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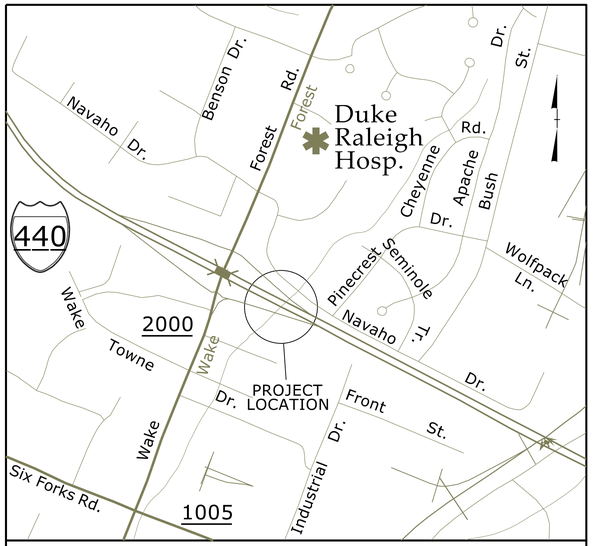
09/08/99

PROJECT: 15B.13.32

CONTRACT: DE00168



VICINITY MAP

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

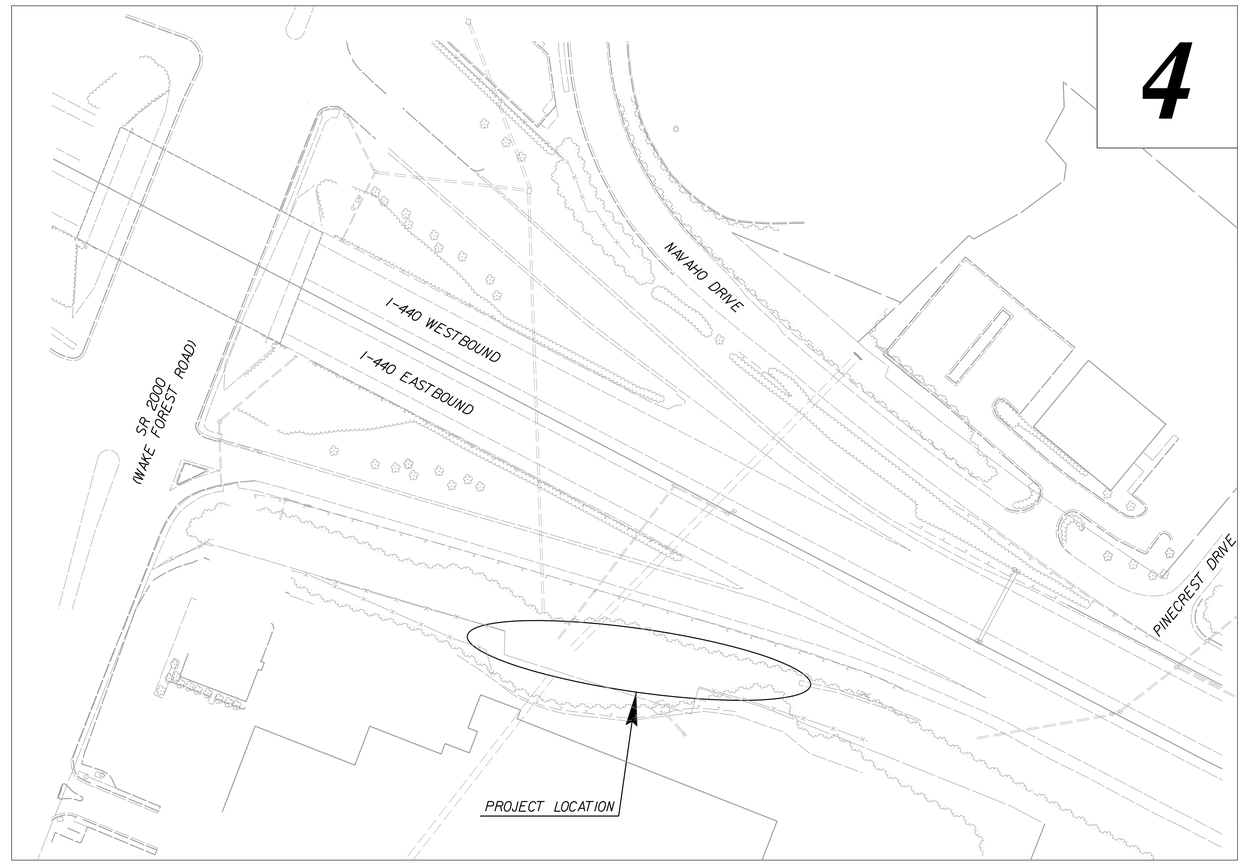
WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15B.13.32	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
15B.13.32	N/A	PE
15B.13.32	N/A	ROW
15B.13.32	N/A	CONSTRUCTION

LOCATION: *I-440 EASTBOUND ON-RAMP & NAVAHO DRIVE BETWEEN SR 2000 (WAKE FOREST ROAD) & PINECREST DRIVE.*

TYPE OF WORK: *GRADING, DRAINAGE AND STRUCTURE*



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GRAPHIC SCALES

50 25 0 50 100
PLANS

25 12.5 0 25 50
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

PROJECT LENGTH

TOTAL LENGTH PROJECT 15B.13.32 = 0.085 mi.

Prepared in the Offices of:

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:H16003.00

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 17, 2016

RIGHT OF WAY COMPLETE: PENDING

LETTING DATE: OCTOBER 26, 2016

ANDY YOUNG, PE
PROJECT ENGINEER

MICHAEL BURNS, EI
PROJECT DESIGN ENGINEER

LISA GILCHRIST, EI
NCDOT CONTACT

HYDRAULICS ENGINEER

DocuSigned by: Joe Dunnehoo
DOCUSIGNED BY:
SIGNATURE: 9/27/2016 *P.E.*

NORTH CAROLINA PROFESSIONAL SEAL 014482 ENGINEER W. Dunnehoo

ROADWAY DESIGN ENGINEER

DocuSigned by: Andrew P. Young
EF21D93DD62F4EF...
SIGNATURE: 9/26/2016 *P.E.*

NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

9/26/2016
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USER:ayoung

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
15BJ3.32	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG

DocuSigned by: Andrew P. Young 9/26/2016
EF21D92DD62F4EF...

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421 Fayetteville St.
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STEWART

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2C-1	SPECIAL DETAILS
2D-1	PLUNGE POOL DETAIL
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
EC-01 THRU EC-05	EROSION CONTROL PLANS
PER-1	PERMIT DRAWING
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-6	CROSS-SECTIONS

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	
200.03	Method of Clearing - Method III
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 8 - INCIDENTALS	
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.22	Frames and Wide Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
862.01	Guardrail Placement
862.02	Guardrail Installation
866.01	Chain Link Fence - 4', 5' and 6' High Fence

GENERAL NOTES:

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

CLEARING:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

AT&T - Fiberoptics

City of Raleigh - Sewer

City of Raleigh - Water

Duke Energy Progress - Power

Earthlink - Fiberoptics

Level 3 - Fiberoptics

MCI - Fiberoptics

PSNC - Gas

Time Warner - Fiberoptics

9/26/2016
jkess
jkess-Gorge-RDY_PSH01A.dgn
USER:jkess

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
15BJ3.32	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. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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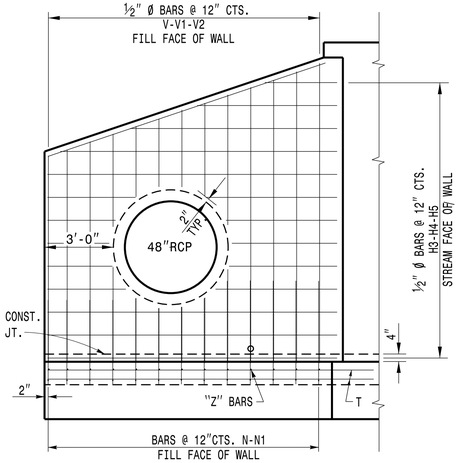
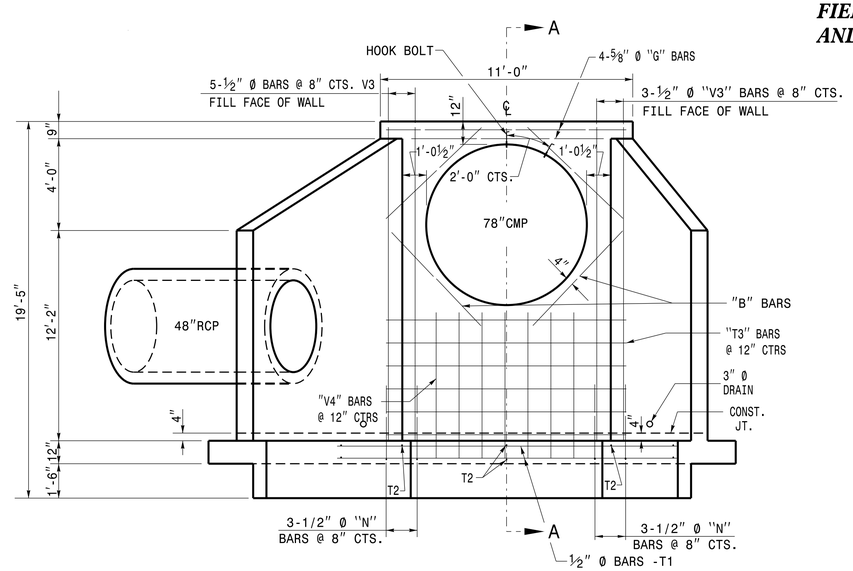
PROJECT REFERENCE NO.	SHEET NO.
15B.13.32	2C-1

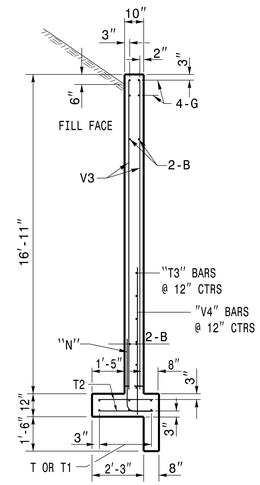
FIELD VERIFY HEIGHT OF ENDWALL AND PIPE DEPTHS BEFORE CONSTRUCTION.



ELEVATION OF WING SHOWING REINFORCEMENT



END ELEVATION



SECTION A-A

NOTES:

USE CLASS 'A' CONCRETE.

USE ASTM A615-GRADE 60 REINFORCING STEEL.

USE DEFORMED BARS FOR ALL REINFORCING STEEL. WHERE SPLICING OF REINFORCMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.

THE FOOTING, CURTAIN WALL AND 4" OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. POUR THE REMAINING WALL IN ONE OPERATION.

CHAMFER ALL EXPOSED CORNERS 1".

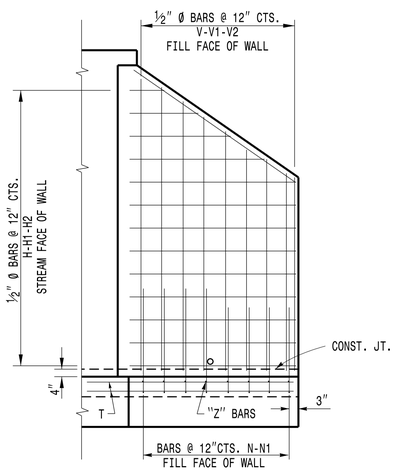
PLACE 3" DIAMETER DRAINS IN WALL AS SHOWN 6" ABOVE NORMAL FLOW LINE.

DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

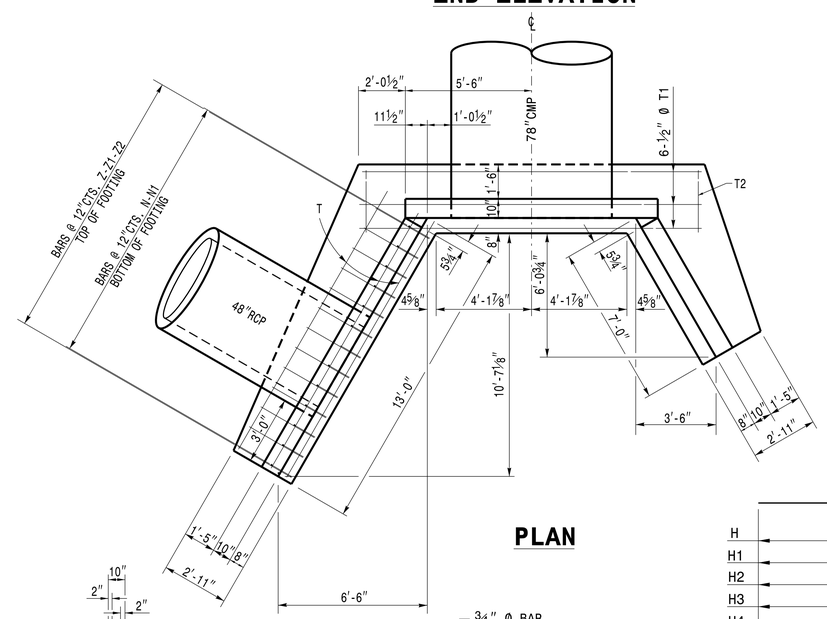
MINIMUM 2" CONCRETE COVERAGE ON ALL REBAR.

BILL OF MATERIAL FOR ONE ENDWALL

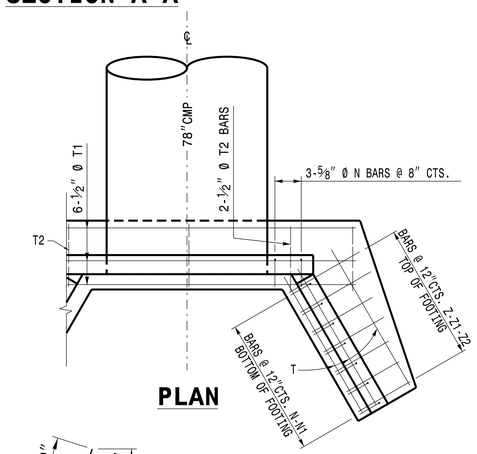
REINFORCING STEEL			1 PIPE	
BAR	SIZE	LENGTH	NO.	WEIGHT
B	#4	6'-0"	8	32
G	#5	10'-9"	4	45
H	#4	9'-0"	13	79
H1	#4	7'-0"	3	14
H2	#4	3'-9"	3	8
H3	#4	13'-0"	13	113
H4	#4	10'-6"	3	21
H5	#4	6'-4"	3	13
N	#4	4'-6"	22	54
N1	#4	4'-1"	12	33
T	#4	11'-0"	6	44
T1	#4	15'-0"	6	60
T2	#4	2'-9"	28	51
T3	#4	10'-9"	9	65
V	#4	14'-8"	8	79
V1	#4	13'-5"	10	90
V2	#4	11'-8"	13	102
V3	#4	16'-5"	8	89
V4	#4	9'-4"	7	44
Z	#4	4'-9"	6	19
Z1	#4	4'-3"	6	17
Z2	#4	3'-6"	12	28
TOTAL REINF. STEEL (lbs.)				1113
CLASS "A" CONC. (cu. yds.)				16.8



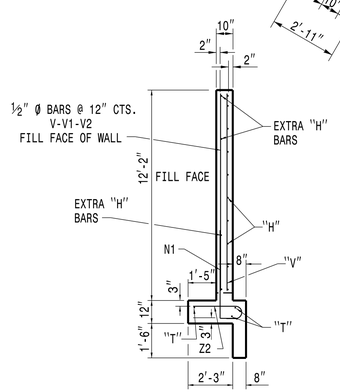
ELEVATION OF WING SHOWING REINFORCEMENT



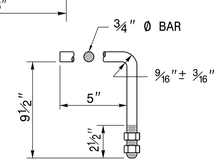
PLAN



PLAN

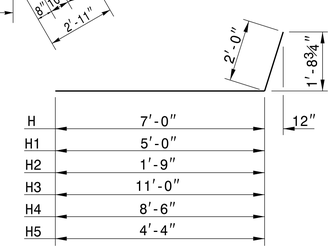


END OF WING

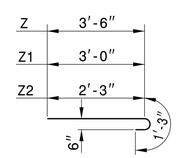


HOOK BOLT

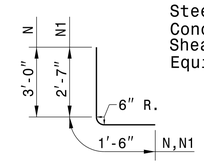
HOOK BOLTS (CONSTRUCT ANCHORS AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 6'-6" CSP. EMBED THE HOOK BOLTS IN THE CONCRETE ENDWALL 8" IN DEPTH. THE GALVANIZED¾" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



BARS H-H1-H2 H3-H4-H5



BARS Z-Z1-Z2



BARS N-N1

DESIGN DATA

Specifications	A.A.S.H.T.O.
Steel in tension	20,000 LBS. PER SQ.IN.
Concrete in compression	1,200 LBS. PER SQ.IN.
Shear Class "A" Concrete	SEE A.A.S.H.T.O.
Equiv. fluid pressure of earth	30 LBS.PER CU. FT.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Hoverton

DocuSigned by: Joel Hoverton, P.E. 9/21/2016
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DRAWING NOT TO SCALE

CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

DETAIL OF EXTRA DEPTH REINFORCED CONCRETE ENDWALL FOR 78" CM PIPE - 90° SKEW

ORIGINAL BY: R.S.WICKER DATE: 06-1946
MODIFIED BY: rnbritt DATE: 11-03-2015
CHECKED BY: DATE:
FILE SPEC.: details/nbritt/english/hydro/extra depth 78 endwall 90sk.dgn

$$$$SYSTIME$$$$
$$$$SDNS$$$$
$$$$USERNAME$$$$

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PROJECT REFERENCE NO.	SHEET NO.
15BI3.32	2D-1

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 014482 ENGINEER Joseph W. Dunnigan

DocuSigned by: Joe Dunnigan 9/27/2016

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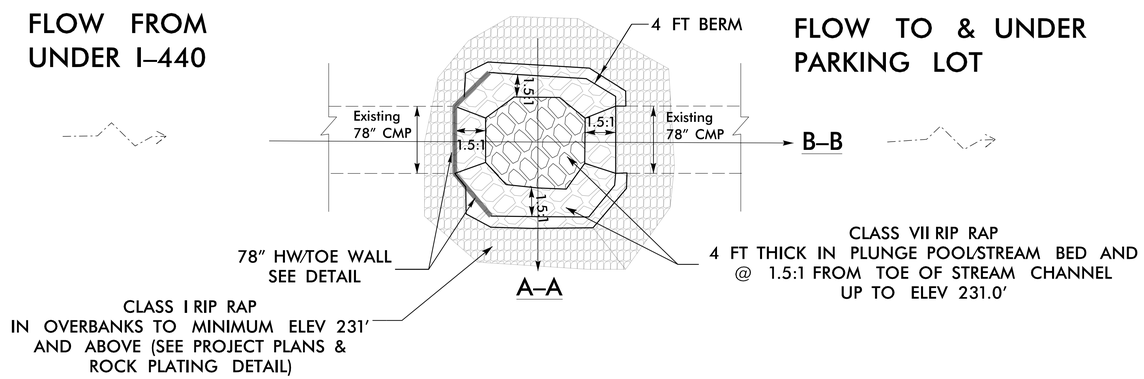
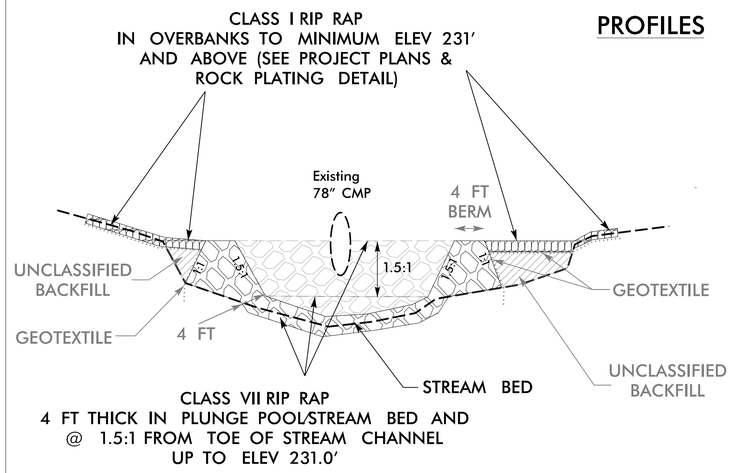
DETAIL D

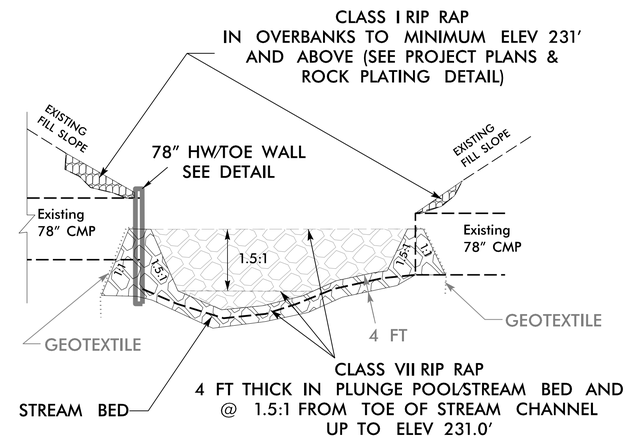
STREAM PLUNGE POOL

PLAN



PROFILES





A–A SECTION

B–B SECTION

NOTES:

–GEOTEXTILE TO BE PLACED UNDER CLASS VII ON STREAM BANKS AND UNDER CLASS I IN OVERBANKS. NOT IN PLUNGE POOL. LIMITS OF GEOTEXTILE TO BE 2 FT MIN TUCK/OVERLAP INTO NATURAL GROUND.

FOR PLAN VIEW, SEE SHEET 4

REVISIONS

5/14/99

9/26/2016
15BI3_Gorge_RDY_PSH2D-1.dgn
USER:Bowling

PROJECT REFERENCE NO.	SHEET NO.
15B.13.32	3B-1

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REVISIONS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-RAMPREV2- Sta. 12+00.00	-RAMPREV2- Sta. 16+00.00	524	569	45	
SUBTOTAL:		524	569	45	
EST. 5% REPLACE TOPSOIL ON BORROW PIT				2	
SUBTOTAL:		524	569	47	
GRANDTOTAL:		524	569	47	
SAY:		**550**		**50**	

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

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE & RESET EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	TYPE III	G	NG				
-RAMPREV2-	12+85	13+10	LT																								25		
-RAMPREV2-	12+85	13+10	LT	25					9'-6"	12'-6"																			NESTED GUARDRAIL (SEE TMP-2 & SP)
			SUBTOTAL:	25																									
			DEDUCITONS:																										
		PROJECT TOTALS		25																							25		
		SAY		25																							25		
	ADDITIONAL GUARDRAIL POSTS = 5 EA																												

COMPUTED BY: DATE:

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
15BI3.32	3D-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C.S. PIPE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
SIZE																																											
THICKNESS OR GAUGE																				.064	.064	.064	.064	.079	.079	.109	.109																
-RampRev2-																																											
12+36	RT	0412		234																																							
	RT	0412	0413		228	227.6																													32								
12+58	RT	0413		234.6																																							
	RT	0413	0414		226.1	226																													10								
		0415	0416		251	237.5							90			X	X		X																									
13+62	RT	0416		243.25																																							
		0416	0417		237.5	229.78							44			X	X		X																									
13+18	RT	0417		235.55																																							
		0417	0418		229.2	229							30			X	X		X																									
SHEET TOTALS													164																						42								

STATION	** * R.C. PIPE (CLASS V)	**** RC PIPE CULVERTS, CONTRACTOR DESIGN	***** RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	"TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B')" LIN. FT. A: 5.0' THRU 10.0'	B: 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME WITH TWO GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	G.D.I. FRAME (N.S. FLAT) W/2 GRATES STD. 840.29	T.B.D.I. STD. 840.35	15" DRAINAGE PIPE ELBOW	SIDE DRAIN PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-RampRev2-																																											
12+36								1	1																						1												JB w/ Slab
12+58								1	3.5																						1												JB w/ Slab
					3.4																																						HDWL (STD. 838.01 Sht. 1 of 3) & Pipe
13+62								1	0.75											1				1				1															Type "A" 2GI
13+18								1	1.35											1				1				1															Type "A" 2GI
				200																																					200	See TMP-2 for Pipe Location
SHEET TOTALS					200	3.4		4	6.6											2				2				2			2											

ABBREVIATIONS

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

REVISIONS

8/17/99

COMPUTED BY: DATE:

CHECKED BY: DATE:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION	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) 54"	60"	66"	72"	78"	84"	C.S. PIPE 54" .109	54" .138	54" .168	60" .138	60" .168	66" .138	66" .168	72" .138	72" .168	72" .179	72" .168	STRUCTURAL PLATE PIPE 60" 12	60" 10	66" 12	66" 10	72" 12	72" 10	REINFORCED ENDWALLS WITH R.C. - C.Y.	WITH C.S. - C.Y.	MASONRY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR 840.02	FRAMES, GRATES & HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	EXISTING 78" PIPE (LF) STRUCTURAL REHABILITATION (SP)	FLOWABLE FILL (CY)	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & Size	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
SIZE																																											
THICKNESS OR GAUGE														.109	.138	.168	.138	.168	.138	.168	.138	.168	.179	.168																				
-RampRev2-																																											
13+05		0410	0411																											16.8								405	25				See Plan Sheet 2C-1 for Detail
SHEET TOTALS																														16.8													

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	GRATED 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 JUNCTION BOX

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5/14/99

REVISIONS

-RAMPREV2-

PI Sta 9+70.84
Δ = 5° 21' 29.3" (RT)
D = 6° 55' 11.2"
L = 77.43'
T = 38.74'
R = 828.00'

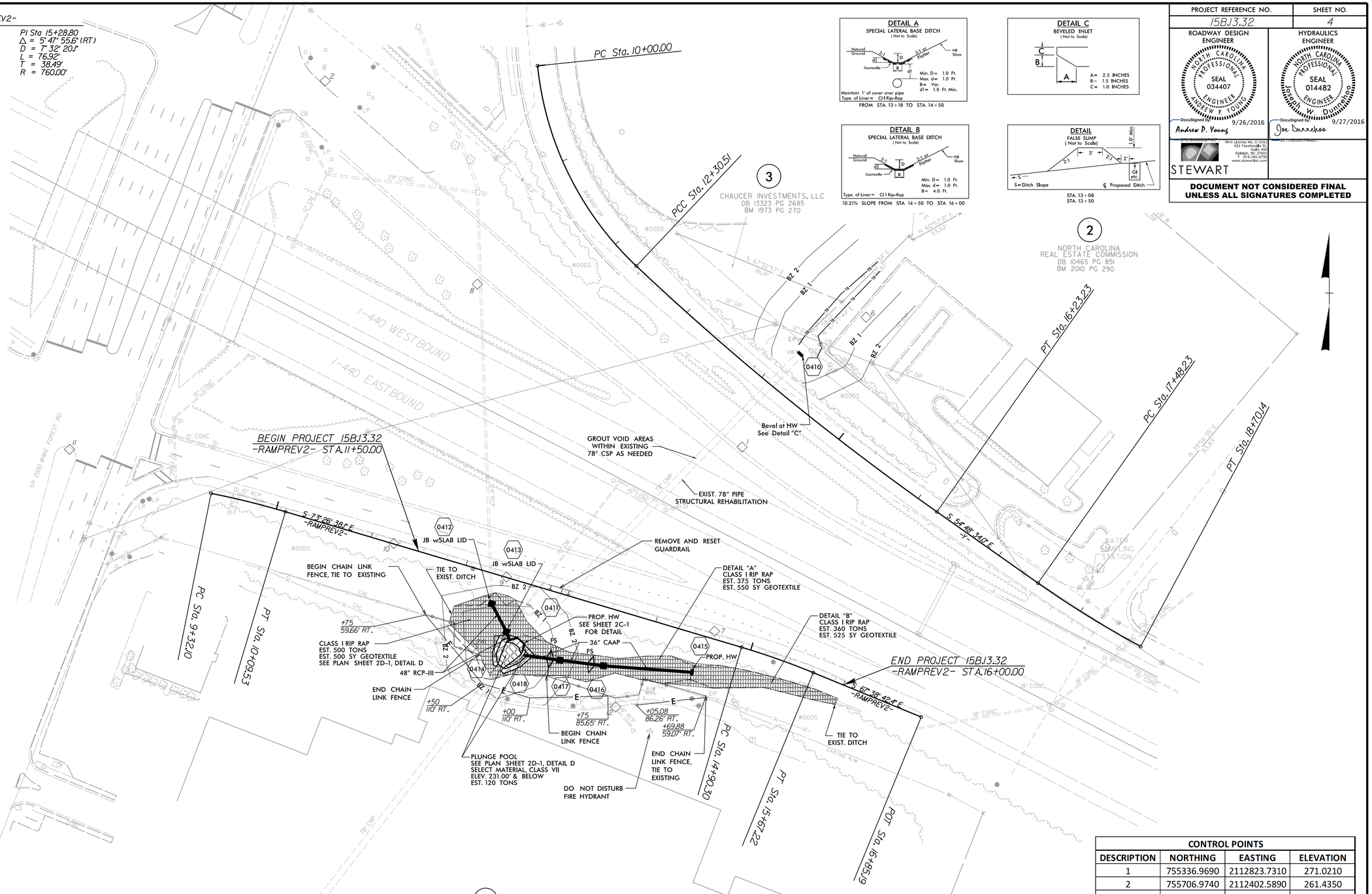
PI Sta 15+28.80
Δ = 5° 47' 55.6" (RT)
D = 7° 32' 20.1"
L = 76.92'
T = 38.49'
R = 760.00'

-Y-

PI Sta 11+20.37
Δ = 40° 45' 03.8" (LT)
D = 17° 40' 42.8"
L = 230.51'
T = 120.37'
R = 324.10'

PI Sta 14+27.21
Δ = 8° 10' 55.9" (LT)
D = 2° 05' 00.5"
L = 392.72'
T = 196.69'
R = 2,750.01'

PI Sta 18+09.26
Δ = 7° 00' 31.7" (LT)
D = 5° 44' 56.3"
L = 121.91'
T = 61.03'
R = 996.63'



FROM STA. 13+18 TO STA. 14+50

10.21% SLOPE FROM STA 14+50 TO STA 16+00

STA. 13+08
STA. 13+50

PROJECT REFERENCE NO.	SHEET NO.
15BJ3.32	4

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG
DocuSigned by: Andrew P. Young 9/26/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 014482 ENGINEER Joseph W. Dunnehoo
DocuSigned by: Joe Dunnehoo 9/27/2016

STEWART
Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

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NOTES:

THE CONTRACTOR IS REQUIRED TO PROVIDE A DESIGN FOR PIPE LINER THICKNESS FOR APPROVAL BEFORE BEGINNING ANY WORK ON THE PROJECT. THE DESIGN SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION ENTITLED "EXISTING 78" PIPE STRUCTURAL REHABILITATION"

THE CONTRACTOR IS REQUIRED TO REMOVE ALL EQUIPMENT AND MATERIALS FROM PARCEL NUMBER 2, NORTH CAROLINA REAL ESTATE COMMISSION FOR DATE RANGES SHOWN IN THE SPECIAL PROVISION ENTITLED "INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES".

CONTROL POINTS

DESCRIPTION	NORTHING	EASTING	ELEVATION
1	755336.9690	2112823.7310	271.0210
2	755706.9740	2112402.5890	261.4350
6	755468.2660	2112949.0620	247.5100
7	755150.8200	2112796.0030	271.2030
8	755501.5840	2112556.3110	265.1930
9	755205.6600	2112585.7880	262.6450
10	755239.4670	2112471.8080	257.9110
11	755234.5580	2112144.3150	250.9240
12	755074.3580	2112696.0640	257.4580
241	755134.8850	2112551.3700	235.3670
385	754795.4090	2111898.8150	235.0820

FOR -RAMPREV2- PROFILE, SEE SHEET 5

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PROJECT REFERENCE NO.	SHEET NO.
15B.13.32	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG
DocuSigned by: Andrew P. Young 9/26/2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 014482 ENGINEER Joseph W. Dunnehoo
DocuSigned by: Joe Dunnehoo 9/27/2016

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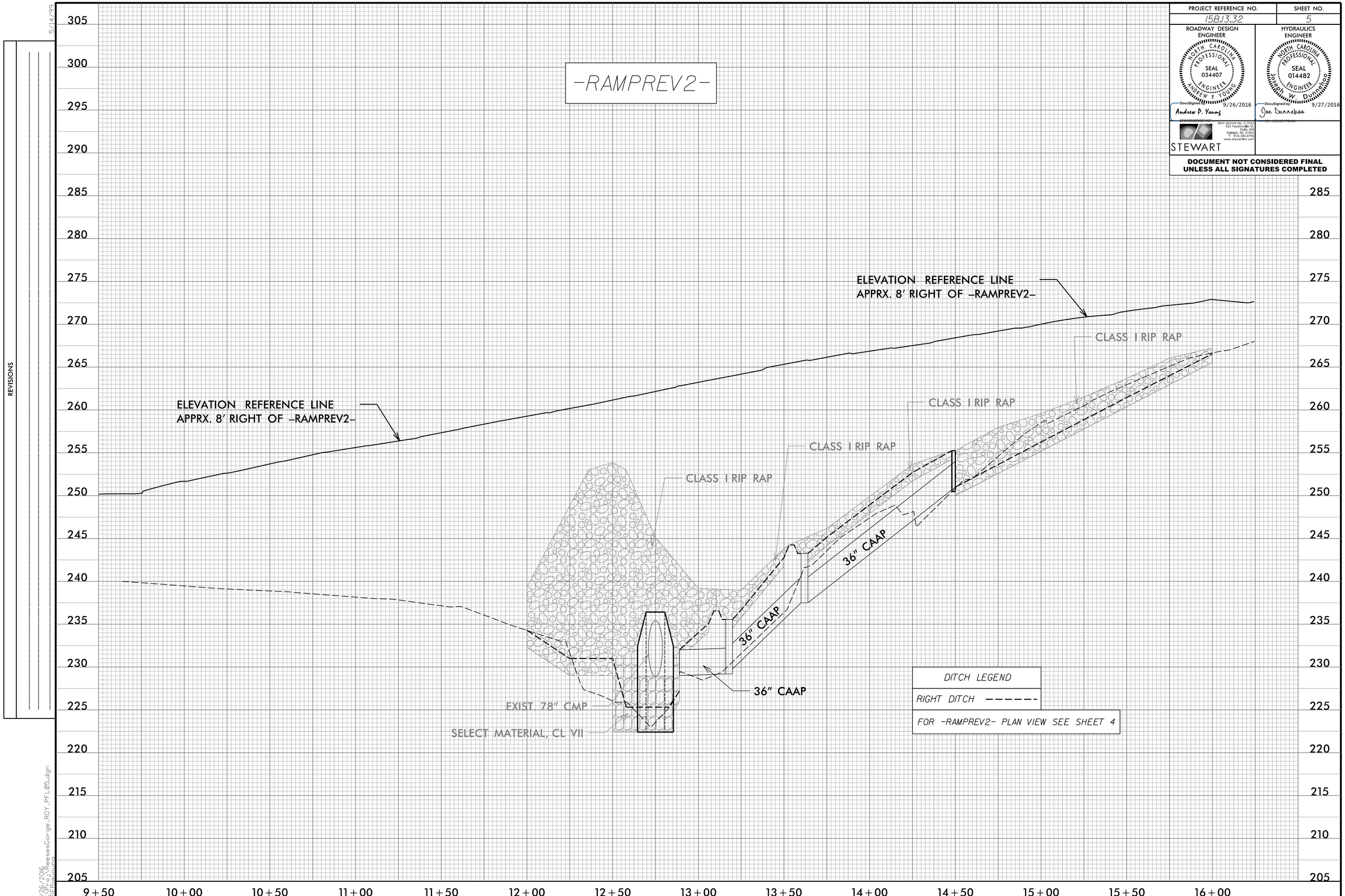
REVISIONS

5/14/99



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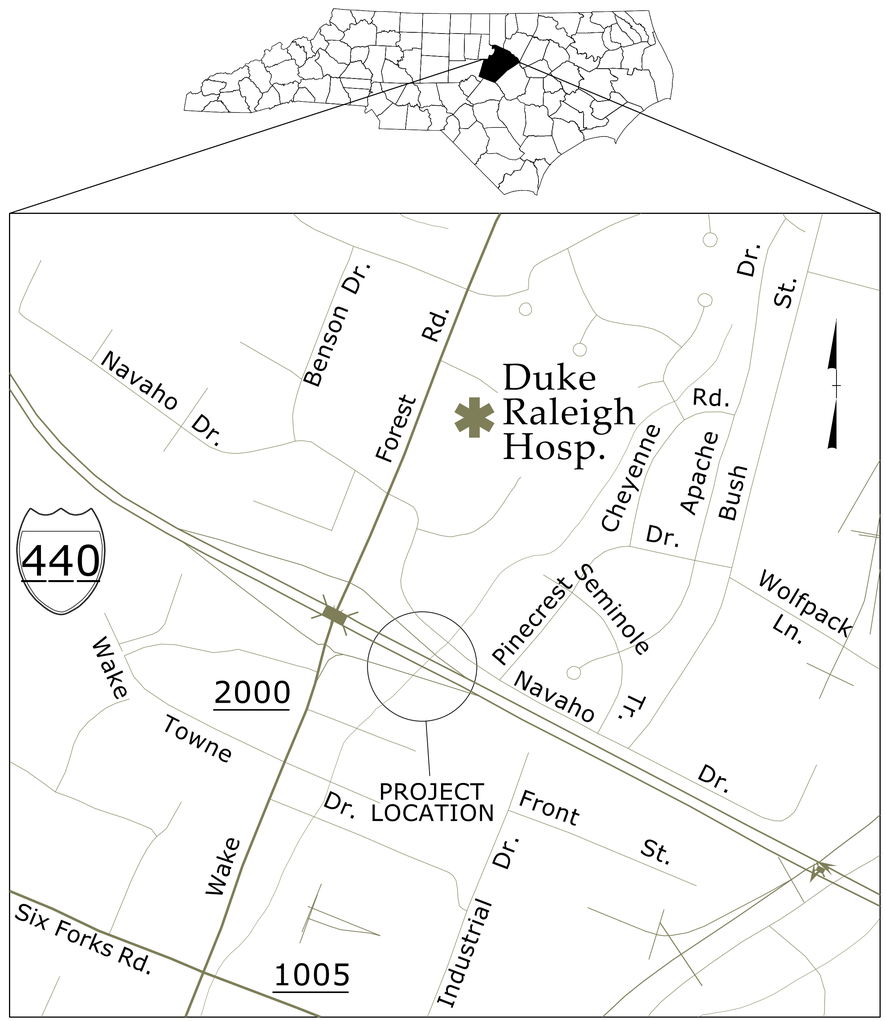
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-2	TEMPORARY TRAFFIC CONTROL

SHEET NO.
TMP-1

15B.13.32

PROJECT:

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

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

ANDY YOUNG, PE — TRAFFIC CONTROL PROJECT ENGINEER
MICHAEL BURNS, EI — TRAFFIC CONTROL DESIGN ENGINEER

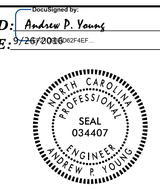
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

PLANS PREPARED BY:

STEWART
421 FAYETTEVILLE ST, STE 400
RALEIGH, NC 27601
T 919.380.8750
Firm License #: C-1051
www.stewartinc.com
PROJECT #:H16003.00

APPROVED: DocuSigned by: Andrew P. Young
DATE: 9/26/2016

SEAL



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PROJ. REFERENCE NO.	SHEET NO.
15B.13.32	TMP-1A

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
862.01	GUARDRAIL PLACEMENT
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1165.01	TRUCK MOUNTED ATTENUATOR - DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- ROE — RIGHT OF ENTRY

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

STEWART
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Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

APPROVED: DocuSigned by: Andrew P. Young
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DATE: 9/26/2016

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

9/26/2016
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PROJ. REFERENCE NO.	SHEET NO.
15B.13.32	TMP-1B

MANAGEMENT STRATEGIES

1. DO NOT CLOSE DUAL LEFT TURN LANES ON WAKE FOREST ROAD ONTO I–440 EASTBOUND ON–RAMP AT ANY POINT DURING THE DURATION OF THE PROJECT.

2. THE CONTRACTOR SHALL MAINTAIN THE SHOULDER CLOSURE ON I–440 EASTBOUND ON–RAMP FOR THE DURATION OF THE PROJECT.

3. CONTRACTOR MAY REMOVE A MAXIMUM OF 25 LINEAR FEET (LF) OF EXISTING GUARDRAIL ALONG –RAMPREV2– AS SHOWN ON SHEET TMP–2. IF THIS IS COMPLETED, THE EXISTING GUARDRAIL ADJACENT TO THE OPENING SHALL BE RETROFITTED IN ACCORDANCE WITH NCDOT ROADWAY STANDARD DRAWING 862.01, SHEET 10 OF 12. WHEN ACTIVE CONSTRUCTION IS NOT PRESENT, GUARDRAIL OPENING SHALL BE NESTED. THIS WORK SHALL BE CONSIDERED INCIDENTAL.

4. THE CONTRACTOR SHALL NOT BE GRANTED RIGHT OF ENTRY TO THE NORTH CAROLINA REAL ESTATE COMMISSION PROPERTY, PARCEL NO. 2, FROM MONDAY AT 6:00 PM UNTIL FRIDAY AT 12:00 PM DURING THE FOLLOWING LISTED DATES, OR UNLESS OTHERWISE PERMITTED BY THE ENGINEER.
   SEPTEMBER 12, 2016 THRU SEPTEMBER 16, 2016
   OCTOBER 10, 2016 THRU OCTOBER 14, 2016
   NOVEMBER 7, 2016 THRU NOVEMBER 11, 2016
   DECEMBER 12, 2016 THRU DECEMBER 16, 2016
   JANUARY 16, 2017 THRU JANUARY 20, 2017
   FEBRUARY 13, 2017 THRU FEBRUARY 17, 2017
   MARCH 13, 2017 THRU MARCH 17, 2017
   APRIL 10, 2017 THRU APRIL 14, 2017
   MAY 8, 2017 THRU MAY 12, 2017
   JUNE 12, 2017 THRU JUNE 16, 2017
   JULY 10, 2017 THRU JULY 14, 2017

   ALL EQUIPMENT AND MATERIALS IF PREVIOUSLY PLACED IN STAGING AREA SHALL BE REMOVED DURING THIS TIME WHICH SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

5. CONTRACTOR SHALL PROVIDE ACCESS TO DUMPSTERS ON NORTH CAROLINA REAL ESTATE COMMISSION & HOLLY PARK SHOPPING PLAZA PROPERTIES FOR DISPOSAL AS NEEDED. THESE DUMPSTERS SHALL NOT BE USED BY THE CONTRACTOR AT ANY POINT DURING THE DURATION OF THE PROJECT.

6. HOLLY PARK SHOPPING PLAZA, PARCEL NO. 1, SHALL:
   – NOT BE USED FOR STAGING OR CONSTRUCTION ACCESS.
   – ONLY BE USED FOR CONTRACTOR/EMPLOYEE PARKING IN THE DESIGNATED AREA AS SHOWN ON SHEET TMP–2.
   – ONLY BE ACCESSED TO REACH THE CONTRACTOR/EMPLOYEE PARKING AS SHOWN ON SHEET TMP–2.
   – NOT BE ACCESSED BY ANY VEHICLE GREATER THAN 4 TONS GROSS VEHICLE WEIGHT.

7. LAW ENFORCEMENT SHALL BE USED TO WARN MOTORISTS WHEN LANE CLOSURES ARE IN EFFECT ON I–440 EASTBOUND ON–RAMP AS SHOWN ON SHEET TMP–2.

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
WAKE FOREST ROAD	MONDAY THRU FRIDAY 6:00 AM TO 8:00 PM
I–440 EASTBOUND ON–RAMP	MONDAY THRU FRIDAY 6:00 AM TO 8:00 PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

WAKE FOREST ROAD
I–440 EASTBOUND ON–RAMP
NAVAHO DRIVE

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) 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.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN 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.

E) 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.

TRAFFIC PATTERN ALTERATIONS

F) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

TRAFFIC CONTROL DEVICES

H) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON–CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.

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

MISCELLANEOUS

J) POLICE SHALL BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.

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421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

APPROVED: DocuSigned by: Andrew P. Young EF21D93DD62F4EF...
DATE: 9/26/2016
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

TRANSPORTATION OPERATIONS PLAN

9/26/2016
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USER:ayoung

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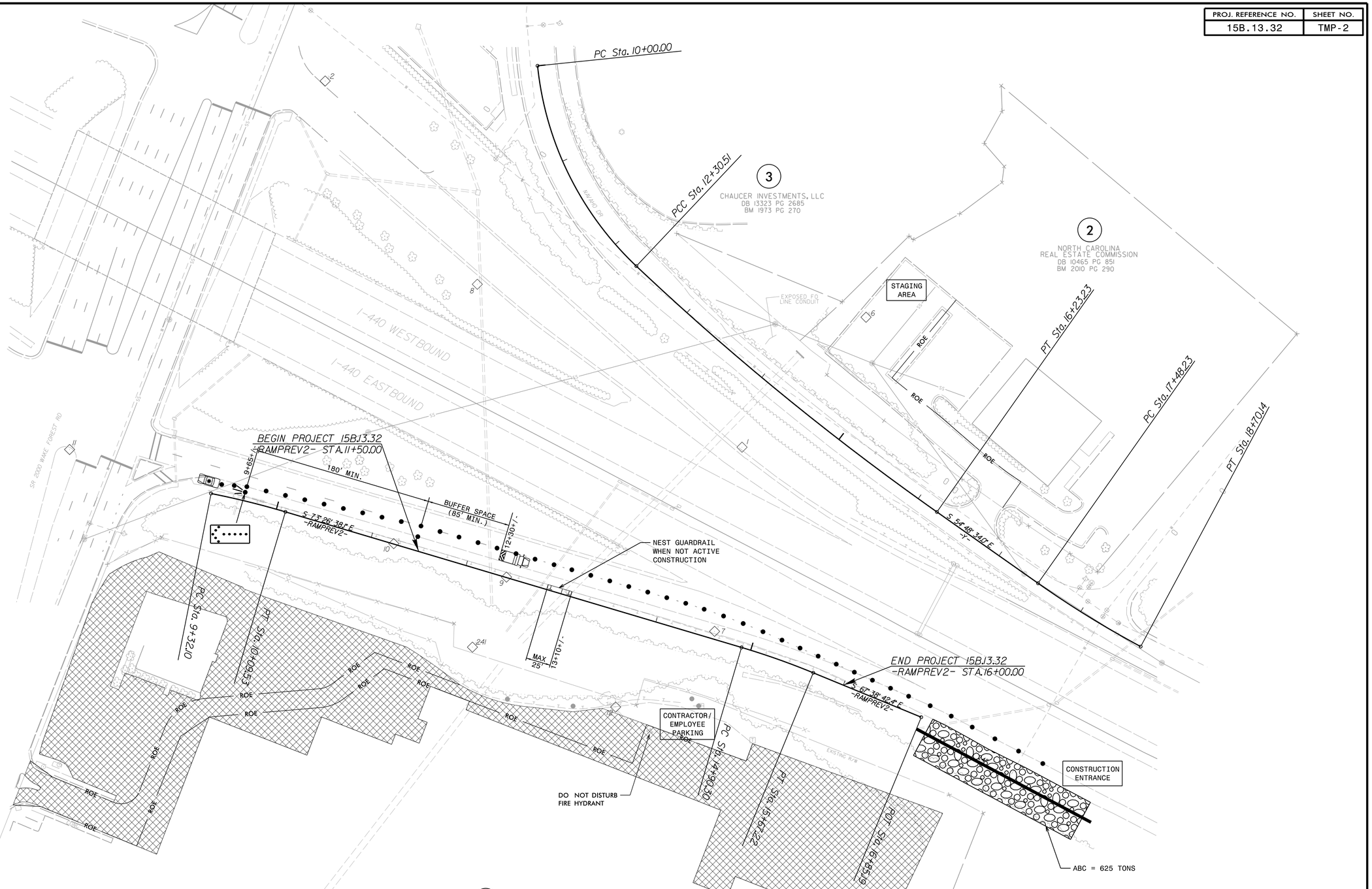
PROJ. REFERENCE NO.	SHEET NO.
15B.13.32	TMP-2



APPROVED: DocuSigned by: Andrew P. Young EF21D593DD62F4EF...

DATE: 9/26/2016

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034407 ANDREW P. YOUNG

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

TEMPORARY TRAFFIC CONTROL

9/26/2016
...\TCP\ReesesGorge_TC_TMP04.dgn
USER:ayoung

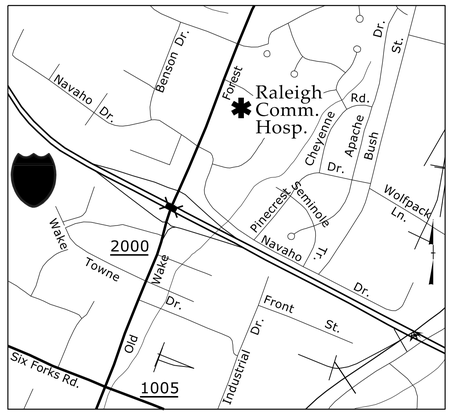
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15B.13.32	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

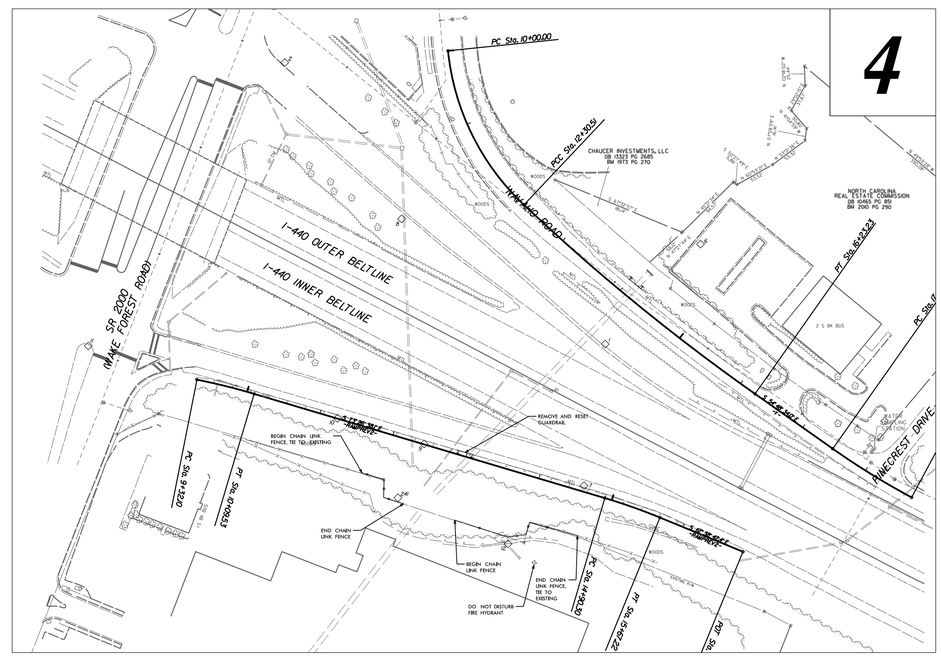
WAKE COUNTY



VICINITY MAP

LOCATION: ***SOUTH OF RAMP ON I-440 INNER BELTLINE AND EAST OF SR 2000 (WAKE FOREST ROAD)***

TYPE OF WORK: ***GRADING, DRAINAGE, AND STRUCTURE***



NAD 83/2001

EROSION AND SEDIMENT CONTROL MEASURES

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

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

GRAPHIC SCALE

50 0 100
PLANS

50 0 100
PROFILE (HORIZONTAL)

PROFILE (VERTICAL)

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

Prepared in the Office of:

ECOLOGICAL ENGINEERING

NC FIRM LICENSE No: F-1148
1151 SE Cary Parkway
Suite 101
Cary, NC 27518
(919) 557-0929

Designed by:

BRANDON BARHAM ***3368***
NAME ***LEVEL III CERTIFICATION NO.***

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

Roadway Standard Drawings

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

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

3/20/2012
R:\Roadway\Proj\15B132_EscapeGorge_EC_TSH.dgn
bbarham

PROJECT REFERENCE NO.	SHEET NO.
15BJ3.32	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

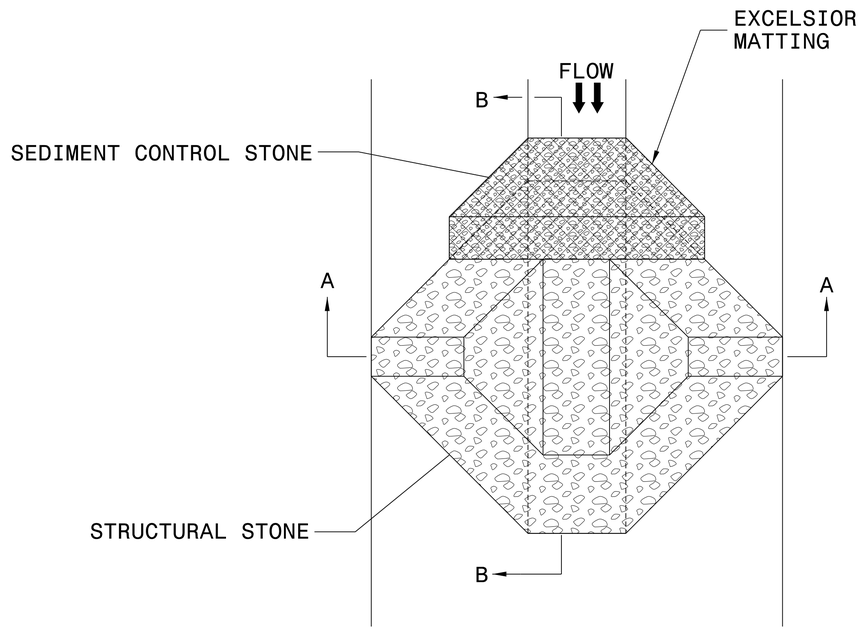
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
15BI3.32	EC-03
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

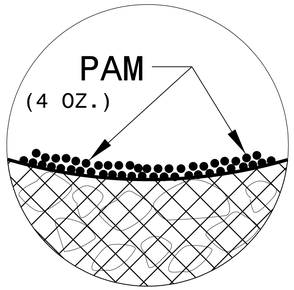
NOTES:

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

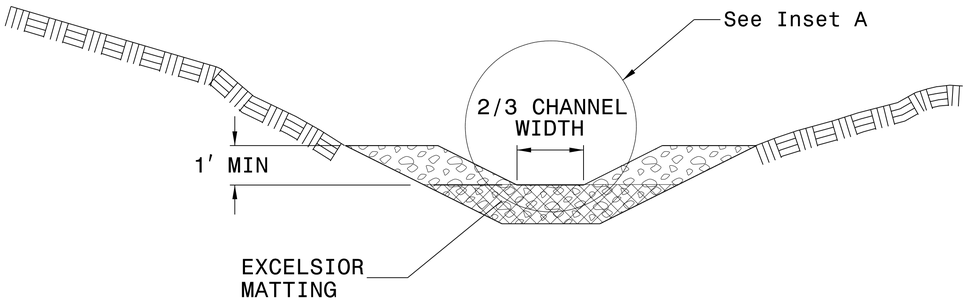
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

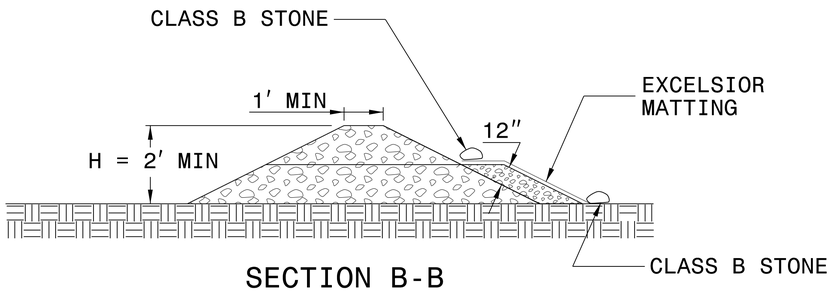
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
15BI3.32	EC-04/CONST.04
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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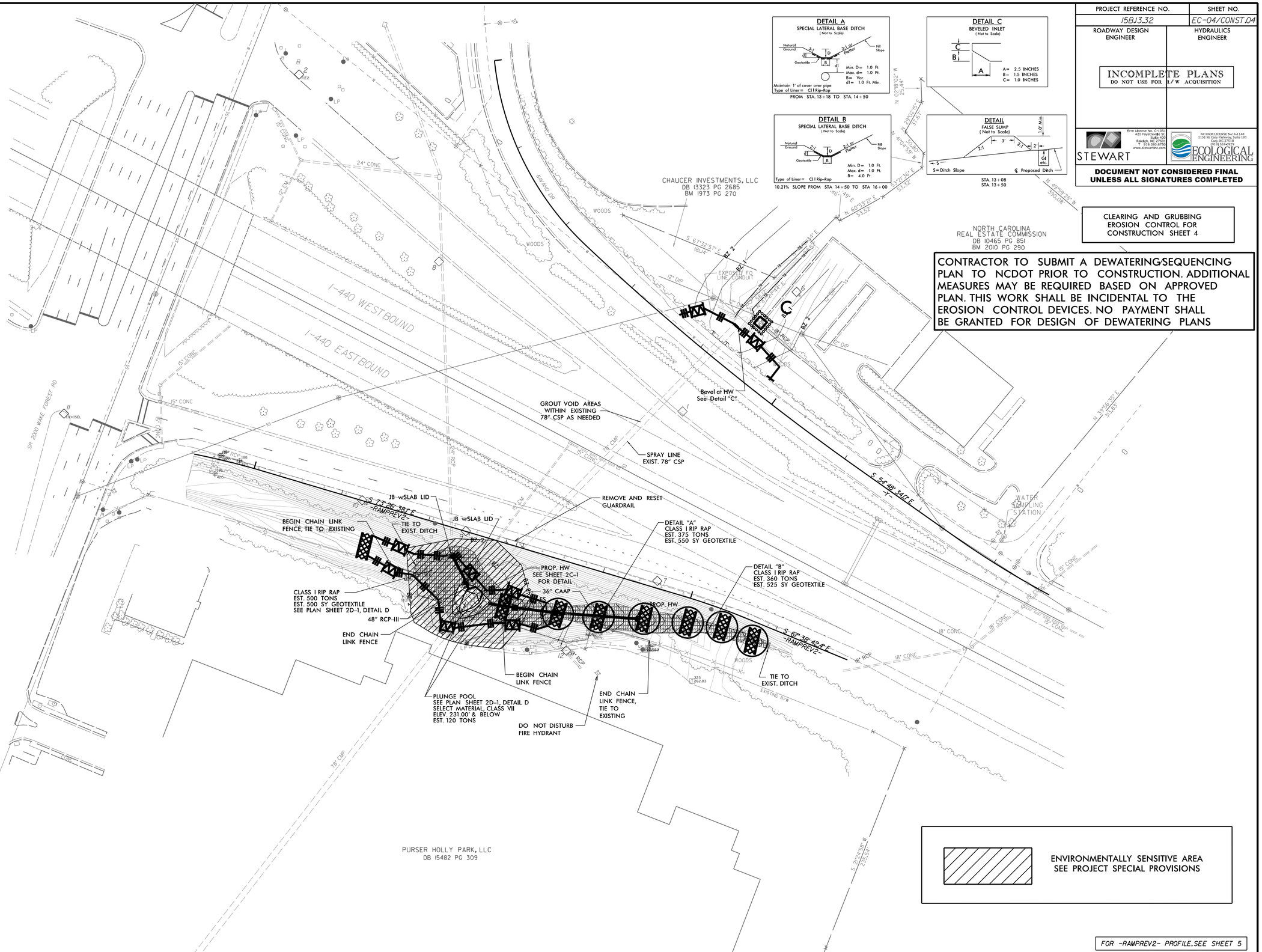
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

CONTRACTOR TO SUBMIT A DEWATERING/SEQUENCING PLAN TO NCDOT PRIOR TO CONSTRUCTION. ADDITIONAL MEASURES MAY BE REQUIRED BASED ON APPROVED PLAN. THIS WORK SHALL BE INCIDENTAL TO THE EROSION CONTROL DEVICES. NO PAYMENT SHALL BE GRANTED FOR DESIGN OF DEWATERING PLANS



FOR -RAMPREV2- PROFILE, SEE SHEET 5

REVISIONS

5/14/99

9/20/2016
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USER:Rsetzer

PROJECT REFERENCE NO.	SHEET NO.
15BI3.32	EC-05/CONST.04
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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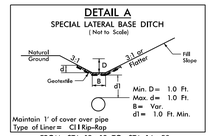
SILT FENCE AND SSCF OUTLETS TO BE RE-SET DAILY.

ALL DISTRUBED AREAS ARE TO BE STABILIZED WITH SEEDING AND MATTING.

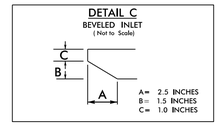
CONTRACTOR TO SUBMIT A DEWATERING/SEQUENCING PLAN TO NCDOT PRIOR TO CONSTRUCTION. ADDITIONAL MEASURES MAY BE REQUIRED BASED ON APPROVED PLAN. THIS WORK SHALL BE INCIDENTAL TO THE EROSION CONTROL DEVICES. NO PAYMENT SHALL BE GRANTED FOR DESIGN OF DEWATERING PLANS

DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)



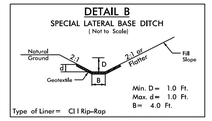
Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= Var.
d1= 1.0 Ft. Min.
Maintain 1' of cover over pipe
Type of Liner= Cl I Rip-Rap
FROM STA. 13+18 TO STA. 14+50

DETAIL C
BEVELED INLET
(Not to Scale)



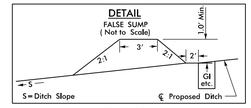
A= 2.5 INCHES
B= 1.5 INCHES
C= 1.0 INCHES

DETAIL B
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 4.0 Ft.
Type of Liner= Cl I Rip-Rap
10.21% SLOPE FROM STA 14+50 TO STA 16+00

DETAIL
FALSE SUMP
(Not to Scale)



S=Ditch Slope
STA. 13+08
STA. 13+50

CHAUCER INVESTMENTS, LLC
DB 13323 PG 2685
BM 1973 PG 270

PURSER HOLLY PARK, LLC
DB 15482 PG 309

GROUT VOID AREAS WITHIN EXISTING 78" CSP AS NEEDED

SPRAY LINE EXIST. 78" CSP

Bevel at HW See Detail "C"

REMOVE AND RESET GUARDRAIL

DETAIL "A" CLASS I RIP RAP EST. 375 TONS EST. 550 SY GEOTEXTILE

DETAIL "B" CLASS I RIP RAP EST. 360 TONS EST. 525 SY GEOTEXTILE

JB wSLAB LID

JB wSLAB LID

BEGIN CHAIN LINK FENCE, TIE TO EXISTING

TIE TO EXIST. DITCH

PROP. HW SEE SHEET 2C-1 FOR DETAIL

34" - 36" CAAP

PROP. HW

CLASS I RIP RAP EST. 500 TONS EST. 500 SY GEOTEXTILE SEE PLAN SHEET 2D-1, DETAIL D

48" RCP-III

END CHAIN LINK FENCE

BEGIN CHAIN LINK FENCE

PLUNGE POOL SEE PLAN SHEET 2D-1, DETAIL D SELECT MATERIAL, CLASS VII ELEV. 231.00' & BELOW EST. 120 TONS

DO NOT DISTURB FIRE HYDRANT

END CHAIN LINK FENCE, TIE TO EXISTING

TIE TO EXIST. DITCH

S 73°26'38" E -RAMPREV2-

S 67°32'57" E 181.14'

S 67°38'42.4" E -RAMPREV2-

S 54°48'34.07" E -SY-

N 19°50'55" E 315.83'

S 21°24'55" W 235.34'

N 86° 53.52'

S 19°28' W 397.08'

I-440 WESTBOUND

I-440 EASTBOUND

SR 2000 WAKE FOREST RD

WOODS

WATER SAMPLING STATION

FOR -RAMPREV2- PROFILE, SEE SHEET 5

REVISIONS

5/14/99

9/20/2016
mcgee, Gorge.EC.PSH05.Final.dgn
USER:Rdeault

385

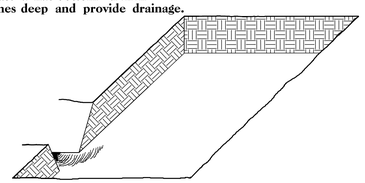
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15B.13.32	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

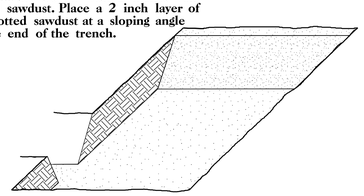
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

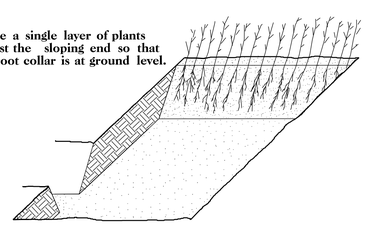
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



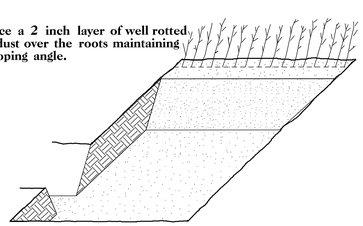
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

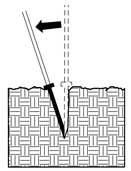


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

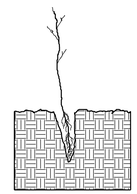


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

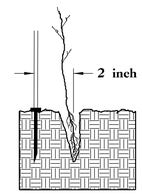
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



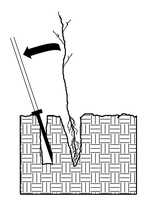
1. Insert planting bar as shown and pull handle toward planter.



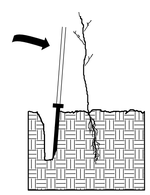
2. Remove planting bar and place seedling at correct depth.



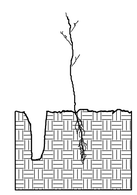
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in – 18 in BR
25%	FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

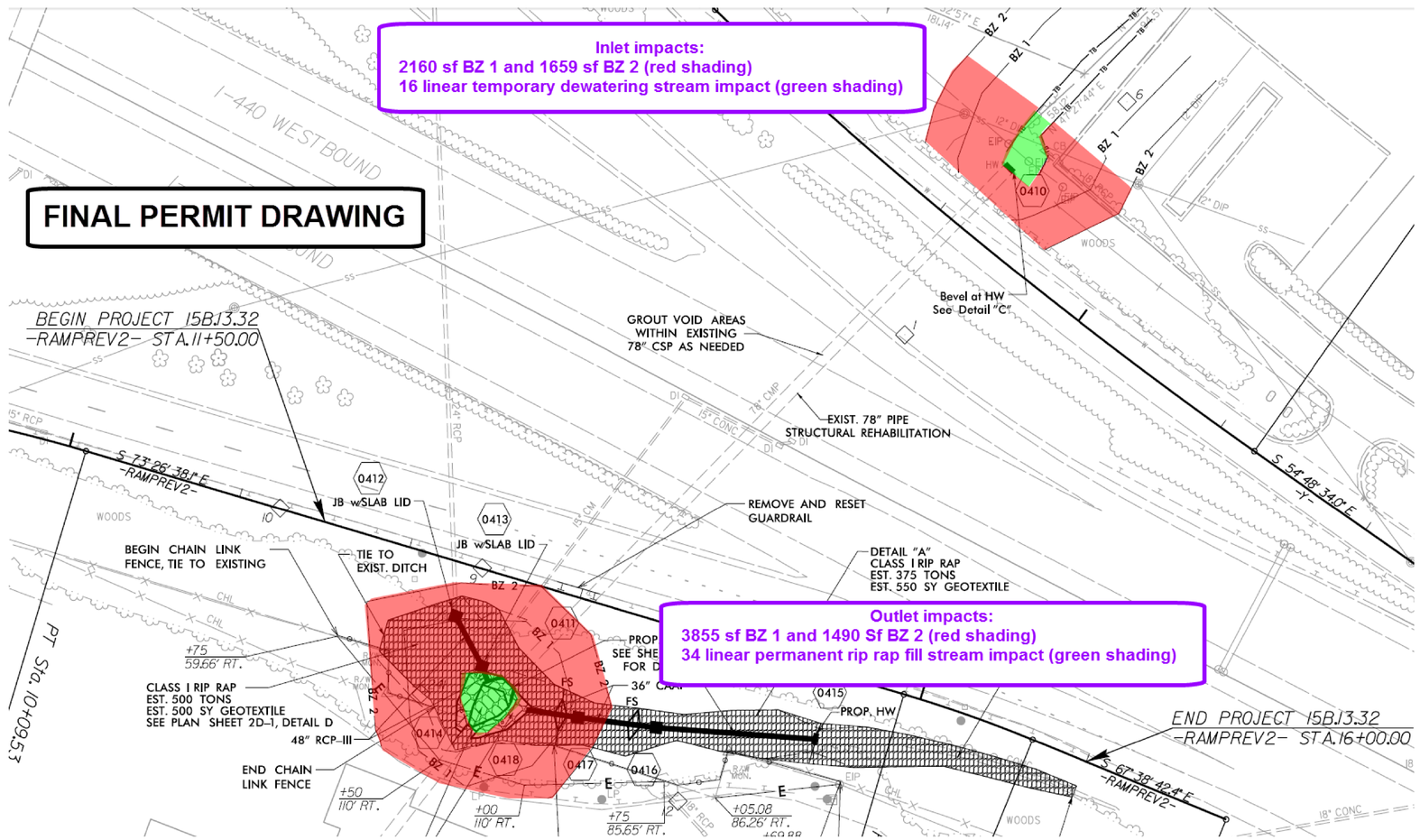
REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

PROJECT REFERENCE NO.	SHEET NO.
15B.13.32	PER-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING



REVISIONS

8/17/99

9/27/2016

PROJECT REFERENCE NO.	SHEET NO.
15B.13.32	X-1A

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station -RampRev2-	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+00.00	0	0
12+25.00	100	0
12+36.00	42	66
12+50.00	24	149
12+58.00	23	41
12+75.00	53	11
13+00.00	49	7
13+25.00	26	26
13+50.00	6	55
13+75.00	6	37
14+00.00	6	15
14+25.00	5	32
14+50.00	19	21
14+75.00	36	0
15+00.00	38	1
15+25.00	30	1
15+50.00	23	0
15+75.00	20	0
16+00.00	13	0

REVISIONS

8/17/99

9/26/2016
...\ReesesGorge_RDY_XPL_X1A.dgn
USER:ayoung

PROJ. REFERENCE NO.	SHEET NO.
15B.13.32	X-1

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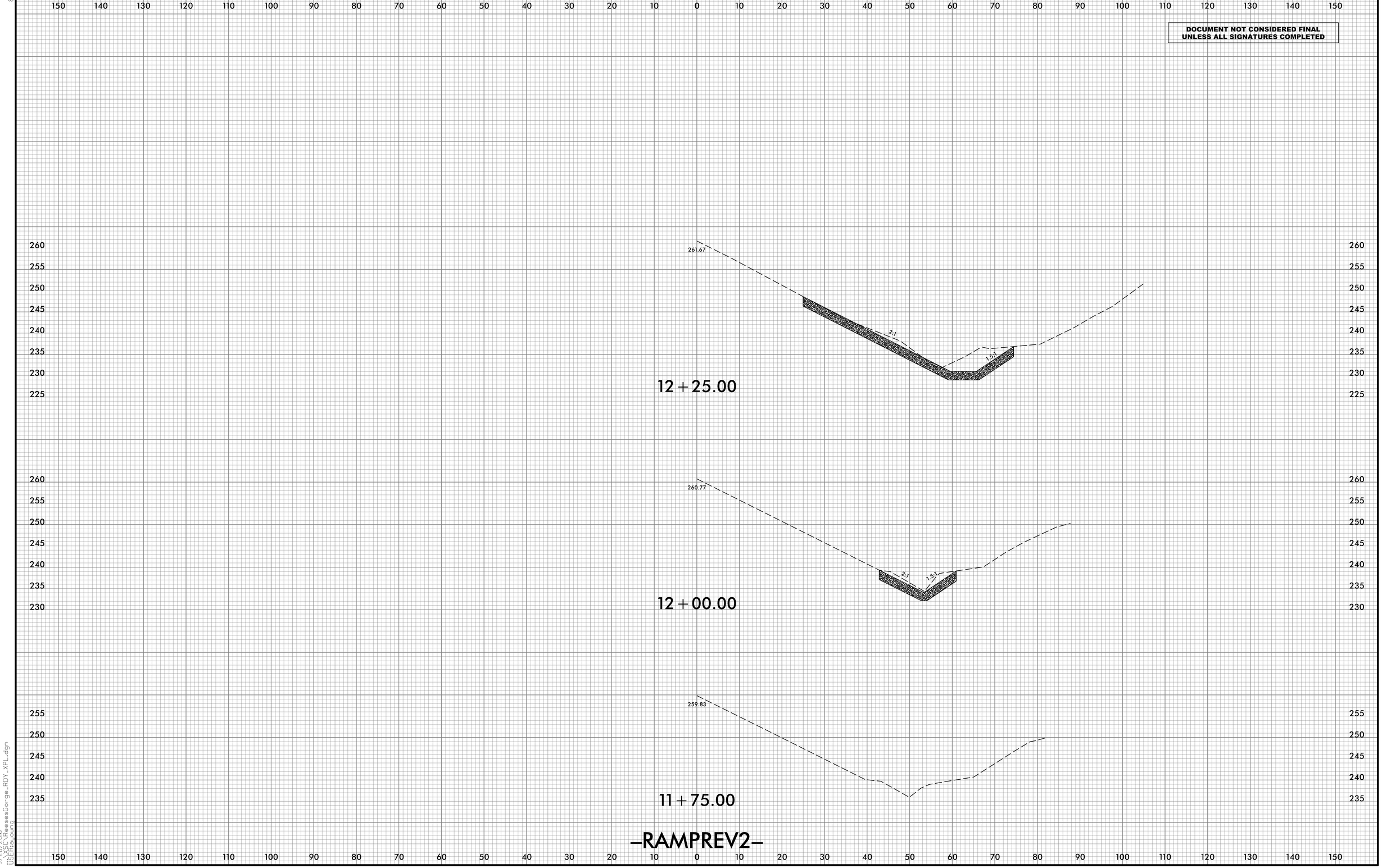

–RAMPREV2–

8/23/99

9/26/2016
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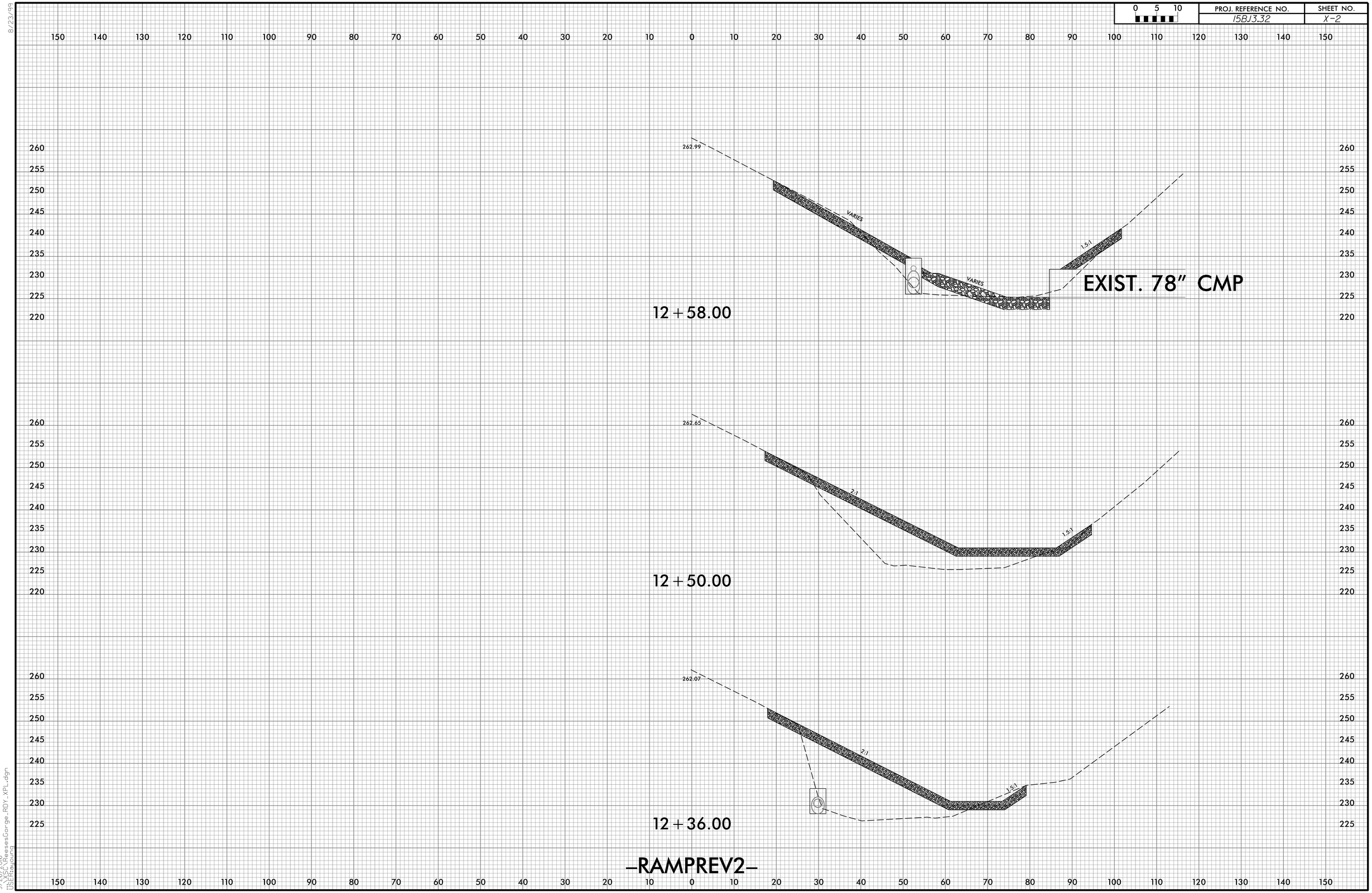
USER:ayoung



8/23/99

9/26/2016
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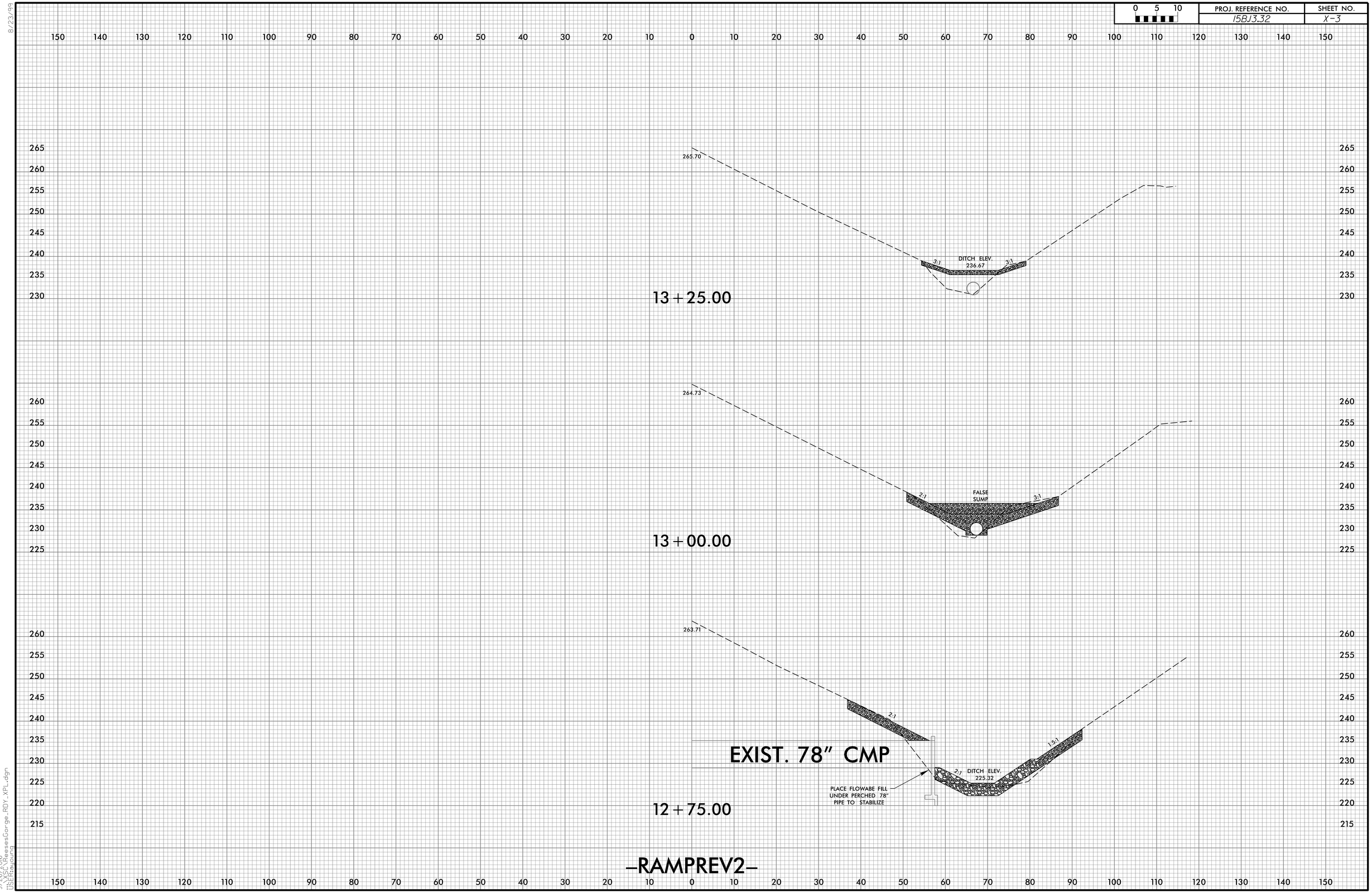

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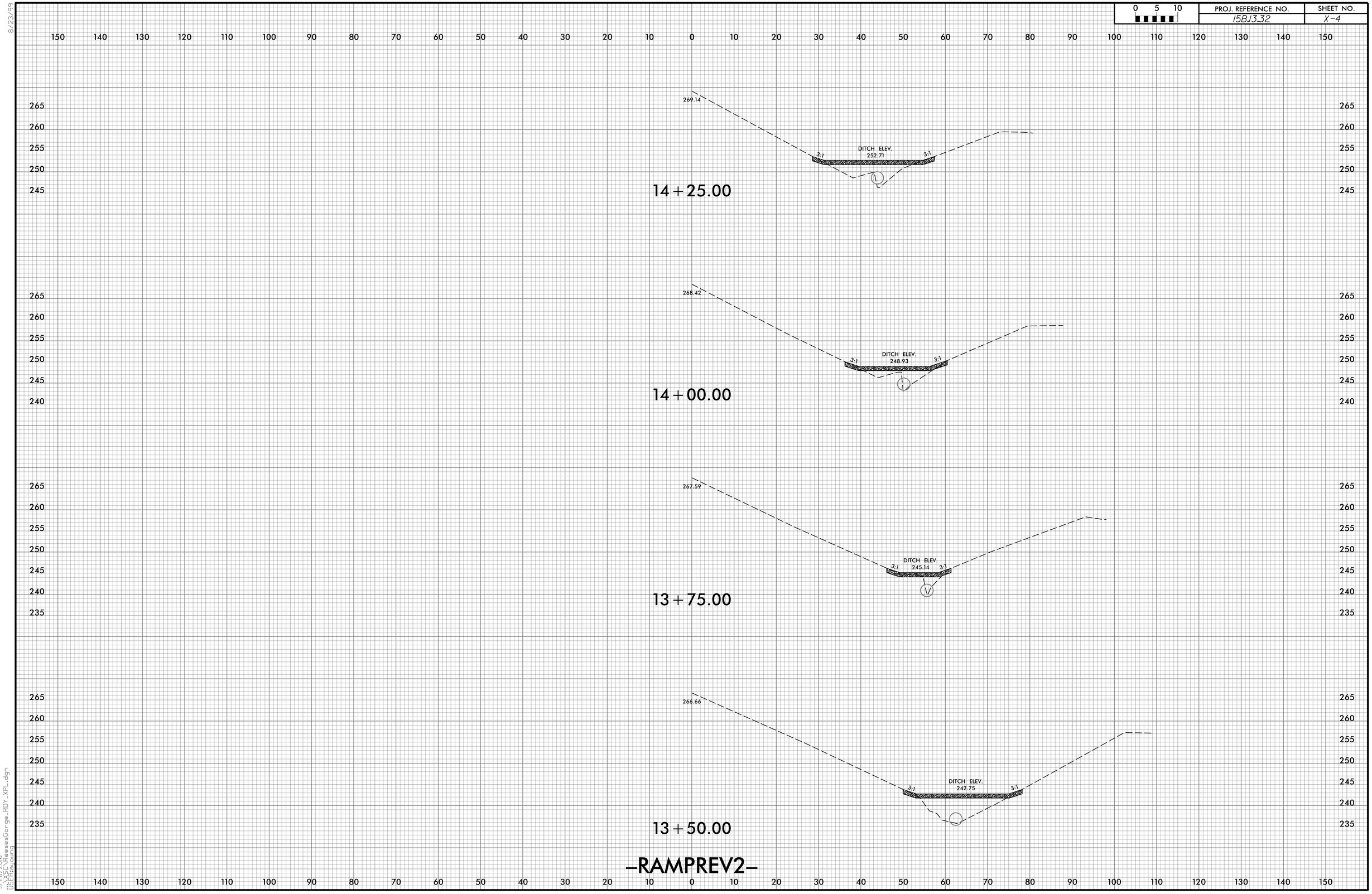

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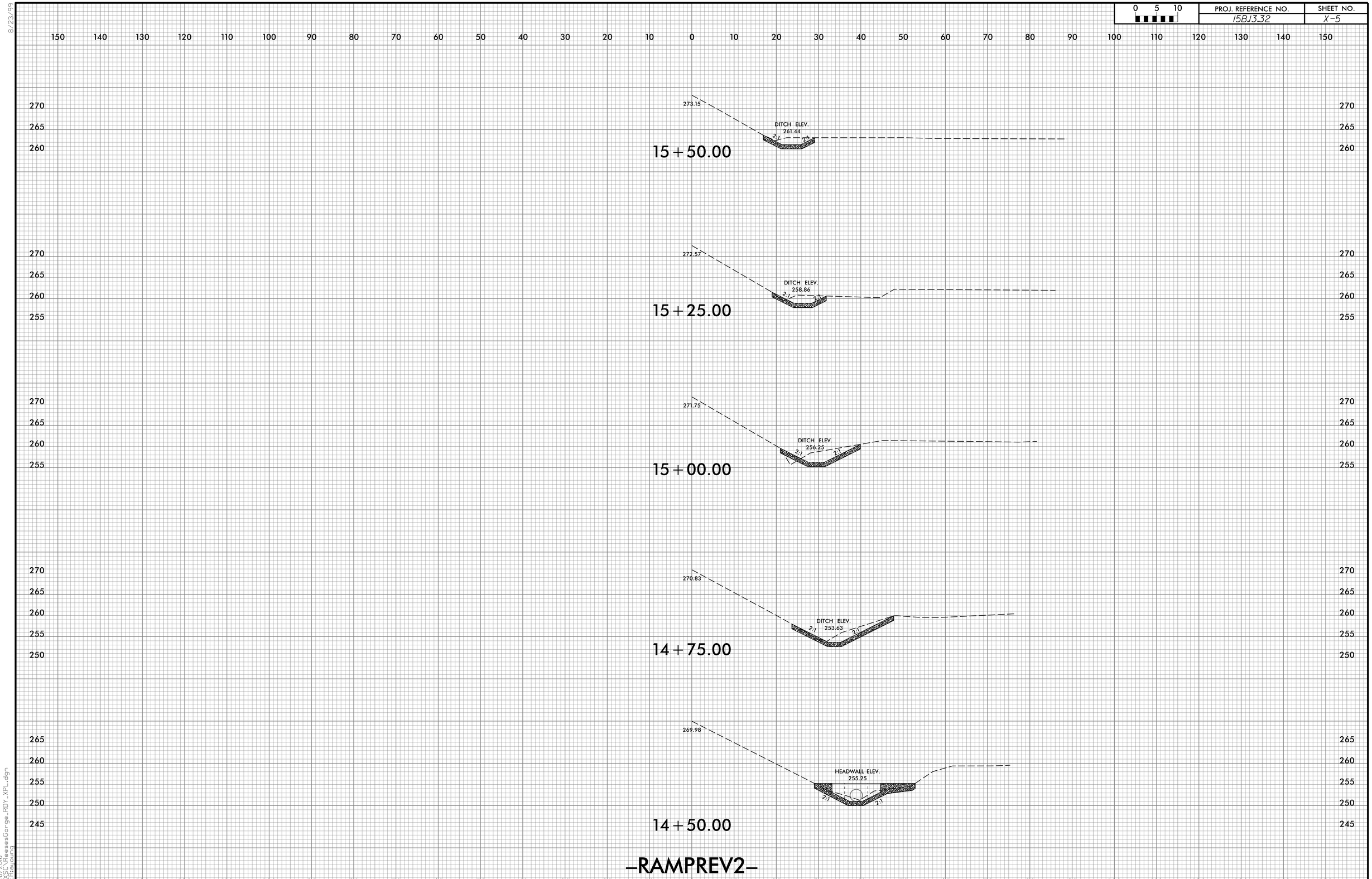

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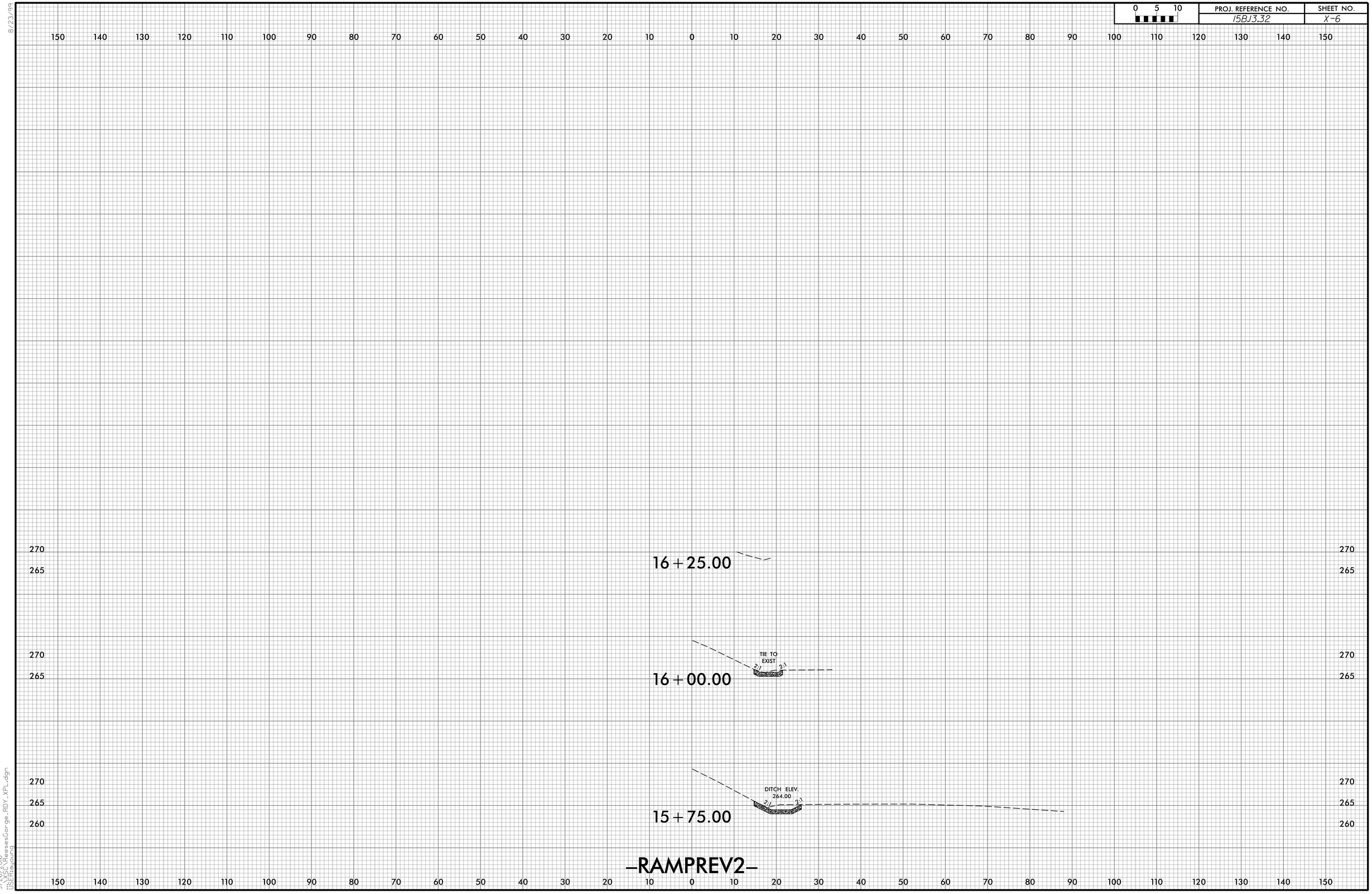

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