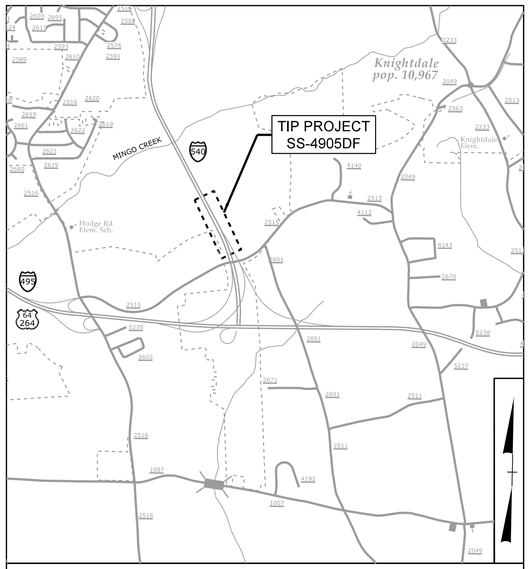
09/08/99

TIP PROJECT: SS–4905DF

100% PLANS

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Symbology Sheet
See Sheet 1C For Survey Control Sheet



VICINITY MAP

NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

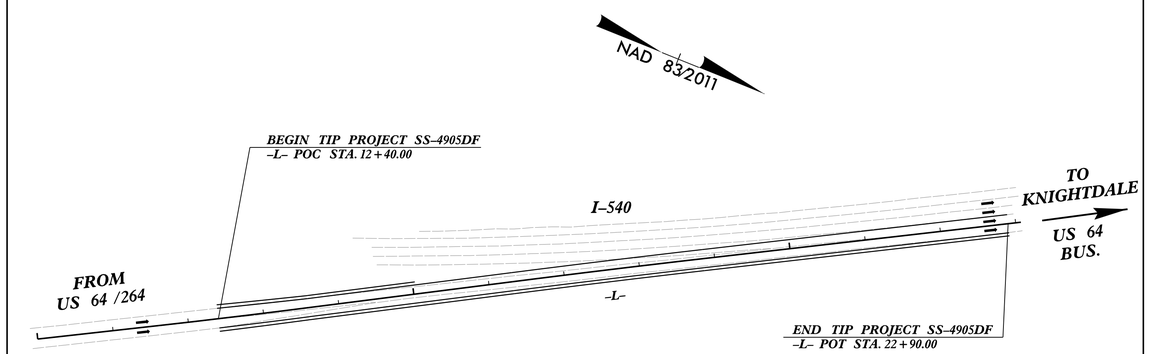
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SS–4905DF	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44632.1.1	HSIP–0495(003)	PE
44632.3.1	HSIP–0495(003)	CONST.

LOCATION: RAMP ON I–495 /US 64 /264 TO I–540 WESTBOUND

TYPE OF WORK: GRADING, PAVING, & PAVEMENT MARKINGS

4



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GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 72,000
V = 60 MPH
FUNC. CLASS = INTERSTATE

PROJECT LENGTH

TOTAL LENGTH TIP PROJECT SS–4905DF = 0.199 MILES

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2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: N/A

MICHAEL LINDGREN, P.E.
PROJECT ENGINEER

MICHAEL LITTLEFIELD, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035663 ENGINEER MICHAEL B. LITTLEFIELD

DocuSigned by: Michael B. Littlefield 11/1/2016
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

11/1/2016
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mlittlefield

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
SS-4905DF	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035663 ENGINEER MICHAEL B. LITTLEFIELD

11/1/2016

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INDEX OF SHEETS

EFF. 01-17-2012
REV. 02-29-2016

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.01	Guide for Grading Subgrade - Interstate and Freeway
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II (Sheet 2 of 3 is no longer applicable)
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
665.01	Asphalt Shoulders - Milled Rumble Strips

GENERAL NOTES:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02

SUBSURFACE PLANS:

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

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04/06/15

PROJECT REFERENCE NO.	SHEET NO.
SS-4905DF	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- 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 — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- 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 — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- 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.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

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 — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- 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 — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- 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 — AATUR
- End of Information — E.O.I.

09/08/99

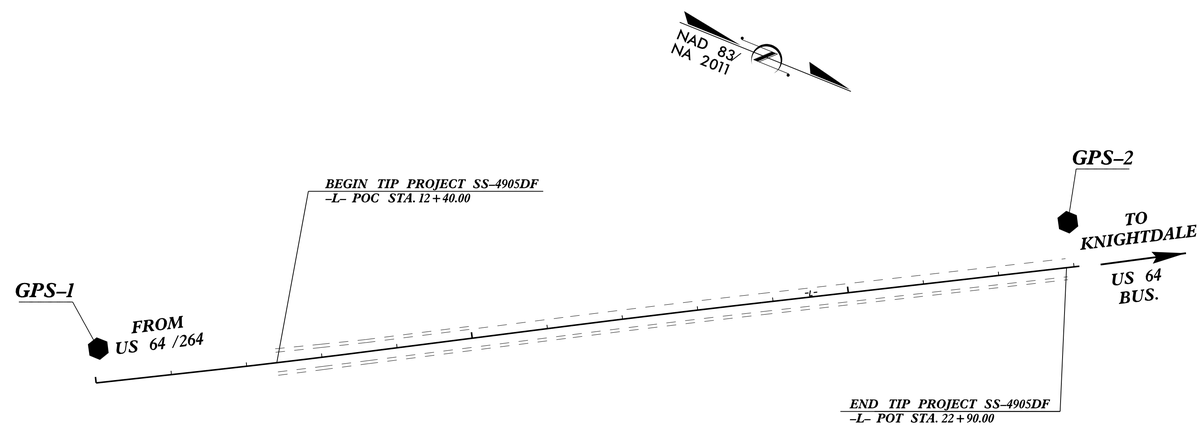
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SS–4905DF	1C-1	

SS-4905DF SURVEY CONTROL SHEET

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "GPS-1"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 736765.534(ft) EASTING: 2146343.158(ft)
ELEVATION: 271.16(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99988804
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-1" TO -L- STATION 10+00.00 IS N 71°37' 01" E DIST. 45.52 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

● ***INDICATES CONTROL REBAR WITH CAP USED OR SET FOR HORIZONTAL AND VERTICAL PROJECT BY CH ENGINEERING. PROJECT CONTROL ESTABLISHED USING NCGS VIRTUAL REFERENCE STATION (VRS) NETWORK***



BASELINE DATA

DESC.	*NORTHING*	*EASTING*	*ELEVATION*
GPS–1	*736765.534*	*2146343.158*	*271.16*
GPS–2	*737889.839*	*2145709.251*	*261.89*

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6/2/99

PROJECT REFERENCE NO.	SHEET NO.
SS-4905DF	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035663 ENGINEER MICHAEL B. LITTLEFIELD

11/1/2016

PAVEMENT DESIGN ENGINEER

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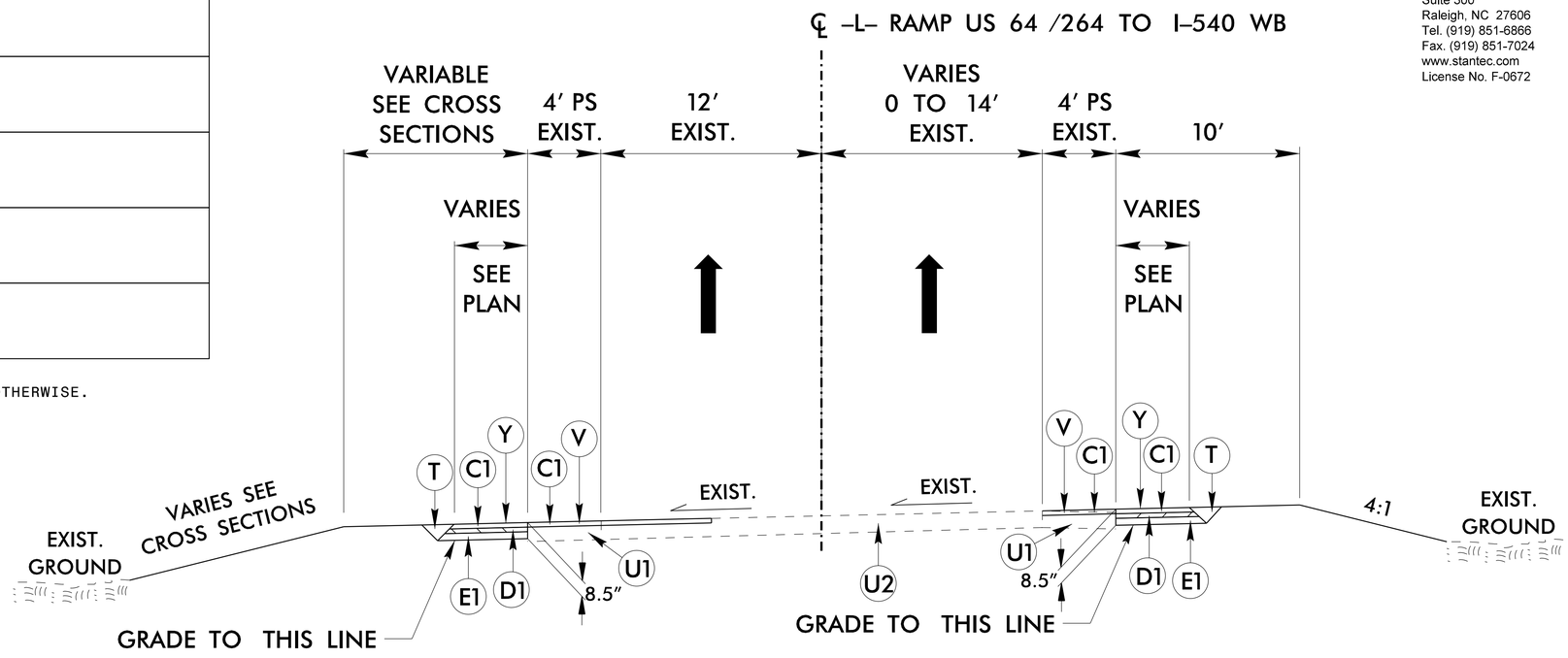
P A V E M E N T S C H E D U L E

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U1	EXISTING ASPHALT PAVEMENT.
U2	EXISTING CONCRETE PAVEMENT.
V	1.5" MILLING
Y	MILLED RUMBLE STRIP.

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



TYPICAL SECTION

–L– STA. 12+40.00 TO 22+90.00

NOTE: REFER TO MILLING LIMITS DETAIL (2B–1) FOR MILLING LOCATIONS.

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
SS-4905DF	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035663 ENGINEER MICHAEL B LITTLEFIELD

11/1/2016

HYDRAULICS ENGINEER

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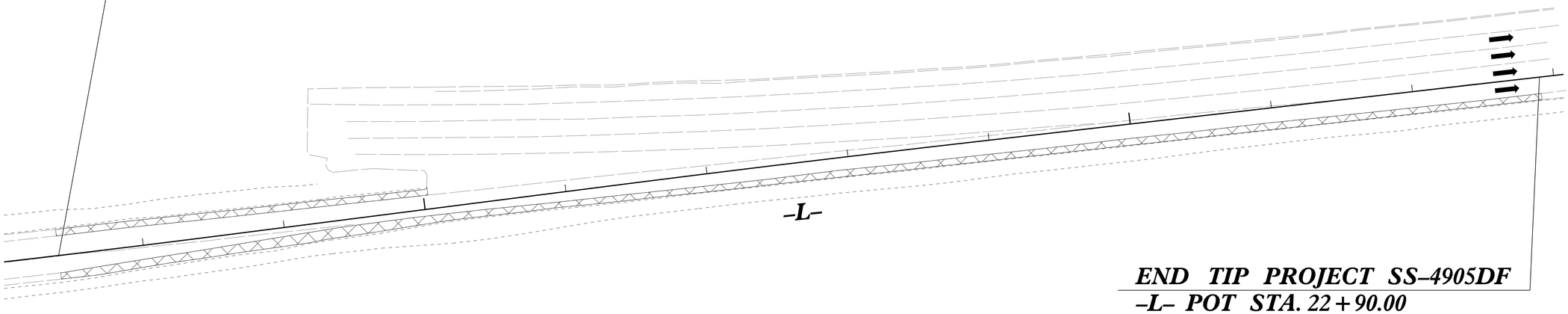
MILLING LIMITS DETAIL

40 20 0 40 80

BEGIN TIP PROJECT SS-4905DF
-L- POC STA. 12+40.00



END TIP PROJECT SS-4905DF
-L- POT STA. 22+90.00

MILLING LIMITS

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12/06/07

COMPUTED BY: MBF	DATE: 7/25/16
CHECKED BY: ML	DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
SS-4905DF	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +20%	BORROW	WASTE
–L– 12 + 40	–L– 22 + 90	21	217	196	
SUBTOTALS:		21	217	196	
PROJECT TOTALS:		21	217	196	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				10	
GRAND TOTALS:		21	217	200	
SAY:		25		205	

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.

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

11/1/2016
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PROJECT REFERENCE NO.	SHEET NO.
SS-4905DF	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 035663 ENGINEER MICHAEL B. LITTLEFIELD

11/1/2016

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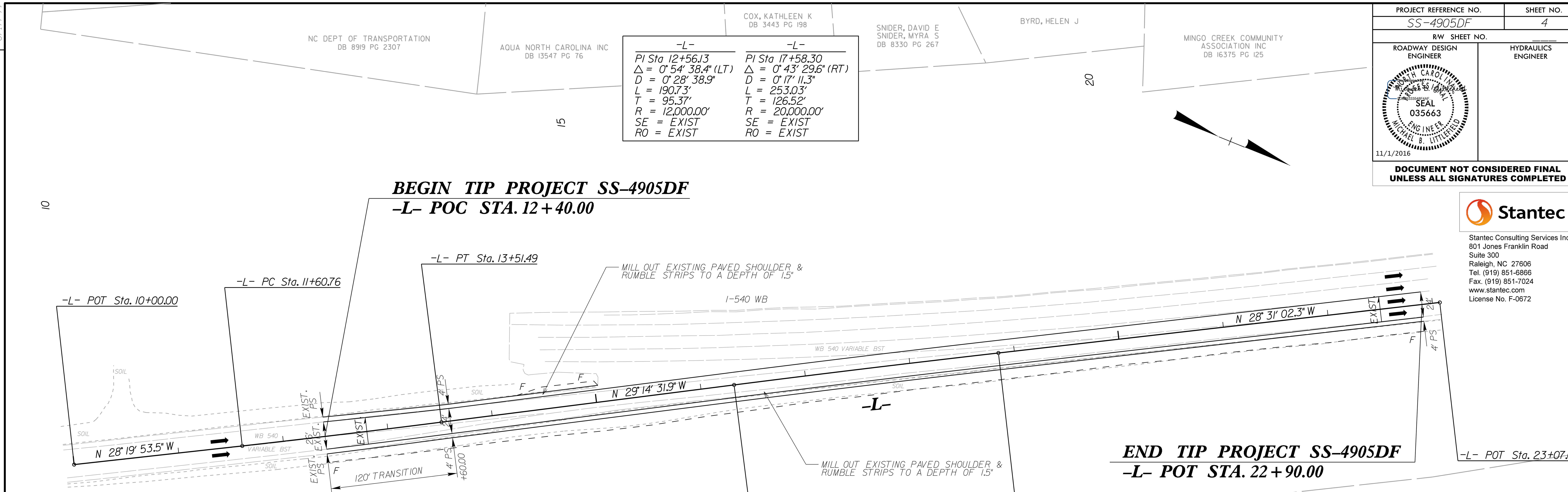
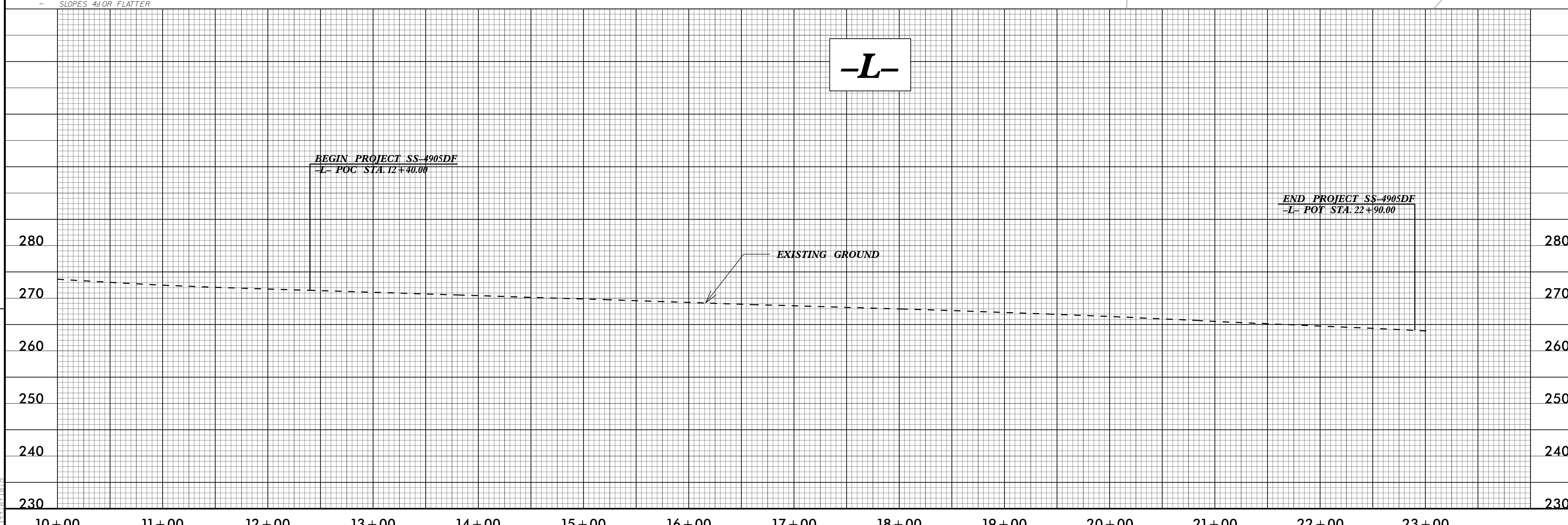
-L-	-L-
PI Sta 12+56.13	PI Sta 17+58.30
Δ = 0° 54' 38.4" (LT)	Δ = 0° 43' 29.6" (RT)
D = 0° 28' 38.9"	D = 0° 17' 11.3"
L = 190.73'	L = 253.03'
T = 95.37'	T = 126.52'
R = 12,000.00'	R = 20,000.00'
SE = EXIST	SE = EXIST
RO = EXIST	RO = EXIST



STABILIZATION FOR THIS PROJECT SHALL COMPLY WITH THE TIME FRAME GUIDELINES AS SPECIFIED BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3,2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.TEMPORARY OR PERMANENT GROUND COVER STABILIZATION SHALL OCCUR WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.WITH THE FOLLOWING EXCEPTIONS IN WHICH TEMPORARY OR PERMANENT GROUND COVER SHALL BE PROVIDED IN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY:

- SLOPES BETWEEN 2:1 AND 3:1,WITH A SLOPE LENGTH OF 10 FT.OR LESS
- SLOPES 3:1 OR FLATTER,WITH A SLOPE LENGTH OF 50 FT.OR LESS
- SLOPES 4:1 OR FLATTER

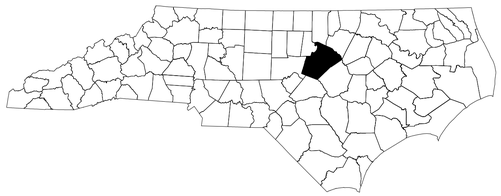
REVISIONS

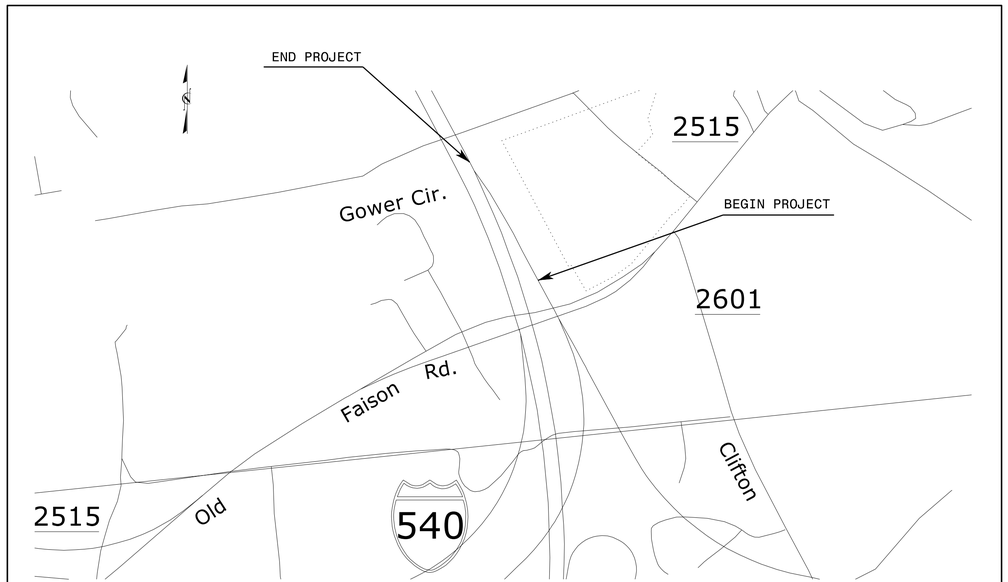


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY





VICINITY MAP

INDEX OF SHEETS

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
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM

SHEET NO.
TMP-1

TIP PROJECT: SS-4905DF

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

N.C.D.O.T. CONTACT: DIVISION 5 PROJECT MANAGEMENT

BEN UPSHAW, P.E. *PROJECT ENGINEER*

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

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JAY WOOLARD, PE
SENIOR TRANSPORTATION ENGINEER

APPROVED: DocuSigned by: J. W. Woolards, Jr. 88C02F49E99C4EC...

DATE: 11/1/2016

SEAL

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

PROJ. REFERENCE NO.	SHEET NO.
SS-4905DF	TMP-2

MANAGEMENT STRATEGIES

THIS PROJECT WILL BE CONSTRUCTED USING THE FOLLOWING STRATEGIES:

- LANE / RAMP CLOSURES
- NIGHT WORK TO MINIMIZE WORK ZONE IMPACTS ON TRAFFIC

GENERAL NOTES / LOCAL 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.

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

ROAD NAME	DAY AND TIME RESTRICTIONS	
I-540	MONDAY THROUGH SUNDAY	5:00 AM TO 9:00 PM
US 64/264 RAMP TO I-540 WB	MONDAY THROUGH SUNDAY	5:00 AM TO 9:00 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) 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.

H) 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.

I) 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.

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

TRAFFIC BARRIER

K) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE FLOW OF TRAFFIC BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

L) PROTECT THE APPROACH END OF MOVEABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVEABLE/CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVEABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH OR HIGHER	30 FT

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

TRAFFIC CONTROL DEVICES

N) 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.

O) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

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

Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

R) USE A CHANGEABLE MESSAGE SIGN(S) 2000 FT IN ADVANCE OF THE WORKZONE TO NOTIFY TRAFFIC OF WORK ON -L- (US 64 / 264 RAMP TO I-540 WB).

USE THE FOLLOWING MESSAGES OR OTHER MESSAGES AS DIRECTED BY THE ENGINEER.

TRAFFIC SHIFT AHEAD	REDUCE SPEED

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APPROVED: DocuSigned by: J. W. Woolard, Jr. 88CC02F49E95C4EC...

DATE: 11/1/2016

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

MANAGEMENT STRATEGIES AND GENERAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
SS-4905DF	TMP-3

PHASING

STEP 1: USING RSD 1101.01 (SHEET 1 OF 3), INSTALL WORK ZONE ADVANCE WARNING SIGNS.

USING RSD 1101.02 (SHEET 9 OF 15) [MODIFIED AS NECESSARY], PERFORM STEPS 2 THROUGH 5 ON -L- FROM STA. 12+40 TO STA. 22+90.

STEP 2: PLACE PORTABLE CONCRETE BARRIER (PCB) ON THE EXISTING SHOULDER ONE (1) FOOT OFF THE EXISTING OUTSIDE EDGELINE FROM STA. 11+00 -L- TO STA. 24+00 -L-.

CONSTRUCT OUTSIDE WIDENING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM STA. 12+40 -L- TO STA. 22+90 -L-.

STEP 3: A) SHIFT TRAFFIC TO THE LEFT SIDE OF -L-.

B) REMOVE PCB.

C) MILL OUT EXISTING PAVED OUTSIDE SHOULDER, INCLUDING RUMBLE STRIPS, TO A DEPTH OF 1.5 INCHES AND REPLACE WITH 1.5 INCHES OF SURFACE COURSE.

D) PLACE FINAL LAYER OF SURFACE COURSE ON OUTSIDE WIDENING.

E) PLACE NEW PROPOSED OUTSIDE EDGELINE AS SHOWN IN THE PAVEMENT MARKING PLAN.

F) REMOVE EXISTING OUTSIDE EDGELINE ON THE RAMP.

G) PLACE PROPOSED PAVEMENT MARKING WHITE SKIP LINE AS SHOWN IN THE PAVEMENT MARKING PLAN.

STEP 4: A) SHIFT TRAFFIC ON TO THE NEWLY COMPLETED OUTSIDE LANE ON -L-. FOLLOWING:

B) CONSTRUCT INSIDE (LEFT) WIDENING UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.

C) MILL OUT EXISTING INSIDE RUMBLE STRIPS TO A DEPTH OF 1.5 INCHES AND REPLACE WITH 1.5 INCHES OF SURFACE COURSE.

D) PLACE PROPOSED INSIDE (LEFT) EDGELINE AS SHOWN IN THE PAVEMENT MARKING PLANS.

E) REMOVE THE EXISTING INSIDE (LEFT) EDGELINE ON THE RAMP.

STEP 5: REMOVE ANY CONFLICTING MARKINGS AND PLACE REMAINING PROPOSED PAVEMENT MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLAN.

STEP 6: REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN -L- TO THE FINAL TRAFFIC PATTERN.

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

PHASING

T.I.P.: SS-4905DF

CONTRACT NO.:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
WAKE COUNTY
LOCATION: RAMP ON I-495/US 64/US 264 TO I-540 WESTBOUND

TIP NO.	SHEET NO.
SS-4905DF	PMP-1

APPROVED: DocuSigned by: J. W. Woolard, Jr. 88C02F49E9C4EC...

DATE: 11/1/2016

SEAL

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

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ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXIT AND ENTRANCE RAMPS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	
UP	MERGE ARROW	(90 MIL)	THERMOPLASTIC
V6	WHITE EDGELINE	(6")	POLYUREA
V7	YELLOW EDGELINE	(6")	POLYUREA
VJ	10 FT WHITE SKIP	(6")	POLYUREA
VS	WHITE GORELINE	(12")	POLYUREA
VT	WHITE SOLID LANE LINE	(12")	POLYUREA

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
ALL ROADS	POLYUREA WITH HIGHLY REFLECTIVE ELEMENTS	SNOWPLOWABLE

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

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

D) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR SYMBOLS.

PLAN PREPARED BY:

JAY WOOLARD, P.E. TRANSPORTATION ENGINEER

ROSI R. HENNEIN TRANSPORTATION DESIGNER

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INDEX

TIP NO.	SHEET NO.
SS-4905DF	PMP-2

APPROVED: J. W. Woolard, Jr.

DATE: 11/1/2016

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

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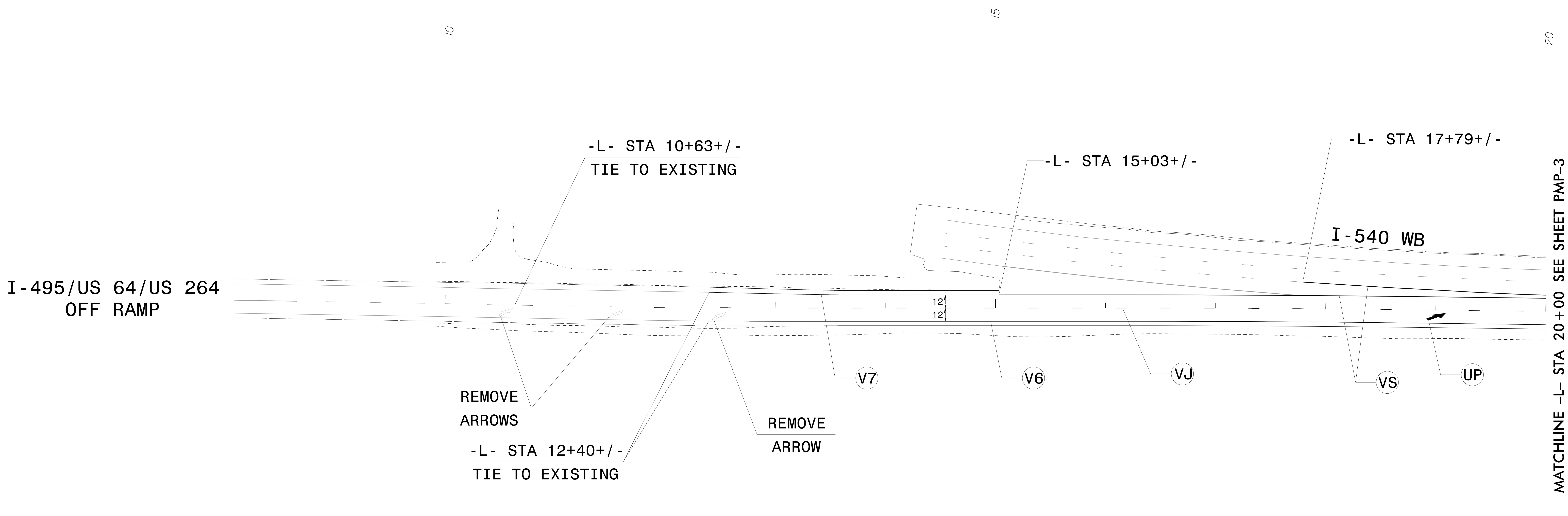

POLYUREA PAVEMENT MARKING LEGEND
(V6) WHITE EDGELINE (6")
(V7) YELLOW EDGELINE (6")
(VJ) 10 FT WHITE SKIP (6")
(VS) WHITE GORELINE (12")

THERMOPLASTIC PAVEMENT MARKING LEGEND
(UP) MERGE ARROW

PAVEMENT MARKING DETAIL

TIP NO.	SHEET NO.
SS-4905DF	PMP-3

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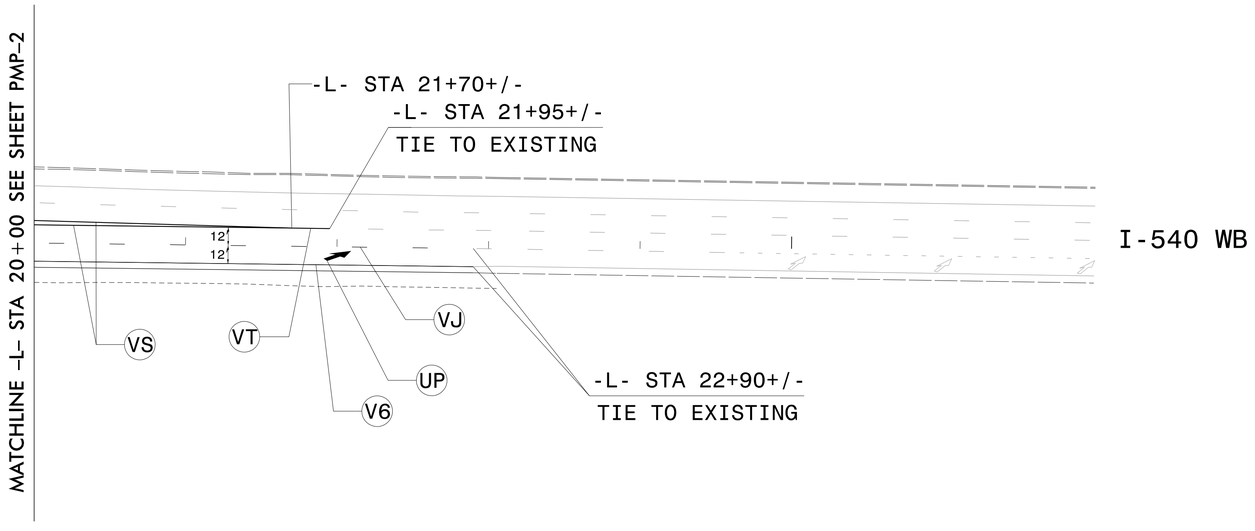


POLYUREA PAVEMENT MARKING LEGEND
V6 WHITE EDGELINE (6")
VJ 10 FT WHITE SKIP (6")
VS WHITE GORELINE (12")
VT WHITE SOLID LANE LINE (12")

THERMOPLASTIC PAVEMENT MARKING LEGEND
UP MERGE ARROW

PAVEMENT MARKING DETAIL

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

PROJECT REFERENCE NO.	SHEET NO.
SS-4905DF	X-A

CROSS SECTION INDEX

ROADWAY	STATION	TO	STATION	SHEET NO.
CROSS SECTION INDEX				X–A
CROSS SECTION SUMMARY				X–1A
–L– RAMP US 64 /264 TO I–540 WB	12+00.00		21+50.00	X–1 – X–6

PROJ. REFERENCE NO.	SHEET NO.
SS-4905DF	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

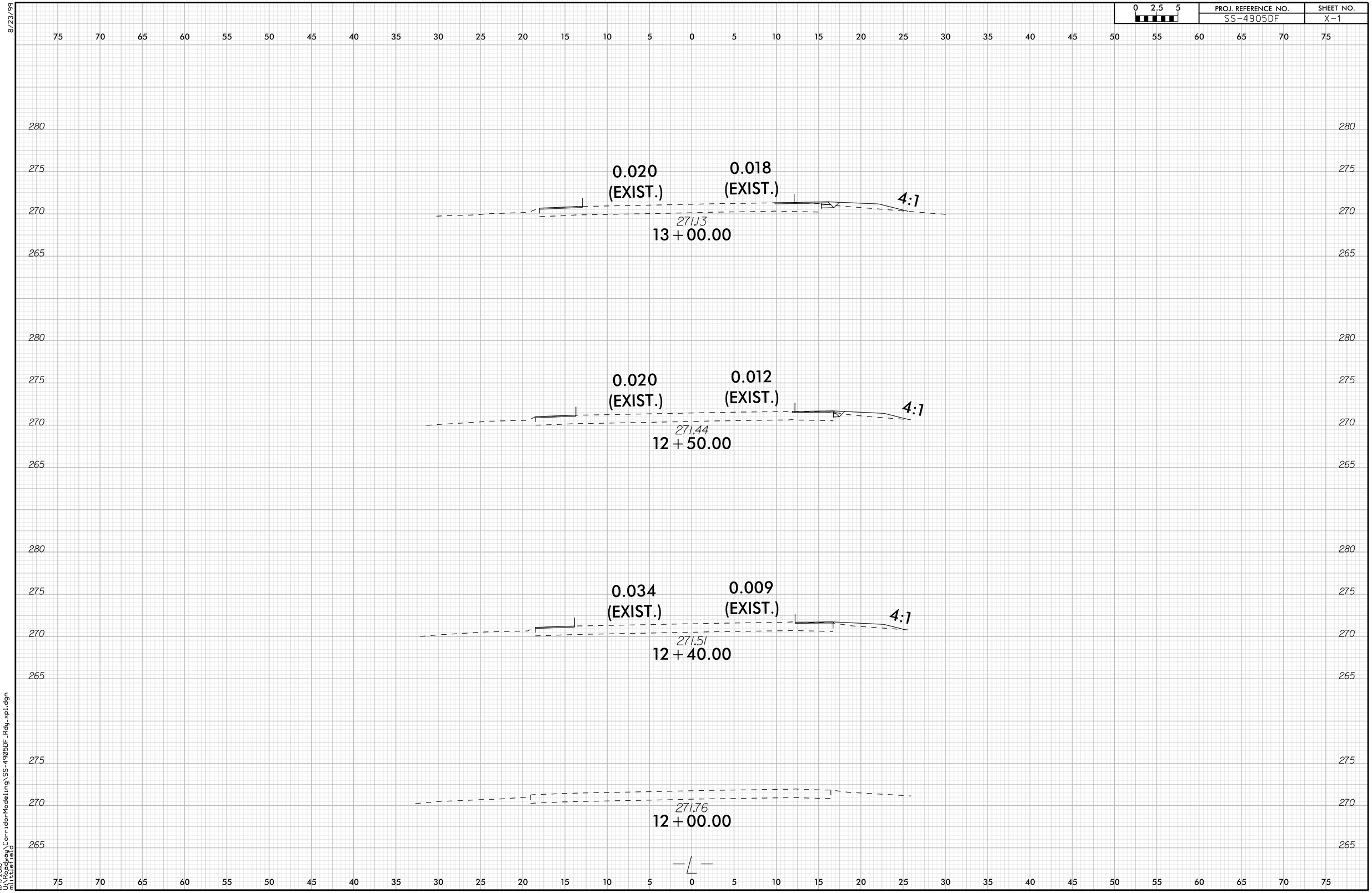
Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+40.00	0	0
12+50.00	0	1
13+00.00	1	6
13+50.00	1	7
14+00.00	1	8
14+50.00	2	11
15+00.00	3	15
15+50.00	3	16
16+00.00	1	14
16+50.00	1	11
17+00.00	1	9
17+50.00	0	9
18+00.00	1	9
18+50.00	1	8
19+00.00	0	9
19+50.00	0	8
20+00.00	0	7
20+50.00	1	7
21+00.00	1	6
21+50.00	1	5
22+00.00	1	6
22+50.00	1	5
22+90.00	0	4

Approximate quantities only. Unclassified excavation, borrow excavation, and fine grading will be paid for at the lump sum price for "Grading".

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
SS-4905DF	X-1



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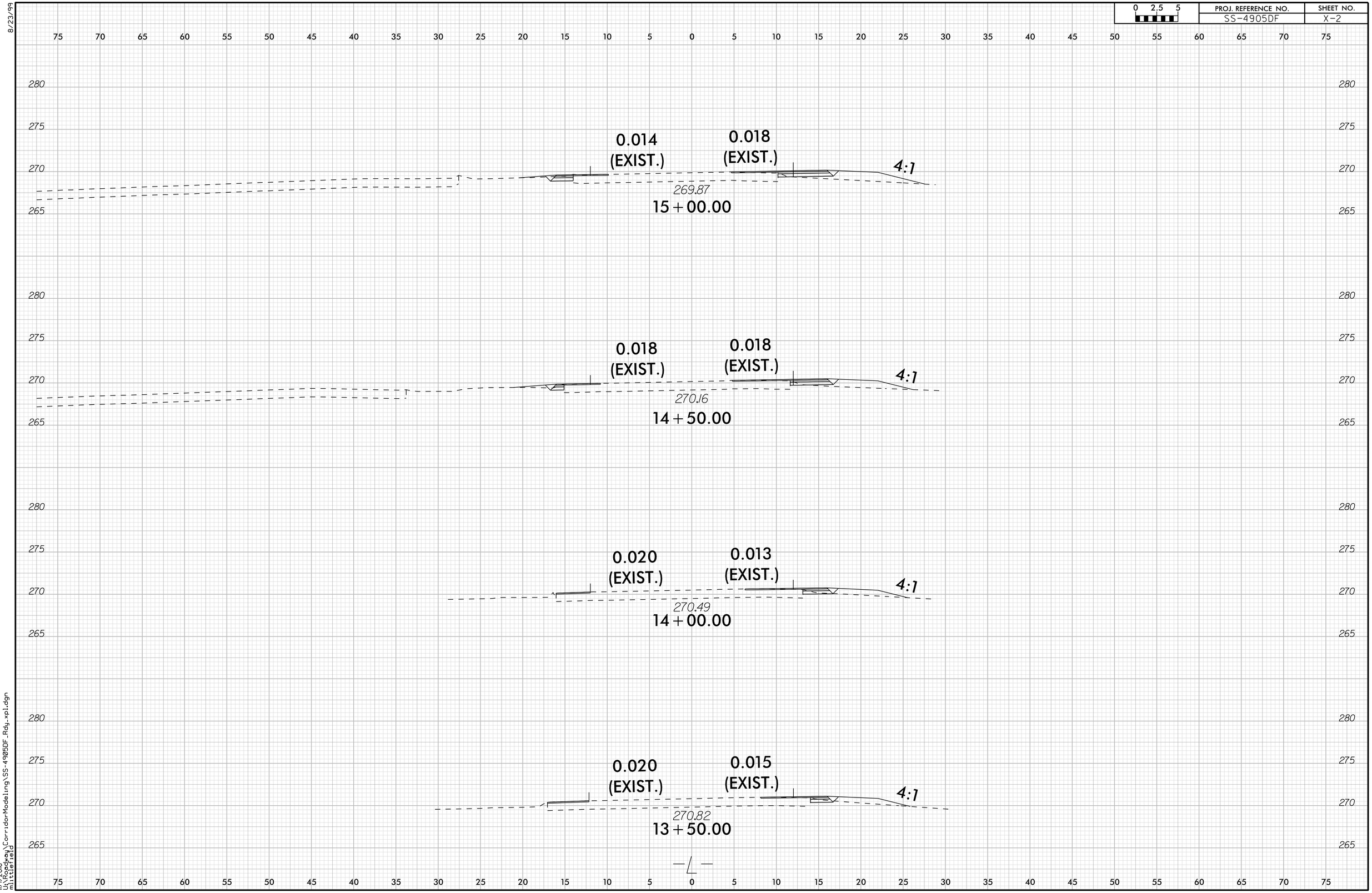

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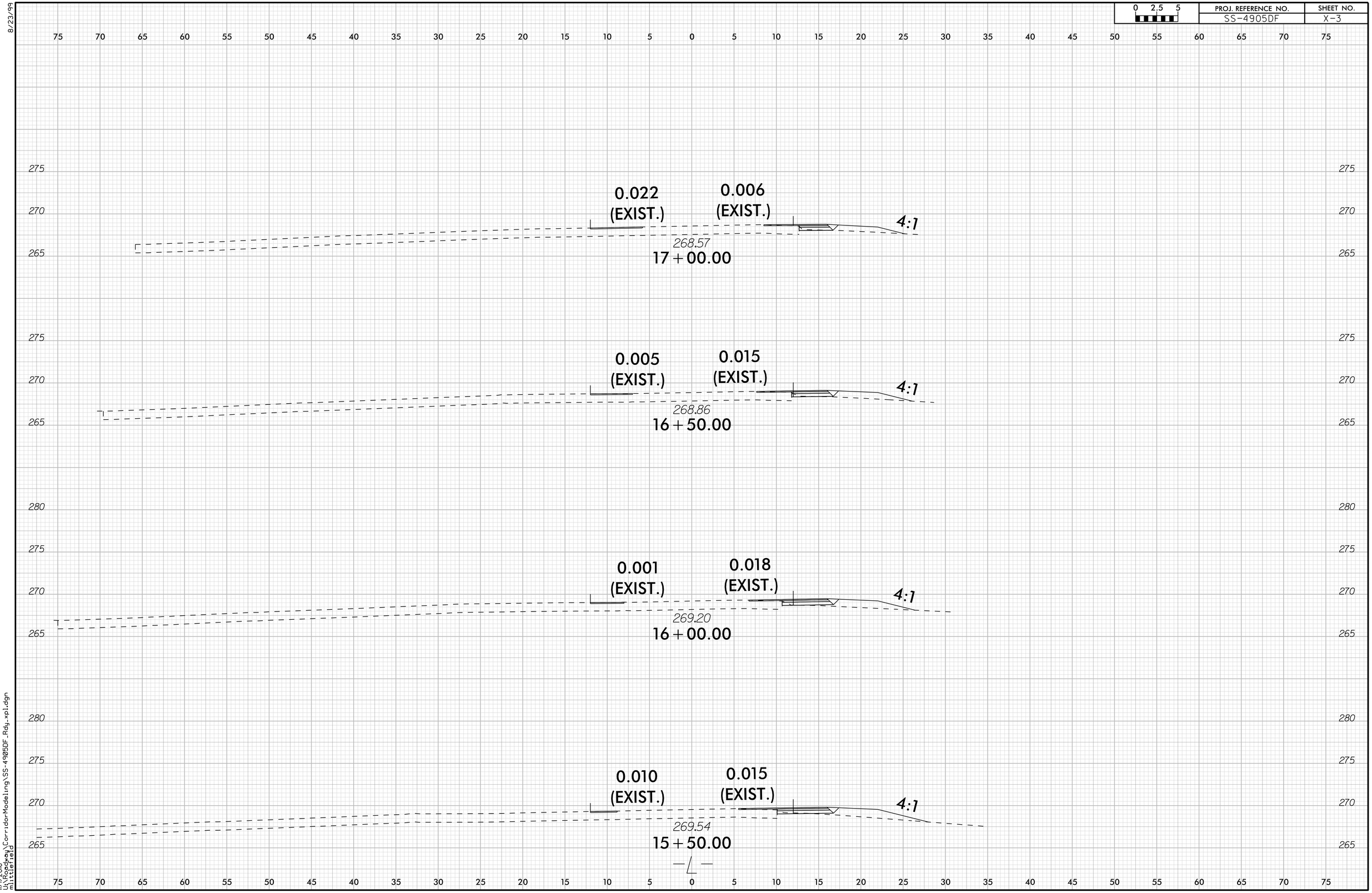

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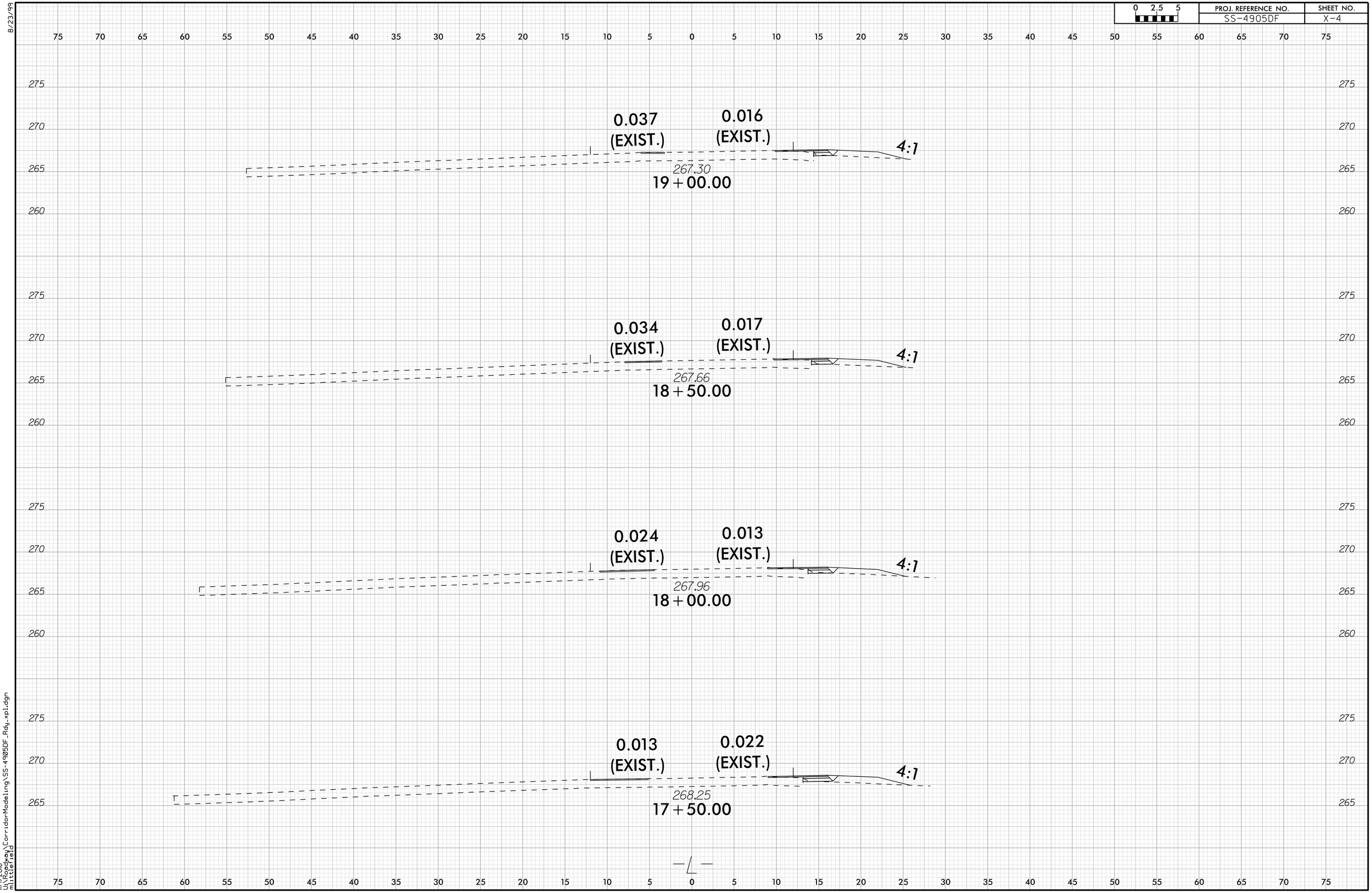

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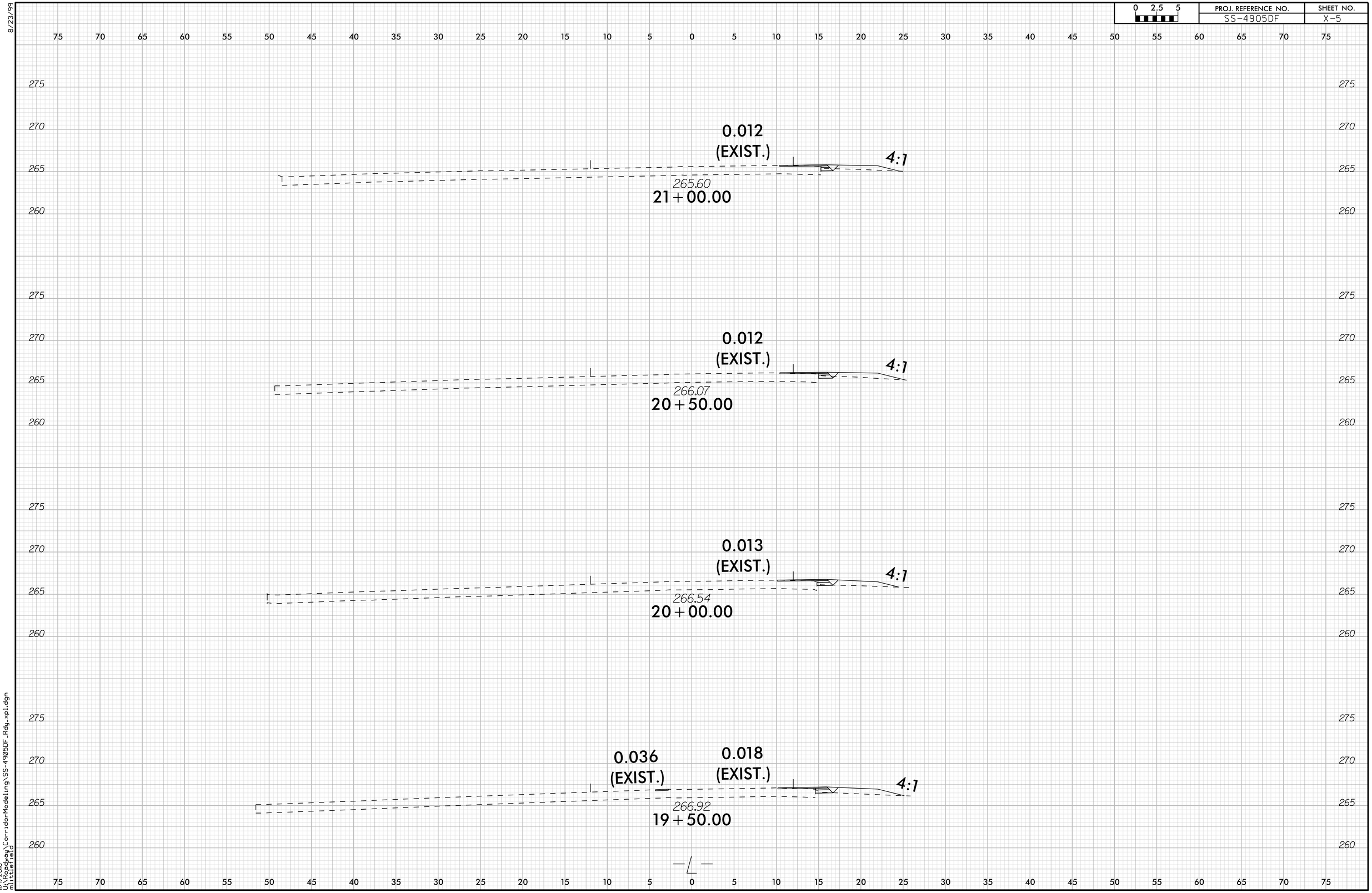

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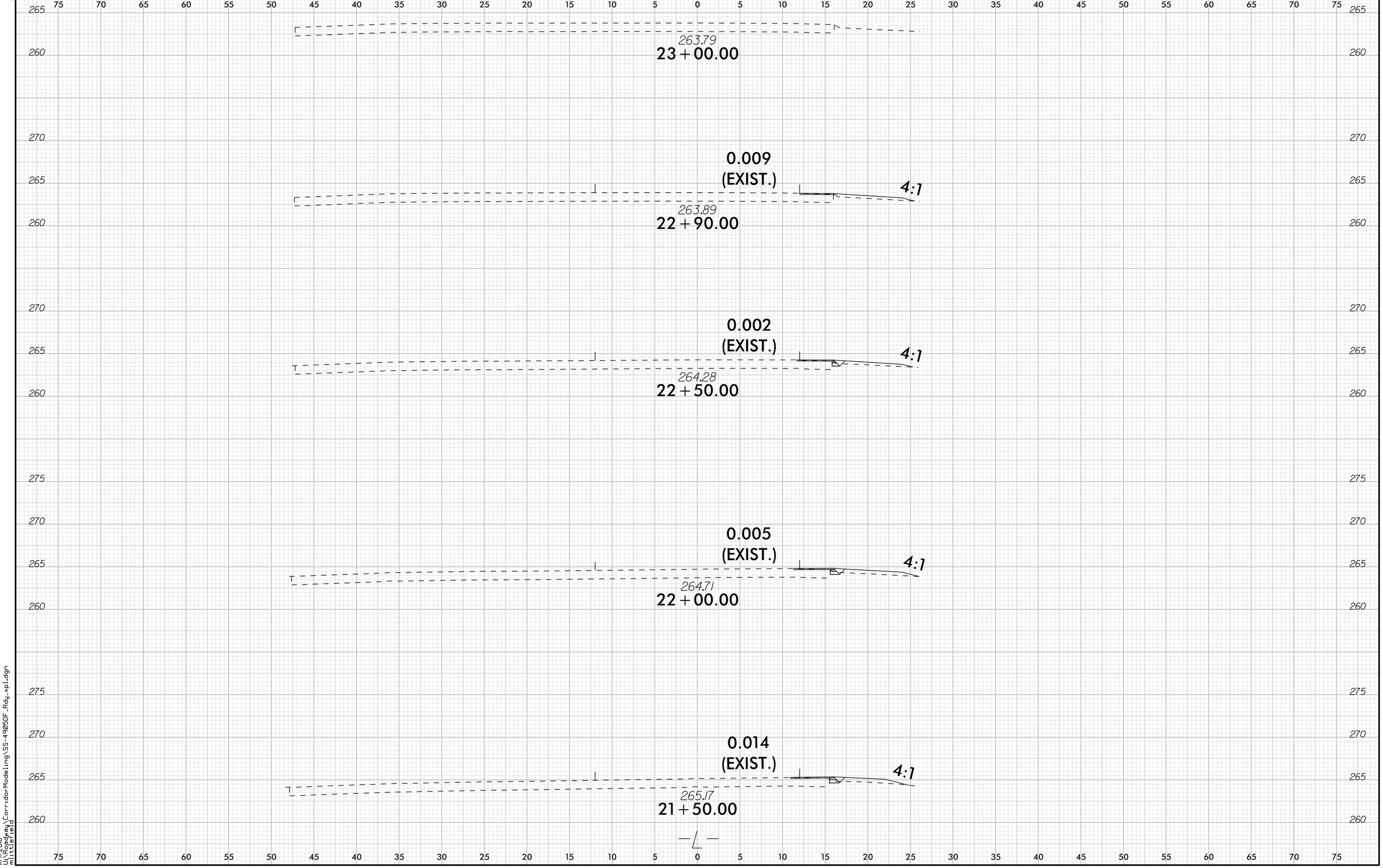

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