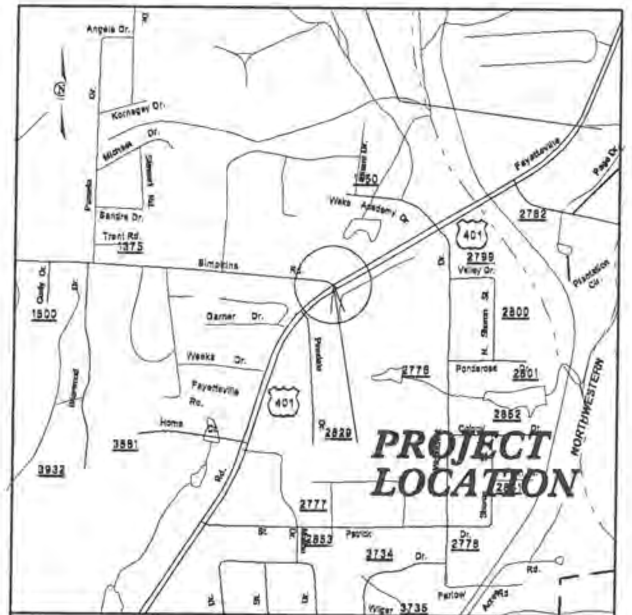
PROJECT: SS-4905BF CONTRACT: DE000063

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

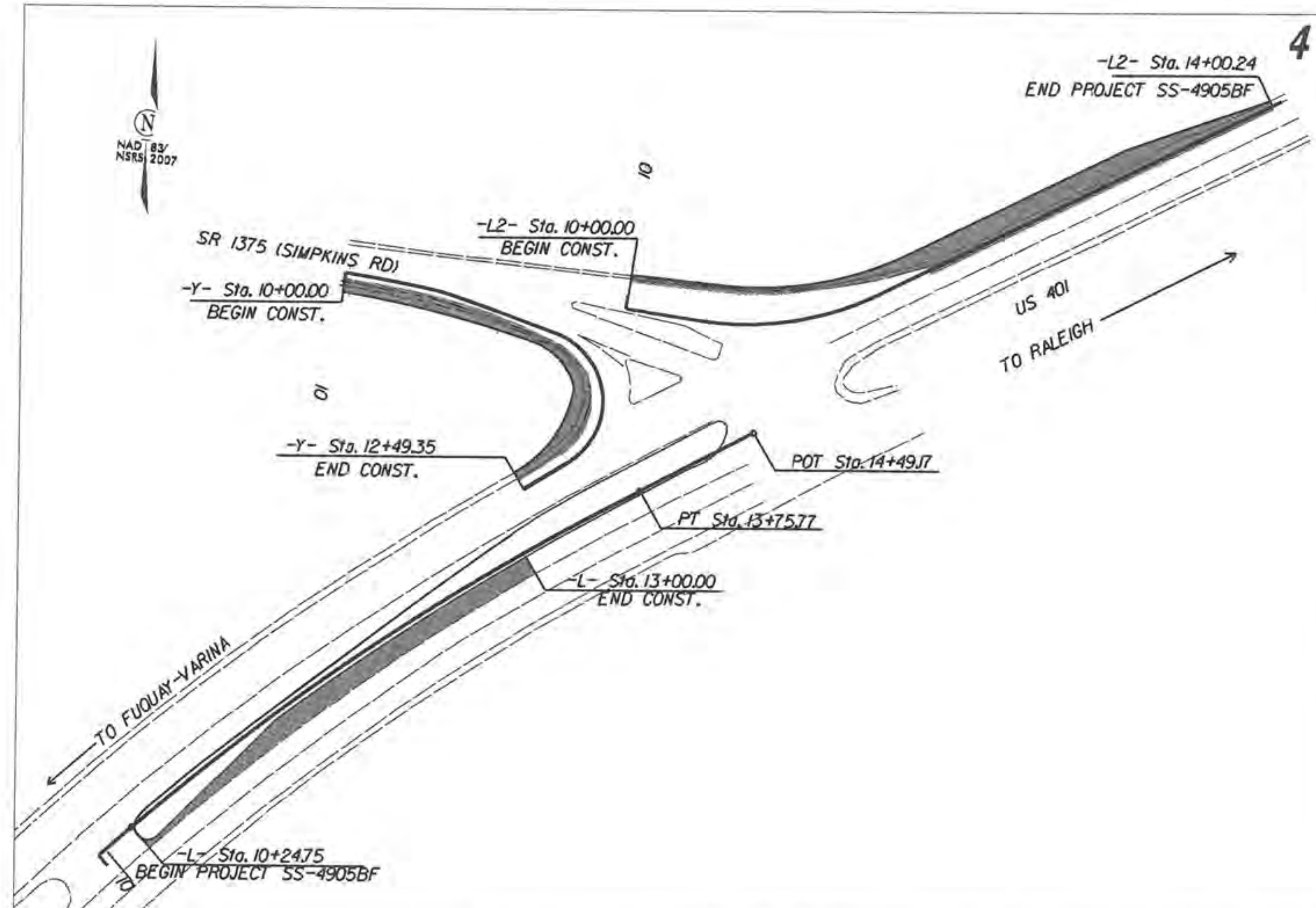
WAKE COUNTY

LOCATION: US 401 AT SR 1375 (SIMPKINS RD)

TYPE OF WORK: GRADING, PAVING, CONCRETE ISLAND, DRAINAGE AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SS-4905BF	1	43

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
43445.1.1	HSIP-0401(233)	PE
43445.2.1		R/W
43445.3.1		CONST.



GRAPHIC SCALES

PLANS: 25 12.5 0 25 50

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 5 2.5 0 5 10

PROJECT LENGTH

Length Roadway Project SS-4905BF = 0.16 Miles

Prepared In the Office of:

DIVISION OF HIGHWAYS

2612 N. Duke St., Durham, NC 27704

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPT 2012

LETTING DATE: JUNE 2013

B.J. Upshaw, P.E.
PROJECT ENGINEER

C.A. Hoffman
PROJECT DESIGN ENGINEER

DIVISION DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

5/8/2013

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

FIFTH DIVISION
J.W. Bowman, P.E.
DIVISION ENGINEER

22-APR-2013 06:38

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

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C	SURVEY CONTROL
2	PAVEMENT SCHEDULE, AND TYPICAL SECTIONS
2A-2C	DETAIL SHEETS
3	DRAINAGE AND EARTHWORK SUMMARY
4	PLAN SHEET
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS
PM-1	PAVEMENT MARKING PLAN
EC-1	EROSION CONTROL PLAN
SIG-1 THRU SIG-5	SIGNAL PLANS
X-0 THRU X-22	CROSS-SECTIONS

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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
852.01	Concrete Islands
852.10	Median Construction - with Curb and Gutter

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

CLEARING:

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE ATT/D, CITY OF RALEIGH, PROGRESS ENERGY, TIME WARNER CABLE, DUKENET COMMUNICATIONS, PALMETTONET INC

RIGHT-OF-WAY MARKERS:

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

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

- Edge of Pavement
- Curb
- Prop. Slope Stakes Cut
- Prop. Slope Stakes Fill
- Prop. Woven Wire Fence
- Prop. Chain Link Fence
- Prop. Barbed Wire Fence
- Prop. Wheelchair Ramp
- Exist. Guardrail
- Prop. Guardrail
- Equality Symbol
- Pavement Removal

RIGHT OF WAY

- Baseline Control Point
- Existing Right of Way Marker
- Exist. Right of Way Line w/Marker
- Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
- Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
- Exist. Control of Access Line
- Prop. Control of Access Line
- Exist. Easement Line
- Prop. Temp. Construction Easement Line
- Prop. Temp. Drainage Easement Line
- Prop. Perm. Drainage Easement Line

HYDROLOGY

- Stream or Body of Water
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Shoreline
- Falls, Rapids
- Prop Lateral, Tail, Head Ditches

STRUCTURES

MAJOR

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

MINOR

- Head & End Wall
- Pipe Culvert
- Footbridge
- Drainage Boxes
- Paved Ditch Gutter

UTILITIES

- Exist. Pole
- Exist. Power Pole
- Prop. Power Pole
- Exist. Telephone Pole
- Prop. Telephone Pole
- Exist. Joint Use Pole
- Prop. Joint Use Pole
- Telephone Pedestal
- Cable TV Pedestal
- Hydrant
- Satellite Dish
- Exist. Water Valve
- Sewer Clean Out
- Power Manhole
- Telephone Booth
- Water Manhole
- Light Pole
- H-Frame Pole
- Power Line Tower
- Pole with Base
- Gas Valve
- Gas Meter
- Telephone Manhole
- Power Transformer
- Sanitary Sewer Manhole
- Storm Sewer Manhole
- Tank; Water, Gas, Oil
- Water Tank With Legs
- Traffic Signal Junction Box
- Fiber Optic Splice Box
- Television or Radio Tower
- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement
- Recorded Water Line
- Designated Water Line (S.U.E.*)
- Sanitary Sewer
- Recorded Sanitary Sewer Force Main
- Designated Sanitary Sewer Force Main(S.U.E.*)
- Recorded Gas Line
- Designated Gas Line (S.U.E.*)
- Storm Sewer
- Recorded Power Line
- Designated Power Line (S.U.E.*)
- Recorded Telephone Cable
- Designated Telephone Cable (S.U.E.*)
- Recorded U/G Telephone Conduit
- Designated U/G Telephone Conduit (S.U.E.*)
- Unknown Utility (S.U.E.*)
- Recorded Television Cable
- Designated Television Cable (S.U.E.*)
- Recorded Fiber Optics Cable
- Designated Fiber Optics Cable (S.U.E.*)
- Exist. Water Meter
- U/G Test Hole (S.U.E.*)
- Abandoned According to U/G Record — ATTUR
- End of Information — E.O.I.

BOUNDARIES & PROPERTIES

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Property Line Symbol
- Exist. Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Property Number — 123
- Parcel Number — 6
- Fence Line — WW & ISBW
- Existing Wetland Boundaries — WLB
- Proposed Wetland Boundaries — WLB
- Existing Endangered Animal Boundaries — EAB
- Existing Endangered Plant Boundaries — EPB

BUILDINGS & OTHER CULTURE

- Buildings
- Foundations
- Area Outline
- Gate
- Gas Pump Vent or U/G Tank Cap
- Church
- School
- Park
- Cemetery
- Dam
- Sign
- Well
- Small Mine
- Swimming Pool

TOPOGRAPHY

- Loose Surface
- Hard Surface
- Change in Road Surface
- Curb
- Right of Way Symbol — R/W
- Guard Post — GP
- Paved Walk
- Bridge
- Box Culvert or Tunnel
- Ferry
- Culvert
- Footbridge
- Trail, Footpath
- Light House

VEGETATION

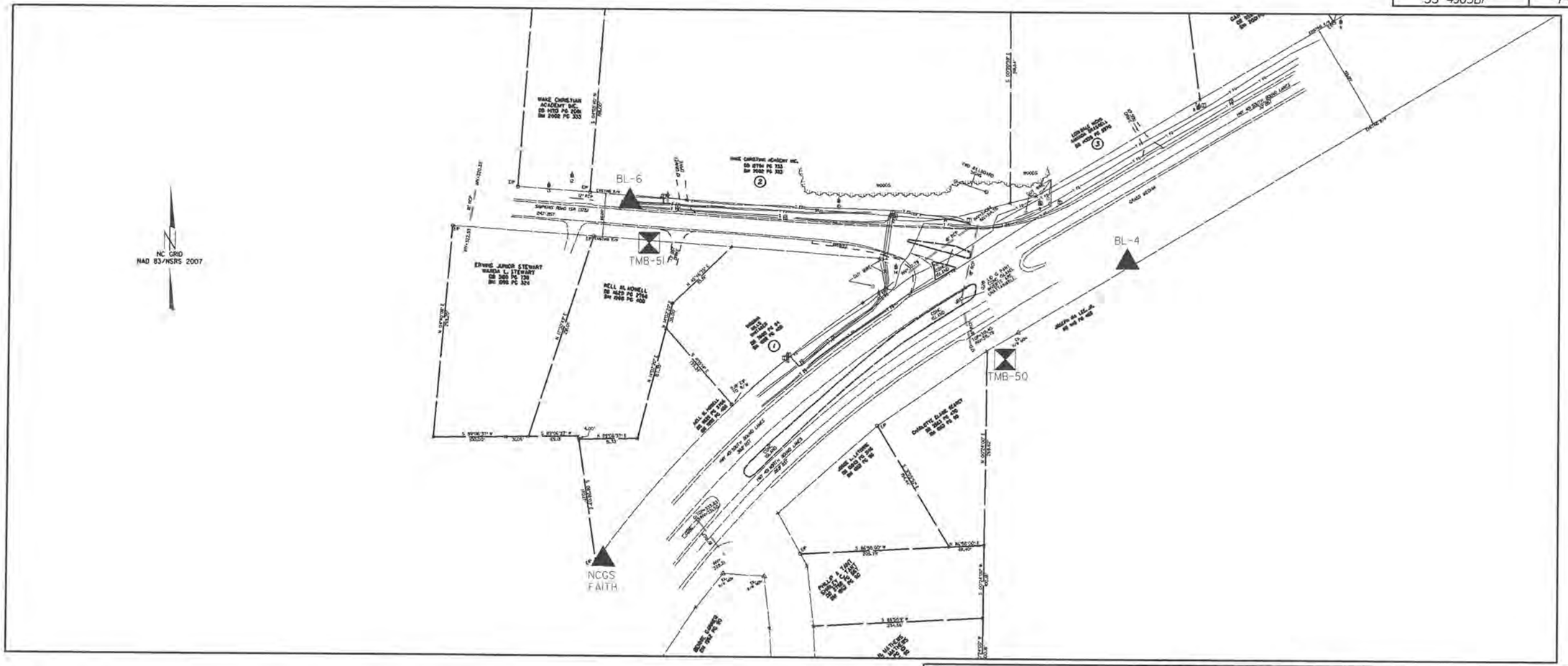
- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — VINEYARD

RAILROADS

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

revised 02/25/97

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	1-C



SURVEY CONTROL SYMBOL ---- ▲

SURVEY CONTROL DATA

POINT	NORTH	EAST	ELEVATION
NCGS FAITH	710103.419	2097684.751	340.67
BL-4	710519.130	2098405.731	320.19
BL-6	710597.571	2097716.977	331.11

BENCHMARK CONTROL DATA (SYMBOL ⧓)

POINT	DISCRIPTION	ELEVATION
TMB-50	RRS SET IN 14" PINE	325.57
TMB-51	RRS SET IN 18" PINE	338.59

ALIGNMENT DATA

POINT	NORTH	EAST
-L- 10+24.75	710224.806	2097876.317
-L- 13+00.00	710402.054	2098086.345
-Y- 10+00.00	710553.306	2097969.650
-Y- 12+49.35	710438.646	2098082.651
-L2- 10+00.00	710547.126	2098132.304
-L2- 14+00.24	710694.790	2098493.926

SURVEY CONTROL DATA
US 401 @ SR 1375
(SIMPKINS RD)

DIVISION 05 WAKE COUNTY

REVISIONS	INT.	DATE

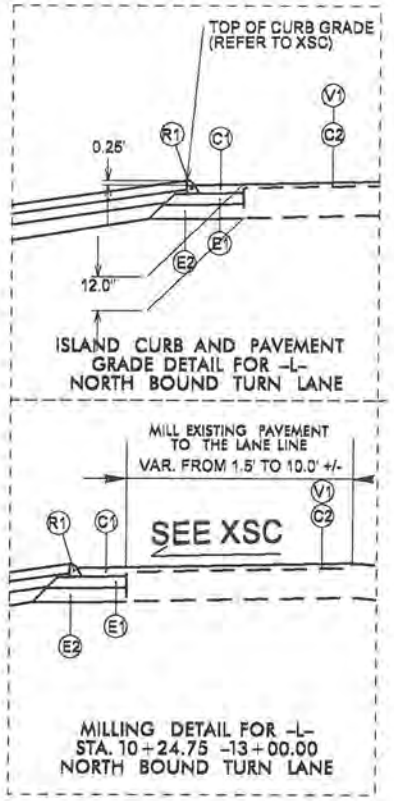
N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

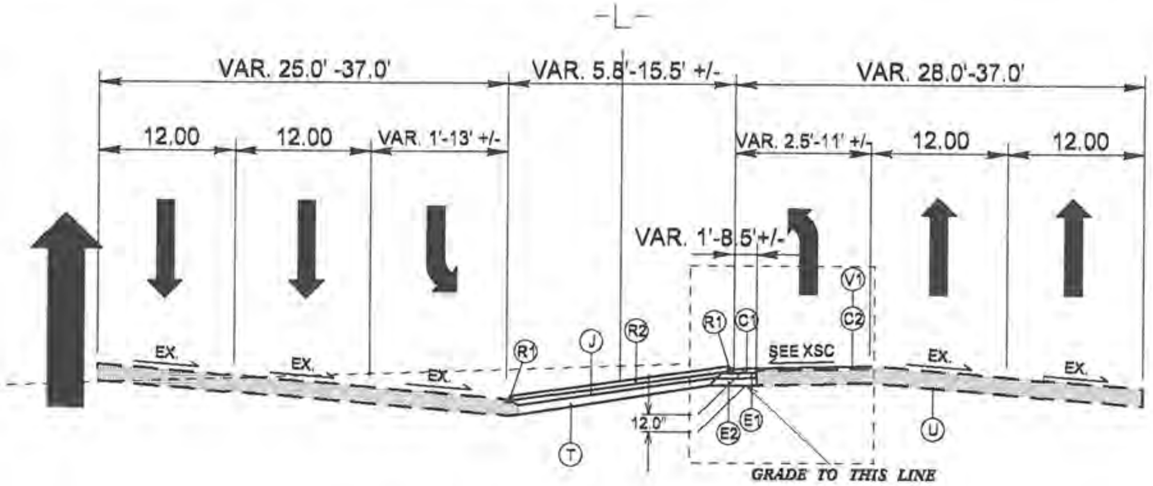
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE: N/A	DATE: ----
PREPARED BY:	CAH
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
SS4905BF	2

ROADWAY DESIGN ENGINEER





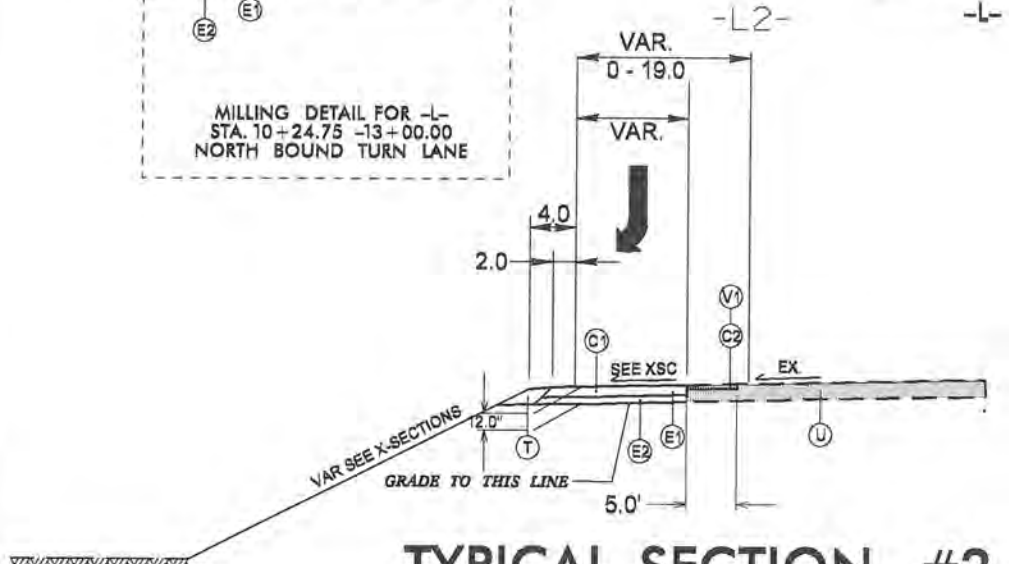
TYPICAL SECTION #1

-L- STA. 10+24.75 TO 13+00.00

NOTES:

1). THE PORTION OF EACH EXISTING PAVED SHOULDER THAT IS NOT FULL DEPTH IS TO BE REMOVED AND PAVED TO FULL DEPTH.

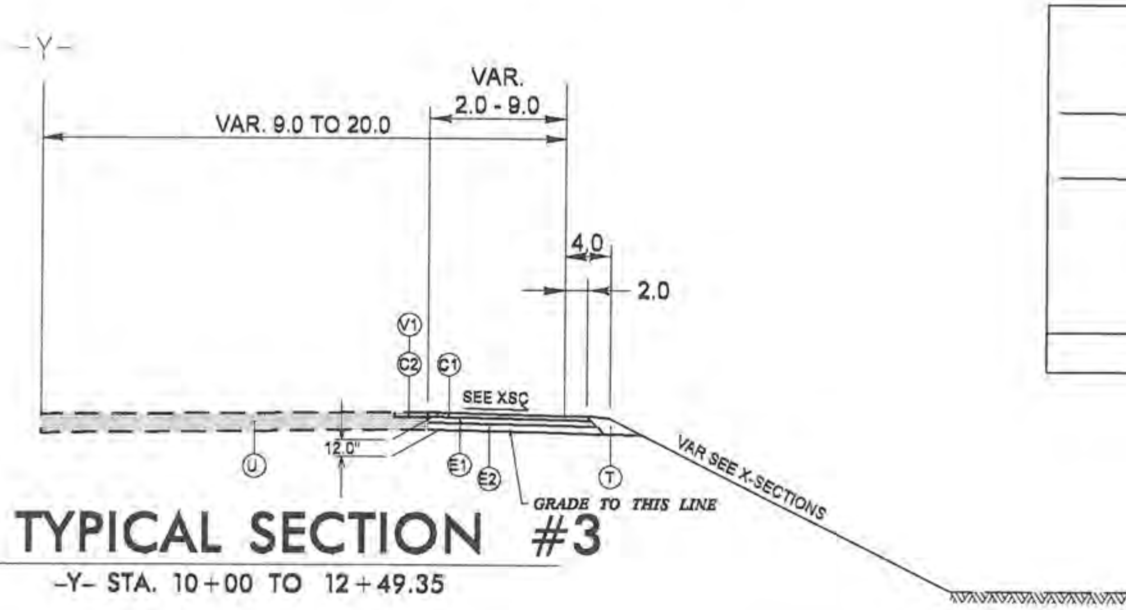
2). PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION #2

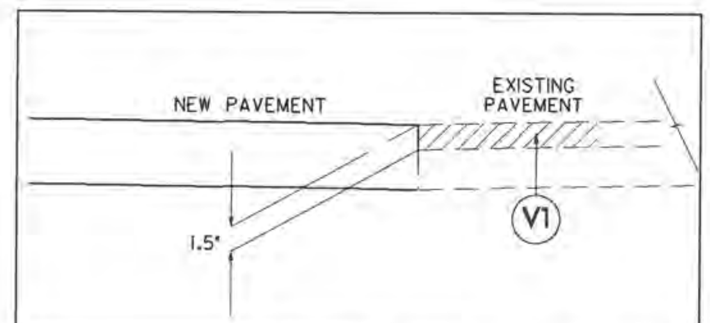
-L2- STA. 10+00 TO 14+00.24

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LIFTS
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ.YD.
J	PROP. 4" AGGREGATE BASE COURSE
R1	8"x6" CONCRETE MEDIAN CURB
R2	4" CONCRETE ISLAND COVER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILL EXISTING PAVEMENT AT TIE IN. 1.5" DEPTH (SEE KEY-IN DETAIL)



TYPICAL SECTION #3

-Y- STA. 10+00 TO 12+49.35



FOR PAVEMENT KEY-IN DETAIL (NTS)

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	2A

GENERAL NOTES:

-USE FORMS TO CONSTRUCT THE BASE SLAB.

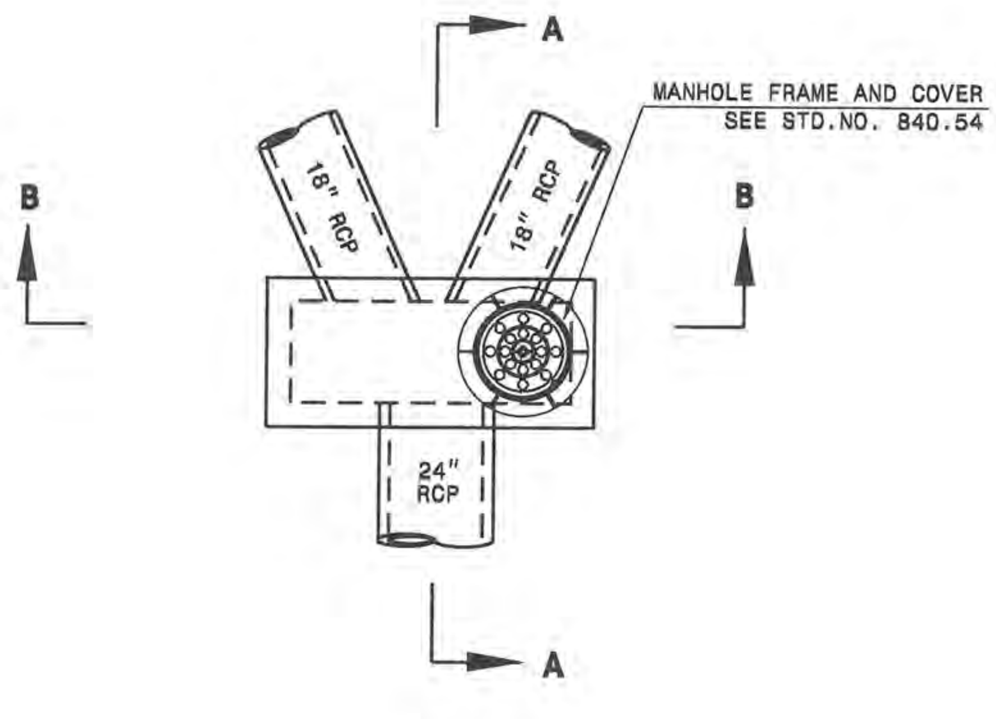
-IF REINFORCED CONCRETE PIPE IS SET BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD.NO. 840.00

-USE CLASS "B" CONCRETE THROUGHOUT.

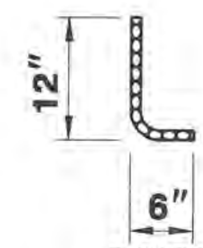
-BASE SLAB OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

-CHAMFER ALL EXPOSED CORNERS 1".

-PROVIDE JUNCTION BOX WITH STEPS TO BE PLACED ON 12" CTRS. REFERENCE STD.NO. 840.66.



PLAN

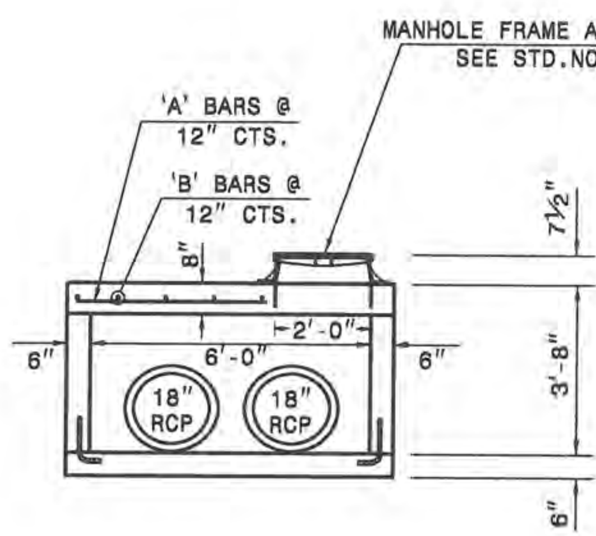


DOWEL

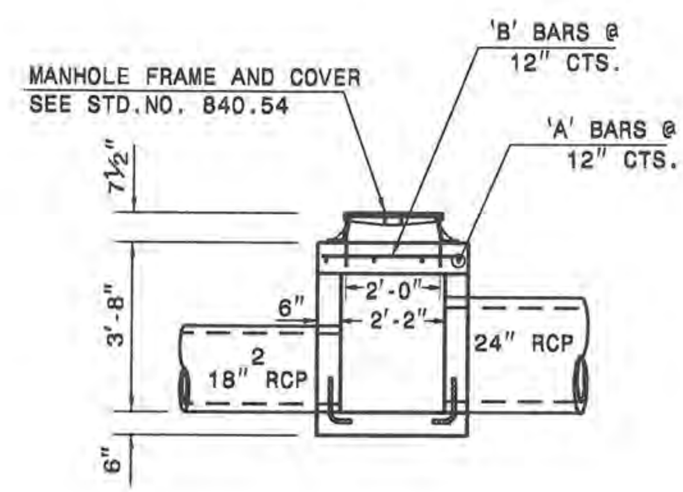
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	WEIGHT
A	4	#4	5'-8"	15
B	6	#4	2'-10"	11
TOTAL REINFORCING STEEL (lbs.)				26
CLASS "A" CONC. (cu. yds.)				2.2

NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES, CATCH BASIN OPENING AND MANHOLE OPENING.



SECTION 'B-B'



SECTION 'A-A'

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

SPECIAL JUNCTION BOX WITH MANHOLE

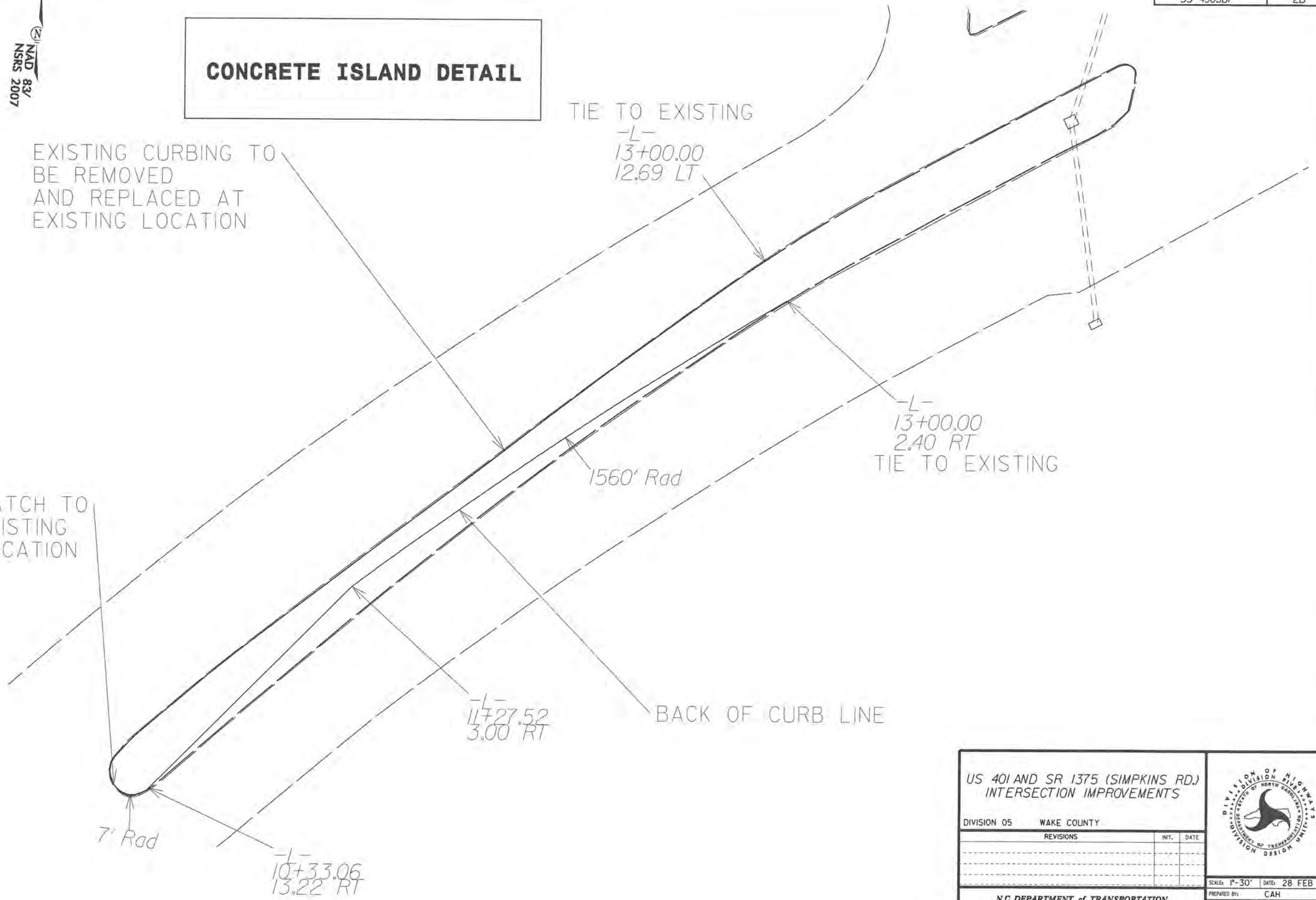
ORIGINAL BY: K.A.KEMPF DATE: SEP 28,2012
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: w:kkempf/english/Jb24_2X18rcp.dgn

27-FEB-2013 08:44
R:\Roadway\Proj\SS4905BF_Rdy_psh_2A.dgn
cahoffman AT DSCA0257091

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	2B

(2) NAD 83/ NSRS 2007

CONCRETE ISLAND DETAIL



US 401 AND SR 1375 (SIMPKINS RD.) INTERSECTION IMPROVEMENTS

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

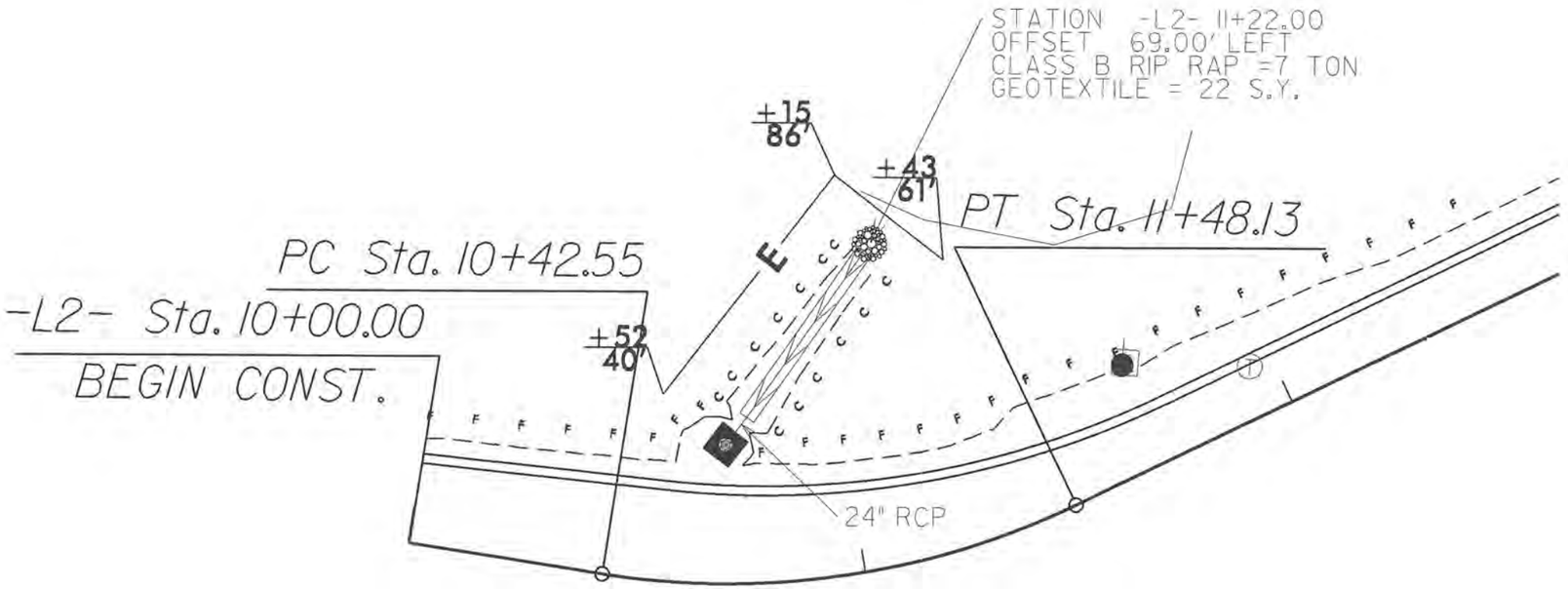
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

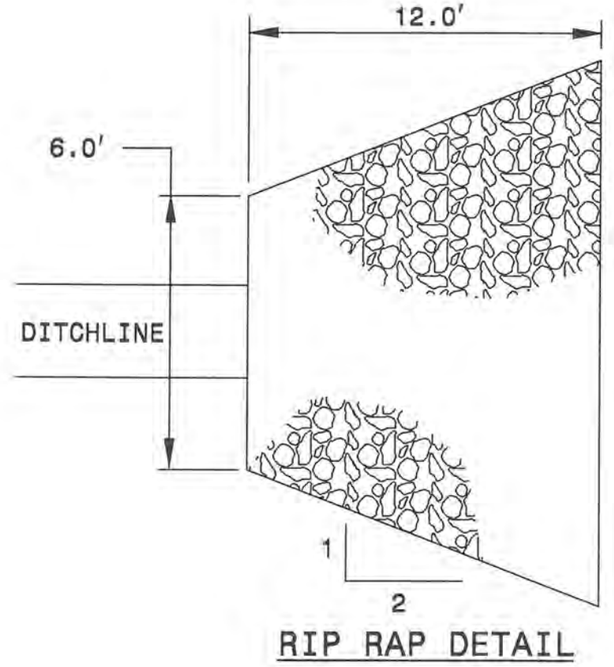
SCALE:	1"=30'
DATE:	28 FEB 13
PREPARED BY:	CAH
REVIEWED BY:	BJU
REVIEWED BY:	

Note: Not to Scale

RIP RAP PLACEMENT DETAIL

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	2C





RIP RAP DETAIL

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	QUANTITIES FOR DRAINAGE STRUCTURES LIN. *FT. 5.0' THRU 10.0' A	QUANTITIES FOR DRAINAGE STRUCTURES LIN. *FT. 10.0' AND ABOVE B	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	M.D.I. TYPE "A" STD. 840.17 OR 840.26	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	M.D.I. FRAME WITH GRATE STD. 840.22	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	SPECIAL J.B. W/MH 840.54	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	T.B.J.B. STD. 840.35	ADJUSTMENT OF C.B.	CONVERT EXISTING J.B. TO J.B. W/MH	REMARKS
11+56.62 –Y–	R	EX.	1		EX.	317.99	.026			8																									.45					
10+61.07 –L2–	L	EX.	2		EX.	314.66	.026			6.6																									.45					
10+68.00 –L2–	L	EX.	2		EX.	314.74	.006			3.5																									.45					
10+69.30 –L2–	L	2		318.82																	1																			SEE SPECIAL J. B. DETAIL SHEET #2A
10+72.00 –L2–	L	2	3		314.66	314.59	.015				5																														

ABBREVIATIONS

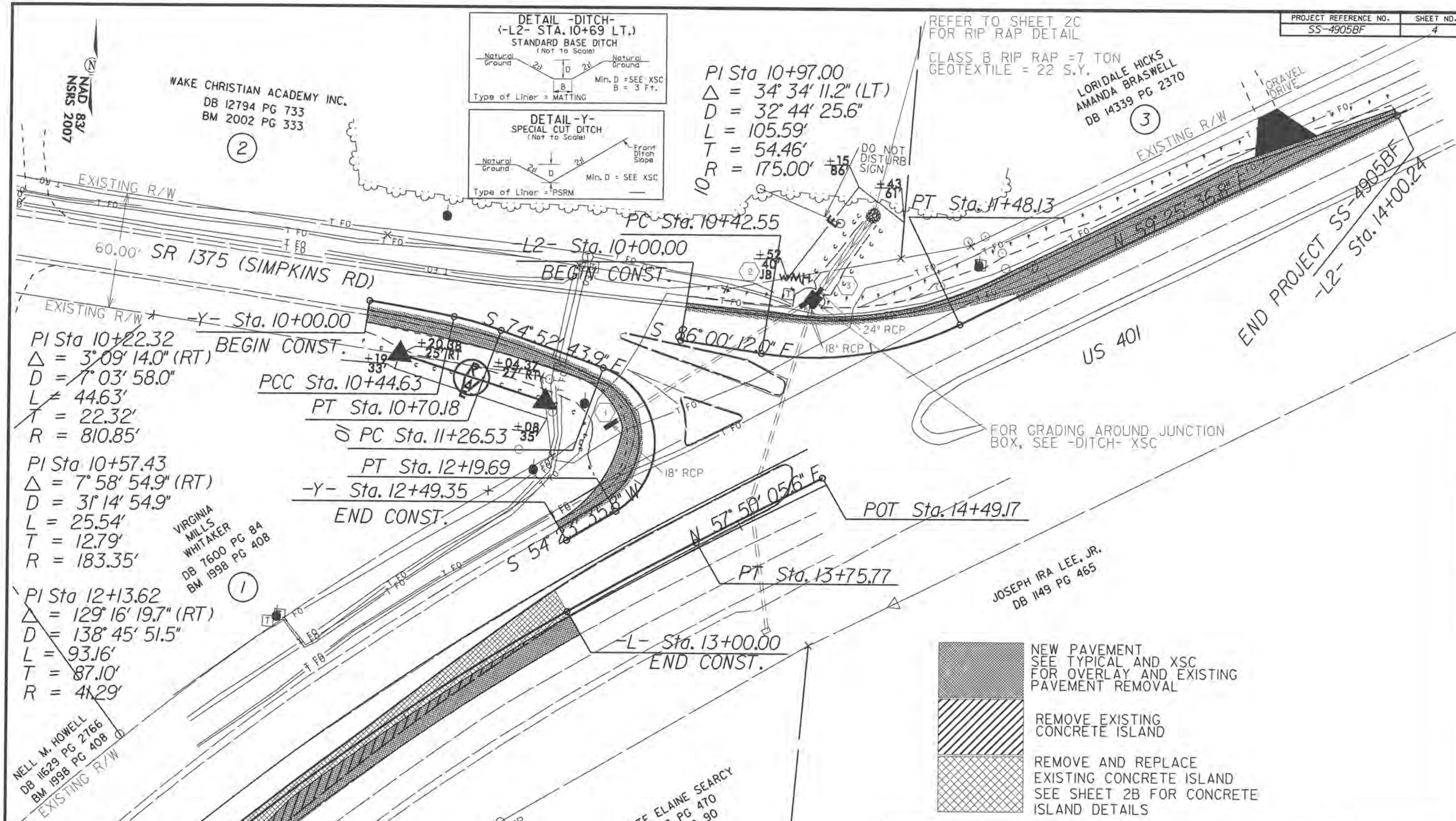
C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION BOX

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
L 10+24.75	13+00	49	---	17	0	32
L-2 10+10	14+00	44		88	44	29
Ditch 1+02	1+62	6		11	5	0
Y 10+00	12+20	77		22	0	55
--- ---	---	---	---	---	---	---
SUBTOTALS:		176		138	49	87
EST 5% TO REPLACE TOP SOIL ON BORROW PIT					0	
PROJECT TOTALS:		176		138	49	87
WASTE IN LIEU OF BORROW					49	49
GRAND TOTALS:		176		138	0	38
SAY:		180		140	0	40

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 lump sum price for "Grading".

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	4



NAD 83/ NSRS 2007
DETAIL -DITCH- (-L2- STA. 10+69 LT.)
STANDARD BASE DITCH (Not to Scale)
Natural Ground
Min. D = SEE XSC B = 3 Ft.
Type of Liner = MATTING
DETAIL -Y- SPECIAL CUT DITCH (Not to Scale)
Front Ditch Slope
Min. D = SEE XSC
Type of Liner = PSRM
REFER TO SHEET 2C FOR RIP RAP DETAIL
CLASS B RIP RAP =7 TON
GEOTEXTILE = 22 S.Y.
WAKE CHRISTIAN ACADEMY INC.
DB 12794 PG 733
BM 2002 PG 333
LORIDALE HICKS
AMANDA BRASWELL
DB 14339 PG 2370
GRAVEL DRIVE
EXISTING R/W
PI Sta 10+97.00
Δ = 34° 34' 11.2" (LT)
D = 32° 44' 25.6"
L = 105.59'
T = 54.46'
R = 175.00'
DO NOT DISTURB SIGN
PT Sta. 11+48.13
PC Sta. 10+42.55
-L2- Sta. 10+00.00
BEGIN CONST.
N 59° 25' 36.8" E
END PROJECT SS-4905BF
-L2- Sta. 14+00.24
60.00'
SR 1375 (SIMPKINS RD)
-Y- Sta. 10+00.00
BEGIN CONST.
S 74° 52' 43.9" E
S 86° 00' 12.0" E
24" RCP
18" RCP
US 401
PI Sta 10+22.32
Δ = 3° 09' 14.0" (RT)
D = 7° 03' 58.0"
L = 44.63'
T = 22.32'
R = 810.85'
PCC Sta. 10+44.63
PT Sta. 10+70.18
PC Sta. 11+26.53
PT Sta. 12+19.69
-Y- Sta. 12+49.35
END CONST.
FOR GRADING AROUND JUNCTION BOX, SEE -DITCH- XSC
18" RCP
PI Sta 10+57.43
Δ = 7° 58' 54.9" (RT)
D = 31° 14' 54.9"
L = 25.54'
T = 12.79'
R = 183.35'
VIRGINIA MILLS WHITAKER
DB 7600 PG 84
BM 1998 PG 408
S 54° 23' 35.8" W
N 57° 50' 05.6" E
POT Sta. 14+49.17
PT Sta. 13+75.77
JOSEPH IRA LEE, JR.
DB 1149 PG 465
PI Sta 12+13.62
Δ = 129° 16' 19.7" (RT)
D = 138° 45' 51.5"
L = 93.16'
T = 87.10'
R = 41.29'
-L- Sta. 13+00.00
END CONST.
NEW PAVEMENT SEE TYPICAL AND XSC FOR OVERLAY AND EXISTING PAVEMENT REMOVAL
REMOVE EXISTING CONCRETE ISLAND
REMOVE AND REPLACE EXISTING CONCRETE ISLAND SEE SHEET 2B FOR CONCRETE ISLAND DETAILS
NELL M. HOWELL
DB 11629 PG 2766
BM 1998 PG 408
EXISTING R/W
CHARLOTTE ELAINE SEARCY
DB 3563 PG 470
BM 1962 PG 90
EIP
JORGE L. LATORRE
DB 13043 PG 2146
BM 1962 PG 90
PI Sta 11+88.98
Δ = 15° 03' 40.2" (RT)
D = 4° 00' 28.9"
L = 375.77'
T = 188.98'
R = 1,429.52'
-L- Sta. 10+24.75
BEGIN PROJECT SS-4905BF

DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

5/8/13

SIGNATURE P.E.

US 401 AND SR 1375 (SIMPKINS RD.) INTERSECTION IMPROVEMENTS

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

SCALE: 1"=50'	DATE: ----
PREPARED BY:	CAH
REVIEWED BY:	BJU
REVIEWED BY:	

STATE PROJECT REFERENCE NO.		SHEET NO.
SS-4905BF		TMP-1
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
43445.1.1	HSIP-0401(233)	PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY

PROJECT: 43445

ROADWAY STANDARD DRAWINGS

EV. SEPTEMBER 2011

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
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
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	DRUMS
1135.01	CONES
1150.01	FLAGGING DEVICES
1160.01	SKINNY - DRUM
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
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

INDEX OF SHEETS

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- NORTH ARROW
- PROPOSED PVMT. - - - - EXIST. PVMT.
- WORK AREA
- REMOVAL OF EXISTING PAVEMENT

TRAFFIC CONTROL DEVICES

- I TYPE I BARRICADE
- II TYPE II BARRICADE
- TYPE III BARRICADE
- CONE
- DRUM
- FLASHING ARROW PANEL (TYPE C)
- TYPE 'B' WARNING LIGHT
- STATIONARY SIGN
- PORTABLE SIGN
- WARNING FLAGS
- CRASH CUSHION
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- POLICE
- FLAGGER

PAVEMENT MARKINGS

- CRYSTAL PAVEMENT MARKER
- YELLOW/YELLOW PAVEMENT MARKER
- CRYSTAL/RED PAVEMENT MARKER
- PAVEMENT MARKING SYMBOLS

STATE PROJECT REFERENCE NO.		SHEET NO.
SS-4905BF		TMP-2
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
43455.1.1	HSIP-0401(233)	PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY

PROJECT: 43445

PROJECT NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
US 401	MONDAY THRU FRIDAY 07:00-09:00 AND 4:00-6:00 **
SR 1375	MONDAY THRU FRIDAY 07:00-09:00 AND 4:00-6:00**

** THE ABOVE RESTRICTIONS APPLY TO OPERATIONS INVOLVING A LANE CLOSURE DURATION OF 2 HOURS OR LESS AS DIRECTED BY THE ENGINEER.

FOR ADDITIONAL RESTRICTIONS, SEE SHEET TMP-3

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 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.

D) 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.

E) 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.

F) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

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) 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.

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

TRAFFIC CONTROL DEVICES

J) 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.

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

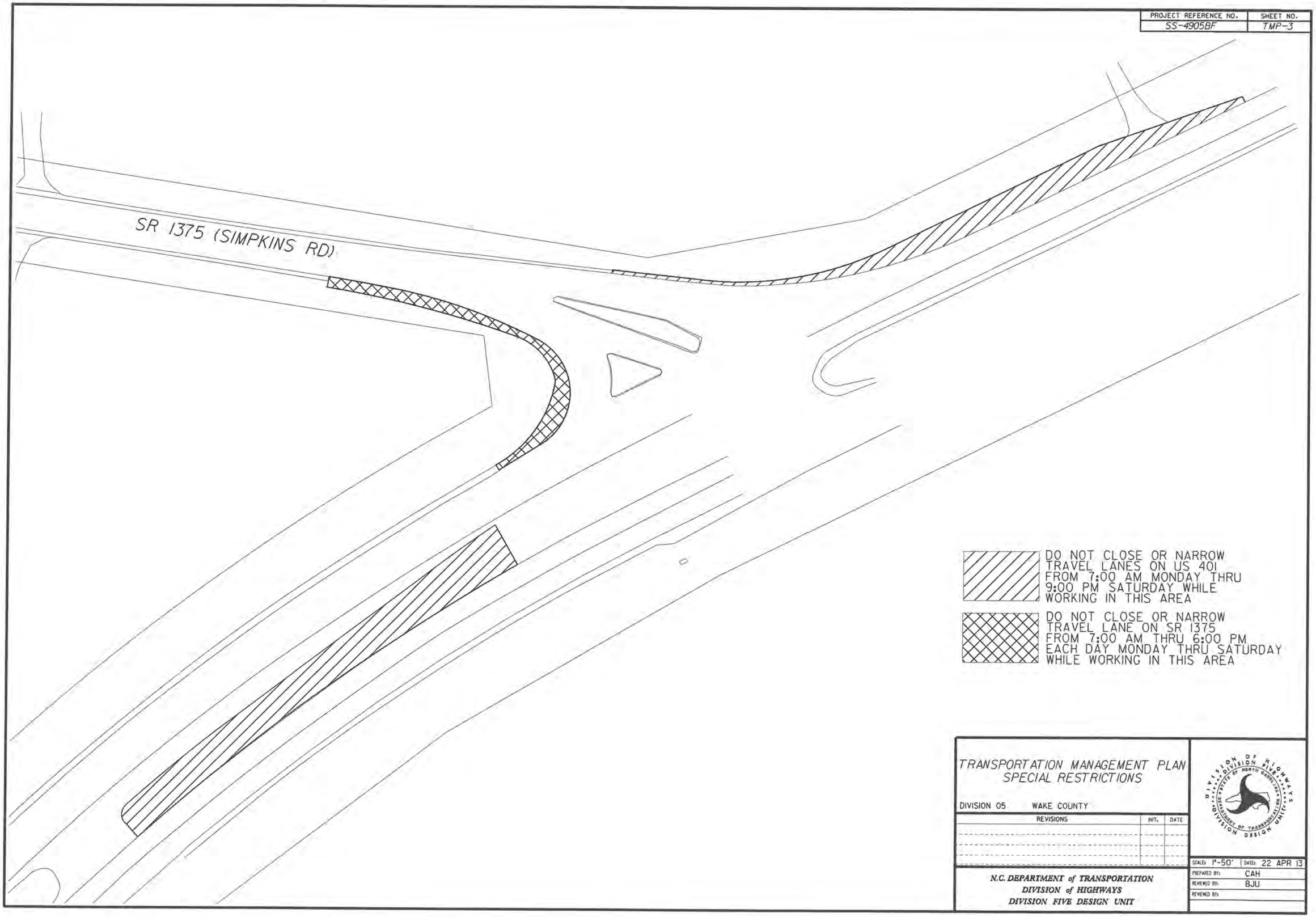
L) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

M) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

N) PERFORM 1.5" LAP JOINT MILLING PRIOR TO RE-OPENING TRAVEL LANE ON L & L2 TO CREATE A SAFE DROP-OFF

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	TMP-3



DO NOT CLOSE OR NARROW TRAVEL LANES ON US 401 FROM 7:00 AM MONDAY THRU 9:00 PM SATURDAY WHILE WORKING IN THIS AREA

DO NOT CLOSE OR NARROW TRAVEL LANE ON SR 1375 FROM 7:00 AM THRU 6:00 PM EACH DAY MONDAY THRU SATURDAY WHILE WORKING IN THIS AREA

TRANSPORTATION MANAGEMENT PLAN
SPECIAL RESTRICTIONS

DIVISION 05 WAKE COUNTY

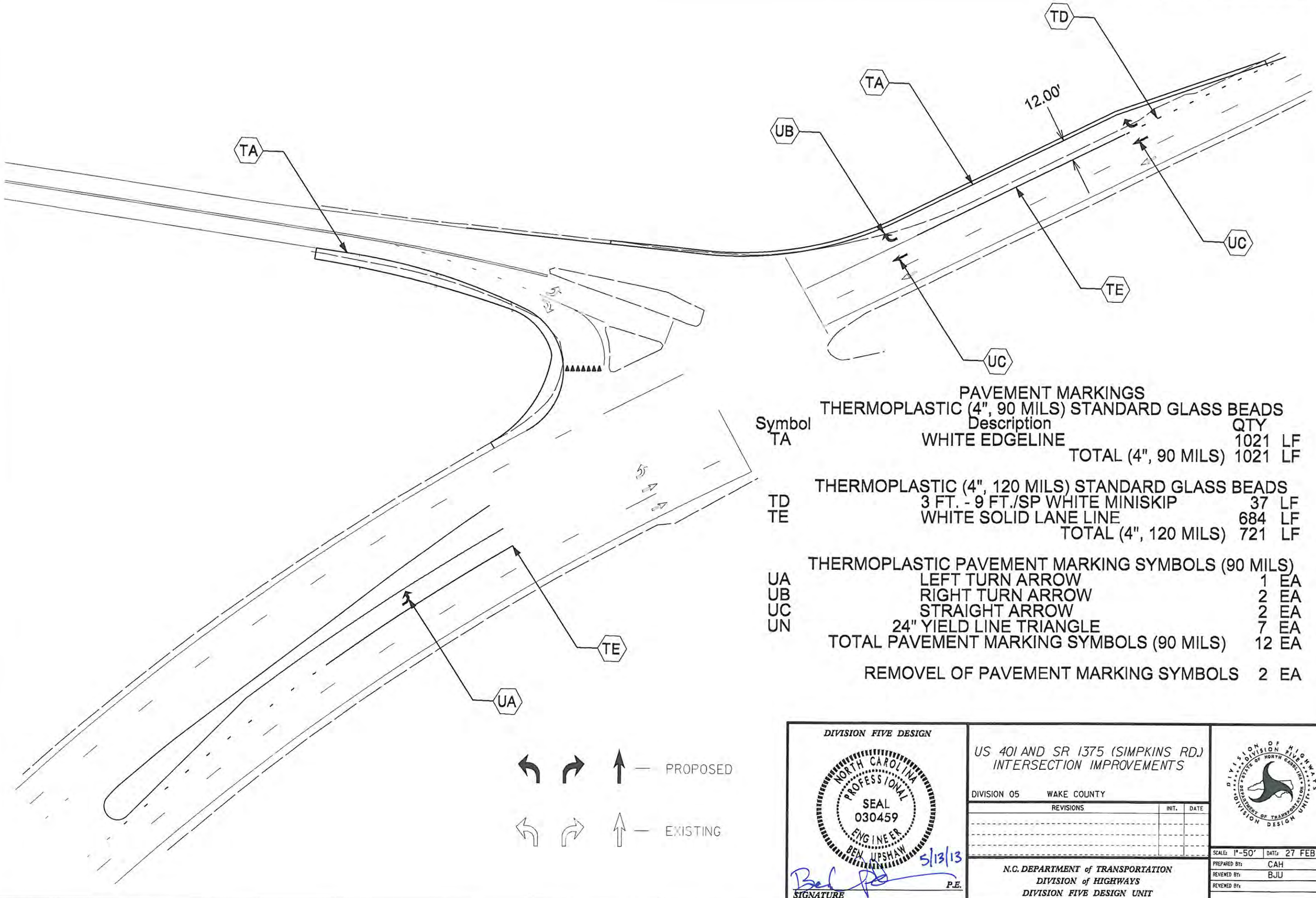
REVISIONS	INIT.	DATE

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE: 1"=50'	DATE: 22 APR 13
PREPARED BY:	CAH
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	PM-1



PAVEMENT MARKINGS
THERMOPLASTIC (4", 90 MILS) STANDARD GLASS BEADS

Symbol	Description	QTY	
TA	WHITE EDGELINE	1021	LF
	TOTAL (4", 90 MILS)	1021	LF

THERMOPLASTIC (4", 120 MILS) STANDARD GLASS BEADS

TD	3 FT. - 9 FT./SP WHITE MINISKIP	37	LF
TE	WHITE SOLID LANE LINE	684	LF
	TOTAL (4", 120 MILS)	721	LF

THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)

UA	LEFT TURN ARROW	1	EA
UB	RIGHT TURN ARROW	2	EA
UC	STRAIGHT ARROW	2	EA
UN	24" YIELD LINE TRIANGLE	7	EA
	TOTAL PAVEMENT MARKING SYMBOLS (90 MILS)	12	EA

REMOVEL OF PAVEMENT MARKING SYMBOLS 2 EA

DIVISION FIVE DESIGN

NORTH CAROLINA PROFESSIONAL SEAL 030459 ENGINEER BEN UPSHAW

5/13/13

SIGNATURE P.E.

US 401 AND SR 1375 (SIMPKINS RD.) INTERSECTION IMPROVEMENTS

DIVISION 05 WAKE COUNTY

REVISIONS	INIT.	DATE

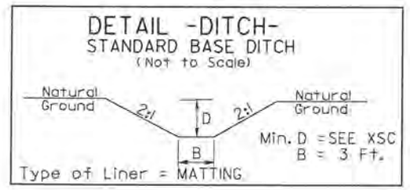
N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

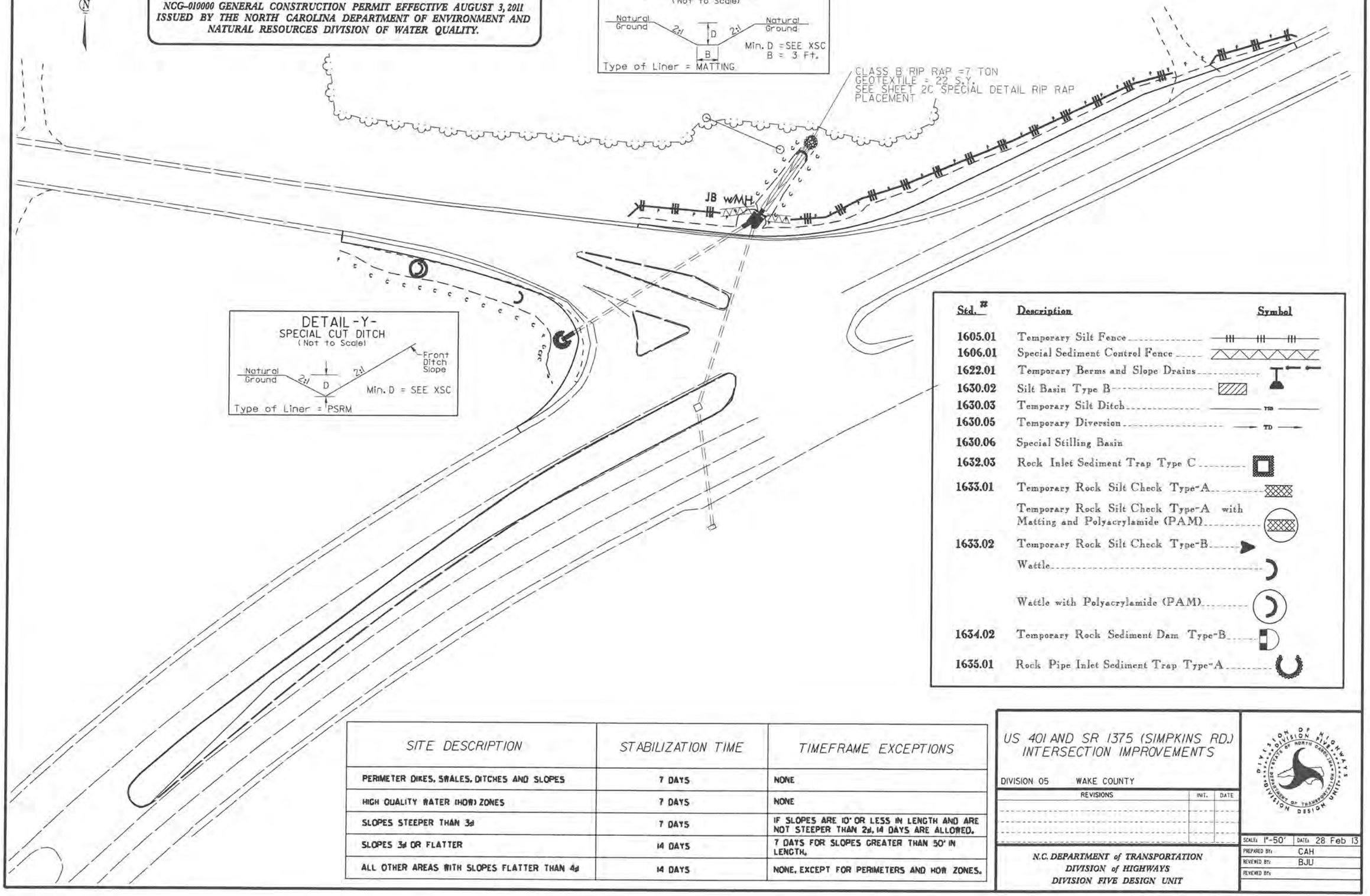
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · DIVISION DESIGN UNIT

SCALE:	1"=50'
DATE:	27 FEB 13
PREPARED BY:	CAH
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	EC-1

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH 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.





Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1632.03	Rock Inlet Sediment Trap Type C	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle	
	Wattle with Polyacrylamide (PAM)	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	

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.

US 401 AND SR 1375 (SIMPKINS RD.) INTERSECTION IMPROVEMENTS

DIVISION 05 WAKE COUNTY

REVISIONS	INT.	DATE

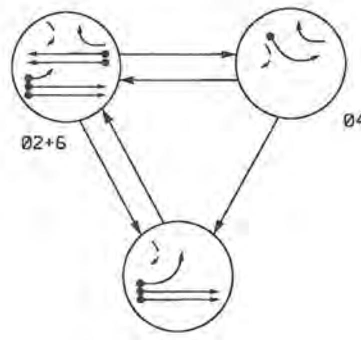
N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
DIVISION FIVE DESIGN UNIT

SCALE: 1"=50'	DATE: 28 Feb 13
PREPARED BY:	CAH
REVIEWED BY:	BJU
REVIEWED BY:	

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	Sig. 1

3 Phase
Fully Actuated
(US 401 CLS #1)

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL HEAD TABLE OF OPERATION				
SIGNAL FACE	PHASE			
	Ø2+5	Ø2+6	Ø4	FLASH
21, 22, 23	G	G	R	Y
41, 42, 43	R	R	G	R
51	←	F ←Y	←R	←Y
61	R	G	R	Y
62	R	G	R/→	Y

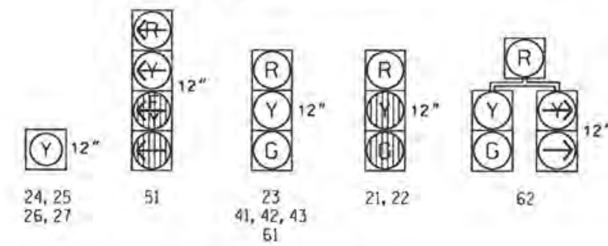
BEACON TABLE OF OPERATION		
SIGNAL FACE	INTERVAL	
	1	2
24	ON	OFF
25	OFF	ON
26	ON	OFF
27	OFF	ON

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A/S5	6X6	420	EXIST	-	2	Y	Y	-	-	-	Y	-
2B/S6	6X6	420	EXIST	-	2	Y	Y	-	-	-	Y	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
6A	6X6	420	5	Y	6	Y	Y	-	-	-	-	-
6B	6X6	420	5	Y	6	Y	Y	-	-	-	-	-

SIGNAL FACE I.D.

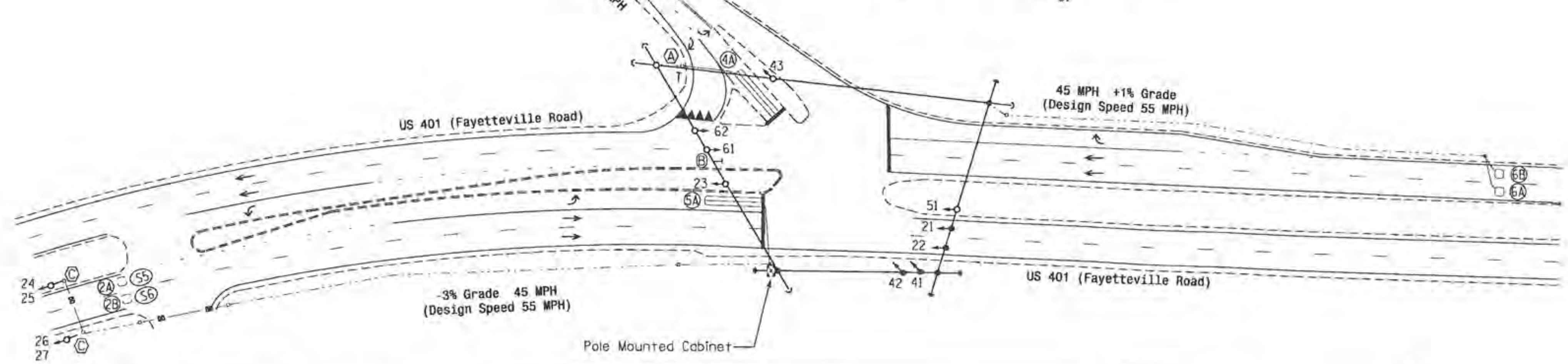
All Heads L.E.D.

Denotes Louvered Section



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Reposition existing signal head numbered 61.
5. Set all detector units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Sign C and beacons 24, 25, 26, and 27 to be field located by the Division Traffic Engineer and be in conformance with Section 2C of the 2009 Manual on Uniform Traffic Control Devices.
8. Flash beacons 24, 25, 26, and 27 at the beginning of phase 2 yellow clearance interval. These beacons shall remain flashing until the beginning of the succeeding phase 2 green.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. Closed loop system data:
    Controller Asset #: 1636.

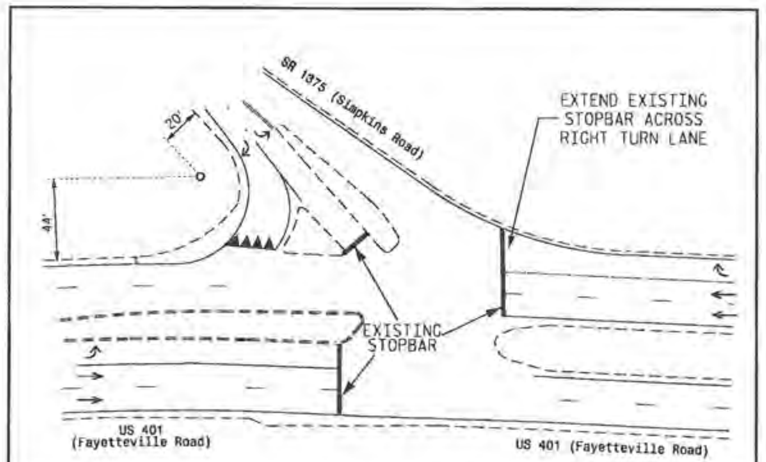


LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ
Ⓑ	No U-Turn Sign (R3-4)	Ⓑ
Ⓒ	"BE PREPARED TO STOP" Sign (W3-4) w/ Warning Beacons and "WHEN FLASHING" Plaque (W16-13p)	Ⓒ

OASIS 2070L TIMING CHART				
FEATURE	PHASE			
	2	4	5	6
Min Green 1 *	14	7	7	14
Extension 1 *	6.0	3.0	2.0	6.0
Max Green 1 *	90	30	20	90
Yellow Clearance	5.5	3.1	3.0	5.5
Red Clearance	1.1	3.3	2.6	1.1
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	-	1.5
Max Variable Initial *	46	-	-	46
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.4	-	-	3.4
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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



PROPOSED STOPBAR & POLE LOCATIONS

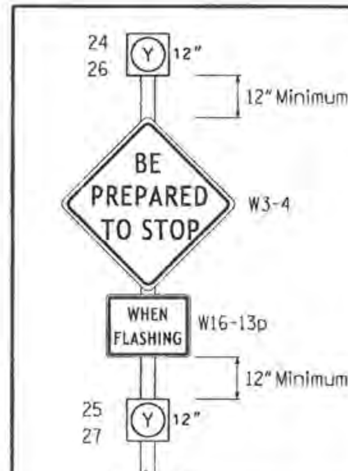


Figure 1: Sign w/ Warning Beacon

This plan supersedes the plan signed and sealed on 2/4/13.

Signal Upgrade

Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 401 (Fayetteville Road) at SR 1375 (Simpkins Road)

Division 5 | Wake County | Garner

PLAN DATE: March 2013 | REVIEWED BY:
PREPARED BY: R. Hough | REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS | INIT. | DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026486 ROBERT J. ZIEMBA

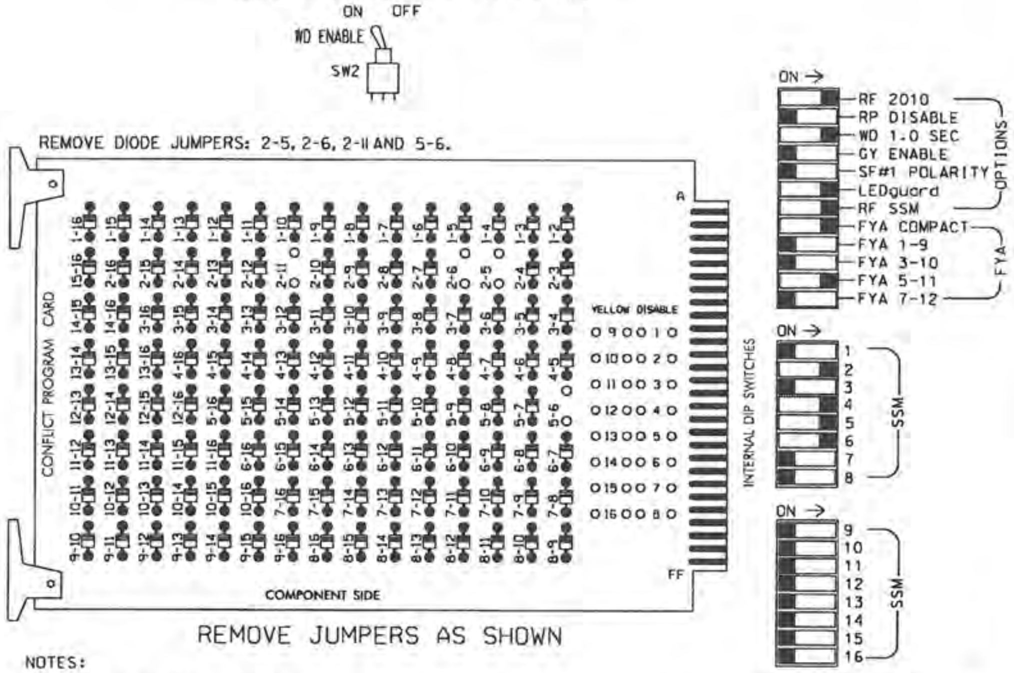
3/7/13
SIGNATURE | DATE

SIG. INVENTORY NO. 05-1636

07-MAR-2013 15:29
S:\ITS&SU\ITS Signals\Signal Design Section\Central Region\Div 5\05-1636\05163... .dgn

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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.
3. Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on this sheet. !

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,7, 8,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash.
7. The cabinet and controller are part of the US 401 Closed Loop System #1.

EQUIPMENT INFORMATION

CONTROLLER..............2070L
CABINET.................CONTRACTOR SUPPLIED 336
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S2,S2P,S4,S4P,S5,S6,S6P
PHASES USED.............2,4,5,6
OVERLAP "A".............NOT USED
OVERLAP "B".............NOT USED
OVERLAP "C".............5+6
OVERLAP "D".............NOT USED

PROJECT REFERENCE NO.	SHEET NO.
SS-4905BF	Sig. 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4	S4P	S5	S6	S6P	S6P	S7	S8	S8P
CMU CHANNEL NO.	1	2	13	3	4		14	5	6	11	15	7	8	16
PHASE	1	2	2 PED	3	4		4 PED	OLC	6	5 GRN	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22 23	**	NU	41,42 43	62	**	51★	61,62	51★	NU	NU	NU	NU
RED		128			101				134					
YELLOW		129			102				135					
GREEN		130			103				136					
RED ARROW								131						
YELLOW ARROW						102		132						
FLASHING YELLOW ARROW								133						
(Don't Walk)														
GREEN ARROW						103				120				
(Walk)											*			

NU = Not Used

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

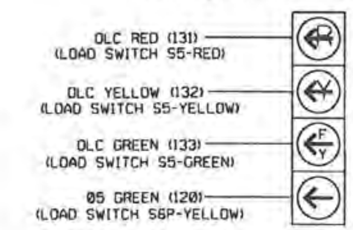
★See pictorial of head wiring in detail below.

** Advance beacon will be wired to S2P-Y and S4P-Y. See wiring and programming detail on sheet 4.

NOTE: Load Switches S5, S6P require output remapping. See sheet 3 of this electrical detail for instructions.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for this signal requires special logic and output remapping. See sheet 2 of 4 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT EMPTY	ø2/SYS 2A/S5	SLOT EMPTY	ø4 4A	ø5 5A	ø6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
L		ø2/SYS 2B/S6		NOT USED	⊗ WIRED INPUT	ø6 6B								ST DC ISOLATOR

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

⊗ Wired Input - turn off Channel 2.

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A/S5	TB21-3,4	I2U	39	1	2	2	Y	Y			
2B/S6	TB23-3,4	I2L	43	5	12	2	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			
5A[1]	TB21-9,10	I5U	55	17	5	5	Y	Y			15
	-	I5L	48	10	26	2	Y	Y	Y		3
6A	TB21-11,12	I6U	40	2	6	6	Y	Y			
6B	TB23-11,12	I6L	44	6	16	6	Y	Y			

[1] Add jumper from I5-F to I5-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

PED YELLOW CONFLICT MONITOR WIRING DETAIL

(make cabinet wiring changes as shown below)

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired to the conflict monitor as follows: From 6 PY (field term. 120) to chan. 10 green (monitor pin R).

Follow the instructions below to make the appropriate connections:

STEP 1: Fold down rear panel of output file.

STEP 2: Find unused wiring harness from conflict monitor card edge connector (which should be tied and bundled together).

STEP 3: Find the conductors that correspond to the following conflict monitor card edge pins and solder wire to the appropriate terminal on the rear of the output file as shown below:

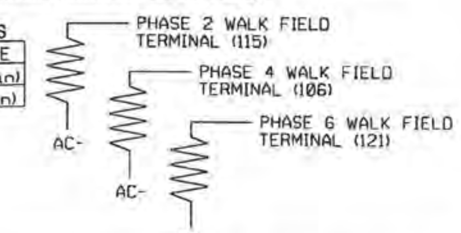
CMU-R ———————————— 6PY (term. 120)

NOTE: Some cabinet manufacturers use a molex plug to accomplish this wiring configuration. If connectors are used, simply plug the two connectors together that are labeled with the pin-out as shown above.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



This Electrical Detail supersedes the detail sealed on 2-11-13.

ELECTRICAL DETAIL SHEET 1 OF 4

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1636
DESIGNED: March 2013
SEALED: 3-07-13
REVISED: N/A

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of: Transportation Mobility and Safety Division, Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 401 (Fayetteville Road)
at
SR 1375 (Simpkins Road)

Division 5 | Wake County | Garner
PLAN DATE: March 2013 | REVIEWED BY: JTR
PREPARED BY: James Peterson | REVIEWED BY:
REVISIONS | INIT. | DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR.

John T. Rowe Jr 3-8-13
SIGNATURE DATE

SIG. INVENTORY NO. 05-1636

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

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2 AND 3.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
  LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
AND RED CLEAR ON PHASE #5  IS ON

              SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #30 ON
SET OUTPUT  ASSIGNMENT #31 OFF
```

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

PRESS '+'

```
  LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON

              SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #32 OFF
```

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

PRESS '+'

```
  LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #5  IS ON

              SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #31 ON
```

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

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green
OUTPUT 34 = Phase 5 Green
OUTPUT 33 = Advance Beacon
OUTPUT 35 = Out of Phase Flasher

Note: All outputs shown above have been remapped. See sheets 3 and 4 of this electrical detail.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+' TWICE

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

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1636
DESIGNED: March 2013
SEALED: 3-07-13
REVISED: N/A

This Electrical Detail supersedes the detail sealed on 2-11-13.

ELECTRICAL DETAIL SHEET 2 OF 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Transportation Mobility and Safety Division
State of North Carolina
Department of Transportation
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 401 (Fayettevile Road)
at
SR 1375 (Simpkins Road)

Division 5	Wake County	Garner
PLAN DATE: March 2013	REVIEWED BY: JTR	
PREPARED BY: James Peterson	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR

SIGNATURE 3-8-13 DATE

SIG. INVENTORY NO. 05-1636

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
FOR SIGNAL HEAD 51

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" TWICE TO REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #..................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................._
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

This Electrical Detail supersedes the detail sealed on 2-11-13.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-1636
DESIGNED: March 2013
SEALED: 3-07-13
REVISED: N/A

ELECTRICAL DETAIL SHEET 3 OF 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 401 (Fayetteville Road) at SR 1375 (Simpkins Road)		SEAL
Prepared in the Offices of: Transportation Mobility and Safety Division, Signals Management Section, State of North Carolina Department of Transportation	Division 5	Wake County — Garner	NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR
750 N.Greenfield Pkwy,Garner,NC 27529	PLAN DATE: March 2013	REVIEWED BY: JTR	SIGNATURE John T Rowe Jr — DATE 3-8-13
	PREPARED BY: James Peterson	REVIEWED BY:	SIG. INVENTORY NO. 05-1636
	REVISIONS	INIT. / DATE	

OUTPUT ASSIGNMENT PROGRAMMING DETAIL FOR PHASE 2 ADVANCE BEACON APPROACH

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS). THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE IN WHICH IT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTOUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT BEACON INDEX (1-4)...........1
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' AFTER AFTER INPUTTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  ADVANCE BEACON
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH)..............1
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................Y
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

FROM MAIN MENU PRESS '6' (OUTPUTS). THEN '1' (OUTPUT ASSIGNMENTS). PRESS '+' UNTIL OUTPUT #35 (PIN 37) IS REACHED.

```
PAGE:1  C1 PIN:37  NOT ENABLED
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTOUT IS CHANGED. DO NOT ENTER AN 'N'.

```
PAGE:1  C1 PIN:37  NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).......33
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

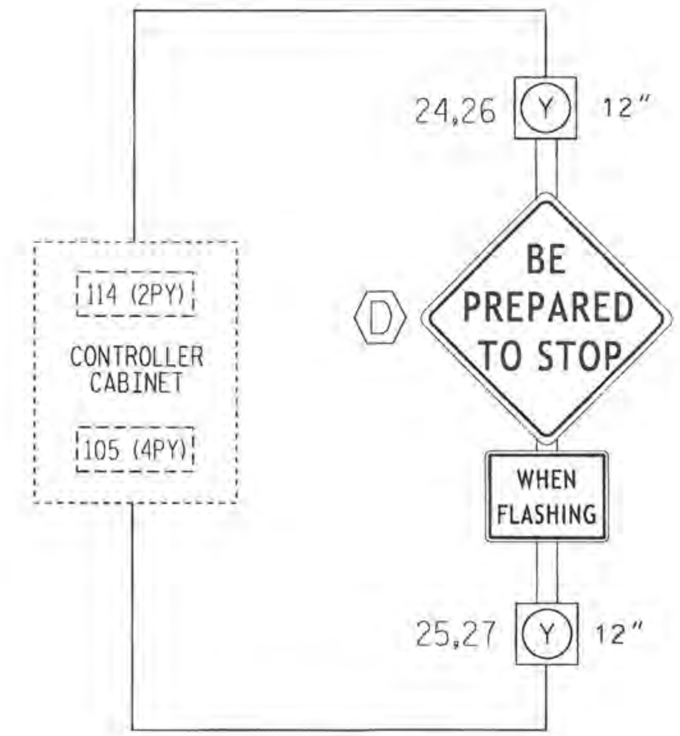
PRESS THE 'ENT' AFTER AFTER INPUTTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:37  OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.................35
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................-
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................Y
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

ADVANCE BEACON WIRING DETAIL

(wire flashers as shown below)



IMPORTANT

1. REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRE ATTACHED TO THE REAR OF TERMINAL 114 (2PY) AND TERMINAL 105 (4PY).
2. INSTALL LOADSWITCHES IN OUTPUT FILE SLOTS S2P AND S4P.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 1.
4. TO ACTIVATE ADVANCE BEACON OPERATION AS INDICATED ON THE SIGNAL PLAN, RE-ASSIGN OUTPUT 33 AND 35 AS SHOWN ON THIS SHEET.

ADVANCE BEACON PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS). THEN '2' (OUTPUT BEACON SETTINGS).

```
           OUTPUT BEACON SETTINGS
TRIGGER PHASES:  |12345678910111213141516
BEACON #1 OFF    | X
BEACON #2 OFF    |
BEACON #3 OFF    |
BEACON #4 OFF    |
              BEACON  |  1   2   3   4
OFF DELAY TIME (0-255)|  0   0   0   0
ON DELAY TIME  (0-255)|  0   0   0   0
STOP-TIME HOLD (0-255)|  0   0   0   0
```

SCROLL DOWN TO VIEW ALL DATA

ADVANCE BEACON PROGRAMMING COMPLETE

NOTE: AN OUTPUT HAS TO BE ASSIGNED AS AN ADVANCE BEACON IN ORDER FOR PROPER OPERATION TO OCCUR. SEE OUTPUT ASSIGNMENT DETAIL ON THIS SHEET.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-1636
DESIGNED: March 2013
SEALED: 3-07-13
REVISED: N/A

This Electrical Detail supersedes the detail sealed on 2-11-13.

ELECTRICAL DETAIL SHEET 4 OF 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Management Section, 750 N.Greenfield Pkwy,Garner,NC 27529

US 401 (Fayetteville Road) at SR 1375 (Simpkins Road)

Division 5 | Wake County | Garner

PLAN DATE: March 2013	REVIEWED BY: JTR
PREPARED BY: James Peterson	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE, JR

SIGNATURE: John T. Rowe Jr — DATE: 3-8-13

SIG. INVENTORY NO. 05-1636

R:\Roadway\CorridorModeling\CMT_XSQuan_Eawk_L_New.Log

PROJ. REFERENCE NO.	SHEET NO.

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.)
10+24.75	0	0
10+30.00	1	0
10+40.00	2	0
10+50.00	2	0
10+60.00	2	0
10+70.00	2	0
10+80.00	2	0
10+90.00	2	0
11+00.00	2	1
11+10.00	2	1
11+20.00	2	1
11+30.00	2	1
11+40.00	2	1
11+50.00	2	1
11+60.00	1	1
11+70.00	1	1
11+80.00	1	1
11+90.00	1	1
12+00.00	2	1
12+10.00	2	1
12+20.00	2	1
12+30.00	2	1
12+40.00	2	0
12+50.00	1	0
12+60.00	1	0
12+70.00	1	0
12+80.00	2	0
12+90.00	2	0
13+00.00	3	0
	49	14

Station L_2	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+10.00	0	0
10+20.00	1	3
10+30.00	1	3
10+40.00	0	3
10+50.00	1	3
10+60.00	1	4
10+70.00	1	5
10+80.00	1	4
10+90.00	0	3
11+00.00	0	3
11+10.00	0	3
11+20.00	0	4
11+30.00	0	4
11+40.00	0	4
11+50.00	0	4
11+60.00	0	5
11+70.00	1	4
11+80.00	1	2
11+90.00	1	3
12+00.00	2	3

Station L_2	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+10.00	2	2
12+20.00	2	2
12+30.00	2	1
12+40.00	2	1
12+50.00	2	0
12+60.00	2	0
12+70.00	2	0
12+80.00	2	0
12+90.00	2	0
13+00.00	2	0
13+10.00	2	0
13+20.00	2	0
13+30.00	2	0
13+40.00	1	0
13+50.00	1	0
13+60.00	1	0
13+70.00	1	0
13+80.00	1	0
13+90.00	1	0
14+00.00	1	0
	44	73

Station Y	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+00.00	0	0
10+10.00	2	0
10+20.00	2	0
10+30.00	3	0
10+40.00	4	1
10+50.00	3	1
10+60.00	3	1
10+70.00	3	1
10+80.00	3	1
10+90.00	3	2
11+00.00	3	1
11+10.00	3	1
11+20.00	3	1
11+30.00	4	1
11+40.00	4	1
11+50.00	4	1
11+60.00	5	2
11+70.00	5	1
11+80.00	5	0
11+90.00	5	0
12+00.00	5	0
12+10.00	3	1
12+20.00	2	1
	77	18

Station Ditch	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
1+02.00	0	0
1+04.00	0	0
1+06.00	0	2
1+08.00	0	2
1+10.00	0	2
1+12.00	0	1
1+14.00	0	1
1+16.00	0	1
1+18.00	0	0
1+20.00	1	0
1+22.00	1	0
1+24.00	1	0
1+26.00	1	0
1+28.00	1	0
1+30.00	1	0
1+32.00	0	0
1+34.00	0	0
1+36.00	0	0
1+38.00	0	0
1+40.00	0	0
1+42.00	0	0
1+44.00	0	0
1+46.00	0	0
1+48.00	0	0
1+50.00	0	0
1+52.00	0	0
1+54.00	0	0
1+56.00	0	0
1+58.00	0	0
1+60.00	0	0
1+62.00	0	0
	6	9

Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavemen t and removal of existing pavement will be paid for at the lump sum price for "Grading".

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	SS4905BF	X-1

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

340
335
330

333.76
0.07
0.104
10+70.00

340
335
330

333.94
0.05
0.109
10+60.00

340
335
330

334.12
0.03
0.112
10+50.00

340
335
330

334.30
0.02
0.116
10+40.00

340
335
330

334.49
0.01
0.100
10+30.00

340
335
330

334.59
0.02
0.028
10+24.75

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

04-APR-2013 10:39
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$$$$USERNAME$$$$

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
SS4905BF	X-2

11+30.00

0.34 332.56 0.090

11+20.00

0.27 332.80 0.092

11+10.00

0.20 333.02 0.095

11+00.00

0.16 333.21 0.098

10+90.00

0.12 333.40 0.099

10+80.00

0.09 333.58 0.101

04-APR-2013 10:39
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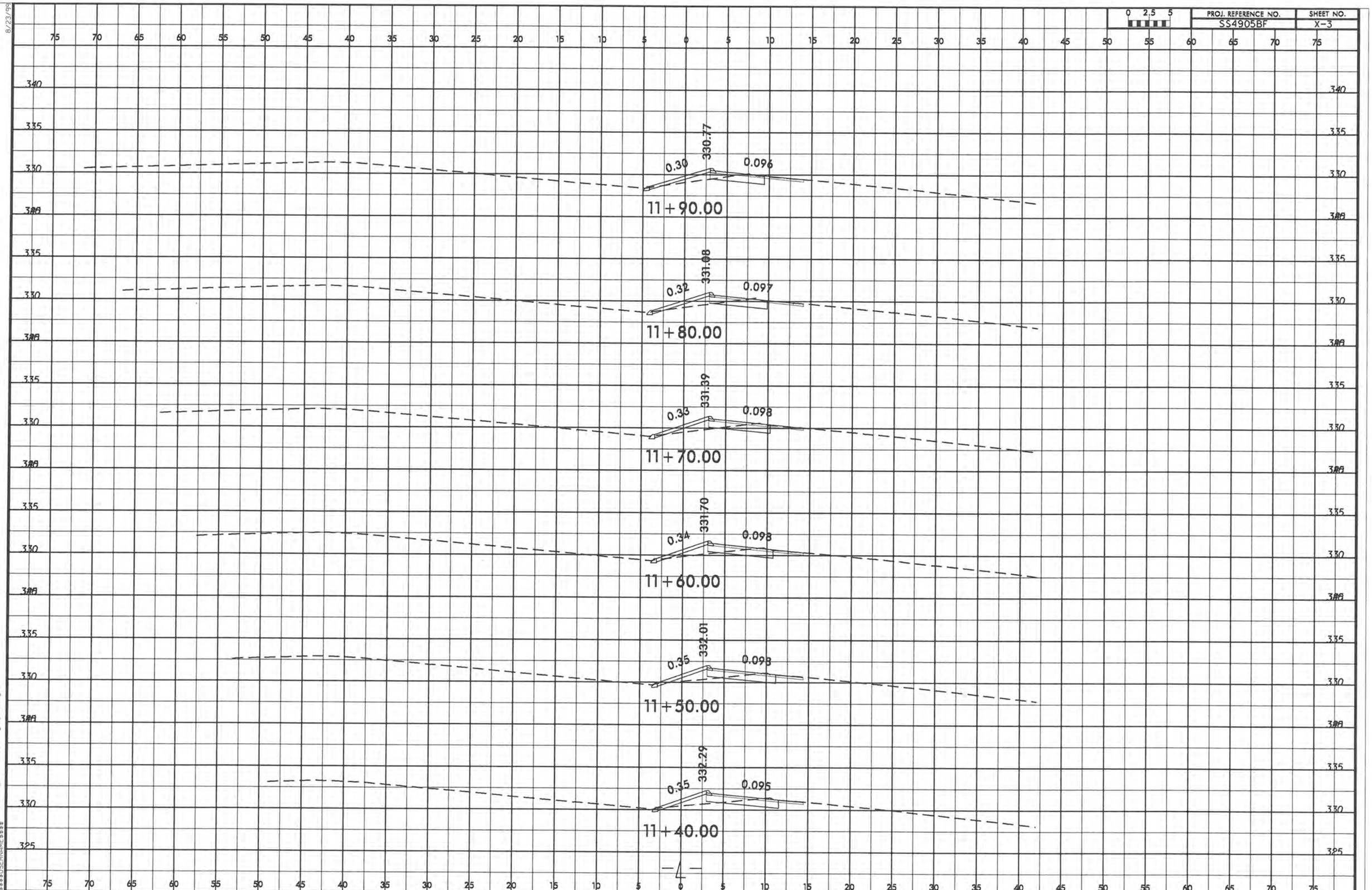
8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
SS4905BF	X-3



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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	SS4905BF	X-4

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

335
330
325

328.96
0.20
0.099
12+50.00

329.25
0.21
0.098
12+40.00

329.54
0.23
0.097
12+30.00

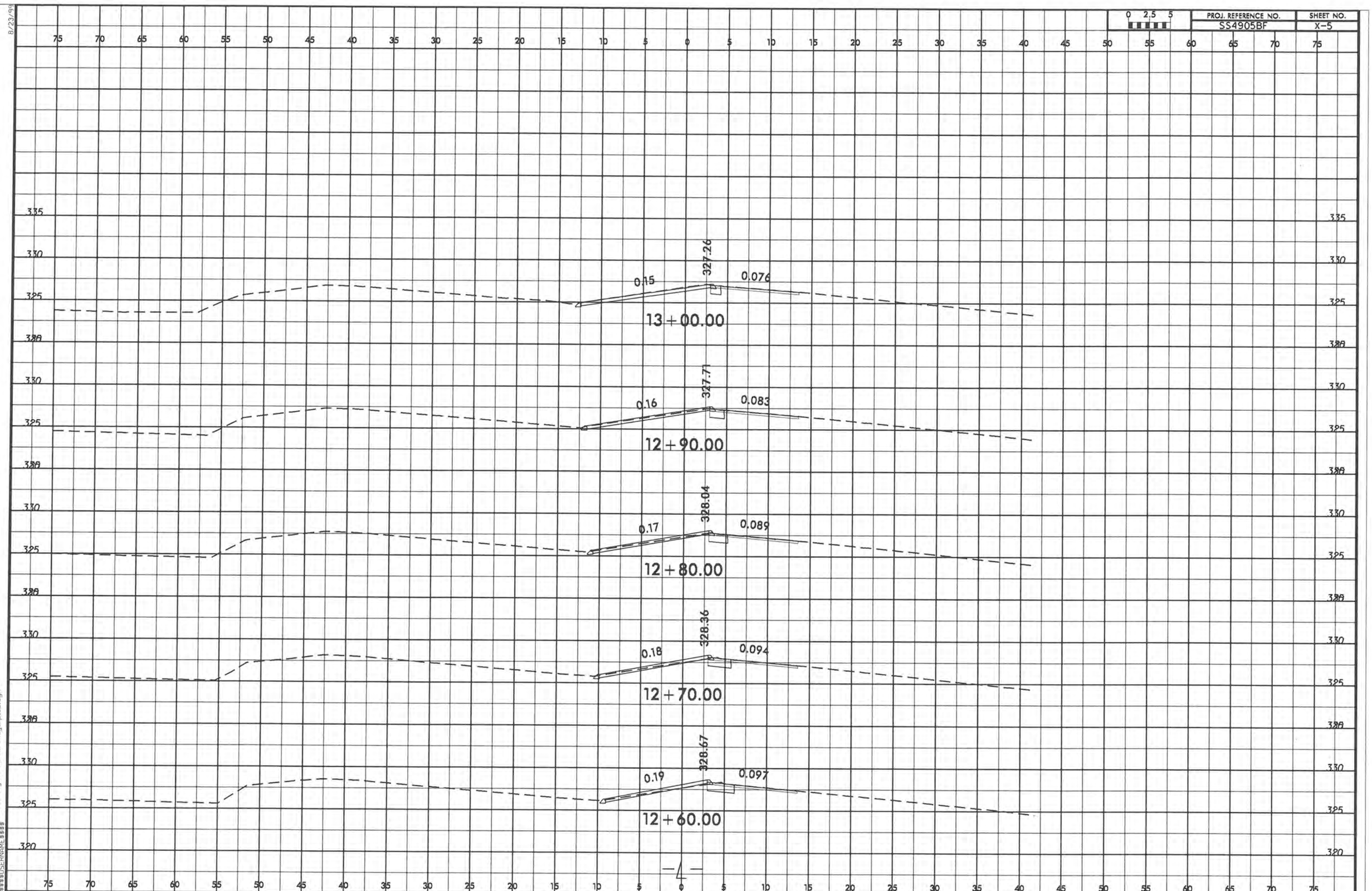
329.84
0.24
0.096
12+20.00

330.14
0.26
0.096
12+10.00

330.45
0.28
0.096
12+00.00

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	SS4905BF	X-5



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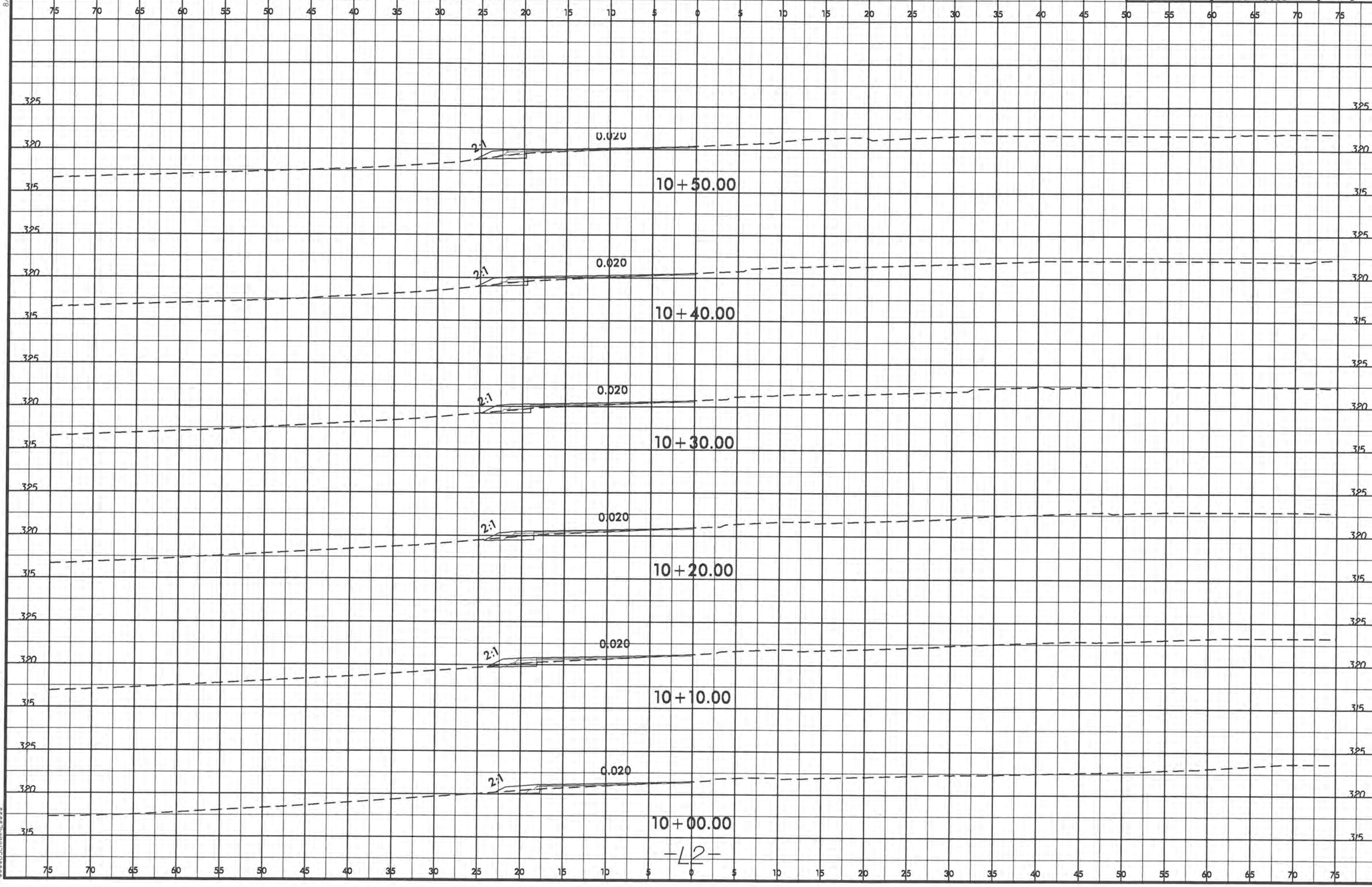
PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-5



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8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-6

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

325
320
315

2:1

11+10.00

0.020

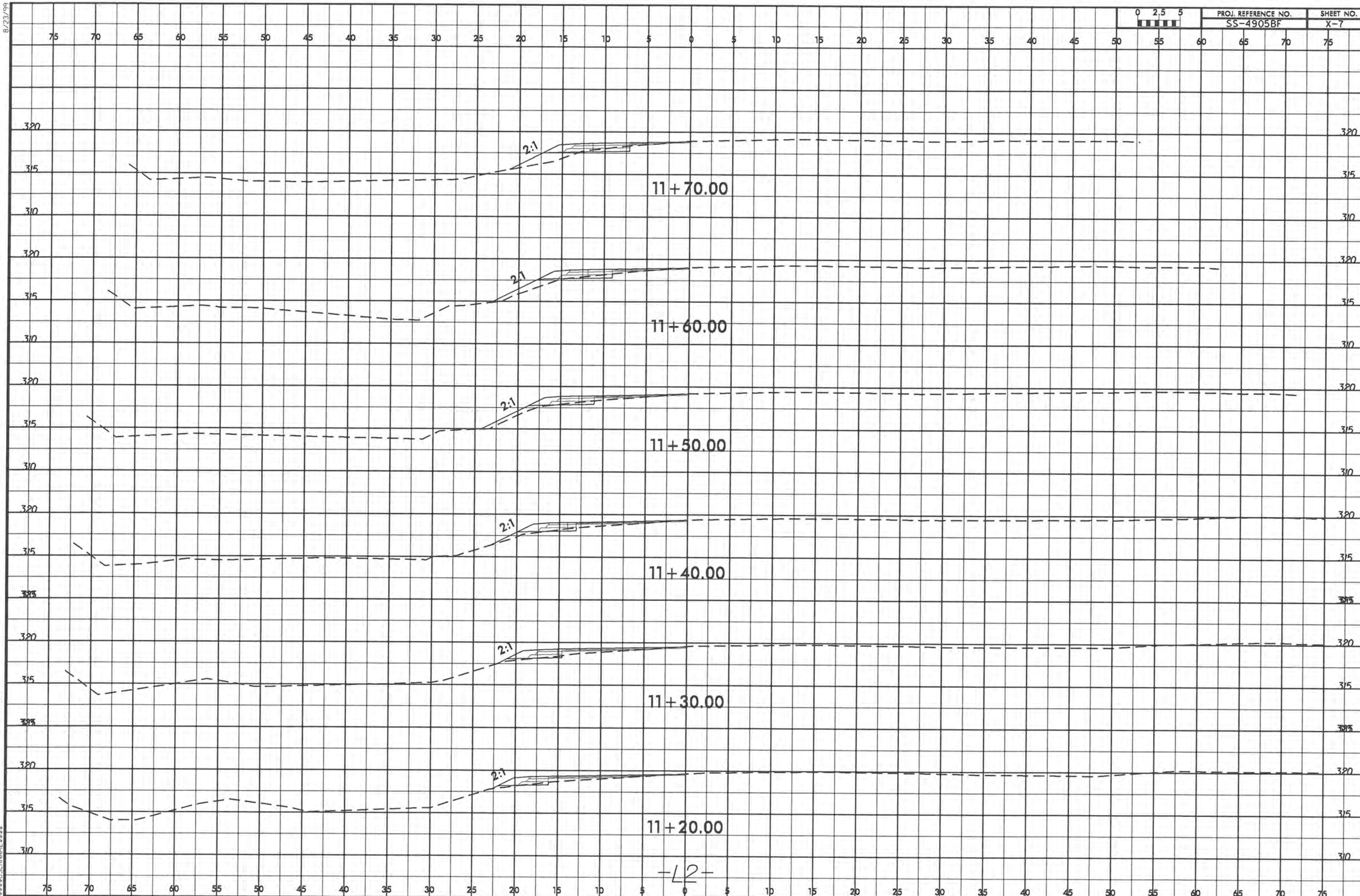
11+00.00

10+90.00

10+80.00

10+70.00

10+60.00



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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	SS-4905BF	X-8

12+50.00

12+40.00

12+30.00

12+20.00

12+10.00

12+00.00

11+90.00

11+80.00

2:1

18-SEP-2012 07:33
R:\Roads\Corridor Modeling\SS4905BF_Rdy_xpLL2.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	SS-4905BF	X-9

13+40.00

13+30.00

13+20.00

13+10.00

13+00.00

12+90.00

12+80.00

12+70.00

12+60.00

8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-10

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

320
315
310

14+00.00

13+90.00

13+80.00

13+70.00

13+60.00

13+50.00

-L2-

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

18-SEP-2012 07:34
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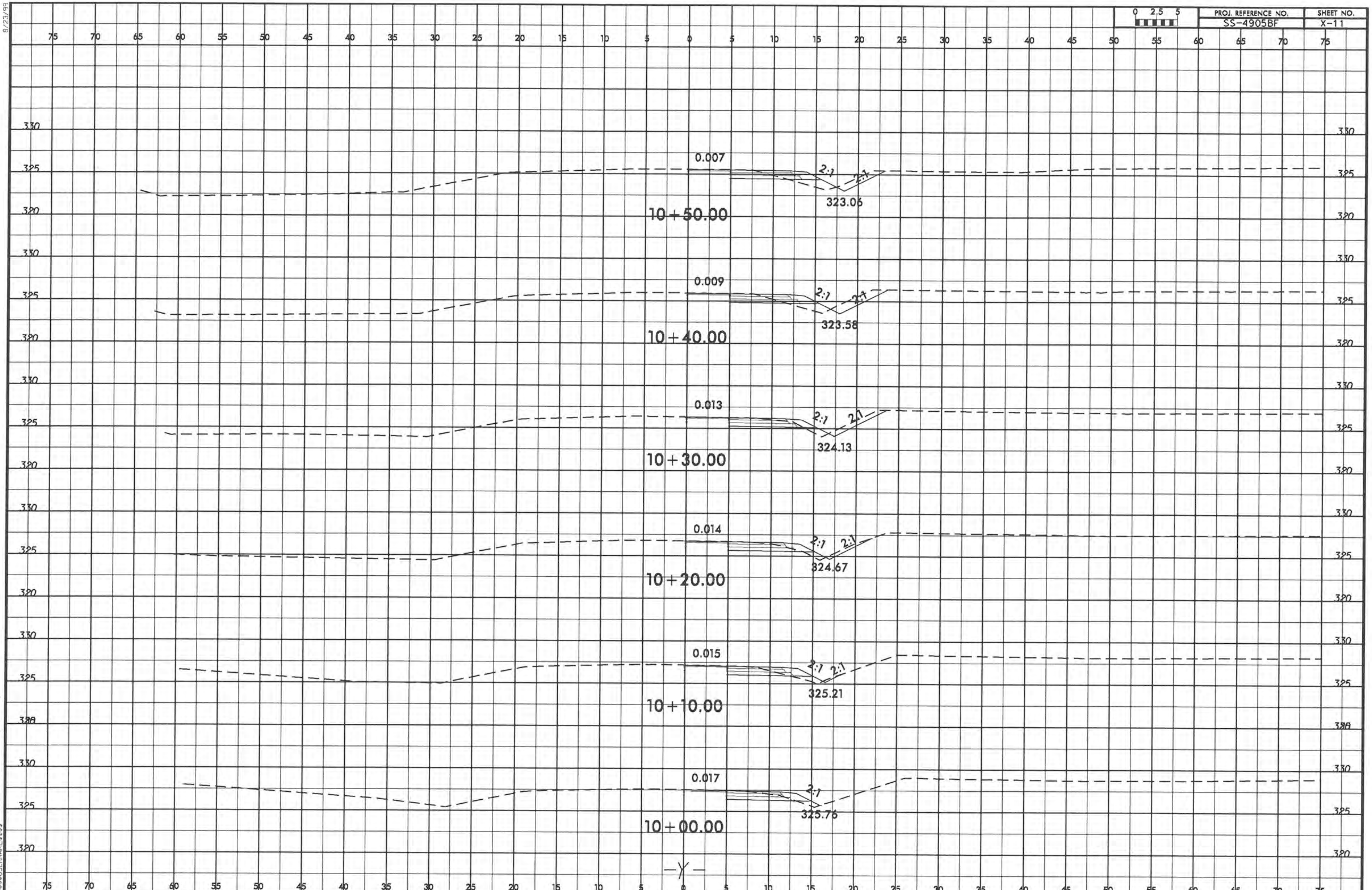

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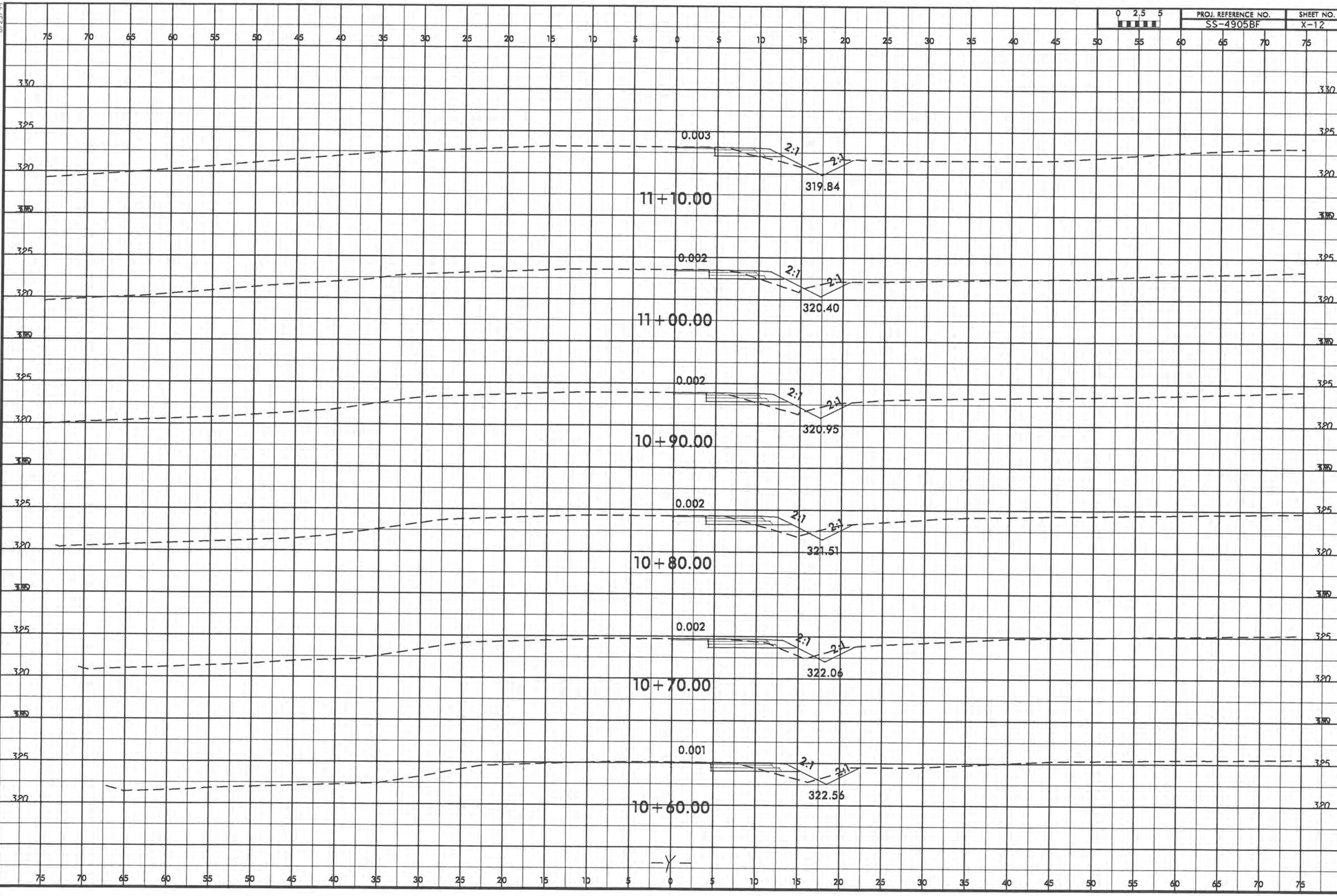
PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-12



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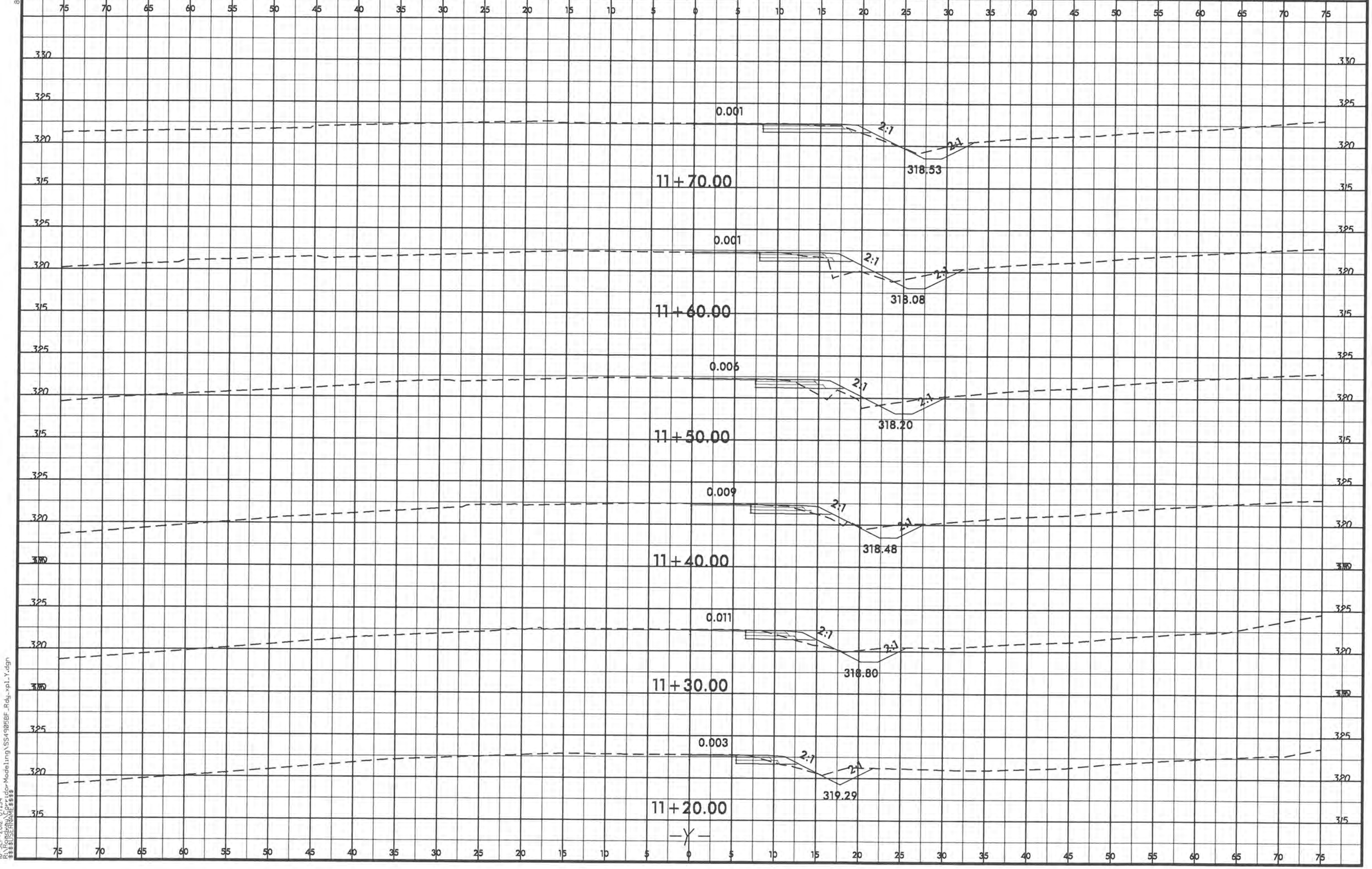
PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-13



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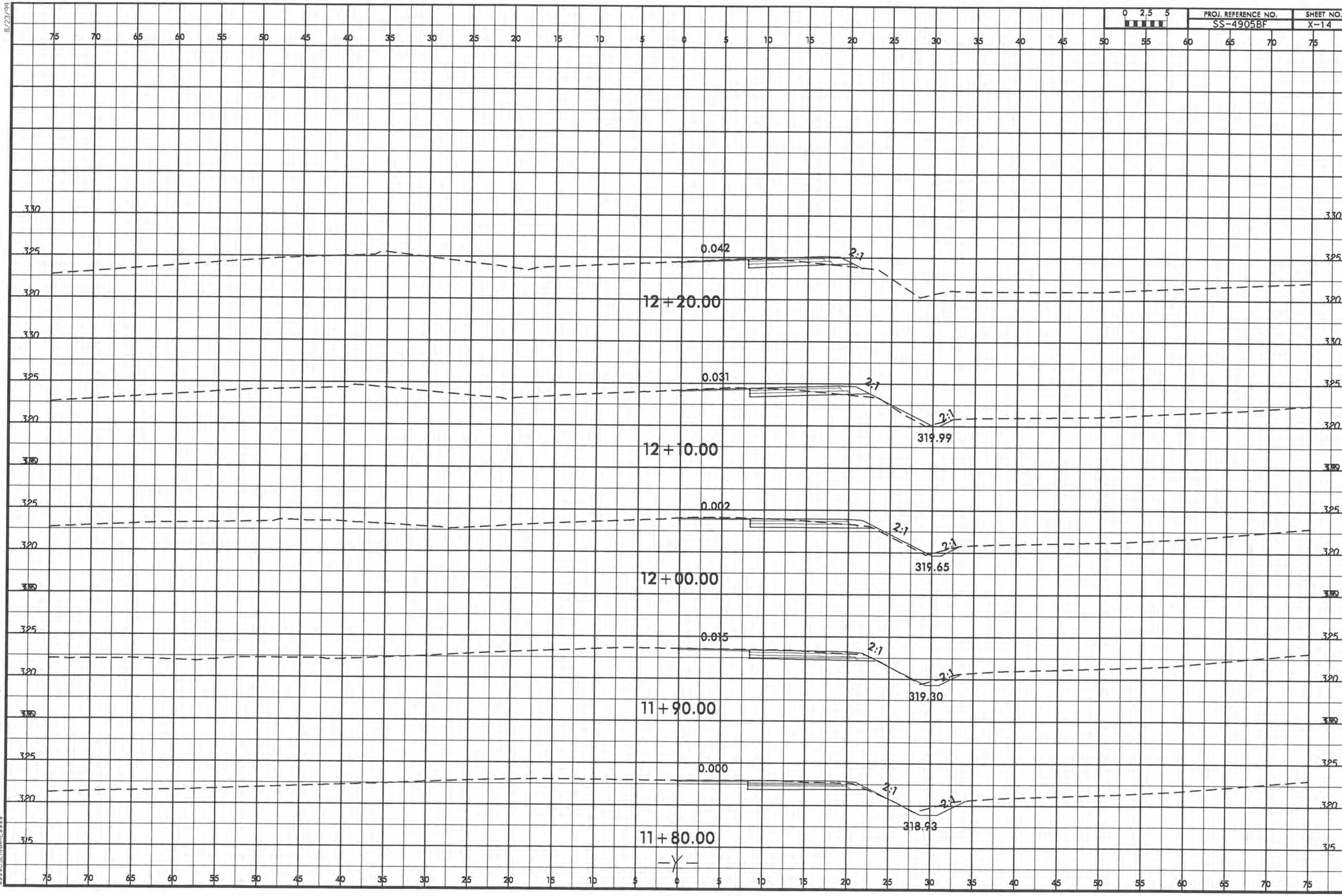
PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-14



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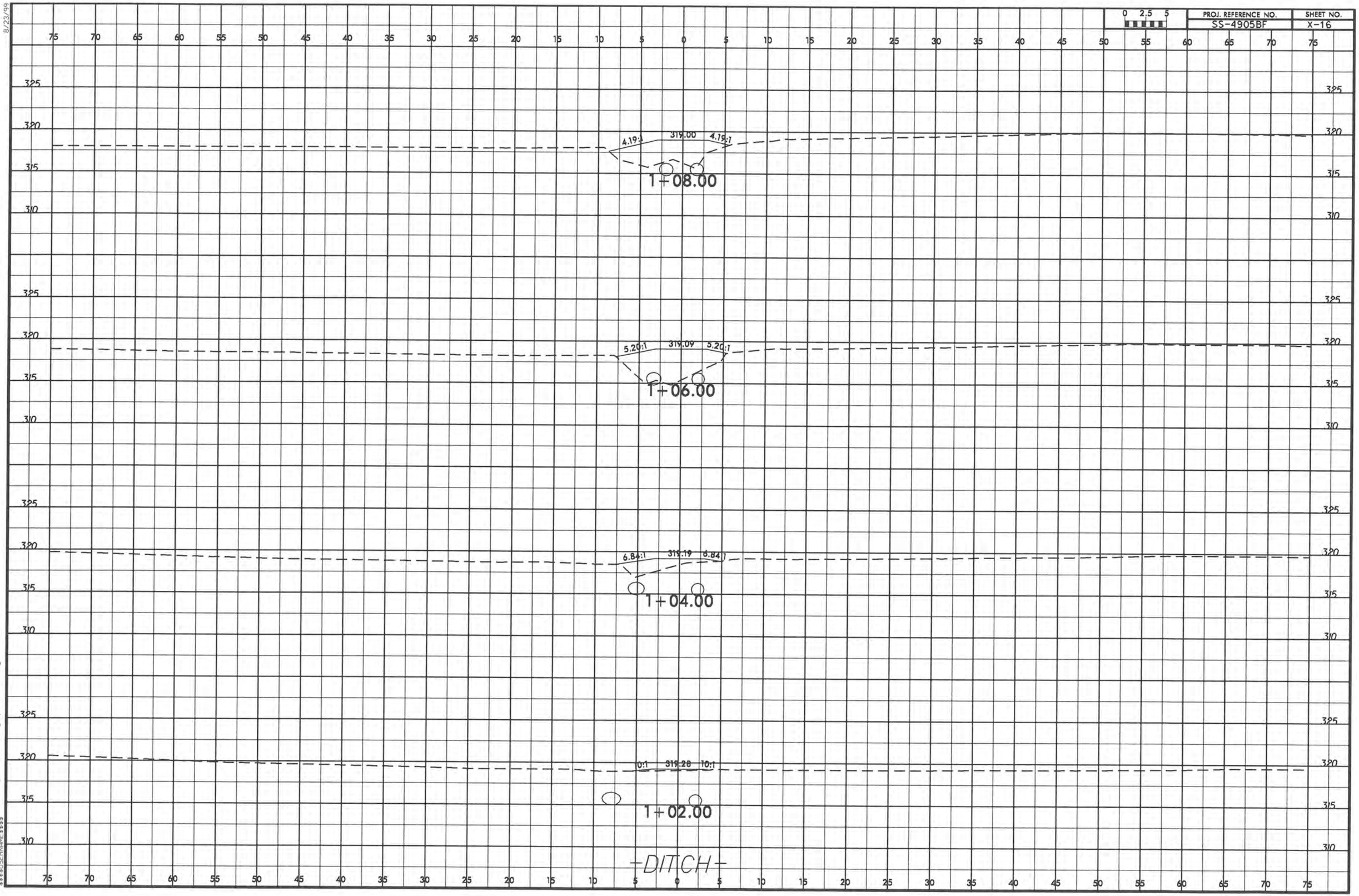
R:\Roadway\CorridorModeling\SS4905BF_Rdy_xpl_Y.dgn
$$$$USERNAME$$$$

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	SS-4905BF	X-16



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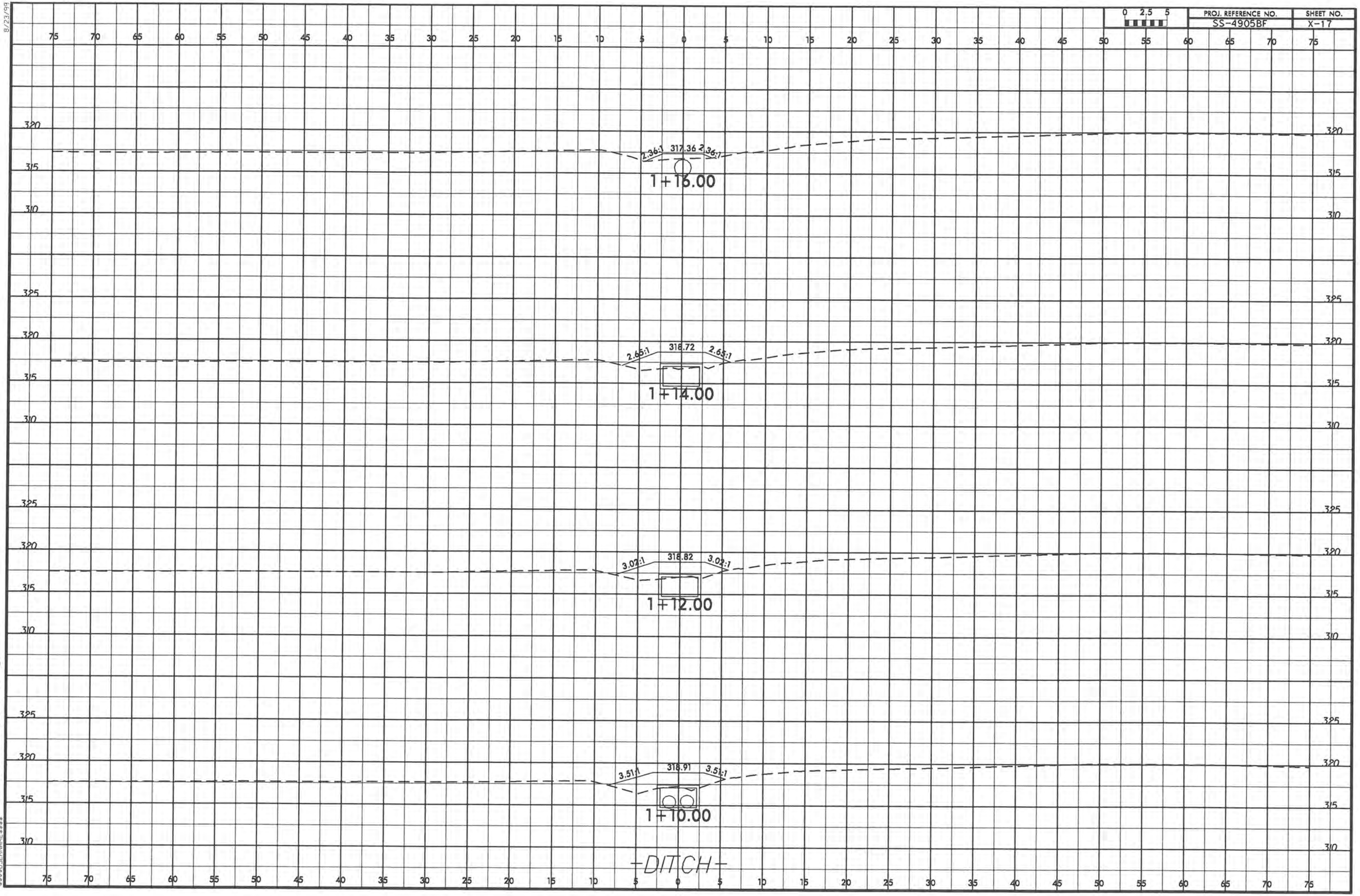
PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-17



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25-SEP-2012 07:39
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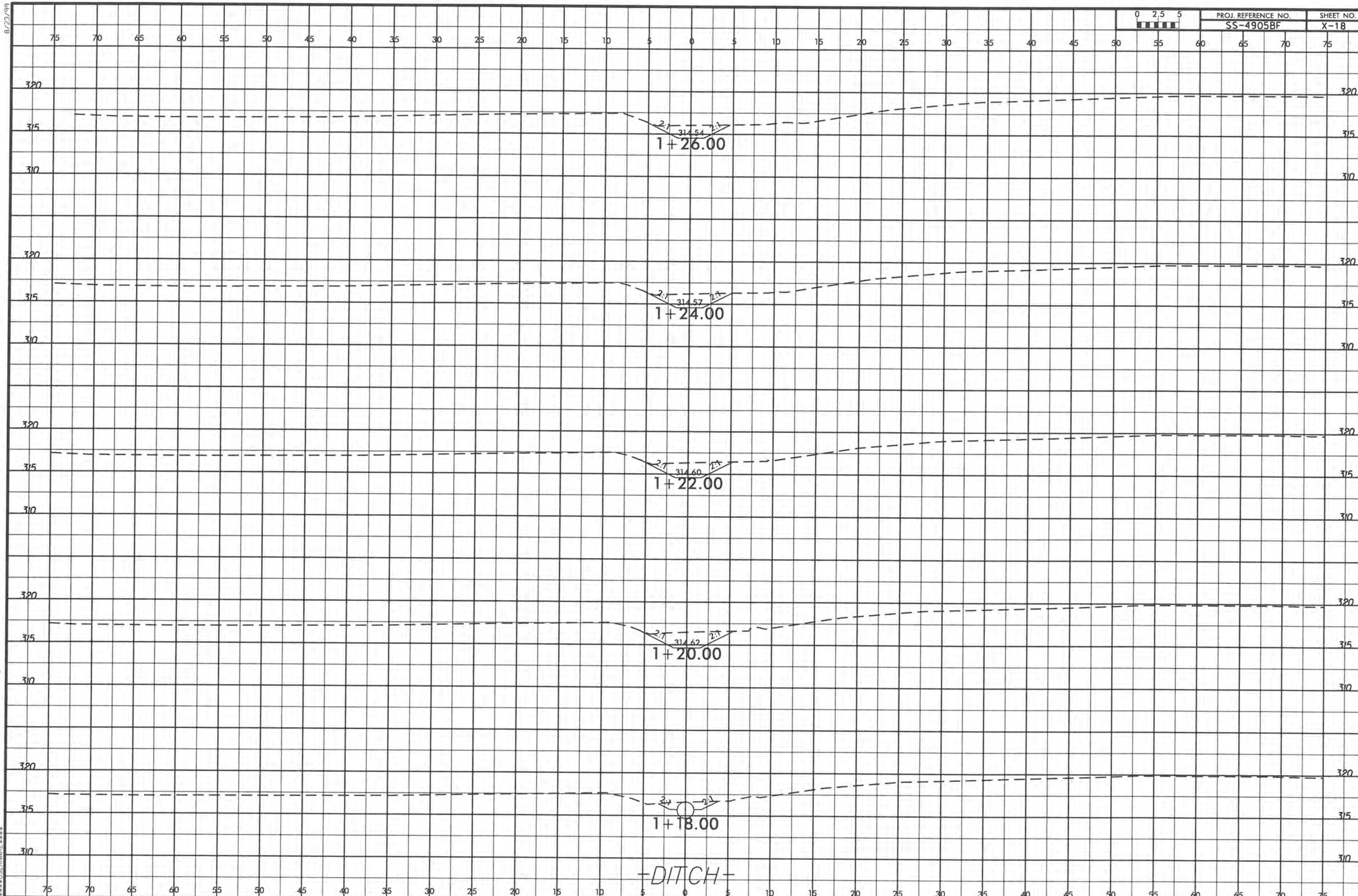
PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-18



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8/23/99

0 2.5 5

PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-19

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

320
315
310

2:1 314.39 2:1
1+36.00

2:1 314.42 2:1
1+34.00

2:1 314.48 2:1
1+32.00

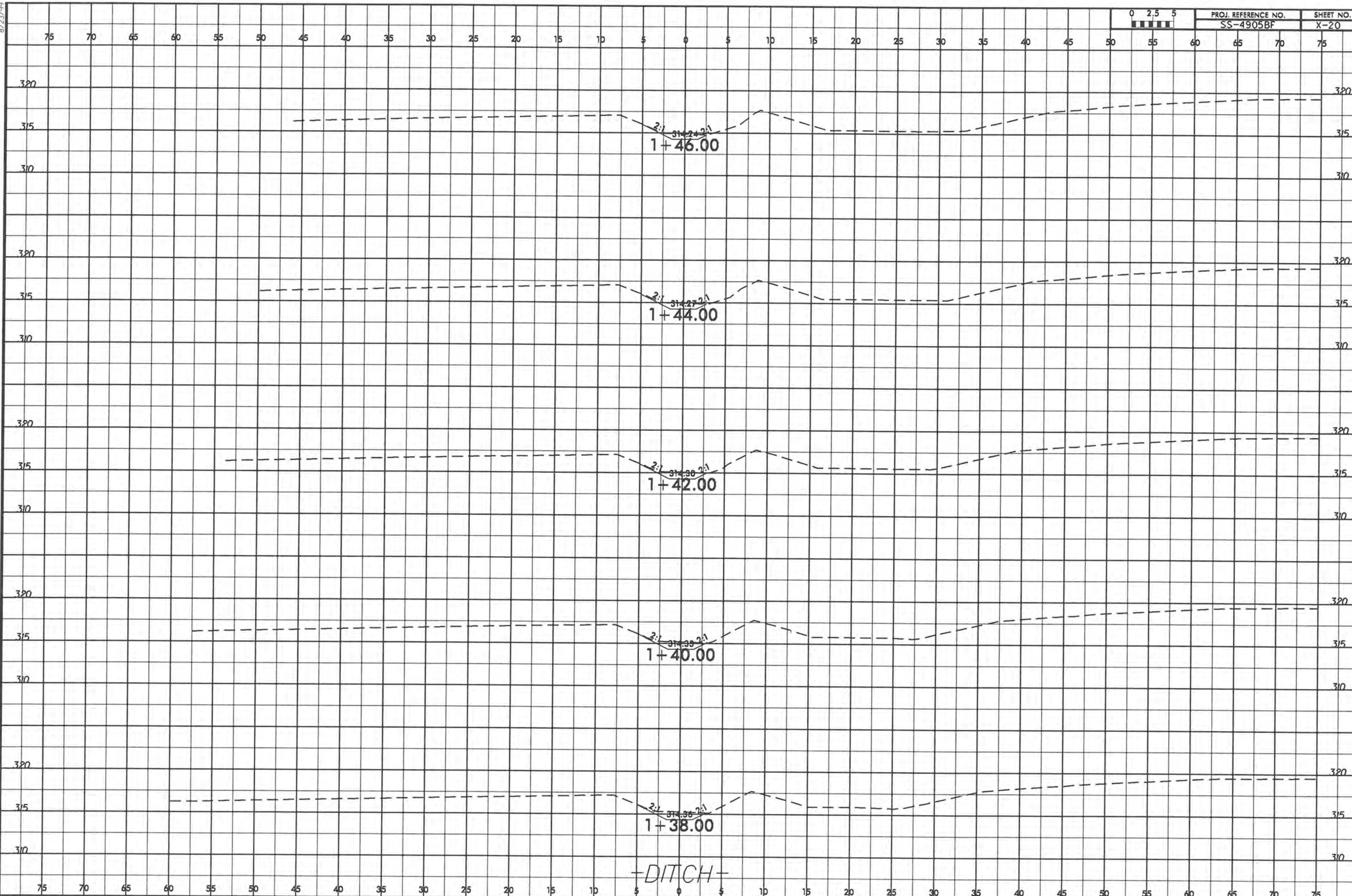
2:1 314.48 2:1
1+30.00

2:1 314.51 2:1
1+28.00

-DITCH-

26-SEP-2002 07:40
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-20



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26-SEP-2012 07:40
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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	SS-4905BF	X-21

1+56.00

1+54.00

1+52.00

1+50.00

1+48.00

-DITCH-

26-SEP-2002 07:40
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8/23/99

PROJ. REFERENCE NO.	SHEET NO.
SS-4905BF	X-22

0 2.5 5

1+62.00

2:1 314.00 2:1

1+60.00

2:1 314.03 2:1

1+58.00

2:1 314.06 2:1

-DITCH-

320
315
310

26-SEP-2012 07:40
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