

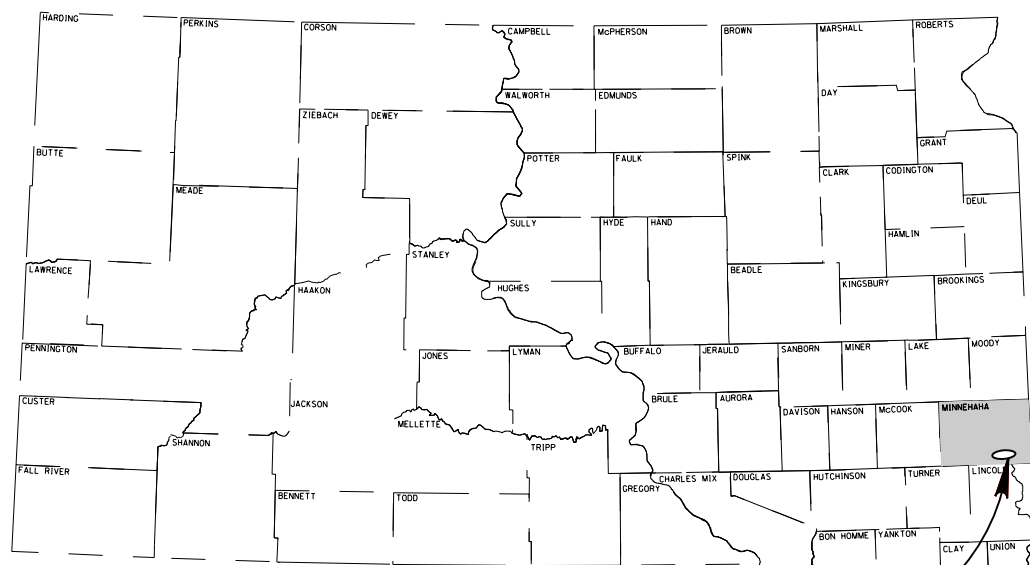
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT NH 2115(45)87
SD 115 (CLIFF AVE)
MINNEHAHA COUNTY

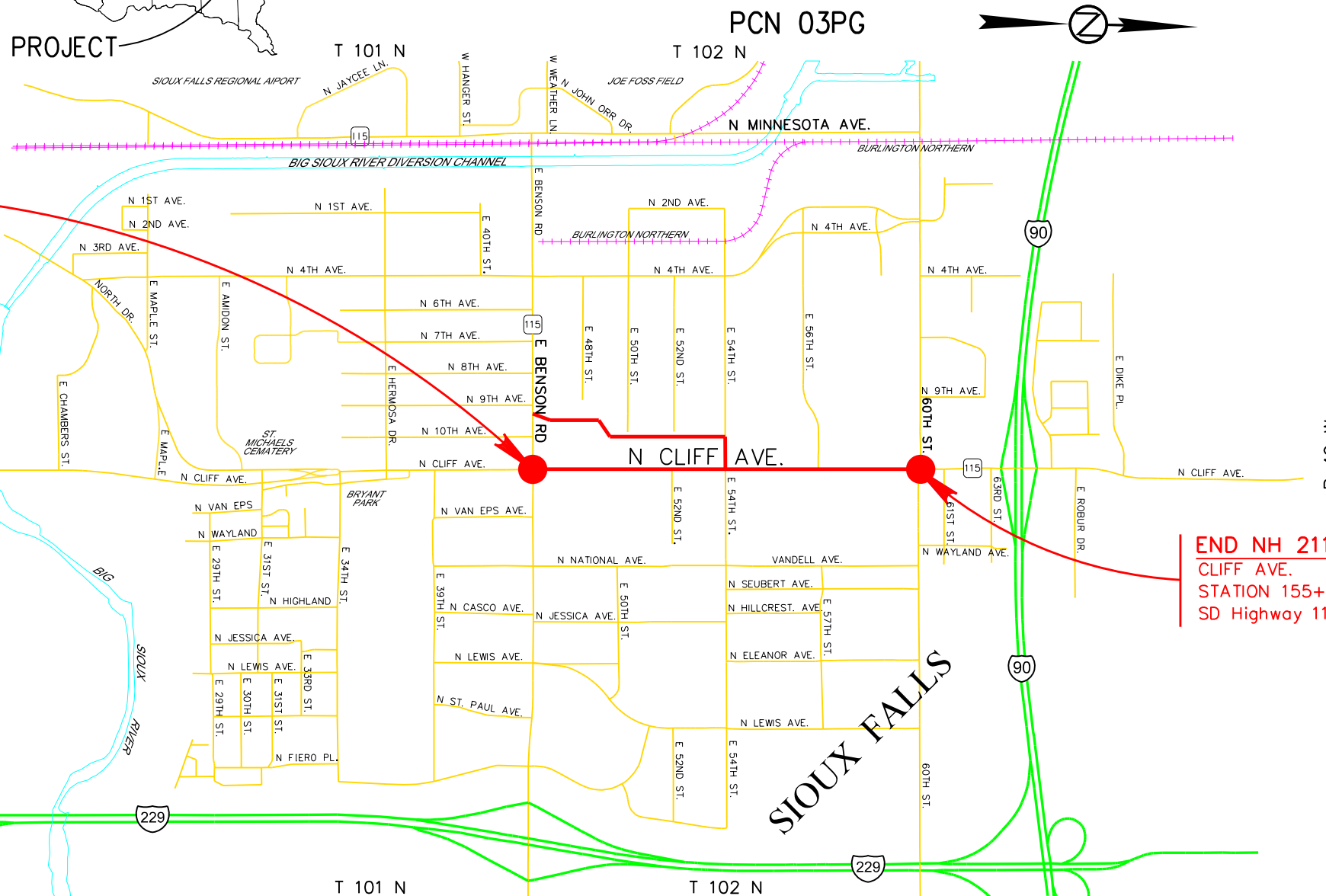
STATE OF SOUTH DAKOTA	PROJECT NH 2115(45)87	SHEET NO. G1	TOTAL SHEETS G27
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INDEX OF SHEETS

G1	General Layout W/Index
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REINFORCED CONCRETE BOX
CULVERT PROCUREMENT



BEGIN NH 2115(45)87
CLIFF AVE.
STATION 100+35.82
SD Highway 115 & E. Benson Road

END NH 2115(45)87
CLIFF AVE.
STATION 155+63.47
SD Highway 115 & 60th Street North

This Highway is a "CONTROL OF ACCESS" Highway as adopted by the South Dakota Transportation Commission. Access points to be limited to those shown on the construction plans except any additional that are required as a result of Right-Of-Way acquisition.

DESIGN DESIGNATION

ADT (2009)	17850
ADT (2029)	31475
DHV	3465
D	50%
T DHV	2.0%
T ADT	4.3%
V	45 MPH

STORM WATER PERMIT

Major stream: Big Sioux Diversion
Area Disturbed: 21.4 Acres
Total Project Area: 28.4 Acres
Approx. Begin Lat/Long 43.5873,-96.7112

SCALES

URBAN	
PLAN	1 INCH = 40 FT.
PROFILE	HORIZONTAL: 1 INCH = 40 FT. VERTICAL: 1 INCH = 10 FT.
CROSS SECTIONS	HORIZONTAL: 1 INCH = 20 FT. VERTICAL: 1 INCH = 10 FT.

GROSS LENGTH	5,527.65 FEET	1.047 MILES
LENGTH OF EXCEPTIONS	0 FEET	0 MILES
NET LENGTH	5,527.65 FEET	1.047 MILES



431 N. PHILLIPS AVENUE, SUITE 400
SIOUX FALLS, SD 57104
(605) 334-4499 FAX (605) 338-6124



LETTING NUMBER

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SECTION G ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
560E0068	7'x3' Precast Concrete Box Culvert, Furnish	1262	Ft
560E0128	10'x3' Precast Concrete Box Culvert, Furnish	1006	Ft
560E0130	10'x4' Precast Concrete Box Culvert, Furnish	150	Ft
560E0178	12'x3' Precast Concrete Box Culvert, Furnish	160	Ft
560E1128	10' x 3' Precast Concrete Box Culvert End Section, Furnish	1	Each
560E4010	Special Precast Concrete Box Culvert Bend, Furnish	5	Each
560E4020	Special Precast Concrete Box Culvert Transition, Furnish	2	Each

PRECAST CONCRETE BOX CULVERT

SPECIFICATIONS

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 5th Edition with 2010 Interim Revisions.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required Provisions, Supplemental Specifications and/or Special provisions as included in the Proposal.

GENERAL NOTES

Design shall be in accordance with Section 560 of the South Dakota Standard Specifications with the following criteria:

- Box culvert, box culvert end, and box culvert transition section design shall conform to the AASHTO LRFD Bridge Design Specifications, 5th Edition with 2010 Interims.
- Design Live Load: HL-93. No construction loading in excess of legal load is anticipated. If construction loading in excess of legal load is anticipated by the Contractor, the Contractor shall submit a proposal including a design analysis for the anticipated construction loading, through the proper channels, to the Office of Bridge Design for approval. Upon approval, the construction load shall not be applied until the depth of fill over the box culvert as required by analysis has been placed. At a minimum, 5 ft. of fill shall be placed over the box culvert prior to applying the construction load. All costs associated with accommodating any construction loads shall be borne by the Contractor.
- The design of the barrel sections shall be based on a minimum fill height of 1 foot and include all subsequent fill heights up to and including the maximum fill height of 3 ft. over the box culvert.
- Minimum inside corner fillet shall be 6 in.
- Minimum precast barrel section length shall be 4 ft.
- Lift holes shall be plugged with an approved nonshrinkable grout.
- The Fabricator shall imprint on the structure the date of construction as specified and detailed on Standard Plate No. 460.02.

- A design and checked design done by S.D. Registered Professional Engineers shall be submitted to HR Green, Inc., 431 N. Phillips Avenue, Suite 400, Sioux Falls, SD 57104, for the following items:
 - 7'x3' Precast Concrete Box Culvert, Furnish
 - 10'x3' Precast Concrete Box Culvert, Furnish
 - 10'x4' Precast Concrete Box Culvert, Furnish
 - 12'x3' Precast Concrete Box Culvert, Furnish
 - 10' x 3' Precast Concrete Box Culvert End Section, Furnish
 - Special Precast Concrete Box Culvert Bend, Furnish (10'x3' RCBC – 30 degrees)
 - Special Precast Concrete Box Culvert Transition, Furnish (12'x3' RCBC to 10'x4' RCBC transition; 10'x3' RCBC to 7'x3' RCBC transition)
- Dry casting of concrete box culvert sections will be allowed. Dry casting of box culvert section shall be in accordance with ASTM-C1433. Fresh concrete testing will not be performed by the Engineer. Concrete cylinders shall be cast by the supplier for compressive strength testing. The cylinders shall be cast and cured under identical conditions with the same duration as the box culvert sections.

DESIGN MIX OF CONCRETE

- Mix shall be as per fabricator's design, however minimum compressive strength shall not be less than 4500 p.s.i. at 28 days.
- Type II cement is required.

JOINT TREATMENT

The joint on the bottom of the box culvert shall be sealed with 1-1/4" mastic. The mastic shall be Press-Seal Gasket Company EZ Stick or approved equal. The preformed mastic shall extend a minimum of 12" up the side walls of the box culvert joint on each side.

The joint along the top and side walls shall be externally sealed with a 9" heavy duty waterproofing barrier membrane. The membrane shall be Mar-Mac Construction Products, Inc. Seal wrap or approved equal.

All joint treatment materials shall be provided at the time of delivery of the precast box culvert sections. Joint treatment materials shall be incidental to the contract unit price for furnishing precast concrete box culvert.

SHOP PLANS

- The fabricator shall initially submit 3 copies of the shop plans to HR Green, Inc., 431 N. Phillips Avenue, Suite 400, Sioux Falls, SD 57104, for review.
- After review by HR Green, Inc., one copy with any revisions noted will be sent to both the Office of Bridge Design and the Fabricator. The Fabricator shall then send seven corrected copies back to HR Green, Inc.
- After review by HR Green, Inc., six copies will be sent back to the Bridge Construction Engineer, South Dakota Department of Transportation, who will review them, arrange for fabrication inspection, authorize fabrication, and distribute the shop drawings.



TABLE OF PIPE QUANTITIES

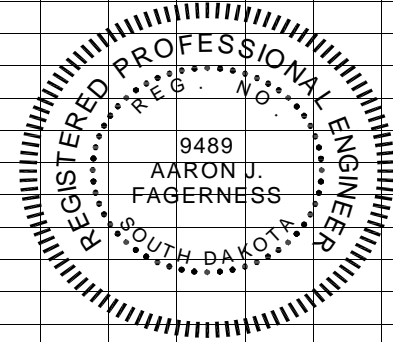
STATE OF SOUTH DAKOTA

PROJECT
NH 2115(45)87

SHEET
G4

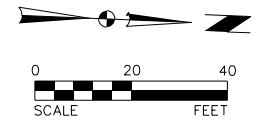
TOTAL SHEETS
G27

		Reinforced Concrete																		PVC				HDPE													
Station	Offset (L/R)	Circular									Arch			Bend		Tee		Flared End		Box Culvert				Bend	End Section	Transition		Circular									
		12" Cl.2	15" Cl.2	18" Cl.2	24" Cl.2	30" Cl.2	36" Cl.2	48" Cl.2	54" Cl.2	60" Cl.2	30" Cl.2	36" Cl.2	42" Cl.2	60" Circ	30" Arch	60" x 18"	36" Arch x 18" Circular	18" Circ	36" Arch	12'x3'	10'x4'	10'x3'	7'x3'	10'x3'		10'x3'	12'x3' to 10'x4'	10'x3' to 7'x3'	6" Ft	8" Ft	10" Ft	12" Ft	12" Ft	15" Ft	18" Ft	24" Ft	
131+85.00-1.81'LT to 131+93.00-1.81'LT																										1											
131+93.00-1.81'LT to 132+82.00-1.81'LT																								89													
132+82.00-1.81'LT to 136+25.00-1.81'LT																								343													
136+25.00-1.81'LT to 137+40.00-1.81'LT																								115													
137+40.00-1.81'LT to 138+91.53-1.77'LT																								152													
138+91.53-1.77'LT to 141+71.04-1.81'LT																								280													
141+71.04-1.81'LT to 143+10.00-1.81'LT																								139													
143+10.00-1.81'LT to 144+53.75-0.13'RT																								144													
Subtotal:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1262	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Total:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160	150	1006	1262	5	1	1	1	0	0	0	0	0	0	0	0	0	0	



NOTES:

UTILITY PLAN & PROFILE SHEETS HAVE BEEN INCLUDED FOR INFORMATIONAL PURPOSES ONLY. INSTALLATION OF REINFORCED CONCRETE BOX CULVERT, STORM SEWER LATERALS, AND DRAINAGE STRUCTURES ARE PART OF A SEPARATE CONTRACT. GRADING AND REMOVAL WORK IS ALSO PART OF A SEPARATE CONTRACT.



0+00.00-0.00' TO 0+7.87-0.00'
SPECIAL CIP 12'X3' CONCRETE BOX CULVERT SKEWED END SECTION; CONNECT TO EXISTING DRAINAGE CHANNEL (SEPARATE CONTRACT)

1+20.83-6.00' LT
CONNECT TO 12'X3' RCBC (PROVIDE OPENING FOR 15" HDPE)

1+66.58-0.00' TO 1+74.58-0.00'
SPECIAL 12'X3' TO 10'X4' PRECAST CONCRETE BOX CULVERT TRANSITION (MATCH FLOWLINES)

0+07.87-0.00' TO 1+66.58-0.00'
12'X3'-160' RCBC BETWEEN EXISTING CHANNEL AND TRANSITION

1+66.58-0.00' TO 3+23.39-0.00'
10'X4'-150' RCBC BETWEEN RCBC TRANSITION AND CHANNEL TRANSITION

3+23.39-0.00'
SPECIAL BOX CULVERT SECTION SEE DETAIL ON SHEET G.25

3+23.39-0.00' TO 3+36.12-0.00'
CIP CHANNEL TRANSITION (SEPARATE CONTRACT)

E BENSON ROAD

LOEWENBERG PROPERTIES LLC
1000 E BENSON RD

CITY OF SIOUX FALLS
1100 E BENSON RD

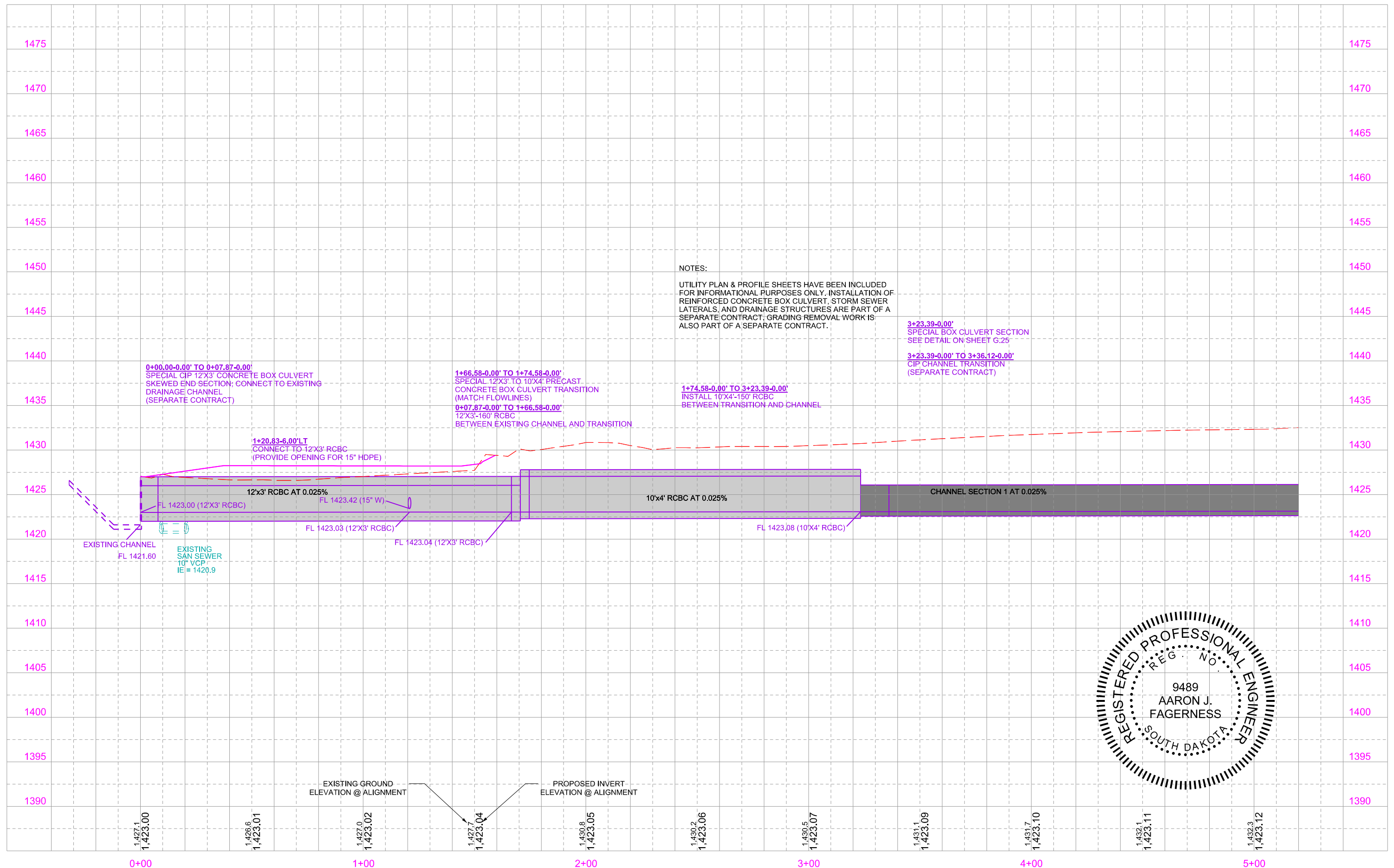
TEMPORARY EASEMENT

GRADING LIMITS

CHANNEL SECTION 1

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3+23.39-0.00'
 SPECIAL BOX CULVERT SECTION
 SEE DETAIL ON SHEET G.25

3+23.39-0.00' TO 3+36.12-0.00'
 CIP CHANNEL TRANSITION
 (SEPARATE CONTRACT)

0+00.00-0.00' TO 0+07.87-0.00'
 SPECIAL CIP 12'X3' CONCRETE BOX CULVERT SKEWED END SECTION; CONNECT TO EXISTING DRAINAGE CHANNEL (SEPARATE CONTRACT)

1+66.58-0.00' TO 1+74.58-0.00'
 SPECIAL 12'X3' TO 10'X4' PRECAST CONCRETE BOX CULVERT TRANSITION (MATCH FLOWLINES)

0+07.87-0.00' TO 1+66.58-0.00'
 12'X3'-160' RCBC
 BETWEEN EXISTING CHANNEL AND TRANSITION

1+74.58-0.00' TO 3+23.39-0.00'
 INSTALL 10'X4'-150' RCBC BETWEEN TRANSITION AND CHANNEL

1+20.83-6.00' LT
 CONNECT TO 12'X3' RCBC (PROVIDE OPENING FOR 15" HDPE)

12'x3' RCBC AT 0.025%
 FL 1423.00 (12'X3' RCBC)
 FL 1423.42 (15" W)

10'x4' RCBC AT 0.025%
 FL 1423.08 (10'X4' RCBC)

CHANNEL SECTION 1 AT 0.025%

EXISTING CHANNEL
 FL 1421.60

EXISTING SAN SEWER
 10" VCP
 IE = 1420.9

FL 1423.03 (12'X3' RCBC)
 FL 1423.04 (12'X3' RCBC)



EXISTING GROUND ELEVATION @ ALIGNMENT

PROPOSED INVERT ELEVATION @ ALIGNMENT

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STATE OF SOUTH DAKOTA	PROJECT NH 2115(45)87	SHEET NO. G7	TOTAL SHEETS G27
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26+07.66-0.00' TO 26+14.16-0.00'
10'X3' PRECAST CONCRETE BOX CULVERT
END SECTION WITH 2' CUTOFF WALL

26+30.73-0.00' TO 26+36.73-0.00'
SPECIAL 10'X3' PRECAST
CONCRETE BOX CULVERT 30° BEND

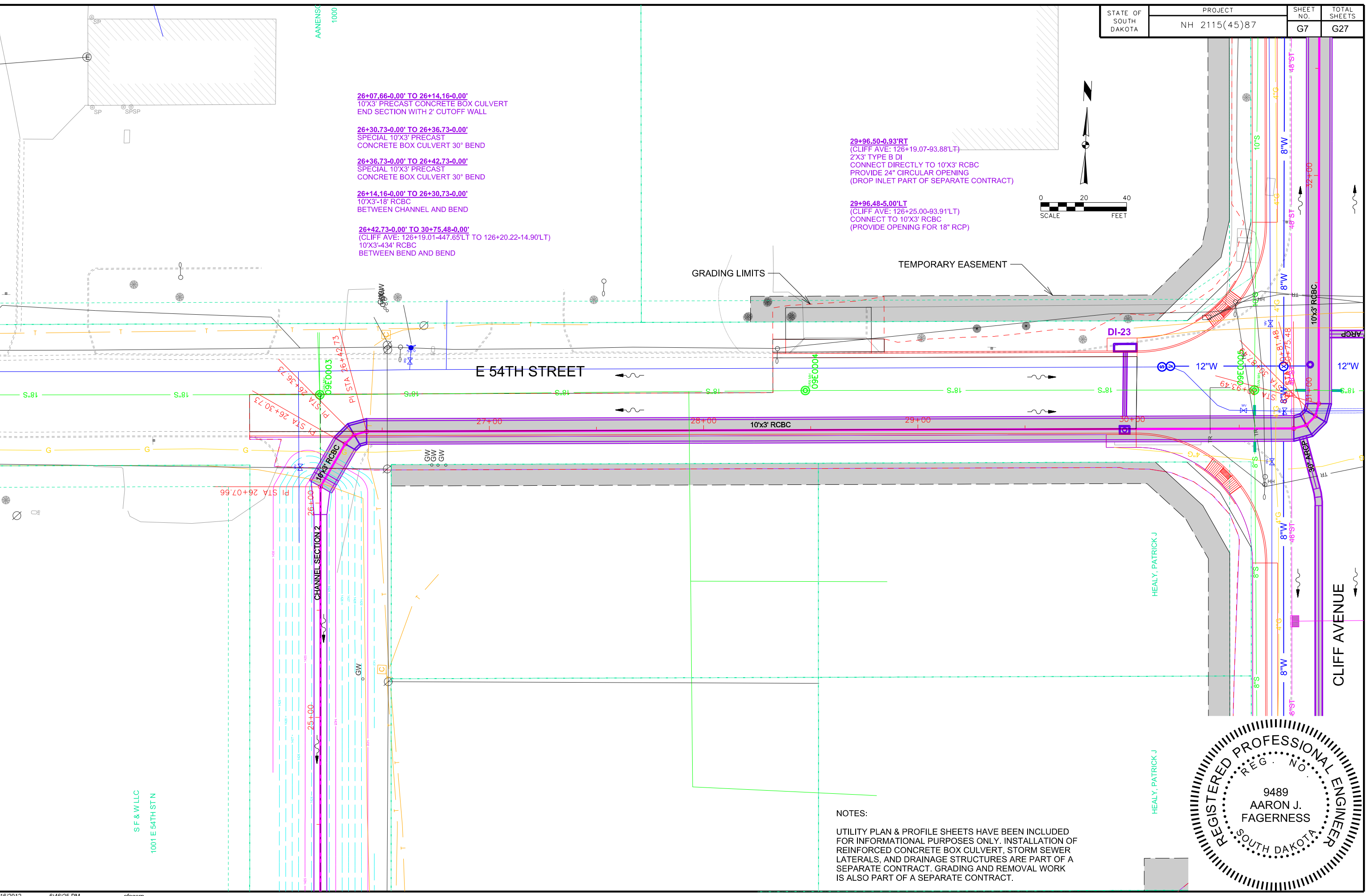
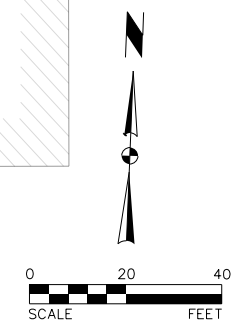
26+36.73-0.00' TO 26+42.73-0.00'
SPECIAL 10'X3' PRECAST
CONCRETE BOX CULVERT 30° BEND

26+14.16-0.00' TO 26+30.73-0.00'
10'X3'-18' RCBC
BETWEEN CHANNEL AND BEND

26+42.73-0.00' TO 30+75.48-0.00'
(CLIFF AVE: 126+19.01-447.65'LT TO 126+20.22-14.90'LT)
10'X3'-434' RCBC
BETWEEN BEND AND BEND

29+96.50-0.93'RT
(CLIFF AVE: 126+19.07-93.88'LT)
2'X3' TYPE B DI
CONNECT DIRECTLY TO 10'X3' RCBC
PROVIDE 24" CIRCULAR OPENING
(DROP INLET PART OF SEPARATE CONTRACT)

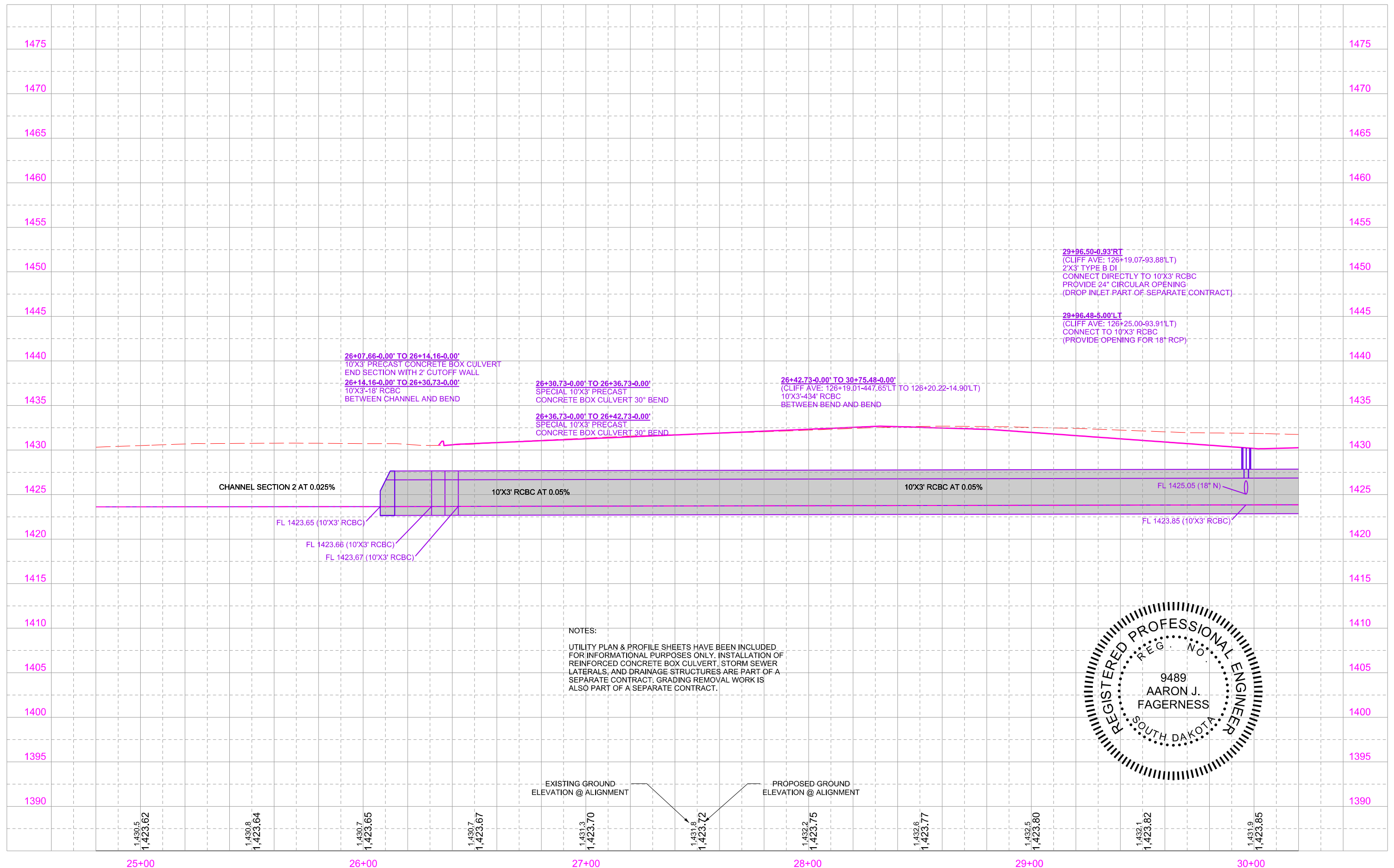
29+96.48-5.00'LT
(CLIFF AVE: 126+25.00-93.91'LT)
CONNECT TO 10'X3' RCBC
(PROVIDE OPENING FOR 18" RCP)



NOTES:
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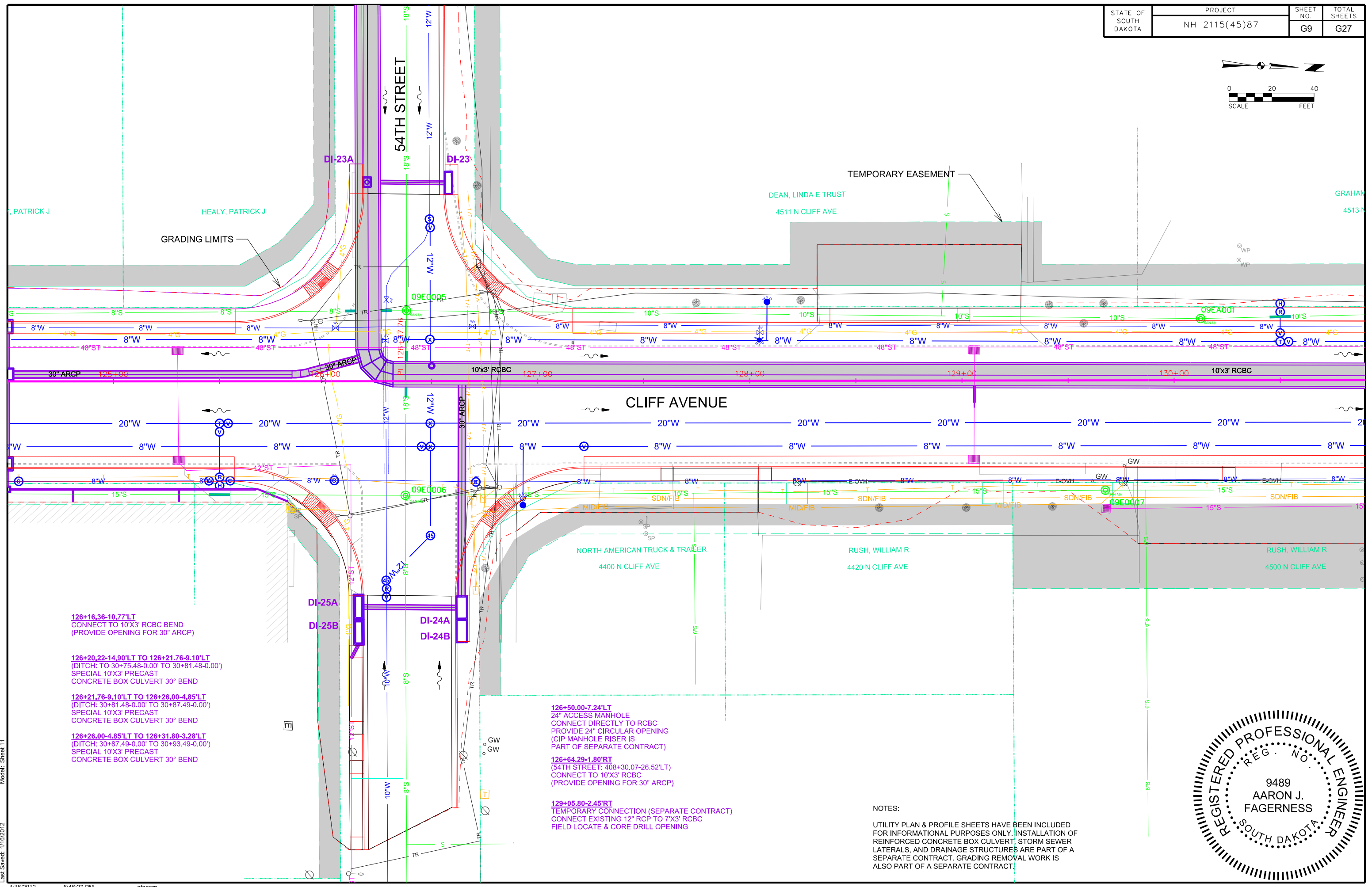
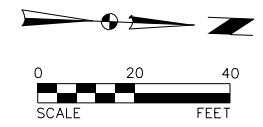
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126+16.36-10.77'LT
CONNECT TO 10'X3' RCBC BEND
(PROVIDE OPENING FOR 30" ARCP)

126+20.22-14.90'LT TO 126+21.76-9.10'LT
(DITCH: TO 30+75.48-0.00' TO 30+81.48-0.00')
SPECIAL 10'X3' PRECAST
CONCRETE BOX CULVERT 30" BEND

126+21.76-9.10'LT TO 126+26.00-4.85'LT
(DITCH: 30+81.48-0.00' TO 30+87.49-0.00')
SPECIAL 10'X3' PRECAST
CONCRETE BOX CULVERT 30" BEND

126+26.00-4.85'LT TO 126+31.80-3.28'LT
(DITCH: 30+87.49-0.00' TO 30+93.49-0.00')
SPECIAL 10'X3' PRECAST
CONCRETE BOX CULVERT 30" BEND

126+50.00-7.24'LT
24" ACCESS MANHOLE
CONNECT DIRECTLY TO RCBC
PROVIDE 24" CIRCULAR OPENING
(CIP MANHOLE RISER IS
PART OF SEPARATE CONTRACT)

126+64.29-1.80'RT
(54TH STREET: 408+30.07-26.52'LT)
CONNECT TO 10'X3' RCBC
(PROVIDE OPENING FOR 30" ARCP)

129+05.80-2.45'RT
TEMPORARY CONNECTION (SEPARATE CONTRACT)
CONNECT EXISTING 12" RCP TO 7'X3' RCBC
FIELD LOCATE & CORE DRILL OPENING

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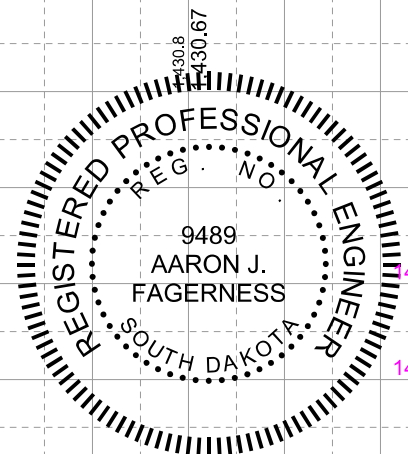
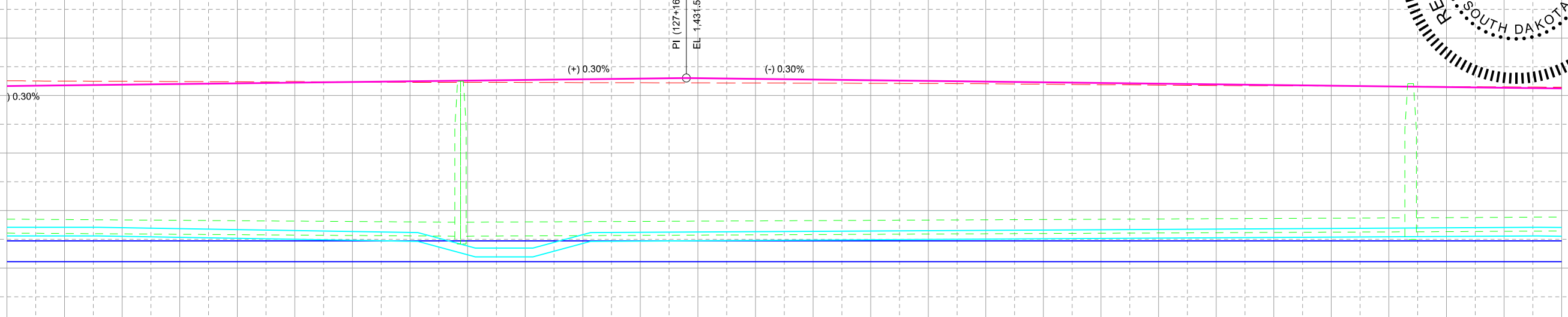
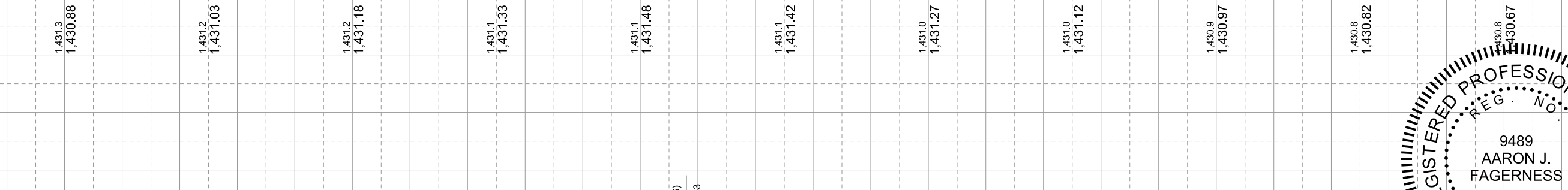
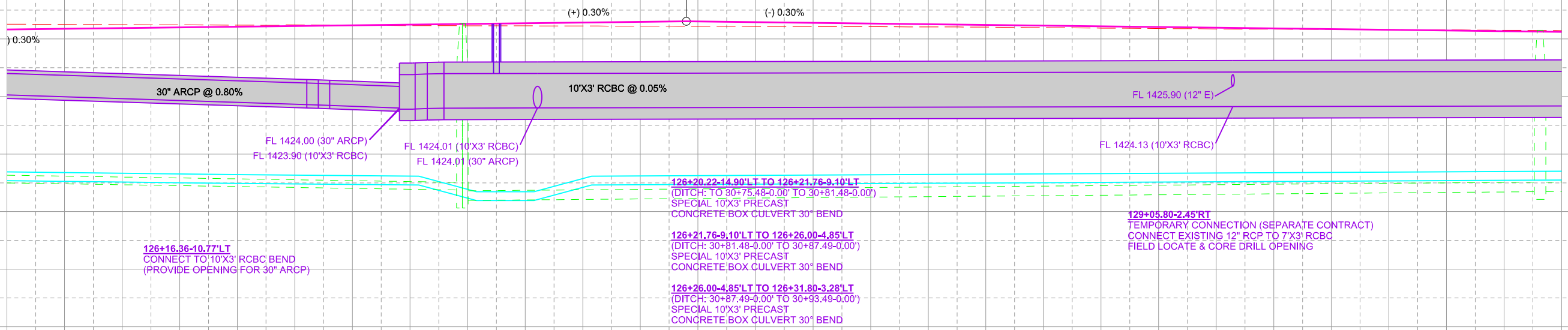
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EAST OF CENTERLINE

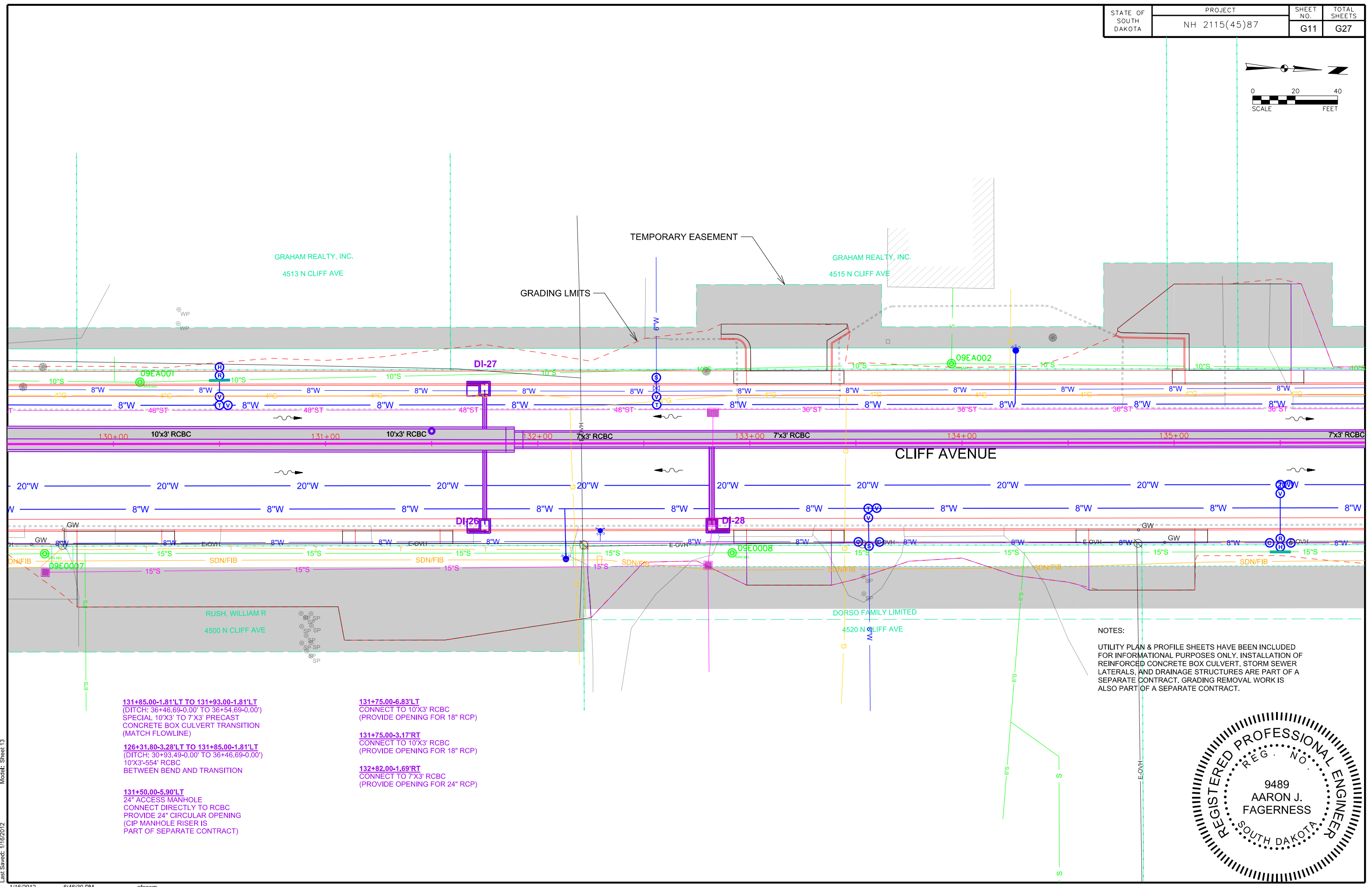
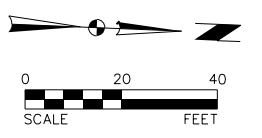
EAST OF CENTERLINE

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126+50.00-7.24'LT
24" ACCESS MANHOLE
CONNECT DIRECTLY TO RCBC
PROVIDE 24" CIRCULAR OPENING
(CIP MANHOLE RISER IS
PART OF SEPARATE CONTRACT)



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131+85.00-1.81'LT TO 131+93.00-1.81'LT
 (DITCH: 36+46.69-0.00' TO 36+54.69-0.00')
 SPECIAL 10'X3' TO 7'X3' PRECAST CONCRETE BOX CULVERT TRANSITION (MATCH FLOWLINE)

126+31.80-3.28'LT TO 131+85.00-1.81'LT
 (DITCH: 30+93.49-0.00' TO 36+46.69-0.00')
 10'X3'-554' RCBC BETWEEN BEND AND TRANSITION

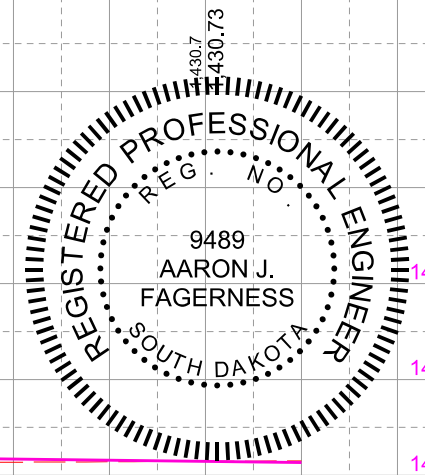
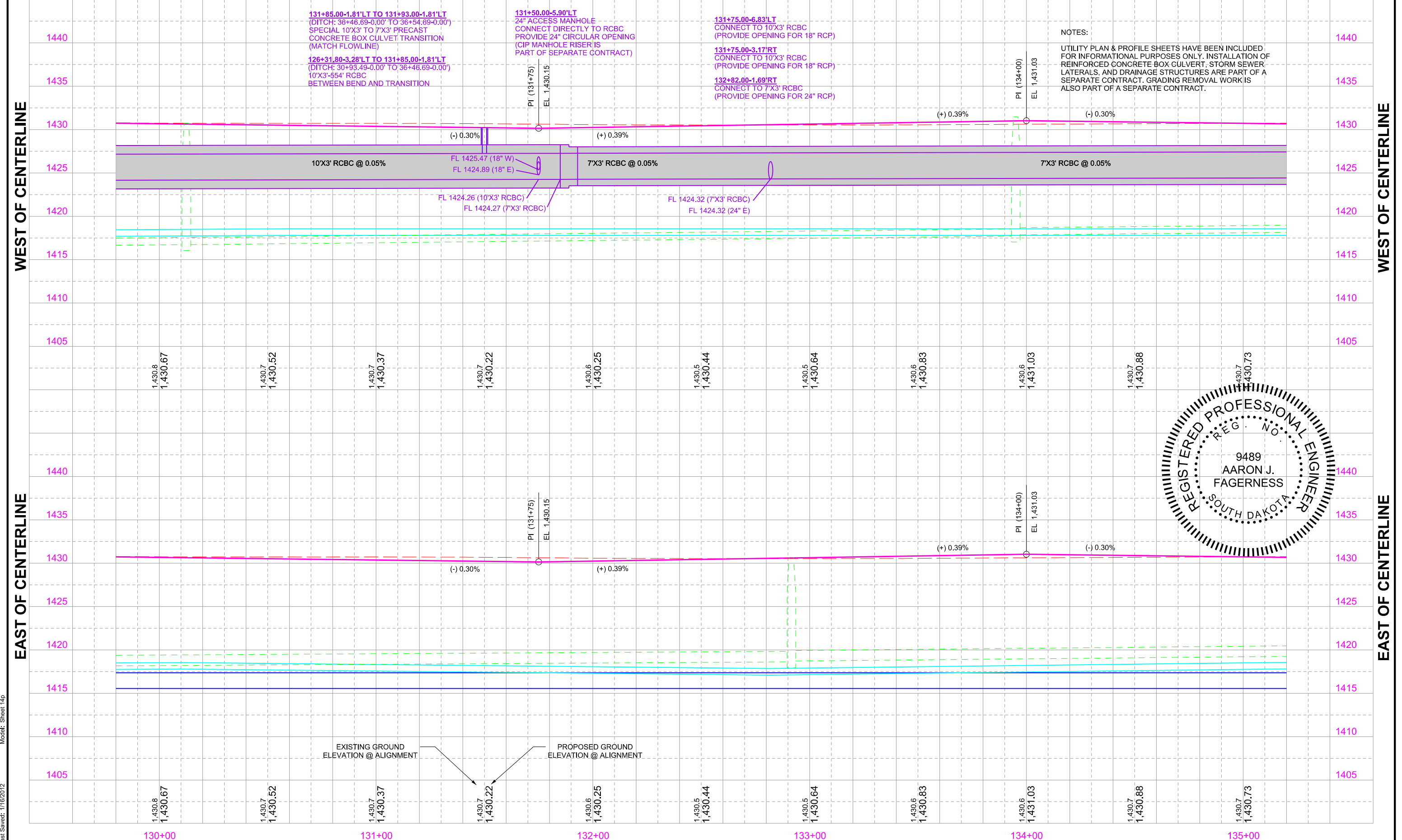
131+50.00-5.90'LT
 24" ACCESS MANHOLE
 CONNECT DIRECTLY TO RCBC
 PROVIDE 24" CIRCULAR OPENING (CIP MANHOLE RISER IS PART OF SEPARATE CONTRACT)

131+75.00-6.83'LT
 CONNECT TO 10'X3' RCBC (PROVIDE OPENING FOR 18" RCP)

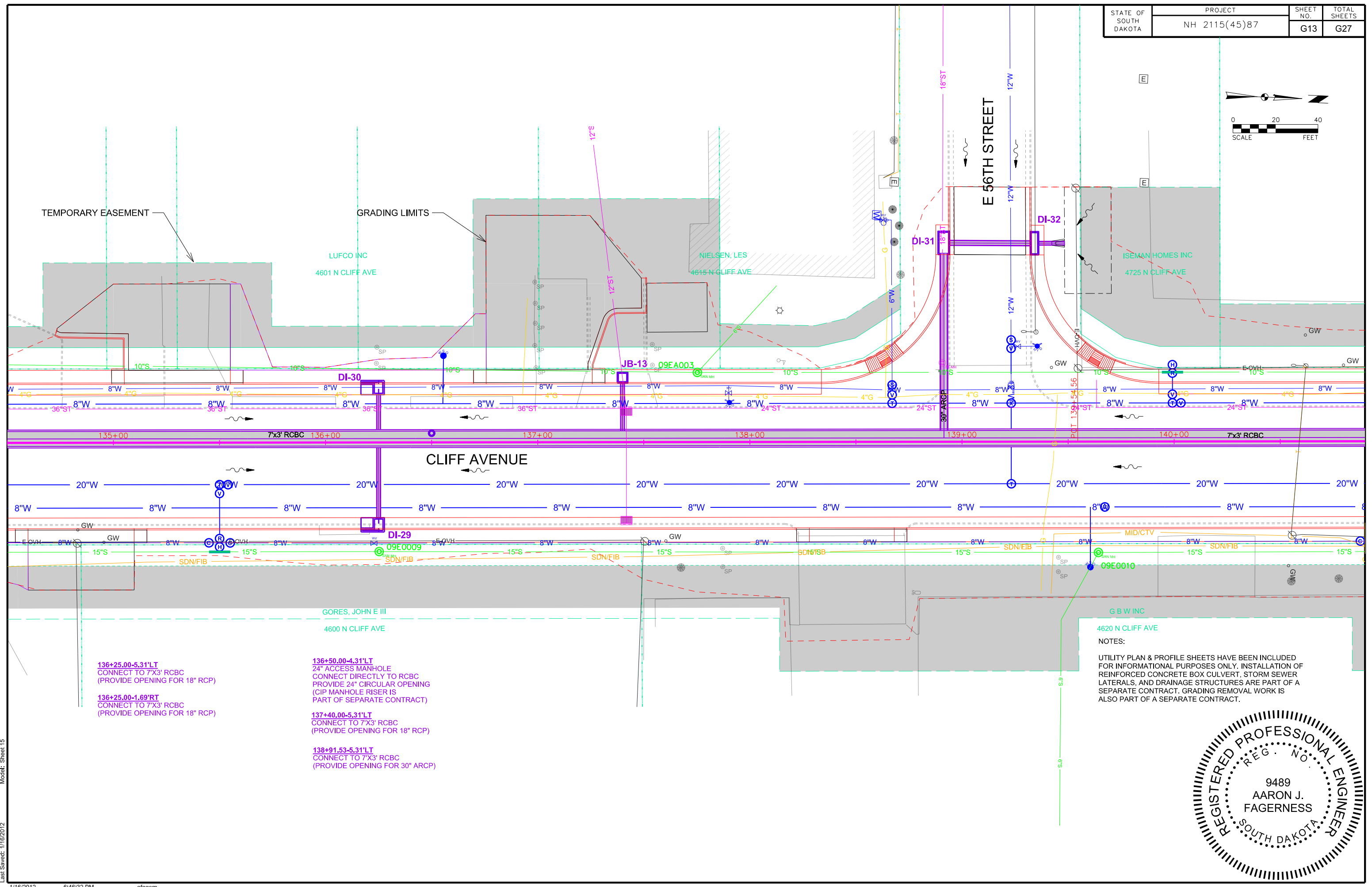
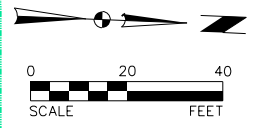
131+75.00-3.17'RT
 CONNECT TO 10'X3' RCBC (PROVIDE OPENING FOR 18" RCP)

132+82.00-1.69'RT
 CONNECT TO 7'X3' RCBC (PROVIDE OPENING FOR 24" RCP)

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136+25.00-5.31'LT
CONNECT TO 7'X3' RCBC
(PROVIDE OPENING FOR 18" RCP)

136+25.00-1.69'RT
CONNECT TO 7'X3' RCBC
(PROVIDE OPENING FOR 18" RCP)

136+50.00-4.31'LT
24" ACCESS MANHOLE
CONNECT DIRECTLY TO RCBC
PROVIDE 24" CIRCULAR OPENING
(CIP MANHOLE RISER IS
PART OF SEPARATE CONTRACT)

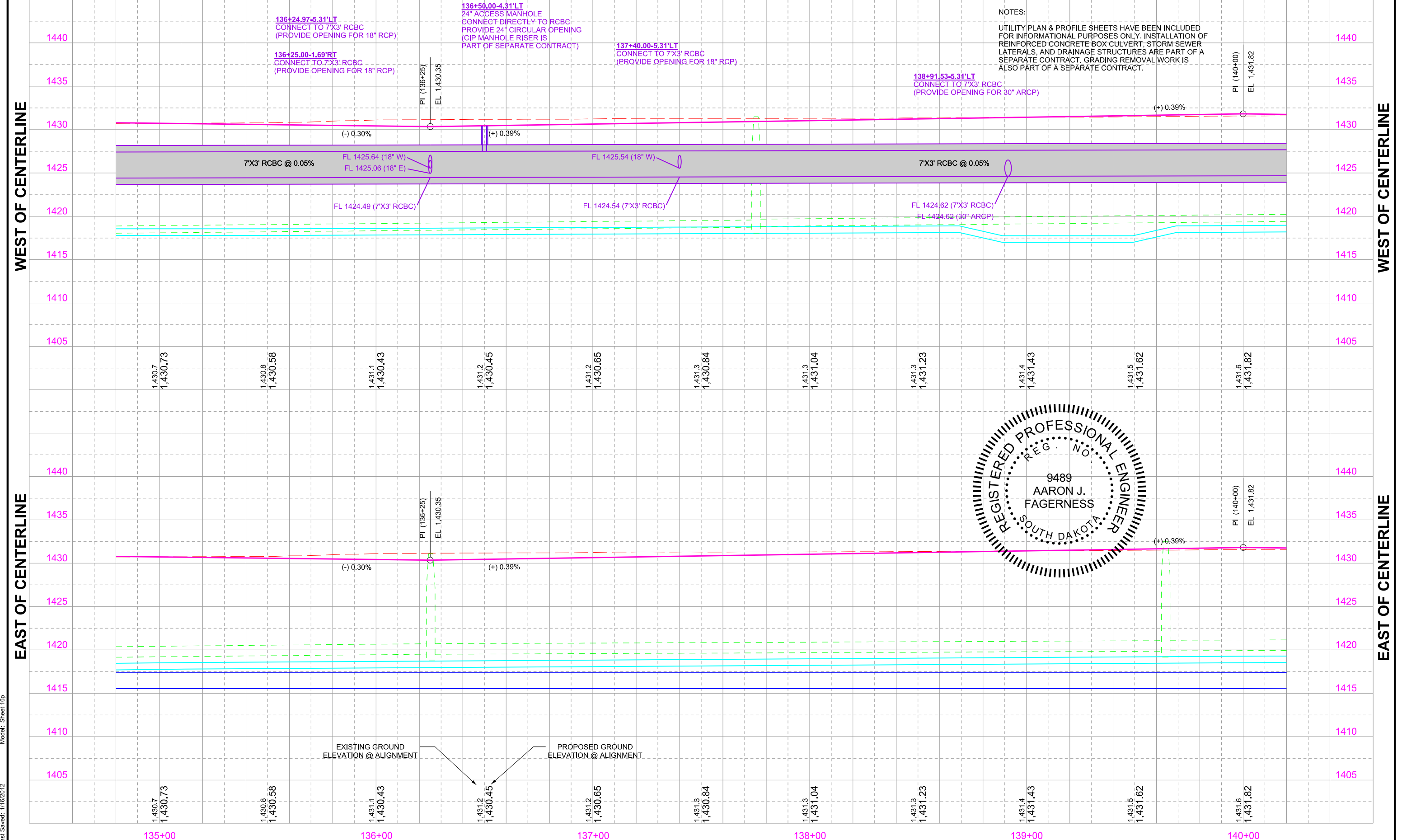
137+40.00-5.31'LT
CONNECT TO 7'X3' RCBC
(PROVIDE OPENING FOR 18" RCP)

138+91.53-5.31'LT
CONNECT TO 7'X3' RCBC
(PROVIDE OPENING FOR 30" ARCP)

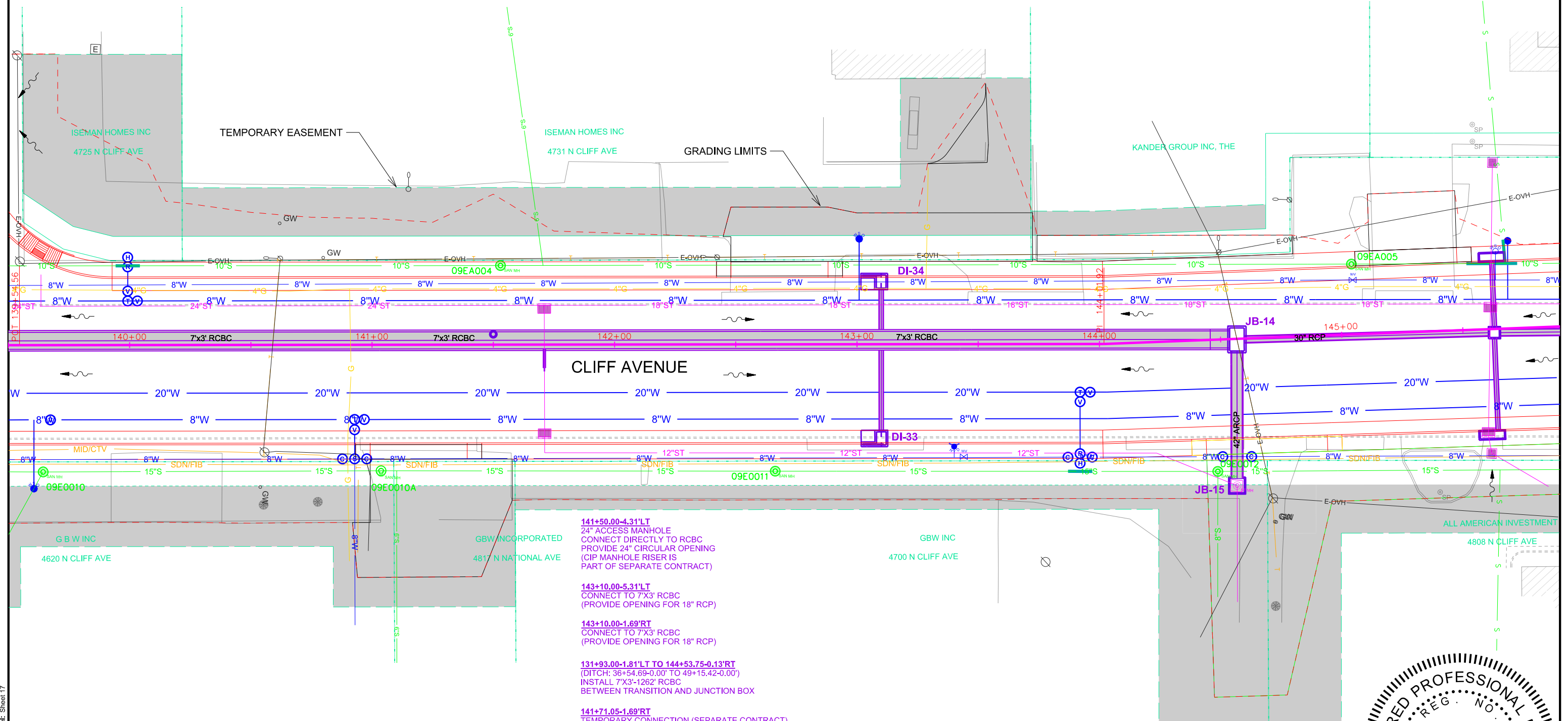
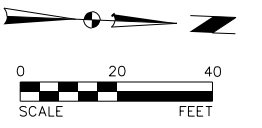
NOTES:
UTILITY PLAN & PROFILE SHEETS HAVE BEEN INCLUDED FOR INFORMATIONAL PURPOSES ONLY. INSTALLATION OF REINFORCED CONCRETE BOX CULVERT, STORM SEWER LATERALS, AND DRAINAGE STRUCTURES ARE PART OF A SEPARATE CONTRACT. GRADING REMOVAL WORK IS ALSO PART OF A SEPARATE CONTRACT.



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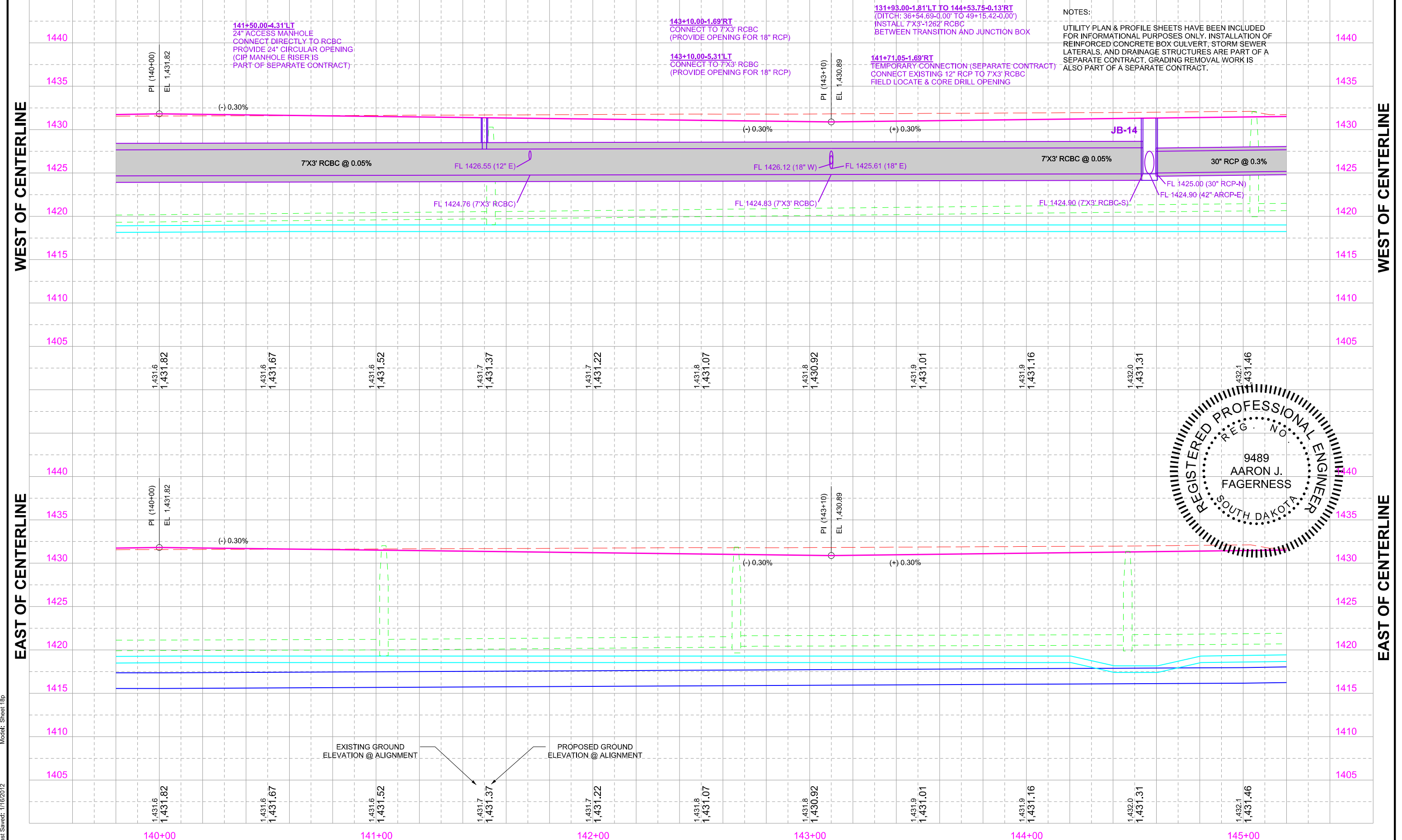


- 141+50.00-4.31'LT**
24" ACCESS MANHOLE
CONNECT DIRECTLY TO RCBC
PROVIDE 24" CIRCULAR OPENING
(CIP MANHOLE RISER IS
PART OF SEPARATE CONTRACT)
- 143+10.00-5.31'LT**
CONNECT TO 7'X3' RCBC
(PROVIDE OPENING FOR 18" RCP)
- 143+10.00-1.69'RT**
CONNECT TO 7'X3' RCBC
(PROVIDE OPENING FOR 18" RCP)
- 131+93.00-1.81'LT TO 144+53.75-0.13'RT**
(DITCH: 36+54.69-0.00' TO 49+15.42-0.00')
INSTALL 7'X3'-1262' RCBC
BETWEEN TRANSITION AND JUNCTION BOX
- 141+71.05-1.69'RT**
TEMPORARY CONNECTION (SEPARATE CONTRACT)
CONNECT EXISTING 12" RCP TO 7'X3' RCBC
FIELD LOCATE & CORE DRILL OPENING

NOTES:
UTILITY PLAN & PROFILE SHEETS HAVE BEEN INCLUDED FOR INFORMATIONAL PURPOSES ONLY. INSTALLATION OF REINFORCED CONCRETE BOX CULVERT, STORM SEWER LATERALS, AND DRAINAGE STRUCTURES ARE PART OF A SEPARATE CONTRACT. GRADING REMOVAL WORK IS ALSO PART OF A SEPARATE CONTRACT.



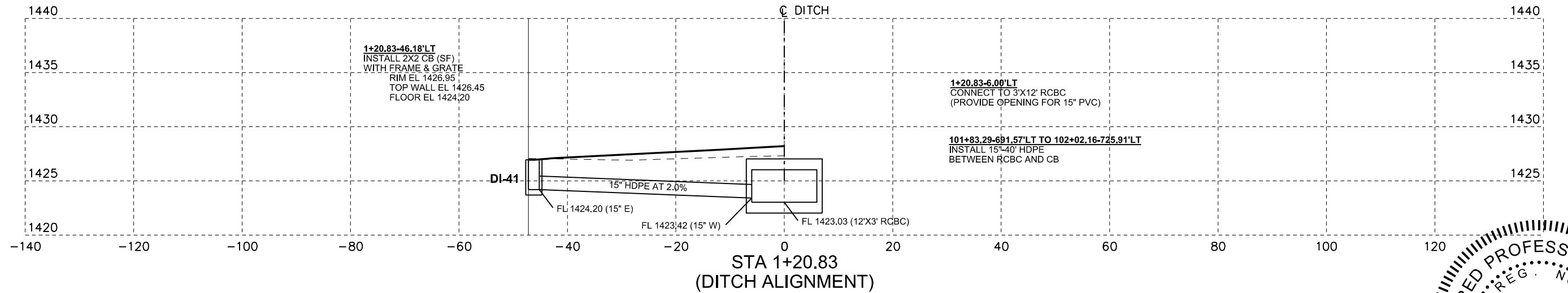
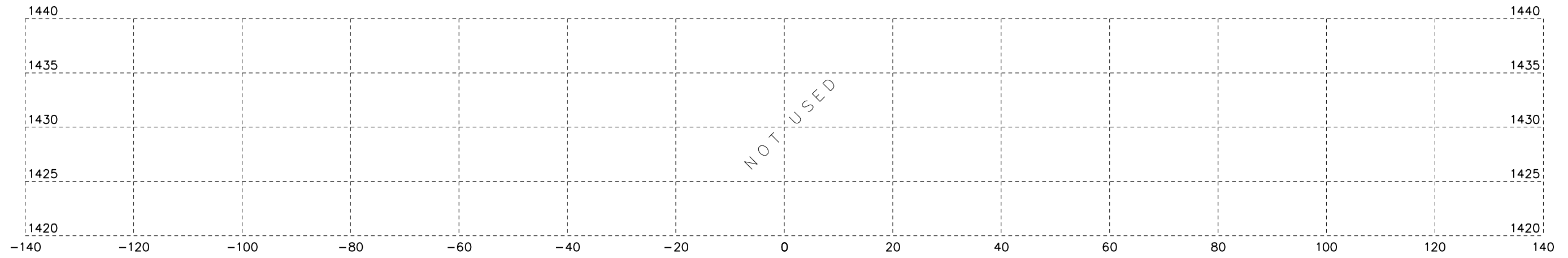
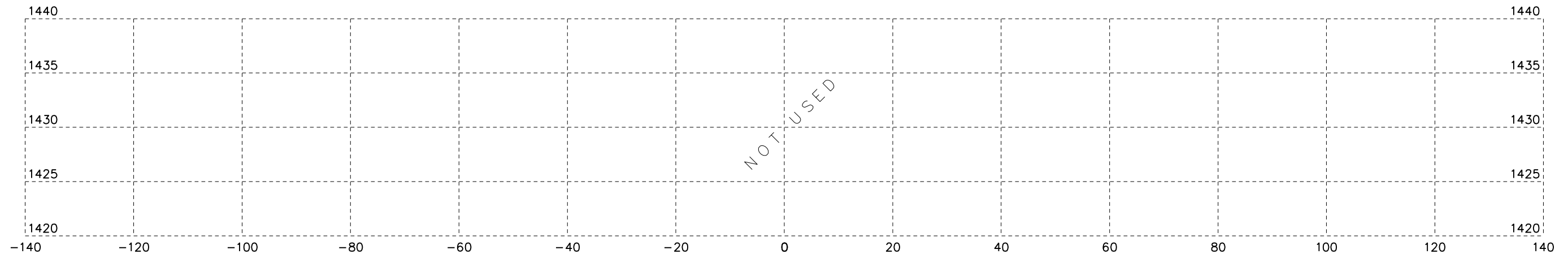
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PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 2115(45)87	G17	G27



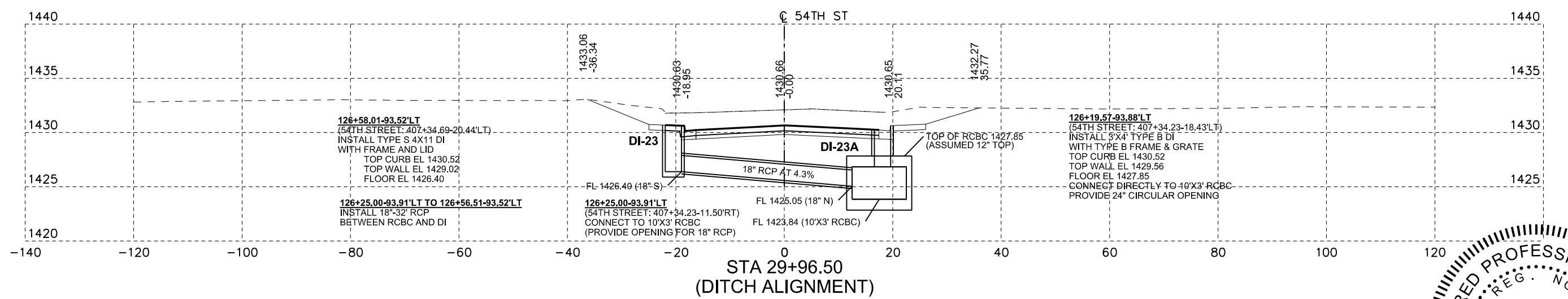
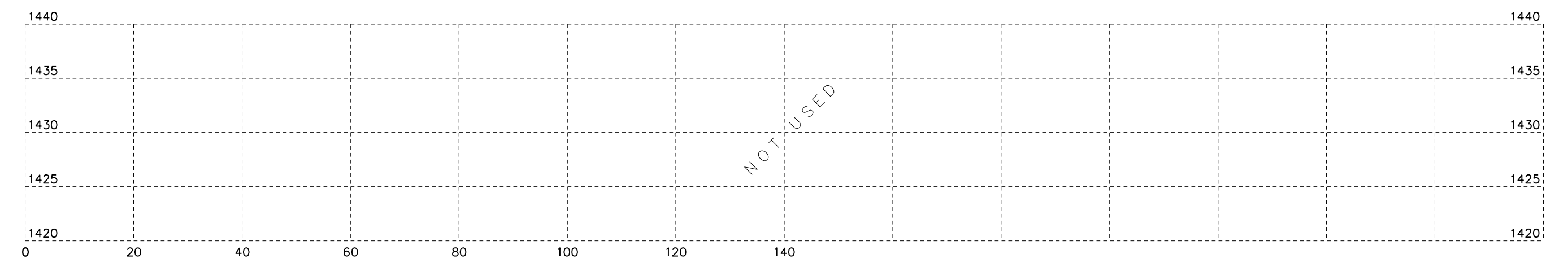
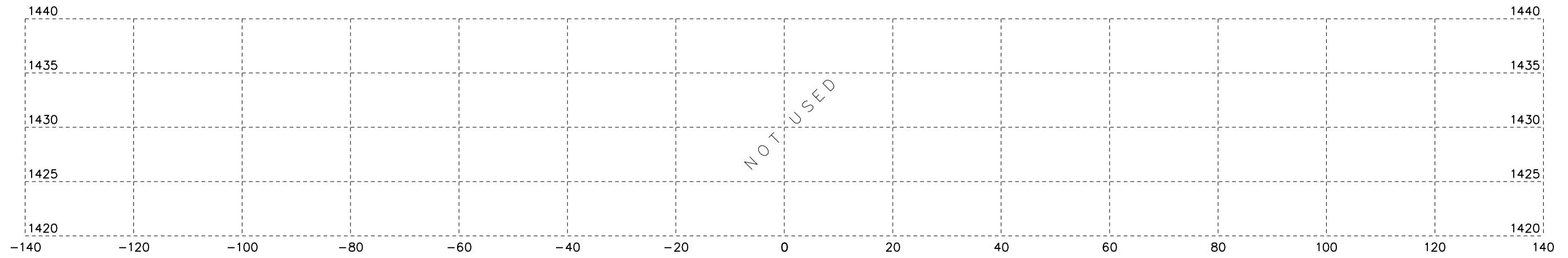
NOTE: THE PIPE SECTIONS ARE INCLUDED FOR INFORMATION PURPOSES ONLY; THIS PROJECT ONLY REQUIRES FABRICATION AND DELIVERY OF PRECAST BOX CULVERT.



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 Last Saved: 1/18/2012

PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 2115(45)87	G18	G27



126+58.01-93.52'LT
 (54TH STREET: 407+34.69-20.44'LT)
 INSTALL TYPE S 4X11 DI
 WITH FRAME AND LID
 TOP CURB EL 1430.52
 TOP WALL EL 1429.02
 FLOOR EL 1426.40

126+25.00-93.91'LT TO 126+56.51-93.52'LT
 INSTALL 18"-32' RCP
 BETWEEN RCBC AND DI

126+25.00-93.91'LT
 (54TH STREET: 407+34.23-11.50'RT)
 CONNECT TO 10'X3' RCBC
 (PROVIDE OPENING FOR 18" RCP)

126+19.57-93.88'LT
 (54TH STREET: 407+34.23-18.43'LT)
 INSTALL 9'X4' TYPE B DI
 WITH TYPE B FRAME & GRATE
 TOP CURB EL 1430.52
 TOP WALL EL 1429.56
 FLOOR EL 1427.85
 CONNECT DIRECTLY TO 10'X3' RCBC
 PROVIDE 24" CIRCULAR OPENING

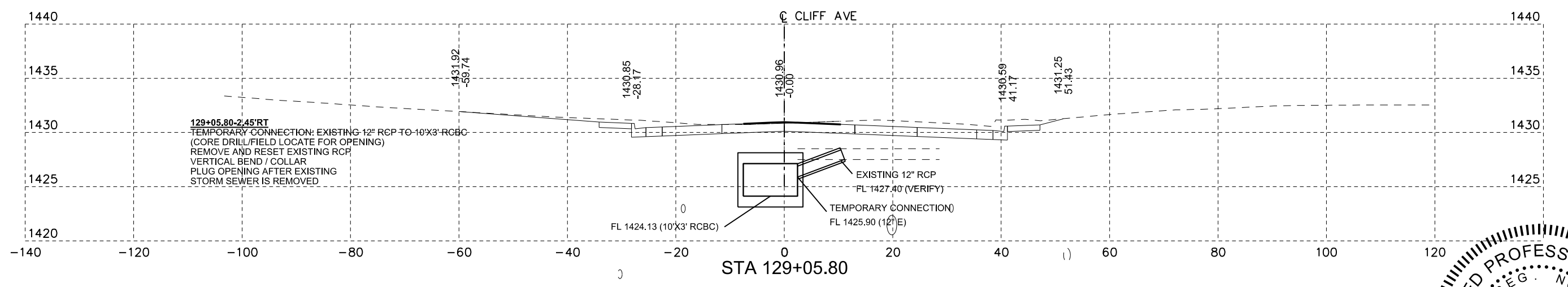
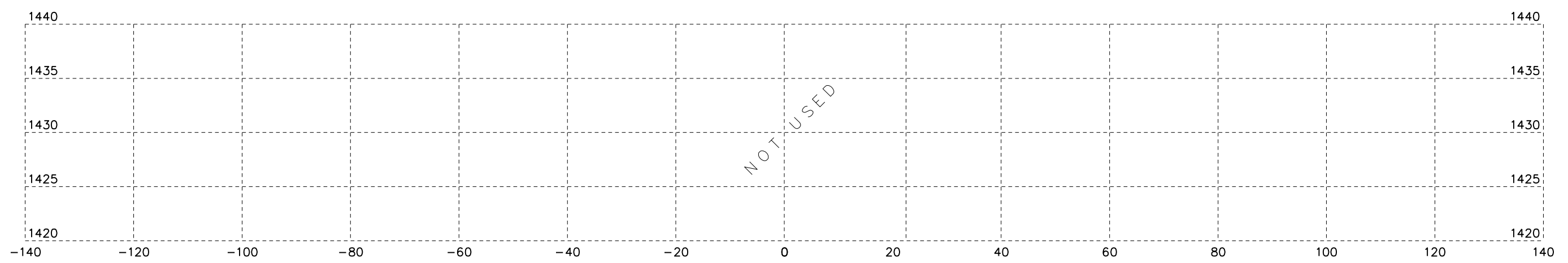
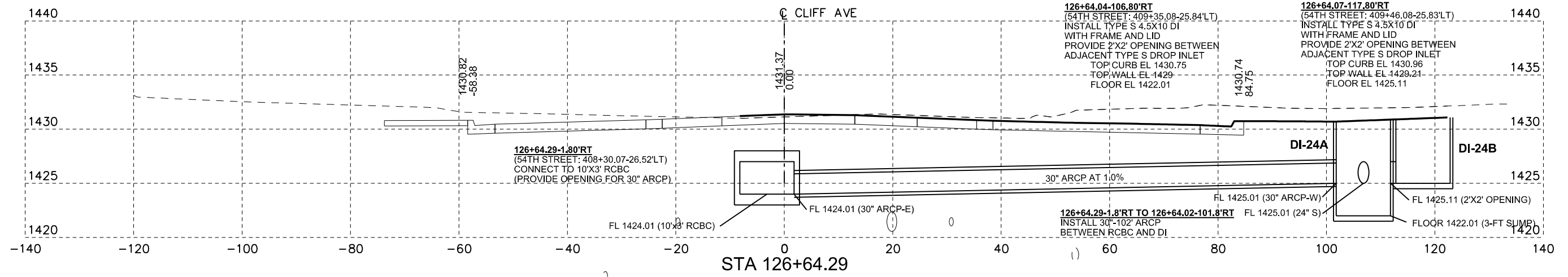
NOTE: THE PIPE SECTIONS ARE INCLUDED
 FOR INFORMATION PURPOSES ONLY;
 THIS PROJECT ONLY REQUIRES FABRICATION
 AND DELIVERY OF PRECAST BOX CULVERT.



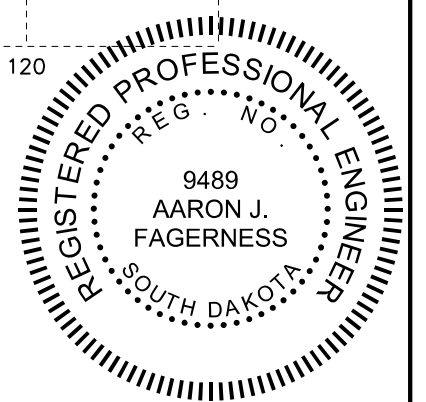
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PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT NH 2115(45)87	SHEET NO. G19	TOTAL SHEETS G27
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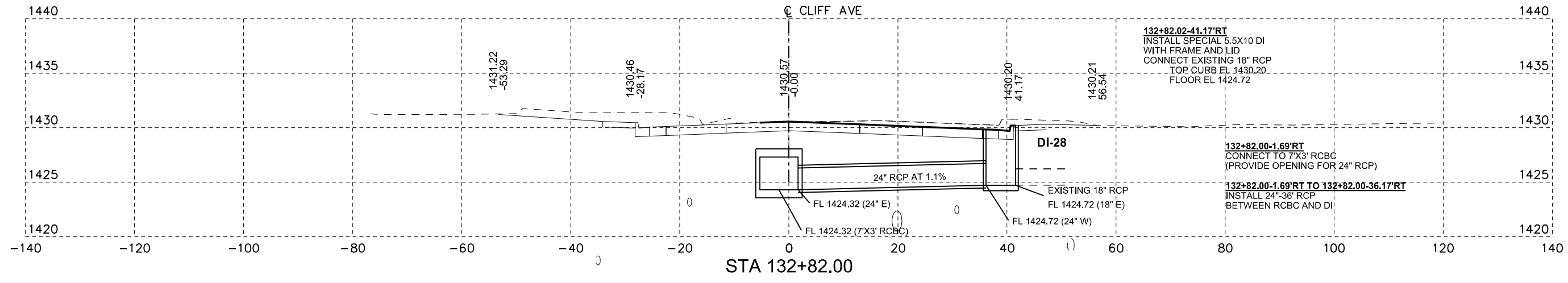
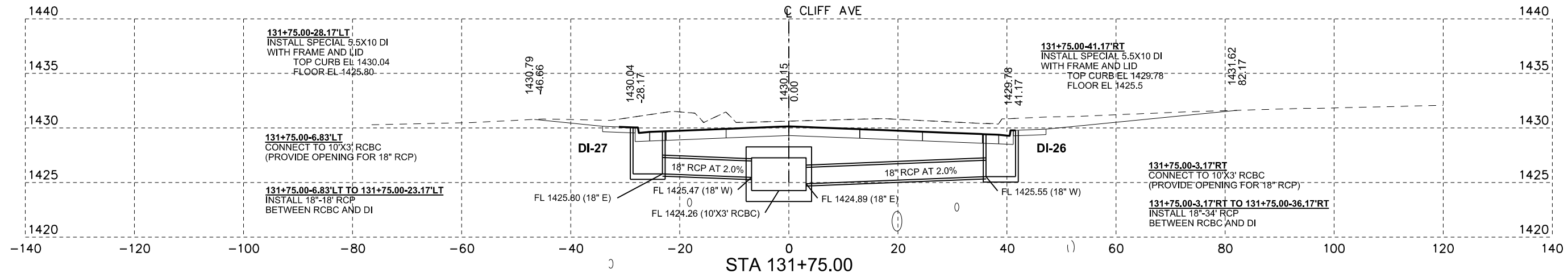
NOTE: THE PIPE SECTIONS ARE INCLUDED FOR INFORMATION PURPOSES ONLY; THIS PROJECT ONLY REQUIRES FABRICATION AND DELIVERY OF PRECAST BOX CULVERT.



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PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 2115(45)87	G20	G27



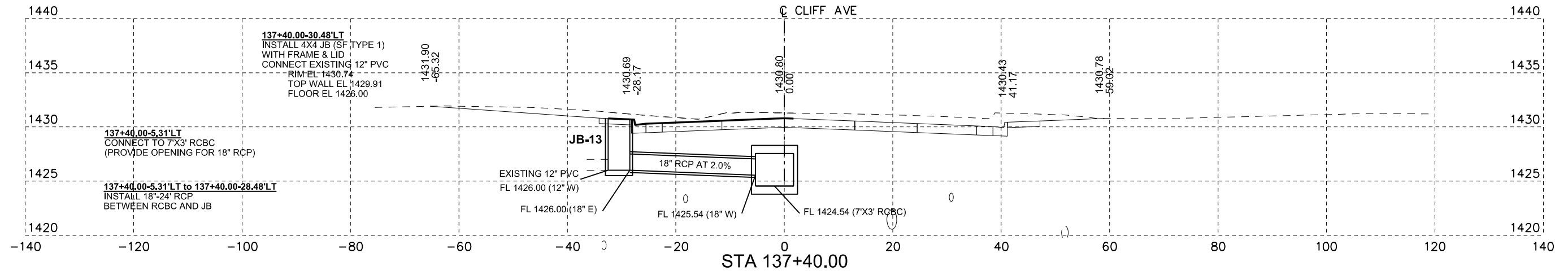
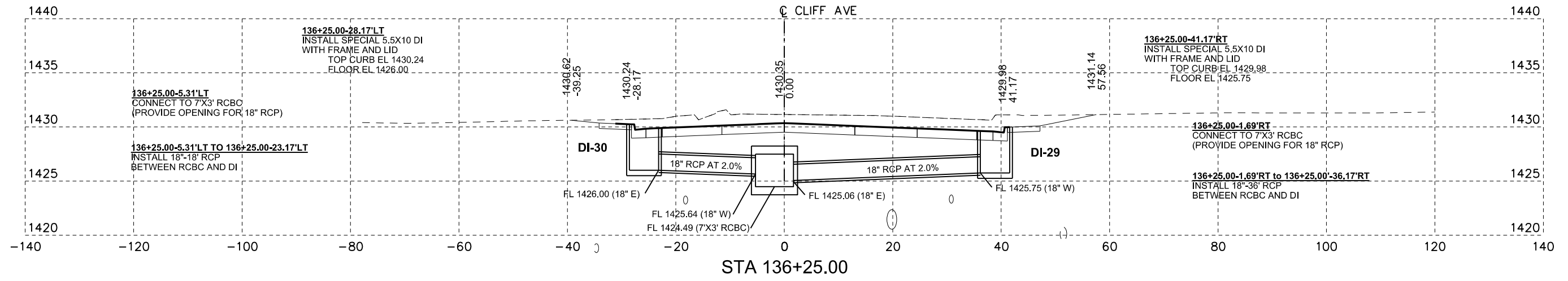
NOTE: THE PIPE SECTIONS ARE INCLUDED FOR INFORMATION PURPOSES ONLY; THIS PROJECT ONLY REQUIRES FABRICATION AND DELIVERY OF PRECAST BOX CULVERT.



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PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 2115(45)87	G21	G27



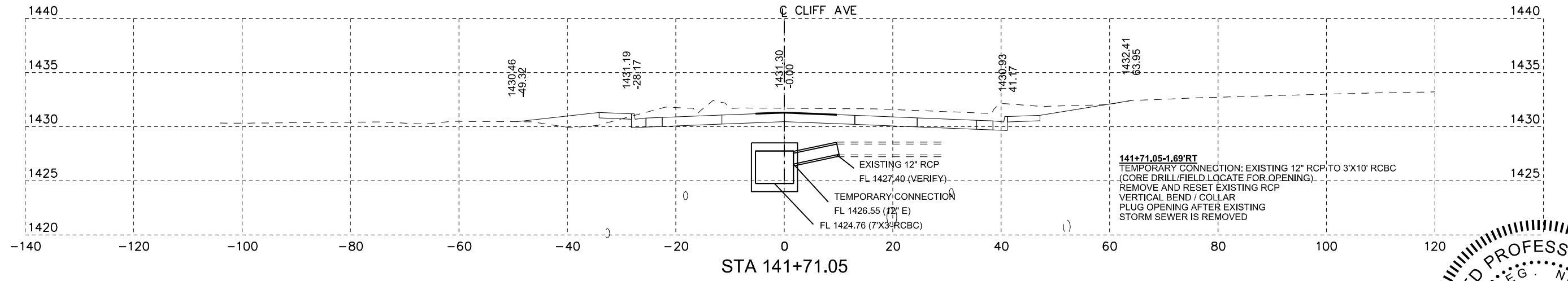
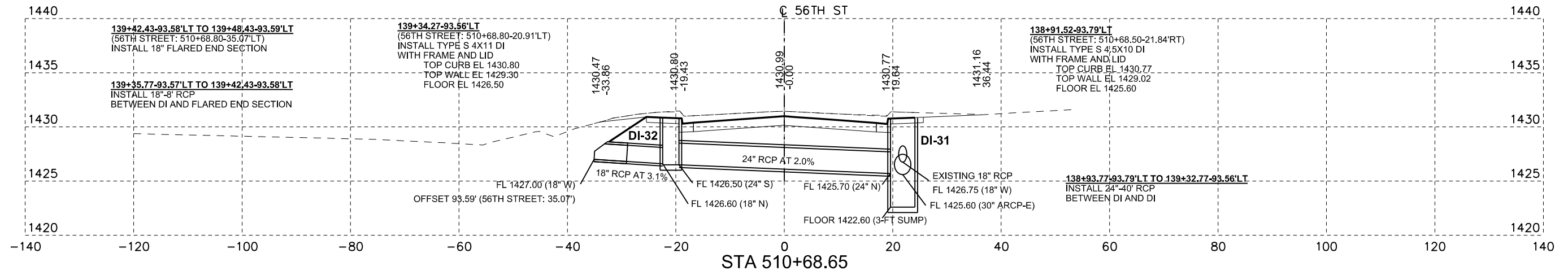
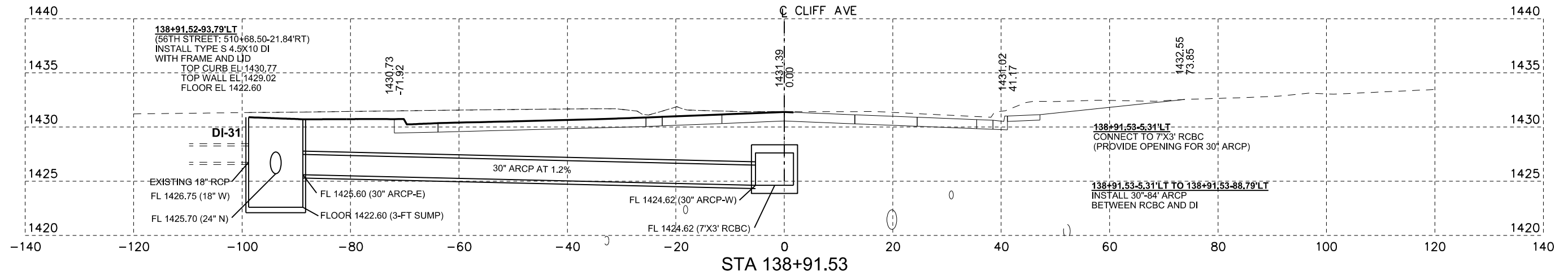
NOTE: THE PIPE SECTIONS ARE INCLUDED FOR INFORMATION PURPOSES ONLY; THIS PROJECT ONLY REQUIRES FABRICATION AND DELIVERY OF PRECAST BOX CULVERT.



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PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 2115(45)87	G22	G27



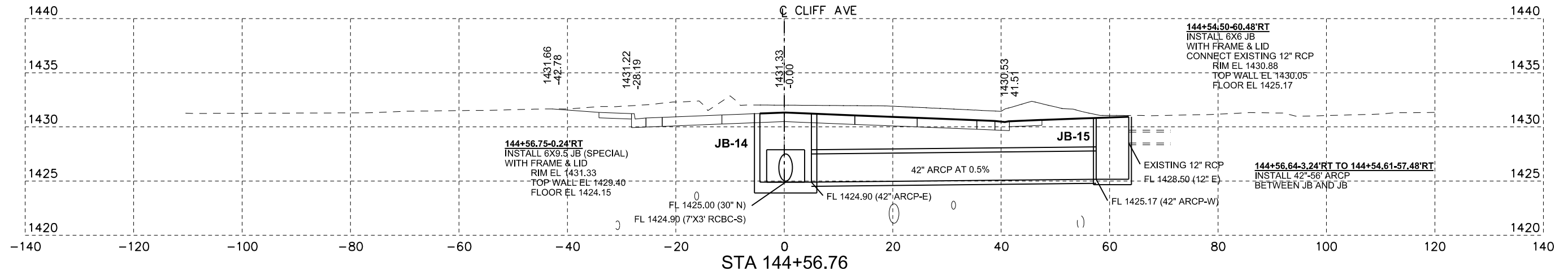
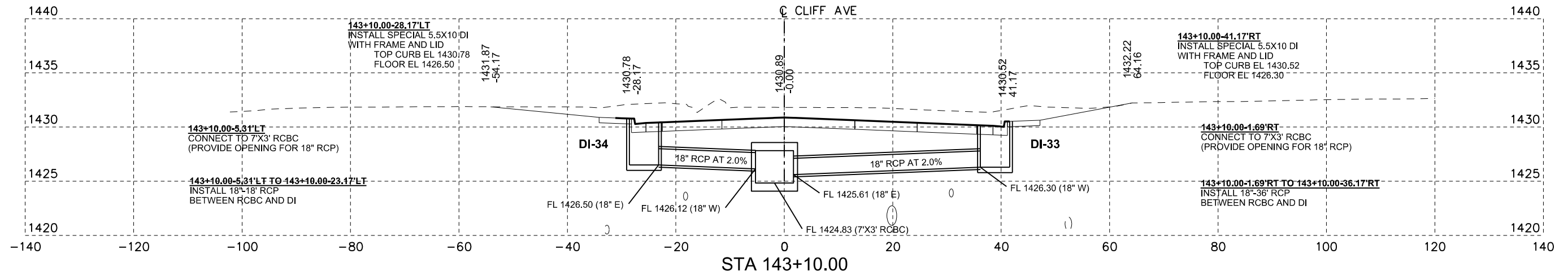
NOTE: THE PIPE SECTIONS ARE INCLUDED FOR INFORMATION PURPOSES ONLY; THIS PROJECT ONLY REQUIRES FABRICATION AND DELIVERY OF PRECAST BOX CULVERT.



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PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 2115(45)87	G23	G27



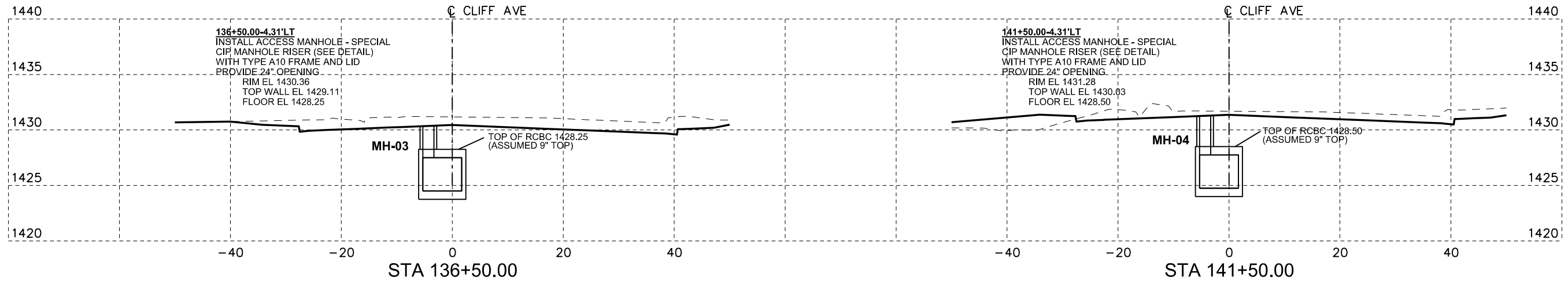
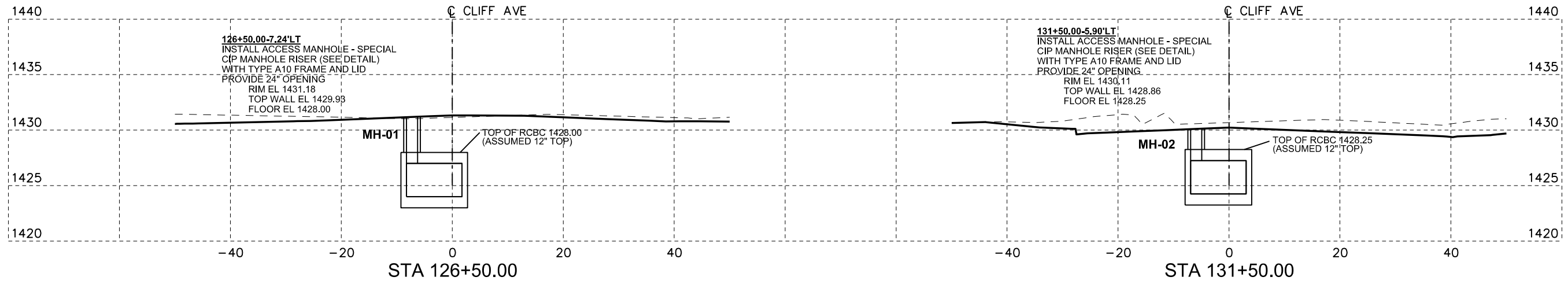
NOTE: THE PIPE SECTIONS ARE INCLUDED FOR INFORMATION PURPOSES ONLY; THIS PROJECT ONLY REQUIRES FABRICATION AND DELIVERY OF PRECAST BOX CULVERT.



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PIPE SECTIONS

STATE OF SOUTH DAKOTA	PROJECT NH 2115(45)87	SHEET NO. G24	TOTAL SHEETS G27
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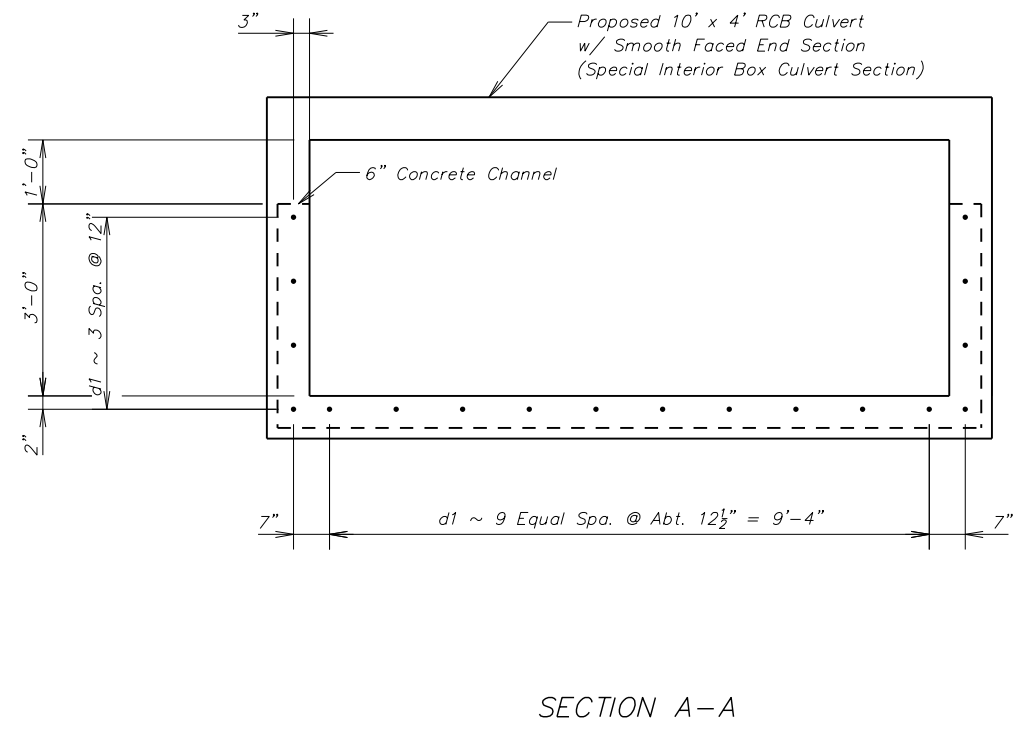
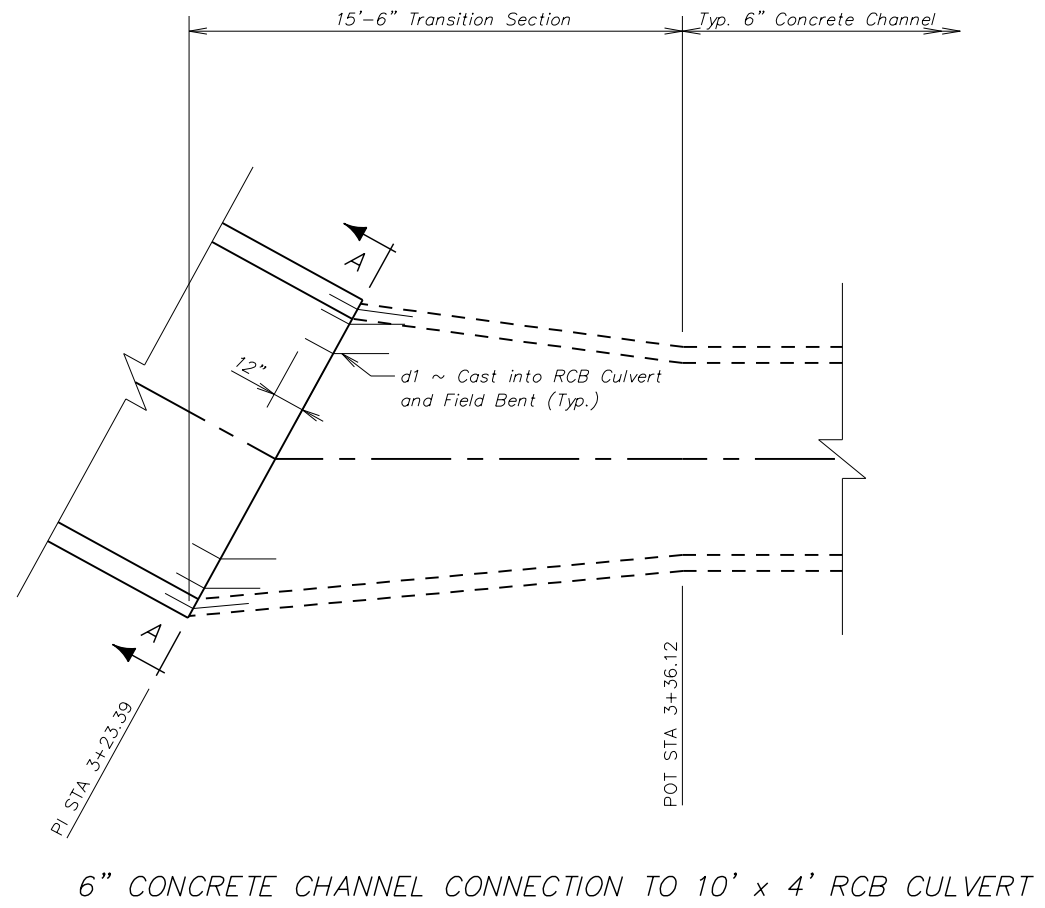
NOTE: THE PIPE SECTIONS ARE INCLUDED FOR INFORMATION PURPOSES ONLY; THIS PROJECT ONLY REQUIRES FABRICATION AND DELIVERY OF PRECAST BOX CULVERT.

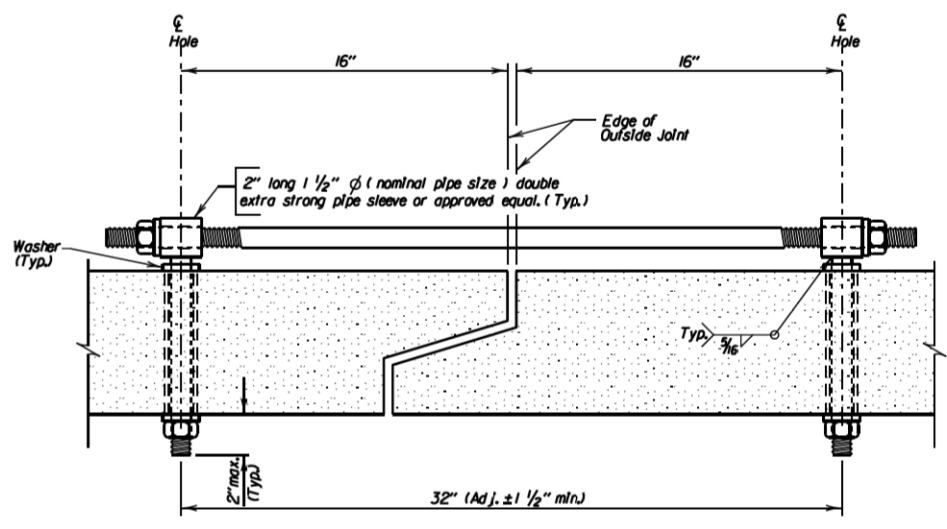


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REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
d1	18	4	6'-8"	Str.	





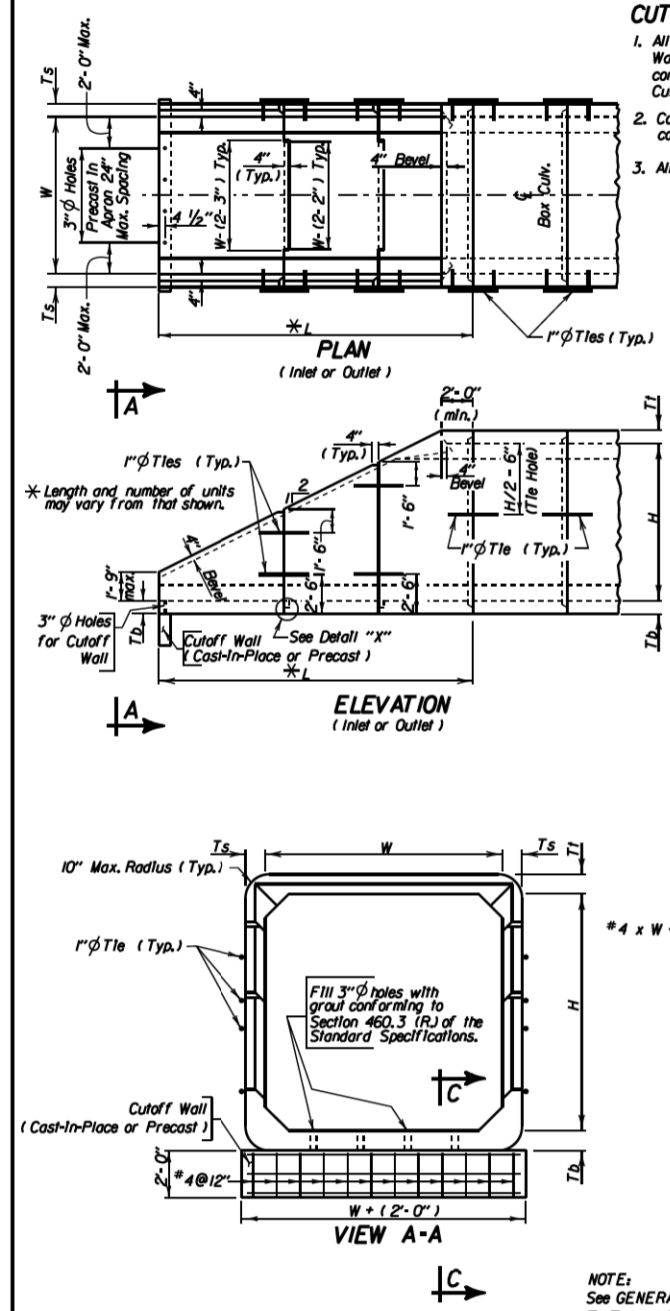
TIE BOLT ASSEMBLY

GENERAL NOTES:

1. All holes for the bolts shall be cast-in-place, 16 in. from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.
2. Ties shall be 1" ϕ and conform to the requirements of ASTM A36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.
3. Welding and weld inspection shall be in conformance with the current edition of the AWS D1.1 Structural Steel Welding Code.
4. Tie Bolt Assembly shall be galvanized in accordance with ASTM A153.
5. Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.
6. All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per foot for the corresponding "Precast Concrete Box Culvert, Furnish bid item.

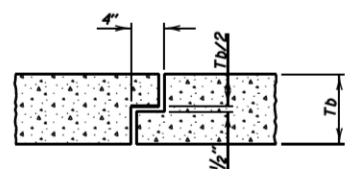
April 25, 2006

Published Date: 4th Qtr. 2011	S D D O T	PRECAST BOX CULVERT TIE BOLT ASSEMBLY DETAILS	PLATE NUMBER 560.01
			Sheet 1 of 1



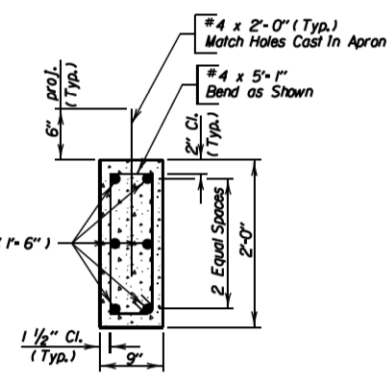
CUTOFF WALL

1. All costs associated with furnishing and installing the Cutoff Wall, whether precast or cast-in-place, shall be incidental to the contract unit price per each for the corresponding "Precast Box Culvert End Section, Furnish bid item.
2. Concrete for cast-in-place cutoff wall shall be Class M6 concrete in accordance with the Standard Specifications.
3. All reinforcing steel shall conform to ASTM A615 Grade 60.



DETAIL "X"

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



SEC. C-C

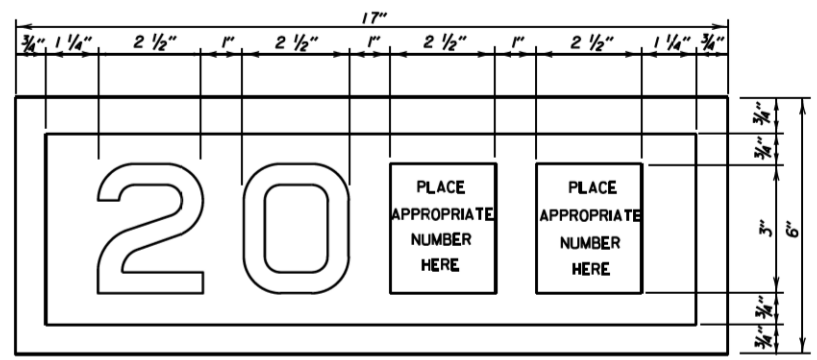
LEGEND

- W = Width of Opening
- H = Height of Opening
- Tt = Thickness of Top Slab
- Tb = Thickness of Bottom Slab
- Ts = Thickness of Side Wall
- L = Length of End Section

NOTE: See GENERAL DRAWING for W and H dimensions. Tt, Tb, and Ts dimensions shall be furnished by the Contractor.
April 25, 2006

Published Date: 4th Qtr. 2011	S D D O T	PRECAST SINGLE BOX CULVERT SLOPED END SECTION DETAILS WITH 2'-0" CUTOFF WALL	PLATE NUMBER 560.10
			Sheet 1 of 1

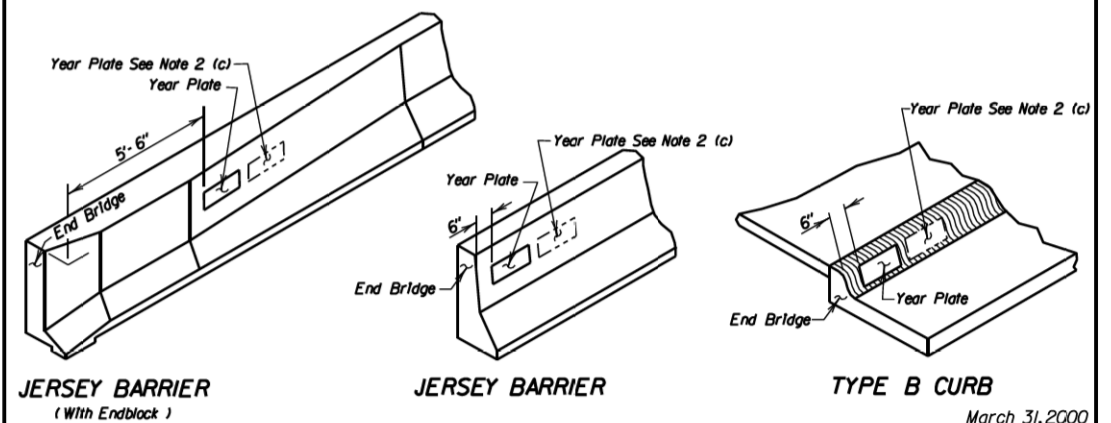
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YEAR PLATE DETAILS

NOTES:

1. Year plates of the general dimensions shown shall be constructed on all box culverts and bridges. The year plates shall be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.
2. Year plates shall be located on structure (s) as follows:
 - a. On cast-in-place box culverts the year plates shall be four and one-half (4 1/2) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate shall be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate shall be centered in an adjacent barrel.
 - b. On bridges with six (6) inch curbs or "Jersey" shaped barriers with no endblocks, the year plate shall be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with "Jersey" shaped barrier endblocks, the year plate shall be centered on the upper sloped portion of the barrier approximately 5'-6" from the end of the bridge, or as designated by the Engineer. There shall be one year plate at each end of the bridge on opposite sides.
 - c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date shall be placed as listed above and the other located adjacent to it. Both year plates shall be shown at each end of the bridge on opposite sides.
3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work shall be incidental to the other contract items.



JERSEY BARRIER
(With Endblock)

JERSEY BARRIER

TYPE B CURB

March 31, 2000

S D D O T	YEAR PLATE DETAILS	PLATE NUMBER 460.02
	Published Date: 1st Qtr. 2012	Sheet 1 of 1

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