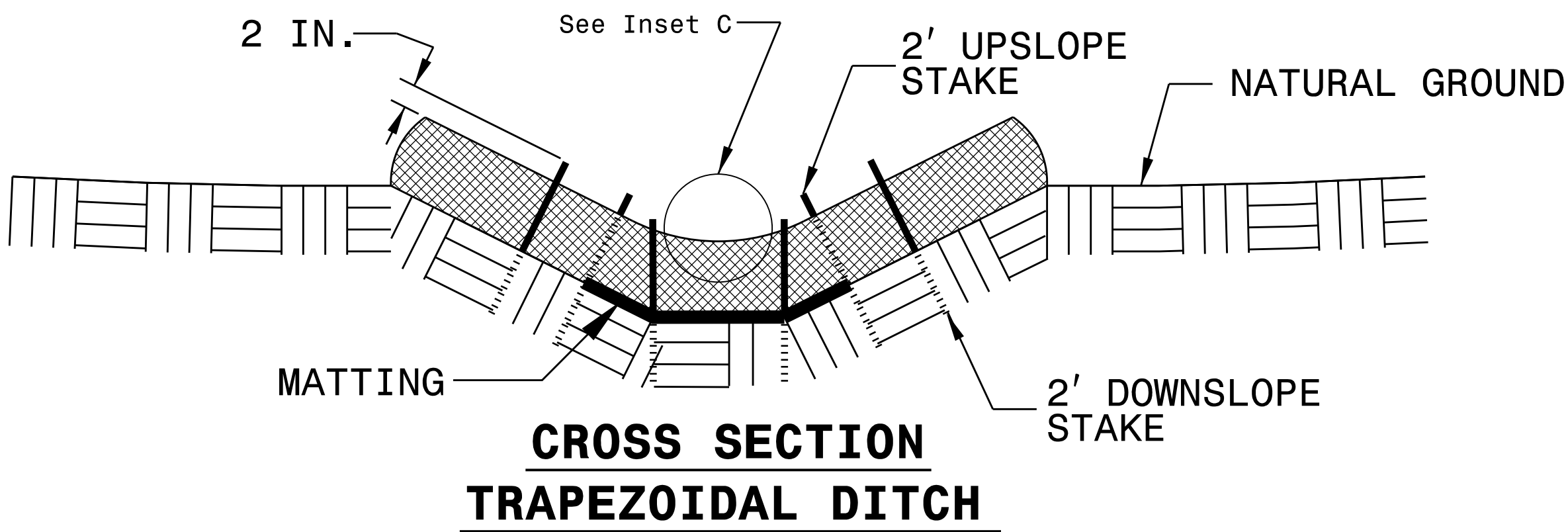
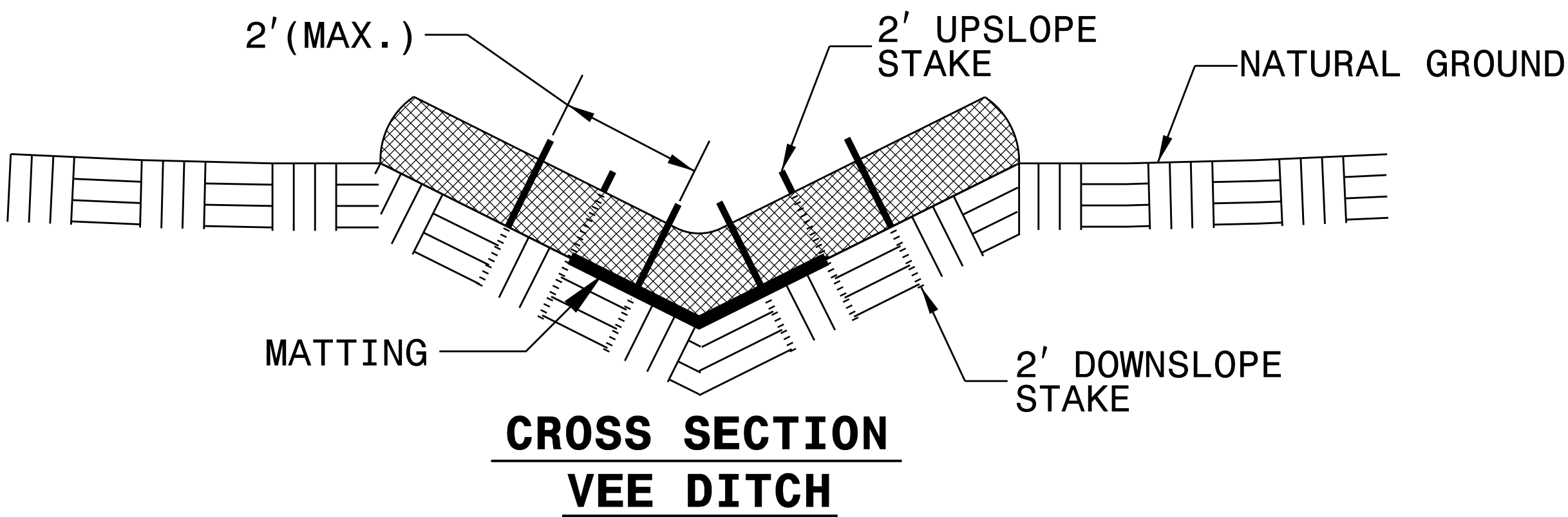
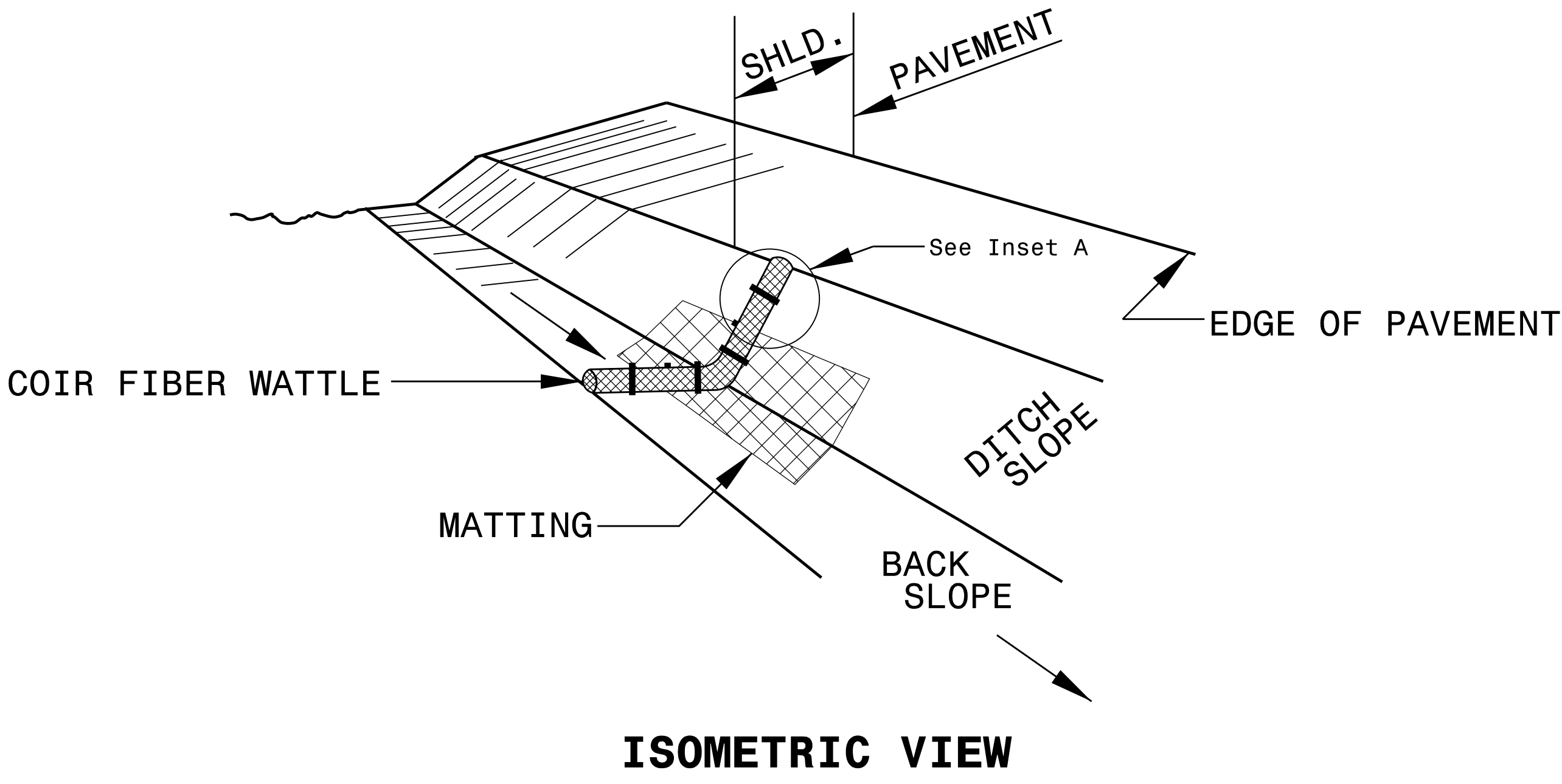
LEVEL III CERTIFICATION NO.

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 2018 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	1633.02	Temporary Rock Silt Check Type C
1630.02	Silt Basin Type 3	1634.01	Temporary Rock Sediment Dam Type A
1630.03	Temporary Silt Ditch	1634.02	Temporary Rock Sediment Dam Type B
1630.04	Stilling Basin	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.05	Temporary Diversion	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.06	Special Stilling Basin	1640.01	Coir Fiber Jaffle
1631.01	Matting Installation	1645.01	Temporary Stream Crossing

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) 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.

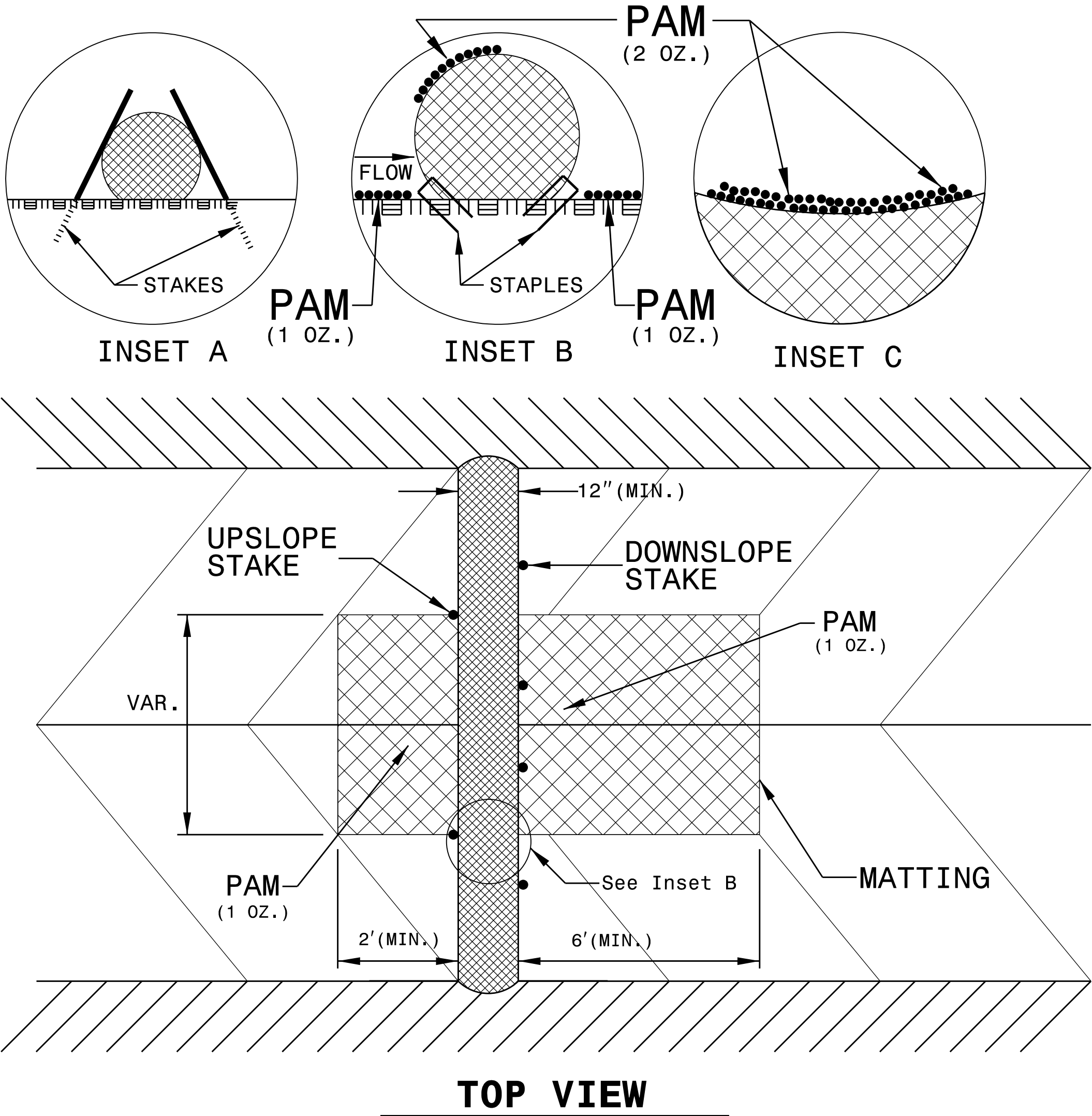
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

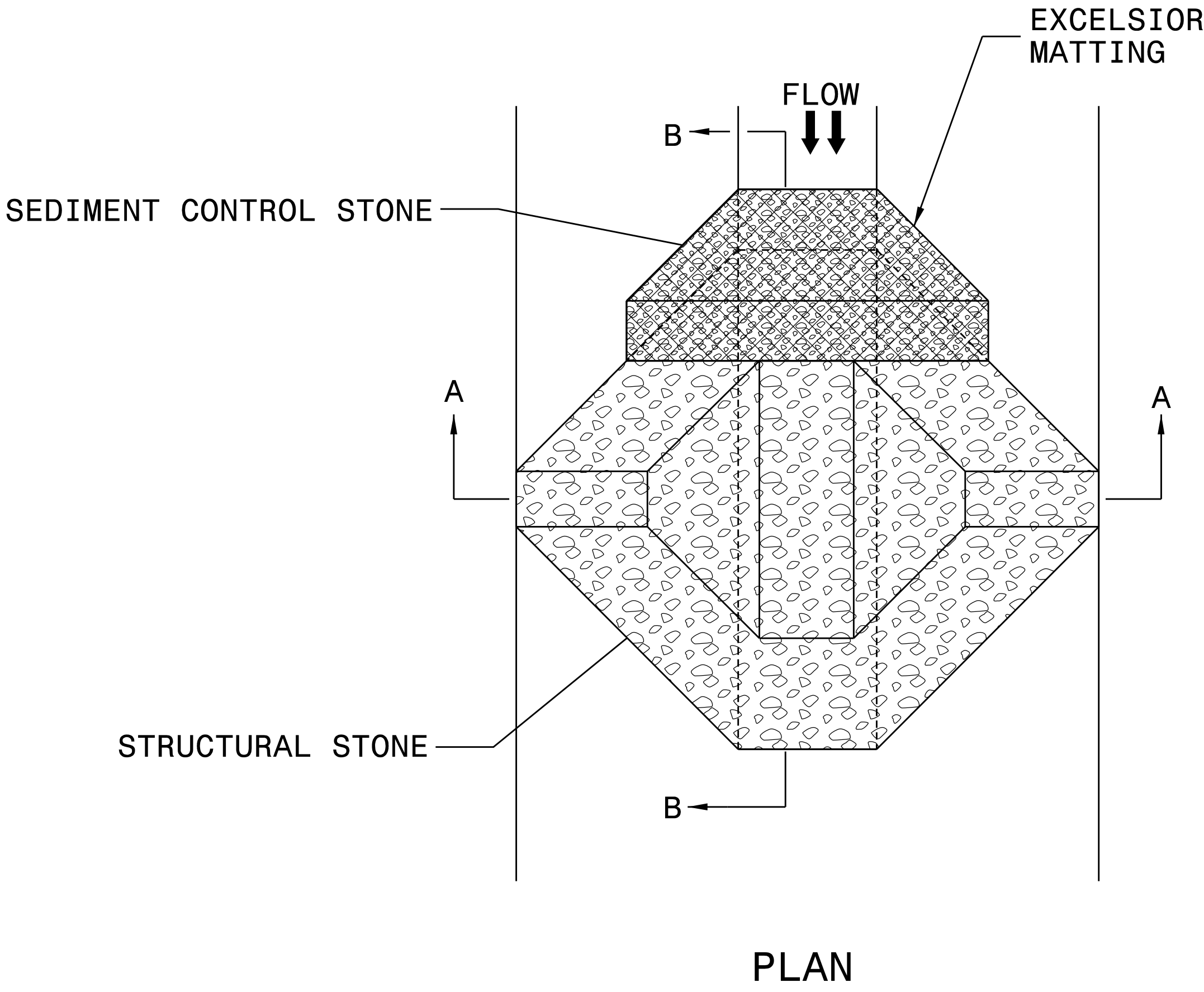
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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.



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



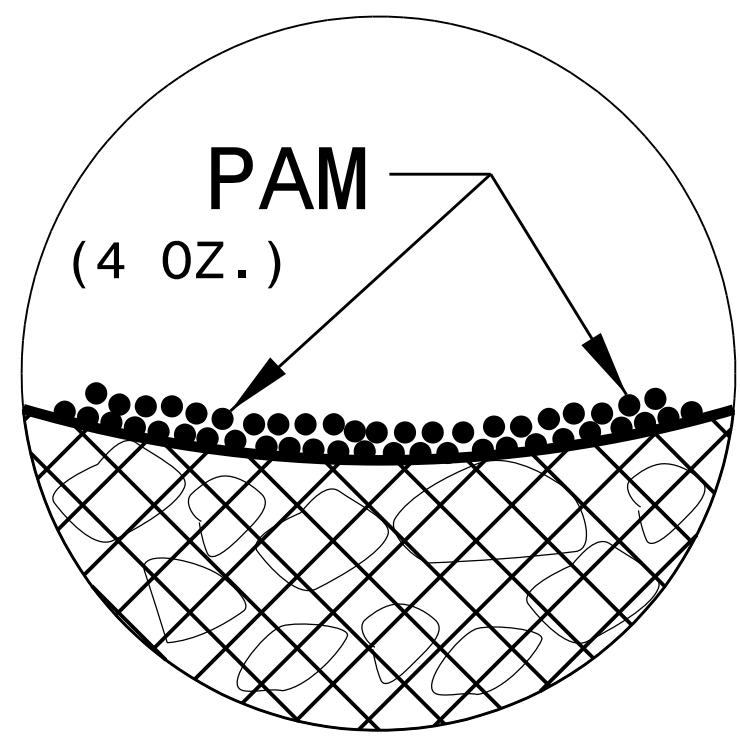
NOTES:

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

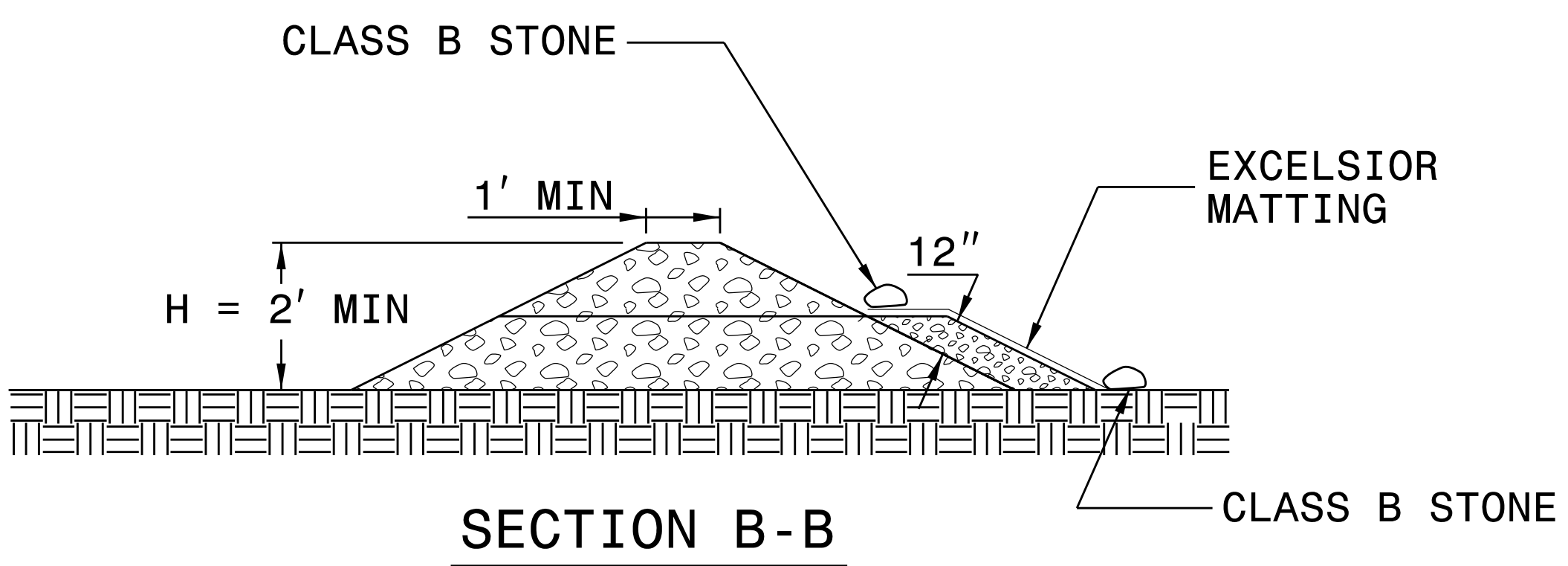
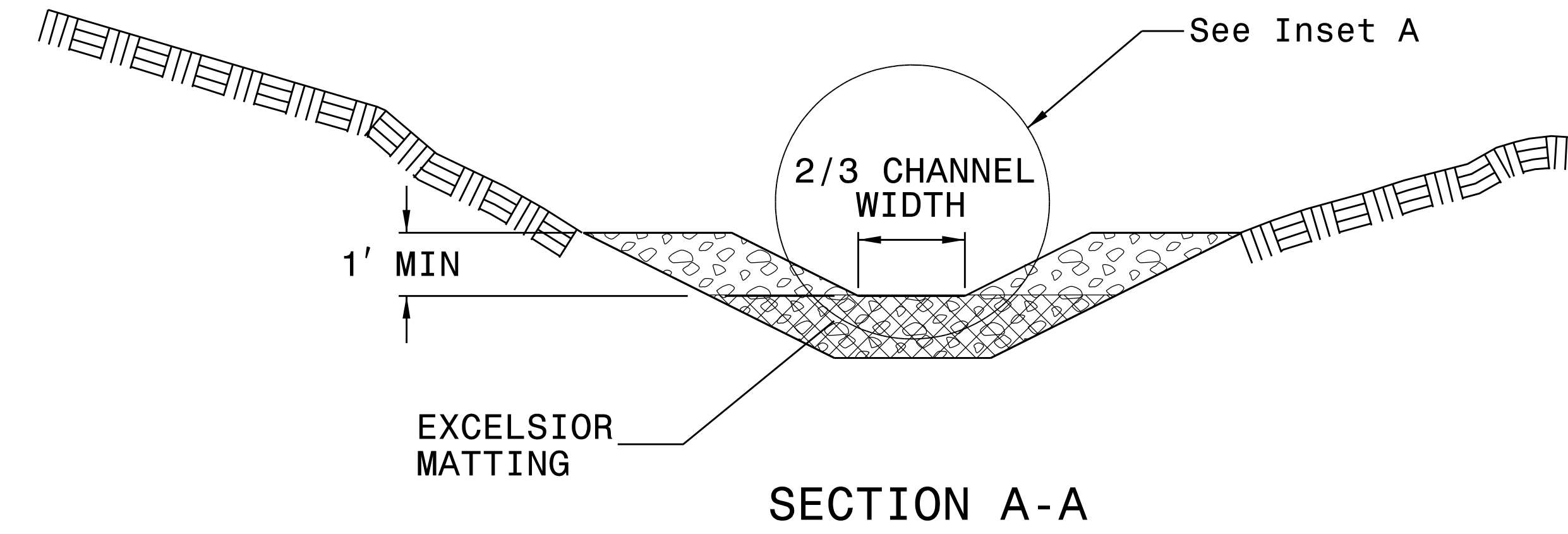
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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



NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

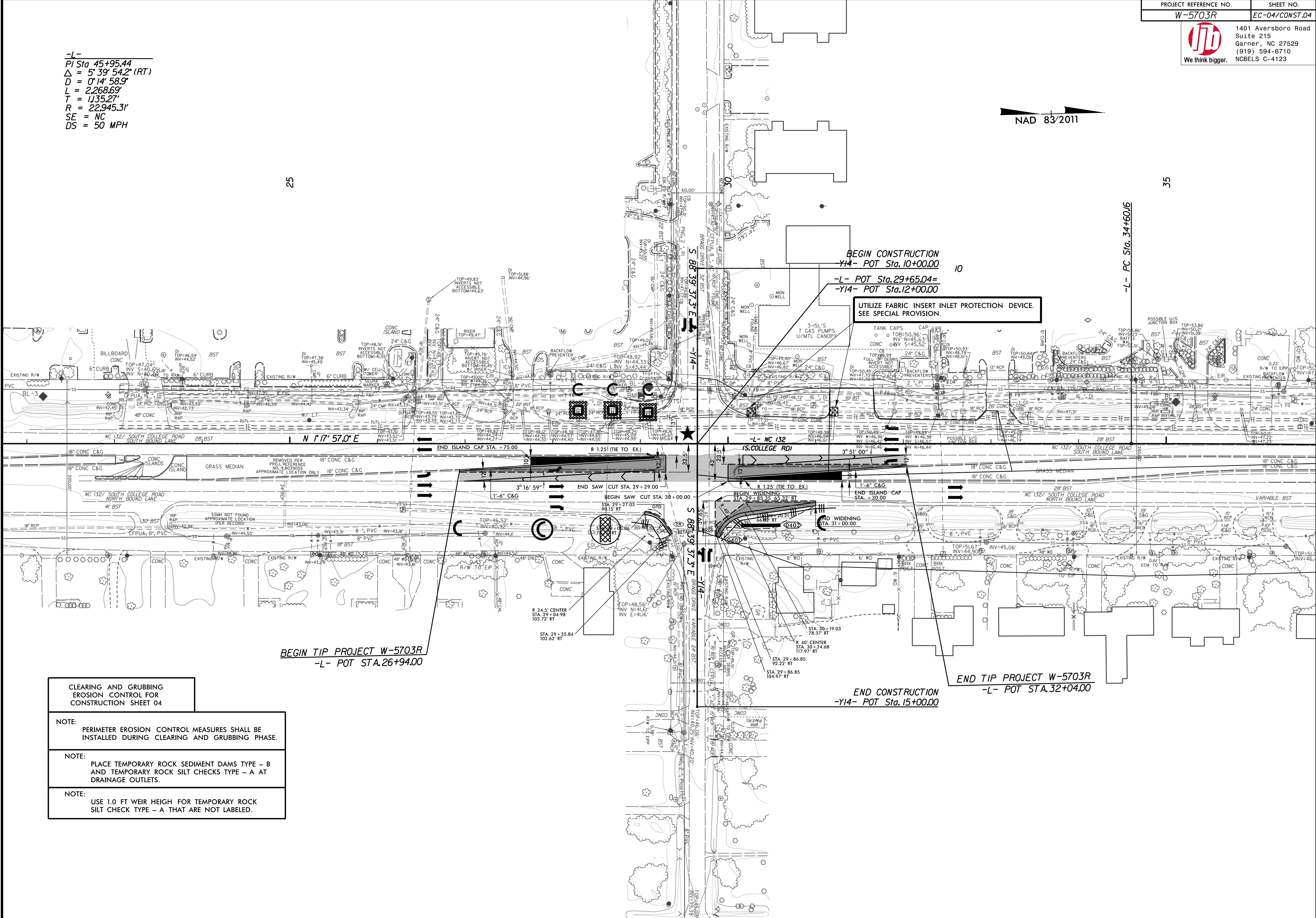
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS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

-L-
PI Sta 45+95.44
 $\Delta = 5' 39' 54.2''$ (RT)
D = 0' 14' 58.9"
L = 2,268.69'
T = 1,135.27'
R = 22,945.31'
SE = NC
DS = 50 MPH

NAD 83/2011

25

35



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

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

NOTE:
USE 1.0 FT WEIR HEIGH FOR TEMPORARY ROCK
SILT CHECK TYPE - A THAT ARE NOT LABELED.

-L-
PI Sta 45+95.44
 $\Delta = 5' 39' 54.2''$ (RT)
D = 0' 14' 58.9"
L = 2,268.69'
T = 1,135.27'
R = 22,945.31'
SE = NC
DS = 50 MPH

NAD 83/2011

25

35

BEGIN CONSTRUCTION
-Y14- POT Sta.10+00.00
-L- POT Sta.29+65.04=
-Y14- POT Sta.12+00.00

UTILIZE FABRIC INSERT INLET PROTECTION DEVICE.
SEE SPECIAL PROVISION.

BEGIN TIP PROJECT W-5703R
-L- POT STA.26+94.00

END CONSTRUCTION
-Y14- POT Sta.15+00.00

END TIP PROJECT W-5703R
-L- POT STA.32+04.00

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

FINAL
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

Place Matting for Erosion Control
on Slope as Work Allows.
Sta. 30+00 to Sta. 31+00

7/12/19

6/13/2022 5:49:06 PM
W5703R.EC.PSH5397

6 Phase
Fully Actuated
Wilmington Signal System

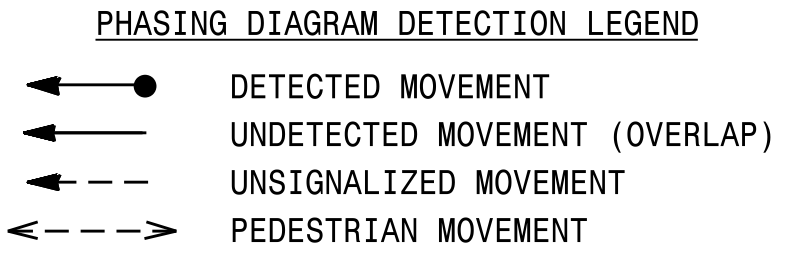
NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Omit phase 7 during phase 8 on.
- Phase 1 and/or phase 5 may be lagged.
- Reposition existing signal heads numbered 11,51,81,and 82.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Signal system data:
Controller Asset #: 0924.

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	URNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	10	-	-
1B	6X40	+5	2-4-2	Y	6	Y	Y	Y	-	3	-	-
2A	6X6	300	4	Y	2	Y	Y	-	-	-	-	-
2B	6X6	300	4	Y	2	Y	Y	-	-	-	-	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	10	-	-
5B	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	-
6A	6X6	300	6	Y	6	Y	Y	-	-	-	-	-
6B	6X6	300	6	Y	6	Y	Y	-	-	-	-	-
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	10	-	-
8A	6X40	+5	2-4-2	Y	8	Y	Y	-	-	3	-	-

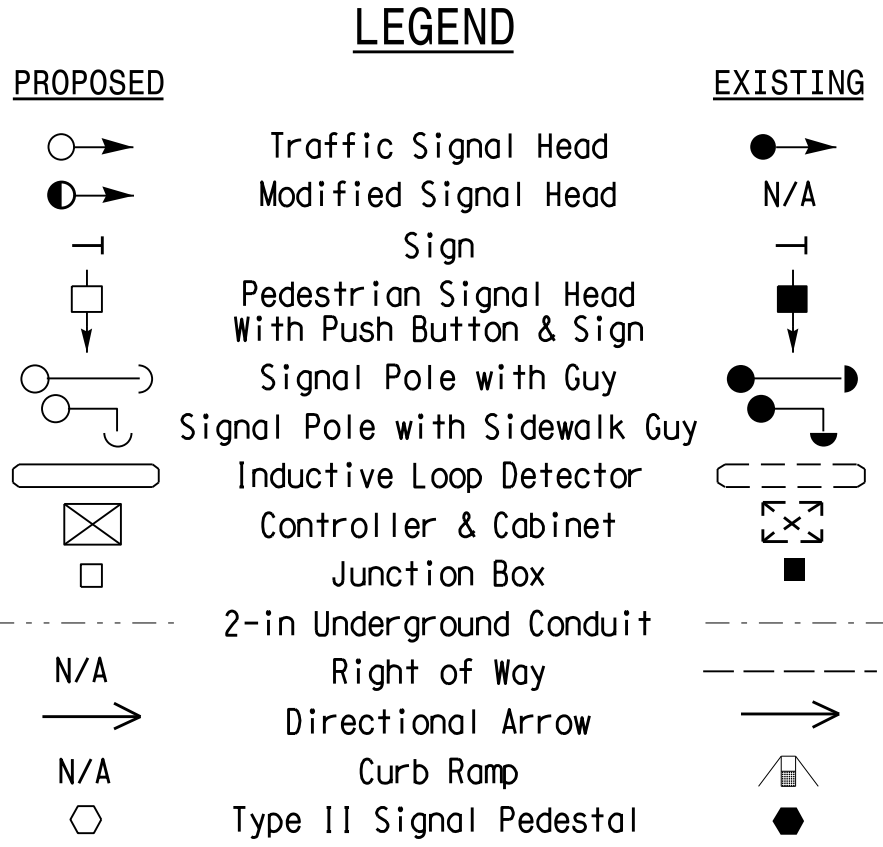
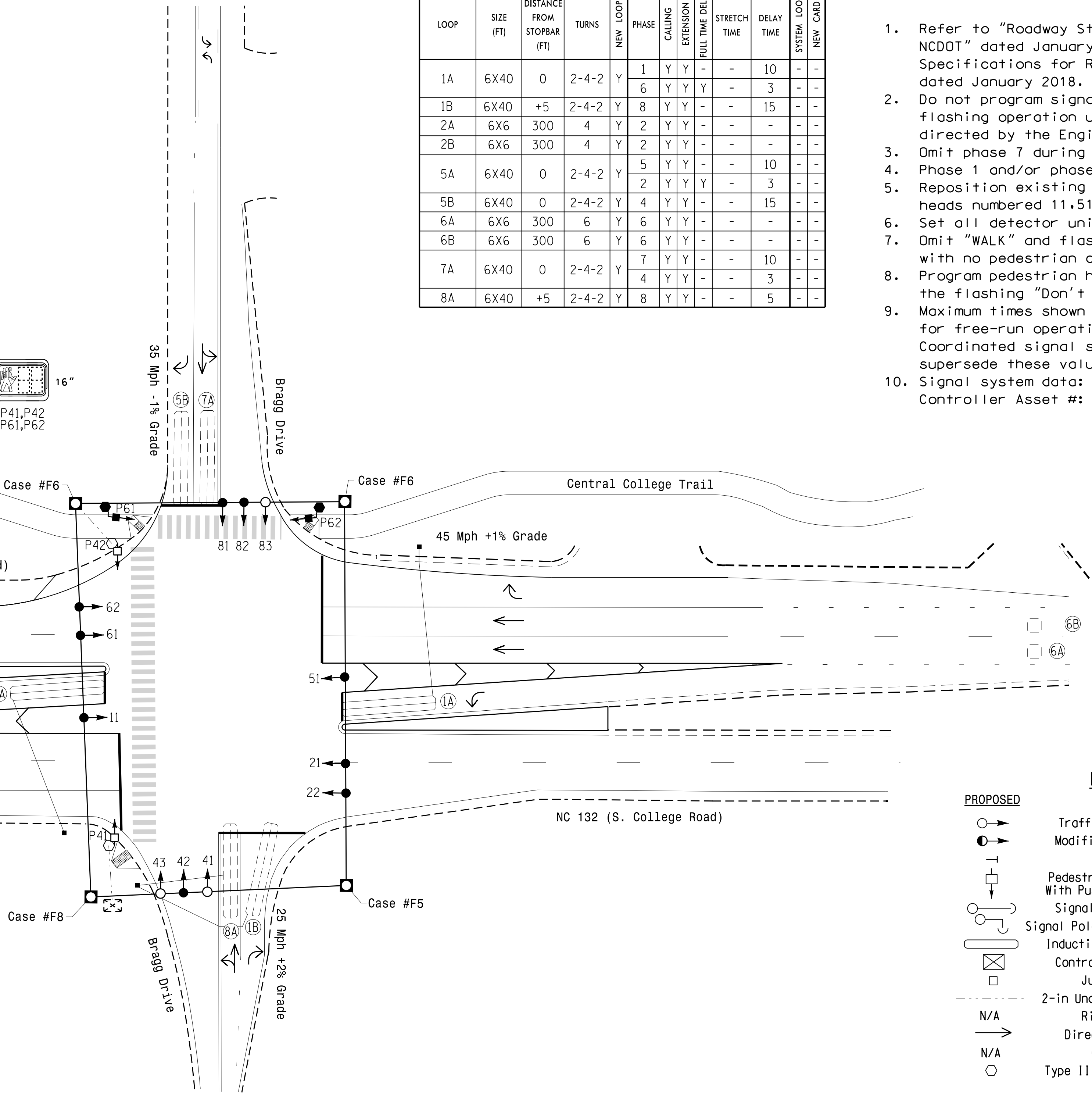
TABLE OF OPERATION									
SIGNAL FACE	PHASE								FLASH
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	Ø 4 + 7	Ø 4 + 8	Ø 4 + 8	Ø 4 + 8	
11	←	←	←	←	←	←	←	←	Y
21,22	R	R	G	G	R	R	R	R	Y
41	R	R	R	R	G	G	G	G	R
42	R	R	R	R	G	G	G	G	R
43	←	←	←	←	←	←	←	←	R
51	←	←	←	←	←	←	←	←	Y
61,62	R	G	R	G	R	R	R	R	Y
81,82	R	R	R	R	R	R	R	R	G
83	←	←	R	R	R	←	←	←	R
P41,P42	DW	DW	DW	DW	W	W	W	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DRK	DRK	

SIGNAL FACE I.D.
All Heads L.E.D.



OASIS 2070 TIMING CHART								
FEATURE	PHASE							
	1	2	4	5	6	7	8	
Min Green 1 *	5	12	5	5	12	5	5	
Extension 1 *	2.0	6.0	2.0	2.0	6.0	2.0	2.0	
Max Green 1 *	15	80	20	15	80	15	20	
Yellow Clearance	3.0	4.6	3.9	3.0	4.6	3.0	3.1	
Red Clearance	2.8	1.5	2.7	3.1	1.5	3.3	3.2	
Walk 1 *	-	-	7	-	7	-	-	
Don't Walk 1	-	-	36	-	16	-	-	
Seconds Per Actuation *	-	1.5	-	-	1.5	-	-	
Max Variable Initial *	-	34	-	-	34	-	-	
Time Before Reduction *	-	15	-	-	15	-	-	
Time To Reduce *	-	30	-	-	30	-	-	
Minimum Gap	-	3.0	-	-	3.0	-	-	
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-	-	
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	
Dual Entry	-	-	ON	-	-	-	ON	
Simultaneous Gap	ON	ON	ON	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 For the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

TRANSPORTATION MOBILITY AND SAFETY DIVISION
DEPARTMENT OF TRANSPORTATION
SIGNAL DESIGN SECTION

NC 132 (S. College Road)
at
Bragg Drive

Division 3 New Hanover County Wilmington

PLAN DATE: February 2022 REVIEWED BY: ZML

PREPARED BY: Jeff Spence REVIEWED BY:

REVISIONS

SCALE 0 30 1"=30'

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

PROFESSIONAL ENGINEER

SEAL 030530

DATE 03/17/2022

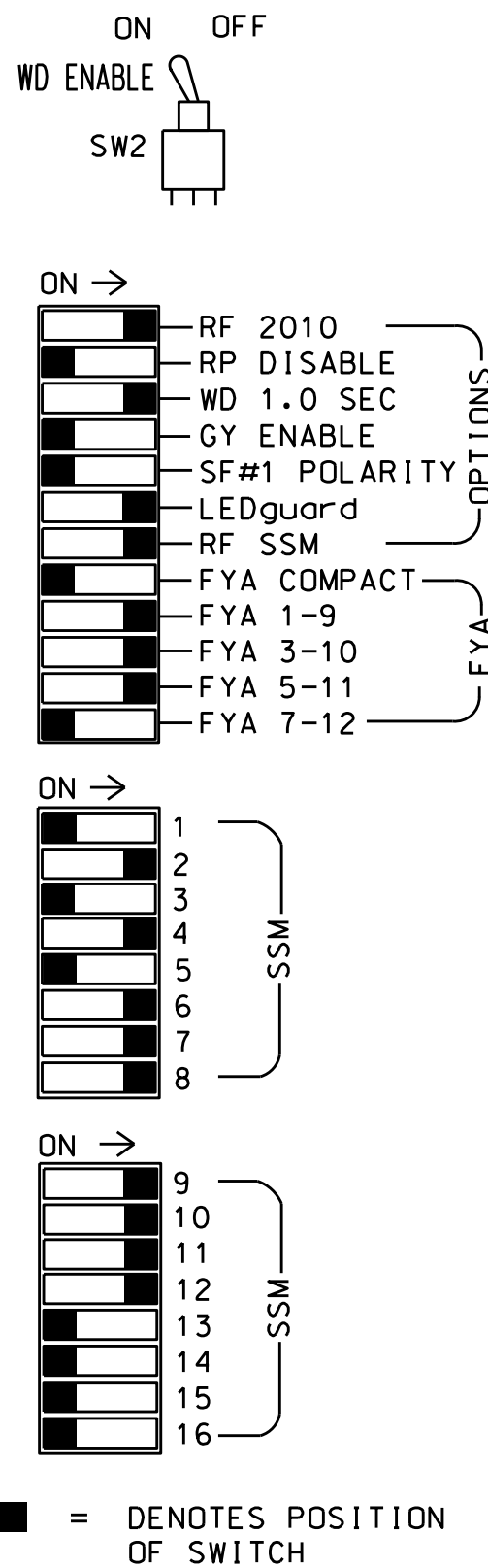
SIG. INVENTORY NO. 03-0924

(remove jumpers and set switches as shown)

CONFLICT PROGRAM CARD

9-10	10-11	11-12	12-13	13-14	14-15	15-16	1-16
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
9-11	10-12	11-13	12-14	13-15	14-16	2-16	1-15
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
9-12	10-13	11-14	12-15	13-16	3-16	2-15	1-14
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
9-13	10-14	11-15	12-16	4-16	3-15	2-14	1-13
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
9-14	10-15	11-16	5-16	4-15	3-14	2-13	1-12
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
9-15	10-16	6-16	5-15	4-14	3-13	2-12	1-11
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
9-16	7-16	6-15	5-14	4-13	3-12	2-11	1-10
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-16	7-15	6-14	5-13	4-12	3-11	2-10	1-9
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-15	7-14	6-13	5-12	4-11	3-10	2-9	1-8
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-14	7-13	6-12	5-11	4-10	3-9	2-8	1-7
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-13	7-12	6-11	5-10	4-9	3-8	2-7	1-6
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-12	7-11	6-10	5-9	4-8	3-7	2-6	1-5
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-11	7-10	6-9	5-8	4-7	3-6	2-5	1-4
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-10	7-9	6-8	5-7	4-6	3-5	2-4	1-3
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○
8-9	7-8	6-7	5-6	4-5	3-4	2-3	1-2
○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○

COMPONENT SIDE



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

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 4 and 6 for Startup Ped Call.
7. Program phases 2 and 6 for Yellow Flash, and overlaps 1 and 2 as WAG Overlaps.
8. The cabinet and controller are a part of the Wilmington Signal System.

```

CONTROLLER.....2070
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S4P,S5,S6,S6P,S7,S8,S
                        S9,S12,S13
PHASES USED.....1,2,4,4PED,5,6,7,8,6PED
OVERLAP "A".....1+2
OVERLAP "B".....1+8
OVERLAP "C".....5+6
OVERLAP "D".....4+5

```

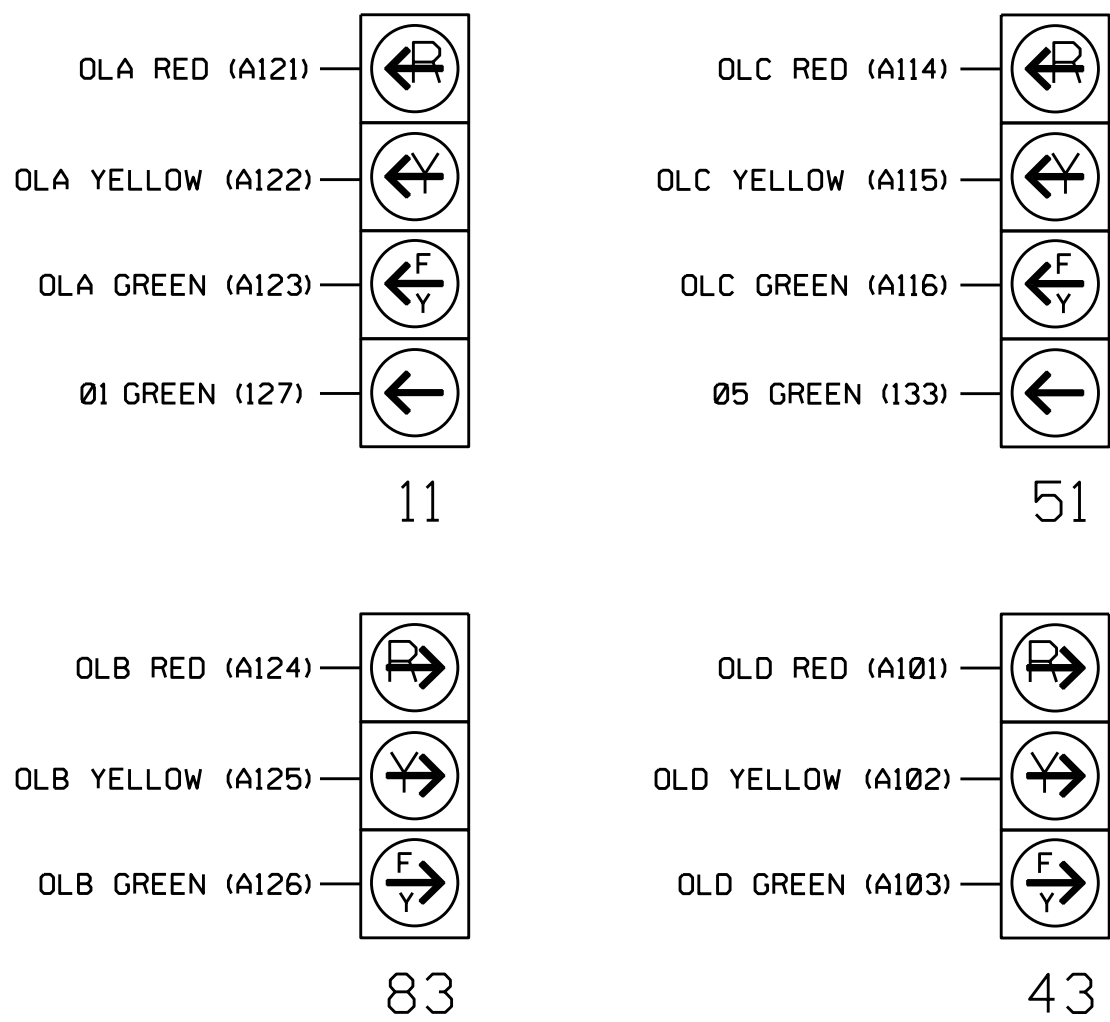
LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	NU	NU	41,42	P41, P42	51★	61,62	P61, P62	41	81,82	NU	11★	83★	NU	51★	43★	NU
RED		128			101			134		*	107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW										123			A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127						133			124								
						104			119									
						106			121									

NU = Not Used

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

★ See pictorial of head wiring in detail below.

(wire signal heads as shown)



NOTE

The sequence display for signal heads 11 and 51 requires special logic programming. See sheet 2 for programming instructions.

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 2 2A	SLOT EMPTY	W DOW 1 C Z A T	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	W DOW 1 C Z A T	Ø 1 1B	SLOT EMPTY	SLOT EMPTY	NOT USED	Ø 6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED	Ø 2 2B							NOT USED			Ø 4 PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 6 6A	SLOT EMPTY	W DOW 1 C Z A T	Ø 7 7A	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	Ø 5 5B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø 6 6B			NOT USED	NOT USED			NOT USED					

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

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

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
1A ¹	TB2-1,2	I1U	56	18	1	1	Y	Y			10
	-	J4U	48	10	26	6	Y	Y	Y		3
1B	TB6-9,10	I9U	60	22	11	1	Y	Y			15
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
5A ²	TB3-1,2	J1U	55	17	5	5	Y	Y			10
	-	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			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
7A ³	TB5-5,6	J5U	57	19	7	7	Y	Y			10
	-	I8U	49	11	24	4	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			5
PED PUSH BUTTONS							NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS				
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

NOTE:

INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
I12 AND I13.

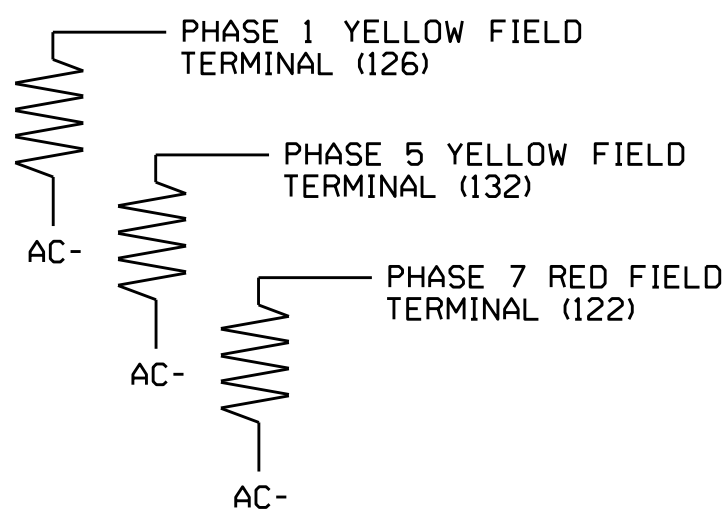
¹Add jumper from I1-W to J4-W, on rear of input file

²Add jumper from J1-W to I4-W, on rear of input file

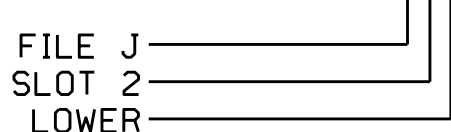
³Add jumper from J5-W to I8-W, on rear of input file

(install resistors as shown below)

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



INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0924
DESIGNED: February 2022
SEALED: 3/17/2022
REVISED: N/A

NC 132 (S. College Road)
at
Bragg Drive

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared In the Offices of:



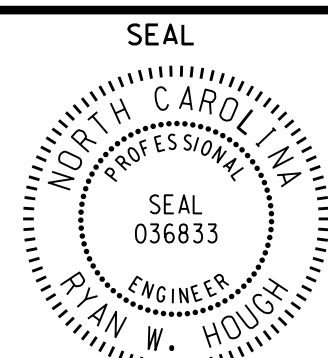
Seal of the North Carolina Department of Transportation
Department of Transportation
Traffic and Signals Management

750 N.Greenfield Pkwy,Garner,NC 27529

NC 132 (S. College Road)
at
Bragg Drive

Division 3 New Hanover County Wilmington																																
PLAN DATE: March 2022	REVIEWED BY:																															
PREPARED BY: S. Armstrong	REVIEWED BY:																															
<table style="width: 100%; border-collapse: collapse;"><tr><th style="width: 80%;">REVISONS</th><th style="width: 10%;">INIT.</th><th style="width: 10%;">DATE</th></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>	REVISONS	INIT.	DATE																													
REVISONS	INIT.	DATE																														

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

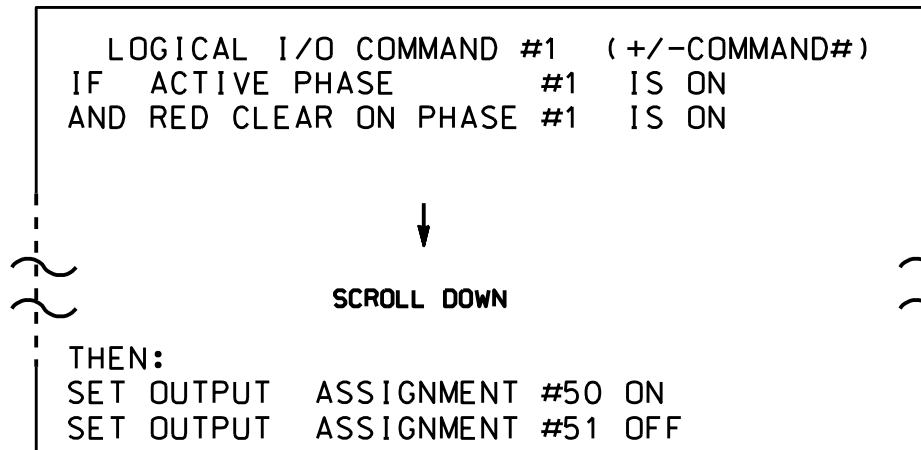


DocuSigned by:
Ryan W. Hough 03/17/2022
430320EA82B54C3 DATE
SIG. INVENTORY NO. 03-0924

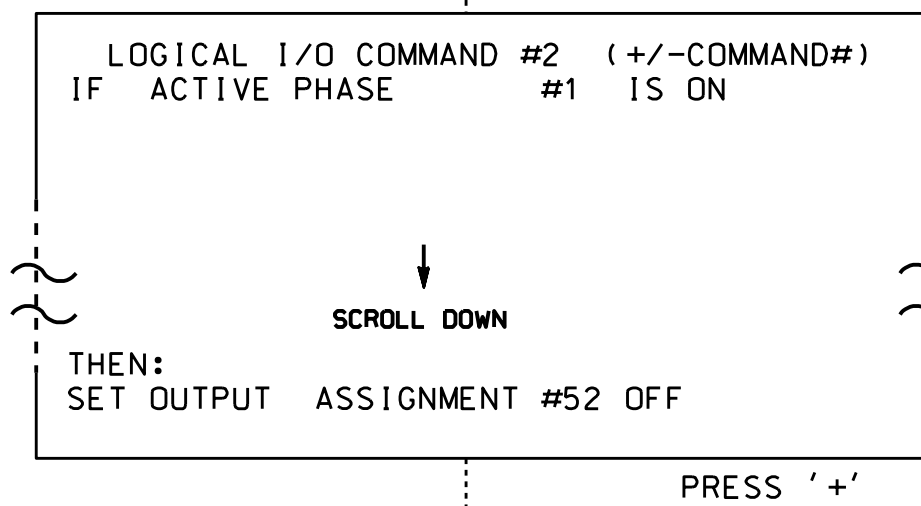
LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

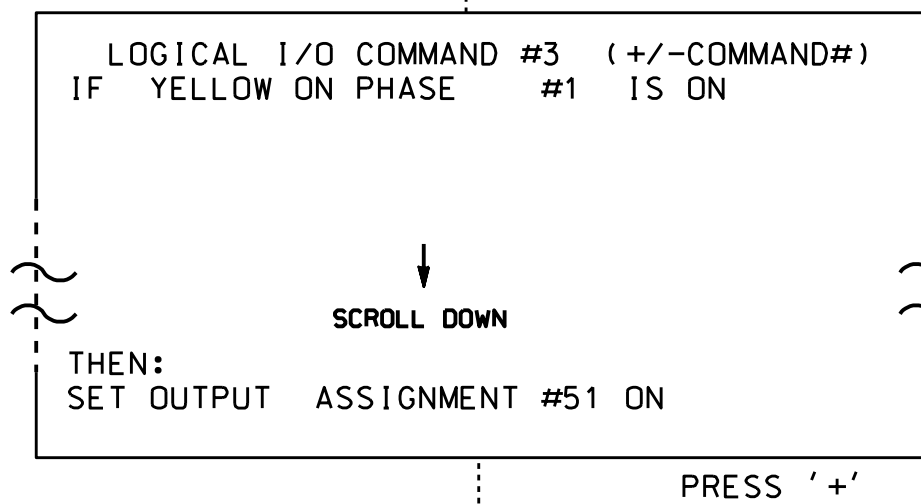
- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



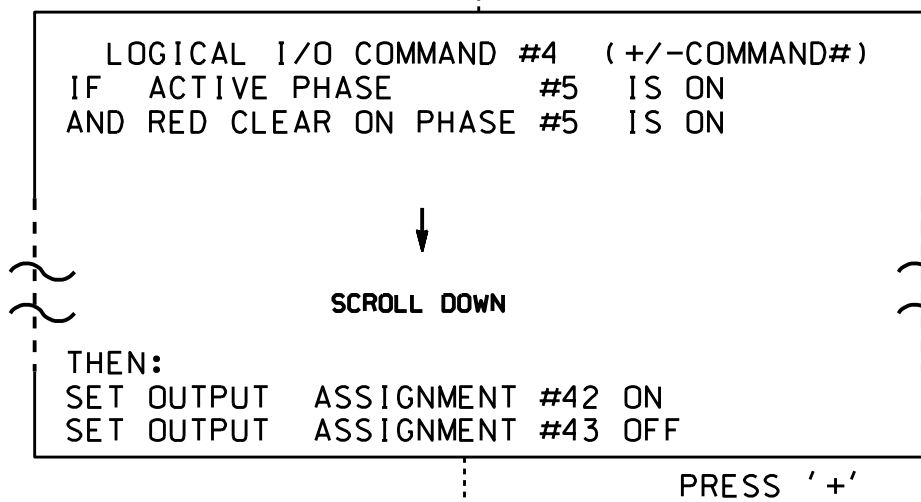
NOTE: LOGIC FOR
PHASE 1 RED
CLEAR WHEN
TRANSITIONING
FROM PHASE 1
TO PHASE 2
(HEAD 11).



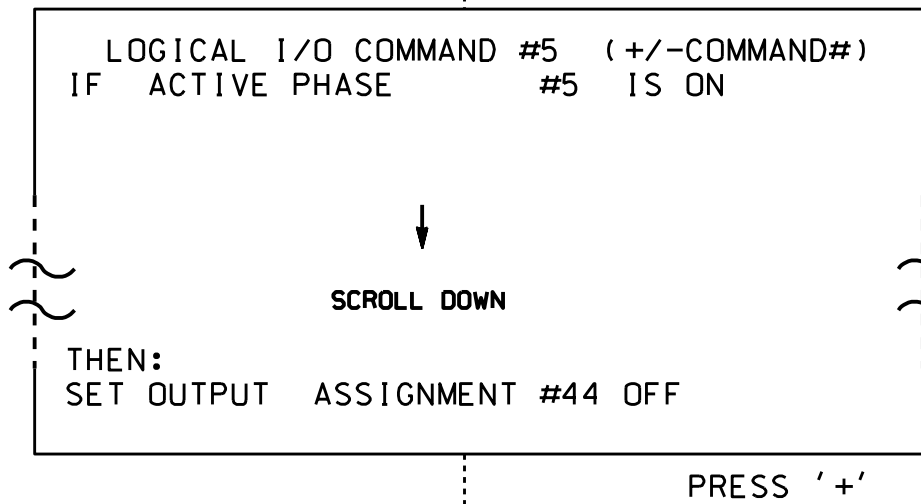
NOTE: LOGIC FOR
SWITCHING
FLASHING YELLOW
ARROW "OFF"
DURING PHASE 1
(HEAD 11).



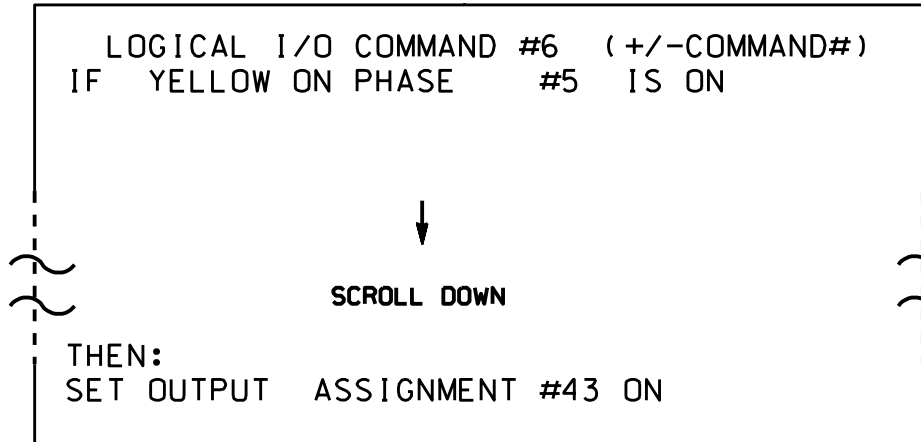
NOTE: LOGIC FOR
YELLOW
ARROW
CLEARANCE
FROM PHASE 1
(HEAD 11).



NOTE: LOGIC FOR
PHASE 5 RED
CLEAR WHEN
TRANSITIONING
FROM PHASE 5
TO PHASE 6
(HEAD 51).



NOTE: LOGIC FOR
SWITCHING
FLASHING YELLOW
ARROW "OFF"
DURING PHASE 5
(HEAD 51).



NOTE: LOGIC FOR
YELLOW
ARROW
CLEARANCE
FROM PHASE 5
(HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

DYNAMIC BACK-UP CONTROL PROGRAMMING

(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 Dynamic/Backup Control Function '1'.
- From Phase Control Functions Menu press '2' (Dynamic/Backup Control Functions).

DYNAMIC/BACKUP CONTROL FUNCTION #01
OVERLAPS: ABCDEFGHIJKLMNOP
IF OVERLAPS ARE ACTIVE
OR PHASES: 12345678910111213141516
IF PHASES ARE ON X
OMIT PHASES X
CALL PHASES X

BACKUP PROTECTION PROGRAMMING COMPLETE

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

- ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
- ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
- REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

OUTPUT REFERENCE SCHEDULE

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0924
DESIGNED: February 2022
SEALED: 3/17/2022
REVISED: N/A

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: 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
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 '+' ONCE

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: 12345678910111213141516
VEH OVL PARENTS: X 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?...N
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 '+' ONCE

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
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

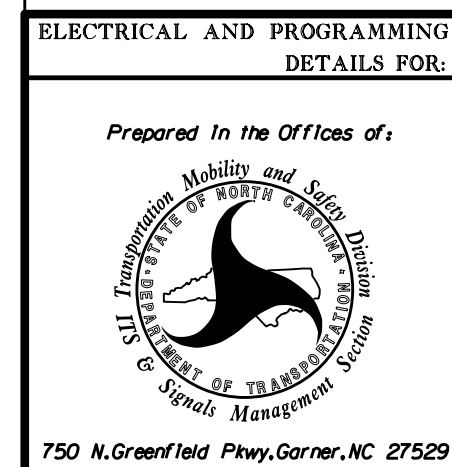
PRESS '+' ONCE

PAGE 1: VEHICLE OVERLAP 'D' 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?...N
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

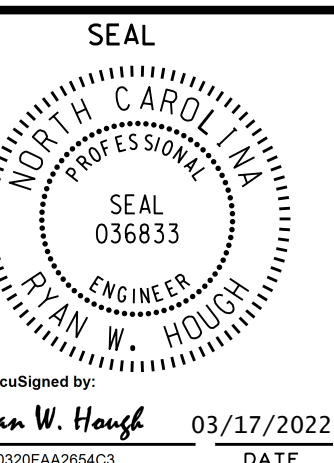
OVERLAP PROGRAMMING COMPLETE

Electrical Detail - Sheet 2 of 2



PLAN DATE: March 2022	REVIEWED BY:
PREPARED BY: S. Armstrong	REVIEWED BY:
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



[illegible]

PROJ. REFERENCE NO.	SHEET NO.
W-5703R	X-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

CROSS SECTION INDEX

ROADWAY	STATION	TO	STATION	SHEET NUMBER
CROSS SECTION INDEX -L- (NC 132 COLLEGE ROAD)	26 + 50.00	TO	32 + 50.00	X-1 X-2 TO X-9

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

6/23/16

15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125

60 60

55 55

WORK FOR NC 132 NB BEGINS STA. 26 + 94.00

50 50

49.54

40.025

EXIST

49.21

45 45

40 40

27 + 00.00

35 35

55 55

50 50

49.09

45 45

26 + 75.00

40 40

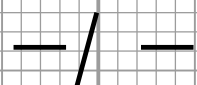
50 50

49.02

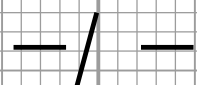
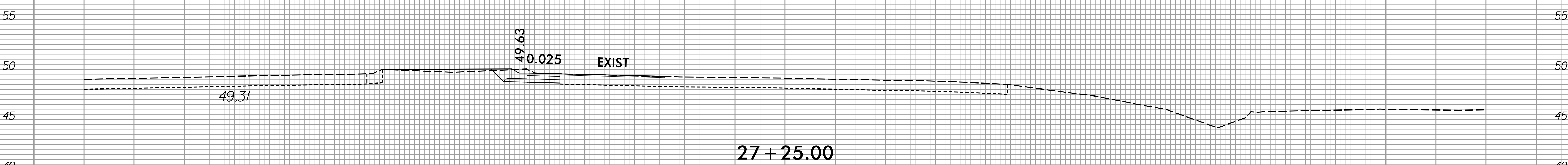
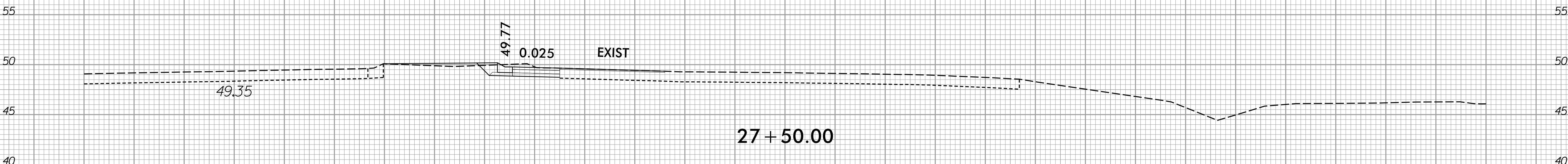
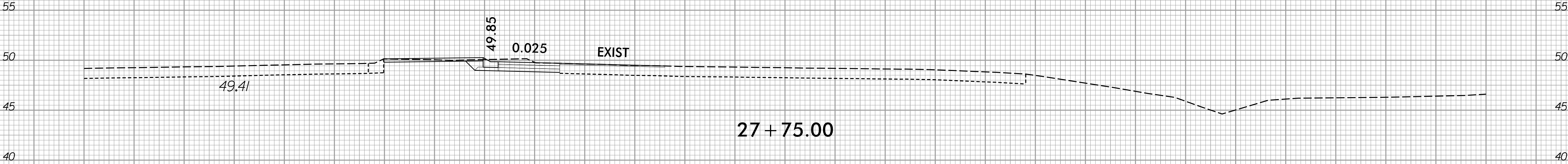
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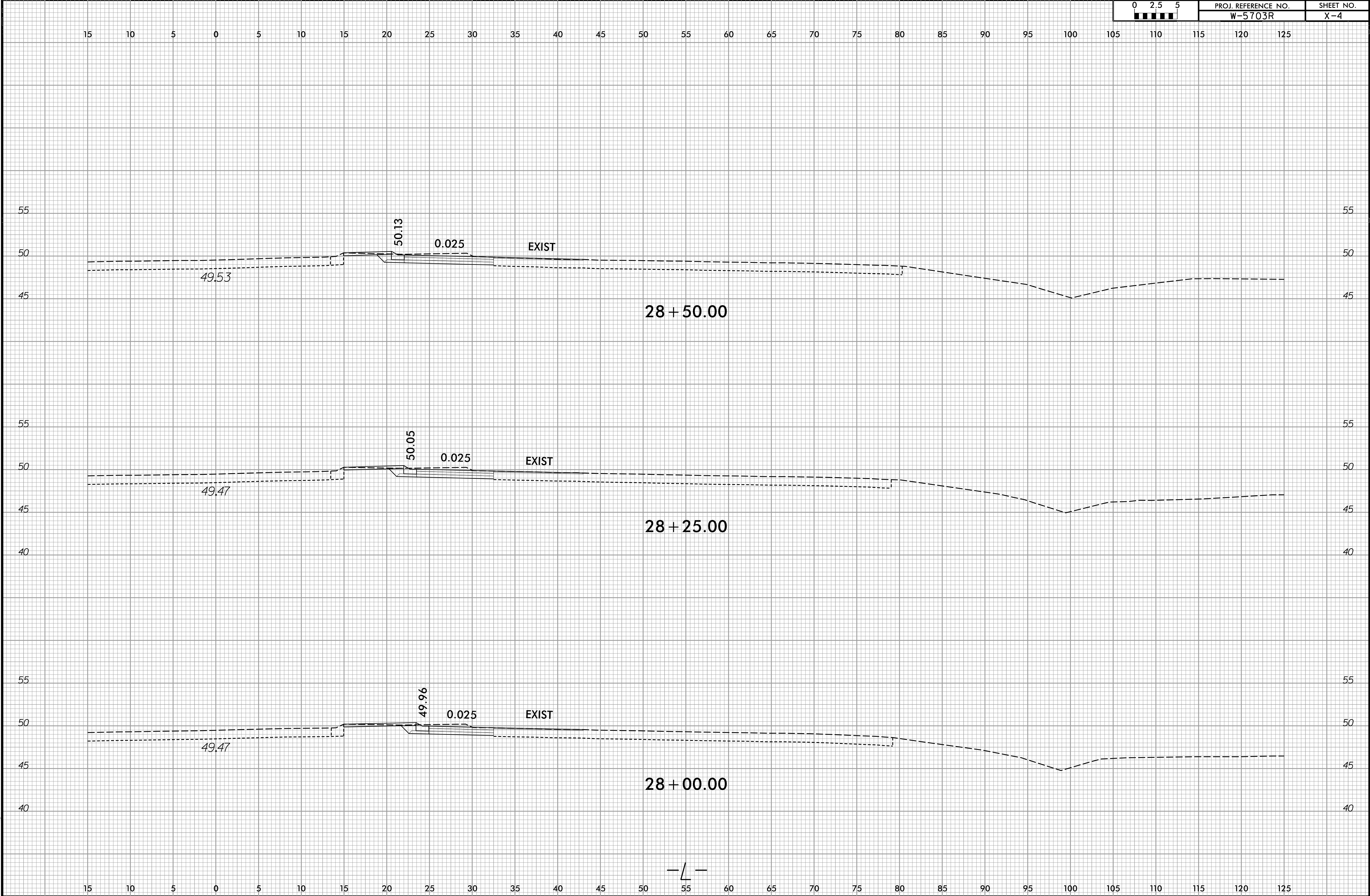
26 + 50.00

40 40



15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125





6/23/16

15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125

65

60

55

50

45

WORK FOR NC 132 NB
(FULL DEPTH PAVEMENT)
ENDS STA. 29+29.00

49.37

EXIST

49.79

EXIST

49.73

29 + 25.00

65

60

55

50

45

CROSS SECTION
SKEWED ACROSS CR -
SEE RSD 848.05 &
TYPICAL NO. 7

5:1

55

50

45

49.71

50.31

0.025

EXIST

29 + 00.00

55

50

45

55

50

45

49.61

50.22

0.025

EXIST

28 + 75.00

55

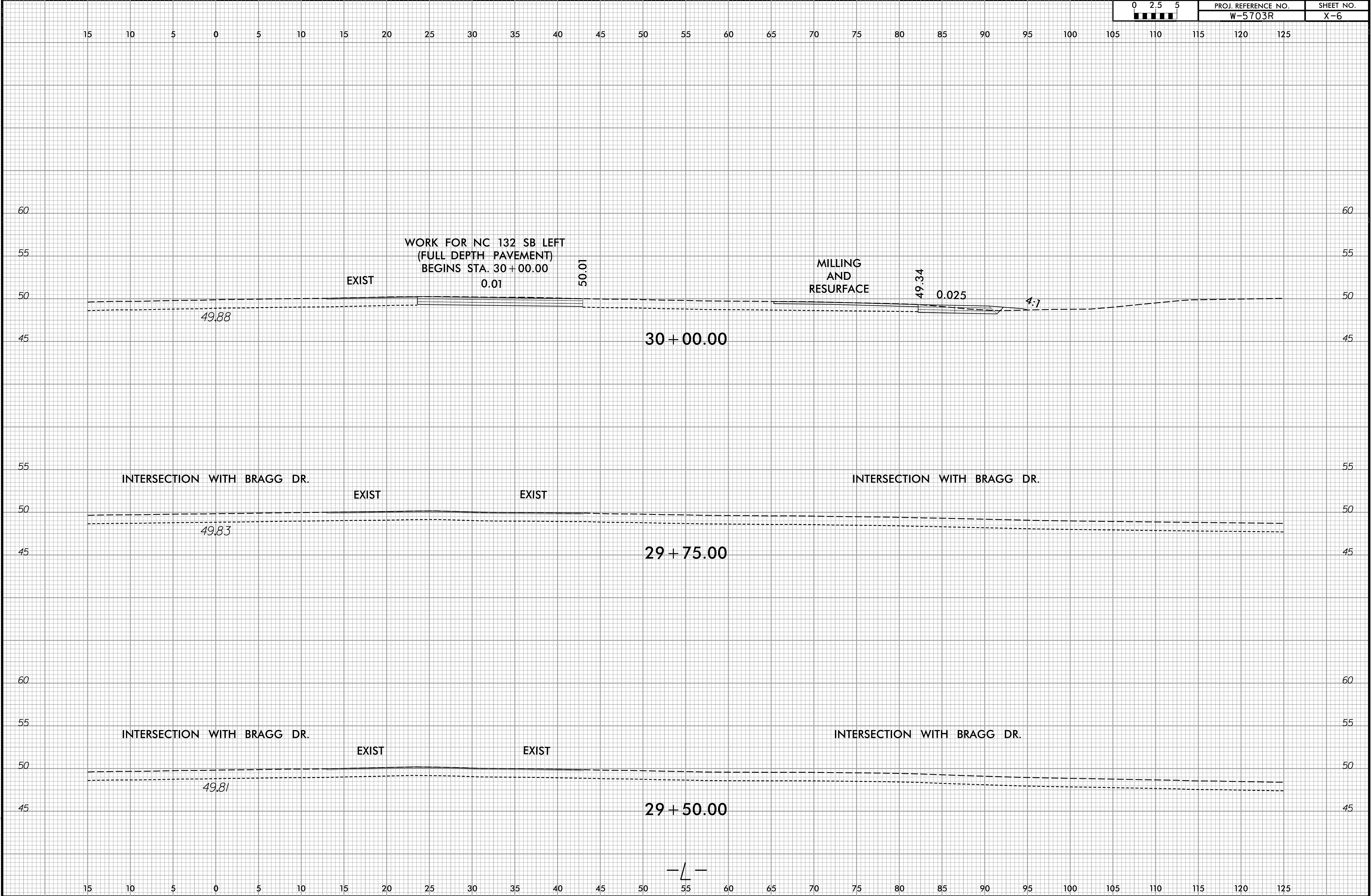
50

45

— / —

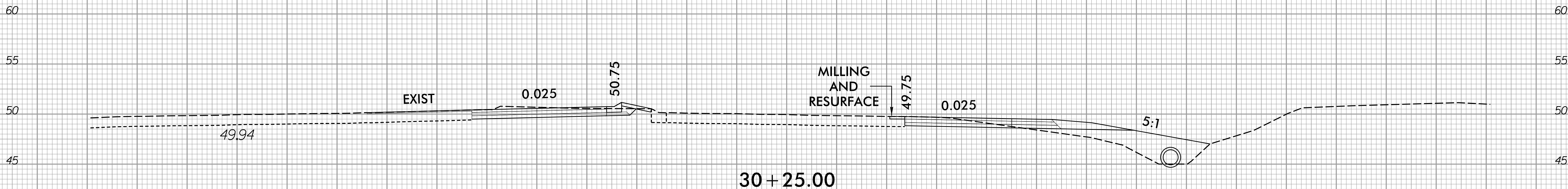
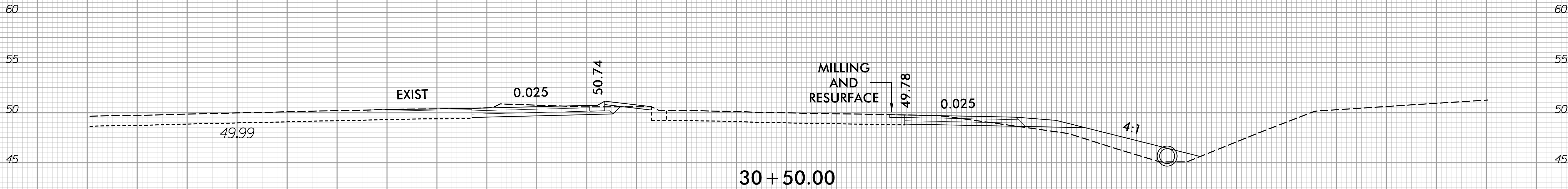
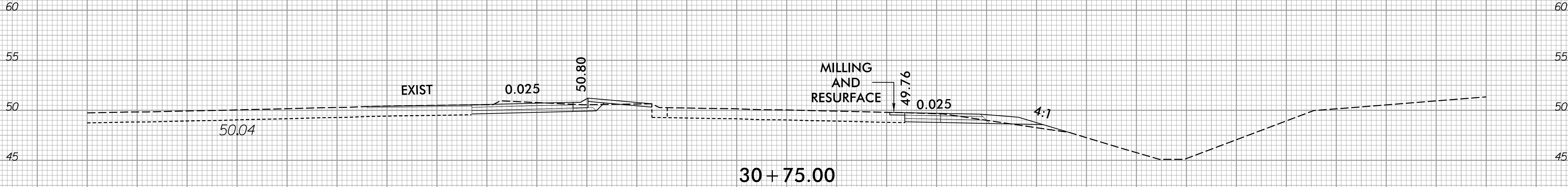
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6/23/16



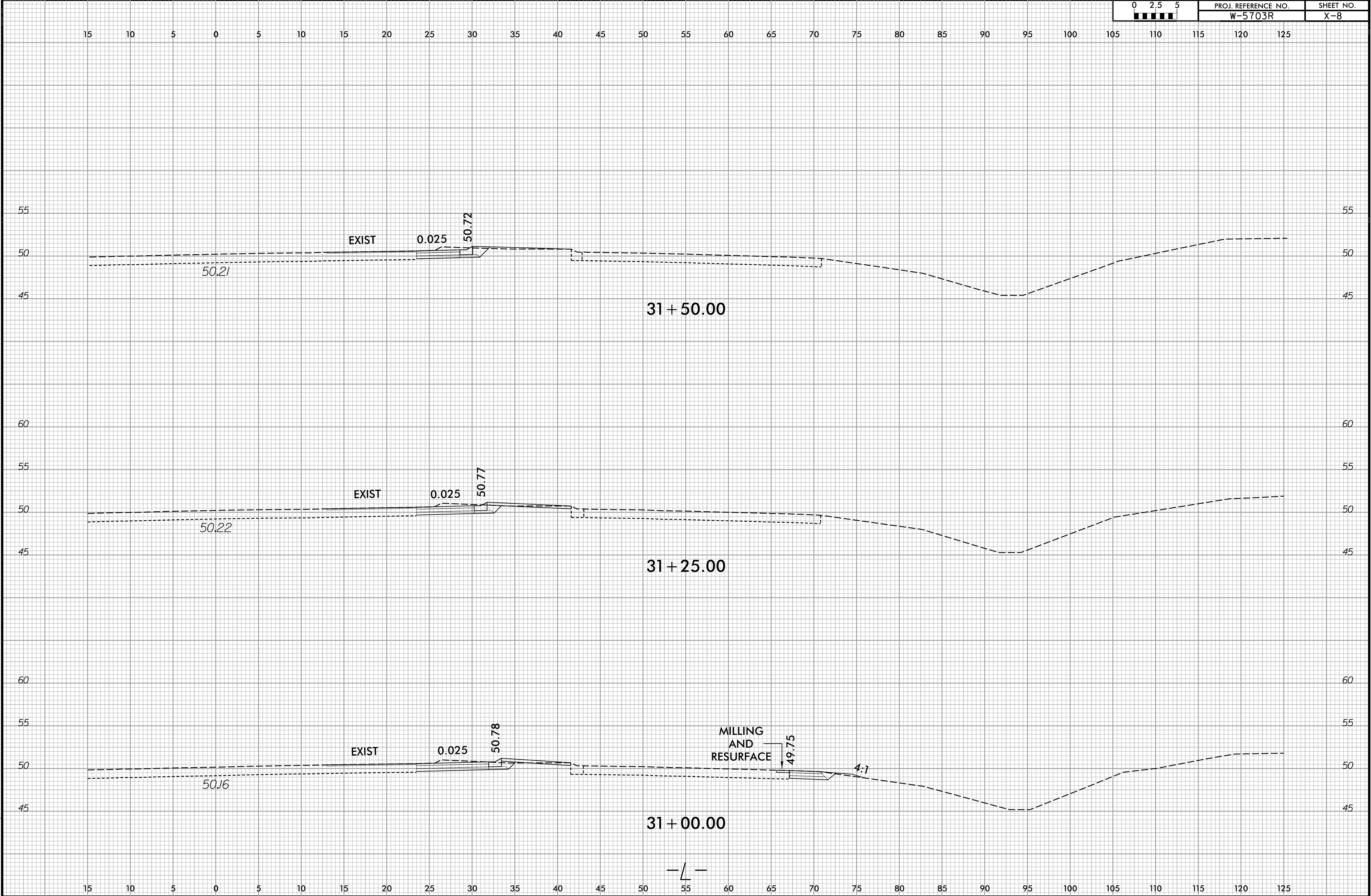
6/23/16

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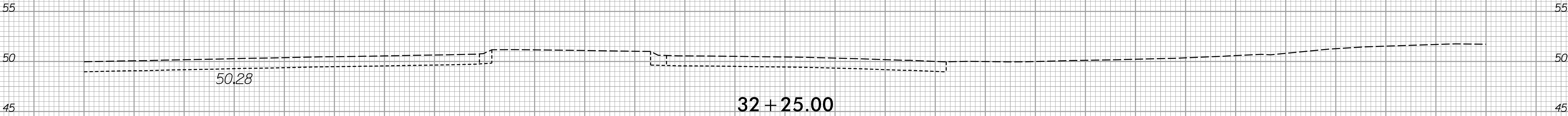
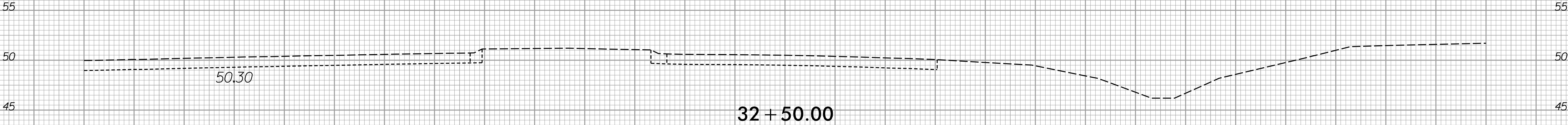
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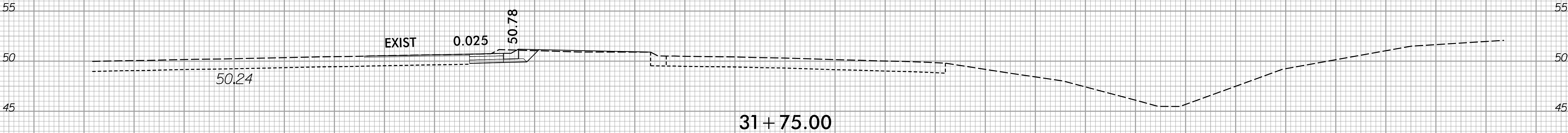
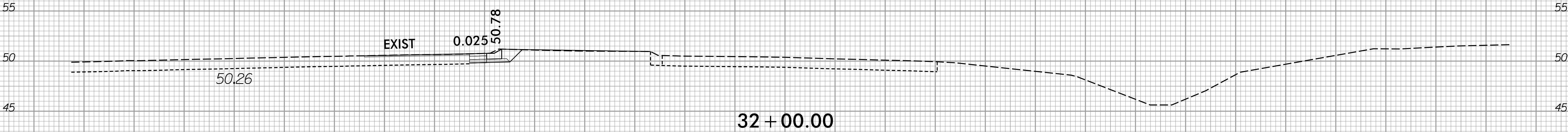


6/23/16

15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125



WORK FOR NC 132 SB ENDS STA. 32+04.00



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