LETTING DATE
NOV. 18, 2014

BRIDGE REPLACEMENT - PPCB
BRFIMX-080-4(54)132--14-77

CONVENTIONAL SIGNS

- DIVIDED HIGHWAY
- PAVED ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- (000) INTERSTATE HIGHWAY
- (000) UNITED STATES HIGHWAY
- (000) STATE HIGHWAY
- 000 COUNTY HIGHWAY
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE LIMIT LINE
- TOWNSHIP LINE
- SECTION LINE

Iowa Department of Transportation
Highway Division

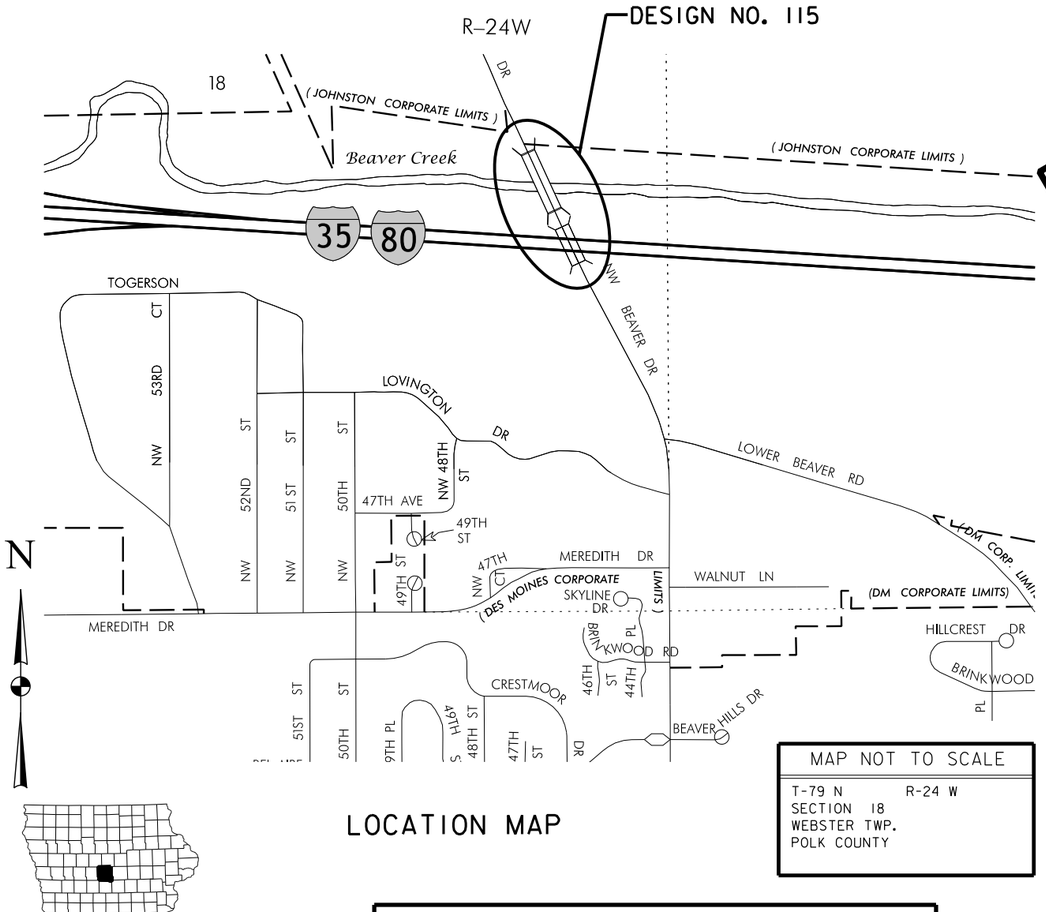
PLANS OF PROPOSED IMPROVEMENTS ON THE

INTERSTATE ROAD SYSTEM

POLK COUNTY

BRIDGE REPLACEMENT - PPCB
BEAVER DRIVE OVER I-35/80
AND BEAVER CREEK

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.



LOCATION MAP

MAP NOT TO SCALE	
T-79 N	R-24 W
SECTION 18	
WEBSTER TWP.	
POLK COUNTY	

PROJECT DIRECTORY NAME: ?

PRELIMINARY
NOT FOR CONSTRUCTION

IOWA ONE CALL
1-800-292-8989 | 811
www.iowaonecall.com
Know what's below. Call before you dig.

ALL WORKING DRAWINGS INCLUDING SHOP DRAWINGS AND FALSEWORK DRAWINGS WILL BE CHECKED BY:

SHUCK-BRITSON INC.
2409 GRAND AVE.
DES MOINES, IOWA 50312
skunz@shuck-britson.com

DESIGN DATA URBAN I-35/80		
2010 AADT	89,000	V.P.D.
2035 AADT	137,500	V.P.D.
TRUCKS	15	%

DESIGN DATA URBAN BEAVER DRIVE		
2012 AADT	8,900	V.P.D.
2035 AADT	12,200	V.P.D.
TRUCKS	8	%

ENGLISH STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

TOTAL SHEETS
?
PROJECT NUMBER
BRFIMX-080-4(54)132--14-77
R.O.W. PROJECT NUMBER
IMN-080-4(58)132--0E-77
PROJECT IDENTIFICATION NUMBER
12-77-080-030

INDEX OF SHEETS

REVISIONS

STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON SHEET NUMBER C.1

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	STEVEN M. KUNZ	STRUCTURAL DESIGN
B.1	CINDY A. SPENCER	ROADWAY DESIGN
5	ADAM R. BULLERMAN	HYDRAULIC DESIGN
BRIDGE STANDARDS	NORMAN L. McDONALD	STRUCTURAL DESIGN

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
Steven M. Kunz
14321
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature Date

Steven M. Kunz
Printed or Typed Name

My license renewal date is December 31, 2013

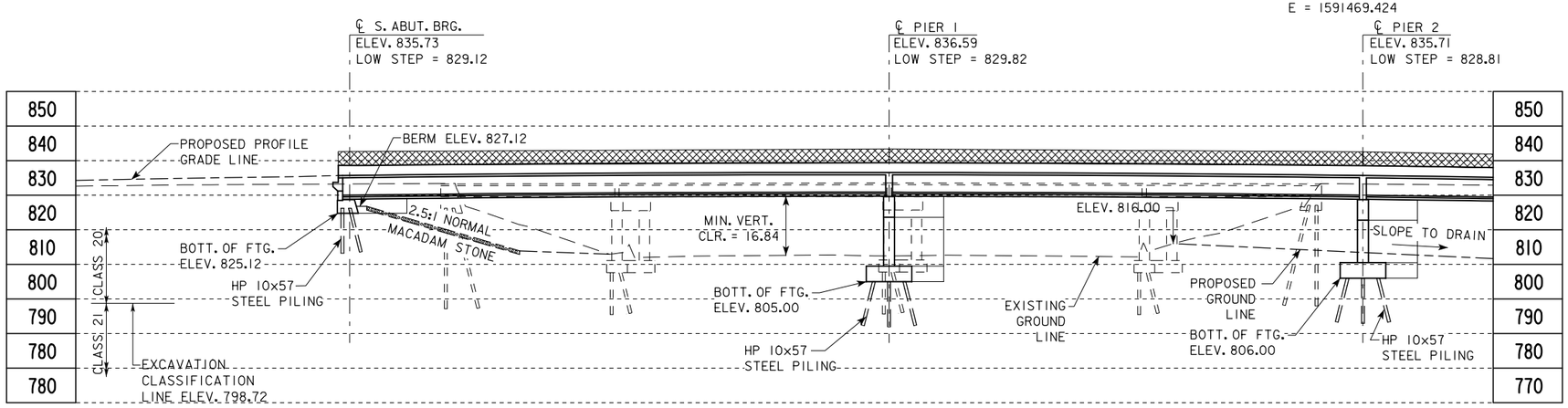
Pages or sheets covered by this seal: SHEETS ? THRU ? OF ?

POLK COUNTY - DESIGN NO. 115

DESIGN TEAM SHUCK-BRITSON INC. 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 | ENGLISH | IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES | FILE NO. 30865 | POLK COUNTY | PROJECT NUMBER BRFIMX-080-4(54)132--14-77 | SHEET NUMBER 1

8/23/2013 5:03:18 PM V8i_IDOTBridge N:\2012_Projects\112.0556.03 DOT On Call\112.0556.03B Preliminary Design\Cadd\77080054_TITLESHEET.dgn CCDDDDSOOO XMColor.pltcfg

BENCH MARK NO. 500 - STA 36+65.99, 32.73' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 125' NORTH OF NW BEAVER DRIVE BRIDGE WINGWALL, ELEV. = 811.27, N = 602480.033 E = 1590613.677
BENCH MARK NO. 505 - STA 17+31.54, 29.79' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 40' SOUTH OF BIKE TUNNEL HEADWALL ON EAST SIDE OF BEAVER DRIVE, ELEV. = 811.09, N = 600743.975 E = 1591469.424

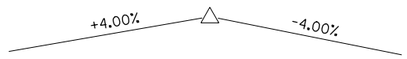


LONGITUDINAL SECTION ALONG ℄ ROADWAY

NOTES:
EXISTING BRIDGE DESIGN NO. 9657 HAS TIMBER PILES

NOTES:
TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.03 FEET BELOW THE PROFILE GRADE.

V.P.I. STA. 27+90.00
ELEV. = 846.49
LVC = 990'



PROPOSED PROFILE GRADE
(BEAVER DRIVE)

(U.A.C.)

PROFILE GRADE I-35/80

MINIMUM VERTICAL CLEARANCE

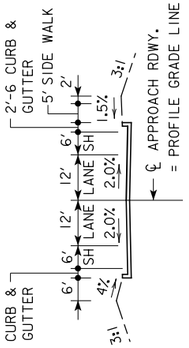
OVERHEAD STATION = 27+83.04, 23.75' LT.
CALCULATED OVERHEAD PGL ELEVATION = 836.59
DEPTH OF SUPERSTRUCTURE = 6.75'
UNDERPASS (I-35/80) STATION = 802+83.96, 28.73 RT,
UNDERPASS (I-35/80) ELEVATION = 813.00
MINIMUM VERTICAL CLEARANCE = 16.84

UTILITIES LEGEND

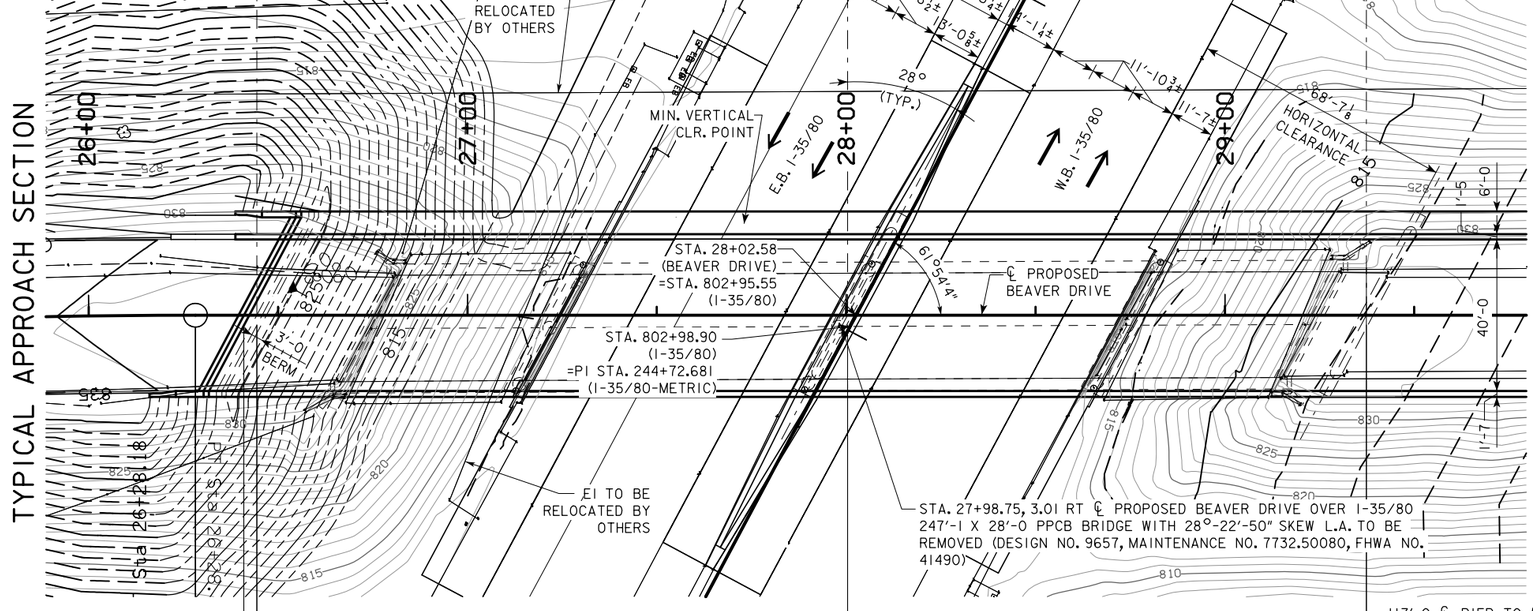
W - DES MOINES WATER WORKS
EI - MID AMERICAN ENERGY

CURVE DATA

P.I. STA. 25+64.54
Δ = 3° 38' 49.83" RT
T = 63.68'
L = 127.31'
R = 2000.00'
E = 1.01'



TYPICAL APPROACH SECTION



0 ENGLISH 40
SCALE IN FEET

156'-0 ℄ ABUT. BRG. TO ℄ PIER (HORIZONTAL)
156'-0 ℄ ABUT. BRG. TO ℄ PIER (ALONG GRADE)
137'-0 ℄ PIER TO ℄ PIER (HORIZONTAL)
137'-0 1/16 ℄ PIER TO ℄ PIER (ALONG GRADE)
117'-0 ℄ PIER TO ℄ PIER (HORIZONTAL)
117'-0 3/16 ℄ PIER TO ℄ PIER (ALONG GRADE)
3'-4 3/4 (HORIZONTAL)
3'-4 3/4 (ALONG GRADE)
896'-8 3/16 ℄ ABUT. BRG. TO ℄ ABUT. BRG. (HORIZONTAL)
897'-0 1/4 ℄ ABUT. BRG. TO ℄ ABUT. BRG. (ALONG GRADE)
903'-5 11/16 FACE TO FACE OF PAVING NOTCHES (HORIZONTAL)
903'-9 13/16 FACE TO FACE OF PAVING NOTCHES (ALONG GRADE)

SITUATION PLAN
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

BEAVER DRIVE TRAFFIC ESTIMATE

2012 AADT	8,900	V.P.D.
2035 AADT	12,200	V.P.D.
2035 DHV	-	V.P.H.
TRUCKS	8	%
TOTAL DESIGN ESALs	-	

I-35/80 TRAFFIC ESTIMATE

2010 AADT	89,000	V.P.D.
2035 AADT	137,500	V.P.D.
TRUCKS	15	%

LOCATION

BEAVER DRIVE OVER I-35/80
AND BEAVER CREEK
T-79N R-24W
SECTION 18
WEBSTER TOWNSHIP
POLK COUNTY
BRIDGE MAINTENANCE NO. XXXX.XXXX
FHWA NO. XXXXX
LATITUDE: 41.652060
LONGITUDE: -93.681238

NOTE: PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTING.
NOTE: THE BEAMS IN SPAN 7 SHALL BE VENTED.

PRELIMINARY

DESIGN FOR 28° SKEW (L.A.)

897'-0 1/4 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE WITH 5'-0 SIDEWALK (BTE BEAMS)

SPANS (156'-0, 137'-0 1/16, 117'-0 3/16, 127'-0, 157'-0, 102'-0, 101'-0)

SITUATION PLAN

STATION 30+92.71

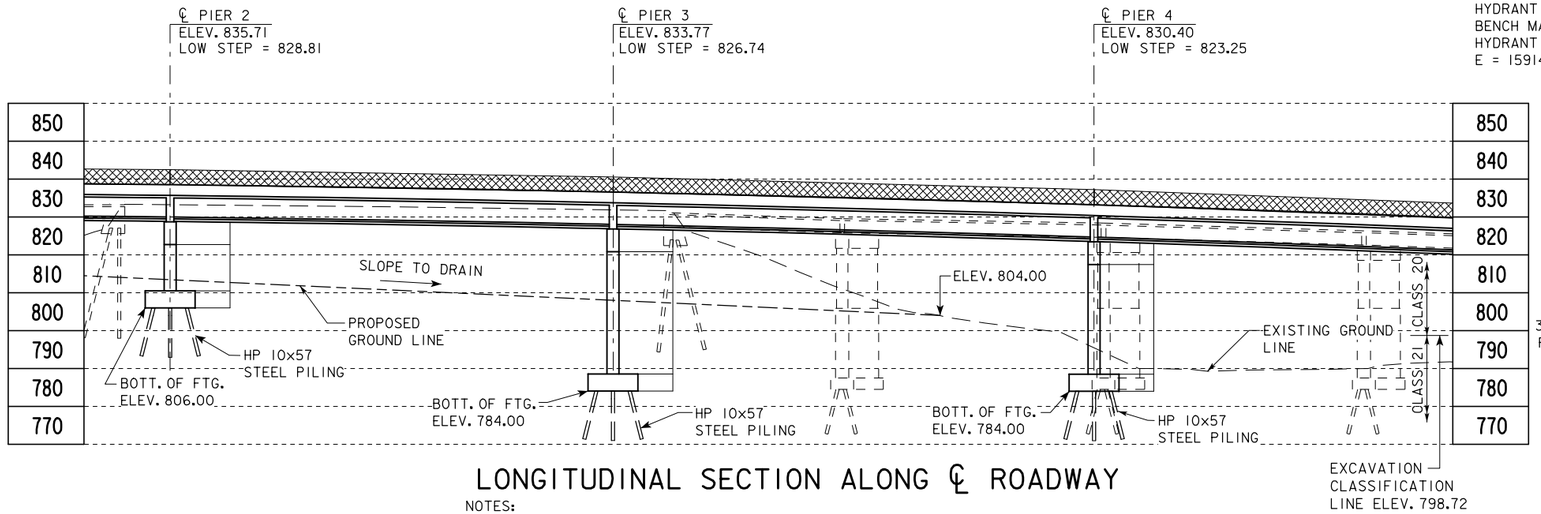
APRIL 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

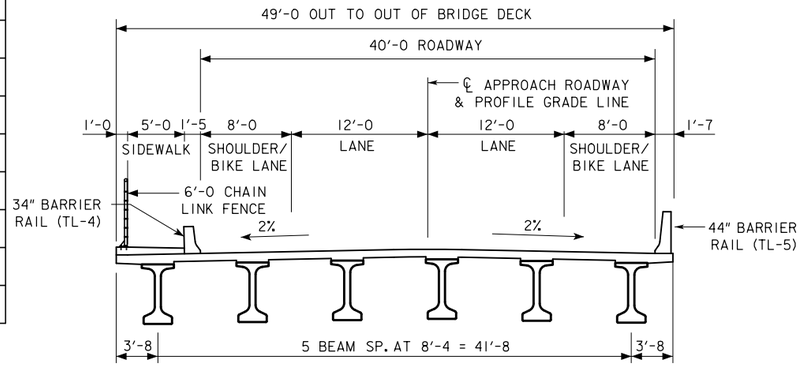
DESIGN SHEET NO. 2 OF 5 FILE NO. 30865 DESIGN NO. 115

BENCH MARK NO. 500 - STA 36+65.99, 32.73' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 125' NORTH OF NW BEAVER DRIVE BRIDGE WINGWALL, ELEV. = 811.27, N = 602480.033 E = 1590613.677
BENCH MARK NO. 505 - STA 17+31.54, 29.79' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 40' SOUTH OF BIKE TUNNEL HEADWALL ON EAST SIDE OF BEAVER DRIVE, ELEV. = 811.09, N = 600743.975 E = 1591469.424



LONGITUDINAL SECTION ALONG ℄ ROADWAY

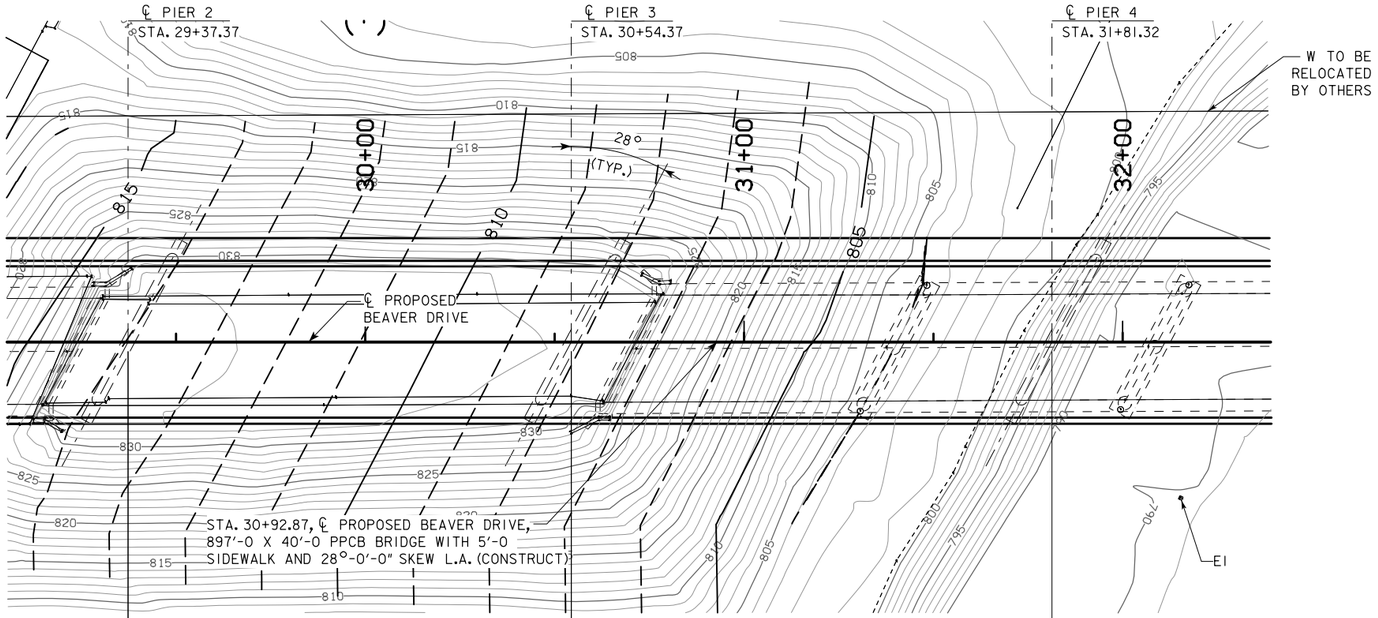
NOTES:
TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.03 FEET BELOW THE PROFILE GRADE.



BRIDGE CROSS SECTION

BTE BEAMS

NOTES:
EXISTING BRIDGE DESIGN NOS. 9657 AND 9857 HAVE TIMBER PILES



SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

0 ENGLISH 40
SCALE IN FEET

NOTE: PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTING.
NOTE: THE BEAMS IN SPAN 7 SHALL BE VENTED.

PRELIMINARY

DESIGN FOR 28° SKEW (L.A.)

897'-0 1/4 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE WITH 5'-0 SIDEWALK (BTE BEAMS)

SPANS (156'-0, 137'-0 1/16, 117'-0 3/16, 127'-0, 157'-0, 102'-0, 101'-0)

SITUATION PLAN

STATION 30+92.71

POLK COUNTY

APRIL 2013

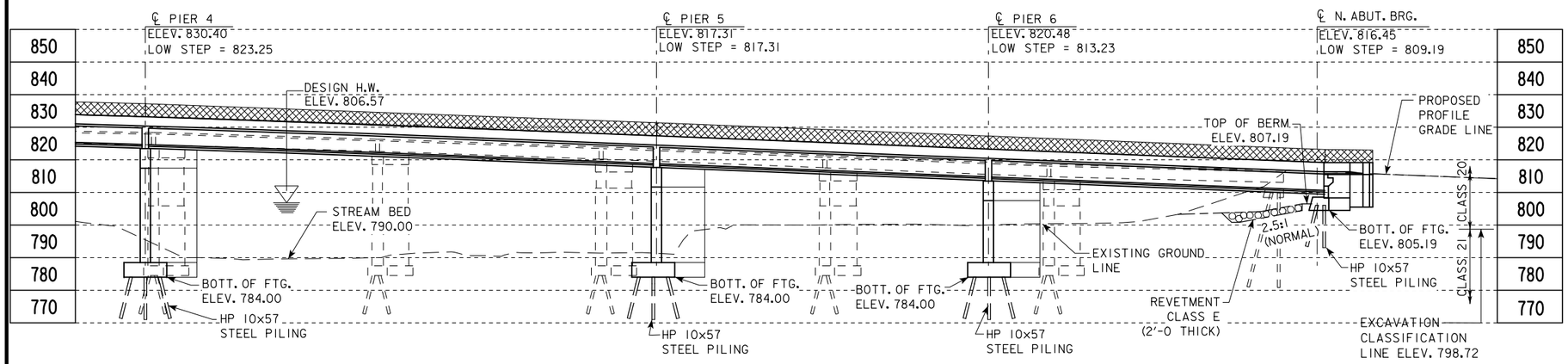
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 5 FILE NO. 30865 DESIGN NO. 115

DESIGN TEAM SHUCK-BRITSON INC. 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477

S.B.I. NO. 112.0556.03B | POLK COUNTY | PROJECT NUMBER BRFIMX-080-4(54)132--14-77 | SHEET NUMBER 4

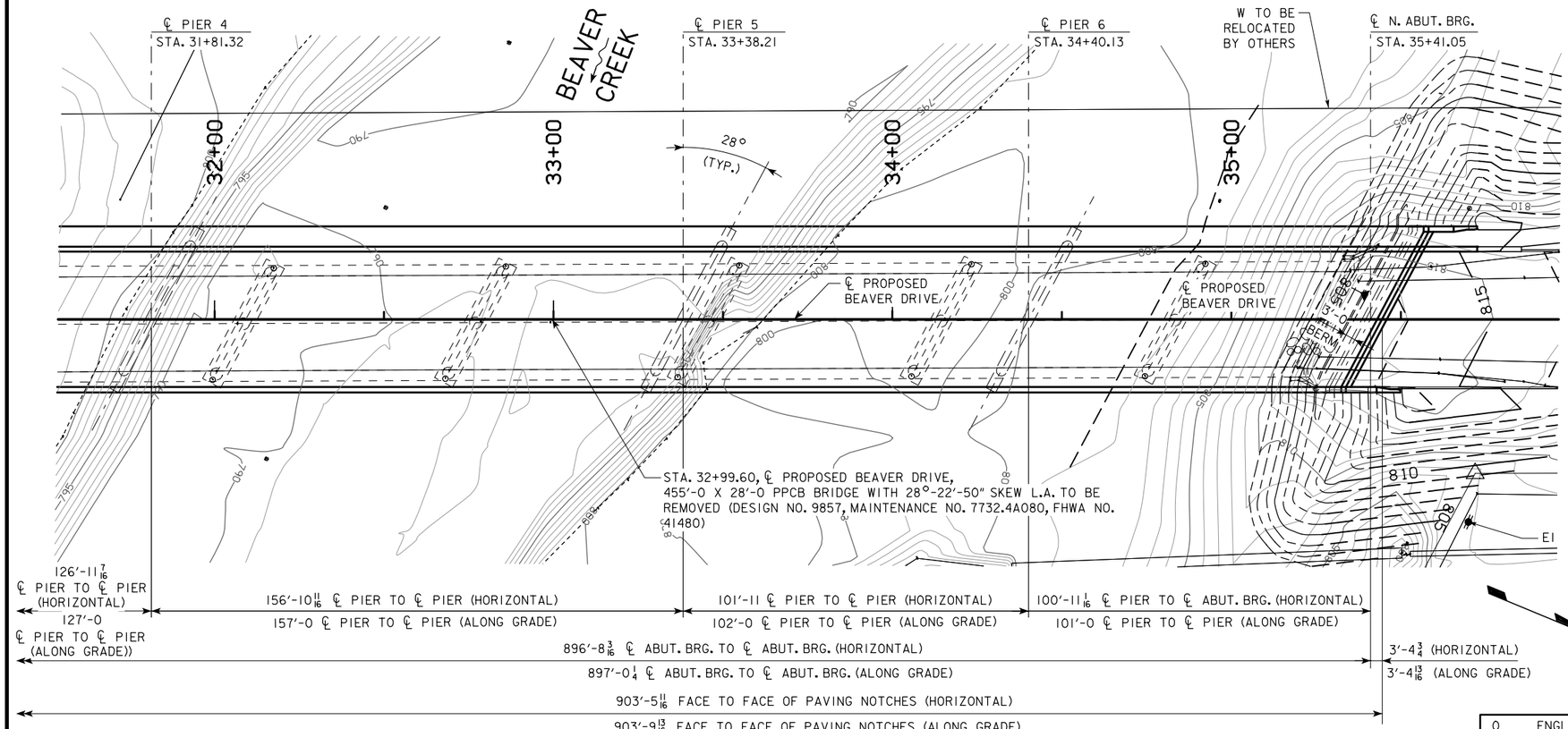
BENCH MARK NO. 500 - STA 36+65.99, 32.73' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 125' NORTH OF NW BEAVER DRIVE BRIDGE WINGWALL, ELEV. = 811.27, N = 602480.033 E = 1590613.677
BENCH MARK NO. 505 - STA 17+31.54, 29.79' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 40' SOUTH OF BIKE TUNNEL HEADWALL ON EAST SIDE OF BEAVER DRIVE, ELEV. = 811.09, N = 600743.975 E = 1591469.424



LONGITUDINAL SECTION ALONG ℄ ROADWAY

NOTES:
EXISTING BRIDGE DESIGN NO. 9857 HAS TIMBER PILES

NOTES:
TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.03 FEET BELOW THE PROFILE GRADE



SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

0 ENGLISH 40
SCALE IN FEET

HYDRAULIC DATA

DRAINAGE AREA = 382 SQ. MI.
STREAM SLOPE = 4.08 FT./MI.
AVG. LOW WATER STAGE = 789.9 FT.

Q_2 = 2,800 CFS
STAGE = 798.72
CHANNEL VELOCITY = 2.16 FPS

Q_{50} = 10,700 CFS
STAGE = 805.52
BACKWATER = 0.12 FT.

Q_{100} = 12,800 CFS
STAGE = 806.57
BACKWATER = 0.12 FT.
AVG. BRIDGE VELOCITY = 3.44 FPS

Q_{200} = 15,100 CFS
STAGE = 807.62
CALCULATED DESIGN SCOUR = 783.30

Q_{500} = 18,500 CFS
STAGE = 809.04 FT.
CALCULATED CHECK SCOUR = 783.20 FT.

ROADWAY OVERTOP 807.5 FT.
STA. 40+32

EXTREME HW STAGE = N/A
DATE = N/A

50, 100 AND 500 YR. STAGES AND DISCHARGES FROM POLK COUNTY, IOWA FIS DATED JULY 19, 2000
2 YR. DISCHARGE PER USGS REPORT 00-4233
FIS DATUM 0.10 FEET BELOW PROJECT DATUM

NOTE: PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTING.
NOTE: THE BEAMS IN SPAN 7 SHALL BE VENTED.

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Adam R. Bullerman
17362
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — Date: 04-09-2013

Adam R. Bullerman
Printed or Typed Name

My license renewal date is December 31, 2014

Pages or sheets covered by this seal: SHEET 5 - HYDRAULIC DATA

PRELIMINARY

DESIGN FOR 28° SKEW (L.A.)

897'-0 1/4 × 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE WITH 5'-0 SIDEWALK (BTE BEAMS)

SPANS (156'-0, 137'-0 1/16, 117'-0 3/16, 127'-0, 157'-0, 102'-0, 101'-0)

SITUATION PLAN

STATION 30+92.71

POLK COUNTY

APRIL 2013

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 5 FILE NO. 30865 DESIGN NO. 115

DESIGN TEAM SHUCK-BRITSON INC. 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 S.B.I. NO. 112.0556.03B | POLK COUNTY | PROJECT NUMBER BRFIMX-080-4(54)132--14-77 | SHEET NUMBER 5

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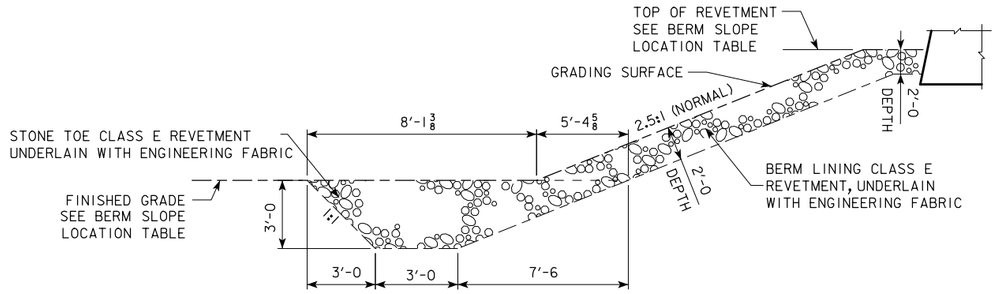


SECTION THRU STONE AND BERM LINING

(EMBEDDED REVETMENT BERM)
(NORTH ABUTMENT)

CURVE DATA

P.I. STA. 25+64.54
Δ = 3°38'49.83" RT
T = 63.68'
L = 127.31'
R = 2000.00'
E = 1.01'

NOTE:

FOR MACADAM STONE SLOPE PROTECTION SECTIONS AND ESTIMATED QUANTITIES SEE STANDARD SHEET 1006C (SOUTH ABUTMENT)

BENCH MARK NO. 500 - STA 36+65.99, 32.73' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 125' NORTH OF NW BEAVER DRIVE BRIDGE WINGWALL, ELEV. = 811.27, N = 602480.033 E = 1590613.677
BENCH MARK NO. 505 - STA 17+31.54, 29.79' LT. (℄ PROP. BEAVER DRIVE), BURY TAG BOLT HEAD ON WATROUS HYDRANT 40' SOUTH OF BIKE TUNNEL HEADWALL ON EAST SIDE OF BEAVER DRIVE, ELEV. = 811.09, N = 600743.975 E = 1591469.424

BERM SLOPE LOCATION TABLE

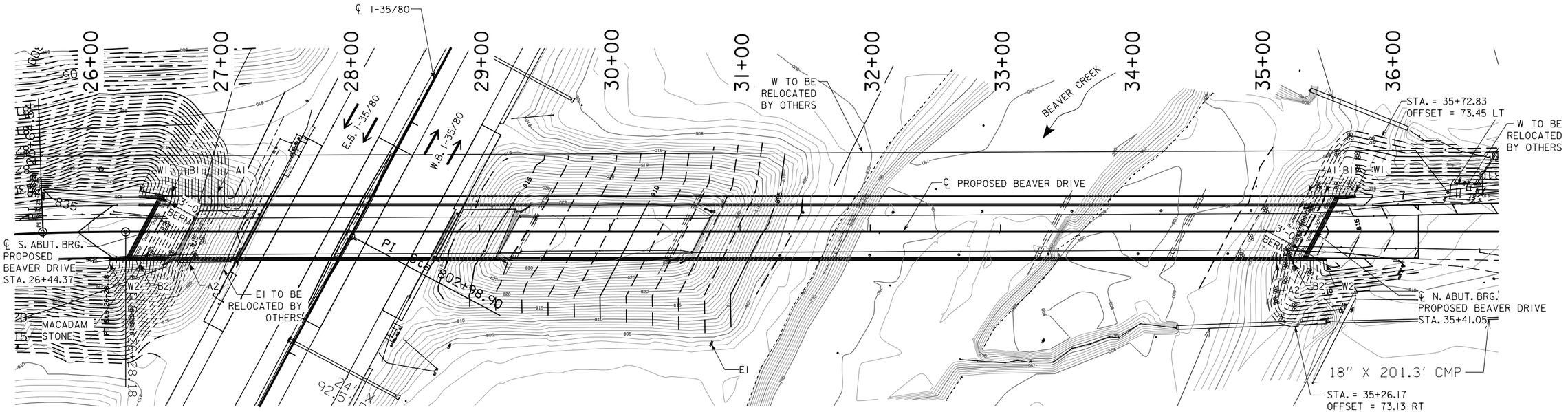
POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	26+98.98	-30.42	813.00	35+36.33	-30.42	802.00
A2	26+77.56	24.58	813.00	35+11.80	24.58	802.00
B1	26+64.01	-30.42	827.12	35+49.28	-30.42	807.19
B2	26+39.62	24.58	827.12	35+24.85	24.58	807.19
W1	26+38.71	-30.42	834.97	35+72.56	-30.42	814.49
W2	26+15.87	24.58	834.39	35+49.86	24.58	815.52

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - NORTH ABUTMENT	499	--	468	312
STONE TOE - NORTH ABUTMENT	296	--	344	185
TOTALS	795	--	812	497

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.
USE WHEN QUANTITY EQUALS OR EXCEEDS QUANTITY UNDER THE BRIDGE.



SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

0 ENGLISH 80
SCALE IN FEET

PRELIMINARY

DESIGN FOR 28° SKEW (L.A.)

897'-0 1/4 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE WITH 5'-0 SIDEWALK (BTE BEAMS)

SPANS (156'-0, 137'-0 1/16, 117'-0 3/16, 127'-0, 157'-0, 102'-0, 101'-0)

SITUATION PLAN - SITE

STATION 30+92.71

APRIL 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

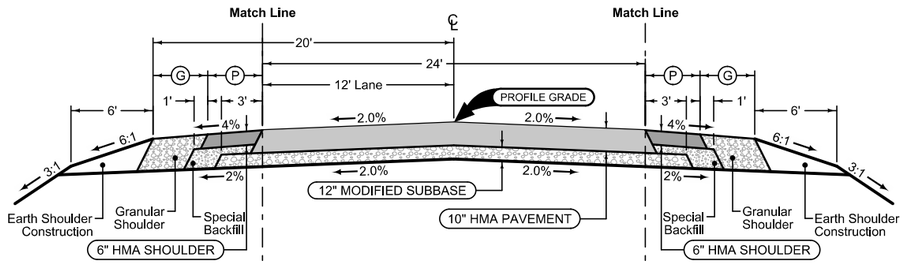
DESIGN SHEET NO. 5 OF 5 FILE NO. 30865 DESIGN NO. 115

DESIGN TEAM SHUCK-BRITSON 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 S.B.I. NO. 112.0556.03B | POLK COUNTY | PROJECT NUMBER BRFIMX-080-4(54)132--14-77 | SHEET NUMBER 6

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

		2_C_ 10-19-10	
STATION TO STATION		(P) Feet	(G) Feet
21+81.62	25+64.88	3	5



Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

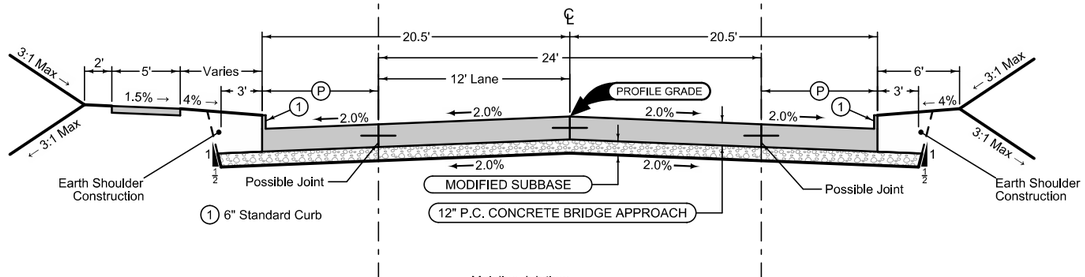
	2P_ 10-19-10
STATION TO STATION	
21+81.62	25+64.88

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

		2_Curb_ 04-19-11	
STATION TO STATION		(P) Feet	Curb Type See PV-102
25+64.88	26+40.96	8.5	6" Standard
35+4.78	36+20.86	8.5	6" Standard



Mainline Jointing:
Refer to Standard road plan RK-20

	2P_ 10-19-10
STATION TO STATION	
25+64.88	26+40.96
35+44.78	36+20.86

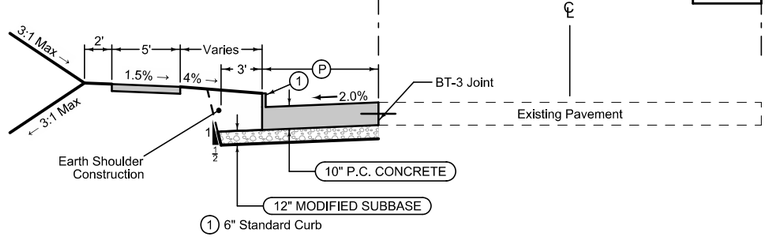
Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

		2_Curb_ 04-19-11	
STATION TO STATION		(P) Feet	Curb Type See PV-102
36+20.86	37+41.86	8	6" Standard

2E_ 10-19-10



Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

		2_C_ 10-19-10	
STATION TO STATION		(P) Feet	(G) Feet
21+81.62	25+64.88	3	5

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

		2_Curb_ 04-19-11	
STATION TO STATION		(P) Feet	Curb Type See PV-102
25+64.88	26+40.96	8.5	6" Standard
35+44.78	36+20.86	8.5	6" Standard

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Cindy A. Spencer, P.E. Date

License Number 17561

My License Renewal Date is December 31, 2014

Pages or sheets covered by this seal:

LICENSED PROFESSIONAL ENGINEER
CINDY A. SPENCER
17561
IOWA

PRELIMINARY PLANS

See Tab 100-24 for pavement quantities.

See Tab 112-9 for shoulder quantities.

NW BEAVER DRIVE

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-100	04-20-10	44" Concrete Median Barrier (Full Section)
BA-101	04-20-10	44" Concrete Median Barrier Width Transition
BA-102	04-19-11	44" Concrete Barrier (Half Section)
BA-108	04-19-11	Concrete Barrier Tapered End Section
BA-401	04-16-13	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-10	Temporary Crash Cushions Sand Barrel
EC-201	04-20-10	Silt Fence
EC-204	10-16-12	Perimeter and Slope Sediment Control Devices
EW-204	04-17-12	Bridge Berm Grading with Recoverable Slope (Barnroof Section)
MI-101	04-20-10	Fencing Layout
MI-103	10-16-12	Deer Fence and Field Fence Construction
MI-104	10-16-12	Fence Construction at Channel Crossings, Flood Plains, and Minor Ground Depressions
MI-220	10-16-12	Detectable Warnings and Pedestrian Ramp
PM-110	04-16-13	Line Types
PM-111	10-16-12	Symbols and Legends
PV-3	10-18-11	Safety Edge
PV-101	04-17-12	Joints
PV-102	04-16-13	PCC Curb Details
RF-5	04-16-13	Metal Pipe Aprons and Beveled Ends
RF-38	04-16-13	Intake for Bridge End Drain
RK-20	04-16-13	Double Reinforced 12" Approach
RK-21	10-16-12	Bridge Approach (abutting PCC or Composite Pavement)
RK-30	04-19-11	Bridge Approach (Abutting Pavement)
RL-9	04-20-10	Temporary Erosion Control Measures
SI-173	04-20-10	Object Markers
SW-101	04-21-09	Trench Bedding and Backfill Zones
SW-103	04-21-09	Flexible Gravity Pipe Trench Bedding
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-252	04-17-12	Routes Closed to Traffic
TC-402	04-16-13	Shoulder Closure (Multi-Lane)
TC-418	10-16-12	Lane Closure on Divided Highway

SURVEY SYMBOLS

- FW Wire Fence
- GDL Guard Rail (Rail and Cable)
- EB Electrical Box
- PIP Pipe Culvert
- PLG Location of General Photo
- BRG Bridge
- COR Round Bridge Pier Column
- FCL Chain Link and Security Fence
- MIS Miscellaneous
- LUM Luminaire
- UV Underground Utility Vault
- TPD Telephone Pedestal
- WV Water Valve
- MH Utility Access (Manhole)
- SI Sign
- WHD Water Hydrant
- PR Electic Riser Pole
- RET Retaining Walls
- UB Utility Box
- GP Guard Post (Less Than 4 Posts)
- GV Gas Valve
- SL Speed Limit Sign
- SHR Shrub
- FHD Fire Hydrants
- OUT Tile Outlet
- IN Storm Sewer Intake
- BLD Building or Foundation
- INB Storm Sewer Beehive Intake
- CUL Culvert
- BB Billboard
- TDC Tree Deciduous
- TR Telephone Riser Pole
- TLNR Tree Line Right
- MM Mile Marker Post
- GPR Guard Post (4 or More Posts)
- RIP Rip-Rap
- CON Concrete or A/C Slab
- BNK Stream Bank
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- SNP Unpaved Shoulder
- GU Gutter In Front of Curb
- CU Back of Curb
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- SWK Sidewalk
- ENU Edge Unpaved Entrance & Parking
- SP Stream Profile
- BD Bridge Deck
- BCL Bridge Centerline
- PRO Profile Shot
- UE Utility Elevation
- SOP Size of Pipe or Culvert
- SBR Size of Bridge
- TW Top of Water
- BL Topo Breakline

UTILITY LEGEND

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NETrentmann@midamerican.com

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- OR -
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skinsey@cityofjohnston.com

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babraun@dmgov.org

Des Moines Metro Wastewater
Scott Hutchens
(515) 323-8031
sthutchens@dmgov.org

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	**Design Color No.**	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER D.1

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RONNIE HAWKINS

POLK COUNTY CONSERVATION BOARD

DAVID J BRIDDLE

Sta. 17+74.94
10' X 10' X 60.4' RCBC
Trail Tunnel

WEBSTER TWP.
T-79N R-24W
Sec. 18

SHANE ANDERSON

Sta 28+02.58 (SR) (BEAVER DR)
= Sta 802+95.55 (ML) (I-35/80)

PI Sta 802+98.90 (ML)
= PI Sta 244+72.681 (ML - Metric)

Curve Data
Δ = 25° 43' 42.72" (LT)
T = 278.62
L = 547.84
R = 1,220.00
E = 31.41

Construction Limits with Sidewalk

Construction Limits without Sidewalk

Potential Future Sidewalk

24" X 220.2' CMP

24" X 85.4' CMP

RONNIE HAWKINS

15

PT Sta 15+47.84

20

25

PC Sta 25+64.54

PT Sta 28+28.18

NW BEAVER DR

CITY OF DES MOINES

USA SAYLORVILLE DAM

8" X 20' CMP

Relocate Power Pole (by others)

Relocate Power Pole (by others)

Construction Limits

INTERSTATE 35/80

Sta. 30+92.87
Construct 897.00' x 40.00'
Pretensioned, Prestressed Concrete
Beam Bridge With 5.00' Sidewalk
Skew 28°22'50" Lt. Ahd.

Curve Data
Δ = 3° 38' 49.83" (RT)
T = 63.68
L = 127.31
R = 2,000.00
E = 1.01

Sta. 19+80.96
8' X 6' X 129.2' RCBC
D.A. = 167.6 Ac

USA SAYLORVILLE DAM

WEBSTER TWP.
T-79N R-24W
Sec. 17

0 FEET 50

C = 343 CY
F+30% = 10,126 CY
-9,783 CY

Sta. 21+81.62, Elev. = 822.15
Begin Permanent Pavement

Sta. 21+00.00, Elev. = 818.89
Match Existing
Begin Temporary Pavement

+4.000%

VPI +90.000
Elv 846.49
ex = -9.90'
K = 124
Len 990.00 ft

13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Lt								818.89	819.89	820.89	821.89	822.89	823.89	824.89	825.89
Rt								826.89	827.85	828.77	829.63	830.44	831.21	831.92	832.58	833.19	833.75	834.26	834.72	835.13	835.49	835.80	836.06	836.26	836.42	836.53	836.58	836.59

C | ENGLISH | IOWA DOT | DESIGN TEAM Snyder and Assoc., Inc. | POLK COUNTY | PROJECT NUMBER BRFIMX-080-4(54)132--14-77 | SHEET NUMBER D.2

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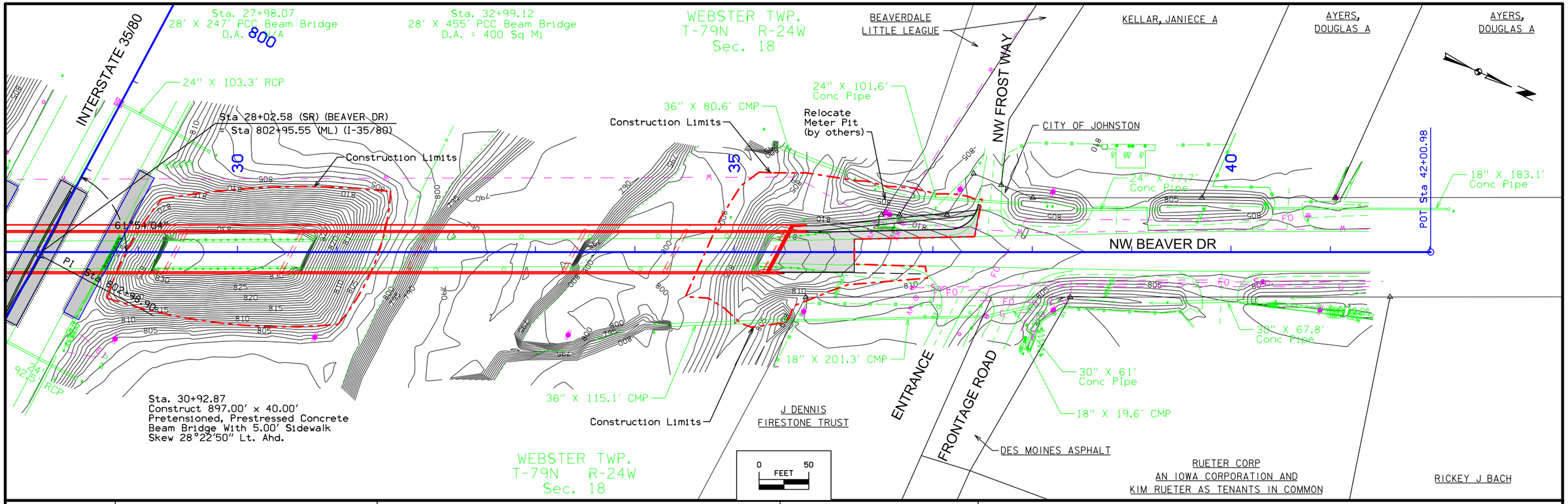

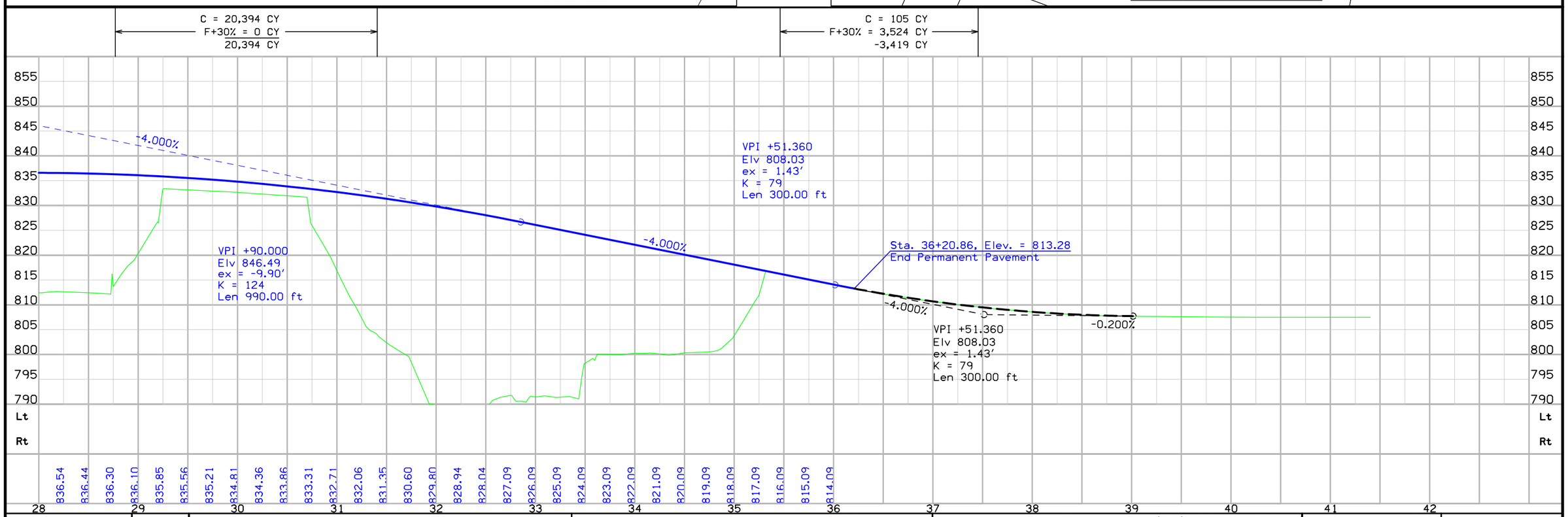

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Survey Information

General Information

Measurement units for this survey are US survey feet. This survey was performed for the design of a replacement bridge on Beaver Ave crossing over Beaver Creek and Interstate 35/80. This survey is a Full Field Survey.

Horizontal Control

The survey coordinate system for this project is Modified Iowa State Plane South Zone in U.S Survey Feet units. State plane coordinates were modified to remove grid to ground distortion by scaling about point CP1 by a factor of 1.000059. The coordinates of CP1 are N=602022.25 E=1590739.38. The datum is NAD83(1996-HARN).

Vertical Control

Vertical datum for this survey is relative to NAVD88. Geoid 09. US Survey feet.

The survey control is relative to IaRTN reference stations. Multiple Iowa RTN observations were completed on CP1. After review of these observations, the shots were averaged to establish the site BM elevation. A digital level loop was then completed through project control points and benchmarks and returned to CP1. The error was allowable and the error was distributed proportionately among the project monuments.

Alignment Information

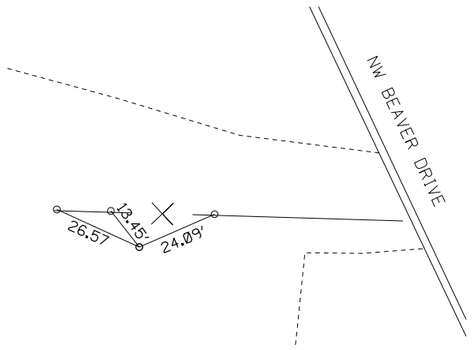
The horizontal alignment for this project is a retrace of As-Built Plans No. 35-3(3)77. Survey stationing was adjusted to begin at 10+00. Stationing was adjusted because the As-Built plans had stationing increasing from North to South. Readjusted stationing begins at the PC north of Lower Beaver As-Built plan stationing 31+77.41.

A retrace of As-Built Plans IM-35-3(72)81-13-77 for Interstate 80/35 (metric) and 35-3-(3)77 (English) was reviewed for this survey. It was determined with IDOT direction that the original English stationing would be held at NW Beaver Avenue equated to the 35-3-(3)77 plan at Sta. 802+98.9 and run ahead without equation to Sta. 880+00.39 and back without equation to 756+77.1.

VERTICAL CONTROL

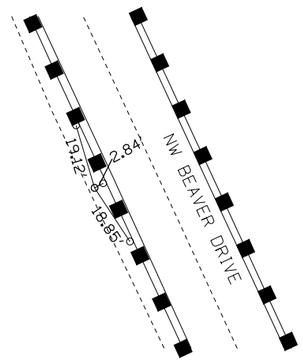
Point	North	East	Elevation	Station	Offset	Feature	Description
500	602480.033	1590613.677	811.269	36+65.99	-32.731	BM	BURY TAG BOLT HEAD ON WATROUS HYDRANT 125' NORTH OF NW BEAVER DRIVE BRIDGE WINGWALL
501	602363.981	1590684.582	819.702	35+30.96	-16.529	BM	LEAD IHC PLUG IN NORTHWEST WINGWALL OF BEAVER DRIVE BRIDGE
502	601956.869	1590909.303	834.484	30+67.27	18.467	BM	LEAD IHC PLUG IN SOUTHEAST WINGWALL OF BEAVER DRIVE BRIDGE
503	601815.861	1590938.081	836.335	29+27.07	-14.022	BM	LEAD IHC PLUG IN NORTHWEST WINGWALL OF INTERSTATE 35/80 & BEAVER DRIVE BRIDGE
504	601595.144	1591076.564	836.255	26+68.75	20.093	BM	LEAD IHC PLUG IN SOUTHEAST WINGWALL OF INTERSTATE 35/80 & BEAVER DRIVE BRIDGE
505	600743.975	1591469.424	811.092	17+31.54	-29.786	BM	BURY TAG BOLT HEAD ON WATROUS HYDRANT 40' SOUTH OF BIKE TUNNEL HEADWALL ON EAST SIDE OF BEAVER DRIVE

STA. 31+97.40, 108.87' Lt.
CP 1, SET 1" STEEL REBAR
N=602022.242 E=1590739.374



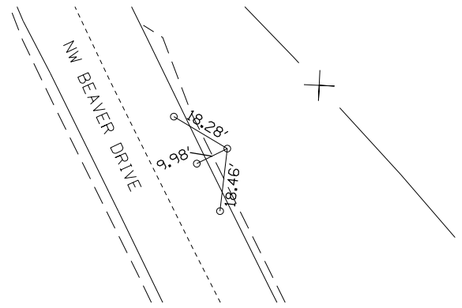
ALL TIES SET MAG NAIL
WITH ORANGE SURVEY
MARKERS TOP OF FENCE POST

STA. 30+05.06, 16.18' Lt.
CP 2, SET REBAR
N=601885.890 E=1590903.672



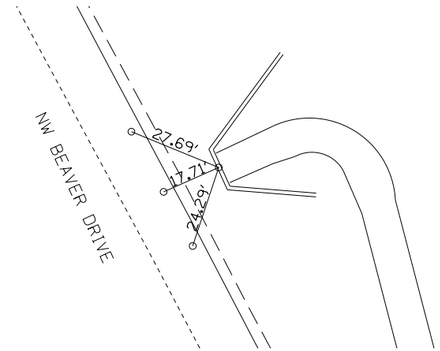
ALL TIES SET MAG NAIL
WITH ORANGE SURVEY
MARKERS TOP OF FENCE POST

STA. 25+61.64, 26.53' Rt.
CP 3, SET REBAR
N=601501.687 E=1591127.595



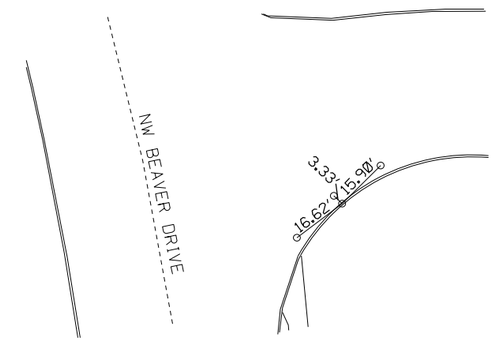
ALL TIES SET MAG NAIL
WITH ORANGE SURVEY
MARKERS TOP OF FENCE POST

STA. 17+73.48, 31.44' Rt.
CP 4, SET CUT "X"
N=600809.881 E=1591503.534



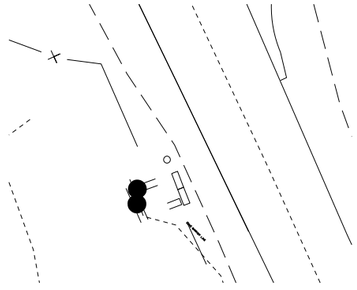
ALL TIES SET MAG NAIL
WITH ORANGE SURVEY
MARKERS TOP OF FENCE POST

STA. 11+74.34, 54.93' Rt.
CP 5, SET CUT "X"
N=600255.607 E=1591760.472



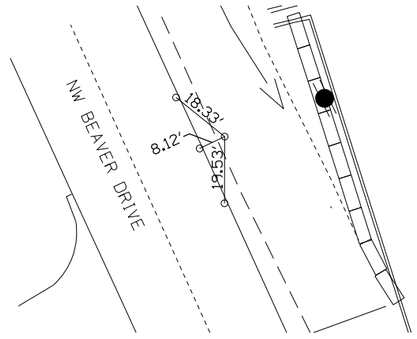
ALL TIES SET MAG NAIL
WITH ORANGE SURVEY
MARKERS TOP OF FENCE POST

STA. 36+60.73, 26.19' Lt.
CP 6, SET CUT "X"
N=602477.970 E=1590621.813

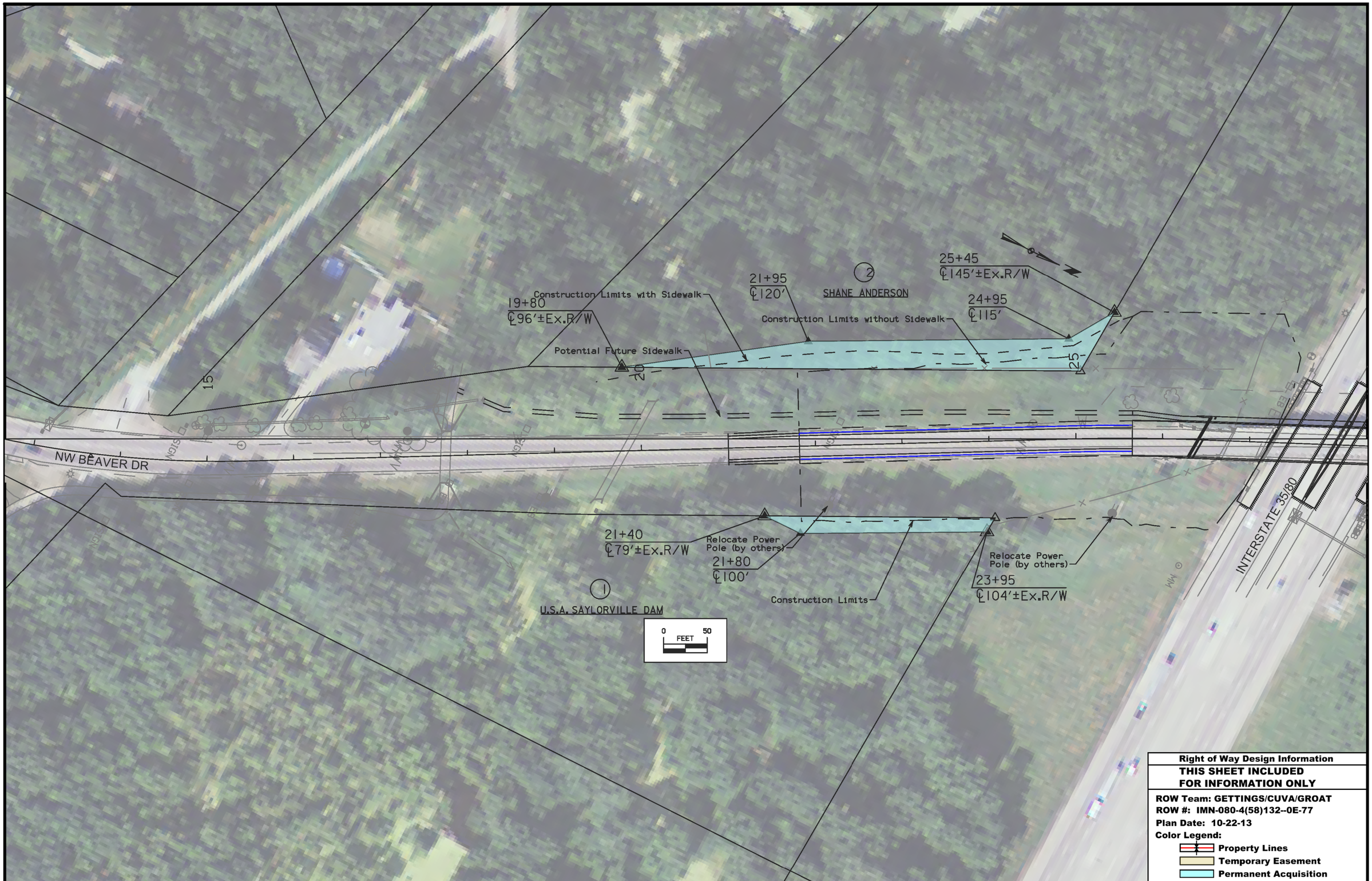


ALL TIES SET MAG NAIL
WITH ORANGE SURVEY
MARKERS TOP OF FENCE POST

STA. 40+91.59, 26.82' Rt.
CP 7, SET REBAR
N=602891.827 E=1590490.787



ALL TIES SET MAG NAIL
WITH ORANGE SURVEY
MARKERS TOP OF FENCE POST



Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: GETTINGS/CUVA/GROAT
ROW #: IMN-080-4(58)132--0E-77
Plan Date: 10-22-13
Color Legend:
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER H.1	

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INTERSTATE 35/80

800

805

30

35

40

Construction Limits

Construction Limits

Construction Limits

37+33
℄67'±Ex.R/W

36+75
℄78'±Ex.R/W

Relocate
Meter Pit
(by others)

4
BEAVERDALE
LITTLE LEAGUE

NW FROST WAY

NW BEAVER DR

POT Sta 42+00.98

J. DENNIS FIRESTONE TRUST
CAROL FIRESTONE TRUST

ENTRANCE

FRONTAGE ROAD

0 FEET 50

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: GETTINGS/CUVA/GROAT
ROW #: IMN-080-4(58)132--0E-77
Plan Date: 10-22-13
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER H.2

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PARCEL CHECK LIST

10/24/13 16:42 HSL PRINT FOR S J GROAT PAGES: 1 - 2 GEN: 1

PARCEL CHECK BY PROJ UPDATED 10/24/13 16:41 PAGE: 1
AND: 2

R2360003 PARCEL CHECK LIST BY PROJECT NUMBER
COUNTY : POLK PROJECT NO. :IMN-080-4(58)132--0E-77 PIN: 12-77-080030-00
CONSTRUCTION NO.:BRFIMX-080-4(54)132--14-77 ASSIGNED TO: NLC
DESCRIPTION : NW Beaver Dr. Over I-35/80 and Beaver Creek 1 Mile E. Of Merle Hay Rd.

PARCEL	KEY	OWNER	TYPE	R/W W.D OR EASE.	BORROW W.D OR EASE.	HOUSE OR
0001	26872	SAYLORVILLE DAM	FEE STATE OF IOWA			
		U.S.A.	FEE	4,331.00 WD SQFT		
0002	26873	SHANE ANDERSON	FEE STATE OF IOWA			
				15,080.47 WD SQFT		
0003	26874	PARCEL R. DELETED				
		CAROL K. FIRESTONE TRUST	FEE			
		J. DENNIS FIRESTONE TRUST	FEE			
0004	26875	BEAVERDALE LITTLE LEAGUE	FEE STATE OF IOWA			
				2,296.43 WD SQFT		

STATE OF IOWA
21,707.90 WARRANTY DEED SQFT

3 TOTAL PARCELS ON PROJECT

108-23A
08-01-08

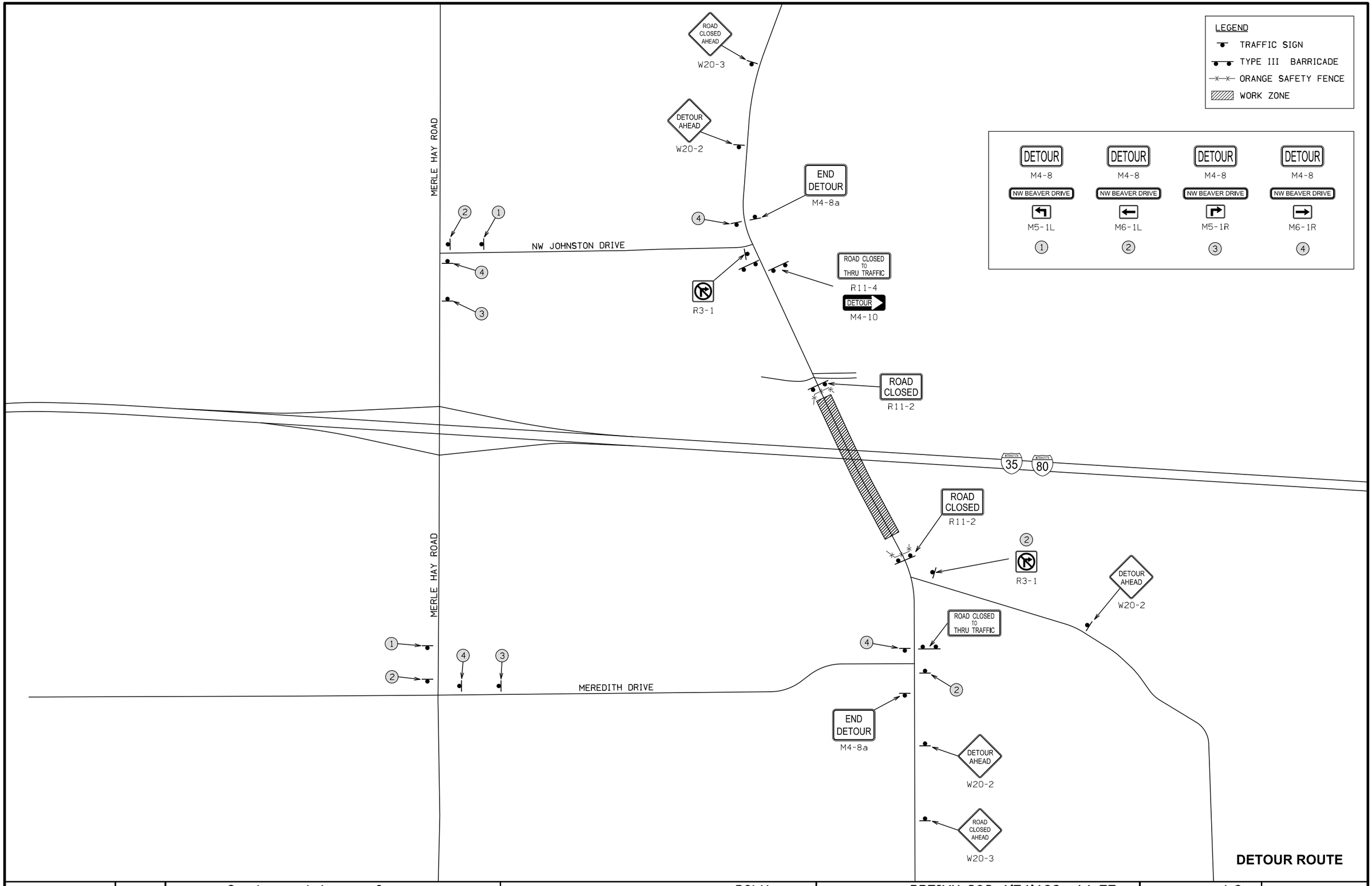
TRAFFIC CONTROL PLAN

1. Beaver Drive will be closed to traffic during construction. Traffic will follow the marked detour shown in the J Sheets.
2. Limited closures will be necessary on I-35/80 for removal of existing bridge and for setting of beams. A detour route will be established through coordination with the DOT and the Cities of Johnston, Urbandale, Des Moines, and Polk County. Closures will be short-term and restricted to off-peak travel hours (12:00 AM to 6:00 AM). Notify the Engineer at least 72 hours in advance of the proposed closure; the Engineer has final approval of proposed time and duration of closures.
3. All lanes of I-35/80 will remain open to traffic at all other times. Shoulder closures will be required. Refer to special details in the J sheets for additional information.

108-26A
08-01-08

STAGING NOTES

1. Erect detour signage and interstate barrier rail prior to beginning construction.
2. Construct bridge.
3. Remove detour signage and traffic control upon completion of bridge.



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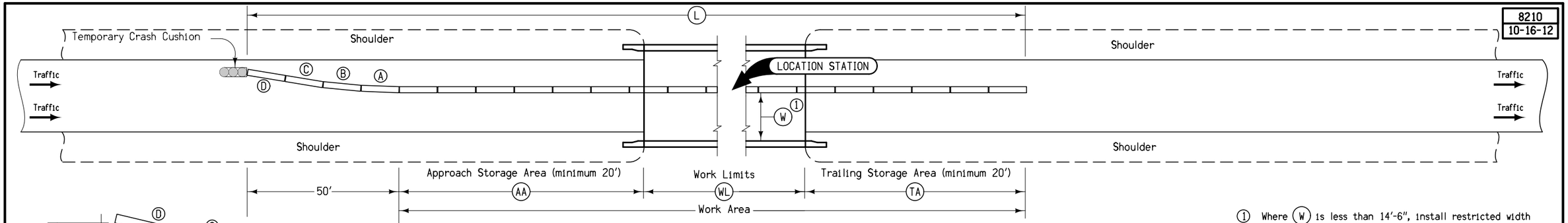
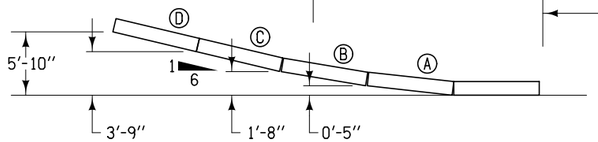
8210
10-16-12





BARRIER OFFSETS FOR FLARE SECTIONS

Station	Side	AA	WL	TA	L	Anchored	W ①	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
28+00 EBL	R	25	162.5	25.0	262.5		39.5 (Min.)	②
28+00 EBL	L	25	262.5	25.0	362.5		39.5 (Min.)	②
28+00 WBL	R	25	262.5	25.0	362.5		39.5 (Min.)	②
28+00 WBL	L	25	162.5	25.0	262.5		39.5 (Min.)	②

① Where (W) is less than 14'-6", install restricted width signing as per Standard Road Plan TC-81.

② Place 2' from shoulder line. Refer to staging notes.

TEMPORARY CONCRETE BARRIER LAYOUT for One-Way Traffic

ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER J.3

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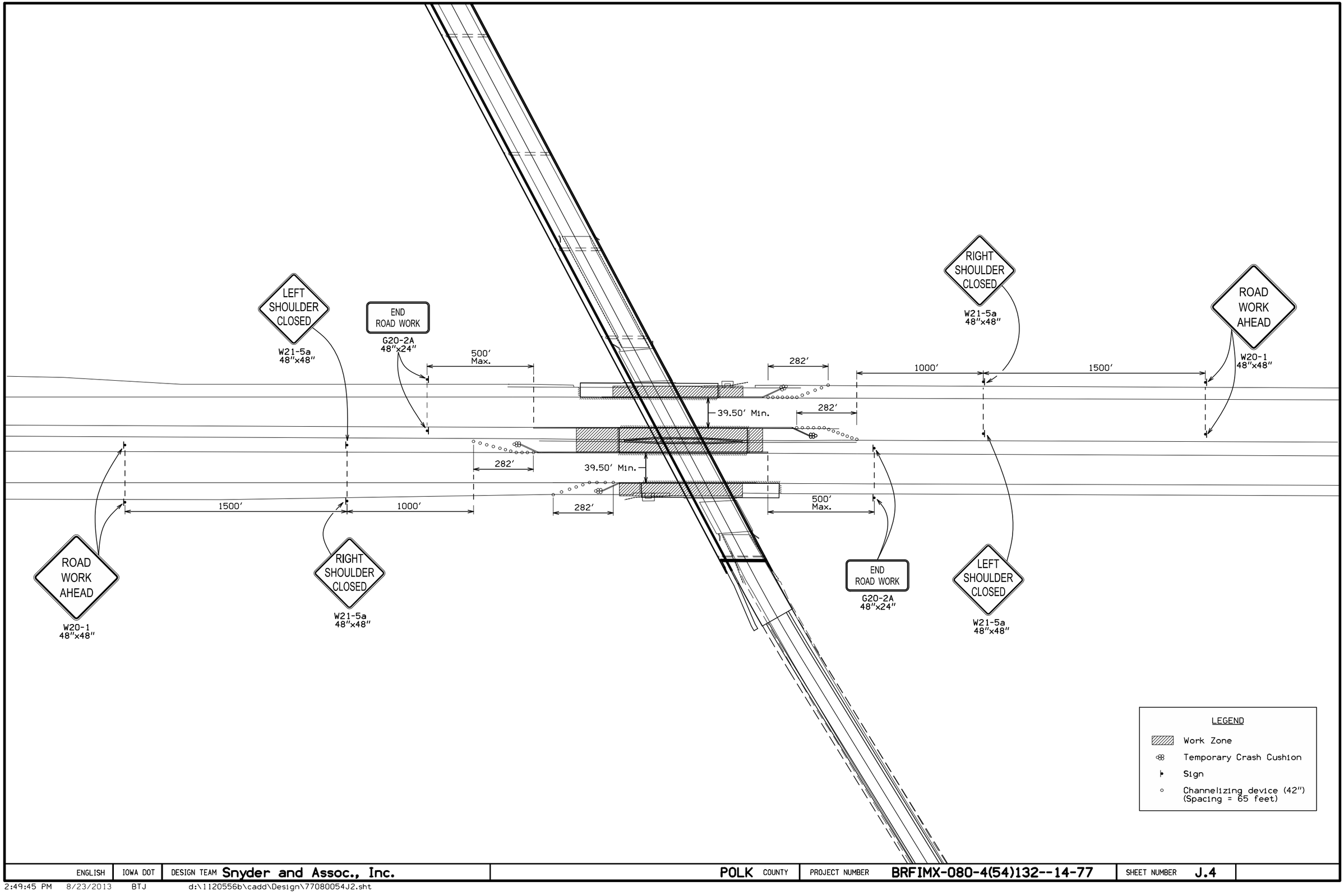

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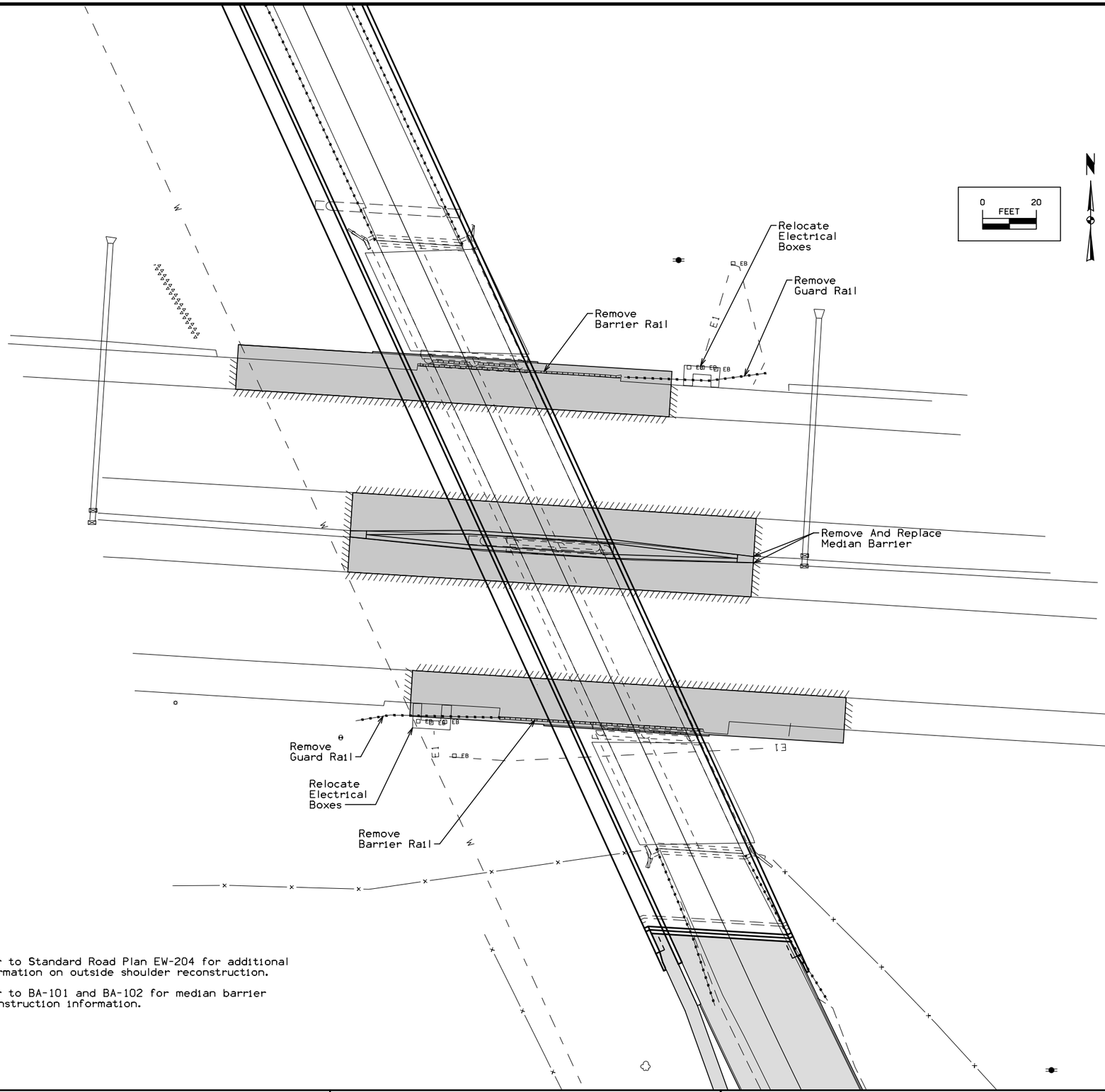

Notes:

1. Refer to Standard Road Plan EW-204 for additional information on outside shoulder reconstruction.
2. Refer to BA-101 and BA-102 for median barrier reconstruction information.

ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER U.1

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LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subgrade Treatment
- Granular Shoulder
- Pavement
- Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- TS — Topsoil (Class 10)
- TS A — Topsoil (Type A Disposal)
- TS B — Topsoil (Type B Disposal)
- TS C — Topsoil (Type C Disposal)
- CL 10 — Class 10 Materials
- SEL LO — Select Loams And Clay-Loams
- SEL SA — Select Sand
- UNS A — Unsuitable Type A Disposal
- UNS B — Unsuitable Type B Disposal
- UNS C — Unsuitable Type C Disposal
- SHALE — Shale
- WASTE — Waste
- B&W LS — Broken and Weathered Rock
- ROCK — Solid Rock
- BLDRS — Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing ROW — Existing Right-of-Way Limit

Proposed ROW — Proposed Right-of-Way Limit

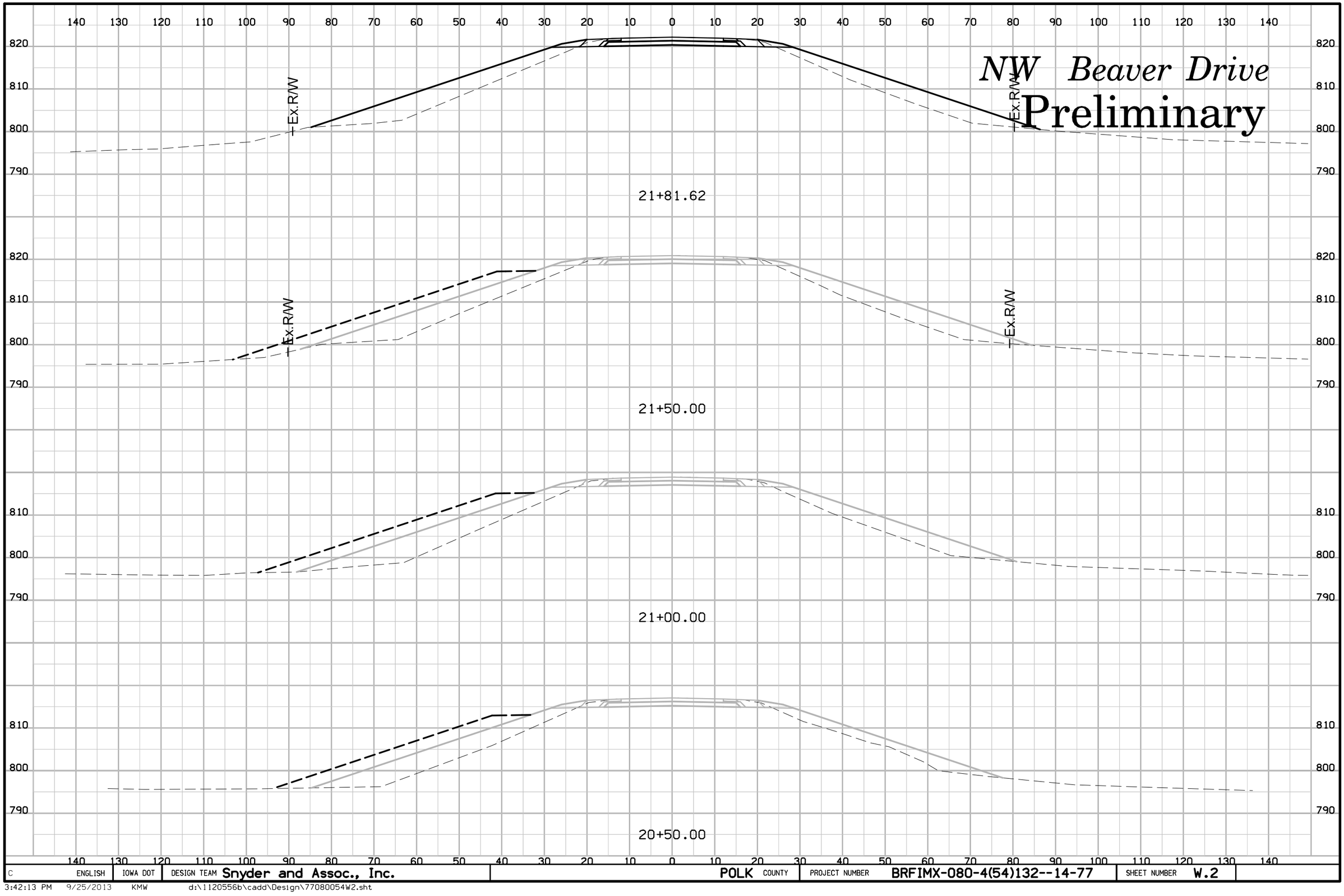
Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

NW Beaver Drive

Preliminary



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NW Beaver Drive

Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

820
810
800
790

Ex.R/W

Ex.R/W

23+00.00

820
810
800
790

Ex.R/W

Ex.R/W

22+50.00

820
810
800
790

Ex.R/W

Ex.R/W

22+00.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER W.3	

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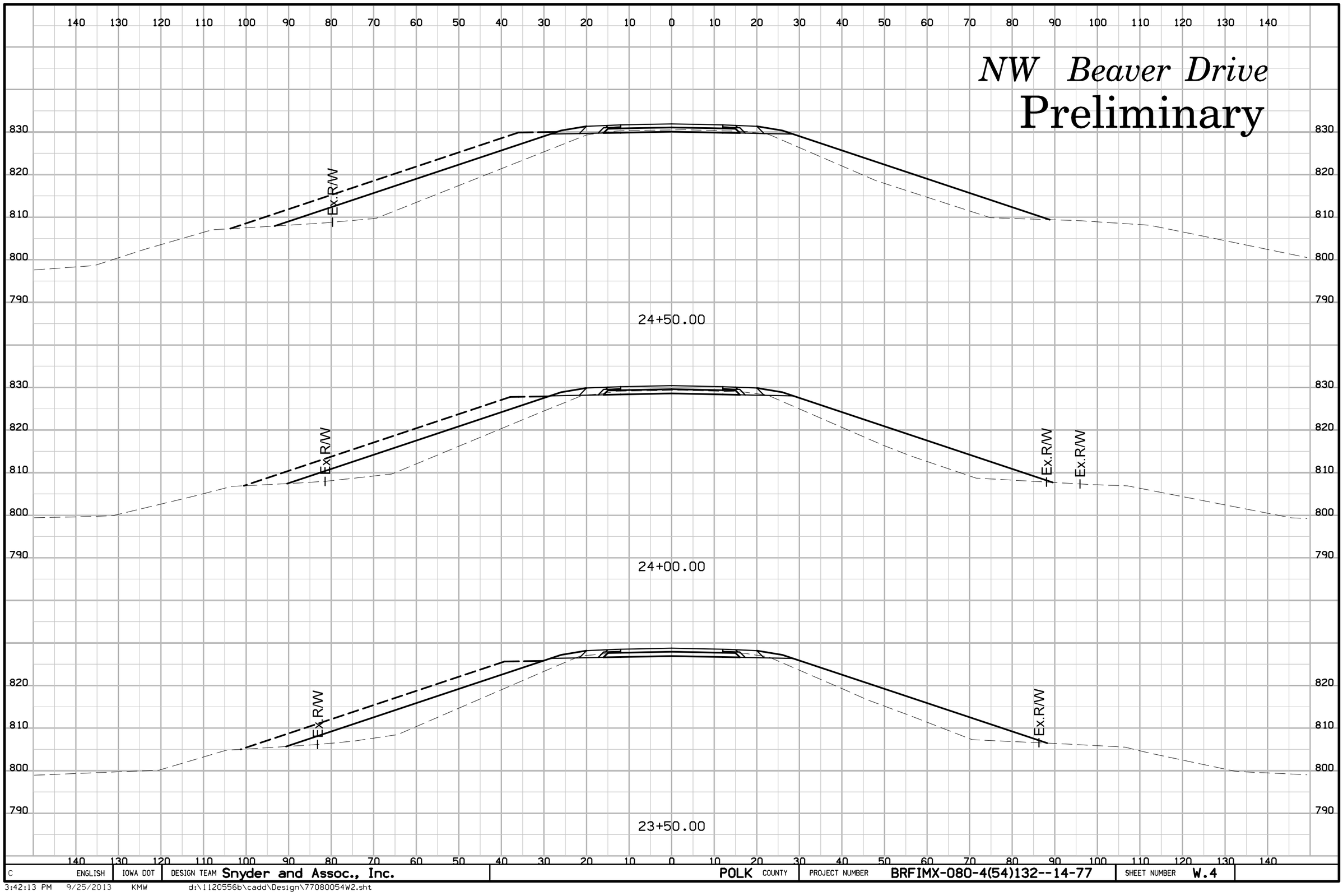
NW Beaver Drive

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER W.4	

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NW Beaver Drive

Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

830 820 810 800 790

25+64.88

25+50.00

Ex.R/W

25+00.00

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER W.5

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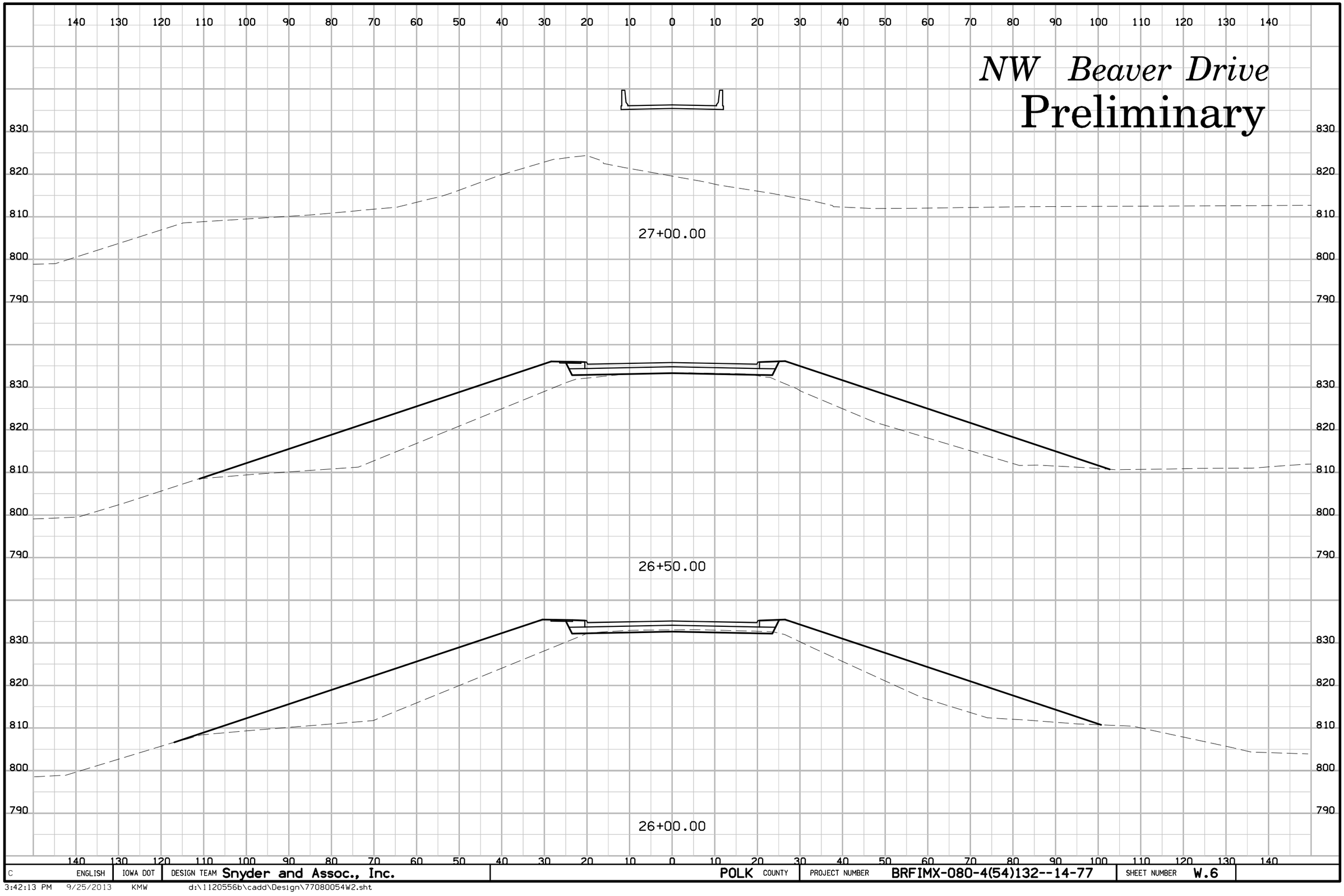
NW Beaver Drive

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Assoc., Inc.	POLK COUNTY	PROJECT NUMBER BRFIMX-080-4(54)132--14-77	SHEET NUMBER W.6

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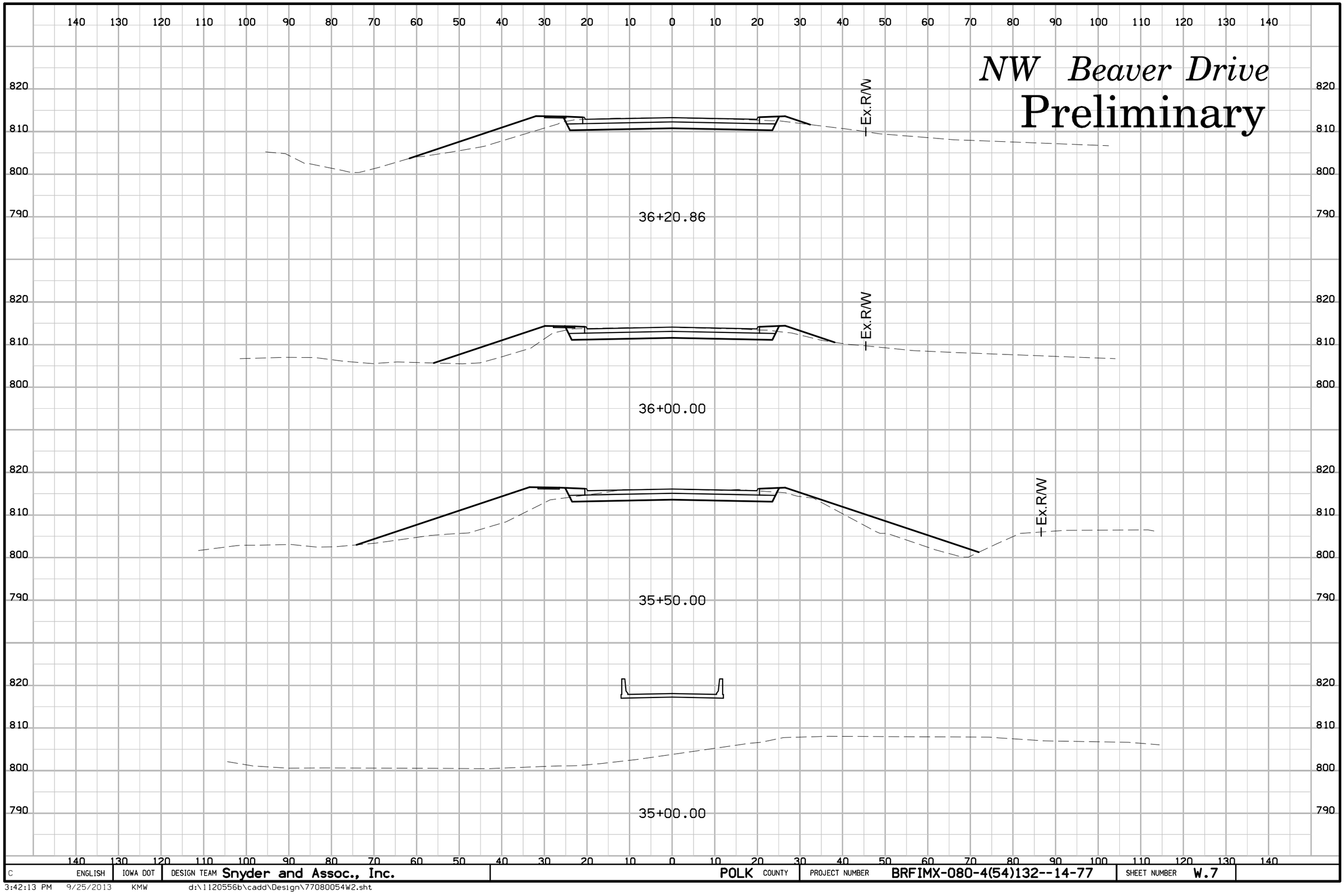
NW Beaver Drive

Preliminary



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NW Beaver Drive

Preliminary

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

820 810 800

Ex.R/W Ex.R/W Ex.R/W

37+41.86

820 810 800

Ex.R/W Ex.R/W Ex.R/W

37+00.00

820 810 800

Ex.R/W Ex.R/W Ex.R/W

36+50.00

790

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

C ENGLISH	IOWA DOT	DESIGN TEAM **Snyder and Assoc., Inc.**	**POLK** COUNTY	PROJECT NUMBER	**BRFIMX-080-4(54)132--14-77**	SHEET NUMBER **W.8**

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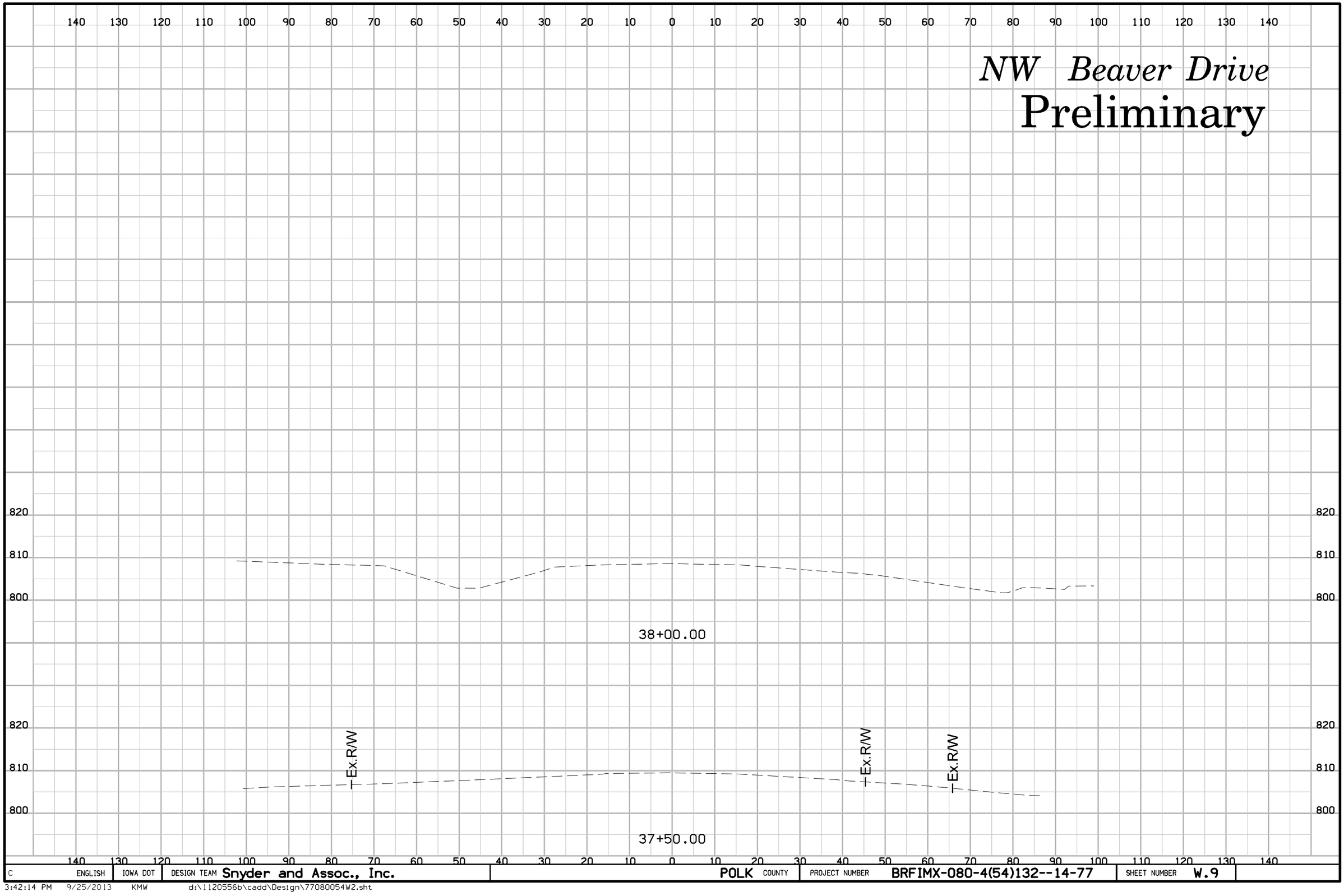
NW Beaver Drive

Preliminary



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